

Gamma Walkover Survey And Associated Sampling Report

For

RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS, INC.
3875 RIVER ROAD
TONAWANDA, NEW YORK 14150
BCP SITE No. C915353

Prepared for:



By:



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Amherst, NY, 14228

September 17, 2024
Revised: April 2, 2025

MJW Project No. 24.1007.3

1.0 Introduction

Following the New York State Department of Environmental Conservation (NYSDEC) approval of the Radiological Work Plan (RWP) on April 30, 2024 (Attachment A) MJW was contracted to perform additional investigation activities in accordance with the approved RWP at the Riverview Innovation and Technology Campus, henceforth referred to as the Site. The Brownfield Cleanup Program (BCP) Site is located at 3875 River Road, Tonawanda, New York 14150 and was a storage location and railroad junction for the former Tonawanda Coke Company during the majority of the twentieth century. MJW mobilized to the site in June 2024 and conducted a GPS-enabled Gamma Walkover Survey, followed by associated sampling events. In accordance with the April 30, 2024, approval letter, NYSDEC was notified 5-days in advance of the start of field activities and attended portions of the sampling effort.

The Site consists largely of various types of fill with little to no native soil being left within two (2) feet of the surface. In addition to the fill there was a variety of slag documented on the Site. The type of fill and slag was not uniform or patterned as determined from visual observations in-field. Much of the Site has become overgrown and vegetation dominates large areas including the former coal and coke yards.

The presence of documented slag was observed to have been used on-site as base and ballast materials predominately under the former railroad tracks on the BCP site.

Under the directive of Inventum Engineering and in compliance with the NYSDEC approved RWP, MJW was instructed to provide a GPS-based gamma scan “walkover” of the Site to assess surface and near-surface radiological conditions. MJW performed these activities over two days, on June 18 and June 19, 2024. Immediately following the tabulation of walkover results, sampling activities were conducted on June 26, 2024.

This laboratory analysis was performed in addition to previous site investigation work, documented in the RWP.

2.0 Methodology

Instrumentation utilized for the survey consisted of a Bluetooth enabled Ludlum 2221r and a Ludlum 44-10 that was coupled with a sub-meter GPS unit to allow for the collection of data points. MJW mounted the equipment to a specially modified cart to enable consistent geometry of the detector. The detector was mounted at exactly ten (10) centimeters from the ground with the GPS unit directly overhead.

A transect plan was created to provide guidance in-field for optimal survey coverage. Transects were spaced five (5) meters apart to provide in-depth data supporting the preliminary walkover which contained 12 (twelve) meter transects. The Site covers approximately 86.5 acres and there are active remediation and demolition activities taking place. The GPS walkover covered only the western portion of the Site, beginning west of the Thaw Shed and moving North-South. This is in comparison to the preliminary walkover which traversed The Site in a West-East direction and covered the entire site. The activities taking place along with the inability to access sections of the site due to pits, overgrown vegetation, fencing, flooding, and other factors prevented the exact following of transects. Transects were walked wherever possible, but in-field adjustments were made as necessary due to obstructions, surface accumulations of water, and piles of concrete.

Extreme heat warnings were issued in western New York on the days this survey was performed, so to protect the health and safety of MJW radiological control technicians, other field operatives, and meet project requirements, transects were skipped at regular intervals if no counts above background had been documented on the prior transect. In areas where elevated readings were found or had the potential to be found, these skipped transects were scanned to fully delineate the elevated area. Extended surveying of previously documented and newly discovered potentially elevated measurement locations (EMLs) took place, irrespective of other conditions.

Background gamma count data was collected at the nearby Erie County Water Authority located at 3750 River Road, Tonawanda, NY 14150. Data was collected over impervious and pervious surfaces. The background data had been previously collected for the preliminary walkover and was utilized for consistency and standardization of data.

Twenty (20) biased and twelve (12) unbiased soil samples (Figure 3) were collected utilizing the data from the gamma walkover. EMLs were identified according to the outer bounds of elevated data points, and with respect to each area size, a proportion of biased and unbiased samples were assigned. Two (2) biased samples were reserved for areas that had been previously inaccessible for sampling by flooding. The flooded areas were still partially inaccessible for gamma surveying, and an excavator was used to pull surficial and sub-surface material out for sampling activities. Two (2) additional unbiased samples were collected as MJW field operatives traversed the site and were totally random.

Samples were collected from test pits. Prior to ground-breaking, the area would be scanned with a 1-minute scaler count using a Ludlum 44-10 paired with a Ludlum 2241-2. Following the scan, the test pit would be excavated from between 1-4 feet, depending on subsurface conditions. Following the removal of soil and subsurface materials, a 500-gram sample was pulled and placed within a sample jar. The sample jar was then scanned by placing the Ludlum 44-10 on top of the jar, no cover, and a scaler 1-minute count was recorded. All of this information is recorded in Attachment 1, Field Sample Log Sheets. The sheets record the sample ID (pre-determined), time at which the sample was placed in the jar, the relevant sample information for consistency with Attachment 5 (the lab Chain-of-Custody), the gross surface reading (1-min on ground scaler count) and then the notes section provides a more in-depth description of the sample material and the on-jar scaler count.

All 37 collected samples were analyzed with gamma-spectroscopy (DOE HASL 300, 4.5.2.3/Ga-01-R) 10% of samples were collected with sufficient volume to analyze field duplicates. Three (3) field duplicates were collected; three (3) lab duplicates were also analyzed. Fifteen (15) samples were analyzed by alpha-spectroscopy for isotopic Uranium and Thorium (DOE EML HASL-300, U-02-RC Modified, DOE EML HASL-300, Th-01-RC Modified). This additional analysis provides confirmatory results for the broader gamma-spectroscopy performed on all samples. All samples were sent to GEL Labs facilities in Charleston, North Carolina, under a valid Chain of Custody (COC).

3.0 Data Analysis

3.1 Gamma Walkover

Background data was statistically analyzed using Visual Sample Plan (VSP). 614 data points were analyzed with a mean of 8,392.9 counts per minute (cpm).

A total of 20,164 data points were collected at the Site over the two days. Statistical analysis was performed using QGIS. There were no outliers in the upper and lower 5% of the data. Compared to the 2023 Walkover, there were fewer data points (numerically and percentage-wise) that exceeded the area background value, and 1.5x, 2x and 2.5x the area background value (Table 1).

Table 1.

Comparison of 2023 vs 2024 Gamma Walkover Data (8392 cpm Background)							
	Total Data Points	# > BKG	# > 1.5x BKG	# > 2x BKG	% > BKG	% > 1.5x BKG	% > 2x BKG
2024 Walkover	20164	4293	512	158	21.3%	2.5%	0.8%
2023 Walkover	28884	8679	2048	809	30.0%	7.1%	2.8%

3.2 Samples:

Thirty-seven (37) collected samples were sent to GEL Labs for analysis. One (1) target sample and one (1) QA/QC sample were recounted due to peak shift. There are no other recounts. In total, 1,895 sample results were reported, of which 325 did not have an attached U (not detected above MDA) or UI (Considered a false positive) qualifier. All of the collected samples returned at least three (3) non-qualified values, with the maximum being fifteen (15); reported for samples S3.B3 and S3.U1, respectively.

4.0 Results

4.1 Gamma Walkover Results

The data as depicted in Figure 2 along the < Area Background, Area Background to 1.5x Area Background, 1.5-2x Area Background and >2.5 times Area Background. >2x and >2.5 times Area Background indicates the clear presence of radiological impacts in the surface and near-surface soils. There was no visual identification of discrepancies in soil status in elevated areas.

The areas where counts exceeded twice background are consistent with previously identified EMLs: in the middle of the Site (east-west) and the upper northwest and southwest corners. Other radiological impacts were not identified.

4.2 Sample Results

Table 2 below summarizes relevant information from the sample results. The average concentrations for Ra-226 in all samples is below the 5.0 pCi/g limit identified within DMM-5 for TENORM (Background-comparable) material. Twelve (12) samples exceeded or have the potential to exceed the 5.0 pCi/g DMM-5 limit for TENORM Background-Comparable; five (5) from Area 1, four (4) from Area 2, two (2) from Area 3, and one (1) from Area 4. This is consistent with the EML sizes, with Area 1 being the largest and Area 4 being the smallest. The maximum reported Ra-226 concentration is 12.6 pCi/g, no samples met the criteria within DMM-5 for TENORM Waste (greater than 15.0 pCi/g of Ra-226).

Table 2.

Nuclide Information Table										
↓Sample ID ¹							GS ³		AS ³	
Sample Concentration (pCi/g) →	[Ac-228]	UNC ²	[K-40]	UNC	[Ra-226]	UNC	[U-238]	UNC	[U-238]	UNC
S2.B1	0.465	0.298	U	U	3.51	0.33	3.26	2.97	N/A	N/A
S2.B2	U	U	2.62	1.36	4.93	0.42	U	U	N/A	N/A
S2.B3	U	U	4.74	1.36	6.32	0.408	U	U	N/A	N/A
S2.B4	0	0.338	7.27	1.47	3.42	0.341	U	U	N/A	N/A
S2.B5	U	U	11	1.7	3.79	0.373	U	U	N/A	N/A
S2.B6	U	U	9.61	1.25	0.326	0.14	U	U	U	U
S2.U1	U	U	1.61	0.708	0.875	0.193	U	U	N/A	N/A
S2.U2	0.246	0.241	2.04	1.02	0.32	0.11	U	U	N/A	N/A
S2.U3	1.16	0.34	4.03	1.16	11	0.525	U	U	N/A	N/A
S2.U4	1.29	0.519	1.86	1.94	10.2	0.57	8.11	5.51	5.39	1.05
S2.U2.D	0.335	0.222	5.09	0.995	0.51	0.17	1.56	1.53	U	U
S3.B1	0.663	0.466	17.1	2.17	1.21	0.234	U	U	0.426	0.366
S3.B2	U	U	4.64	1.08	9.17	0.472	7.48	5.04	7.84	1.38
S3.B3	U	U	U	U	0.529	0.155	U	U	N/A	N/A
S3.B4	0.304	0.314	2.65	0.958	0.598	0.193	U	U	N/A	N/A
S3.U1	U	U	4.68	1.57	10.7	0.474	8.53	2.04	6.33	1.14
S3.U2	U	U	1.66	1.34	2.23	0.284	U	U	N/A	N/A
S3.U3	U	U	1.23	0.541	0.552	0.146	1.97	1.28	N/A	N/A
S3.B4.D	0.214	0.16	1.38	0.984	0.348	0.137	U	U	0.351	0.302
S4.B1	1.19	0.378	8.43	1.48	1.56	0.297	U	U	U	U
S4.B2	0.887	0.342	2.73	0.981	5.77	0.377	U	U	N/A	N/A
S4.U1	0.982	0.379	7.22	1.5	1.24	0.258	U	U	0.581	0.449
S1.B1	0.908	0.463	21.3	2.4	1.12	0.302	U	U	N/A	N/A
S1.B2	1.73	0.555	4.42	1.64	10.6	0.62	10.4	8.19	N/A	N/A
S1.B3	0.94	0.409	18.2	2.3	1.56	0.228	U	U	N/A	N/A
S1.B4	U	U	8.56	2.03	12.6	0.595	5.74	5.9	N/A	N/A
S1.B5	0	0.447	6.58	1.43	8.49	0.516	U	U	5.46	1.02
S1.B6	U	U	17.8	2.25	1.94	0.279	U	U	N/A	N/A
S1.U1	0	0.294	20.4	2.09	0.667	0.275	U	U	N/A	N/A
S1.U2	U	U	13.8	1.94	4.73	0.364	4.74	3.37	3.18	0.835
S1.U3	0	0.264	13.4	1.44	1.94	0.219	3.59	3.72	0.803	0.42
S1.U4	1.32	0.425	10.9	1.78	10.5	0.529	8.21	4.32	N/A	N/A
S1.B1.D	1.44	0.331	18.9	1.85	1.25	0.197	U	U	U	U
F1	U	U	6.6	1.6	0.762	0.163	U	U	0.457	0.346
F2	0.343	0.182	2.16	0.732	0.637	0.189	U	U	N/A	N/A
Control 1	U	U	2.92	0.904	0.41	0.177	U	U	N/A	N/A
Control 2	U	U	2.64	0.957	0.503	0.17	U	U	0.571	0.359
S2.B1(674299001DUP)	U	U	1.94	1.07	3.7	0.35	U	U	N/A	N/A
S4.B2(674299021DUP)	0.873	0.412	3.68	1.13	6.1	0.406	4.2	3.91	N/A	N/A
S2.U2.D(674299011DUP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.443	0.366
S2.B6(674299006DUP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	U	U
Average Concentrations	0.695	0.368	7.454	1.513	3.759	0.343	5.649	4.414	2.653	0.765
1. Sample ID - S(Sample Area Number)#.U/B (Unbiased or Biased)#.D(Field Duplicate)										
2. UNC - Counting Uncertainty										
3. GS - γ Spec, AS - α Spec										
4. U - Unidentified										
5. N/A - Not Analyzed										

4.3 Sample and Gamma Count Association

All samples that returned values with the potential for excess of 5.0 pCi/g of Ra-226 were associated with locations producing elevated counts. One sample (S4.B2) was associated with GPS counts that did not exceed 2x background levels but that exceeded 1.5x background levels.

Seven of the “elevated” samples were directly (within 5 meters) associated with counts in excess of 2x background; six (6) of which had the highest Ra-226 concentration of any other onsite samples.

Sampling results, when associated with Gamma Count readings, indicate that 2x Background is a confident indication of elevated activity. Sampling results also indicated that NORM isotopes (K-40) have high variability across the site and include the potential for false positive identification of TENORM with field screening.

Historical site conditions and previous radiological investigations support the results of these surveys and sampling events; there exist small pockets of potential TENORM and radiologically impacted material on western areas of the site. These pockets exist due to the historical usage of slag on site and can be clearly delineated utilizing field instrumentation.

5.0 Material Disposition and Future Use

Radiologically unimpacted material has no restrictions on future use. Four (4) locations are associated with elevated activity:

- Northwest Corner – Parking Lot AOI 1 – Last property purchased from Wickwire Spencer Steel Company. An area of approximately 20 by 35 meters with an estimated volume of 960 cubic meters (estimated 2,300 tons). See Table 2 samples S1.B2, S1.B4, S1.B5 and S1U4.
- Coke Yard AOI 2 south of former coke wharf, northeast of former shower building, estimated volume: 310 cubic meters (estimated 740 tons). See Table 2 samples S3.B2 and S3.U1.
- Coke Yard AOI 3 south of former coke wharf, south of former coal breaker building, estimated volume: 420 cubic meters (estimated 980 tons). See Table 2 samples S2.B3 and S2.U4.
- Water Treatment AOI 4 - North side of stormwater retention basin, estimated volume: 160 cubic meters (estimated 380 tons). See Table 2 sample S4.B2 (DUP).

The estimated volume for these four areas with elevated activities assumed an excavation depth below ground surface of approximately 54-inches which is consistent with native clay soil layer across the site. This material with elevated concentration that must be disturbed will be managed under the Remedial Action Work Plan and an approved TENORM Management Plan.

EMLs are not generally determined by nuclide concentrations alone. They also must include the presence of gamma counts in excess of 1.5 times to 2 times area background. When combined with soil sample results above the DEC (DMM-5) concentration of 5.0 pCi/g above background for Ra-226 is proposed as a determination of an EML for purposes of the TENORM Management Plan.

Management of material in excess of the approved EMLs that must be disturbed to implement the Remedial Action Work Plan (RAWP) shall be governed by a DEC-approved TENORM Management Plan. For material identified as TENORM Fill (5.0-15 pCi/g) above area background to remain on-site, a variance application will be submitted in conjunction with the TENORM Management Plan. Overall disposition and usage of material is subject to NYSDEC approval.

6.0 List of Attachments

- Attachment 1. Field Sample Log Sheets
- Attachment 2. Instrument Calibration Sheets
- Attachment 3. MJWRCP-40 Performing a GPS Enhanced Gamma Radiation Survey, Rev. 4
- Attachment 4. MJWRCP-66 Soil Sampling Protocols, Rev 0
- Attachment 5. GEL Chain of Custody Form
- Attachment 6. GEL Lab Report SDG674299

Figures

Figure 1:

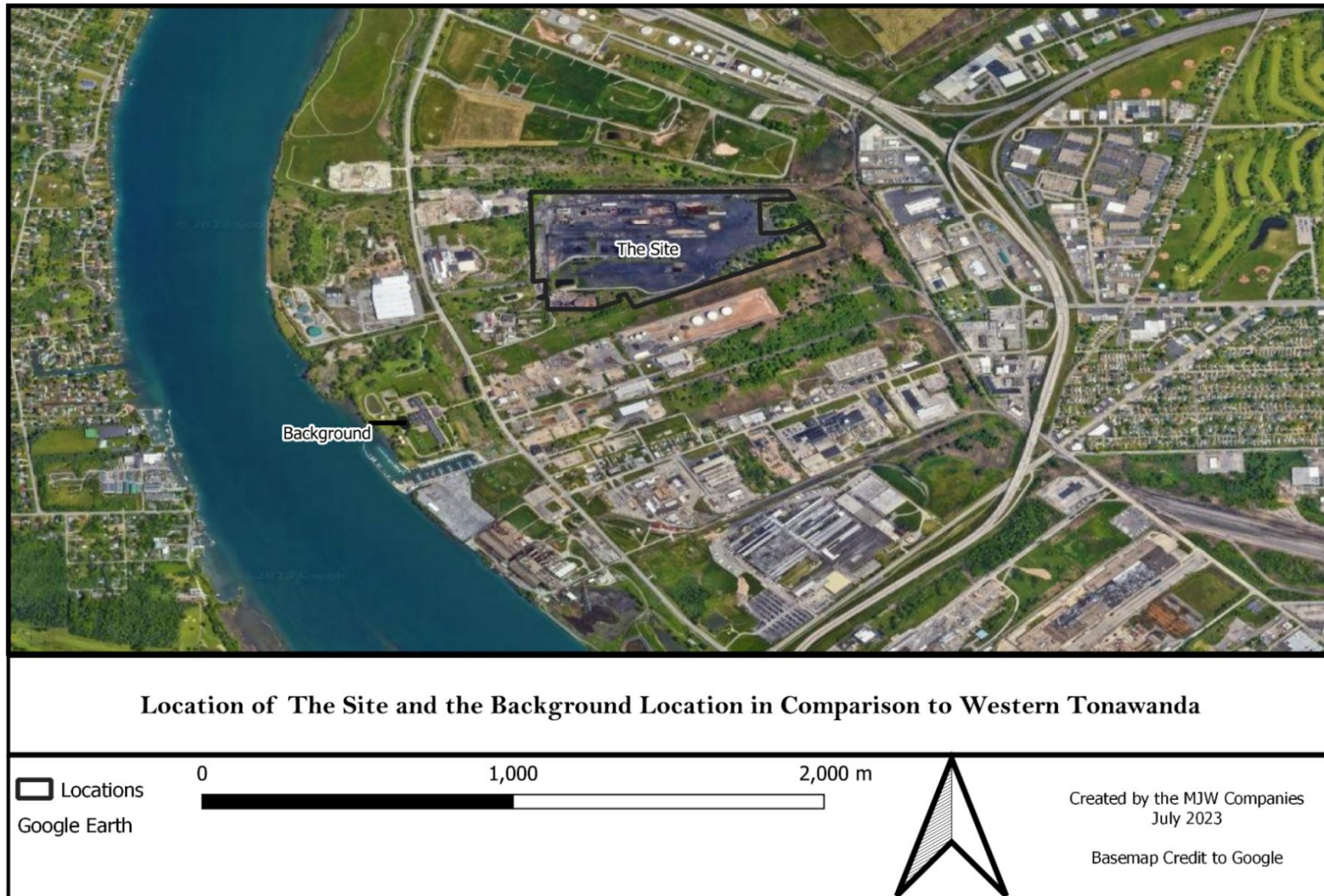
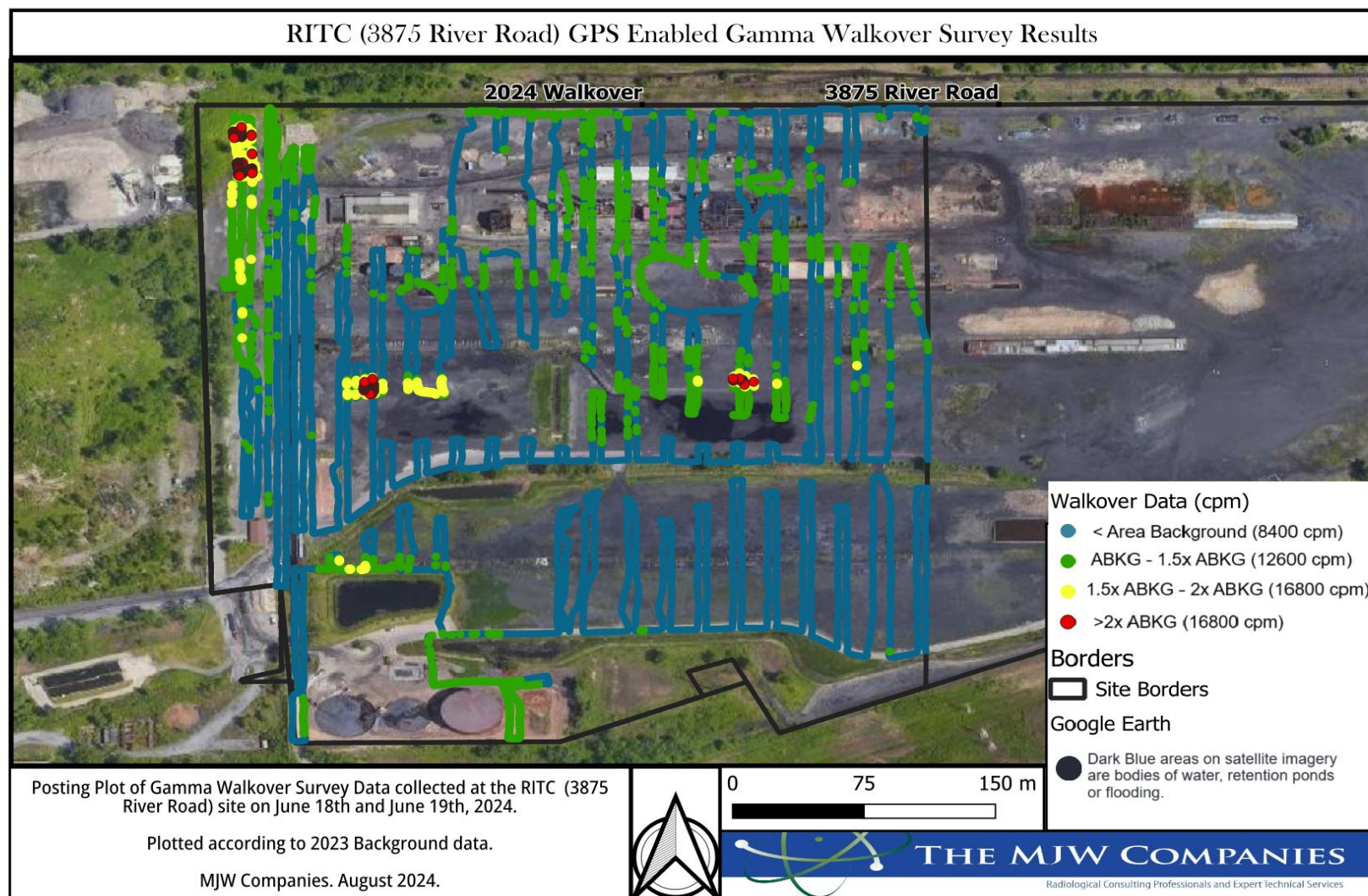
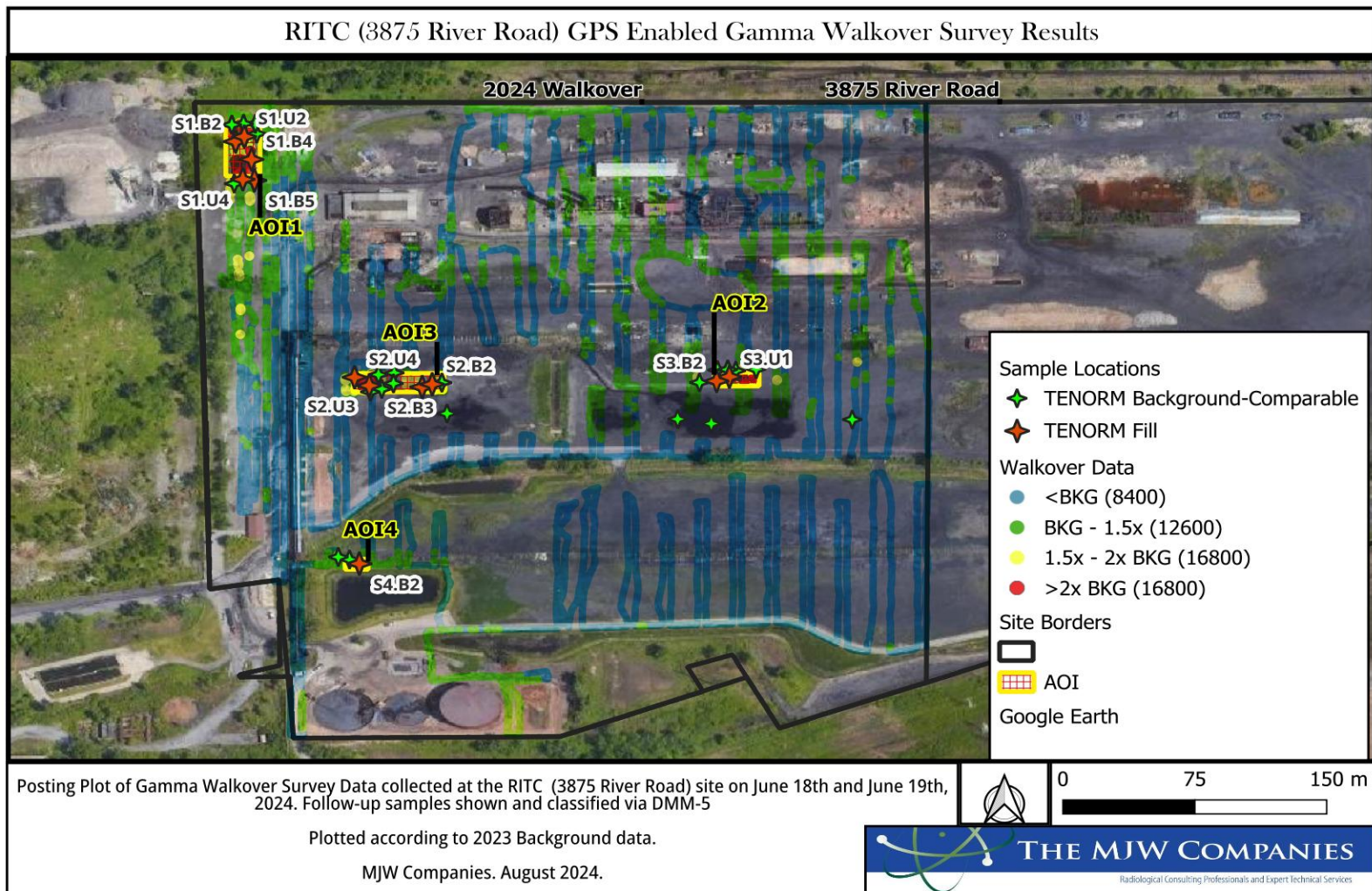


Figure 2:



(Dark blue areas on satellite imagery represent water retention ponds and areas of regular flooding)

Figure 3.



Attachment 1. Field Sample Log Sheets

Sample Log

Sample location/description: RITC Sampling						Location Coords: OSC logged				
Survey Date: 6/26/24			Weather Conditions: Sunny			Surveyed By: HH & JY			Page: 1 of 3	
Inst./Detector Model #			Inst./Detector Serial #			Background	Units/Type	% Eff.	Nuclide	Cal. Due Date
2241-2/44-10			222150/PR249955			9000	cpm γ	-	-	7/13/2024
N/A	N/A	N/A	N/A	N/A	N/A	N/A	μ Rem / hr γ	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	cpm α	N/A	N/A	N/A
Sample ID		Time	Depth (feet)		Voume (grams)	Sample Media (Soil/Sediment)		Sample Type (Comp/Grab)		2"x2" NaI Reading (gross cpm)
S2.B1		09:03	2		500	Soil		Grab		15000
Visual Characteristics and Notes: 2686 cpm on Jar. Coke material.										COC #:
S2.B2		09:06	2		500	Soil		Grab		15000
Visual Characteristics and Notes: 2564 cpm on Jar. Coke material.										COC #:
S2.B3		09:08	1.5		500	Soil		Grab		15000
Visual Characteristics and Notes: 2535 cpm on Jar. Coke material.										COC #:
S2.B4		09:11	1		500	Soil		Grab		16000
Visual Characteristics and Notes: 2301 cpm on Jar. Coke material.										COC #:
S2.B5		09:15	3		500	Soil		Grab		15000
Visual Characteristics and Notes: 2570 cpm on Jar. Coke material.										COC #:
S2.B6		09:17	2		500	Soil		Grab		13000
Visual Characteristics and Notes: 1821 cpm on Jar. Coke material.										COC #:
S2.U1		09:28	1.5		500	Soil		Grab		9000
Visual Characteristics and Notes: 1993 cpm on Jar. Coke material.										COC #:
S2.U2		09:25	2		500	Soil		Grab		8000
Visual Characteristics and Notes: 1819 cpm on Jar. Coke material.										COC #:
S2.U3		09:20	3		500	Soil		Grab		10000
Visual Characteristics and Notes: 2705 cpm on Jar. Coke material.										COC #:
S2.U4		09:23	1.5		500	Soil		Grab		10000
Visual Characteristics and Notes: 2615 cpm on Jar. Coke material.										COC #:
S2.U2.D		09:25	2		500	Soil		Grab		8000
Visual Characteristics and Notes: 1939 cpm on Jar. Coke material.										COC #:
S3.B1		09:50	2		500	Soil		Grab		21000
Visual Characteristics and Notes: 2037 cpm on Jar. Clay/Brick material.										COC #:
S3.B2		09:55	2		500	Soil		Grab		16000
Visual Characteristics and Notes: 2758 cpm on Jar. Slag material.										COC #:
S3.B3		10:00	2		500	Soil		Grab		14000
Visual Characteristics and Notes: 1868 cpm on Jar. Coke/Gravel material.										COC #:
Reviewed By: <u>FS</u> <i>Forest Shotak</i> Date: <u>08/19/24</u>										

Sample Log

Sample location/description: RITC Sampling						Location Coords: OSC logged				
Survey Date: 6/26/24			Weather Conditions: Sunny			Surveyed By: HH & JY			Page: 2 of 3	
Inst./Detector Model #			Inst./Detector Serial #			Background	Units/Typ	% Eff.	Nuclide	Cal. Due Date
2241-2/44-10			222150/PR249955			9000	cpm γ	-	-	7/13/2024
N/A	N/A	N/A	N/A	N/A	N/A	N/A	$\mu\text{Rem} / \text{hr}$ γ	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	cpm α	N/A	N/A	N/A
Sample ID		Time	Depth (feet)		Voume (grams)	Sample Media (Soil/Sediment)		Sample Type (Comp/Grab)		2"x2" NaI Reading (gross cpm)
S3.B4		10:05	2		500	Soil		Grab		14000
Visual Characteristics and Notes: 2017 cpm on Jar. Coke Breeze/Gravel material.										COC #:
S3.U1		10:10	1.5		500	Soil		Grab		8000
Visual Characteristics and Notes: 2758 cpm on Jar. Slag material.										COC #:
S3.U2		10:15	1.5		500	Soil		Grab		7000
Visual Characteristics and Notes: 2292 cpm on Jar. Coke Breeze material.										COC #:
S3.U3		10:20	2		500	Soil		Grab		9000
Visual Characteristics and Notes: 1800 cpm on Jar. Gravel material.										COC #:
S3.B4.D		10:07	2		500	Soil		Grab		14000
Visual Characteristics and Notes: 1846 cpm on Jar. Coke Breeze/Gravel material.										COC #:
S4.B1		10:45	1.5		500	Soil		Grab		13000
Visual Characteristics and Notes: 2099 cpm on Jar.										COC #:
S4.B2		10:50	2		500	Soil		Grab		14000
Visual Characteristics and Notes: 2398 cpm on Jar. Slag material.										COC #:
S4.U1		10:55	2.25		500	Soil		Grab		14000
Visual Characteristics and Notes: 2130 cpm on Jar.										COC #:
S1.B1		11:15	2.5		500	Soil		Grab		16000
Visual Characteristics and Notes: 2276 cpm on Jar.										COC #:
S1.B2		11:20	2		500	Soil		Grab		16000
Visual Characteristics and Notes: 2654 cpm on Jar.										COC #:
S1.B3		11:25	2		500	Soil		Grab		15000
Visual Characteristics and Notes: 2295 cpm on Jar.										COC #:
S1.B4		11:30	1.5		500	Soil		Grab		15000
Visual Characteristics and Notes: 3032 cpm on Jar.										COC #:
S1.B5		11:35	2		500	Soil		Grab		16000
Visual Characteristics and Notes: 2792 cpm on Jar.										COC #:
S1.B6		11:45	2		500	Soil		Grab		14000
Visual Characteristics and Notes: 2217 cpm on Jar.										COC #:
Reviewed By: <u>FS</u> <i>Forest Shotak</i> Date: <u>08/19/24</u>										

Sample Log

Sample location/description: RITC Sampling						Location Coords: OSC logged					
Survey Date: 6/26/24			Weather Conditions: Sunny			Surveyed By: HH & JY				Page: 3 of 3	
Inst./Detector Model #			Inst./Detector Serial #			Background	Units/Type	% Eff.	Nuclide	Cal. Due Date	
2241-2/44-10			222150/PR249955			9000	cpm γ	-	-	7/13/2024	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	μ Rem / hr γ	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	cpm α	N/A	N/A	N/A	
Sample ID		Time	Depth (feet)		Voume (grams)	Sample Media (Soil/Sediment)		Sample Type (Comp/Grab)		2"x2" NaI Reading (gross cpm)	
S1.U1		11:45	2		500	Soil		Grab		6000	
Visual Characteristics and Notes: 2305 cpm on Jar										COC #:	
S1.U2		11:50	3		500	Soil		Grab		7000	
Visual Characteristics and Notes: 2394 cpm on Jar										COC #:	
S1.U3		11:55	3		500	Soil		Grab		7000	
Visual Characteristics and Notes: 2377 cpm on Jar										COC #:	
S1.U4		12:00	3		500	Soil		Grab		7000	
Visual Characteristics and Notes: 2781 cpm on Jar										COC #:	
S1.B1.D		12:05	2.25		500	Soil		Grab		12000	
Visual Characteristics and Notes: 2286 cpm on Jar										COC #:	
F1		12:15	3		500	Soil		Grab		12000	
Visual Characteristics and Notes: 2081 cpm on Jar										COC #:	
F2		12:20	3		500	Soil		Grab		7000	
Visual Characteristics and Notes: 2049 cpm on Jar										COC #:	
Control 1		12:25	Surface		500	Soil		Grab		5000	
Visual Characteristics and Notes: 2026 cpm on Jar.										COC #:	
Control 2		12:30	Surface		500	Soil		Grab		6000	
Visual Characteristics and Notes: 2175 cpm on Jar.										COC #:	
Visual Characteristics and Notes:										COC #:	
Visual Characteristics and Notes:										COC #:	
Visual Characteristics and Notes:										COC #:	
Visual Characteristics and Notes:										COC #:	
Visual Characteristics and Notes:										COC #:	
Visual Characteristics and Notes:										COC #:	
Reviewed By: <u>FS</u> <i>Forest Shotak</i> Date: <u>08/19/24</u>											

Attachment 2. Instrument Calibration Sheets



Designer and Manufacturer
of
Scientific and Industrial
Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

501 Oak Street

325-235-5494

Sweetwater, TX 79556, U.S.A.



CERT # 4084.01

20448905/542257

Customer **MJW TECHNICAL SERVICES**

ORDER NO.

Mfg. **Ludlum Measurements, Inc.** Model **2241-2**

Serial No. **222150**

Mfg. **Ludlum Measurements, Inc.** Model **44-10**

Serial No. **PR249955**

Cal. Date **13-Jul-23** Cal Due Date **13-Jul-24** Cal. Interval **1 Year** Meterface **DIGITAL**

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. **73** °F RH **42** % Alt **704.0** mm Hg

☐ New Instrument ☐ Instrument Received ☒ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation

☒ Audio ck. ☒ Alarm Setting ck. ☒ Batt. ck.

☒ Calibrated in accordance with LMI SOP 14.8

☐ Calibrated in accordance with LMI SOP 14.9

Instrument Volt Set **Comments** V Input Sens. **Comment** mV Det. Oper. **Comments** V at **Comment** mV Threshold Dial Ratio **=** **mV**

COMMENTS:

Det1 (44-10, Red)

Det2 (44-10, Yellow)

Deadtime: 0 µSec

0 µSec

Firmware: P-0917

Cal Constant: 100e-2

100e-2

Calibrated using 39" C-cable.

Ratemeter Alarm: 0500 kcpm

0500 kcpm

Overload checked but not set.

Ratemeter Alert: 0300 kcpm

0300 kcpm

Pulser calibration "RATEMETER READOUT"

High Voltage: 1250V

1250V

performed without deadtime.

Sensitivity: 10 mV

10 mV

*See Attachment for efficiencies.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

Multimeter uncertainty within 1.3% of reading. Gamma uncertainty within 5.0% of reading. Neutron uncertainty within 7.0% of reading. Count rate uncertainty within 5.4% of reading

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING
Digital			
Digital			

Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING
Ratemeter Readout			Scaler Readout		
800K cpm	796 kcpm	796 kcpm	800K cpm	79591 (0)	79591 (0)
200K cpm	199	199	200K cpm	19928 (0)	19928 (0)
80K cpm	79.6	79.6	80K cpm	7959 (0)	7959 (0)
20K cpm	19.9	19.9	20K cpm	1993 (0)	1993 (0)
8K cpm	7.96	7.96	8K cpm	796 (0)	796 (0)
2K cpm	1.99	1.99	2K cpm	199 (0)	199 (0)
800 cpm	800 cpm	800 cpm	800 cpm	80 (0)	80 (0)
200 cpm	200	200	200 cpm	20 (0)	20 (0)
80 cpm	80	80	80 cpm	8 (0)	8 (0)
20 cpm	20	20	20 cpm	2 (0)	2 (0)

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques.

All pass/fail determinations are based on the manufacturer's specifications without considering uncertainty factors.

Measurement results represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k=2.

The calibration system conforms to the requirements of ANSI Z540-1-1994 and ANSI N323A8-2013

ISO/IEC 17025:2017(E)

State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: Cs-137 S/N: ☐ 059 ☐ 2171CP ☐ 2261CP ☐ 720 ☐ 734 ☐ 781 ☐ 1131 ☐ 1616 ☐ 1696 ☐ 1909 ☐ 1916CP ☐ 2324/2521

☐ 5717CO ☐ 5719CO ☐ 60646 ☐ 70897 ☐ 73410 ☐ E552 ☐ G112 ☐ 2168CP ☐ S-394 ☐ S-1054 ☐ T10081 ☐ T10082 Neutron Am-241 Be ☐ T-304 Ra-226 ☐ Y982

☐ E551 ☐ 5105 ☐ CSV280

☐ Alpha S/N ☐ Beta S/N ☐ Other

☒ m 500 S/N **247891** ☐ Oscilloscope S/N ☒ Multimeter S/N **17500076**

Calibrator **Scot VanAllen** Title **Calibrator** Date **13 JULY 23**

QC'd By **Rick W** Title **Final QC** Date **15 JUL 23**

Bench Test Data For Detector

Detector 44-10 Serial No. PR249955

Customer MJW TECHNICAL SERVICES ORDER NO. 20424964/525752

Counter 2241-2 Serial No. 222150 Counter Input Sensitivity 10 mV

Count Time 6 SECONDS Distance Source to Detector SURFACE

Other _____

High Voltage Background Isotope Am 241 Isotope _____ Isotope _____ Isotope _____
Size 30.79 uCi Size _____ Size _____ Size _____

[illegible]

Signature Scot VanAllen

Date 14 JUNE 22



Environmental Restoration Group, Inc.
8809 Washington NE, Suite #150
Albuquerque, NM 87113

office: (505) 298-4224
fax: (505) 797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: MJW Corporation

Order Number: 5760

Contact Name:

P.O. or Reference Number: REF# - 24.1004.2

Contact Telephone: 716-631-8291

Date Ordered: 6/13/2024

Shipping Method: n/a

Date Shipped: 6/16/2024

Shipping Number: 1373-0585-2

Date of Delivery: 6/17/2024

Ship To Information:

MJW Corporation
15 Hazelwood Dr
Suite 112
Amherst, NY 14228
716-790-0119

Billing Address:

MJW Corporation
accountspayable@mjwcorp.com
15 Hazelwood Dr
Ste 112
Amherst, NY 14228

Equipment Enclosed:

Instrument	Serial Number	Tested
Ludlum 3000	25024311	☐
Ludlum 44-10	PR408226	☐
Juniper Geode	364389	☐
Juniper Mesa3	341411	☐

Special Instructions:

None

Note:

(a) By accepting and using ERG rental equipment, the Renter indemnifies and holds harmless ERG against any and all claims, actions, proceedings, costs, expenses, damages, and liabilities (including attorney's fees and costs) arising out of Renter's use of equipment.



Designer and Manufacturer
of
Scientific and Industrial
Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

501 Oak Street

325-235-5494

Sweetwater, TX 79556, U.S.A.

Customer ENVIRONMENTAL RESTORATION GROUP

ORDER NO. 20468670/555833

Mfg. Ludlum Measurements, Inc. Model 3000

Serial No. 25024311

Mfg. Ludlum Measurements, Inc. Model 44-10

Serial No. PR408226

Cal. Date 23-Apr-24 Cal Due Date 23-Apr-25 Cal. Interval 1 Year Meterface 44-10 Ra

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 37 % Alt 703.3 mm Hg

☐ New Instrument ☐ Instrument Received ☐ Within Toler. $\pm 10\%$ ☒ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☒ Mechanical ck. ☐ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☐ Geotropism

☒ Audio ck. ☒ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 4.4 VDC

☒ Calibrated in accordance with LMI SOP 14.8 ☒ Calibrated in accordance with LMI SOP 14.9

Instrument Volt Set 900 V Input Sens. 10 mV Det. Oper. 900 V at 10 mV Threshold = mV

☒ HV Readout (2 points) Ref./Inst. 500 / 495 V Ref./Inst. 1500 / 1507 V

COMMENTS:

Deadtime: 8.1 μ Sec Firmware: 5LC-N42.4904

Calibration Constant: 573 e+8 Overload checked but not set.

Primary Units: cpm Pulser calibration performed without deadtime.

Secondary Units: R/hr Pulser calibration SCALER READOUT reflects 6 second count.

Alarms disabled.

Calibrated using 5' cable.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE	REFERENCE	INSTRUMENT	INSTRUMENT	RANGE	REFERENCE	INSTRUMENT	INSTRUMENT
MULTIPLIER	CAL. POINT	RECEIVED	METER READING	MULTIPLIER	CAL. POINT	RECEIVED	METER READING
Digital	4 mR/hr	<u>4.13 mR/hr</u>	<u>4.00 mR/hr</u>				
Digital	1 mR/hr	<u>1.15</u>	<u>1.09</u>				
	800 μ R/hr	<u>866 μR/hr</u>	<u>837 μR/hr</u>				
	200 μ R/hr	<u>203</u>	<u>194</u>				

Range(s) Calibrated Electronically

Multimeter uncertainty within 1.3% of reading, Gamma uncertainty within 5.0% of reading, Neutron uncertainty within 7.0% of reading, Count rate uncertainty within 5.4% of reading

Digital Readout	REFERENCE	INSTRUMENT	INSTRUMENT	Scaler	REFERENCE	INSTRUMENT	INSTRUMENT
	CAL. POINT	RECEIVED	METER READING		CAL. POINT	RECEIVED	METER READING
	800K cpm	<u>799 kcpm</u>	<u>799 kcpm</u>		800K cpm	<u>79.9K</u>	<u>79.9K</u>
	200K cpm	<u>200</u>	<u>200</u>		200K cpm	<u>20.0K</u>	<u>20.0K</u>
	80K cpm	<u>79.9</u>	<u>79.9</u>		80K cpm	<u>7.99K</u>	<u>7.99K</u>
	20K cpm	<u>20.0</u>	<u>20.0</u>		20K cpm	<u>2.00K</u>	<u>2.00K</u>
	8K cpm	<u>7.99</u>	<u>7.99</u>		8K cpm	<u>800</u>	<u>800</u>
	2K cpm	<u>2.00</u>	<u>2.00</u>		2K cpm	<u>200</u>	<u>200</u>
	800 cpm	<u>801 cpm</u>	<u>801 cpm</u>		800 cpm	<u>80</u>	<u>80</u>
	200 cpm	<u>199</u>	<u>199</u>		200 cpm	<u>20</u>	<u>20</u>

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques.

All pass/fail determinations are based on the manufacturer's specifications without considering uncertainty factors.

Measurement results represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k=2.

State of Texas Calibration License No. LO-1963

The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323AB-2013

Reference Instruments and/or Sources: Cs-137 S/N: ☐ 059 ☐ 2171CP ☐ 2261CP ☐ 720 ☐ 734 ☐ 781 ☐ 1131 ☐ 1616 ☐ 1696 ☐ 1909 ☐ 1916CP ☐ 2324/2521
☐ 5717CO ☐ 5719CO ☐ 60646 ☐ 70897 ☐ 73410 ☐ E552 ☐ G112 ☐ 2168CP ☐ S-394 ☐ S-1054 ☐ T10081 ☐ T10082 Neutron Am-241 Be ☐ T-304 Ra-226 ☒ Y982
☐ E551 ☐ 5105 ☐ CSV280

☐ Alpha S/N ☐ Beta S/N ☒ Other Am241 (0.66 μ Ci)

☒ m 500 S/N 251106 ☐ Oscilloscope S/N ☒ Multimeter S/N 15060230

Calibrator James McBeth Title Calibrator Date 23 APR 24

QC'd By Ruehl Title Final QC Date 23 APR 24

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

FORM C3000 01/22/2020

Page 1 of 2

AC Inst. ☐ Passed Dielectric (Hi-Pot) and Continuity Test
Only ☐ Failed:

Order #: 20468670/555833

Customer: ENVIRONMENTAL RESTORATION
GROUP

Detector: 44-10

Serial No.: PR408226

Instrument: Model 3000

Serial No.: 25024311

BKG Time: 6

Distance: Surface

Selected HV: 900

Date: Tuesday, April 23, 2024

Notes: Performed using 5' cable.

Signature: *James M. D.*

Channel(s)

Name

Threshold

Channel 1

10 mV

Source(s)

Name

ID

Activity

Time

Type

Am241

0.66 μ Ci

6

γ

High Voltage

Background

Am241

Reading

Reading

650

316

10,456

700

344

12,131

750

320

12,431

800

329

12,312

850

311

12,262

- 900

353

12,343

950

374

12,235

1,000

376

12,436

1,050

532

13,103

1,100

672

13,977

1,150

1,537

16,892

Dev

SN	25024311
Mdl	Model 3000
Aud Lvl	Single
Sleep	0
Setup Prtct	Normal
Rate Reset Btn	Off
Temp	64
LB	0
Conv R To Sv	0.0106
Fw	5LC-N42.4904
V Bat	5.842

RTC

Day	23
Mo	4
Hr	11
Mins	21
Sec	40
Yr	2024

Ext 1**Meas**

Cur	20.9407

Cnt

Audio Mode	Off
Display Mode	Timer

Btn**Handle**

Cnt Map 1	Take Log
Cnt Map 2	Do Nothing
Cnt Map 3	Do Nothing
Rate Map 1	Take Log
Rate Map 2	Do Nothing
Rate Map 3	Do Nothing

BklThr

Sensitivity	Low

High

Light Turn Off	0
Light Turn On	0

Low

Light Turn Off	0
Light Turn On	0

AuxCom

Crypto En	Off
Enable	On

Mode	LMI Direct
Write Prtct	Off

AutoMode

Interval	1

Pwr

Auto Off Tm	0
Mode	On At Boot

DetMem 1

Mdl	44-10
SN	PR408226
Aud Sigma	Off
Count Tm	60
HV	900
Op Mode	Rate/Max/Count
Over Cur	500

Ch 1

CPS Offset	0
DTC 1	8.1E-06
DTC 2	0
Eff	15
LO Cnt Tm	60
R Cal Const	5.73E+10
Thr	0.01

Response

Rate	Fast
Time	4

Unit 1**Count**

Alrm 1	0
Alrm 2	0
Min Exp	000E0
Unit	counts

Rate

Alrm 1	0
Alrm 2	0
Max Val	999000
Min Exp	000E-2
Unit	cpm

Unit 2**Count**

Alrm 1	0
Alrm 2	0
Min Exp	000E0
Unit	counts

Rate

Alrm 1	0
Alrm 2	0

Max Val	0.007
Min Exp	000E-8
Unit	R/h

LOG

MODE
NOTES
USER
ENABLE

AUTO

TM

NUM

MAX
REC

Attachment 3. MJWRCP-40 Performing a GPS Enhanced Gamma Radiation Survey, Rev. 4

		MJWRCP RCP-40 Rev. 4
Performing a GPS Enhanced Gamma Radiation Survey and Data Assessment		FIELD PROCEDURE
Effective Date: 10/29/21	Approved By: <i>M.J. Willett</i>	

1.0 PURPOSE/DISCUSSION

The purpose of this procedure is to establish protocols and data collection requirements necessary to perform reproducible low-level radiation overland gamma surveys.

Overland gamma radiation surveys are often enhanced with the coupling of radiation and satellite geographical location measurements collected from global positioning and radiation instrumentation and software. The use of both instruments simultaneously allows rapidly recorded radiation readings to be precisely located across varied terrain and large areas. MJW uses the ERG 105G handheld GPS surveying system and accompanying software.

The 105G is a simple to use GPS mapping system for performing outdoor gamma radiological scans. It consists of an interface tablet containing all necessary software to acquire position correlated radiological scan data from a gamma detector and export the data for processing using a variety of applications, such as Microsoft Excel, or ESRI ArcGIS. The handheld logger comes installed with two applications necessary for collecting data and exporting to a removable disk drive. The ERG RadScout is used to collect gamma data and couple it to a GPS position. The RadSync software is also included on the handheld computer and is used to export all field data to a single removable disk. Using the ERG RadScene software, the data can be managed, analyzed, and merged from a single processing computer.

The 105G uses off-the-shelf Ludlum equipment for radiological detection. The system uses the Ludlum model 2221 meter. An optional setup uses a 2221 with Bluetooth radio incorporated to allow a completely wireless interface between the data logger, 2221, and sub-meter GPS receiver. If the survey is performed in a location where projection information is not available, then the user will be required to apply the spatial correction during data evaluation and download.

2.0 SCOPE

This procedure is applicable for general or discrete radiation surveys intended to measure direct radiation and/or contamination levels of areas expected to be at or near background levels. It is also applicable for sites where radiological contamination may be extensive.

Gamma or alpha/beta survey procedures, including grid layout, coverage and instrument use and data DQOs will be detailed in job specific work plans. Standard or typical survey methodology is described in MJW Corporation instrument and survey procedures.

3.0 RESPONSIBILITIES

- 3.1 All survey instruments used to determine direct radiation levels or contamination levels shall have been calibrated within twelve months prior to performing the survey.
- 3.2 Surveys shall be performed in accordance with all applicable standards as listed in Section 8.0 (references).
- 3.3 Persons performing the survey shall be responsible for proper instrument checks and operation, properly recorded measurements, and map per Section 4.0 of this procedure.

4.0 PROCEDURE

4.1 Equipment List

- Surveying and staking materials (subcontract to licensed surveyor)
- Bicron microRem LE (or equivalent)
- Ludlum Model 2241 survey meter (or equivalent) with Ludlum 44-10 2"x2" NaI detector (or equivalent)
- Area maps as appropriate (topographic, street, quadrangle, etc.)
- Mason's line marked at designated intervals (for detailed area surveys)
- Ludlum 44-10 Lead Collimator (Optional)
- Ludlum 1000/2200 with 43-10 and 44-40 smear counters
- Miscellaneous marking and recording equipment
- 100-foot tape measure
- Protective clothing as appropriate
- Smears (1 box)

4.2 MEASUREMENT PROTOCOLS

- 4.2.1 Perform a battery check, source check and calibration data check prior to use of survey instrument per the requirements of Section 3.1.
- 4.2.2 At a minimum of three (3) separate locations known to be free of contamination, make several background measurements, recording data, time, survey instrument serial number, surveyor and general survey area location noting any significant landmarks. Record data on Form RCP 40-1.
- 4.2.3 In consultation with a licensed surveyor establish the primary reference point for the survey and any second reference points required to adequately describe the site and allow for creation and recreation of the survey grid. The reference point shall be designated as point 0, 0 or equivalent with magnetic north indicated clearly in reference to point 0,0. Compass points shall be used such as ON, OE, OS, OW, etc. depending upon the reference point location.
- 4.2.4 From the primary and any secondary reference points, establish area survey points using stakes, flags and/or marked string lines at the predetermined survey interval. All other grid locations will be designed in alphanumeric sequence from the reference point (i.e., 5 feet due east of reference point ON, OE would be designated as ON, 5E; 5 feet north and 5 feet east as 5N, 5E etc.). Use Form RCP 40-2 to show survey grid, detailing the primary reference point, any secondary points, landmarks and grid spacing. Use accurate area maps or any available CAD drawing to lay out grids.

NOTE: Grid pattern spacing should be no more than ten (10) meters apart for complete coverage for sites with a known or suspected radiological history. Grid spacing may be increased up to 100 meters for large sites where no radiological involvement is expected.

Minimum detectable activity will be dependent upon background levels and instrument efficiencies. Decreasing the grid spacing will give higher detection probability for low activity or diffuse sources.

For a uniformly distributed Co-60 source the predicted exposure rate at one meter above the surface is $5.79 \text{ E-04 Sv/yr per Bg/cm}^2$ (NUJREG/CR-1918). This translates to $\sim 43 \text{ microR/hr per uCi/m}^2$.

- 4.2.5 Measure the gamma radiation level at the reference location at a distance of one meter (approximately waist height) and at ten centimeters from the ground surface.

CAUTION: Survey instruments must not come into contact with any potentially contaminated surfaces. Precautions must be taken such as bagging the instrument should such potential exist.

- 4.2.6 Record measurements from designated survey locations on Forms RCP 40-3 and 3A, including alphanumeric survey locations, gamma radiation readings at 1 meter and 10 cm and any remarks for the location. Complete the top of each form with the following data: job number, date, surveyor and relevant instrument data (model, serial number, etc.) as discussed in section 4.2.4.
- 4.2.7 Proceed at a slow pace (approximately 0.5 m per second) to the next survey point, continually checking the instrument readout for any strong fluctuations.
- 4.2.8 Once four grid points forming a square have been measured perform an intragrid survey of the square with the meter at a distance of 10cm from the surface. Begin in one corner of the grid and using a zig-zag or cross-crossing pattern at 1m ($\sim 3'$) intervals survey the grid on the diagonal at a slow pace $\sim 0.5 \text{ m per second}$.
- 4.2.9 If during the intragrid survey a significant survey meter response is encountered, take readings from a distance of one centimeter to define the area of the increased activity. Use spray paint, flags, string or another method to mark the area(s) of elevated activity. Also mark the location of this/these intragrid area(s) on Form RCP 40-2. The point of the most elevated reading as well as the apparent boundaries of any area(s) of elevated activity should be thoroughly marked and described.
- 4.2.10 After all initial survey points have been recorded, return to any areas of elevated readings. Perform a detailed survey to define the areas and note the upper limits of the measurements using one of the following methods: (document all results on Forms RCP 40-4 and 4A).
- Using concentric circles, define the center and then the radius of contamination and record this on the survey form, or

- Using a small-spaced grid pattern of 1 meter or less, find the center and general outline of the area of contamination and record this information on the survey form, RCP 40-4 or 4A as appropriate.

NOTE: Per step 4.2.8 use spray paint, string or other suitable medium to define the physical limits of the contamination/radiation. Use standard precautions to avoid personal or equipment contamination during the survey.

- 4.2.11 Check the survey map for complete coverage. Notify the appropriate client personnel if immediate posting or cleanup actions may be required.
- 4.2.12 Remove all nonpermanent markers and stakes only after all data has been checked and verified. Grid markers should be maintained if further action is required or if additional surveys are to be performed by regulatory agencies, etc. Monitor all personnel and materials for potential radioactive contamination before they leave any areas of suspected or confirmed contamination.

4.3 INSTRUMENT CALIBRATION

- 4.3.1 All instruments shall be calibrated annually and shall have a valid calibration sticker at the time of use. Survey instruments used for overland gamma surveys shall be calibrated within six months of the actual survey date.

- 4.3.2 Instruments will be tagged “out of service” for:

- Failure to properly respond to check sources, or
- Instrument damage, or
- Suspect operation of the instrument

Any instrument tagged “out of service” shall be repaired or replaced and shall be calibrated before use.

- 4.3.3 All instruments will be operationally checked in the field at the beginning of each workday and each time the meter is turned on.

5.0 PRE-SURVEY PREPARATION

5.1 Instruments and Equipment

- 5.1.1 GPS instrument case –ERG Model 105G, serial cables, external antenna cable, USB cable.
- 5.1.2 Wheeled cart and/or backpack mounting equipment and measuring tape. (Carts are stored on shelves in storage garage)
- 5.1.3 GPS antenna and cable
- 5.1.4 Stakes, flagging, markers, field notebooks, etc.

5.2 Check List Items

- 5.2.1 Check to be sure GPS and radiation instruments, check source, log book, cables, carrier equipment, antenna, tremble software and batteries are available, charged and in good condition and calibrated (green light on battery charger indicates batteries are fully charged) . **Note: Batteries take 24 hours to fully charge.**

- 5.2.2 Determine Survey sensitivity and geological coordinate system requirements (i.e., WGS83, State Plane, NAD83, etc.)
 - 5.2.3 Review terrain conditions from proposal, client contact or via Google Earth or maps to identify accessibility and survey method (cart vs walking/backpack mount)
 - 5.2.4 Identify survey grid coverage and spacing.
 - 5.2.5 Prepare grid marking or line-of sight aids (e.g. cones, paint, rope, etc.) to facilitate walkover coverage and maintain speed.
 - 5.2.6 Prepare map of survey area.
- 5.3 Preparing the Instruments to Begin GPS Enhanced Gamma Survey
- 5.3.1 Setting up the Field Equipment
 - 5.3.1.1 Power on the Rad Scout by pressing the power button once, located on the bottom right-hand corner of the front of the device. To unlock the device and reveal the homes screen, slide a finger upwards on the display. Open the Rad Scout program by tapping on its icon on the desktop.
 - 5.3.1.2 The typical radiological instruments used with the system are the Ludlum Model 2221 Counter with a gamma detector (44-10).
 - 5.3.1.3 Source check the instrument and record background and source check count rate data in the daily source check logbook located in the instrument case. Evaluate the source count rate to ensure instrument sensitivity is within the required range (dpm/cpm = +/- 20% of source calibration dpm count rate).
 - 5.3.2 Connecting the Meter to Tablet
 - 5.3.2.1 When using the wireless 2221 option, the meter incorporates a Bluetooth device that syncs with the RadScout. To connect to a specific meter, ensure the meter you wish to connect to is turned on and that the Bluetooth modem has a flashing blue light. In the RadScout software tap the Program Settings option from the File menu, and select the button next to the METER SOURCE drop down box as shown in Figure 1. Note that for this option to be available, the meter must be disconnected. Connect and disconnect the meter from the Settings menu in the main form. The window, as shown in Figure 2 will appear with all discovered Bluetooth devices. Click on the serial name that matches the Bluetooth device of the 2221 you want to connect to and click SELECT. If the pairing is successful, the device name will show up in the drop down box. Save the project settings and connect to the meter through the settings menu in the main form by clicking on , METER – OPEN. If the meter is opened successfully, the values will be displayed next to the trifoil symbol in the bottom left-hand corner of the screen. A red error icon indicates there is no connection.
 - 5.3.2.2 Once the Bluetooth device is paired and selected in the drop down box, the device will be connected on every startup of the software.
 - 5.3.3 Connecting to Goede GPS
 - 5.3.3.1 The internal GPS is adequate for most surveying needs, but if sub-meter accuracy is desired, the external Geode sub-meter receiver may be used as the GPS source. To connect the Geode receiver,

press the power button on the receiver to turn the unit on. From the File menu, tap Program Settings and select Geode from menu labeled GPS SOURCE as shown in Figure 3. Note that this option is only available when the GPS is disconnected. The GPS may be connected and disconnected through the settings menu. If the Geode being used is different than the one in the drop down menu, the new Geode must be paired by clicking on the button to the right of the drop down box and selecting the proper device. The Geode serial number may be found on the bottom of the receiver as a six-digit number. Once selected, click on the Settings menu, and tap GPS, then CONNECT to connect the new device. The internal tablet GPS may also be used as the primary GPS source to reduce hardware. To select the internal GPS open the Program Settings window and select the Internal Mesa GPS in the drop down menu. Note that the GPS must be disconnected for this option to be available.

5.3.3.1.1.1 Note that once a successful connection is established, the software will reconnect the last device used upon starting the software.

5.3.4 Refer to ERG User Guide for further reference

6.0 PERFORMING A SURVEY

6.1 The Rad Scout software is used to view, collect, and analyze spatially correlated radiological data with superior accuracy and data quality. Using the position of the GPS receiver, or internal tablet GPS, collected radiological data are viewed in real-time. In addition, the program provides the ability to apply a legend to background and survey data to provide real-time mapping of the gamma levels.

6.2 *Defining a Coordinate System*

- 6.2.1 By default, the software will use the WGS84 longitude latitude geographical system for all mapping and log file collection. There are times, however, where it is necessary or practical to define a projected coordinate system. For instance, when adding a geotagged world image file, it is necessary to set the coordinate system to the same system as defined in the image. The coordinate system will also be beneficial when collecting point features, which will be discussed in more detail below.
- 6.2.2 To define a coordinate system, click on FILE, then COORDINATE SYSTEM. Select the desired System and Zone, then click Save to set the project coordinate system. Once set, the saved coordinate system will be applied every time the software is opened.

6.3 *Defining a Legend*

- 6.3.1 The legend can be used to define specific colors to ranges of count rate data. Although the 2221 records both ratemeter and one-second scalar data, only the ratemeter will be evaluated and displayed using the legend. To apply a legend, tap Legend in the Settings menu. To add a new legend break, tap the Add button. Enter the new threshold, desired point size, and the color, then tap Save. The threshold is defined as the count rate at which the data will be colored if it is equal to, or exceeds.

- 6.3.2 To edit an existing break, tap on the break you wish to edit, and tap the edit button , or simply double tap on the break to bring up the legend properties. Make the necessary changes to the threshold, point size, or color and tap the Save button to apply changes. Note that the default map point will be defined by the ≥ 0 cpm break. The color and size of the point may be modified, but the threshold must be zero, and the break may not be deleted. Up to 10 breaks may be added to the legend. Once the legend is defined, tap the Save button to apply changes.
- 6.3.3 The legend will be applied to both the background layers and the real time data. When adding background layers, the legend breaks will be ordered from smallest to largest values when being drawn on the map. This allows the larger, and typically more important values, to be more visible when viewing the data that are on top of each other spatially.
- 6.3.4 If multiple legends are being used, use the menu in the legend editor to save and recall legends.

6.4 Creating a Survey File and Collecting Data

- 6.4.1 Prior to collecting survey data, a file must be created that will store all the records. To create a file, tap on the Create File tool from the File menu. The filename will be automatically created using the date, time, and the system ID of the Rad Scout. The system ID is provided as an integer to distinguish files easily when multiple data loggers are used for a single survey. The system ID for each data logger is predefined and may not be modified. If desired, add additional information to the beginning of the filename string, however it is highly recommended that the numerical fields are not modified. If necessary, enter additional information in the following textboxes, such as the survey unit, the technician, and any additional comments. Tap the Create button to create the file. Once a survey file has been created, survey data may be collected. Tap the Collect tool to start collecting data. Logged data will appear on the map in real time as individual points and the tablet will produce an audible beep when a new data point has been logged. Volume can be adjusted using the P1 and P2 hardware buttons on the front of the tablet. The total number of records logged to the file is also shown in the status bar. To pause the data collection, press the Stop tool. When surveying is complete, close the file by tapping the Close tool in the File menu. Once a file is closed, it may not be reopened to append data, however all collected files may be opened as background layers.

6.5 Data Features

- 6.5.1 The Data Feature function is useful for displaying points that are used for navigational or informational purposes. For instance, it might be necessary to navigate to previously defined sample locations as a shapefile. To open a feature file, select Data Feature from the file menu, then tap Open Feature File. A list of available shape files will appear. **To add custom shapefiles to the menu, the file must be copied into the RadScout folder in the My Documents directory.** Select a file, then tap Open. The points will be displayed on the map as shown in Figure 10. Unlike the background files, the data features allow user interaction through the map interface.
- 6.5.2 Click on the feature to bring up the sample window. From the menu,

select one of the three options as described

6.5.2.1 The Edit tool may be used to edit information about a previously added data feature point.

6.5.2.1.1 This option only available for points added manually.

6.5.2.2 The Select tool may be used to select a specific data feature. Once selected, the data feature can be navigated to by clicking FILE, DATA FEATURE, NAVIGATE TO.

6.5.2.3 The Visibility tool may be used to turn individual samples on and off. This feature is useful to determine when tasks at specific locations have been completed.

7.0 DOWNLOADING, ANALYZING AND EDITING THE SURVEY DATA

Following the collection of data, it is often necessary to transfer all field data to a central computer used for processing and reporting. This section discusses the process for transferring field data from multiple field tablets to a single removable disk.

7.1 Synchronizing Data

7.2 The Mesa tablet includes the ERG RadSync software which greatly simplifies the data exporting process and ensures no data are overwritten or deleted.

7.3 To export field data, place a removable disk in the USB slot on the bottom of the Mesa tablet and open the RadSync application. The application will display the gsf survey files and data feature shapefiles that will be transferred to the removable drive. The application will only display and attempt to transfer files that do not already exist on the removable drive. If the data feature shapefiles on the tablet are determined to be larger than the files on the disk (for instance, if features were added since the last transfer) then the shapefiles will be replaced with the newer file. All original files will always be maintained on the field tablet.

7.4 The application also provides an easy method of getting data onto the field computer to be used as background files or data files. To synchronize import data, place the desired files (.gsf, .jpg, .tif, or .shp) on the removable drive in the directory "<Drive>\RadScout\". The software will copy these files to the field computer if they do not already exist.

7.4.1 Note that when this approach is used for synchronizing world image files, only the name will be used to determine if the file already exists

7.5 Editing and Reviewing the Data

7.5.1 Projects

7.5.1.1 The Radscene software utilizes projects which will keep files organized and retain project settings, such as coordinate systems.

7.5.2 Creating a New Project

7.5.2.1 To create a new project, click File, Project, Create. A New Project window will be displayed. Choose the project name and a directory and click the Create button. The software will create a folder in the directory matching the project folder along with all sub folders used to store data.

7.5.3 Opening and Modifying Existing Projects

7.5.3.1 To open or delete an existing project, click File, Project, Open/Modify to show the Open Project window. The drop-down box will contain all projects created on the computer. To open an existing project, select the desired project and click the Open button. To delete an existing project, select the project in the front down box and click the Delete button. Note that when a project is deleted the project is removed from the project list, but all folders and survey data are retained in the original file path. If a project has been deleted but it becomes necessary to reopen the project, open the Create New Project window and enter the old project name in the Project Name textbox. The software will ask if you would like to associate the file data to the project. Click yes to reopen the project

7.5.4 Defining a Coordinate System

7.5.4.1 To define a coordinate system, click the Setting tool and select the SYSTEM AND Zone. The coordinate system will be saved with the project and is primarily used for exporting data to a specific system.

7.6 Importing Data

7.6.1 Once a project is defined, field data may be imported. Insert the removable drive used to store field data from the RadExport software and click the Import Data tool to load the Import Data window as. If data is discovered on the drive, the computer names of all data loggers used to export data will be shown in the window. Click the Import button to copy all survey files and feature data from the USB drive to the project directory. The application will only copy files that do not already exist in the project directory. If the Data Features on the USB drive are determined to contain more data than the data feature files currently in the project folder, a message box will be displayed asking whether to replace the existing file or not.

7.6.1.1 Note that if you choose to replace the existing file, the file in the project directory will be overwritten.

7.7 Data Analysis

7.7.1 Once data has been imported, it will become available to be added to the map. Click the Add or Filter Add tool to add survey data to the map. Refer to the RadScene Interface section for information on viewing survey file details, tables, and defining legends.

7.7.2 Click the Analysis tool to bring a histogram and statistics of all data displayed in the map window as. Note that the Scalar data tab will only be available if a scaler enabled 2221 was used to collect data. Click and hold

on the blue cursor to drag in either direction. The corresponding cursor location value will be displayed in the blue text above the cursor.

7.8 Exporting Data

7.8.1 Click the Export Data tool to export all survey files currently loaded into the map. The Files to Export text box will display all files that are being exported. Click whether to use the project coordinate system or the WGS system (longitude/latitude). Also choose the time zone that the survey was performed in to correctly offset the time of each file record. The Use UTC time check box can also be used if it is preferable to keep data in UTC GPS time. Finally, choose the output file type as either a comma separated file (.csv) or ESRI shapefile (.shp) and select the directory. By default, the exported file will be named using a date string. When all parameters have been selected, click the Export button to export all survey files.

7.8.2 Unlike the survey files, which are collected in binary format, the data feature files are already created as shapefiles and therefore do not require exporting. After importing the survey data, the feature data files will exist as shapefiles in the [project directory]/[project name]/Features folder.

7.8.2.1 Note that if any manipulation is performed on the feature data shapefiles, it is recommended that the files be copied to a new directory. This will prevent the import process from overwriting data which is recognized as different than the USB data.

7.9 Data Tools

7.9.1 Merging and exporting gsfm files

7.9.1.1 Commonly, it is necessary to display the survey progress on a data logger to prevent resurveying an area that is already complete. This is particularly important when there are multiple surveyors for a single area. Review ERGModel 105G procedures for further information.

7.9.2 Repairing a Corrupt File

7.9.2.1 In very rare scenarios, a log file (.gsf) may become corrupt, preventing it from being able to be exported as a shapefile. This most commonly occurs if the data logger shuts down unexpectedly or freezes while a record is being written to the file. To repair a corrupted file, click the Tools – Repair GSF File. Select the file from the open file dialog. If errors are detected, the repair form will be displayed. Click the Repair button to repair the file. The tool will create a backup of the original file, which will have the suffix ‘backup’, and will be copied to the same folder location as the original

8.0 REFERENCES

- 8.1 National Council on Radiation Protection and Measurements, NCRP Report No. 50, "Environmental Radiation Measurements", December 1976.
- 8.2 National Council on Radiation Protection and Measurements, NCRP Report No. 58, "A Handbook of Radioactivity Measurements Procedures", 2nd Ed., 1985.
- 8.3 Kocher, D.C., 1979, "Dose-Rate Conversion Factors for External Exposure to Photons and Electrons", NUREG/CR-1918.

9.0 ATTACHMENTS

Attachment 1 – ERG Setup and Operation of the ERG Model 105G

Attachment 4. MJWRCP-66 Soil Sampling Protocols, Rev 0

 THE MJW COMPANIES Radiological Consulting Professionals and Expert Technical Services		MJWRCP-66 Rev. 0
PROCEDURE FOR SOIL SAMPLING FOR RADIOACTIVE MATERIAL		FIELD PROCEDURE
Effective Date: 12/16/20	Approved By: <i>M. J. Willett</i>	

1.0 PURPOSE

This procedure describes the general and specific procedures, methods and considerations to be used and observed when collecting soil samples for field screening and/or laboratory analysis.

2.0 SCOPE

The procedures described in this document are to be used by qualified field personnel when collecting and handling soil samples in the field. If MJW field personnel determine if any of the procedural steps may be inappropriate, they will contact their field supervisor immediately to discuss and resolve the issue. Any and all such issues will be recorded in the field logbook.

3.0 SAFETY PRECAUTIONS

Proper safety precautions must be observed when collecting soil samples. Field personnel must refer to the RECON Project Health & Safety Plan Rev 1 for guidelines on safety precautions to be followed for this type of field work.

4.0 PROCEDURAL PRECAUTIONS

Special care must be taken not to contaminate collected samples. This includes but it not limited to storing samples in a secure location to preclude conditions which could alter the properties of the sample. Samples shall be custody sealed during long-term storage or shipment. Collected samples are in the custody of the sampler or sample custodian until the samples are relinquished to another party. If samples are transported by the sampler, they will remain under his/her custody or be secured until they are relinquished.

5.0 FIELD OPERATIONS

5.1 General

These sampling methods are used primarily to collect surface and shallow subsurface soil samples. Surface soils are generally classified as soils between the ground surface and 6 to 12 inches below ground surface (BGS). The most common interval is 0 to 6

inches BGS, however, the data quality objectives of the investigation may dictate another interval, i.e., 0-3 inches BGS, for risk assessment purposes. The shallow subsurface interval may be considered to extend from approximately 12 inches BGS to a site-specific depth at which sample collection using manual collection methods becomes impractical.

5.2 Soil Collection Using Spoons

Stainless steel spoons may be used for surface soil sampling to depths of approximately 6 inches BGS where conditions are generally soft and non-indurated and there is no problematic vegetative layer to penetrate. If the soil being sampled is cohesive and crumbles when removed from the ground surface, consider using a hand auger to collect the sample.

When compositing a sample, make sure each composite location consists of equal volumes, i.e., same number of equal spoonfuls. If a thick matted root zone is present at or near the surface, it should be removed before the sample is collected.

5.3 Soil Collection Using Hand Augers

Hand augers may be used to advance boreholes and collect soil samples in the surface and shallow subsurface intervals. Typically, 4-inch stainless steel auger buckets with cutting heads are used. The bucket is advanced by simultaneously pushing and turning using an attached handle. Auger buckets may be used with a handle alone or with a handle and extensions. The bucket is advanced to the appropriate depth and the contents are transferred to the homogenization container for processing.

The practical depth of investigation using a hand auger depends on the soil properties and depth of investigation. For example, sandy soil may flow out or collapse at depth. Conversely, tight clays and cemented sands may offer too much resistance to sampling and powered equipment may need to be used.

Because of the tendency for the auger bucket to scrap material from the sides of the auger hole while being extracted, the top several inches of soil in the auger bucket should be discarded prior to placing the bucket contents in the homogenization container for processing. The hand auger assembly must be decontaminated between each borehole that is advanced per Section 5.5.

5.4 Sample Collection, Identification and Documentation

A nominal 500-gram (1.1 lb) sample will be collected and placed into a double-lined plastic bag or sealable laboratory containers. When necessary, additional borings will be placed adjacent to the original location to obtain adequate sample volume for laboratory testing. When multiple borings and core samples are required to obtain adequate sample volume, a composite sample from similar materials and at approximately equal depths of the cores used, will be collected for analysis.

All samples will be labeled to include:

- Location ID
- Depth
- Date/time
- Sampler
- Sample number
- Radiation readings (Gross CPM)
- Analyses required

Sample bags or containers will be transported in totes, coolers, or similar to the radiological storage area pending completion of GEL laboratories Chain-of-Custody (COC) forms (Attachment 1), and shipment for analysis. COC forms will be completed as required and will reflect laboratory analysis for gamma spectroscopy using method 901.1 (HASL 300) and/or alpha spectroscopy for U and Th isotopic. All samples will be submitted via contract carrier.

Sample IDs will consist of an alpha-numeric code including the location, boring ID, sample matrix, sample type, sample depth, and an identifier for composite sample.

- Location: This will be site coordinate and map location
- Sample ID: A sample designation starting with SU1 or BRA (survey unit designation) followed by dash and a two-digit number separated by dash for sample ID, followed by depth designation (A =0-6, B=6-12, C=0-12, D=12-18, as appropriate)
- Sample Matrix: So (soil), Con (concrete) or other.
- If the sample is a composite sample, the sample ID will have the letter C at the end.

Example #1: SU1-2-1ASoC. A soil sample (So) collected at soil sampling location (2-1), from 0.0 to 6 inches bgs (A), composite (C).

Samples will be analyzed by a ELAP certified laboratory. Sample custody will be documented, and analysis requirements communicated using laboratory provided Chain of Custody Forms

5.5 Step for Sampling Equipment Decontamination

Decontamination efforts will follow a four-step approach for hand tools and equipment used to collect samples. The four-step approach for sampling equipment decontamination is as follows:

- A detergent and water wash to remove all visible particulate matter and residual oils and grease.

- ## Attachment 1. GEL Laboratories Chain of Custody Form

MJWRCP-66

Attachment 5. GEL Chain of Custody Form

Page: _____ of _____		GEL Laboratories LLC gcl.com Chemistry Radiochemistry Radiobioassay Specialty Analytics Chain of Custody and Analytical Request										GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178											
Project # _____												GEL Work Order Number: _____ GEL Project Manager: _____											
GEL Quote #: _____		Sample Analysis Requested ⁽⁵⁾ (Fill in the number of containers for each test)										<-- Preservative Type (6)											
COC Number ⁽¹⁾ : _____																							
PO Number: _____		Should this sample be considered:										Total number of containers											
Client Name: _____ Phone #: _____																							
Project/Site Name: _____ Fax #: _____		Comments Note: extra sample is required for sample specific QC																					
Address: _____																							
Collected By: _____		Send Results To:																					
Sample ID <i>* For composites - indicate start and stop date/time</i>		*Date Collected (mm-dd-yy)		*Time Collected (Military) (hhmm)		QC Code ⁽²⁾		Field Filtered ⁽³⁾		Sample Matrix ⁽⁴⁾						Radioactive (if yes, please supply isotopic info.)		(7) Known or possible Hazards					
Chain of Custody Signatures										TAT Requested: Normal: _____ Rush: _____ Specify: _____ (Subject to Surcharge)													
Relinquished By (Signed)			Date		Time		Received by (signed)			Date		Time		Fax Results: [] Yes [] No									
1							1							Select Deliverable: [] C of A [] QC Summary [] level 1 [] Level 2 [] Level 3 [] Level 4									
2							2							Additional Remarks:									
3							3							For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: _____ °C									
> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)										Sample Collection Time Zone: [X] Eastern [] Pacific [] Central [] Mountain [] Other:													
1.) Chain of Custody Number = Client Determined																							
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite																							
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.																							
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal																							
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B 7470A - 1).																							
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank																							
7.) KNOWN OR POSSIBLE HAZARDS				Characteristic Hazards				Listed Waste				Other				Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)							
RCRA Metals				FL = Flammable/Ignitable				LW= Listed Waste				OT= Other / Unknown											
As = Arsenic Hg= Mercury				CO = Corrosive				(F,K,P and U-listed wastes.)				i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)											
Ba = Barium Se= Selenium				RE = Reactive				Waste code(s):				Description:											
Cd = Cadmium Ag= Silver				TSCA Regulated																			
Cr = Chromium MR= Misc. RCRA metals				PCB = Polychlorinated																			
Pb = Lead				biphenyls																			

Attachment 6. GEL Lab Report SDG674299

August 01, 2024

Alex Bartels
MJW Technical Services
15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Re: Inventum
Work Order: 674299

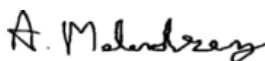
Dear Alex Bartels:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 05, 2024. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4422.

Sincerely,



Adrian Melendrez for
Jacob Crook
Project Manager

Purchase Order: Inventum
Enclosures

MJW Technical Services
Inventum
SDG: 674299

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Case Narrative

**Case Narrative
for
MJW Technical Services
SDG: 674299**

August 01, 2024

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on July 05, 2024 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
674299001	S2.B1
674299002	S2.B2
674299003	S2.B3
674299004	S2.B4
674299005	S2.B5
674299006	S2.B6
674299007	S2.U1
674299008	S2.U2
674299009	S2.U3
674299010	S2.U4
674299011	S2.U2.D
674299012	S3.B1
674299013	S3.B2
674299014	S3.B3
674299015	S3.B4
674299016	S3.U1
674299017	S3.U2
674299018	S3.U3
674299019	S3.B4.D
674299020	S4.B1
674299021	S4.B2
674299022	S4.U1
674299023	S1.B1
674299024	S1.B2
674299025	S1.B3
674299026	S1.B4
674299027	S1.B5
674299028	S1.B6
674299029	S1.U1
674299030	S1.U2
674299031	S1.U3

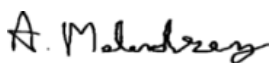
674299032	S1.U4
674299033	S1.B1.D
674299034	F1
674299035	F2
674299036	Control 1
674299037	Control 2

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Radiochemistry.



Adrian Melendrez for
Jacob Crook
Project Manager

List of current GEL Certifications as of 01 August 2024

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-08
New Hampshire NELAP	205424
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2023-152
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235
Utah NELAP	SC000122024-41
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Chain of Custody and Supporting Documentation

074299

Page 1 of 4
 Project # **BITC 3875**
 GEL Quote #:
 COC Number (1):
 PO Number **Inventum**
 Client Name: **MJW Corporation**
 Project/Site Name: **3875 River Road**
 Address: **15 Hazelwood Dr. Suite 112 Amherst, NY 14228**
 Collected By: **A. Bartels** Send Results To: **abarfels@mjwcorp.com**

GEL Laboratories LLC
 Chemistry | Radiochemistry | Radioassay | Specialty Analytics
 Chain of Custody and Analytical Request
 GEL Work Order Number: **(716) 631-8291** Phone #
 Fax #
 GEL Laboratories, LLC
 2040 Savage Road
 Charleston, SC 29407
 Phone (843) 556-8171
 Fax: (843) 766-1178

Sample ID	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hh:mm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered:			Sample Analysis Requested (5) (Fill in the number of containers for each test)			Comments
						Radioactive (Please supply isotopic info.)	possible hazards (7) Known or	Total number of containers	Alpha Spec U	Alpha Spec Th	Gamma Spec	
S2.B1	06-26-24	0903	N	N	SO	N		1	X			21-day IG
S2.B2	06-26-24	0906	N	N	SO	N		1	X			
S2.B3	06-26-24	0908	N	N	SO	N		1	X			
S2.B4	06-26-24	0911	N	N	SO	N		1	X			
S2.B5	06-26-24	0915	N	N	SO	N		1	X			
S2.B6	06-26-24	0917	N	N	SO	N		1	X	X		
S2.U1	06-26-24	0920	N	N	SO	N		1	X			
S2.U2	06-26-24	0925	N	N	SO	N		1	X			
S2.U3	06-26-24	0928	N	N	SO	N		1	X			
S2.U4	06-26-24	0930	N	N	SO	N		1	X	X		

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
<i>[Signature]</i>	7/1/24	1600	<i>[Signature]</i>	7/5/24	0900

TAT Requested: ☒ Normal: ☒ Rush: ☐ Specify: (Subject to Surcharge)

Fax Results: ☐ Yes ☐ No

Select Deliverable: ☐ C of A ☐ QC Summary ☐ Level 1 ☐ Level 2 ☒ Level 4

Additional Remarks:

For Lab Receiving Use Only: Custody Seal Intact? ☐ Yes ☐ No Cooler Temp: **20°C**

Sample Collection Time Zone: ☐ Eastern ☐ Pacific ☐ Central ☐ Mountain ☐ Other:

For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

1) Chain of Custody Number = Client Determined

2) QC Codes N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3) Field Filtered For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered

4) Matrix Codes DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5) Sample Analysis Requested Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B - 4, 70A - 1)

6) Preservative Type HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

7) Are there any known or possible hazards associated with these samples?

Characteristics Hazards	Listed Waste	Other
FL = Flammable/ignitable CO = Corrosive RE = Reactive	LW = Listed Waste (F, K, P and U-listed wastes.) Waste code(s):	OT = Other / Unknown (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:

RCRA Metals	TSCA Regulated	RCRA metals
As = Arsenic Ba = Barium Cd = Cadmium Cr = Chromium Pb = Lead	Hg = Mercury Se = Selenium Ag = Silver MR = Miscellaneous biphenyls	

Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)

GEL Laboratories LLC Chemistry Radiochemistry Radioassay Specialty Analytics 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178																																																																																																				
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Page: <u>3</u> of <u>4</u> Project # <u>B17C 3875</u> GEL Quote # <u>(1)</u> COC Number <u>Inventum</u> PO Number: <u>MTJ Corporation</u>		GEL Laboratories LLC 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178	
Client Name: <u>MTJ Corporation</u> Project/Site Name: <u>3875 River Road</u> Address: <u>15 Hazelwood Dr. Suite 112 Amherst, NY 14228</u> Collected By: <u>A. Bartels</u>		Chain of Custody and Analytical Request GEL Work Order Number: <u>(716) 631-8241</u> Phone # <u>(716) 631-8241</u> Fax # <u>abartels@mtjwarp.com</u>	
Sample ID *For composites - indicate start and stop date/time		Sample Analysis Requested (5) (Fill in the number of containers for each test)	
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Page <u>4</u> of <u>4</u> Project # <u>RITC 3875</u> GEL Quote # <u>(1)</u> COC Number <u>Inventum</u> PO Number: <u>Inventum</u>		GEL Laboratories LLC Chemistry Radiochemistry Radiopharmacy Specialty Analytics Chain of Custody and Analytical Request GEL Work Order Number: <u>GEL Project Manager:</u>		GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407 Phone (843) 556-8171 Fax: (843) 766-1178	
Client Name: <u>MSJ Corporation</u> Project/Site Name: <u>3875 River Road</u> Address: <u>15 Hazelwood Dr. Suite 112 Amherst, NY 14228</u> Collected By: <u>A. Bartels</u> Send Results To: <u>abartels@mjwcorp.com</u>		Phone # <u>(716) 631-8291</u> Fax # _____		Sample Analysis Requested ⁽⁵⁾ (Fill in the number of containers for each test)	
Sample ID *For composites - indicate start and stop date time		*Date Collected (mm-dd-yy) *Time Collected (Military) (hh:mm) QC Code ⁽³⁾ Field Filtered ⁽³⁾ Sample Matrix ⁽⁶⁾		Should this sample be considered: (7) Known or possible hazards (8) Radioactive (9) Please supply isotopic info.	
S1.U3 S1.U4 S1.B1.D F1 F2 Control 1 Control 2		06-26-24 1155 N N SO 06-26-24 1200 N N SO 06-26-24 1205 FD N SO 06-26-24 1215 N N SO 06-26-24 1220 N N SO 06-26-24 1225 N N SO 06-26-24 1230 N N SO		Total number of containers Gamma Spec Alpha Spec Alpha Spec Th Note: extra sample is required for sample specific QC 21-day IG	
Chain of Custody Signatures Relinquished By (Signed) _____ Date _____ Time _____ Received by (signed) _____ Date _____ Time _____ 1 <u>C. J. 7/24 16:00</u> 2 <u>C. J. 7/24 16:00</u> 3 <u>C. J. 7/24 16:00</u>		TAT Requested: Normal: <u>2</u> Rush: <u>3</u> Specify: _____ (Subject to Surcharge) Fax Results: ☐ Yes ☐ No Select Deliverable: ☐ C of A ☐ QC Summary ☐ Level 1 ☐ Level 2 ☐ Level 3 ☒ Level 4 Additional Remarks: _____ For Lab Receiving Use Only: Custody Seal Intact? ☐ Yes ☐ No Cooler Temp: <u>23</u> °C		Sample Collection Time Zone: ☐ Eastern ☐ Pacific ☐ Central ☐ Mountain ☐ Other: _____	
> For sample shipping and delivery details, see Sample Receipt & Review form (SRR).					
1) Chain of Custody Number = Client Determined 2) QC Codes N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3) Field Filtered For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered 4) Matrix Codes DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urne, F=Feal, N=Nasal 5) Sample Analysis Requested Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B -3, 6010B 7470A - 1) 6) Preservative Type HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank					
Characteristic Hazards FL = Flammable/Ignitable CO = Corrosive RE = Reactive TSCA Regulated PCB = Polychlorinated biphenyls		Listed Waste LW = Listed Waste (F,K,P and U-listed wastes) Waste code(s): _____		Other OT = Other / Unknown (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description: _____	
RCRA Metals As = Arsenic Ba = Barium Cd = Cadmium Cr = Chromium Pb = Lead		Hg = Mercury Se = Selenium Ag = Silver MR = Miscellaneous RCRA metals		Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)	

JC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>MJWC</u>		SDG/AR/COC/Work Order: <u>674299</u>	
Received By: CLM		Date Received: <u>7/5/24</u>	
Carrier and Tracking Number		Circle Applicable: ☒ FedEx Express ☐ FedEx Ground ☐ UPS ☐ Field Services ☐ Courier ☐ Other <u>777180971898 (22)</u> <u>777180971913 (23)</u> <u>777180971902 (23)</u>	
Suspected Hazard Information	Yes ☐ No ☒	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
A) Shipped as a DOT Hazardous?	☒	Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___	
B) Did the client designate the samples are to be received as radioactive?	☒	COC notation or radioactive stickers on containers equal client designation.	
C) Did the RSO classify the samples as radioactive?	☒	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <u>CPM</u> /mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
D) Did the client designate samples are hazardous?	☒	COC notation or hazard labels on containers equal client designation.	
E) Did the RSO identify possible hazards?	☒	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____	
Sample Receipt Criteria		Yes ☐ NA ☒ No ☐	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	☒	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	☒	Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	☒	Preservation Method: Wet Ice Ice Packs Dry ice <u>None</u> Other: _____ *all temperatures are recorded in Celsius
4	Daily check performed and passed on IR temperature gun?	☒	Temperature Device Serial #: <u>IR7-23</u> Secondary Temperature Device Serial # (If Applicable): _____
5	Sample containers intact and sealed?	☒	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	☒	Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____
7	Do any samples require Volatile Analysis?	☒	If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer)
			D6 liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No)
			Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___ Sample ID's and containers affected: _____
8	Samples received within holding time?	☒	ID's and tests affected: _____
9	Sample ID's on COC match ID's on bottles?	☒	ID's and containers affected: _____
10	Date & time on COC match date & time on bottles?	☒	Circle Applicable: No dates on containers <u>No times on containers</u> COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	☒	Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	☒	
13	COC form is properly signed in relinquished/received sections?	☒	Circle Applicable: Not relinquished Other (describe)
Comments (Use Continuation Form if needed):			

TEMP: See above with tracking

PM (or PMA) review: Initials AM Date 7/8/24 Page 1 of 1

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier Explanation

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.
P	Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference.

For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Radiological Analysis

Case Narrative

**Radiochemistry
Technical Case Narrative
MJW Technical Services
SDG #: 674299**

Product: Alphaspec U, Solid

Analytical Method: DOE EML HASL-300, U-02-RC Modified

Analytical Procedure: GL-RAD-A-011 REV# 29

Analytical Batch: 2640430

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batches: 2636363 and 2636364

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299011	S2.U2.D
674299012	S3.B1
674299013	S3.B2
674299016	S3.U1
674299019	S3.B4.D
674299020	S4.B1
674299022	S4.U1
674299027	S1.B5
674299030	S1.U2
674299031	S1.U3
674299033	S1.B1.D
674299034	F1
674299037	Control 2
1205789020	Method Blank (MB)
1205789021	674299011(S2.U2.D) Sample Duplicate (DUP)
1205789022	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Alphaspec Th, Solid

Analytical Method: DOE EML HASL-300, Th-01-RC Modified

Analytical Procedure: GL-RAD-A-038 REV# 19

Analytical Batch: 2640431

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batches: 2636363 and 2636364

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299011	S2.U2.D
674299012	S3.B1
674299013	S3.B2
674299016	S3.U1
674299019	S3.B4.D
674299020	S4.B1
674299022	S4.U1
674299027	S1.B5
674299030	S1.U2
674299031	S1.U3
674299033	S1.B1.D
674299034	F1
674299037	Control 2
1205789023	Method Blank (MB)
1205789024	674299011(S2.U2.D) Sample Duplicate (DUP)
1205789025	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Alphaspec U, Solid

Analytical Method: DOE EML HASL-300, U-02-RC Modified

Analytical Procedure: GL-RAD-A-011 REV# 29

Analytical Batch: 2641120

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636363

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299006	S2.B6
674299010	S2.U4
1205790381	Method Blank (MB)
1205790382	674299006(S2.B6) Sample Duplicate (DUP)
1205790383	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Alphaspec Th, Solid

Analytical Method: DOE EML HASL-300, Th-01-RC Modified

Analytical Procedure: GL-RAD-A-038 REV# 19

Analytical Batch: 2641153

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636363

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299006	S2.B6
674299010	S2.U4
1205790430	Method Blank (MB)
1205790431	674299006(S2.B6) Sample Duplicate (DUP)
1205790432	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Dry Weight

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636363

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299001	S2.B1
674299002	S2.B2
674299003	S2.B3
674299004	S2.B4
674299005	S2.B5
674299006	S2.B6
674299007	S2.U1
674299008	S2.U2

674299009	S2.U3
674299010	S2.U4
674299011	S2.U2.D
674299012	S3.B1
674299013	S3.B2
674299014	S3.B3
674299015	S3.B4
674299016	S3.U1
674299017	S3.U2
674299018	S3.U3
674299019	S3.B4.D
674299020	S4.B1

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Dry Weight

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636364

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299021	S4.B2
674299022	S4.U1
674299023	S1.B1
674299024	S1.B2
674299025	S1.B3
674299026	S1.B4
674299027	S1.B5
674299028	S1.B6
674299029	S1.U1
674299030	S1.U2
674299031	S1.U3
674299032	S1.U4
674299033	S1.B1.D
674299034	F1
674299035	F2
674299036	Control 1
674299037	Control 2

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing

calibration, instrument controls and process controls where applicable.

Product: Gammaspec, Gamma, Solid (Standard List)

Analytical Method: DOE HASL 300, 4.5.2.3/Ga-01-R

Analytical Procedure: GL-RAD-A-013 REV# 29

Analytical Batch: 2636542

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636363

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299001	S2.B1
674299002	S2.B2
674299003	S2.B3
674299004	S2.B4
674299005	S2.B5
674299006	S2.B6
674299007	S2.U1
674299008	S2.U2
674299009	S2.U3
674299010	S2.U4
674299011	S2.U2.D
674299012	S3.B1
674299013	S3.B2
674299014	S3.B3
674299015	S3.B4
674299016	S3.U1
674299017	S3.U2
674299018	S3.U3
674299019	S3.B4.D
674299020	S4.B1
1205781343	Method Blank (MB)
1205781344	674299001(S2.B1) Sample Duplicate (DUP)
1205781345	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Results are considered a false positive due to high peak-width.	Potassium-40	674299001	S2.B1
		Uranium-235	674299009	S2.U3
UI	Results are considered a false positive due to interference.	Europium-155	674299001	S2.B1
UI	Results are considered a false positive due to low abundance.	Actinium-228	674299003	S2.B3
		Actinium-228	674299004	S2.B4
		Barium-133	674299010	S2.U4
		Barium-140	674299009	S2.U3
		Bismuth-214	674299008	S2.U2
		Cerium-141	674299010	S2.U4
		Cesium-134	674299009	S2.U3
		Cesium-134	674299012	S3.B1
		Lead-212	674299015	S3.B4
		Niobium-95	674299009	S2.U3
		Promethium-144	674299006	S2.B6
		Radium-228	674299003	S2.B3
		Radium-228	674299004	S2.B4
UI	Results are considered a false positive due to no valid peak.	Cesium-137	674299015	S3.B4
		Lead-210	674299007	S2.U1
		Thorium-234	674299009	S2.U3
		Thorium-234	1205781344	S2.B1(674299001DUP)
		Uranium-235	1205781344	S2.B1(674299001DUP)
		Uranium-238	674299009	S2.U3
		Uranium-238	1205781344	S2.B1(674299001DUP)

Product: Gammaspec, Gamma, Solid (Standard List)

Analytical Method: DOE HASL 300, 4.5.2.3/Ga-01-R

Analytical Procedure: GL-RAD-A-013 REV# 29

Analytical Batch: 2636543

Preparation Method: Dry Soil Prep

Preparation Procedure: GL-RAD-A-021 REV# 25

Preparation Batch: 2636364

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
674299021	S4.B2
674299022	S4.U1
674299023	S1.B1
674299024	S1.B2
674299025	S1.B3
674299026	S1.B4
674299027	S1.B5
674299028	S1.B6
674299029	S1.U1
674299030	S1.U2
674299031	S1.U3
674299032	S1.U4
674299033	S1.B1.D
674299034	F1
674299035	F2
674299036	Control 1
674299037	Control 2
1205781346	Method Blank (MB)
1205781347	674299021(S4.B2) Sample Duplicate (DUP)
1205781348	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Recounts

Samples 1205781348 (LCS) and 674299025 (S1.B3) were recounted due to a peak shift.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Results are considered a false positive due to high peak-width.	Bismuth-212	674299021	S4.B2
		Bismuth-212	674299026	S1.B4
		Bismuth-212	674299028	S1.B6
		Bismuth-212	674299033	S1.B1.D
		Cobalt-58	674299030	S1.U2
UI	Results are considered a false positive due to low abundance.	Actinium-228	674299027	S1.B5

Actinium-228	674299029	S1.U1
Actinium-228	674299031	S1.U3
Bismuth-214	674299036	Control 1
Lead-212	674299035	F2
Niobium-95	674299026	S1.B4
Radium-228	674299027	S1.B5
Radium-228	674299029	S1.U1
Radium-228	674299031	S1.U3

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Moisture LogBook

Batch: 2636363
Analyst: LC2
Date/Time: 08-JUL-2024
Procedure Code:___PREPD
Procedure Description:Dry Soil Prep GL-RAD-A-021
Lab Sop: GL-RAD-A-021

Sample St Sample Id Rpd(%)

Sample Id	Sample Type	Original Hsn	Balance	Run Time	Container Wt	Initial Wt	Final Wt (g)	Net Initial Wt (g)	Net Final Wt (g)	Moisture (%)
674299001	SAMPLE		SP- C234673837	20:10	12.79	596.49	516.07	583.7	503.28	13.777
674299002	SAMPLE		SP- C234673837	20:10	12.84	561.7	468.09	548.86	455.25	17.055
674299003	SAMPLE		SP- C234673837	20:10	12.79	570.44	461.03	557.65	448.24	19.619
674299004	SAMPLE		SP- C234673837	20:10	12.75	523.72	428.79	510.97	416.04	18.578
674299005	SAMPLE		SP- C234673837	20:10	12.83	538.81	449.56	525.98	436.73	16.968
674299006	SAMPLE		SP- C234673837	20:10	12.83	658.71	545.49	645.88	532.66	17.529
674299007	SAMPLE		SP- C234673837	20:10	12.83	430.18	331.12	417.35	318.29	23.735
674299008	SAMPLE		SP- C234673837	20:10	12.89	410.01	379.12	397.12	366.23	7.778
674299009	SAMPLE		SP- C234673837	20:10	12.82	497.07	405.33	484.25	392.51	18.944
674299010	SAMPLE		SP- C234673837	20:10	12.83	523.97	402.69	511.14	389.86	23.727
674299011	SAMPLE		SP- C234673837	20:10	12.91	443.03	374	430.12	361.09	16.049
674299012	SAMPLE		SP- C234673837	20:10	12.79	568.57	489.48	555.78	476.69	14.23
674299013	SAMPLE		SP- C234673837	20:10	12.88	544.51	503.99	531.63	491.11	7.621
674299014	SAMPLE		SP- C234673837	20:10	12.87	420	379.16	407.13	366.29	10.031
674299015	SAMPLE		SP- C234673837	20:10	12.9	410.93	361.7	398.03	348.8	12.368
674299016	SAMPLE		SP- C234673837	20:10	12.95	619.19	559.59	606.24	546.64	9.831
674299017	SAMPLE		SP- C234673837	20:10	12.84	566.17	502.54	553.33	489.7	11.499
674299018	SAMPLE		SP- C234673837	20:10	12.85	394.86	345.56	382.01	332.71	12.905
674299019	SAMPLE		SP- C234673837	20:10	12.93	417.1	368.78	404.17	355.85	11.955

Sample Id	Sample Type	Original Hsn	Balance	Run Time	Container Wt	Initial Wt	Final Wt (g)	Net Initial Wt (g)	Net Final Wt (g)	Moisture (%)
674299020	SAMPLE		SP-C234673837	20:10	12.9	474.77	419.4	461.87	406.5	11.988

Comments:

A) $\text{Result} = (\text{Net Initial} - \text{Net Final}) / \text{Net Initial} * 100$

Note: Aliquot is used for the determination of the effective MDL and PQL in LIMS

Moisture LogBook

Batch: 2636364
Analyst: LC2
Date/Time: 08-JUL-2024
Procedure Code:___PREPD
Procedure Description:Dry Soil Prep GL-RAD-A-021
Lab Sop: GL-RAD-A-021

Sample St	Sample Id	Rpd(%)

Sample Id	Sample Type	Original Hsn	Balance	Run Time	Container Wt	Initial Wt	Final Wt (g)	Net Initial Wt (g)	Net Final Wt (g)	Moisture (%)
674299021	SAMPLE		SP-C234673837	20:04	12.92	547.98	516.6	535.06	503.68	5.864
674299022	SAMPLE		SP-C234673837	20:04	12.82	516.76	457.5	503.94	444.68	11.759
674299023	SAMPLE		SP-C234673837	20:04	12.85	529.1	427.77	516.25	414.92	19.628
674299024	SAMPLE		SP-C234673837	20:04	12.87	498.32	402.98	485.45	390.11	19.639
674299025	SAMPLE		SP-C234673837	20:04	12.86	592.36	512.42	579.5	499.56	13.794
674299026	SAMPLE		SP-C234673837	20:04	12.9	608.91	525.12	596.01	512.22	14.058
674299027	SAMPLE		SP-C234673837	20:04	12.87	542.97	485.18	530.1	472.31	10.901
674299028	SAMPLE		SP-C234673837	20:04	12.89	488.19	401.87	475.3	388.98	18.161
674299029	SAMPLE		SP-C234673837	20:04	12.87	604.31	517.58	591.44	504.71	14.664
674299030	SAMPLE		SP-C234673837	20:04	12.84	488.97	359.19	476.13	346.35	27.257
674299031	SAMPLE		SP-C234673837	20:04	12.92	669.56	588.99	656.64	576.07	12.27
674299032	SAMPLE		SP-C234673837	20:04	12.99	587.75	483.69	574.76	470.7	18.104
674299033	SAMPLE		SP-C234673837	20:04	12.91	573.53	467.02	560.62	454.11	18.998
674299034	SAMPLE		SP-C234673837	20:04	12.89	504.21	381.74	491.32	368.85	24.926
674299035	SAMPLE		SP-C234673837	20:04	13.01	440.08	322.24	427.07	309.23	27.592
674299036	SAMPLE		SP-C234673837	20:04	12.98	417.77	397.25	404.79	384.27	5.069
674299037	SAMPLE		SP-C234673837	20:04	12.95	445.07	350.47	432.12	337.52	21.892

Comments:

A) Result = (Net Initial - Net Final) /Net Initial * 100

GEL Laboratories LLC

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

MJWC001 MJW Technical Services

Client SDG: 674299 GEL Work Order: 674299

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- UI Gamma Spectroscopy--Uncertain identification

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Kate Gellatly

Date: 02 AUG 2024

Title: Analyst 1 PT

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228
Contact: Alex Bartels
Project: Inventum

Report Date: August 2, 2024

Client Sample ID: S2.B1
Sample ID: 674299001
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 13.8%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.465	+/-0.298	0.303	+/-0.303		pCi/g			RXF2	07/30/24	1113	2636542	1
Americium-241	U	0.0858	+/-0.190	0.343	+/-0.194		pCi/g							
Antimony-124	U	0.0824	+/-0.102	0.272	+/-0.109		pCi/g							
Antimony-125	U	0.0294	+/-0.0961	0.191	+/-0.0971		pCi/g							
Barium-133	U	0.00685	+/-0.0562	0.0974	+/-0.0563		pCi/g							
Barium-140	U	0.293	+/-0.790	1.58	+/-0.801		pCi/g							
Beryllium-7	U	-0.124	+/-0.471	0.863	+/-0.474		pCi/g							
Bismuth-212	U	0.929	+/-0.883	1.04	+/-0.887		pCi/g							
Bismuth-214		3.06	+/-0.296	0.125	+/-0.390		pCi/g							
Cerium-139	U	0.0205	+/-0.0374	0.0696	+/-0.0388		pCi/g							
Cerium-141	U	0.134	+/-0.183	0.205	+/-0.193		pCi/g							
Cerium-144	U	0.287	+/-0.237	0.464	+/-0.271		pCi/g							
Cesium-134	U	0.0444	+/-0.0444	0.0898	+/-0.0489		pCi/g							
Cesium-136	U	-0.124	+/-0.356	0.574	+/-0.361		pCi/g							
Cesium-137	U	0.0428	+/-0.0339	0.0438	+/-0.0340	0.100	pCi/g							
Chromium-51	U	0.219	+/-0.626	1.25	+/-0.634		pCi/g							
Cobalt-56	U	-0.0203	+/-0.0509	0.0884	+/-0.0518		pCi/g							
Cobalt-57	U	-0.0111	+/-0.0284	0.0500	+/-0.0289		pCi/g							
Cobalt-58	U	-0.0518	+/-0.0547	0.0839	+/-0.0598		pCi/g							
Cobalt-60	U	-0.0184	+/-0.0465	0.0873	+/-0.0473		pCi/g							
Europium-152	U	-0.0560	+/-0.112	0.204	+/-0.115		pCi/g							
Europium-154	U	0.138	+/-0.124	0.299	+/-0.140		pCi/g							
Europium-155	UI	0.000	+/-0.194	0.179	+/-0.195		pCi/g							
Iridium-192	U	-0.0384	+/-0.0435	0.0765	+/-0.0469		pCi/g							
Iron-59	U	-0.0323	+/-0.110	0.212	+/-0.111		pCi/g							
Lead-210	U	-0.148	+/-4.74	9.14	+/-4.74		pCi/g							
Lead-212		0.511	+/-0.136	0.131	+/-0.144		pCi/g							
Lead-214		3.51	+/-0.330	0.183	+/-0.450		pCi/g							
Manganese-54	U	-0.0147	+/-0.0464	0.0812	+/-0.0469		pCi/g							
Mercury-203	U	0.00474	+/-0.0554	0.107	+/-0.0555		pCi/g							
Neodymium-147	U	0.284	+/-2.08	4.01	+/-2.09		pCi/g							
Neptunium-239	U	0.199	+/-0.283	0.543	+/-0.297		pCi/g							
Niobium-94	U	0.0203	+/-0.0339	0.0657	+/-0.0351		pCi/g							
Niobium-95	U	0.0396	+/-0.0516	0.103	+/-0.0547		pCi/g							
Potassium-40	UI	0.000	+/-1.07	0.909	+/-1.14		pCi/g							
Promethium-144	U	0.0566	+/-0.0580	0.0802	+/-0.0635		pCi/g							
Promethium-146	U	0.0275	+/-0.0453	0.0926	+/-0.0471		pCi/g							
Radium-226		3.51	+/-0.330	0.183	+/-0.450		pCi/g							

GEL LABORATORIES LLC

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B1
Sample ID: 674299001

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Radium-228		0.465	+/-0.298	0.303	+/-0.303		pCi/g							
Ruthenium-106	U	-0.0725	+/-0.373	0.682	+/-0.375		pCi/g							
Silver-110m	U	0.0164	+/-0.0469	0.102	+/-0.0475		pCi/g							
Sodium-22	U	0.0493	+/-0.0442	0.107	+/-0.0498		pCi/g							
Thallium-208		0.175	+/-0.0949	0.0771	+/-0.0960		pCi/g							
Thorium-234		3.26	+/-2.97	2.63	+/-3.07		pCi/g							
Tin-113	U	0.0527	+/-0.0813	0.101	+/-0.0814		pCi/g							
Uranium-235	U	0.286	+/-0.389	0.410	+/-0.390		pCi/g							
Uranium-238		3.26	+/-2.97	2.63	+/-3.07		pCi/g							
Yttrium-88	U	-0.0379	+/-0.0355	0.0561	+/-0.0395		pCi/g							
Zinc-65	U	0.00630	+/-0.119	0.208	+/-0.119		pCi/g							
Zirconium-95	U	-0.0334	+/-0.0981	0.173	+/-0.0993		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B2
Sample ID: 674299002
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 17.1%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.585	+/-0.292	0.409	+/-0.297		pCi/g			RXF2	07/30/24	1113	2636542	1
Americium-241	U	-0.161	+/-0.355	0.563	+/-0.363		pCi/g							
Antimony-124	U	0.0276	+/-0.167	0.357	+/-0.167		pCi/g							
Antimony-125	U	-0.00278	+/-0.211	0.269	+/-0.211		pCi/g							
Barium-133	U	-0.0176	+/-0.0721	0.114	+/-0.0725		pCi/g							
Barium-140	U	0.610	+/-0.957	1.81	+/-0.997		pCi/g							
Beryllium-7	U	0.122	+/-0.711	1.18	+/-0.713		pCi/g							
Bismuth-212	U	0.978	+/-0.705	1.58	+/-0.836		pCi/g							
Bismuth-214		3.85	+/-0.396	0.191	+/-0.518		pCi/g							
Cerium-139	U	-0.0248	+/-0.0472	0.0858	+/-0.0488		pCi/g							
Cerium-141	U	0.184	+/-0.241	0.290	+/-0.255		pCi/g							
Cerium-144	U	0.0881	+/-0.330	0.577	+/-0.332		pCi/g							
Cesium-134	U	0.0253	+/-0.0613	0.124	+/-0.0624		pCi/g							
Cesium-136	U	0.404	+/-0.401	0.892	+/-0.443		pCi/g							
Cesium-137	U	-0.0300	+/-0.0534	0.0961	+/-0.0551	0.100	pCi/g							
Chromium-51	U	-0.292	+/-0.889	1.59	+/-0.900		pCi/g							
Cobalt-56	U	-0.00601	+/-0.0602	0.116	+/-0.0603		pCi/g							
Cobalt-57	U	0.00615	+/-0.0428	0.0746	+/-0.0429		pCi/g							
Cobalt-58	U	-0.0544	+/-0.0680	0.116	+/-0.0724		pCi/g							
Cobalt-60	U	0.0306	+/-0.0590	0.125	+/-0.0607		pCi/g							
Europium-152	U	0.0225	+/-0.156	0.289	+/-0.156		pCi/g							
Europium-154	U	0.0487	+/-0.124	0.255	+/-0.126		pCi/g							
Europium-155	U	0.207	+/-0.163	0.309	+/-0.189		pCi/g							
Iridium-192	U	-0.0676	+/-0.0596	0.0975	+/-0.0673		pCi/g							
Iron-59	U	-0.0779	+/-0.162	0.284	+/-0.166		pCi/g							
Lead-210	U	-6.13	+/-10.1	17.4	+/-10.5		pCi/g							
Lead-212		0.643	+/-0.172	0.168	+/-0.184		pCi/g							
Lead-214		4.93	+/-0.420	0.217	+/-0.635		pCi/g							
Manganese-54	U	-0.0126	+/-0.0625	0.101	+/-0.0628		pCi/g							
Mercury-203	U	-0.0110	+/-0.0778	0.142	+/-0.0780		pCi/g							
Neodymium-147	U	0.389	+/-3.16	5.22	+/-3.17		pCi/g							
Neptunium-239	U	-0.0306	+/-0.421	0.724	+/-0.422		pCi/g							
Niobium-94	U	0.0374	+/-0.0538	0.110	+/-0.0564		pCi/g							
Niobium-95	U	0.0555	+/-0.0858	0.159	+/-0.0895		pCi/g							
Potassium-40		2.62	+/-1.36	1.30	+/-1.38		pCi/g							
Promethium-144	U	0.00302	+/-0.0423	0.0840	+/-0.0423		pCi/g							
Promethium-146	U	0.0415	+/-0.0677	0.131	+/-0.0704		pCi/g							
Radium-226		4.93	+/-0.420	0.217	+/-0.635		pCi/g							
Radium-228		0.585	+/-0.292	0.409	+/-0.297		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B2
Sample ID: 674299002

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.147	+/-0.417	0.855	+/-0.423		pCi/g							
Silver-110m	U	0.0270	+/-0.0869	0.171	+/-0.0878		pCi/g							
Sodium-22	U	0.0186	+/-0.0445	0.0921	+/-0.0453		pCi/g							
Thallium-208		0.163	+/-0.113	0.112	+/-0.114		pCi/g							
Thorium-234	U	3.36	+/-4.71	4.57	+/-4.78		pCi/g							
Tin-113	U	-0.0197	+/-0.0839	0.149	+/-0.0844		pCi/g							
Uranium-235	U	0.391	+/-0.512	0.578	+/-0.513		pCi/g							
Uranium-238	U	3.36	+/-4.71	4.57	+/-4.78		pCi/g							
Yttrium-88	U	-0.0405	+/-0.0626	0.108	+/-0.0653		pCi/g							
Zinc-65	U	0.0858	+/-0.129	0.252	+/-0.135		pCi/g							
Zirconium-95	U	0.0166	+/-0.127	0.225	+/-0.127		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B3
Sample ID: 674299003
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 19.6%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	UI	0.000	+/-0.412	0.657	+/-0.583		pCi/g			RXF2	07/30/24	1114	2636542	1
Americium-241	U	-0.115	+/-0.500	0.868	+/-0.503		pCi/g							
Antimony-124	U	-0.00387	+/-0.116	0.238	+/-0.116		pCi/g							
Antimony-125	U	0.0377	+/-0.141	0.264	+/-0.142		pCi/g							
Barium-133	U	-0.0174	+/-0.0604	0.0968	+/-0.0609		pCi/g							
Barium-140	U	-1.14	+/-1.04	1.65	+/-1.16		pCi/g							
Beryllium-7	U	-0.446	+/-0.511	0.847	+/-0.551		pCi/g							
Bismuth-212	U	1.12	+/-0.856	1.23	+/-0.863		pCi/g							
Bismuth-214		5.12	+/-0.389	0.164	+/-0.578		pCi/g							
Cerium-139	U	0.0232	+/-0.0487	0.0934	+/-0.0500		pCi/g							
Cerium-141	U	0.0163	+/-0.148	0.278	+/-0.149		pCi/g							
Cerium-144	U	0.156	+/-0.355	0.622	+/-0.363		pCi/g							
Cesium-134	U	0.00368	+/-0.0606	0.110	+/-0.0606		pCi/g							
Cesium-136	U	0.0646	+/-0.368	0.738	+/-0.369		pCi/g							
Cesium-137	U	-0.0521	+/-0.0483	0.0746	+/-0.0539	0.100	pCi/g							
Chromium-51	U	0.432	+/-0.988	1.70	+/-1.01		pCi/g							
Cobalt-56	U	-0.0423	+/-0.0583	0.103	+/-0.0615		pCi/g							
Cobalt-57	U	-0.0358	+/-0.0431	0.0696	+/-0.0462		pCi/g							
Cobalt-58	U	-0.0272	+/-0.0604	0.103	+/-0.0618		pCi/g							
Cobalt-60	U	-0.0106	+/-0.0528	0.100	+/-0.0530		pCi/g							
Europium-152	U	0.0493	+/-0.145	0.274	+/-0.147		pCi/g							
Europium-154	U	-0.0327	+/-0.180	0.295	+/-0.181		pCi/g							
Europium-155	U	-0.0155	+/-0.191	0.327	+/-0.191		pCi/g							
Iridium-192	U	-0.0620	+/-0.0604	0.102	+/-0.0669		pCi/g							
Iron-59	U	-0.0708	+/-0.147	0.267	+/-0.151		pCi/g							
Lead-210	U	5.89	+/-24.1	43.6	+/-24.3		pCi/g							
Lead-212		0.851	+/-0.179	0.163	+/-0.197		pCi/g							
Lead-214		6.32	+/-0.408	0.174	+/-0.710		pCi/g							
Manganese-54	U	-0.0156	+/-0.0500	0.0945	+/-0.0505		pCi/g							
Mercury-203	U	-0.0374	+/-0.0746	0.133	+/-0.0766		pCi/g							
Neodymium-147	U	-1.46	+/-2.41	4.11	+/-2.50		pCi/g							
Neptunium-239	U	0.108	+/-0.425	0.744	+/-0.428		pCi/g							
Niobium-94	U	0.0428	+/-0.0506	0.0997	+/-0.0542		pCi/g							
Niobium-95	U	-0.00772	+/-0.0823	0.130	+/-0.0824		pCi/g							
Potassium-40		4.74	+/-1.36	1.20	+/-1.49		pCi/g							
Promethium-144	U	-0.0286	+/-0.0549	0.0925	+/-0.0565		pCi/g							
Promethium-146	U	0.0755	+/-0.0605	0.113	+/-0.0698		pCi/g							
Radium-226		6.32	+/-0.408	0.174	+/-0.710		pCi/g							
Radium-228	UI	0.000	+/-0.412	0.657	+/-0.583		pCi/g							

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B3
Sample ID: 674299003

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.286	+/-0.434	0.725	+/-0.453		pCi/g							
Silver-110m	U	-0.0246	+/-0.0722	0.135	+/-0.0731		pCi/g							
Sodium-22	U	-0.00939	+/-0.0645	0.107	+/-0.0647		pCi/g							
Thallium-208		0.195	+/-0.0870	0.103	+/-0.0885		pCi/g							
Thorium-234	U	2.55	+/-3.84	6.99	+/-4.05		pCi/g							
Tin-113	U	0.0269	+/-0.0745	0.141	+/-0.0755		pCi/g							
Uranium-235	U	0.209	+/-0.322	0.618	+/-0.336		pCi/g							
Uranium-238	U	2.55	+/-3.84	6.99	+/-4.05		pCi/g							
Yttrium-88	U	-0.0250	+/-0.0623	0.113	+/-0.0634		pCi/g							
Zinc-65	U	0.0786	+/-0.120	0.235	+/-0.125		pCi/g							
Zirconium-95	U	-0.00631	+/-0.109	0.199	+/-0.109		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B4
Sample ID: 674299004
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 18.6%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasesc, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	UI	0.000	+/-0.338	0.666	+/-0.504		pCi/g			RXF2	07/30/24	1114	2636542	1
Americium-241	U	0.357	+/-0.491	0.794	+/-0.518		pCi/g							
Antimony-124	U	0.0934	+/-0.112	0.304	+/-0.120		pCi/g							
Antimony-125	U	0.00238	+/-0.145	0.266	+/-0.145		pCi/g							
Barium-133	U	-0.0307	+/-0.0788	0.120	+/-0.0800		pCi/g							
Barium-140	U	-0.264	+/-1.27	2.27	+/-1.28		pCi/g							
Beryllium-7	U	0.0578	+/-0.635	1.18	+/-0.635		pCi/g							
Bismuth-212	U	0.733	+/-0.844	1.70	+/-0.910		pCi/g							
Bismuth-214		3.24	+/-0.314	0.191	+/-0.468		pCi/g							
Cerium-139	U	0.00874	+/-0.0535	0.0984	+/-0.0537		pCi/g							
Cerium-141	U	0.193	+/-0.169	0.325	+/-0.191		pCi/g							
Cerium-144	U	0.223	+/-0.360	0.678	+/-0.374		pCi/g							
Cesium-134	U	0.0701	+/-0.0682	0.138	+/-0.0755		pCi/g							
Cesium-136	U	-0.0553	+/-0.362	0.703	+/-0.363		pCi/g							
Cesium-137	U	-0.0186	+/-0.0671	0.102	+/-0.0677	0.100	pCi/g							
Chromium-51	U	-0.257	+/-0.886	1.58	+/-0.894		pCi/g							
Cobalt-56	U	0.00449	+/-0.0634	0.120	+/-0.0635		pCi/g							
Cobalt-57	U	0.00690	+/-0.0453	0.0836	+/-0.0454		pCi/g							
Cobalt-58	U	-0.000551	+/-0.0710	0.131	+/-0.0710		pCi/g							
Cobalt-60	U	0.0257	+/-0.0564	0.120	+/-0.0576		pCi/g							
Europium-152	U	-0.0828	+/-0.157	0.262	+/-0.162		pCi/g							
Europium-154	U	0.000120	+/-0.172	0.337	+/-0.172		pCi/g							
Europium-155	U	-0.00333	+/-0.211	0.359	+/-0.211		pCi/g							
Iridium-192	U	-0.000417	+/-0.0669	0.122	+/-0.0669		pCi/g							
Iron-59	U	0.279	+/-0.253	0.327	+/-0.284		pCi/g							
Lead-210	U	-7.93	+/-12.9	21.4	+/-13.4		pCi/g							
Lead-212		0.905	+/-0.191	0.156	+/-0.204		pCi/g							
Lead-214		3.42	+/-0.341	0.230	+/-0.443		pCi/g							
Manganese-54	U	-0.0306	+/-0.0511	0.0855	+/-0.0530		pCi/g							
Mercury-203	U	-0.0460	+/-0.0873	0.152	+/-0.0898		pCi/g							
Neodymium-147	U	-0.747	+/-2.68	4.80	+/-2.71		pCi/g							
Neptunium-239	U	0.0125	+/-0.530	0.859	+/-0.530		pCi/g							
Niobium-94	U	0.0289	+/-0.0544	0.106	+/-0.0560		pCi/g							
Niobium-95	U	0.0885	+/-0.0874	0.177	+/-0.0964		pCi/g							
Potassium-40		7.27	+/-1.47	0.977	+/-1.59		pCi/g							
Promethium-144	U	-0.00353	+/-0.0632	0.114	+/-0.0633		pCi/g							
Promethium-146	U	0.0663	+/-0.0702	0.140	+/-0.0767		pCi/g							
Radium-226		3.42	+/-0.341	0.230	+/-0.443		pCi/g							
Radium-228	UI	0.000	+/-0.338	0.666	+/-0.504		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B4
Sample ID: 674299004

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.265	+/-0.463	0.854	+/-0.479		pCi/g							
Silver-110m	U	-0.0198	+/-0.107	0.164	+/-0.107		pCi/g							
Sodium-22	U	-0.00119	+/-0.0610	0.119	+/-0.0610		pCi/g							
Thallium-208		0.240	+/-0.116	0.0964	+/-0.118		pCi/g							
Thorium-234	U	3.71	+/-5.55	6.19	+/-5.61		pCi/g							
Tin-113	U	-0.0239	+/-0.0767	0.136	+/-0.0774		pCi/g							
Uranium-235	U	0.338	+/-0.362	0.686	+/-0.393		pCi/g							
Uranium-238	U	3.71	+/-5.55	6.19	+/-5.61		pCi/g							
Yttrium-88	U	-0.0209	+/-0.0562	0.107	+/-0.0570		pCi/g							
Zinc-65	U	0.101	+/-0.130	0.260	+/-0.138		pCi/g							
Zirconium-95	U	-0.0416	+/-0.131	0.230	+/-0.132		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Company : MJW Technical Services
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B5
Sample ID: 674299005
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 17%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.22	+/-0.488	0.394	+/-0.503		pCi/g			RXF2	07/30/24	1114	2636542	1
Americium-241	U	0.163	+/-0.218	0.425	+/-0.231		pCi/g							
Antimony-124	U	-0.0808	+/-0.143	0.255	+/-0.147		pCi/g							
Antimony-125	U	-0.0259	+/-0.133	0.240	+/-0.134		pCi/g							
Barium-133	U	-0.0336	+/-0.0728	0.114	+/-0.0744		pCi/g							
Barium-140	U	0.0215	+/-0.990	1.82	+/-0.990		pCi/g							
Beryllium-7	U	0.227	+/-0.616	1.17	+/-0.625		pCi/g							
Bismuth-212	U	0.540	+/-0.753	1.41	+/-0.794		pCi/g							
Bismuth-214		3.39	+/-0.344	0.208	+/-0.478		pCi/g							
Cerium-139	U	0.00698	+/-0.0480	0.0844	+/-0.0481		pCi/g							
Cerium-141	U	0.152	+/-0.211	0.231	+/-0.222		pCi/g							
Cerium-144	U	0.193	+/-0.278	0.516	+/-0.291		pCi/g							
Cesium-134	U	0.0371	+/-0.0576	0.118	+/-0.0600		pCi/g							
Cesium-136	U	-0.227	+/-0.363	0.623	+/-0.378		pCi/g							
Cesium-137	U	0.0386	+/-0.0502	0.0922	+/-0.0503	0.100	pCi/g							
Chromium-51	U	0.514	+/-0.816	1.59	+/-0.850		pCi/g							
Cobalt-56	U	-0.00713	+/-0.0568	0.109	+/-0.0569		pCi/g							
Cobalt-57	U	-0.0192	+/-0.0358	0.0615	+/-0.0368		pCi/g							
Cobalt-58	U	-0.0270	+/-0.0658	0.120	+/-0.0670		pCi/g							
Cobalt-60	U	0.0133	+/-0.0552	0.110	+/-0.0555		pCi/g							
Europium-152	U	0.143	+/-0.139	0.270	+/-0.154		pCi/g							
Europium-154	U	0.191	+/-0.174	0.363	+/-0.195		pCi/g							
Europium-155	U	0.0425	+/-0.135	0.248	+/-0.136		pCi/g							
Iridium-192	U	0.0198	+/-0.0581	0.102	+/-0.0588		pCi/g							
Iron-59	U	0.0132	+/-0.163	0.312	+/-0.163		pCi/g							
Lead-210	U	-2.83	+/-6.03	11.1	+/-6.17		pCi/g							
Lead-212		1.08	+/-0.150	0.132	+/-0.177		pCi/g							
Lead-214		3.79	+/-0.373	0.200	+/-0.488		pCi/g							
Manganese-54	U	0.0439	+/-0.0980	0.107	+/-0.0981		pCi/g							
Mercury-203	U	-0.00385	+/-0.0751	0.125	+/-0.0751		pCi/g							
Neodymium-147	U	-2.15	+/-2.50	4.07	+/-2.69		pCi/g							
Neptunium-239	U	-0.0467	+/-0.322	0.573	+/-0.323		pCi/g							
Niobium-94	U	0.0823	+/-0.0562	0.0890	+/-0.0678		pCi/g							
Niobium-95	U	0.0504	+/-0.0778	0.145	+/-0.0812		pCi/g							
Potassium-40		11.0	+/-1.70	0.929	+/-1.97		pCi/g							
Promethium-144	U	-0.0439	+/-0.0649	0.0902	+/-0.0680		pCi/g							
Promethium-146	U	-0.0120	+/-0.0603	0.108	+/-0.0605		pCi/g							
Radium-226		3.79	+/-0.373	0.200	+/-0.488		pCi/g							
Radium-228		1.22	+/-0.488	0.394	+/-0.503		pCi/g							

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Company : MJW Technical Services
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Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B5
Sample ID: 674299005

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.123	+/-0.450	0.847	+/-0.454		pCi/g							
Silver-110m	U	-0.0326	+/-0.0700	0.126	+/-0.0716		pCi/g							
Sodium-22	U	0.0645	+/-0.0615	0.128	+/-0.0682		pCi/g							
Thallium-208		0.319	+/-0.109	0.0779	+/-0.113		pCi/g							
Thorium-234	U	2.39	+/-3.38	3.22	+/-3.43		pCi/g							
Tin-113	U	-0.0441	+/-0.0745	0.130	+/-0.0772		pCi/g							
Uranium-235	U	0.323	+/-0.449	0.432	+/-0.450		pCi/g							
Uranium-238	U	2.39	+/-3.38	3.22	+/-3.43		pCi/g							
Yttrium-88	U	0.0257	+/-0.0528	0.125	+/-0.0541		pCi/g							
Zinc-65	U	-0.0400	+/-0.126	0.194	+/-0.127		pCi/g							
Zirconium-95	U	-0.0636	+/-0.126	0.195	+/-0.129		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B6
Sample ID: 674299006
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 17.5%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	-0.102	+/-0.151	0.496	+/-0.151	1.00	pCi/g			AG2	07/19/24	1008	2641153	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0966	+/-0.222	0.352	+/-0.222	1.00	pCi/g			RM3	07/19/24	0821	2641120	2
Uranium-238	U	0.220	+/-0.252	0.314	+/-0.253	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.234	+/-0.197	0.349	+/-0.225		pCi/g			RXF2	07/30/24	1115	2636542	3
Americium-241	U	0.0865	+/-0.0839	0.187	+/-0.0930		pCi/g							
Antimony-124	U	0.0288	+/-0.0707	0.177	+/-0.0720		pCi/g							
Antimony-125	U	-0.0354	+/-0.0606	0.113	+/-0.0627		pCi/g							
Barium-133	U	-0.0142	+/-0.0300	0.0508	+/-0.0307		pCi/g							
Barium-140	U	-0.103	+/-0.493	0.963	+/-0.495		pCi/g							
Beryllium-7	U	0.147	+/-0.294	0.627	+/-0.301		pCi/g							
Bismuth-212	U	0.348	+/-0.438	0.683	+/-0.440		pCi/g							
Bismuth-214		0.319	+/-0.121	0.0896	+/-0.124		pCi/g							
Cerium-139	U	0.00610	+/-0.0203	0.0400	+/-0.0206		pCi/g							
Cerium-141	U	-0.0203	+/-0.0627	0.115	+/-0.0634		pCi/g							
Cerium-144	U	-0.0199	+/-0.140	0.245	+/-0.141		pCi/g							
Cesium-134	U	0.0393	+/-0.0312	0.0717	+/-0.0360		pCi/g							
Cesium-136	U	0.174	+/-0.209	0.476	+/-0.224		pCi/g							
Cesium-137	U	0.0376	+/-0.0344	0.0474	+/-0.0346	0.100	pCi/g							
Chromium-51	U	-0.140	+/-0.416	0.814	+/-0.421		pCi/g							
Cobalt-56	U	-0.0149	+/-0.0463	0.0733	+/-0.0468		pCi/g							
Cobalt-57	U	-0.00303	+/-0.0168	0.0319	+/-0.0168		pCi/g							
Cobalt-58	U	-0.0277	+/-0.0355	0.0590	+/-0.0377		pCi/g							
Cobalt-60	U	-0.00873	+/-0.0254	0.0500	+/-0.0257		pCi/g							
Europium-152	U	-0.00194	+/-0.0664	0.134	+/-0.0664		pCi/g							
Europium-154	U	0.00398	+/-0.0651	0.144	+/-0.0651		pCi/g							
Europium-155	U	9.61E-05	+/-0.0659	0.129	+/-0.0659		pCi/g							
Iridium-192	U	-0.0304	+/-0.0300	0.0462	+/-0.0331		pCi/g							
Iron-59	U	0.00162	+/-0.0844	0.176	+/-0.0844		pCi/g							
Lead-210	U	-0.386	+/-2.02	4.02	+/-2.02		pCi/g							
Lead-212		0.316	+/-0.0852	0.0701	+/-0.0898		pCi/g							
Lead-214		0.326	+/-0.140	0.0959	+/-0.142		pCi/g							
Manganese-54	U	-0.0258	+/-0.0321	0.0530	+/-0.0342		pCi/g							
Mercury-203	U	0.0329	+/-0.0378	0.0769	+/-0.0407		pCi/g							
Neodymium-147	U	0.777	+/-1.37	2.93	+/-1.41		pCi/g							
Neptunium-239	U	0.0250	+/-0.164	0.324	+/-0.165		pCi/g							

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B6
Sample ID: 674299006

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	-0.0142	+/-0.0255	0.0389	+/-0.0263		pCi/g							
Niobium-95	U	-0.0256	+/-0.0375	0.0644	+/-0.0394		pCi/g							
Potassium-40		9.61	+/-1.25	0.518	+/-1.52		pCi/g							
Promethium-144	UI	0.000	+/-0.0589	0.0515	+/-0.0726		pCi/g							
Promethium-146	U	0.0213	+/-0.0335	0.0713	+/-0.0350		pCi/g							
Radium-226		0.326	+/-0.140	0.0959	+/-0.142		pCi/g							
Radium-228	U	0.234	+/-0.197	0.349	+/-0.225		pCi/g							
Ruthenium-106	U	0.131	+/-0.210	0.466	+/-0.219		pCi/g							
Silver-110m	U	0.000891	+/-0.0263	0.0527	+/-0.0263		pCi/g							
Sodium-22	U	0.00142	+/-0.0232	0.0514	+/-0.0232		pCi/g							
Thallium-208		0.0866	+/-0.0573	0.0439	+/-0.0578		pCi/g							
Thorium-234	U	0.0965	+/-0.817	1.67	+/-0.818		pCi/g							
Tin-113	U	-0.0253	+/-0.0372	0.0686	+/-0.0389		pCi/g							
Uranium-235	U	0.00983	+/-0.131	0.251	+/-0.131		pCi/g							
Uranium-238	U	0.0965	+/-0.817	1.67	+/-0.818		pCi/g							
Yttrium-88	U	-0.000280	+/-0.0176	0.0458	+/-0.0176		pCi/g							
Zinc-65	U	-0.0258	+/-0.0596	0.0976	+/-0.0607		pCi/g							
Zirconium-95	U	-0.0298	+/-0.0578	0.104	+/-0.0594		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2641153	87.7	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2641120	103	(15%-125%)

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.B6
Sample ID: 674299006

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U1
Sample ID: 674299007
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 23.7%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.403	+/-0.226	0.444	+/-0.294		pCi/g			RXF2	07/30/24	1116	2636542	1
Americium-241	U	0.0183	+/-0.0956	0.177	+/-0.0960		pCi/g							
Antimony-124	U	-0.0470	+/-0.104	0.190	+/-0.107		pCi/g							
Antimony-125	U	-0.0541	+/-0.0900	0.156	+/-0.0933		pCi/g							
Barium-133	U	0.0372	+/-0.0428	0.0826	+/-0.0460		pCi/g							
Barium-140	U	0.367	+/-0.624	1.32	+/-0.646		pCi/g							
Beryllium-7	U	0.0994	+/-0.364	0.725	+/-0.367		pCi/g							
Bismuth-212	U	0.492	+/-0.377	0.741	+/-0.380		pCi/g							
Bismuth-214		0.843	+/-0.153	0.137	+/-0.170		pCi/g							
Cerium-139	U	0.0225	+/-0.0318	0.0593	+/-0.0338		pCi/g							
Cerium-141	U	-0.0368	+/-0.0797	0.133	+/-0.0815		pCi/g							
Cerium-144	U	0.00669	+/-0.177	0.313	+/-0.177		pCi/g							
Cesium-134	U	0.0429	+/-0.0343	0.0819	+/-0.0396		pCi/g							
Cesium-136	U	-0.0537	+/-0.217	0.431	+/-0.219		pCi/g							
Cesium-137	U	0.0300	+/-0.0498	0.0666	+/-0.0499	0.100	pCi/g							
Chromium-51	U	-0.0228	+/-0.554	1.05	+/-0.554		pCi/g							
Cobalt-56	U	-0.0219	+/-0.0399	0.0734	+/-0.0411		pCi/g							
Cobalt-57	U	0.0114	+/-0.0211	0.0399	+/-0.0217		pCi/g							
Cobalt-58	U	0.0114	+/-0.0255	0.0587	+/-0.0261		pCi/g							
Cobalt-60	U	0.00284	+/-0.0355	0.0752	+/-0.0355		pCi/g							
Europium-152	U	-0.0530	+/-0.0783	0.137	+/-0.0820		pCi/g							
Europium-154	U	0.0799	+/-0.116	0.265	+/-0.122		pCi/g							
Europium-155	U	-0.0364	+/-0.0859	0.146	+/-0.0875		pCi/g							
Iridium-192	U	-0.0225	+/-0.0341	0.0601	+/-0.0357		pCi/g							
Iron-59	U	-0.0152	+/-0.0863	0.175	+/-0.0866		pCi/g							
Lead-210	UI	0.000	+/-3.94	2.94	+/-3.95		pCi/g							
Lead-212		0.317	+/-0.0983	0.0917	+/-0.102		pCi/g							
Lead-214		0.875	+/-0.193	0.123	+/-0.206		pCi/g							
Manganese-54	U	-0.0209	+/-0.0318	0.0571	+/-0.0332		pCi/g							
Mercury-203	U	-0.0161	+/-0.0465	0.0852	+/-0.0471		pCi/g							
Neodymium-147	U	0.611	+/-1.42	2.99	+/-1.44		pCi/g							
Neptunium-239	U	0.226	+/-0.147	0.382	+/-0.181		pCi/g							
Niobium-94	U	0.00672	+/-0.0276	0.0555	+/-0.0278		pCi/g							
Niobium-95	U	0.00368	+/-0.0574	0.107	+/-0.0575		pCi/g							
Potassium-40		1.61	+/-0.708	0.600	+/-0.726		pCi/g							
Promethium-144	U	0.00362	+/-0.0332	0.0638	+/-0.0332		pCi/g							
Promethium-146	U	0.00318	+/-0.0361	0.0643	+/-0.0362		pCi/g							
Radium-226		0.875	+/-0.193	0.123	+/-0.206		pCi/g							
Radium-228	U	0.403	+/-0.226	0.444	+/-0.294		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U1
Sample ID: 674299007

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.126	+/-0.259	0.550	+/-0.265		pCi/g							
Silver-110m	U	0.0401	+/-0.0463	0.108	+/-0.0499		pCi/g							
Sodium-22	U	0.0296	+/-0.0416	0.0951	+/-0.0438		pCi/g							
Thallium-208		0.0779	+/-0.0538	0.0441	+/-0.0542		pCi/g							
Thorium-234	U	1.19	+/-1.48	1.58	+/-1.50		pCi/g							
Tin-113	U	0.00338	+/-0.0383	0.0754	+/-0.0383		pCi/g							
Uranium-235	U	0.0984	+/-0.184	0.340	+/-0.189		pCi/g							
Uranium-238	U	1.19	+/-1.48	1.58	+/-1.50		pCi/g							
Yttrium-88	U	0.0150	+/-0.0431	0.102	+/-0.0436		pCi/g							
Zinc-65	U	0.0366	+/-0.0871	0.174	+/-0.0887		pCi/g							
Zirconium-95	U	0.00581	+/-0.0537	0.105	+/-0.0537		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U2
Sample ID: 674299008
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 7.78%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.246	+/-0.241	0.476	+/-0.267		pCi/g			RXF2	07/30/24	1116	2636542	1
Americium-241	U	-0.0198	+/-0.0419	0.0695	+/-0.0429		pCi/g							
Antimony-124	U	0.0322	+/-0.0630	0.234	+/-0.0647		pCi/g							
Antimony-125	U	0.0167	+/-0.0673	0.141	+/-0.0677		pCi/g							
Barium-133	U	0.0145	+/-0.0264	0.0554	+/-0.0272		pCi/g							
Barium-140	U	-0.119	+/-0.663	1.26	+/-0.666		pCi/g							
Beryllium-7	U	-0.289	+/-0.379	0.630	+/-0.402		pCi/g							
Bismuth-212		1.07	+/-0.640	0.562	+/-0.653		pCi/g							
Bismuth-214	UI	0.000	+/-0.131	0.264	+/-0.194		pCi/g							
Cerium-139	U	-0.00578	+/-0.0208	0.0364	+/-0.0210		pCi/g							
Cerium-141	U	-0.0446	+/-0.0540	0.0877	+/-0.0580		pCi/g							
Cerium-144	U	0.00630	+/-0.122	0.225	+/-0.122		pCi/g							
Cesium-134	U	0.0425	+/-0.0423	0.102	+/-0.0468		pCi/g							
Cesium-136	U	-0.191	+/-0.297	0.510	+/-0.310		pCi/g							
Cesium-137	U	-0.0119	+/-0.0271	0.0483	+/-0.0277	0.100	pCi/g							
Chromium-51	U	-0.283	+/-0.476	0.742	+/-0.494		pCi/g							
Cobalt-56	U	-0.0374	+/-0.0355	0.0501	+/-0.0396		pCi/g							
Cobalt-57	U	0.00405	+/-0.0147	0.0281	+/-0.0148		pCi/g							
Cobalt-58	U	-0.0195	+/-0.0439	0.0831	+/-0.0448		pCi/g							
Cobalt-60	U	-0.0161	+/-0.0360	0.0660	+/-0.0367		pCi/g							
Europium-152	U	-0.0268	+/-0.0708	0.116	+/-0.0719		pCi/g							
Europium-154	U	0.0416	+/-0.111	0.267	+/-0.112		pCi/g							
Europium-155	U	-0.0500	+/-0.0513	0.0811	+/-0.0564		pCi/g							
Iridium-192	U	0.0612	+/-0.0455	0.0657	+/-0.0535		pCi/g							
Iron-59	U	0.0625	+/-0.0897	0.242	+/-0.0943		pCi/g							
Lead-210		0.629	+/-0.476	0.439	+/-0.480		pCi/g							
Lead-212		0.246	+/-0.0818	0.0748	+/-0.0882		pCi/g							
Lead-214		0.320	+/-0.110	0.102	+/-0.113		pCi/g							
Manganese-54	U	-0.00956	+/-0.0341	0.0675	+/-0.0344		pCi/g							
Mercury-203	U	0.0597	+/-0.0604	0.0744	+/-0.0607		pCi/g							
Neodymium-147	U	1.06	+/-1.76	3.79	+/-1.82		pCi/g							
Neptunium-239	U	0.0240	+/-0.120	0.234	+/-0.121		pCi/g							
Niobium-94	U	-0.00787	+/-0.0317	0.0580	+/-0.0319		pCi/g							
Niobium-95	U	-0.00406	+/-0.0517	0.104	+/-0.0518		pCi/g							
Potassium-40		2.04	+/-1.02	0.896	+/-1.04		pCi/g							
Promethium-144	U	-0.0198	+/-0.0407	0.0688	+/-0.0417		pCi/g							
Promethium-146	U	-0.0240	+/-0.0408	0.0707	+/-0.0423		pCi/g							
Radium-226		0.320	+/-0.110	0.102	+/-0.113		pCi/g							
Radium-228	U	0.246	+/-0.241	0.476	+/-0.267		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U2
Sample ID: 674299008

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.00209	+/-0.325	0.629	+/-0.325		pCi/g							
Silver-110m	U	-0.0193	+/-0.0586	0.112	+/-0.0593		pCi/g							
Sodium-22	U	0.0148	+/-0.0395	0.0951	+/-0.0400		pCi/g							
Thallium-208		0.0674	+/-0.0488	0.0337	+/-0.0493		pCi/g							
Thorium-234	U	0.704	+/-0.544	1.05	+/-0.650		pCi/g							
Tin-113	U	-0.0139	+/-0.0366	0.0678	+/-0.0372		pCi/g							
Uranium-235	U	0.119	+/-0.112	0.233	+/-0.125		pCi/g							
Uranium-238	U	0.704	+/-0.544	1.05	+/-0.650		pCi/g							
Yttrium-88	U	0.0281	+/-0.0670	0.166	+/-0.0682		pCi/g							
Zinc-65	U	-0.0907	+/-0.111	0.177	+/-0.118		pCi/g							
Zirconium-95	U	0.0899	+/-0.0827	0.207	+/-0.0928		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U3
Sample ID: 674299009
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 18.9%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.16	+/-0.340	0.334	+/-0.367		pCi/g			RXF2	07/30/24	1117	2636542	1
Americium-241	U	-0.312	+/-0.623	0.976	+/-0.639		pCi/g							
Antimony-124	U	0.0772	+/-0.139	0.285	+/-0.143		pCi/g							
Antimony-125	U	-0.0274	+/-0.159	0.284	+/-0.159		pCi/g							
Barium-133	U	-0.0195	+/-0.0788	0.124	+/-0.0793		pCi/g							
Barium-140	UI	0.000	+/-1.79	1.96	+/-2.02		pCi/g							
Beryllium-7	U	-0.303	+/-0.658	1.15	+/-0.673		pCi/g							
Bismuth-212		1.26	+/-1.29	1.18	+/-1.30		pCi/g							
Bismuth-214		8.86	+/-0.411	0.196	+/-0.982		pCi/g							
Cerium-139	U	-0.0682	+/-0.0701	0.117	+/-0.0782		pCi/g							
Cerium-141	U	0.165	+/-0.224	0.358	+/-0.236		pCi/g							
Cerium-144	U	-0.0765	+/-0.440	0.762	+/-0.441		pCi/g							
Cesium-134	UI	0.000	+/-0.0855	0.121	+/-0.118		pCi/g							
Cesium-136	U	-0.262	+/-0.383	0.670	+/-0.402		pCi/g							
Cesium-137	U	-0.00928	+/-0.0583	0.0900	+/-0.0584	0.100	pCi/g							
Chromium-51	U	-0.629	+/-1.03	1.81	+/-1.07		pCi/g							
Cobalt-56	U	-0.0605	+/-0.0756	0.105	+/-0.0807		pCi/g							
Cobalt-57	U	-0.0169	+/-0.0551	0.0954	+/-0.0557		pCi/g							
Cobalt-58	U	-0.0213	+/-0.0767	0.115	+/-0.0774		pCi/g							
Cobalt-60	U	-0.0164	+/-0.0565	0.101	+/-0.0570		pCi/g							
Europium-152	U	-0.101	+/-0.278	0.310	+/-0.282		pCi/g							
Europium-154	U	0.0854	+/-0.146	0.263	+/-0.151		pCi/g							
Europium-155	U	-0.0763	+/-0.213	0.370	+/-0.216		pCi/g							
Iridium-192	U	-0.00533	+/-0.0708	0.129	+/-0.0708		pCi/g							
Iron-59	U	0.130	+/-0.136	0.281	+/-0.149		pCi/g							
Lead-210	U	-5.01	+/-27.2	48.4	+/-27.3		pCi/g							
Lead-212		1.55	+/-0.228	0.186	+/-0.290		pCi/g							
Lead-214		11.0	+/-0.525	0.225	+/-1.15		pCi/g							
Manganese-54	U	0.0298	+/-0.0824	0.108	+/-0.0825		pCi/g							
Mercury-203	U	-0.0660	+/-0.109	0.179	+/-0.113		pCi/g							
Neodymium-147	U	-2.89	+/-3.41	4.95	+/-3.66		pCi/g							
Neptunium-239	U	0.284	+/-0.540	0.966	+/-0.556		pCi/g							
Niobium-94	U	0.0733	+/-0.0972	0.0939	+/-0.103		pCi/g							
Niobium-95	UI	0.000	+/-0.0958	0.180	+/-0.145		pCi/g							
Potassium-40		4.03	+/-1.16	0.961	+/-1.23		pCi/g							
Promethium-144	U	0.0313	+/-0.0522	0.0879	+/-0.0542		pCi/g							
Promethium-146	U	0.0914	+/-0.0932	0.127	+/-0.102		pCi/g							
Radium-226		11.0	+/-0.525	0.225	+/-1.15		pCi/g							
Radium-228		1.16	+/-0.340	0.334	+/-0.367		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U3
Sample ID: 674299009

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammamspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.332	+/-0.594	0.859	+/-0.614		pCi/g							
Silver-110m	U	0.0289	+/-0.0929	0.148	+/-0.0939		pCi/g							
Sodium-22	U	0.0469	+/-0.0736	0.0796	+/-0.0737		pCi/g							
Thallium-208		0.318	+/-0.111	0.0990	+/-0.116		pCi/g							
Thorium-234	UI	0.000	+/-7.18	7.22	+/-7.59		pCi/g							
Tin-113	U	-0.0463	+/-0.0815	0.143	+/-0.0843		pCi/g							
Uranium-235	UI	0.000	+/-0.700	0.738	+/-0.706		pCi/g							
Uranium-238	UI	0.000	+/-7.18	7.22	+/-7.59		pCi/g							
Yttrium-88	U	0.0486	+/-0.0596	0.125	+/-0.0636		pCi/g							
Zinc-65	U	-0.0343	+/-0.114	0.179	+/-0.115		pCi/g							
Zirconium-95	U	-0.0205	+/-0.129	0.227	+/-0.130		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U4
Sample ID: 674299010
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 23.7%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		1.16	+/-0.776	0.691	+/-0.799	1.00	pCi/g			AG2	07/19/24	1043	2641153	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0985	+/-0.226	0.359	+/-0.227	1.00	pCi/g			RM3	07/19/24	0821	2641120	2
Uranium-238		5.39	+/-1.05	0.368	+/-1.27	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.29	+/-0.519	0.490	+/-0.533		pCi/g			RXF2	07/30/24	1117	2636542	3
Americium-241	U	0.0953	+/-0.300	0.549	+/-0.303		pCi/g							
Antimony-124	U	0.0208	+/-0.203	0.411	+/-0.203		pCi/g							
Antimony-125	U	0.145	+/-0.180	0.348	+/-0.192		pCi/g							
Barium-133	UI	0.000	+/-0.124	0.147	+/-0.144		pCi/g							
Barium-140	U	-0.192	+/-1.30	2.33	+/-1.31		pCi/g							
Beryllium-7	U	0.0710	+/-0.736	1.35	+/-0.737		pCi/g							
Bismuth-212		3.30	+/-1.28	1.51	+/-1.32		pCi/g							
Bismuth-214		8.35	+/-0.528	0.178	+/-0.912		pCi/g							
Cerium-139	U	0.00275	+/-0.0582	0.103	+/-0.0582		pCi/g							
Cerium-141	UI	0.000	+/-0.275	0.301	+/-0.330		pCi/g							
Cerium-144	U	-0.236	+/-0.356	0.614	+/-0.372		pCi/g							
Cesium-134	U	-0.000525	+/-0.0796	0.149	+/-0.0796		pCi/g							
Cesium-136	U	0.293	+/-0.544	1.08	+/-0.561		pCi/g							
Cesium-137	U	-0.0195	+/-0.0787	0.119	+/-0.0792	0.100	pCi/g							
Chromium-51	U	0.203	+/-1.08	2.03	+/-1.08		pCi/g							
Cobalt-56	U	0.0142	+/-0.0779	0.139	+/-0.0782		pCi/g							
Cobalt-57	U	-0.0125	+/-0.0428	0.0763	+/-0.0432		pCi/g							
Cobalt-58	U	0.0871	+/-0.0955	0.156	+/-0.104		pCi/g							
Cobalt-60	U	-0.0172	+/-0.0736	0.139	+/-0.0740		pCi/g							
Europium-152	U	-0.0733	+/-0.190	0.326	+/-0.193		pCi/g							
Europium-154	U	-0.131	+/-0.245	0.392	+/-0.253		pCi/g							
Europium-155	U	-0.0666	+/-0.169	0.303	+/-0.171		pCi/g							
Iridium-192	U	-0.00224	+/-0.0718	0.134	+/-0.0718		pCi/g							
Iron-59	U	-0.0137	+/-0.222	0.406	+/-0.222		pCi/g							
Lead-210	U	5.49	+/-11.5	19.5	+/-11.8		pCi/g							
Lead-212		1.28	+/-0.232	0.197	+/-0.260		pCi/g							
Lead-214		10.2	+/-0.570	0.257	+/-0.990		pCi/g							
Manganese-54	U	-0.00981	+/-0.0745	0.121	+/-0.0747		pCi/g							
Mercury-203	U	-0.0501	+/-0.0936	0.151	+/-0.0964		pCi/g							
Neodymium-147	U	-2.22	+/-3.27	5.47	+/-3.42		pCi/g							
Neptunium-239	U	-0.219	+/-0.433	0.764	+/-0.444		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U4
Sample ID: 674299010

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.00923	+/-0.0612	0.117	+/-0.0614		pCi/g							
Niobium-95	U	0.158	+/-0.119	0.225	+/-0.140		pCi/g							
Potassium-40		1.86	+/-1.94	1.71	+/-1.95		pCi/g							
Promethium-144	U	-0.0241	+/-0.0547	0.100	+/-0.0558		pCi/g							
Promethium-146	U	0.0647	+/-0.0846	0.163	+/-0.0897		pCi/g							
Radium-226		10.2	+/-0.570	0.257	+/-0.990		pCi/g							
Radium-228		1.29	+/-0.519	0.490	+/-0.533		pCi/g							
Ruthenium-106	U	0.353	+/-0.564	1.09	+/-0.587		pCi/g							
Silver-110m	U	0.0511	+/-0.109	0.212	+/-0.111		pCi/g							
Sodium-22	U	-0.0507	+/-0.0868	0.137	+/-0.0899		pCi/g							
Thallium-208		0.490	+/-0.153	0.120	+/-0.159		pCi/g							
Thorium-234		8.11	+/-5.51	4.43	+/-5.86		pCi/g							
Tin-113	U	-0.0615	+/-0.0932	0.162	+/-0.0974		pCi/g							
Uranium-235		0.848	+/-0.586	0.566	+/-0.591		pCi/g							
Uranium-238		8.11	+/-5.51	4.43	+/-5.86		pCi/g							
Yttrium-88	U	-0.0377	+/-0.0780	0.147	+/-0.0798		pCi/g							
Zinc-65	U	0.0894	+/-0.143	0.272	+/-0.149		pCi/g							
Zirconium-95	U	-0.0218	+/-0.163	0.303	+/-0.163		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2641153	63.1	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2641120	88.8	(15%-125%)

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Certificate of Analysis

Company : MJW Technical Services
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U4
Sample ID: 674299010

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U2.D
Sample ID: 674299011
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 16%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.460	+/-0.397	0.449	+/-0.402	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0801	+/-0.184	0.292	+/-0.184	1.00	pCi/g			CM4	07/18/24	0840	2640430	2
Uranium-238	U	0.160	+/-0.189	0.205	+/-0.190	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.335	+/-0.222	0.254	+/-0.226		pCi/g			RXF2	07/30/24	1118	2636542	3
Americium-241	U	-0.0619	+/-0.0739	0.116	+/-0.0792		pCi/g							
Antimony-124	U	0.00144	+/-0.0972	0.215	+/-0.0972		pCi/g							
Antimony-125	U	-0.0541	+/-0.0642	0.107	+/-0.0689		pCi/g							
Barium-133	U	-0.0136	+/-0.0360	0.0581	+/-0.0365		pCi/g							
Barium-140	U	-0.0703	+/-0.606	1.14	+/-0.607		pCi/g							
Beryllium-7	U	0.179	+/-0.324	0.674	+/-0.335		pCi/g							
Bismuth-212	U	0.389	+/-0.807	0.847	+/-0.808		pCi/g							
Bismuth-214		0.458	+/-0.129	0.108	+/-0.134		pCi/g							
Cerium-139	U	0.0182	+/-0.0376	0.0425	+/-0.0378		pCi/g							
Cerium-141	U	-0.00980	+/-0.0721	0.127	+/-0.0722		pCi/g							
Cerium-144	U	-0.0371	+/-0.155	0.272	+/-0.156		pCi/g							
Cesium-134	U	0.0336	+/-0.0358	0.0809	+/-0.0390		pCi/g							
Cesium-136	U	-0.0361	+/-0.190	0.380	+/-0.190		pCi/g							
Cesium-137	U	0.00802	+/-0.0295	0.0590	+/-0.0297	0.100	pCi/g							
Chromium-51	U	0.0338	+/-0.501	0.967	+/-0.501		pCi/g							
Cobalt-56	U	0.00814	+/-0.0380	0.0796	+/-0.0382		pCi/g							
Cobalt-57	U	-0.00203	+/-0.0196	0.0351	+/-0.0196		pCi/g							
Cobalt-58	U	-0.0258	+/-0.0364	0.0643	+/-0.0383		pCi/g							
Cobalt-60	U	0.0270	+/-0.0307	0.0770	+/-0.0332		pCi/g							
Europium-152	U	-0.00999	+/-0.0737	0.140	+/-0.0738		pCi/g							
Europium-154	U	0.0231	+/-0.103	0.216	+/-0.103		pCi/g							
Europium-155	U	0.0282	+/-0.0770	0.145	+/-0.0781		pCi/g							
Iridium-192	U	0.00798	+/-0.0314	0.0627	+/-0.0316		pCi/g							
Iron-59	U	-0.0492	+/-0.0917	0.164	+/-0.0946		pCi/g							
Lead-210	U	0.382	+/-1.29	2.51	+/-1.30		pCi/g							
Lead-212		0.390	+/-0.0951	0.0877	+/-0.103		pCi/g							
Lead-214		0.510	+/-0.170	0.108	+/-0.177		pCi/g							
Manganese-54	U	0.00826	+/-0.0437	0.0780	+/-0.0439		pCi/g							
Mercury-203	U	0.0172	+/-0.0377	0.0768	+/-0.0386		pCi/g							
Neodymium-147	U	-0.180	+/-1.50	2.82	+/-1.51		pCi/g							
Neptunium-239	U	0.0512	+/-0.185	0.347	+/-0.186		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U2.D
Sample ID: 674299011

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.00815	+/-0.0282	0.0558	+/-0.0285		pCi/g							
Niobium-95	U	0.0335	+/-0.0447	0.0918	+/-0.0473		pCi/g							
Potassium-40		5.09	+/-0.995	0.479	+/-1.16		pCi/g							
Promethium-144	U	0.0174	+/-0.0275	0.0584	+/-0.0286		pCi/g							
Promethium-146	U	-0.00188	+/-0.0285	0.0553	+/-0.0285		pCi/g							
Radium-226		0.510	+/-0.170	0.108	+/-0.177		pCi/g							
Radium-228		0.335	+/-0.222	0.254	+/-0.226		pCi/g							
Ruthenium-106	U	-0.0555	+/-0.278	0.450	+/-0.279		pCi/g							
Silver-110m	U	-0.0248	+/-0.0361	0.0635	+/-0.0380		pCi/g							
Sodium-22	U	0.00822	+/-0.0366	0.0769	+/-0.0368		pCi/g							
Thallium-208		0.152	+/-0.0523	0.0606	+/-0.0538		pCi/g							
Thorium-234		1.56	+/-1.53	1.11	+/-1.57		pCi/g							
Tin-113	U	0.0157	+/-0.0369	0.0758	+/-0.0376		pCi/g							
Uranium-235	U	-0.101	+/-0.160	0.264	+/-0.167		pCi/g							
Uranium-238		1.56	+/-1.53	1.11	+/-1.57		pCi/g							
Yttrium-88	U	0.000486	+/-0.0363	0.0822	+/-0.0363		pCi/g							
Zinc-65	U	0.0478	+/-0.0757	0.159	+/-0.0788		pCi/g							
Zirconium-95	U	0.0471	+/-0.0732	0.152	+/-0.0763		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	92.4	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	103	(15%-125%)

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Company : MJW Technical Services
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S2.U2.D
Sample ID: 674299011

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B1
Sample ID: 674299012
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 14.2%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.426	+/-0.394	0.385	+/-0.399	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.165	+/-0.328	0.532	+/-0.329	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.426	+/-0.366	0.362	+/-0.371	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.663	+/-0.466	0.331	+/-0.474		pCi/g			RXF2	07/30/24	1119	2636542	3
Americium-241	U	-0.166	+/-0.140	0.210	+/-0.161		pCi/g							
Antimony-124	U	-0.0429	+/-0.0825	0.148	+/-0.0848		pCi/g							
Antimony-125	U	-0.0404	+/-0.0896	0.143	+/-0.0915		pCi/g							
Barium-133	U	0.0398	+/-0.0402	0.0806	+/-0.0442		pCi/g							
Barium-140	U	0.112	+/-0.740	1.44	+/-0.742		pCi/g							
Beryllium-7	U	-0.115	+/-0.461	0.831	+/-0.464		pCi/g							
Bismuth-212		0.927	+/-0.627	0.784	+/-0.633		pCi/g							
Bismuth-214		0.909	+/-0.215	0.151	+/-0.228		pCi/g							
Cerium-139	U	0.0144	+/-0.0330	0.0608	+/-0.0337		pCi/g							
Cerium-141	U	-0.0901	+/-0.0960	0.154	+/-0.105		pCi/g							
Cerium-144	U	-0.00757	+/-0.220	0.390	+/-0.220		pCi/g							
Cesium-134	UI	0.000	+/-0.0553	0.0989	+/-0.112		pCi/g							
Cesium-136	U	-0.115	+/-0.278	0.521	+/-0.283		pCi/g							
Cesium-137	U	-0.0255	+/-0.0428	0.0729	+/-0.0444	0.100	pCi/g							
Chromium-51	U	-0.383	+/-0.494	0.872	+/-0.525		pCi/g							
Cobalt-56	U	0.0136	+/-0.0609	0.115	+/-0.0612		pCi/g							
Cobalt-57	U	0.000536	+/-0.0256	0.0461	+/-0.0256		pCi/g							
Cobalt-58	U	0.0374	+/-0.0558	0.114	+/-0.0584		pCi/g							
Cobalt-60	U	0.0181	+/-0.0443	0.0959	+/-0.0451		pCi/g							
Europium-152	U	-0.0377	+/-0.104	0.190	+/-0.105		pCi/g							
Europium-154	U	0.0239	+/-0.136	0.253	+/-0.136		pCi/g							
Europium-155	U	0.0799	+/-0.0949	0.184	+/-0.102		pCi/g							
Iridium-192	U	-0.000133	+/-0.0406	0.0780	+/-0.0406		pCi/g							
Iron-59	U	-0.0668	+/-0.130	0.234	+/-0.133		pCi/g							
Lead-210	U	2.20	+/-7.14	6.04	+/-7.15		pCi/g							
Lead-212		1.07	+/-0.136	0.0954	+/-0.172		pCi/g							
Lead-214		1.21	+/-0.234	0.141	+/-0.260		pCi/g							
Manganese-54	U	-0.00252	+/-0.0395	0.0749	+/-0.0395		pCi/g							
Mercury-203	U	-0.0258	+/-0.0625	0.102	+/-0.0636		pCi/g							
Neodymium-147	U	-0.551	+/-1.80	3.28	+/-1.82		pCi/g							
Neptunium-239	U	-0.0689	+/-0.246	0.432	+/-0.248		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B1
Sample ID: 674299012

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0237	+/-0.0372	0.0753	+/-0.0388		pCi/g							
Niobium-95	U	0.0366	+/-0.0591	0.118	+/-0.0614		pCi/g							
Potassium-40		17.1	+/-2.17	0.871	+/-3.01		pCi/g							
Promethium-144	U	-0.0111	+/-0.0392	0.0723	+/-0.0395		pCi/g							
Promethium-146	U	0.0110	+/-0.0447	0.0872	+/-0.0450		pCi/g							
Radium-226		1.21	+/-0.234	0.141	+/-0.260		pCi/g							
Radium-228		0.663	+/-0.466	0.331	+/-0.474		pCi/g							
Ruthenium-106	U	0.0913	+/-0.339	0.665	+/-0.342		pCi/g							
Silver-110m	U	0.00325	+/-0.0545	0.104	+/-0.0545		pCi/g							
Sodium-22	U	0.00678	+/-0.0480	0.0887	+/-0.0481		pCi/g							
Thallium-208		0.359	+/-0.0926	0.0668	+/-0.0974		pCi/g							
Thorium-234	U	0.360	+/-2.37	2.22	+/-2.37		pCi/g							
Tin-113	U	-0.00914	+/-0.0533	0.0992	+/-0.0534		pCi/g							
Uranium-235	U	0.0379	+/-0.207	0.379	+/-0.208		pCi/g							
Uranium-238	U	0.360	+/-2.37	2.22	+/-2.37		pCi/g							
Yttrium-88	U	0.0147	+/-0.0481	0.109	+/-0.0486		pCi/g							
Zinc-65	U	-0.0686	+/-0.114	0.169	+/-0.118		pCi/g							
Zirconium-95	U	-0.0287	+/-0.0880	0.157	+/-0.0890		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	92.5	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	86.4	(15%-125%)

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B1
Sample ID: 674299012

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B2
Sample ID: 674299013
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 7.62%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.715	+/-0.534	0.363	+/-0.544	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236		0.456	+/-0.396	0.228	+/-0.401	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		7.84	+/-1.38	0.477	+/-1.74	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.34	+/-0.352	0.316	+/-0.376		pCi/g			RXF2	07/30/24	1119	2636542	3
Americium-241	U	-0.00877	+/-0.240	0.423	+/-0.240		pCi/g							
Antimony-124	U	-0.0591	+/-0.115	0.203	+/-0.118		pCi/g							
Antimony-125	U	0.0637	+/-0.132	0.256	+/-0.135		pCi/g							
Barium-133	U	0.0139	+/-0.0619	0.109	+/-0.0623		pCi/g							
Barium-140	U	0.0587	+/-0.970	1.83	+/-0.970		pCi/g							
Beryllium-7	U	-0.306	+/-0.521	0.930	+/-0.539		pCi/g							
Bismuth-212		1.39	+/-0.968	0.968	+/-0.977		pCi/g							
Bismuth-214		7.26	+/-0.426	0.158	+/-0.794		pCi/g							
Cerium-139	U	-0.0575	+/-0.0510	0.0850	+/-0.0585		pCi/g							
Cerium-141	U	0.113	+/-0.243	0.243	+/-0.248		pCi/g							
Cerium-144	U	0.0194	+/-0.308	0.559	+/-0.308		pCi/g							
Cesium-134	U	-2.75E-05	+/-0.0515	0.0948	+/-0.0515		pCi/g							
Cesium-136	U	0.147	+/-0.403	0.731	+/-0.409		pCi/g							
Cesium-137	U	0.00389	+/-0.0470	0.0798	+/-0.0470	0.100	pCi/g							
Chromium-51	U	-0.00574	+/-0.773	1.48	+/-0.773		pCi/g							
Cobalt-56	U	0.0358	+/-0.0594	0.117	+/-0.0616		pCi/g							
Cobalt-57	U	-0.00563	+/-0.0397	0.0716	+/-0.0398		pCi/g							
Cobalt-58	U	0.00175	+/-0.0648	0.107	+/-0.0649		pCi/g							
Cobalt-60	U	-0.0123	+/-0.0516	0.0929	+/-0.0519		pCi/g							
Europium-152	U	-0.0986	+/-0.140	0.255	+/-0.148		pCi/g							
Europium-154	U	0.0737	+/-0.154	0.298	+/-0.158		pCi/g							
Europium-155	U	0.0389	+/-0.146	0.272	+/-0.147		pCi/g							
Iridium-192	U	-0.0174	+/-0.0549	0.103	+/-0.0555		pCi/g							
Iron-59	U	-0.139	+/-0.132	0.220	+/-0.147		pCi/g							
Lead-210	U	4.99	+/-6.12	11.7	+/-6.54		pCi/g							
Lead-212		0.906	+/-0.173	0.160	+/-0.193		pCi/g							
Lead-214		9.17	+/-0.472	0.197	+/-0.891		pCi/g							
Manganese-54	U	0.00420	+/-0.0563	0.0926	+/-0.0564		pCi/g							
Mercury-203	U	-0.0127	+/-0.0788	0.135	+/-0.0790		pCi/g							
Neodymium-147	U	0.896	+/-2.06	4.10	+/-2.10		pCi/g							
Neptunium-239	U	-0.111	+/-0.369	0.664	+/-0.373		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B2
Sample ID: 674299013

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0170	+/-0.0435	0.0842	+/-0.0442		pCi/g							
Niobium-95	U	0.174	+/-0.0871	0.181	+/-0.119		pCi/g							
Potassium-40		4.64	+/-1.08	0.845	+/-1.16		pCi/g							
Promethium-144	U	-0.0162	+/-0.0449	0.0795	+/-0.0455		pCi/g							
Promethium-146	U	0.0581	+/-0.0816	0.117	+/-0.0859		pCi/g							
Radium-226		9.17	+/-0.472	0.197	+/-0.891		pCi/g							
Radium-228		1.34	+/-0.352	0.316	+/-0.376		pCi/g							
Ruthenium-106	U	0.123	+/-0.379	0.738	+/-0.383		pCi/g							
Silver-110m	U	0.0110	+/-0.0681	0.127	+/-0.0683		pCi/g							
Sodium-22	U	0.0263	+/-0.0550	0.106	+/-0.0563		pCi/g							
Thallium-208		0.264	+/-0.109	0.0854	+/-0.112		pCi/g							
Thorium-234		7.48	+/-5.04	3.59	+/-5.34		pCi/g							
Tin-113	U	-0.0163	+/-0.0695	0.129	+/-0.0699		pCi/g							
Uranium-235	U	0.240	+/-0.517	0.545	+/-0.518		pCi/g							
Uranium-238		7.48	+/-5.04	3.59	+/-5.34		pCi/g							
Yttrium-88	U	0.0414	+/-0.0585	0.130	+/-0.0615		pCi/g							
Zinc-65	U	0.0220	+/-0.115	0.203	+/-0.115		pCi/g							
Zirconium-95	U	-0.0411	+/-0.114	0.201	+/-0.116		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	76.7	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	87.1	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B2
Sample ID: 674299013

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B3
Sample ID: 674299014
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 10%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.216	+/-0.208	0.479	+/-0.232		pCi/g			RXF2	07/30/24	1120	2636542	1
Americium-241	U	0.0772	+/-0.158	0.279	+/-0.162		pCi/g							
Antimony-124	U	-0.0299	+/-0.0585	0.0738	+/-0.0601		pCi/g							
Antimony-125	U	0.0118	+/-0.110	0.196	+/-0.110		pCi/g							
Barium-133	U	0.00978	+/-0.0557	0.0932	+/-0.0558		pCi/g							
Barium-140	U	0.00607	+/-0.791	1.49	+/-0.791		pCi/g							
Beryllium-7	U	-0.207	+/-0.332	0.541	+/-0.345		pCi/g							
Bismuth-212	U	0.0510	+/-0.622	1.23	+/-0.622		pCi/g							
Bismuth-214	U	0.269	+/-0.170	0.285	+/-0.210		pCi/g							
Cerium-139	U	-0.0177	+/-0.0340	0.0578	+/-0.0351		pCi/g							
Cerium-141	U	-0.129	+/-0.102	0.159	+/-0.118		pCi/g							
Cerium-144	U	-0.108	+/-0.224	0.384	+/-0.229		pCi/g							
Cesium-134	U	0.0135	+/-0.0365	0.0819	+/-0.0371		pCi/g							
Cesium-136	U	0.0274	+/-0.306	0.639	+/-0.306		pCi/g							
Cesium-137	U	0.0360	+/-0.0373	0.0887	+/-0.0374	0.100	pCi/g							
Chromium-51	U	0.156	+/-0.637	1.21	+/-0.641		pCi/g							
Cobalt-56	U	-0.0130	+/-0.0457	0.0882	+/-0.0461		pCi/g							
Cobalt-57	U	-0.0191	+/-0.0253	0.0421	+/-0.0267		pCi/g							
Cobalt-58	U	0.00157	+/-0.0388	0.0834	+/-0.0388		pCi/g							
Cobalt-60	U	-0.0236	+/-0.0449	0.0797	+/-0.0462		pCi/g							
Europium-152	U	0.115	+/-0.0895	0.186	+/-0.104		pCi/g							
Europium-154	U	-0.0835	+/-0.0998	0.149	+/-0.107		pCi/g							
Europium-155	U	0.0881	+/-0.102	0.201	+/-0.110		pCi/g							
Iridium-192	U	-0.0281	+/-0.0532	0.0849	+/-0.0547		pCi/g							
Iron-59	U	0.0299	+/-0.113	0.251	+/-0.113		pCi/g							
Lead-210	U	-1.86	+/-4.51	7.83	+/-4.59		pCi/g							
Lead-212		0.186	+/-0.115	0.118	+/-0.116		pCi/g							
Lead-214		0.529	+/-0.155	0.152	+/-0.161		pCi/g							
Manganese-54	U	0.00303	+/-0.0415	0.0845	+/-0.0415		pCi/g							
Mercury-203	U	0.00329	+/-0.0545	0.100	+/-0.0545		pCi/g							
Neodymium-147	U	0.144	+/-1.76	3.43	+/-1.77		pCi/g							
Neptunium-239	U	0.0858	+/-0.300	0.554	+/-0.303		pCi/g							
Niobium-94	U	0.00818	+/-0.0301	0.0650	+/-0.0304		pCi/g							
Niobium-95	U	-0.0278	+/-0.0613	0.111	+/-0.0626		pCi/g							
Potassium-40	U	0.560	+/-0.699	1.62	+/-0.745		pCi/g							
Promethium-144	U	0.00457	+/-0.0412	0.0817	+/-0.0413		pCi/g							
Promethium-146	U	-0.00646	+/-0.0528	0.0943	+/-0.0529		pCi/g							
Radium-226		0.529	+/-0.155	0.152	+/-0.161		pCi/g							
Radium-228	U	0.216	+/-0.208	0.479	+/-0.232		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
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Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B3
Sample ID: 674299014

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.299	+/-0.430	0.875	+/-0.451		pCi/g							
Silver-110m	U	-0.0103	+/-0.0418	0.0844	+/-0.0421		pCi/g							
Sodium-22	U	-0.0298	+/-0.0356	0.0531	+/-0.0381		pCi/g							
Thallium-208	U	0.0315	+/-0.0550	0.0839	+/-0.0550		pCi/g							
Thorium-234	U	0.829	+/-1.65	2.03	+/-1.66		pCi/g							
Tin-113	U	-0.0161	+/-0.0586	0.102	+/-0.0591		pCi/g							
Uranium-235	U	0.149	+/-0.224	0.431	+/-0.235		pCi/g							
Uranium-238	U	0.829	+/-1.65	2.03	+/-1.66		pCi/g							
Yttrium-88	U	-0.00239	+/-0.0480	0.107	+/-0.0481		pCi/g							
Zinc-65	U	-0.0236	+/-0.0932	0.180	+/-0.0939		pCi/g							
Zirconium-95	U	-0.0169	+/-0.0915	0.179	+/-0.0918		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B4
Sample ID: 674299015
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 12.4%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasesc, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.304	+/-0.314	0.590	+/-0.344		pCi/g			RXF2	07/30/24	1120	2636542	1
Americium-241	U	0.114	+/-0.235	0.468	+/-0.241		pCi/g							
Antimony-124	U	0.0133	+/-0.0940	0.248	+/-0.0942		pCi/g							
Antimony-125	U	0.0771	+/-0.108	0.231	+/-0.114		pCi/g							
Barium-133	U	0.0185	+/-0.0420	0.0829	+/-0.0428		pCi/g							
Barium-140	U	0.662	+/-0.790	1.79	+/-0.846		pCi/g							
Beryllium-7	U	-0.152	+/-0.504	0.932	+/-0.509		pCi/g							
Bismuth-212	U	0.514	+/-0.579	1.31	+/-0.626		pCi/g							
Bismuth-214		0.564	+/-0.153	0.129	+/-0.160		pCi/g							
Cerium-139	U	-0.00998	+/-0.0372	0.0642	+/-0.0376		pCi/g							
Cerium-141	U	0.0397	+/-0.0964	0.182	+/-0.0981		pCi/g							
Cerium-144	U	-0.0118	+/-0.229	0.410	+/-0.229		pCi/g							
Cesium-134	U	0.0342	+/-0.0417	0.0987	+/-0.0445		pCi/g							
Cesium-136	U	0.101	+/-0.284	0.623	+/-0.288		pCi/g							
Cesium-137	UI	0.000	+/-0.0435	0.0536	+/-0.0438	0.100	pCi/g							
Chromium-51	U	-0.0977	+/-0.642	1.23	+/-0.644		pCi/g							
Cobalt-56	U	0.00474	+/-0.0524	0.0973	+/-0.0525		pCi/g							
Cobalt-57	U	0.000179	+/-0.0297	0.0538	+/-0.0297		pCi/g							
Cobalt-58	U	0.00462	+/-0.0485	0.0997	+/-0.0485		pCi/g							
Cobalt-60	U	0.00245	+/-0.0432	0.0975	+/-0.0433		pCi/g							
Europium-152	U	-0.0464	+/-0.115	0.212	+/-0.117		pCi/g							
Europium-154	U	-0.0484	+/-0.116	0.223	+/-0.118		pCi/g							
Europium-155	U	0.0117	+/-0.108	0.201	+/-0.108		pCi/g							
Iridium-192	U	0.0191	+/-0.0427	0.0891	+/-0.0436		pCi/g							
Iron-59	U	-0.0604	+/-0.130	0.246	+/-0.133		pCi/g							
Lead-210	U	1.75	+/-9.90	19.1	+/-9.93		pCi/g							
Lead-212	UI	0.000	+/-0.122	0.238	+/-0.174		pCi/g							
Lead-214		0.598	+/-0.193	0.148	+/-0.200		pCi/g							
Manganese-54	U	0.00400	+/-0.0305	0.0667	+/-0.0305		pCi/g							
Mercury-203	U	0.0320	+/-0.0657	0.123	+/-0.0673		pCi/g							
Neodymium-147	U	0.191	+/-1.71	3.56	+/-1.72		pCi/g							
Neptunium-239	U	-0.269	+/-0.280	0.448	+/-0.307		pCi/g							
Niobium-94	U	0.000500	+/-0.0316	0.0639	+/-0.0316		pCi/g							
Niobium-95	U	-0.0397	+/-0.0662	0.0979	+/-0.0687		pCi/g							
Potassium-40		2.65	+/-0.958	0.589	+/-0.990		pCi/g							
Promethium-144	U	-0.00596	+/-0.0439	0.0825	+/-0.0440		pCi/g							
Promethium-146	U	0.00302	+/-0.0485	0.0957	+/-0.0485		pCi/g							
Radium-226		0.598	+/-0.193	0.148	+/-0.200		pCi/g							
Radium-228	U	0.304	+/-0.314	0.590	+/-0.344		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B4
Sample ID: 674299015

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.0246	+/-0.294	0.564	+/-0.294		pCi/g							
Silver-110m	U	-0.0859	+/-0.0648	0.0761	+/-0.0759		pCi/g							
Sodium-22	U	-0.0188	+/-0.0406	0.0770	+/-0.0415		pCi/g							
Thallium-208	U	0.0634	+/-0.0665	0.138	+/-0.0726		pCi/g							
Thorium-234	U	0.667	+/-2.57	3.84	+/-2.58		pCi/g							
Tin-113	U	-0.0347	+/-0.0579	0.0893	+/-0.0601		pCi/g							
Uranium-235	U	0.0743	+/-0.216	0.392	+/-0.219		pCi/g							
Uranium-238	U	0.667	+/-2.57	3.84	+/-2.58		pCi/g							
Yttrium-88	U	0.00885	+/-0.0561	0.132	+/-0.0562		pCi/g							
Zinc-65	U	0.0446	+/-0.0504	0.158	+/-0.0544		pCi/g							
Zirconium-95	U	0.0372	+/-0.132	0.240	+/-0.133		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U1
Sample ID: 674299016
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 9.83%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.903	+/-0.513	0.439	+/-0.527	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236		0.394	+/-0.342	0.197	+/-0.346	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		6.33	+/-1.14	0.160	+/-1.42	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.34	+/-0.415	0.331	+/-0.439		pCi/g			RXF2	07/30/24	1121	2636542	3
Americium-241	U	0.0143	+/-0.0848	0.143	+/-0.0850		pCi/g							
Antimony-124	U	0.102	+/-0.139	0.314	+/-0.147		pCi/g							
Antimony-125	U	-0.0888	+/-0.131	0.231	+/-0.137		pCi/g							
Barium-133	U	0.0217	+/-0.0567	0.0993	+/-0.0576		pCi/g							
Barium-140	U	1.27	+/-1.70	1.68	+/-1.70		pCi/g							
Beryllium-7	U	-0.937	+/-0.590	0.942	+/-0.731		pCi/g							
Bismuth-212		1.52	+/-1.81	1.25	+/-1.82		pCi/g							
Bismuth-214		8.72	+/-0.440	0.174	+/-1.07		pCi/g							
Cerium-139	U	0.0554	+/-0.0565	0.0805	+/-0.0579		pCi/g							
Cerium-141	U	0.210	+/-0.288	0.268	+/-0.304		pCi/g							
Cerium-144	U	0.207	+/-0.293	0.531	+/-0.309		pCi/g							
Cesium-134	U	0.0237	+/-0.0605	0.113	+/-0.0615		pCi/g							
Cesium-136	U	-0.405	+/-0.370	0.623	+/-0.415		pCi/g							
Cesium-137	U	-0.00608	+/-0.0565	0.0909	+/-0.0565	0.100	pCi/g							
Chromium-51	U	-0.453	+/-0.825	1.49	+/-0.850		pCi/g							
Cobalt-56	U	0.00465	+/-0.0727	0.119	+/-0.0727		pCi/g							
Cobalt-57	U	0.0198	+/-0.0496	0.0626	+/-0.0497		pCi/g							
Cobalt-58	U	0.00428	+/-0.0851	0.137	+/-0.0852		pCi/g							
Cobalt-60	U	-0.0263	+/-0.0621	0.0965	+/-0.0632		pCi/g							
Europium-152	U	-0.0234	+/-0.131	0.242	+/-0.132		pCi/g							
Europium-154	U	-0.00456	+/-0.153	0.275	+/-0.153		pCi/g							
Europium-155	U	0.0940	+/-0.134	0.245	+/-0.141		pCi/g							
Iridium-192	U	-0.00598	+/-0.0554	0.103	+/-0.0554		pCi/g							
Iron-59	U	0.122	+/-0.207	0.273	+/-0.214		pCi/g							
Lead-210		4.98	+/-1.45	1.13	+/-1.53		pCi/g							
Lead-212		1.15	+/-0.157	0.153	+/-0.196		pCi/g							
Lead-214		10.7	+/-0.474	0.178	+/-0.978		pCi/g							
Manganese-54	U	-0.0253	+/-0.0545	0.0931	+/-0.0557		pCi/g							
Mercury-203	U	-0.0599	+/-0.0724	0.130	+/-0.0774		pCi/g							
Neodymium-147	U	-1.18	+/-2.80	4.40	+/-2.86		pCi/g							
Neptunium-239	U	-0.191	+/-0.357	0.611	+/-0.368		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U1
Sample ID: 674299016

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0576	+/-0.0783	0.0786	+/-0.0786		pCi/g							
Niobium-95	U	0.0354	+/-0.0839	0.142	+/-0.0855		pCi/g							
Potassium-40		4.68	+/-1.57	1.21	+/-1.62		pCi/g							
Promethium-144	U	0.0350	+/-0.0475	0.0931	+/-0.0502		pCi/g							
Promethium-146	U	0.0441	+/-0.0603	0.117	+/-0.0636		pCi/g							
Radium-226		10.7	+/-0.474	0.178	+/-0.978		pCi/g							
Radium-228		1.34	+/-0.415	0.331	+/-0.439		pCi/g							
Ruthenium-106	U	0.228	+/-0.424	0.823	+/-0.437		pCi/g							
Silver-110m	U	-0.0132	+/-0.0816	0.144	+/-0.0819		pCi/g							
Sodium-22	U	-0.00249	+/-0.0545	0.0975	+/-0.0545		pCi/g							
Thallium-208		0.222	+/-0.130	0.105	+/-0.132		pCi/g							
Thorium-234		8.53	+/-2.04	1.46	+/-2.81		pCi/g							
Tin-113	U	-0.0255	+/-0.0738	0.134	+/-0.0748		pCi/g							
Uranium-235	U	0.447	+/-0.613	0.528	+/-0.616		pCi/g							
Uranium-238		8.53	+/-2.04	1.46	+/-2.81		pCi/g							
Yttrium-88	U	-0.0235	+/-0.0329	0.0245	+/-0.0346		pCi/g							
Zinc-65	U	0.0443	+/-0.126	0.226	+/-0.127		pCi/g							
Zirconium-95	U	-0.00761	+/-0.127	0.206	+/-0.127		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	96.8	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	89.3	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels

Project: Inventum

Client Sample ID: S3.U1

Sample ID: 674299016

Project: MJWC01524

Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U2
Sample ID: 674299017
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 11.5%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.426	+/-0.426	0.664	+/-0.471		pCi/g			RXF2	07/30/24	1122	2636542	1
Americium-241	U	-0.0579	+/-0.540	0.873	+/-0.541		pCi/g							
Antimony-124	U	-0.0653	+/-0.192	0.369	+/-0.195		pCi/g							
Antimony-125	U	0.0868	+/-0.131	0.267	+/-0.137		pCi/g							
Barium-133	U	0.0303	+/-0.0701	0.119	+/-0.0715		pCi/g							
Barium-140	U	1.13	+/-1.84	1.99	+/-1.92		pCi/g							
Beryllium-7	U	-0.417	+/-0.630	0.920	+/-0.658		pCi/g							
Bismuth-212	U	0.461	+/-0.780	1.57	+/-0.808		pCi/g							
Bismuth-214		1.71	+/-0.304	0.208	+/-0.338		pCi/g							
Cerium-139	U	0.00867	+/-0.0436	0.0814	+/-0.0438		pCi/g							
Cerium-141	U	0.0433	+/-0.178	0.243	+/-0.178		pCi/g							
Cerium-144	U	0.0152	+/-0.288	0.488	+/-0.288		pCi/g							
Cesium-134	U	-0.00979	+/-0.0627	0.114	+/-0.0629		pCi/g							
Cesium-136	U	0.231	+/-0.413	0.900	+/-0.427		pCi/g							
Cesium-137	U	0.0218	+/-0.0555	0.101	+/-0.0564	0.100	pCi/g							
Chromium-51	U	-0.304	+/-0.962	1.64	+/-0.972		pCi/g							
Cobalt-56	U	-0.0526	+/-0.0799	0.130	+/-0.0835		pCi/g							
Cobalt-57	U	0.0239	+/-0.0379	0.0685	+/-0.0394		pCi/g							
Cobalt-58	U	-0.0622	+/-0.0787	0.125	+/-0.0838		pCi/g							
Cobalt-60	U	-0.0202	+/-0.0630	0.121	+/-0.0637		pCi/g							
Europium-152	U	-0.144	+/-0.169	0.228	+/-0.182		pCi/g							
Europium-154	U	-0.00868	+/-0.176	0.345	+/-0.176		pCi/g							
Europium-155	U	0.0426	+/-0.146	0.259	+/-0.147		pCi/g							
Iridium-192	U	-0.00176	+/-0.0699	0.123	+/-0.0699		pCi/g							
Iron-59	U	-0.0370	+/-0.142	0.273	+/-0.143		pCi/g							
Lead-210	U	16.3	+/-29.6	55.5	+/-30.6		pCi/g							
Lead-212		0.527	+/-0.147	0.147	+/-0.155		pCi/g							
Lead-214		2.23	+/-0.284	0.200	+/-0.350		pCi/g							
Manganese-54	U	0.0436	+/-0.0482	0.108	+/-0.0523		pCi/g							
Mercury-203	U	0.0252	+/-0.0723	0.134	+/-0.0732		pCi/g							
Neodymium-147	U	-2.88	+/-2.99	3.96	+/-3.27		pCi/g							
Neptunium-239	U	0.180	+/-0.386	0.687	+/-0.395		pCi/g							
Niobium-94	U	0.0648	+/-0.0569	0.119	+/-0.0642		pCi/g							
Niobium-95	U	0.107	+/-0.0784	0.166	+/-0.0926		pCi/g							
Potassium-40		1.66	+/-1.34	1.16	+/-1.35		pCi/g							
Promethium-144	U	-0.0210	+/-0.0507	0.0884	+/-0.0516		pCi/g							
Promethium-146	U	0.00525	+/-0.0600	0.115	+/-0.0600		pCi/g							
Radium-226		2.23	+/-0.284	0.200	+/-0.350		pCi/g							
Radium-228	U	0.426	+/-0.426	0.664	+/-0.471		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U2
Sample ID: 674299017

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.0220	+/-0.418	0.806	+/-0.418		pCi/g							
Silver-110m	U	0.0527	+/-0.0558	0.135	+/-0.0610		pCi/g							
Sodium-22	U	-0.00309	+/-0.0626	0.123	+/-0.0626		pCi/g							
Thallium-208		0.179	+/-0.112	0.102	+/-0.114		pCi/g							
Thorium-234	U	4.93	+/-5.61	6.08	+/-5.74		pCi/g							
Tin-113	U	-0.00448	+/-0.0750	0.132	+/-0.0750		pCi/g							
Uranium-235	U	0.296	+/-0.362	0.546	+/-0.363		pCi/g							
Uranium-238	U	4.93	+/-5.61	6.08	+/-5.74		pCi/g							
Yttrium-88	U	0.0257	+/-0.0736	0.171	+/-0.0745		pCi/g							
Zinc-65	U	0.163	+/-0.160	0.333	+/-0.177		pCi/g							
Zirconium-95	U	0.0265	+/-0.114	0.227	+/-0.115		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U3
Sample ID: 674299018
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 12.9%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.140	+/-0.213	0.394	+/-0.222		pCi/g			RXF2	07/30/24	1122	2636542	1
Americium-241	U	0.0307	+/-0.0915	0.166	+/-0.0925		pCi/g							
Antimony-124	U	-0.000118	+/-0.0970	0.227	+/-0.0970		pCi/g							
Antimony-125	U	0.0185	+/-0.0628	0.136	+/-0.0634		pCi/g							
Barium-133	U	0.0151	+/-0.0340	0.0670	+/-0.0347		pCi/g							
Barium-140	U	0.0200	+/-0.658	1.31	+/-0.658		pCi/g							
Beryllium-7	U	0.595	+/-0.431	0.651	+/-0.434		pCi/g							
Bismuth-212	U	0.649	+/-0.461	1.13	+/-0.550		pCi/g							
Bismuth-214		0.499	+/-0.149	0.114	+/-0.157		pCi/g							
Cerium-139	U	-0.00748	+/-0.0241	0.0419	+/-0.0243		pCi/g							
Cerium-141	U	-0.0192	+/-0.0624	0.110	+/-0.0631		pCi/g							
Cerium-144	U	-0.0374	+/-0.164	0.290	+/-0.165		pCi/g							
Cesium-134	U	-0.00712	+/-0.0353	0.0675	+/-0.0355		pCi/g							
Cesium-136	U	-0.0670	+/-0.219	0.411	+/-0.221		pCi/g							
Cesium-137	U	0.0213	+/-0.0287	0.0671	+/-0.0303	0.100	pCi/g							
Chromium-51	U	0.529	+/-0.506	1.07	+/-0.561		pCi/g							
Cobalt-56	U	-0.0209	+/-0.0429	0.0752	+/-0.0439		pCi/g							
Cobalt-57	U	-0.00103	+/-0.0186	0.0340	+/-0.0186		pCi/g							
Cobalt-58	U	0.00427	+/-0.0451	0.0910	+/-0.0452		pCi/g							
Cobalt-60	U	0.00614	+/-0.0325	0.0763	+/-0.0326		pCi/g							
Europium-152	U	0.0185	+/-0.0743	0.154	+/-0.0747		pCi/g							
Europium-154	U	0.0351	+/-0.0825	0.210	+/-0.0840		pCi/g							
Europium-155	U	-0.0150	+/-0.0684	0.124	+/-0.0687		pCi/g							
Iridium-192	U	-0.00526	+/-0.0299	0.0488	+/-0.0300		pCi/g							
Iron-59	U	0.0165	+/-0.0791	0.182	+/-0.0794		pCi/g							
Lead-210	U	0.140	+/-1.70	3.25	+/-1.70		pCi/g							
Lead-212		0.274	+/-0.0966	0.0825	+/-0.0991		pCi/g							
Lead-214		0.552	+/-0.146	0.101	+/-0.152		pCi/g							
Manganese-54	U	-0.0311	+/-0.0322	0.0470	+/-0.0353		pCi/g							
Mercury-203	U	0.0110	+/-0.0411	0.0774	+/-0.0414		pCi/g							
Neodymium-147	U	0.798	+/-1.41	3.17	+/-1.46		pCi/g							
Neptunium-239	U	0.0249	+/-0.175	0.331	+/-0.176		pCi/g							
Niobium-94	U	-0.0111	+/-0.0295	0.0538	+/-0.0299		pCi/g							
Niobium-95	U	-0.0123	+/-0.0532	0.0981	+/-0.0535		pCi/g							
Potassium-40		1.23	+/-0.541	0.831	+/-0.552		pCi/g							
Promethium-144	U	0.0186	+/-0.0271	0.0629	+/-0.0284		pCi/g							
Promethium-146	U	-0.00389	+/-0.0348	0.0682	+/-0.0348		pCi/g							
Radium-226		0.552	+/-0.146	0.101	+/-0.152		pCi/g							
Radium-228	U	0.140	+/-0.213	0.394	+/-0.222		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.U3
Sample ID: 674299018

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.103	+/-0.223	0.511	+/-0.228		pCi/g							
Silver-110m	U	0.0186	+/-0.0408	0.0940	+/-0.0417		pCi/g							
Sodium-22	U	0.0112	+/-0.0288	0.0731	+/-0.0293		pCi/g							
Thallium-208		0.0729	+/-0.0692	0.0658	+/-0.0696		pCi/g							
Thorium-234		1.97	+/-1.28	1.28	+/-1.36		pCi/g							
Tin-113	U	0.00843	+/-0.0315	0.0682	+/-0.0317		pCi/g							
Uranium-235	U	0.0589	+/-0.151	0.286	+/-0.153		pCi/g							
Uranium-238		1.97	+/-1.28	1.28	+/-1.36		pCi/g							
Yttrium-88	U	0.0181	+/-0.0404	0.109	+/-0.0412		pCi/g							
Zinc-65	U	0.0160	+/-0.0798	0.163	+/-0.0802		pCi/g							
Zirconium-95	U	-0.00161	+/-0.0965	0.185	+/-0.0965		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B4.D
Sample ID: 674299019
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 12%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	0.265	+/-0.360	0.366	+/-0.362	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0506	+/-0.190	0.319	+/-0.190	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.351	+/-0.302	0.298	+/-0.305	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.214	+/-0.160	0.456	+/-0.188		pCi/g			RXF2	07/30/24	1337	2636542	3
Americium-241	U	-0.0105	+/-0.0385	0.0703	+/-0.0388		pCi/g							
Antimony-124	U	0.0368	+/-0.115	0.290	+/-0.117		pCi/g							
Antimony-125	U	-0.000738	+/-0.0792	0.156	+/-0.0792		pCi/g							
Barium-133	U	-0.0254	+/-0.0462	0.0777	+/-0.0476		pCi/g							
Barium-140	U	0.197	+/-0.783	1.58	+/-0.789		pCi/g							
Beryllium-7	U	-0.148	+/-0.426	0.773	+/-0.431		pCi/g							
Bismuth-212	U	-0.463	+/-0.567	0.949	+/-0.607		pCi/g							
Bismuth-214		0.189	+/-0.134	0.163	+/-0.135		pCi/g							
Cerium-139	U	0.00369	+/-0.0259	0.0478	+/-0.0259		pCi/g							
Cerium-141	U	-0.0682	+/-0.0764	0.122	+/-0.0828		pCi/g							
Cerium-144	U	-0.0231	+/-0.168	0.300	+/-0.169		pCi/g							
Cesium-134	U	0.00494	+/-0.0539	0.102	+/-0.0540		pCi/g							
Cesium-136	U	-0.0286	+/-0.339	0.671	+/-0.339		pCi/g							
Cesium-137	U	0.0425	+/-0.0380	0.0885	+/-0.0429	0.100	pCi/g							
Chromium-51	U	0.365	+/-0.786	0.911	+/-0.787		pCi/g							
Cobalt-56	U	0.0486	+/-0.0585	0.111	+/-0.0627		pCi/g							
Cobalt-57	U	-0.00763	+/-0.0208	0.0352	+/-0.0211		pCi/g							
Cobalt-58	U	0.0302	+/-0.0483	0.107	+/-0.0503		pCi/g							
Cobalt-60	U	-0.0182	+/-0.0528	0.0970	+/-0.0535		pCi/g							
Europium-152	U	-0.00738	+/-0.0875	0.169	+/-0.0876		pCi/g							
Europium-154	U	-0.00875	+/-0.107	0.222	+/-0.107		pCi/g							
Europium-155	U	0.00831	+/-0.0725	0.135	+/-0.0726		pCi/g							
Iridium-192	U	0.00620	+/-0.0392	0.0716	+/-0.0394		pCi/g							
Iron-59	U	-0.0216	+/-0.101	0.205	+/-0.102		pCi/g							
Lead-210	U	0.515	+/-0.538	0.603	+/-0.540		pCi/g							
Lead-212		0.273	+/-0.0990	0.103	+/-0.103		pCi/g							
Lead-214		0.348	+/-0.137	0.138	+/-0.140		pCi/g							
Manganese-54	U	-0.00673	+/-0.0432	0.0791	+/-0.0433		pCi/g							
Mercury-203	U	-0.00734	+/-0.0452	0.0782	+/-0.0454		pCi/g							
Neodymium-147	U	1.03	+/-1.59	3.57	+/-1.66		pCi/g							
Neptunium-239	U	0.0164	+/-0.208	0.381	+/-0.208		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B4.D
Sample ID: 674299019

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	-0.00258	+/-0.0430	0.0792	+/-0.0431		pCi/g							
Niobium-95	U	-0.00156	+/-0.0426	0.0841	+/-0.0426		pCi/g							
Potassium-40		1.38	+/-0.984	0.866	+/-0.992		pCi/g							
Promethium-144	U	0.0625	+/-0.0485	0.106	+/-0.0565		pCi/g							
Promethium-146	U	0.0160	+/-0.0462	0.0929	+/-0.0468		pCi/g							
Radium-226		0.348	+/-0.137	0.138	+/-0.140		pCi/g							
Radium-228	U	0.214	+/-0.160	0.456	+/-0.188		pCi/g							
Ruthenium-106	U	-0.189	+/-0.410	0.731	+/-0.419		pCi/g							
Silver-110m	U	0.0270	+/-0.0509	0.117	+/-0.0524		pCi/g							
Sodium-22	U	-0.00173	+/-0.0385	0.0807	+/-0.0385		pCi/g							
Thallium-208		0.0744	+/-0.0560	0.0731	+/-0.0566		pCi/g							
Thorium-234	U	0.237	+/-0.561	0.719	+/-0.564		pCi/g							
Tin-113	U	-0.0284	+/-0.0423	0.0737	+/-0.0443		pCi/g							
Uranium-235	U	0.0603	+/-0.161	0.304	+/-0.162		pCi/g							
Uranium-238	U	0.237	+/-0.561	0.719	+/-0.564		pCi/g							
Yttrium-88	U	0.0352	+/-0.0499	0.137	+/-0.0524		pCi/g							
Zinc-65	U	0.0545	+/-0.102	0.225	+/-0.105		pCi/g							
Zirconium-95	U	0.0148	+/-0.0892	0.180	+/-0.0894		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	78.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	100	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S3.B4.D
Sample ID: 674299019

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.B1
Sample ID: 674299020
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 12%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	0.280	+/-0.340	0.391	+/-0.343	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0697	+/-0.196	0.209	+/-0.196	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238	U	0.399	+/-0.358	0.455	+/-0.362	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.19	+/-0.378	0.292	+/-0.395		pCi/g			RXF2	07/30/24	1338	2636542	3
Americium-241	U	-0.0438	+/-0.181	0.345	+/-0.182		pCi/g							
Antimony-124	U	0.0655	+/-0.0942	0.260	+/-0.0988		pCi/g							
Antimony-125	U	-0.0803	+/-0.102	0.175	+/-0.108		pCi/g							
Barium-133	U	-0.00634	+/-0.0523	0.0889	+/-0.0524		pCi/g							
Barium-140	U	-0.0768	+/-0.875	1.47	+/-0.876		pCi/g							
Beryllium-7	U	-0.213	+/-0.538	0.964	+/-0.547		pCi/g							
Bismuth-212	U	0.985	+/-1.12	1.18	+/-1.12		pCi/g							
Bismuth-214		1.23	+/-0.212	0.156	+/-0.238		pCi/g							
Cerium-139	U	-0.0144	+/-0.0350	0.0611	+/-0.0358		pCi/g							
Cerium-141	U	-0.0592	+/-0.100	0.173	+/-0.104		pCi/g							
Cerium-144	U	-0.0392	+/-0.210	0.352	+/-0.211		pCi/g							
Cesium-134	U	0.0236	+/-0.0549	0.113	+/-0.0560		pCi/g							
Cesium-136	U	-0.104	+/-0.329	0.613	+/-0.332		pCi/g							
Cesium-137	U	0.0212	+/-0.0402	0.0825	+/-0.0414	0.100	pCi/g							
Chromium-51	U	0.823	+/-0.716	1.29	+/-0.809		pCi/g							
Cobalt-56	U	-0.00358	+/-0.0534	0.105	+/-0.0534		pCi/g							
Cobalt-57	U	-0.00247	+/-0.0268	0.0494	+/-0.0268		pCi/g							
Cobalt-58	U	0.000724	+/-0.0498	0.101	+/-0.0498		pCi/g							
Cobalt-60	U	0.000843	+/-0.0427	0.0865	+/-0.0427		pCi/g							
Europium-152	U	-0.0251	+/-0.109	0.205	+/-0.109		pCi/g							
Europium-154	U	-0.0128	+/-0.121	0.237	+/-0.121		pCi/g							
Europium-155	U	0.144	+/-0.199	0.202	+/-0.199		pCi/g							
Iridium-192	U	0.0749	+/-0.0891	0.102	+/-0.0954		pCi/g							
Iron-59	U	0.0286	+/-0.136	0.277	+/-0.136		pCi/g							
Lead-210	U	-0.980	+/-4.74	9.23	+/-4.76		pCi/g							
Lead-212		1.58	+/-0.164	0.122	+/-0.209		pCi/g							
Lead-214		1.56	+/-0.297	0.140	+/-0.322		pCi/g							
Manganese-54	U	-0.0134	+/-0.0423	0.0802	+/-0.0428		pCi/g							
Mercury-203	U	-0.0198	+/-0.0567	0.107	+/-0.0574		pCi/g							
Neodymium-147	U	-0.138	+/-2.18	3.69	+/-2.18		pCi/g							
Neptunium-239	U	-0.00290	+/-0.274	0.508	+/-0.274		pCi/g							

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.B1
Sample ID: 674299020

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0248	+/-0.0401	0.0812	+/-0.0416		pCi/g							
Niobium-95	U	0.0324	+/-0.0633	0.121	+/-0.0650		pCi/g							
Potassium-40		8.43	+/-1.48	0.662	+/-1.68		pCi/g							
Promethium-144	U	0.0212	+/-0.0430	0.0856	+/-0.0441		pCi/g							
Promethium-146	U	-0.00541	+/-0.0448	0.0848	+/-0.0448		pCi/g							
Radium-226		1.56	+/-0.297	0.140	+/-0.322		pCi/g							
Radium-228		1.19	+/-0.378	0.292	+/-0.395		pCi/g							
Ruthenium-106	U	0.0773	+/-0.337	0.669	+/-0.339		pCi/g							
Silver-110m	U	0.0386	+/-0.0515	0.118	+/-0.0545		pCi/g							
Sodium-22	U	-0.00684	+/-0.0424	0.0823	+/-0.0425		pCi/g							
Thallium-208		0.384	+/-0.116	0.0817	+/-0.120		pCi/g							
Thorium-234	U	2.65	+/-2.53	2.74	+/-2.60		pCi/g							
Tin-113	U	-0.0249	+/-0.0562	0.102	+/-0.0573		pCi/g							
Uranium-235	U	0.154	+/-0.208	0.399	+/-0.208		pCi/g							
Uranium-238	U	2.65	+/-2.53	2.74	+/-2.60		pCi/g							
Yttrium-88	U	-0.0268	+/-0.0473	0.0853	+/-0.0488		pCi/g							
Zinc-65	U	0.0847	+/-0.0854	0.197	+/-0.0938		pCi/g							
Zirconium-95	U	0.104	+/-0.132	0.201	+/-0.140		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2010	2636363

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	90.4	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	100	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.B1
Sample ID: 674299020

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.B2
Sample ID: 674299021
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 5.86%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.887	+/-0.342	0.303	+/-0.358		pCi/g				MXR1	07/31/24	1430	2636543 1
Americium-241	U	0.124	+/-0.624	0.804	+/-0.627		pCi/g							
Antimony-124	U	-0.0356	+/-0.117	0.215	+/-0.118		pCi/g							
Antimony-125	U	-0.126	+/-0.136	0.231	+/-0.148		pCi/g							
Barium-133	U	-0.0869	+/-0.0671	0.0949	+/-0.0781		pCi/g							
Barium-140	U	1.30	+/-1.41	1.86	+/-1.53		pCi/g							
Beryllium-7	U	-0.714	+/-0.589	0.968	+/-0.674		pCi/g							
Bismuth-212	UI	0.000	+/-1.43	0.955	+/-1.43		pCi/g							
Bismuth-214		4.34	+/-0.308	0.153	+/-0.535		pCi/g							
Cerium-139	U	-0.0287	+/-0.0561	0.0945	+/-0.0580		pCi/g							
Cerium-141	U	0.237	+/-0.195	0.270	+/-0.223		pCi/g							
Cerium-144	U	0.315	+/-0.344	0.627	+/-0.374		pCi/g							
Cesium-134	U	0.0635	+/-0.0497	0.101	+/-0.0578		pCi/g							
Cesium-136	U	0.170	+/-0.355	0.704	+/-0.364		pCi/g							
Cesium-137	U	0.00345	+/-0.0475	0.0767	+/-0.0475	0.100	pCi/g							
Chromium-51	U	0.0279	+/-0.949	1.73	+/-0.949		pCi/g							
Cobalt-56	U	0.0771	+/-0.0574	0.118	+/-0.0676		pCi/g							
Cobalt-57	U	-0.00109	+/-0.0460	0.0802	+/-0.0460		pCi/g							
Cobalt-58	U	-0.0139	+/-0.0626	0.110	+/-0.0629		pCi/g							
Cobalt-60	U	-0.0159	+/-0.0490	0.0885	+/-0.0495		pCi/g							
Europium-152	U	-0.0856	+/-0.161	0.248	+/-0.166		pCi/g							
Europium-154	U	0.0372	+/-0.129	0.253	+/-0.130		pCi/g							
Europium-155	U	0.120	+/-0.174	0.317	+/-0.183		pCi/g							
Iridium-192	U	-0.0371	+/-0.0659	0.107	+/-0.0680		pCi/g							
Iron-59	U	0.0198	+/-0.130	0.252	+/-0.131		pCi/g							
Lead-210	U	-12.6	+/-24.6	42.9	+/-25.3		pCi/g							
Lead-212		1.09	+/-0.167	0.160	+/-0.210		pCi/g							
Lead-214		5.77	+/-0.377	0.187	+/-0.654		pCi/g							
Manganese-54	U	0.000935	+/-0.0515	0.0919	+/-0.0515		pCi/g							
Mercury-203	U	-0.0300	+/-0.0845	0.141	+/-0.0856		pCi/g							
Neodymium-147	U	2.16	+/-3.37	4.54	+/-3.52		pCi/g							
Neptunium-239	U	-0.271	+/-0.438	0.745	+/-0.456		pCi/g							
Niobium-94	U	0.0109	+/-0.0455	0.0830	+/-0.0458		pCi/g							
Niobium-95	U	0.144	+/-0.0810	0.151	+/-0.105		pCi/g							
Potassium-40		2.73	+/-0.981	0.860	+/-1.02		pCi/g							
Promethium-144	U	-0.0509	+/-0.0429	0.0678	+/-0.0489		pCi/g							
Promethium-146	U	0.0190	+/-0.0561	0.105	+/-0.0568		pCi/g							
Radium-226		5.77	+/-0.377	0.187	+/-0.654		pCi/g							
Radium-228		0.887	+/-0.342	0.303	+/-0.358		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.B2
Sample ID: 674299021

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.0589	+/-0.380	0.703	+/-0.381		pCi/g							
Silver-110m	U	-0.0189	+/-0.0717	0.124	+/-0.0722		pCi/g							
Sodium-22	U	0.0140	+/-0.0460	0.0906	+/-0.0464		pCi/g							
Thallium-208		0.188	+/-0.109	0.0836	+/-0.111		pCi/g							
Thorium-234	U	3.69	+/-5.76	5.89	+/-5.83		pCi/g							
Tin-113	U	0.0138	+/-0.0703	0.130	+/-0.0706		pCi/g							
Uranium-235	U	0.492	+/-0.406	0.571	+/-0.409		pCi/g							
Uranium-238	U	3.69	+/-5.76	5.89	+/-5.83		pCi/g							
Yttrium-88	U	0.00143	+/-0.0503	0.0980	+/-0.0503		pCi/g							
Zinc-65	U	0.105	+/-0.117	0.202	+/-0.126		pCi/g							
Zirconium-95	U	0.0300	+/-0.101	0.190	+/-0.102		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.U1
Sample ID: 674299022
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 11.8%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	0.275	+/-0.424	0.667	+/-0.426	1.00	pCi/g			CM4	07/18/24	1028	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	-0.0168	+/-0.252	0.589	+/-0.252	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.581	+/-0.449	0.502	+/-0.457	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.982	+/-0.379	0.214	+/-0.393		pCi/g			MXR1	07/31/24	1504	2636543	3
Americium-241	U	-0.0648	+/-0.267	0.406	+/-0.268		pCi/g							
Antimony-124	U	-0.00487	+/-0.166	0.348	+/-0.166		pCi/g							
Antimony-125	U	0.0360	+/-0.138	0.261	+/-0.139		pCi/g							
Barium-133	U	-0.0214	+/-0.0499	0.0771	+/-0.0508		pCi/g							
Barium-140	U	0.735	+/-1.01	2.11	+/-1.06		pCi/g							
Beryllium-7	U	0.266	+/-0.559	1.11	+/-0.572		pCi/g							
Bismuth-212	U	0.773	+/-1.42	1.37	+/-1.43		pCi/g							
Bismuth-214		1.39	+/-0.267	0.172	+/-0.295		pCi/g							
Cerium-139	U	-0.00157	+/-0.0420	0.0772	+/-0.0420		pCi/g							
Cerium-141	U	0.0270	+/-0.212	0.211	+/-0.212		pCi/g							
Cerium-144	U	-0.202	+/-0.264	0.460	+/-0.280		pCi/g							
Cesium-134	U	0.0442	+/-0.0647	0.132	+/-0.0679		pCi/g							
Cesium-136	U	0.0457	+/-0.328	0.706	+/-0.328		pCi/g							
Cesium-137	U	0.0402	+/-0.0687	0.0824	+/-0.0688	0.100	pCi/g							
Chromium-51	U	0.218	+/-0.826	1.57	+/-0.832		pCi/g							
Cobalt-56	U	-0.0233	+/-0.0615	0.100	+/-0.0624		pCi/g							
Cobalt-57	U	0.0183	+/-0.0345	0.0666	+/-0.0355		pCi/g							
Cobalt-58	U	0.0275	+/-0.0715	0.132	+/-0.0726		pCi/g							
Cobalt-60	U	0.00593	+/-0.0443	0.0978	+/-0.0444		pCi/g							
Europium-152	U	-0.0337	+/-0.152	0.241	+/-0.153		pCi/g							
Europium-154	U	0.0444	+/-0.155	0.310	+/-0.156		pCi/g							
Europium-155	U	-0.0347	+/-0.139	0.252	+/-0.140		pCi/g							
Iridium-192	U	-0.0315	+/-0.0569	0.0983	+/-0.0587		pCi/g							
Iron-59	U	-0.146	+/-0.146	0.229	+/-0.161		pCi/g							
Lead-210	U	8.24	+/-6.95	13.1	+/-7.92		pCi/g							
Lead-212		0.815	+/-0.143	0.130	+/-0.157		pCi/g							
Lead-214		1.24	+/-0.258	0.171	+/-0.276		pCi/g							
Manganese-54	U	-0.00753	+/-0.0433	0.0859	+/-0.0435		pCi/g							
Mercury-203	U	0.0523	+/-0.0692	0.136	+/-0.0732		pCi/g							
Neodymium-147	U	1.89	+/-2.02	4.59	+/-2.20		pCi/g							
Neptunium-239	U	0.139	+/-0.356	0.677	+/-0.361		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.U1
Sample ID: 674299022

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0208	+/-0.0537	0.104	+/-0.0546		pCi/g							
Niobium-95	U	-0.0682	+/-0.0690	0.102	+/-0.0758		pCi/g							
Potassium-40		7.22	+/-1.50	1.22	+/-1.63		pCi/g							
Promethium-144	U	-0.00896	+/-0.0503	0.0902	+/-0.0504		pCi/g							
Promethium-146	U	-0.00222	+/-0.0593	0.109	+/-0.0593		pCi/g							
Radium-226		1.24	+/-0.258	0.171	+/-0.276		pCi/g							
Radium-228		0.982	+/-0.379	0.214	+/-0.393		pCi/g							
Ruthenium-106	U	0.248	+/-0.437	0.894	+/-0.452		pCi/g							
Silver-110m	U	0.0540	+/-0.0603	0.109	+/-0.0653		pCi/g							
Sodium-22	U	0.0387	+/-0.0419	0.0950	+/-0.0420		pCi/g							
Thallium-208		0.292	+/-0.0950	0.0794	+/-0.0986		pCi/g							
Thorium-234	U	1.37	+/-2.89	3.47	+/-2.90		pCi/g							
Tin-113	U	0.00533	+/-0.0654	0.123	+/-0.0655		pCi/g							
Uranium-235	U	0.205	+/-0.432	0.514	+/-0.432		pCi/g							
Uranium-238	U	1.37	+/-2.89	3.47	+/-2.90		pCi/g							
Yttrium-88	U	-0.0149	+/-0.0568	0.115	+/-0.0573		pCi/g							
Zinc-65	U	-0.00605	+/-0.100	0.199	+/-0.100		pCi/g							
Zirconium-95	U	0.0163	+/-0.123	0.235	+/-0.123		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	70.2	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	79.9	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S4.U1
Sample ID: 674299022

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B1
Sample ID: 674299023
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 19.6%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.908	+/-0.463	0.354	+/-0.474		pCi/g			MXR1	07/31/24	1504	2636543	1
Americium-241	U	0.00528	+/-0.261	0.451	+/-0.261		pCi/g							
Antimony-124	U	0.0146	+/-0.119	0.276	+/-0.119		pCi/g							
Antimony-125	U	0.0355	+/-0.126	0.244	+/-0.127		pCi/g							
Barium-133	U	0.0537	+/-0.0593	0.114	+/-0.0642		pCi/g							
Barium-140	U	0.746	+/-1.01	2.09	+/-1.06		pCi/g							
Beryllium-7	U	-0.597	+/-0.596	0.945	+/-0.656		pCi/g							
Bismuth-212		1.45	+/-1.27	1.43	+/-1.28		pCi/g							
Bismuth-214		1.21	+/-0.238	0.159	+/-0.259		pCi/g							
Cerium-139	U	-0.0169	+/-0.0442	0.0747	+/-0.0450		pCi/g							
Cerium-141	U	0.170	+/-0.243	0.215	+/-0.244		pCi/g							
Cerium-144	U	-0.00996	+/-0.270	0.478	+/-0.270		pCi/g							
Cesium-134	U	0.0286	+/-0.0697	0.139	+/-0.0710		pCi/g							
Cesium-136	U	-0.376	+/-0.411	0.664	+/-0.446		pCi/g							
Cesium-137	U	-0.0354	+/-0.0576	0.0974	+/-0.0599	0.100	pCi/g							
Chromium-51	U	-0.381	+/-0.836	1.51	+/-0.854		pCi/g							
Cobalt-56	U	-0.0367	+/-0.0693	0.124	+/-0.0713		pCi/g							
Cobalt-57	U	-0.00665	+/-0.0356	0.0624	+/-0.0357		pCi/g							
Cobalt-58	U	-0.0278	+/-0.0695	0.128	+/-0.0707		pCi/g							
Cobalt-60	U	-0.00903	+/-0.0673	0.110	+/-0.0674		pCi/g							
Europium-152	U	0.0916	+/-0.133	0.267	+/-0.139		pCi/g							
Europium-154	U	-0.00680	+/-0.127	0.254	+/-0.127		pCi/g							
Europium-155	U	0.0792	+/-0.144	0.270	+/-0.149		pCi/g							
Iridium-192	U	0.0392	+/-0.0598	0.119	+/-0.0624		pCi/g							
Iron-59	U	-0.0541	+/-0.179	0.327	+/-0.181		pCi/g							
Lead-210	U	-1.64	+/-8.25	15.1	+/-8.29		pCi/g							
Lead-212		1.52	+/-0.176	0.136	+/-0.217		pCi/g							
Lead-214		1.12	+/-0.302	0.189	+/-0.315		pCi/g							
Manganese-54	U	0.0113	+/-0.0621	0.110	+/-0.0623		pCi/g							
Mercury-203	U	-0.0304	+/-0.0750	0.136	+/-0.0763		pCi/g							
Neodymium-147	U	0.984	+/-2.80	5.02	+/-2.83		pCi/g							
Neptunium-239	U	-0.0815	+/-0.342	0.599	+/-0.344		pCi/g							
Niobium-94	U	-0.0121	+/-0.0501	0.0877	+/-0.0504		pCi/g							
Niobium-95	U	0.0216	+/-0.0886	0.157	+/-0.0892		pCi/g							
Potassium-40		21.3	+/-2.40	1.03	+/-3.38		pCi/g							
Promethium-144	U	-0.0209	+/-0.0521	0.0890	+/-0.0529		pCi/g							
Promethium-146	U	0.0623	+/-0.0650	0.133	+/-0.0711		pCi/g							
Radium-226		1.12	+/-0.302	0.189	+/-0.315		pCi/g							
Radium-228		0.908	+/-0.463	0.354	+/-0.474		pCi/g							

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Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B1
Sample ID: 674299023

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.0956	+/-0.475	0.848	+/-0.477		pCi/g							
Silver-110m	U	-0.0241	+/-0.0829	0.134	+/-0.0836		pCi/g							
Sodium-22	U	-0.00243	+/-0.0453	0.0907	+/-0.0453		pCi/g							
Thallium-208		0.357	+/-0.131	0.0905	+/-0.135		pCi/g							
Thorium-234	U	2.81	+/-3.72	3.57	+/-3.79		pCi/g							
Tin-113	U	0.000	+/-0.0741	0.138	+/-0.000		pCi/g							
Uranium-235	U	0.424	+/-0.491	0.534	+/-0.492		pCi/g							
Uranium-238	U	2.81	+/-3.72	3.57	+/-3.79		pCi/g							
Yttrium-88	U	-0.00209	+/-0.0475	0.106	+/-0.0475		pCi/g							
Zinc-65	U	0.00871	+/-0.172	0.287	+/-0.172		pCi/g							
Zirconium-95	U	0.232	+/-0.112	0.241	+/-0.155		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B2
Sample ID: 674299024
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 19.6%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.73	+/-0.555	0.540	+/-0.585		pCi/g			MXR1	07/31/24	1609	2636543	1
Americium-241	U	0.488	+/-0.536	0.993	+/-0.586		pCi/g							
Antimony-124	U	-0.129	+/-0.182	0.300	+/-0.191		pCi/g							
Antimony-125	U	0.179	+/-0.181	0.366	+/-0.199		pCi/g							
Barium-133	U	-0.0110	+/-0.0857	0.145	+/-0.0859		pCi/g							
Barium-140	U	-0.0774	+/-1.41	2.63	+/-1.41		pCi/g							
Beryllium-7	U	0.711	+/-1.02	1.58	+/-1.02		pCi/g							
Bismuth-212		2.05	+/-1.16	1.35	+/-1.18		pCi/g							
Bismuth-214		7.91	+/-0.516	0.254	+/-0.834		pCi/g							
Cerium-139	U	0.0340	+/-0.0702	0.128	+/-0.0723		pCi/g							
Cerium-141	U	0.157	+/-0.387	0.357	+/-0.394		pCi/g							
Cerium-144	U	-0.122	+/-0.400	0.706	+/-0.404		pCi/g							
Cesium-134	U	0.0381	+/-0.0693	0.138	+/-0.0715		pCi/g							
Cesium-136	U	0.216	+/-0.579	1.17	+/-0.587		pCi/g							
Cesium-137		0.201	+/-0.107	0.111	+/-0.108	0.100	pCi/g							
Chromium-51	U	0.284	+/-1.25	2.19	+/-1.25		pCi/g							
Cobalt-56	U	0.0781	+/-0.0805	0.169	+/-0.0882		pCi/g							
Cobalt-57	U	0.0111	+/-0.0523	0.0957	+/-0.0526		pCi/g							
Cobalt-58	U	-0.0113	+/-0.0786	0.128	+/-0.0788		pCi/g							
Cobalt-60	U	0.0411	+/-0.0667	0.145	+/-0.0694		pCi/g							
Europium-152	U	0.0875	+/-0.198	0.384	+/-0.202		pCi/g							
Europium-154	U	-0.106	+/-0.195	0.348	+/-0.201		pCi/g							
Europium-155	U	0.0701	+/-0.203	0.376	+/-0.205		pCi/g							
Iridium-192	U	0.00419	+/-0.0805	0.140	+/-0.0805		pCi/g							
Iron-59	U	-0.0405	+/-0.171	0.330	+/-0.172		pCi/g							
Lead-210	U	5.62	+/-25.1	48.3	+/-25.3		pCi/g							
Lead-212		1.27	+/-0.211	0.211	+/-0.249		pCi/g							
Lead-214		10.6	+/-0.620	0.250	+/-1.07		pCi/g							
Manganese-54	U	-0.0630	+/-0.0919	0.131	+/-0.0964		pCi/g							
Mercury-203	U	-0.0382	+/-0.119	0.182	+/-0.120		pCi/g							
Neodymium-147	U	-1.16	+/-3.66	6.63	+/-3.70		pCi/g							
Neptunium-239	U	0.148	+/-0.492	0.908	+/-0.496		pCi/g							
Niobium-94	U	0.0607	+/-0.0664	0.124	+/-0.0720		pCi/g							
Niobium-95	U	0.0500	+/-0.0951	0.171	+/-0.0979		pCi/g							
Potassium-40		4.42	+/-1.64	1.29	+/-1.71		pCi/g							
Promethium-144	U	-0.0117	+/-0.0563	0.102	+/-0.0566		pCi/g							
Promethium-146	U	0.0229	+/-0.0832	0.159	+/-0.0839		pCi/g							
Radium-226		10.6	+/-0.620	0.250	+/-1.07		pCi/g							
Radium-228		1.73	+/-0.555	0.540	+/-0.585		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B2
Sample ID: 674299024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.802	+/-0.510	0.740	+/-0.629		pCi/g							
Silver-110m	U	0.0162	+/-0.105	0.194	+/-0.105		pCi/g							
Sodium-22	U	-0.0271	+/-0.0689	0.127	+/-0.0701		pCi/g							
Thallium-208		0.342	+/-0.137	0.121	+/-0.140		pCi/g							
Thorium-234		10.4	+/-8.19	6.91	+/-8.67		pCi/g							
Tin-113	U	-0.0969	+/-0.0923	0.159	+/-0.102		pCi/g							
Uranium-235	U	0.327	+/-0.805	0.705	+/-0.806		pCi/g							
Uranium-238		10.4	+/-8.19	6.91	+/-8.67		pCi/g							
Yttrium-88	U	-0.0345	+/-0.0766	0.137	+/-0.0782		pCi/g							
Zinc-65	U	-0.00673	+/-0.185	0.314	+/-0.185		pCi/g							
Zirconium-95	U	0.132	+/-0.163	0.330	+/-0.174		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B3
Sample ID: 674299025
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 13.8%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.940	+/-0.409	0.345	+/-0.419		pCi/g			MXR1	08/01/24	1004	2636543	1
Americium-241	U	-0.0227	+/-0.193	0.343	+/-0.193		pCi/g							
Antimony-124	U	0.0492	+/-0.0929	0.257	+/-0.0956		pCi/g							
Antimony-125	U	-0.0524	+/-0.106	0.189	+/-0.109		pCi/g							
Barium-133	U	0.0139	+/-0.0526	0.0943	+/-0.0529		pCi/g							
Barium-140	U	0.163	+/-0.835	1.67	+/-0.838		pCi/g							
Beryllium-7	U	-0.388	+/-0.543	0.926	+/-0.571		pCi/g							
Bismuth-212		1.27	+/-0.950	1.16	+/-0.957		pCi/g							
Bismuth-214		0.997	+/-0.244	0.159	+/-0.259		pCi/g							
Cerium-139	U	0.00933	+/-0.0374	0.0687	+/-0.0377		pCi/g							
Cerium-141	U	0.0365	+/-0.110	0.204	+/-0.111		pCi/g							
Cerium-144	U	-0.162	+/-0.217	0.368	+/-0.229		pCi/g							
Cesium-134	U	0.0617	+/-0.0535	0.120	+/-0.0606		pCi/g							
Cesium-136	U	0.174	+/-0.400	0.841	+/-0.408		pCi/g							
Cesium-137	U	0.0180	+/-0.0457	0.0905	+/-0.0464	0.100	pCi/g							
Chromium-51	U	0.317	+/-0.790	1.44	+/-0.803		pCi/g							
Cobalt-56	U	0.0530	+/-0.0616	0.135	+/-0.0662		pCi/g							
Cobalt-57	U	-0.00822	+/-0.0290	0.0519	+/-0.0293		pCi/g							
Cobalt-58	U	-0.0315	+/-0.0520	0.0941	+/-0.0540		pCi/g							
Cobalt-60	U	0.0703	+/-0.0615	0.115	+/-0.0695		pCi/g							
Europium-152	U	0.0163	+/-0.115	0.223	+/-0.115		pCi/g							
Europium-154	U	-0.0404	+/-0.213	0.337	+/-0.214		pCi/g							
Europium-155	U	0.0609	+/-0.119	0.229	+/-0.123		pCi/g							
Iridium-192	U	0.00812	+/-0.0468	0.0921	+/-0.0470		pCi/g							
Iron-59	U	0.0148	+/-0.190	0.365	+/-0.190		pCi/g							
Lead-210	U	-0.404	+/-5.36	10.4	+/-5.37		pCi/g							
Lead-212		0.960	+/-0.144	0.117	+/-0.164		pCi/g							
Lead-214		1.56	+/-0.228	0.152	+/-0.259		pCi/g							
Manganese-54	U	0.0454	+/-0.0497	0.109	+/-0.0539		pCi/g							
Mercury-203	U	0.00318	+/-0.0581	0.113	+/-0.0582		pCi/g							
Neodymium-147	U	1.25	+/-2.54	5.13	+/-2.61		pCi/g							
Neptunium-239	U	-0.101	+/-0.268	0.479	+/-0.272		pCi/g							
Niobium-94	U	0.00495	+/-0.0424	0.0799	+/-0.0425		pCi/g							
Niobium-95	U	0.0151	+/-0.0777	0.138	+/-0.0780		pCi/g							
Potassium-40		18.2	+/-2.30	0.996	+/-2.86		pCi/g							
Promethium-144	U	-0.00716	+/-0.0460	0.0829	+/-0.0462		pCi/g							
Promethium-146	U	0.0179	+/-0.0568	0.111	+/-0.0574		pCi/g							
Radium-226		1.56	+/-0.228	0.152	+/-0.259		pCi/g							
Radium-228		0.940	+/-0.409	0.345	+/-0.419		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B3
Sample ID: 674299025

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.0402	+/-0.445	0.758	+/-0.445		pCi/g							
Silver-110m	U	0.161	+/-0.0925	0.166	+/-0.119		pCi/g							
Sodium-22	U	-0.0181	+/-0.0753	0.118	+/-0.0758		pCi/g							
Thallium-208		0.337	+/-0.110	0.0837	+/-0.114		pCi/g							
Thorium-234	U	1.12	+/-1.56	3.12	+/-1.66		pCi/g							
Tin-113	U	0.0351	+/-0.0604	0.122	+/-0.0625		pCi/g							
Uranium-235	U	-0.00850	+/-0.232	0.412	+/-0.232		pCi/g							
Uranium-238	U	1.12	+/-1.56	3.12	+/-1.66		pCi/g							
Yttrium-88	U	0.00472	+/-0.0496	0.113	+/-0.0496		pCi/g							
Zinc-65	U	-0.123	+/-0.160	0.220	+/-0.170		pCi/g							
Zirconium-95	U	-0.0219	+/-0.101	0.196	+/-0.102		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B4
Sample ID: 674299026
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 14.1%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.64	+/-0.643	0.414	+/-0.663		pCi/g			MXR1	07/31/24	1609	2636543	1
Americium-241	U	-0.201	+/-0.315	0.551	+/-0.328		pCi/g							
Antimony-124	U	0.169	+/-0.252	0.339	+/-0.252		pCi/g							
Antimony-125	U	0.102	+/-0.161	0.313	+/-0.168		pCi/g							
Barium-133	U	0.0828	+/-0.109	0.132	+/-0.116		pCi/g							
Barium-140	U	-0.912	+/-1.29	2.22	+/-1.36		pCi/g							
Beryllium-7	U	-0.0141	+/-0.676	1.13	+/-0.676		pCi/g							
Bismuth-212	UI	0.000	+/-1.33	1.33	+/-1.34		pCi/g							
Bismuth-214		10.2	+/-0.498	0.183	+/-1.03		pCi/g							
Cerium-139	U	0.0105	+/-0.0601	0.109	+/-0.0604		pCi/g							
Cerium-141	U	0.244	+/-0.344	0.325	+/-0.361		pCi/g							
Cerium-144	U	0.0672	+/-0.361	0.664	+/-0.362		pCi/g							
Cesium-134	U	0.0527	+/-0.0711	0.143	+/-0.0752		pCi/g							
Cesium-136	U	-0.0945	+/-0.531	0.855	+/-0.533		pCi/g							
Cesium-137		0.125	+/-0.0928	0.101	+/-0.0934	0.100	pCi/g							
Chromium-51	U	1.08	+/-1.08	2.15	+/-1.19		pCi/g							
Cobalt-56	U	0.0185	+/-0.0861	0.166	+/-0.0866		pCi/g							
Cobalt-57	U	-0.0215	+/-0.0473	0.0851	+/-0.0483		pCi/g							
Cobalt-58	U	0.0369	+/-0.0836	0.150	+/-0.0853		pCi/g							
Cobalt-60	U	-0.0235	+/-0.0617	0.109	+/-0.0627		pCi/g							
Europium-152	U	-0.0521	+/-0.180	0.332	+/-0.181		pCi/g							
Europium-154	U	0.0296	+/-0.238	0.391	+/-0.238		pCi/g							
Europium-155	U	-0.0204	+/-0.181	0.335	+/-0.181		pCi/g							
Iridium-192	U	-0.0680	+/-0.0717	0.128	+/-0.0781		pCi/g							
Iron-59	U	-0.0911	+/-0.171	0.301	+/-0.176		pCi/g							
Lead-210	U	4.03	+/-8.73	17.5	+/-8.93		pCi/g							
Lead-212		1.30	+/-0.199	0.203	+/-0.225		pCi/g							
Lead-214		12.6	+/-0.595	0.229	+/-1.17		pCi/g							
Manganese-54	U	-0.0292	+/-0.0702	0.111	+/-0.0715		pCi/g							
Mercury-203	U	-0.0483	+/-0.0911	0.169	+/-0.0937		pCi/g							
Neodymium-147	U	-0.487	+/-3.36	6.10	+/-3.37		pCi/g							
Neptunium-239	U	0.0779	+/-0.442	0.822	+/-0.443		pCi/g							
Niobium-94	U	0.0787	+/-0.106	0.112	+/-0.112		pCi/g							
Niobium-95	UI	0.000	+/-0.102	0.208	+/-0.145		pCi/g							
Potassium-40		8.56	+/-2.03	1.18	+/-2.18		pCi/g							
Promethium-144	U	0.0217	+/-0.0542	0.102	+/-0.0551		pCi/g							
Promethium-146	U	0.0398	+/-0.0764	0.146	+/-0.0786		pCi/g							
Radium-226		12.6	+/-0.595	0.229	+/-1.17		pCi/g							
Radium-228		1.64	+/-0.643	0.414	+/-0.663		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B4
Sample ID: 674299026

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.0578	+/-0.472	0.854	+/-0.472		pCi/g							
Silver-110m	U	0.0253	+/-0.0928	0.180	+/-0.0935		pCi/g							
Sodium-22	U	0.00956	+/-0.0846	0.139	+/-0.0847		pCi/g							
Thallium-208		0.377	+/-0.133	0.111	+/-0.137		pCi/g							
Thorium-234		5.74	+/-5.90	4.53	+/-6.05		pCi/g							
Tin-113	U	-0.0461	+/-0.0870	0.157	+/-0.0895		pCi/g							
Uranium-235	U	0.508	+/-0.715	0.641	+/-0.716		pCi/g							
Uranium-238		5.74	+/-5.90	4.53	+/-6.05		pCi/g							
Yttrium-88	U	0.0198	+/-0.0536	0.119	+/-0.0544		pCi/g							
Zinc-65	U	0.0861	+/-0.147	0.267	+/-0.152		pCi/g							
Zirconium-95	U	-0.123	+/-0.134	0.236	+/-0.146		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B5
Sample ID: 674299027
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 10.9%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.933	+/-0.532	0.296	+/-0.547	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236		0.468	+/-0.357	0.289	+/-0.362	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		5.46	+/-1.02	0.234	+/-1.23	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	UI	0.000	+/-0.447	0.760	+/-0.693		pCi/g			MXR1	07/31/24	1610	2636543	3
Americium-241	U	-0.205	+/-0.382	0.622	+/-0.394		pCi/g							
Antimony-124	U	0.0241	+/-0.153	0.324	+/-0.154		pCi/g							
Antimony-125	U	-0.0219	+/-0.163	0.292	+/-0.163		pCi/g							
Barium-133	U	-0.0584	+/-0.0842	0.128	+/-0.0884		pCi/g							
Barium-140	U	-0.498	+/-1.27	2.19	+/-1.29		pCi/g							
Beryllium-7	U	-0.589	+/-0.822	1.20	+/-0.866		pCi/g							
Bismuth-212	U	1.45	+/-1.21	1.58	+/-1.22		pCi/g							
Bismuth-214		6.58	+/-0.474	0.216	+/-0.741		pCi/g							
Cerium-139	U	-0.0130	+/-0.0612	0.115	+/-0.0615		pCi/g							
Cerium-141	U	-0.144	+/-0.201	0.333	+/-0.212		pCi/g							
Cerium-144	U	0.137	+/-0.380	0.674	+/-0.385		pCi/g							
Cesium-134	U	0.0389	+/-0.0676	0.135	+/-0.0699		pCi/g							
Cesium-136	U	-0.368	+/-0.491	0.825	+/-0.520		pCi/g							
Cesium-137		0.119	+/-0.0921	0.108	+/-0.0926	0.100	pCi/g							
Chromium-51	U	-0.195	+/-1.07	1.94	+/-1.07		pCi/g							
Cobalt-56	U	-0.0505	+/-0.0784	0.137	+/-0.0818		pCi/g							
Cobalt-57	U	-0.00962	+/-0.0487	0.0841	+/-0.0489		pCi/g							
Cobalt-58	U	-0.00565	+/-0.0734	0.138	+/-0.0734		pCi/g							
Cobalt-60	U	0.0106	+/-0.0596	0.116	+/-0.0598		pCi/g							
Europium-152	U	-0.0135	+/-0.181	0.328	+/-0.181		pCi/g							
Europium-154	U	0.0348	+/-0.179	0.311	+/-0.179		pCi/g							
Europium-155	U	-0.0143	+/-0.177	0.313	+/-0.178		pCi/g							
Iridium-192	U	0.00287	+/-0.0718	0.133	+/-0.0718		pCi/g							
Iron-59	U	-0.242	+/-0.190	0.288	+/-0.221		pCi/g							
Lead-210		23.6	+/-21.9	20.9	+/-22.1		pCi/g							
Lead-212		1.27	+/-0.197	0.193	+/-0.237		pCi/g							
Lead-214		8.49	+/-0.516	0.237	+/-0.969		pCi/g							
Manganese-54	U	-0.0225	+/-0.0662	0.120	+/-0.0670		pCi/g							
Mercury-203	U	-0.0203	+/-0.0932	0.170	+/-0.0937		pCi/g							
Neodymium-147	U	-1.80	+/-3.61	6.16	+/-3.71		pCi/g							
Neptunium-239	U	0.108	+/-0.471	0.837	+/-0.473		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B5
Sample ID: 674299027

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0780	+/-0.0650	0.108	+/-0.0742		pCi/g							
Niobium-95	U	0.176	+/-0.0821	0.178	+/-0.115		pCi/g							
Potassium-40		6.58	+/-1.43	1.04	+/-1.56		pCi/g							
Promethium-144	U	0.0414	+/-0.0500	0.104	+/-0.0535		pCi/g							
Promethium-146	U	0.0144	+/-0.0749	0.138	+/-0.0752		pCi/g							
Radium-226		8.49	+/-0.516	0.237	+/-0.969		pCi/g							
Radium-228	UI	0.000	+/-0.447	0.760	+/-0.693		pCi/g							
Ruthenium-106	U	-0.0609	+/-0.462	0.883	+/-0.463		pCi/g							
Silver-110m	U	0.0194	+/-0.0870	0.151	+/-0.0875		pCi/g							
Sodium-22	U	0.0124	+/-0.0637	0.111	+/-0.0640		pCi/g							
Thallium-208		0.365	+/-0.151	0.108	+/-0.154		pCi/g							
Thorium-234	U	4.81	+/-7.44	5.12	+/-7.53		pCi/g							
Tin-113	U	-0.0267	+/-0.0891	0.141	+/-0.0900		pCi/g							
Uranium-235	U	0.557	+/-0.413	0.758	+/-0.416		pCi/g							
Uranium-238	U	4.81	+/-7.44	5.12	+/-7.53		pCi/g							
Yttrium-88	U	0.00510	+/-0.0433	0.0987	+/-0.0433		pCi/g							
Zinc-65	U	0.00513	+/-0.154	0.254	+/-0.154		pCi/g							
Zirconium-95	U	-0.0638	+/-0.139	0.251	+/-0.142		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	91.9	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	94.3	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B5
Sample ID: 674299027

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B6
Sample ID: 674299028
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 18.2%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.98	+/-0.408	0.332	+/-0.489		pCi/g				MXR1	07/31/24	1610	2636543 1
Americium-241	U	-8.11E-05	+/-0.440	0.718	+/-0.440		pCi/g							
Antimony-124	U	-0.0756	+/-0.137	0.240	+/-0.142		pCi/g							
Antimony-125	U	0.0448	+/-0.105	0.207	+/-0.107		pCi/g							
Barium-133	U	0.0158	+/-0.0588	0.0847	+/-0.0592		pCi/g							
Barium-140	U	-0.309	+/-0.940	1.67	+/-0.951		pCi/g							
Beryllium-7	U	-0.0266	+/-0.596	0.979	+/-0.596		pCi/g							
Bismuth-212	UI	0.000	+/-1.62	1.15	+/-1.64		pCi/g							
Bismuth-214		1.25	+/-0.205	0.159	+/-0.230		pCi/g							
Cerium-139	U	0.0180	+/-0.0415	0.0801	+/-0.0424		pCi/g							
Cerium-141	U	0.0586	+/-0.126	0.241	+/-0.129		pCi/g							
Cerium-144	U	-0.145	+/-0.323	0.484	+/-0.330		pCi/g							
Cesium-134	U	-0.0161	+/-0.0639	0.111	+/-0.0643		pCi/g							
Cesium-136	U	-0.391	+/-0.435	0.731	+/-0.472		pCi/g							
Cesium-137	U	-0.00649	+/-0.0457	0.0828	+/-0.0458	0.100	pCi/g							
Chromium-51	U	0.0592	+/-0.761	1.43	+/-0.761		pCi/g							
Cobalt-56	U	0.00281	+/-0.0596	0.118	+/-0.0596		pCi/g							
Cobalt-57	U	0.0315	+/-0.0375	0.0688	+/-0.0402		pCi/g							
Cobalt-58	U	0.0219	+/-0.0659	0.127	+/-0.0667		pCi/g							
Cobalt-60	U	0.0120	+/-0.0408	0.0901	+/-0.0412		pCi/g							
Europium-152	U	-0.0901	+/-0.113	0.193	+/-0.120		pCi/g							
Europium-154	U	-0.0451	+/-0.160	0.298	+/-0.161		pCi/g							
Europium-155	U	0.176	+/-0.167	0.309	+/-0.186		pCi/g							
Iridium-192	U	-0.0396	+/-0.0509	0.0876	+/-0.0540		pCi/g							
Iron-59	U	0.0604	+/-0.152	0.317	+/-0.154		pCi/g							
Lead-210	U	-7.80	+/-21.6	37.3	+/-21.9		pCi/g							
Lead-212		1.70	+/-0.174	0.128	+/-0.238		pCi/g							
Lead-214		1.94	+/-0.279	0.165	+/-0.331		pCi/g							
Manganese-54	U	0.0552	+/-0.0537	0.111	+/-0.0595		pCi/g							
Mercury-203	U	0.0238	+/-0.0708	0.123	+/-0.0716		pCi/g							
Neodymium-147	U	-0.278	+/-2.48	4.54	+/-2.49		pCi/g							
Neptunium-239	U	0.192	+/-0.361	0.651	+/-0.372		pCi/g							
Niobium-94	U	0.00919	+/-0.0366	0.0712	+/-0.0369		pCi/g							
Niobium-95	U	0.00325	+/-0.0659	0.121	+/-0.0659		pCi/g							
Potassium-40		17.8	+/-2.25	0.963	+/-3.18		pCi/g							
Promethium-144	U	-0.0279	+/-0.0366	0.0590	+/-0.0388		pCi/g							
Promethium-146	U	0.00704	+/-0.0491	0.0935	+/-0.0492		pCi/g							
Radium-226		1.94	+/-0.279	0.165	+/-0.331		pCi/g							
Radium-228		1.98	+/-0.408	0.332	+/-0.489		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B6
Sample ID: 674299028

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.0174	+/-0.352	0.658	+/-0.352		pCi/g							
Silver-110m	U	-0.00310	+/-0.0609	0.121	+/-0.0610		pCi/g							
Sodium-22	U	-0.0161	+/-0.0570	0.106	+/-0.0575		pCi/g							
Thallium-208		0.534	+/-0.128	0.0824	+/-0.136		pCi/g							
Thorium-234	U	1.01	+/-5.13	5.29	+/-5.13		pCi/g							
Tin-113	U	-0.0417	+/-0.0663	0.115	+/-0.0690		pCi/g							
Uranium-235	U	0.142	+/-0.265	0.508	+/-0.265		pCi/g							
Uranium-238	U	1.01	+/-5.13	5.29	+/-5.13		pCi/g							
Yttrium-88	U	0.00685	+/-0.0501	0.111	+/-0.0502		pCi/g							
Zinc-65	U	-0.00428	+/-0.145	0.245	+/-0.145		pCi/g							
Zirconium-95	U	-0.0341	+/-0.104	0.183	+/-0.105		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U1
Sample ID: 674299029
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 14.7%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	UI	0.000	+/-0.294	0.646	+/-0.454		pCi/g			MXR1	07/31/24	1611	2636543	1
Americium-241	U	-0.115	+/-0.336	0.582	+/-0.340		pCi/g							
Antimony-124	U	-0.125	+/-0.141	0.223	+/-0.152		pCi/g							
Antimony-125	U	0.0886	+/-0.117	0.236	+/-0.124		pCi/g							
Barium-133	U	0.0522	+/-0.0645	0.116	+/-0.0688		pCi/g							
Barium-140	U	-0.323	+/-1.04	1.87	+/-1.05		pCi/g							
Beryllium-7	U	0.00193	+/-0.612	1.13	+/-0.612		pCi/g							
Bismuth-212	U	1.22	+/-0.838	1.75	+/-1.01		pCi/g							
Bismuth-214		0.930	+/-0.209	0.181	+/-0.232		pCi/g							
Cerium-139	U	0.000937	+/-0.0413	0.0773	+/-0.0413		pCi/g							
Cerium-141	U	-0.0299	+/-0.135	0.247	+/-0.135		pCi/g							
Cerium-144	U	0.0415	+/-0.278	0.526	+/-0.279		pCi/g							
Cesium-134	U	0.0147	+/-0.0546	0.103	+/-0.0550		pCi/g							
Cesium-136	U	-0.184	+/-0.384	0.701	+/-0.393		pCi/g							
Cesium-137	U	0.0397	+/-0.0505	0.103	+/-0.0537	0.100	pCi/g							
Chromium-51	U	-0.385	+/-0.801	1.42	+/-0.820		pCi/g							
Cobalt-56	U	0.000250	+/-0.0671	0.110	+/-0.0671		pCi/g							
Cobalt-57	U	-0.00624	+/-0.0343	0.0640	+/-0.0345		pCi/g							
Cobalt-58	U	-0.0681	+/-0.0722	0.115	+/-0.0787		pCi/g							
Cobalt-60	U	0.0710	+/-0.0590	0.134	+/-0.0674		pCi/g							
Europium-152	U	0.250	+/-0.199	0.252	+/-0.230		pCi/g							
Europium-154	U	0.0708	+/-0.174	0.355	+/-0.177		pCi/g							
Europium-155	U	0.0291	+/-0.171	0.302	+/-0.171		pCi/g							
Iridium-192	U	-0.00220	+/-0.0567	0.105	+/-0.0567		pCi/g							
Iron-59	U	-0.0903	+/-0.181	0.325	+/-0.185		pCi/g							
Lead-210	U	-0.451	+/-10.6	16.8	+/-10.6		pCi/g							
Lead-212		1.17	+/-0.175	0.138	+/-0.198		pCi/g							
Lead-214		0.667	+/-0.275	0.184	+/-0.281		pCi/g							
Manganese-54	U	0.000280	+/-0.0563	0.103	+/-0.0563		pCi/g							
Mercury-203	U	0.0440	+/-0.0703	0.136	+/-0.0731		pCi/g							
Neodymium-147	U	0.991	+/-2.68	5.08	+/-2.72		pCi/g							
Neptunium-239	U	-0.0170	+/-0.374	0.701	+/-0.374		pCi/g							
Niobium-94	U	0.0141	+/-0.0412	0.0808	+/-0.0417		pCi/g							
Niobium-95	U	-0.0322	+/-0.0811	0.140	+/-0.0824		pCi/g							
Potassium-40		20.4	+/-2.09	0.985	+/-2.71		pCi/g							
Promethium-144	U	0.0191	+/-0.0456	0.0897	+/-0.0464		pCi/g							
Promethium-146	U	-0.0486	+/-0.0542	0.0903	+/-0.0587		pCi/g							
Radium-226		0.667	+/-0.275	0.184	+/-0.281		pCi/g							
Radium-228	UI	0.000	+/-0.294	0.646	+/-0.454		pCi/g							

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U1
Sample ID: 674299029

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.00324	+/-0.462	0.856	+/-0.462		pCi/g							
Silver-110m	U	0.0382	+/-0.0705	0.142	+/-0.0726		pCi/g							
Sodium-22	U	0.0274	+/-0.0623	0.128	+/-0.0636		pCi/g							
Thallium-208		0.246	+/-0.104	0.0917	+/-0.107		pCi/g							
Thorium-234	U	-0.582	+/-2.91	5.03	+/-2.92		pCi/g							
Tin-113	U	-0.00472	+/-0.0646	0.120	+/-0.0646		pCi/g							
Uranium-235	U	0.00686	+/-0.281	0.522	+/-0.281		pCi/g							
Uranium-238	U	-0.582	+/-2.91	5.03	+/-2.92		pCi/g							
Yttrium-88	U	0.0368	+/-0.0354	0.107	+/-0.0392		pCi/g							
Zinc-65	U	0.0372	+/-0.105	0.200	+/-0.107		pCi/g							
Zirconium-95	U	0.0678	+/-0.131	0.258	+/-0.135		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U2
Sample ID: 674299030
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 27.3%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.850	+/-0.516	0.440	+/-0.529	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0705	+/-0.241	0.447	+/-0.241	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		3.18	+/-0.835	0.361	+/-0.933	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.06	+/-0.423	0.377	+/-0.436		pCi/g			MXR1	07/31/24	1611	2636543	3
Americium-241	U	0.0657	+/-0.208	0.403	+/-0.210		pCi/g							
Antimony-124	U	0.0512	+/-0.140	0.306	+/-0.142		pCi/g							
Antimony-125	U	0.0408	+/-0.133	0.252	+/-0.134		pCi/g							
Barium-133	U	0.0799	+/-0.0527	0.105	+/-0.0642		pCi/g							
Barium-140	U	0.960	+/-1.18	2.32	+/-1.26		pCi/g							
Beryllium-7	U	0.158	+/-0.588	1.11	+/-0.593		pCi/g							
Bismuth-212		1.19	+/-1.06	1.16	+/-1.07		pCi/g							
Bismuth-214		3.83	+/-0.364	0.174	+/-0.522		pCi/g							
Cerium-139	U	0.0189	+/-0.0473	0.0856	+/-0.0483		pCi/g							
Cerium-141	U	-0.0214	+/-0.138	0.242	+/-0.138		pCi/g							
Cerium-144	U	-0.251	+/-0.282	0.478	+/-0.305		pCi/g							
Cesium-134	U	0.0436	+/-0.0564	0.116	+/-0.0599		pCi/g							
Cesium-136	U	-0.336	+/-0.360	0.583	+/-0.392		pCi/g							
Cesium-137	U	-0.0311	+/-0.0539	0.0899	+/-0.0558	0.100	pCi/g							
Chromium-51	U	-0.0654	+/-0.823	1.53	+/-0.824		pCi/g							
Cobalt-56	U	-0.0122	+/-0.0572	0.107	+/-0.0574		pCi/g							
Cobalt-57	U	0.0178	+/-0.0326	0.0614	+/-0.0336		pCi/g							
Cobalt-58	UI	0.000	+/-0.141	0.108	+/-0.142		pCi/g							
Cobalt-60	U	-0.0157	+/-0.0520	0.0931	+/-0.0525		pCi/g							
Europium-152	U	-0.00751	+/-0.128	0.238	+/-0.128		pCi/g							
Europium-154	U	0.0824	+/-0.181	0.325	+/-0.185		pCi/g							
Europium-155	U	0.0259	+/-0.138	0.256	+/-0.139		pCi/g							
Iridium-192	U	-0.0751	+/-0.0559	0.0943	+/-0.0657		pCi/g							
Iron-59	U	0.0123	+/-0.170	0.321	+/-0.170		pCi/g							
Lead-210	U	5.15	+/-6.20	12.5	+/-6.64		pCi/g							
Lead-212		1.37	+/-0.172	0.136	+/-0.209		pCi/g							
Lead-214		4.73	+/-0.364	0.196	+/-0.537		pCi/g							
Manganese-54	U	0.00394	+/-0.0508	0.0977	+/-0.0509		pCi/g							
Mercury-203	U	0.0873	+/-0.103	0.129	+/-0.103		pCi/g							
Neodymium-147	U	-1.03	+/-2.82	4.94	+/-2.86		pCi/g							
Neptunium-239	U	-0.00712	+/-0.344	0.625	+/-0.344		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U2
Sample ID: 674299030

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0596	+/-0.133	0.0862	+/-0.136		pCi/g							
Niobium-95	U	-0.000891	+/-0.0830	0.139	+/-0.0830		pCi/g							
Potassium-40		13.8	+/-1.94	0.813	+/-2.30		pCi/g							
Promethium-144	U	0.000242	+/-0.0517	0.0829	+/-0.0517		pCi/g							
Promethium-146	U	0.0562	+/-0.0807	0.123	+/-0.0848		pCi/g							
Radium-226		4.73	+/-0.364	0.196	+/-0.537		pCi/g							
Radium-228		1.06	+/-0.423	0.377	+/-0.436		pCi/g							
Ruthenium-106	U	-0.374	+/-0.431	0.694	+/-0.464		pCi/g							
Silver-110m	U	-0.0205	+/-0.0816	0.149	+/-0.0821		pCi/g							
Sodium-22	U	0.0274	+/-0.0643	0.115	+/-0.0655		pCi/g							
Thallium-208		0.391	+/-0.127	0.0939	+/-0.133		pCi/g							
Thorium-234		4.74	+/-3.37	3.32	+/-3.56		pCi/g							
Tin-113	U	-0.0551	+/-0.0728	0.126	+/-0.0771		pCi/g							
Uranium-235	U	0.000826	+/-0.289	0.514	+/-0.289		pCi/g							
Uranium-238		4.74	+/-3.37	3.32	+/-3.56		pCi/g							
Yttrium-88	U	-0.000239	+/-0.0540	0.111	+/-0.0540		pCi/g							
Zinc-65	U	0.00923	+/-0.135	0.224	+/-0.135		pCi/g							
Zirconium-95	U	0.00452	+/-0.109	0.211	+/-0.109		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	91.8	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	97	(15%-125%)

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U2
Sample ID: 674299030

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U3
Sample ID: 674299031
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 12.3%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	0.217	+/-0.357	0.511	+/-0.359	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.000	+/-0.129	0.192	+/-0.129	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.803	+/-0.420	0.287	+/-0.433	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	UI	0.000	+/-0.264	0.520	+/-0.519		pCi/g			MXR1	07/31/24	1612	2636543	3
Americium-241	U	0.166	+/-0.206	0.384	+/-0.220		pCi/g							
Antimony-124	U	-0.0740	+/-0.110	0.184	+/-0.115		pCi/g							
Antimony-125	U	0.00192	+/-0.0877	0.165	+/-0.0877		pCi/g							
Barium-133	U	-0.000125	+/-0.0479	0.0751	+/-0.0479		pCi/g							
Barium-140	U	0.220	+/-0.670	1.30	+/-0.677		pCi/g							
Beryllium-7	U	-0.256	+/-0.363	0.628	+/-0.381		pCi/g							
Bismuth-212		1.11	+/-0.764	1.04	+/-0.771		pCi/g							
Bismuth-214		1.42	+/-0.211	0.126	+/-0.242		pCi/g							
Cerium-139	U	0.0522	+/-0.0364	0.0558	+/-0.0380		pCi/g							
Cerium-141	U	-0.0210	+/-0.109	0.181	+/-0.109		pCi/g							
Cerium-144	U	0.0220	+/-0.208	0.362	+/-0.208		pCi/g							
Cesium-134	U	0.0581	+/-0.0567	0.0899	+/-0.0627		pCi/g							
Cesium-136	U	-0.0133	+/-0.333	0.610	+/-0.333		pCi/g							
Cesium-137	U	0.00973	+/-0.0372	0.0694	+/-0.0375	0.100	pCi/g							
Chromium-51	U	-0.241	+/-0.589	1.01	+/-0.600		pCi/g							
Cobalt-56	U	-0.00951	+/-0.0460	0.0847	+/-0.0462		pCi/g							
Cobalt-57	U	-0.00122	+/-0.0269	0.0467	+/-0.0270		pCi/g							
Cobalt-58	U	-0.0256	+/-0.0420	0.0740	+/-0.0437		pCi/g							
Cobalt-60	U	0.0206	+/-0.0436	0.0843	+/-0.0446		pCi/g							
Europium-152	U	-0.0591	+/-0.0907	0.150	+/-0.0947		pCi/g							
Europium-154	U	0.127	+/-0.141	0.280	+/-0.153		pCi/g							
Europium-155	U	0.0320	+/-0.109	0.196	+/-0.110		pCi/g							
Iridium-192	U	0.0107	+/-0.0421	0.0768	+/-0.0424		pCi/g							
Iron-59	U	-0.00863	+/-0.127	0.232	+/-0.127		pCi/g							
Lead-210	U	-12.0	+/-9.37	15.3	+/-10.9		pCi/g							
Lead-212		0.934	+/-0.122	0.108	+/-0.147		pCi/g							
Lead-214		1.94	+/-0.219	0.109	+/-0.276		pCi/g							
Manganese-54	U	-0.00314	+/-0.0403	0.0747	+/-0.0403		pCi/g							
Mercury-203	U	0.0125	+/-0.103	0.0972	+/-0.103		pCi/g							
Neodymium-147	U	-0.102	+/-1.85	3.41	+/-1.85		pCi/g							
Neptunium-239	U	-0.0857	+/-0.283	0.480	+/-0.286		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U3
Sample ID: 674299031

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	0.0145	+/-0.0345	0.0647	+/-0.0351		pCi/g							
Niobium-95	U	0.0893	+/-0.0984	0.0995	+/-0.0988		pCi/g							
Potassium-40		13.4	+/-1.44	0.673	+/-1.94		pCi/g							
Promethium-144	U	0.0187	+/-0.0342	0.0656	+/-0.0352		pCi/g							
Promethium-146	U	-0.0187	+/-0.0406	0.0725	+/-0.0415		pCi/g							
Radium-226		1.94	+/-0.219	0.109	+/-0.276		pCi/g							
Radium-228	UI	0.000	+/-0.264	0.520	+/-0.519		pCi/g							
Ruthenium-106	U	0.121	+/-0.318	0.604	+/-0.323		pCi/g							
Silver-110m	U	-0.0310	+/-0.0510	0.0887	+/-0.0530		pCi/g							
Sodium-22	U	0.0248	+/-0.0528	0.0986	+/-0.0540		pCi/g							
Thallium-208		0.202	+/-0.0841	0.0591	+/-0.0858		pCi/g							
Thorium-234		3.59	+/-3.72	3.17	+/-3.82		pCi/g							
Tin-113	U	0.0139	+/-0.0478	0.0923	+/-0.0483		pCi/g							
Uranium-235	U	0.178	+/-0.217	0.394	+/-0.232		pCi/g							
Uranium-238		3.59	+/-3.72	3.17	+/-3.82		pCi/g							
Yttrium-88	U	-0.0277	+/-0.0476	0.0847	+/-0.0492		pCi/g							
Zinc-65	U	0.114	+/-0.114	0.210	+/-0.126		pCi/g							
Zirconium-95	U	0.00582	+/-0.0872	0.166	+/-0.0872		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	73.2	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	99.6	(15%-125%)

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U3
Sample ID: 674299031

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test							Batch ID	Recovery%	Acceptable Limits				

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U4
Sample ID: 674299032
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 18.1%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.32	+/-0.425	0.412	+/-0.444		pCi/g				MXR1	07/31/24	1612	2636543 1
Americium-241	U	0.171	+/-0.275	0.482	+/-0.286		pCi/g							
Antimony-124	U	-0.0661	+/-0.208	0.326	+/-0.211		pCi/g							
Antimony-125	U	-0.112	+/-0.157	0.275	+/-0.165		pCi/g							
Barium-133	U	0.00617	+/-0.0707	0.120	+/-0.0708		pCi/g							
Barium-140	U	-0.546	+/-1.26	2.24	+/-1.29		pCi/g							
Beryllium-7	U	0.111	+/-0.639	1.21	+/-0.641		pCi/g							
Bismuth-212		1.82	+/-1.01	1.33	+/-1.02		pCi/g							
Bismuth-214		8.83	+/-0.489	0.201	+/-0.958		pCi/g							
Cerium-139	U	0.00545	+/-0.0607	0.106	+/-0.0608		pCi/g							
Cerium-141	U	0.0446	+/-0.179	0.293	+/-0.180		pCi/g							
Cerium-144	U	0.538	+/-0.484	0.617	+/-0.486		pCi/g							
Cesium-134	U	0.0434	+/-0.0666	0.129	+/-0.0695		pCi/g							
Cesium-136	U	-0.190	+/-0.518	0.880	+/-0.526		pCi/g							
Cesium-137		0.234	+/-0.113	0.0909	+/-0.115	0.100	pCi/g							
Chromium-51	U	-0.0752	+/-0.963	1.80	+/-0.963		pCi/g							
Cobalt-56	U	0.0339	+/-0.0696	0.135	+/-0.0713		pCi/g							
Cobalt-57	U	-0.0149	+/-0.0464	0.0807	+/-0.0469		pCi/g							
Cobalt-58	U	0.0115	+/-0.0810	0.135	+/-0.0812		pCi/g							
Cobalt-60	U	-0.0130	+/-0.0521	0.0984	+/-0.0524		pCi/g							
Europium-152	U	0.0668	+/-0.167	0.319	+/-0.170		pCi/g							
Europium-154	U	0.0452	+/-0.175	0.316	+/-0.176		pCi/g							
Europium-155	U	0.195	+/-0.183	0.322	+/-0.204		pCi/g							
Iridium-192	U	-0.0311	+/-0.0692	0.126	+/-0.0707		pCi/g							
Iron-59	U	-0.0722	+/-0.148	0.272	+/-0.152		pCi/g							
Lead-210	U	5.78	+/-6.26	12.0	+/-6.80		pCi/g							
Lead-212		1.22	+/-0.185	0.187	+/-0.215		pCi/g							
Lead-214		10.5	+/-0.529	0.207	+/-1.01		pCi/g							
Manganese-54	U	-0.0204	+/-0.0685	0.119	+/-0.0691		pCi/g							
Mercury-203	U	0.00233	+/-0.0990	0.168	+/-0.0990		pCi/g							
Neodymium-147	U	-2.60	+/-3.48	5.99	+/-3.68		pCi/g							
Neptunium-239	U	-0.143	+/-0.446	0.778	+/-0.450		pCi/g							
Niobium-94	U	0.0533	+/-0.0535	0.107	+/-0.0589		pCi/g							
Niobium-95	U	0.0385	+/-0.0876	0.151	+/-0.0894		pCi/g							
Potassium-40		10.9	+/-1.78	1.10	+/-2.03		pCi/g							
Promethium-144	U	-0.0356	+/-0.0554	0.0942	+/-0.0578		pCi/g							
Promethium-146	U	0.0578	+/-0.119	0.137	+/-0.122		pCi/g							
Radium-226		10.5	+/-0.529	0.207	+/-1.01		pCi/g							
Radium-228		1.32	+/-0.425	0.412	+/-0.444		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.U4
Sample ID: 674299032

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.232	+/-0.491	0.947	+/-0.502		pCi/g							
Silver-110m	U	0.00664	+/-0.0909	0.163	+/-0.0909		pCi/g							
Sodium-22	U	0.0171	+/-0.0625	0.113	+/-0.0629		pCi/g							
Thallium-208		0.348	+/-0.157	0.106	+/-0.160		pCi/g							
Thorium-234		8.21	+/-4.32	3.99	+/-4.73		pCi/g							
Tin-113	U	-0.0910	+/-0.0835	0.143	+/-0.0933		pCi/g							
Uranium-235		0.852	+/-0.712	0.600	+/-0.716		pCi/g							
Uranium-238		8.21	+/-4.32	3.99	+/-4.73		pCi/g							
Yttrium-88	U	-0.0226	+/-0.0600	0.110	+/-0.0609		pCi/g							
Zinc-65	U	0.0253	+/-0.133	0.236	+/-0.134		pCi/g							
Zirconium-95	U	0.135	+/-0.135	0.274	+/-0.149		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B1.D
Sample ID: 674299033
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 19%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.460	+/-0.425	0.412	+/-0.430	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.0363	+/-0.202	0.387	+/-0.202	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238	U	0.156	+/-0.225	0.271	+/-0.226	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		1.44	+/-0.331	0.268	+/-0.368		pCi/g			MXR1	07/31/24	1612	2636543	3
Americium-241	U	0.00147	+/-0.116	0.200	+/-0.116		pCi/g							
Antimony-124	U	-0.0223	+/-0.0890	0.175	+/-0.0896		pCi/g							
Antimony-125	U	0.0637	+/-0.0909	0.184	+/-0.0954		pCi/g							
Barium-133	U	-0.0129	+/-0.0398	0.0654	+/-0.0403		pCi/g							
Barium-140	U	-0.163	+/-0.741	1.36	+/-0.745		pCi/g							
Beryllium-7	U	0.225	+/-0.383	0.723	+/-0.397		pCi/g							
Bismuth-212	UI	0.000	+/-0.833	0.800	+/-0.846		pCi/g							
Bismuth-214		0.962	+/-0.178	0.113	+/-0.197		pCi/g							
Cerium-139	U	-0.00540	+/-0.0299	0.0521	+/-0.0300		pCi/g							
Cerium-141	U	0.0252	+/-0.0911	0.155	+/-0.0919		pCi/g							
Cerium-144	U	0.0916	+/-0.183	0.343	+/-0.188		pCi/g							
Cesium-134	U	0.0689	+/-0.0434	0.0965	+/-0.0538		pCi/g							
Cesium-136	U	-0.0947	+/-0.286	0.536	+/-0.289		pCi/g							
Cesium-137	U	0.0151	+/-0.0305	0.0625	+/-0.0313	0.100	pCi/g							
Chromium-51	U	-0.0680	+/-0.570	1.08	+/-0.571		pCi/g							
Cobalt-56	U	-0.00226	+/-0.0439	0.0867	+/-0.0439		pCi/g							
Cobalt-57	U	-0.000625	+/-0.0240	0.0432	+/-0.0240		pCi/g							
Cobalt-58	U	-0.00482	+/-0.0428	0.0788	+/-0.0429		pCi/g							
Cobalt-60	U	0.0285	+/-0.0428	0.0924	+/-0.0447		pCi/g							
Europium-152	U	0.0750	+/-0.0917	0.187	+/-0.0980		pCi/g							
Europium-154	U	-0.125	+/-0.118	0.185	+/-0.132		pCi/g							
Europium-155	U	0.112	+/-0.0939	0.186	+/-0.107		pCi/g							
Iridium-192	U	0.00282	+/-0.0378	0.0729	+/-0.0378		pCi/g							
Iron-59	U	-0.0617	+/-0.127	0.228	+/-0.130		pCi/g							
Lead-210	U	0.989	+/-3.03	3.42	+/-3.03		pCi/g							
Lead-212		1.26	+/-0.135	0.0930	+/-0.174		pCi/g							
Lead-214		1.25	+/-0.197	0.132	+/-0.222		pCi/g							
Manganese-54	U	-0.000500	+/-0.0383	0.0752	+/-0.0383		pCi/g							
Mercury-203	U	-0.0273	+/-0.0438	0.0797	+/-0.0456		pCi/g							
Neodymium-147	U	-0.143	+/-1.81	3.40	+/-1.82		pCi/g							
Neptunium-239	U	-0.238	+/-0.236	0.389	+/-0.260		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: S1.B1.D
Sample ID: 674299033

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	-0.000528	+/-0.0317	0.0588	+/-0.0317		pCi/g							
Niobium-95	U	0.0145	+/-0.0556	0.0960	+/-0.0560		pCi/g							
Potassium-40		18.9	+/-1.85	0.741	+/-2.64		pCi/g							
Promethium-144	U	0.0123	+/-0.0395	0.0751	+/-0.0400		pCi/g							
Promethium-146	U	0.0134	+/-0.0388	0.0766	+/-0.0393		pCi/g							
Radium-226		1.25	+/-0.197	0.132	+/-0.222		pCi/g							
Radium-228		1.44	+/-0.331	0.268	+/-0.368		pCi/g							
Ruthenium-106	U	0.0532	+/-0.315	0.603	+/-0.316		pCi/g							
Silver-110m	U	0.00348	+/-0.0467	0.0944	+/-0.0467		pCi/g							
Sodium-22	U	-0.0429	+/-0.0425	0.0675	+/-0.0469		pCi/g							
Thallium-208		0.259	+/-0.0846	0.0701	+/-0.0876		pCi/g							
Thorium-234	U	1.59	+/-2.23	1.75	+/-2.26		pCi/g							
Tin-113	U	-0.0350	+/-0.0480	0.0840	+/-0.0506		pCi/g							
Uranium-235	U	0.226	+/-0.335	0.311	+/-0.336		pCi/g							
Uranium-238	U	1.59	+/-2.23	1.75	+/-2.26		pCi/g							
Yttrium-88	U	-0.00337	+/-0.0404	0.0820	+/-0.0404		pCi/g							
Zinc-65	U	0.0258	+/-0.0870	0.162	+/-0.0878		pCi/g							
Zirconium-95	U	-0.0262	+/-0.0913	0.161	+/-0.0921		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	78.5	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	89.7	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels

Project: Inventum

Client Sample ID: S1.B1.D

Sample ID: 674299033

Project: MJWC01524

Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

Lc/LC: Critical Level

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Mtd.: Method

PF: Prep Factor

RL: Reporting Limit

TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: F1
Sample ID: 674299034
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 24.9%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232		0.456	+/-0.384	0.353	+/-0.388	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	0.172	+/-0.273	0.378	+/-0.274	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.457	+/-0.346	0.337	+/-0.351	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.519	+/-0.383	0.301	+/-0.389		pCi/g			MXR1	07/31/24	1613	2636543	3
Americium-241	U	-0.0251	+/-0.0341	0.0613	+/-0.0360		pCi/g							
Antimony-124	U	-0.0525	+/-0.133	0.261	+/-0.135		pCi/g							
Antimony-125	U	-0.0177	+/-0.0936	0.156	+/-0.0939		pCi/g							
Barium-133	U	0.0310	+/-0.0320	0.0672	+/-0.0351		pCi/g							
Barium-140	U	-0.207	+/-0.665	1.22	+/-0.671		pCi/g							
Beryllium-7	U	-0.286	+/-0.410	0.698	+/-0.431		pCi/g							
Bismuth-212	U	0.393	+/-0.599	1.24	+/-0.626		pCi/g							
Bismuth-214		0.780	+/-0.168	0.132	+/-0.188		pCi/g							
Cerium-139	U	-0.0166	+/-0.0224	0.0371	+/-0.0240		pCi/g							
Cerium-141	U	-0.0257	+/-0.0661	0.116	+/-0.0673		pCi/g							
Cerium-144	U	-0.00765	+/-0.131	0.240	+/-0.132		pCi/g							
Cesium-134	U	0.00950	+/-0.0514	0.104	+/-0.0516		pCi/g							
Cesium-136	U	0.0876	+/-0.407	0.828	+/-0.409		pCi/g							
Cesium-137	U	0.0202	+/-0.0410	0.0784	+/-0.0420	0.100	pCi/g							
Chromium-51	U	-0.0797	+/-0.513	0.975	+/-0.514		pCi/g							
Cobalt-56	U	-0.0142	+/-0.0517	0.0992	+/-0.0521		pCi/g							
Cobalt-57	U	0.000307	+/-0.0139	0.0262	+/-0.0139		pCi/g							
Cobalt-58	U	-0.0151	+/-0.0500	0.0961	+/-0.0505		pCi/g							
Cobalt-60	U	0.0190	+/-0.0487	0.108	+/-0.0494		pCi/g							
Europium-152	U	-0.0490	+/-0.0804	0.144	+/-0.0835		pCi/g							
Europium-154	U	-0.0856	+/-0.163	0.282	+/-0.168		pCi/g							
Europium-155	U	0.0247	+/-0.0642	0.121	+/-0.0652		pCi/g							
Iridium-192	U	-0.0104	+/-0.0367	0.0685	+/-0.0370		pCi/g							
Iron-59	U	0.133	+/-0.148	0.341	+/-0.160		pCi/g							
Lead-210	U	0.685	+/-0.318	0.695	+/-0.448		pCi/g							
Lead-212		0.573	+/-0.107	0.101	+/-0.132		pCi/g							
Lead-214		0.762	+/-0.163	0.122	+/-0.176		pCi/g							
Manganese-54	U	0.00231	+/-0.0392	0.0804	+/-0.0392		pCi/g							
Mercury-203	U	-0.0167	+/-0.0504	0.0837	+/-0.0510		pCi/g							
Neodymium-147	U	-1.75	+/-2.10	3.43	+/-2.25		pCi/g							
Neptunium-239	U	-0.109	+/-0.161	0.277	+/-0.169		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: F1
Sample ID: 674299034

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	-0.0139	+/-0.0407	0.0709	+/-0.0412		pCi/g							
Niobium-95	U	-0.0289	+/-0.0552	0.101	+/-0.0568		pCi/g							
Potassium-40		6.60	+/-1.60	0.756	+/-1.73		pCi/g							
Promethium-144	U	-0.00417	+/-0.0364	0.0675	+/-0.0364		pCi/g							
Promethium-146	U	-0.0141	+/-0.0427	0.0775	+/-0.0432		pCi/g							
Radium-226		0.762	+/-0.163	0.122	+/-0.176		pCi/g							
Radium-228		0.519	+/-0.383	0.301	+/-0.389		pCi/g							
Ruthenium-106	U	-0.0574	+/-0.307	0.571	+/-0.308		pCi/g							
Silver-110m	U	0.0528	+/-0.0615	0.127	+/-0.0664		pCi/g							
Sodium-22	U	-0.0263	+/-0.0591	0.104	+/-0.0604		pCi/g							
Thallium-208		0.159	+/-0.0779	0.0692	+/-0.0797		pCi/g							
Thorium-234	U	0.462	+/-0.611	0.631	+/-0.620		pCi/g							
Tin-113	U	-0.0504	+/-0.0456	0.0741	+/-0.0511		pCi/g							
Uranium-235	U	0.109	+/-0.140	0.273	+/-0.141		pCi/g							
Uranium-238	U	0.462	+/-0.611	0.631	+/-0.620		pCi/g							
Yttrium-88	U	-0.0489	+/-0.0588	0.0897	+/-0.0629		pCi/g							
Zinc-65	U	0.154	+/-0.115	0.268	+/-0.135		pCi/g							
Zirconium-95	U	0.0378	+/-0.104	0.218	+/-0.105		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	102	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	107	(15%-125%)

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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: F1
Sample ID: 674299034

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
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Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: F2
Sample ID: 674299035
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 27.6%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.343	+/-0.182	0.387	+/-0.242		pCi/g			MXR1	07/31/24	1613	2636543	1
Americium-241	U	0.00382	+/-0.363	0.641	+/-0.363		pCi/g							
Antimony-124	U	0.0315	+/-0.112	0.239	+/-0.113		pCi/g							
Antimony-125	U	-0.00538	+/-0.0942	0.174	+/-0.0943		pCi/g							
Barium-133	U	-0.00695	+/-0.0450	0.0728	+/-0.0452		pCi/g							
Barium-140	U	0.0152	+/-0.827	1.54	+/-0.827		pCi/g							
Beryllium-7	U	0.558	+/-0.415	0.884	+/-0.488		pCi/g							
Bismuth-212		0.917	+/-0.769	0.823	+/-0.776		pCi/g							
Bismuth-214		0.450	+/-0.163	0.122	+/-0.169		pCi/g							
Cerium-139	U	0.0483	+/-0.0842	0.0628	+/-0.0850		pCi/g							
Cerium-141	U	0.0231	+/-0.106	0.189	+/-0.107		pCi/g							
Cerium-144	U	0.0258	+/-0.244	0.431	+/-0.244		pCi/g							
Cesium-134	U	0.0255	+/-0.0393	0.0795	+/-0.0410		pCi/g							
Cesium-136	U	0.0713	+/-0.253	0.524	+/-0.255		pCi/g							
Cesium-137		0.0679	+/-0.0515	0.0598	+/-0.0520	0.100	pCi/g							
Chromium-51	U	-0.0354	+/-0.660	1.22	+/-0.660		pCi/g							
Cobalt-56	U	0.0330	+/-0.0512	0.0940	+/-0.0535		pCi/g							
Cobalt-57	U	0.0144	+/-0.0300	0.0550	+/-0.0308		pCi/g							
Cobalt-58	U	0.0162	+/-0.0402	0.0809	+/-0.0409		pCi/g							
Cobalt-60	U	-0.00852	+/-0.0333	0.0635	+/-0.0335		pCi/g							
Europium-152	U	0.0117	+/-0.118	0.196	+/-0.118		pCi/g							
Europium-154	U	0.0411	+/-0.0855	0.190	+/-0.0876		pCi/g							
Europium-155	U	-0.0385	+/-0.126	0.218	+/-0.128		pCi/g							
Iridium-192	U	-0.00407	+/-0.0437	0.0808	+/-0.0438		pCi/g							
Iron-59	U	-0.0249	+/-0.0948	0.181	+/-0.0955		pCi/g							
Lead-210	U	7.47	+/-23.2	40.9	+/-23.4		pCi/g							
Lead-212	UI	0.000	+/-0.120	0.207	+/-0.214		pCi/g							
Lead-214		0.637	+/-0.189	0.134	+/-0.198		pCi/g							
Manganese-54	U	-0.0359	+/-0.0323	0.0480	+/-0.0364		pCi/g							
Mercury-203	U	-0.0268	+/-0.0588	0.0970	+/-0.0601		pCi/g							
Neodymium-147	U	1.80	+/-2.13	4.30	+/-2.29		pCi/g							
Neptunium-239	U	0.158	+/-0.300	0.506	+/-0.308		pCi/g							
Niobium-94	U	0.0131	+/-0.0328	0.0637	+/-0.0334		pCi/g							
Niobium-95	U	0.0159	+/-0.0523	0.0903	+/-0.0528		pCi/g							
Potassium-40		2.16	+/-0.732	0.569	+/-0.763		pCi/g							
Promethium-144	U	0.000518	+/-0.0361	0.0666	+/-0.0361		pCi/g							
Promethium-146	U	-0.0104	+/-0.0480	0.0865	+/-0.0482		pCi/g							
Radium-226		0.637	+/-0.189	0.134	+/-0.198		pCi/g							
Radium-228	U	0.343	+/-0.182	0.387	+/-0.242		pCi/g							

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Certificate of Analysis

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Contact: Alex Bartels
Project: Inventum

Client Sample ID: F2
Sample ID: 674299035

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	-0.0298	+/-0.316	0.581	+/-0.316		pCi/g							
Silver-110m	U	-0.0314	+/-0.0448	0.0733	+/-0.0471		pCi/g							
Sodium-22	U	0.0163	+/-0.0309	0.0690	+/-0.0318		pCi/g							
Thallium-208		0.0770	+/-0.0696	0.0632	+/-0.0700		pCi/g							
Thorium-234	U	-0.309	+/-2.70	4.68	+/-2.71		pCi/g							
Tin-113	U	0.0220	+/-0.0486	0.0952	+/-0.0496		pCi/g							
Uranium-235	U	-0.0816	+/-0.239	0.400	+/-0.242		pCi/g							
Uranium-238	U	-0.309	+/-2.70	4.68	+/-2.71		pCi/g							
Yttrium-88	U	0.0224	+/-0.0343	0.0851	+/-0.0358		pCi/g							
Zinc-65	U	0.0490	+/-0.115	0.161	+/-0.117		pCi/g							
Zirconium-95	U	-0.0356	+/-0.0880	0.153	+/-0.0895		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: Control 1
Sample ID: 674299036
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 5.07%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228		0.383	+/-0.181	0.329	+/-0.185		pCi/g			MXR1	07/31/24	1614	2636543	1
Americium-241	U	0.0258	+/-0.162	0.324	+/-0.162		pCi/g							
Antimony-124	U	0.0287	+/-0.0999	0.269	+/-0.101		pCi/g							
Antimony-125	U	-0.0306	+/-0.0980	0.180	+/-0.0990		pCi/g							
Barium-133	U	-0.00553	+/-0.0483	0.0827	+/-0.0484		pCi/g							
Barium-140	U	0.324	+/-0.652	1.47	+/-0.668		pCi/g							
Beryllium-7	U	-0.0475	+/-0.450	0.855	+/-0.451		pCi/g							
Bismuth-212	U	0.117	+/-0.637	1.30	+/-0.639		pCi/g							
Bismuth-214	UI	0.000	+/-0.163	0.354	+/-0.315		pCi/g							
Cerium-139	U	-0.00339	+/-0.0279	0.0508	+/-0.0280		pCi/g							
Cerium-141	U	-0.0380	+/-0.0846	0.148	+/-0.0864		pCi/g							
Cerium-144	U	-0.157	+/-0.167	0.272	+/-0.182		pCi/g							
Cesium-134	U	0.0522	+/-0.0550	0.124	+/-0.0600		pCi/g							
Cesium-136	U	-0.229	+/-0.370	0.629	+/-0.385		pCi/g							
Cesium-137	U	-0.0253	+/-0.0389	0.0628	+/-0.0406	0.100	pCi/g							
Chromium-51	U	0.439	+/-0.592	1.28	+/-0.625		pCi/g							
Cobalt-56	U	-0.0522	+/-0.0530	0.0852	+/-0.0581		pCi/g							
Cobalt-57	U	0.0338	+/-0.0332	0.0402	+/-0.0333		pCi/g							
Cobalt-58	U	-0.00204	+/-0.0603	0.120	+/-0.0603		pCi/g							
Cobalt-60	U	0.0103	+/-0.0445	0.102	+/-0.0448		pCi/g							
Europium-152	U	0.00332	+/-0.127	0.211	+/-0.127		pCi/g							
Europium-154	U	-0.0713	+/-0.124	0.228	+/-0.128		pCi/g							
Europium-155	U	-0.0181	+/-0.0922	0.171	+/-0.0926		pCi/g							
Iridium-192	U	0.0212	+/-0.0422	0.0880	+/-0.0433		pCi/g							
Iron-59	U	-0.0443	+/-0.129	0.240	+/-0.131		pCi/g							
Lead-210	U	-0.0612	+/-6.43	10.8	+/-6.43		pCi/g							
Lead-212		0.290	+/-0.125	0.131	+/-0.128		pCi/g							
Lead-214		0.410	+/-0.177	0.144	+/-0.180		pCi/g							
Manganese-54	U	0.00385	+/-0.0393	0.0823	+/-0.0394		pCi/g							
Mercury-203	U	-0.0111	+/-0.0564	0.0965	+/-0.0566		pCi/g							
Neodymium-147	U	1.21	+/-1.87	4.18	+/-1.95		pCi/g							
Neptunium-239	U	-0.149	+/-0.230	0.399	+/-0.240		pCi/g							
Niobium-94	U	-0.00829	+/-0.0481	0.0807	+/-0.0482		pCi/g							
Niobium-95	U	-0.00137	+/-0.0618	0.110	+/-0.0619		pCi/g							
Potassium-40		2.92	+/-0.904	1.00	+/-0.940		pCi/g							
Promethium-144	U	0.00629	+/-0.0348	0.0682	+/-0.0349		pCi/g							
Promethium-146	U	-0.0290	+/-0.0406	0.0683	+/-0.0427		pCi/g							
Radium-226		0.410	+/-0.177	0.144	+/-0.180		pCi/g							
Radium-228		0.383	+/-0.181	0.329	+/-0.185		pCi/g							

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Suite 112
Amherst, New York 14228

Contact: Alex Bartels
Project: Inventum

Client Sample ID: Control 1
Sample ID: 674299036

Report Date: August 2, 2024

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Ruthenium-106	U	0.264	+/-0.392	0.834	+/-0.411		pCi/g							
Silver-110m	U	-0.0276	+/-0.0661	0.121	+/-0.0673		pCi/g							
Sodium-22	U	-0.0254	+/-0.0442	0.0814	+/-0.0458		pCi/g							
Thallium-208		0.131	+/-0.0631	0.0836	+/-0.0641		pCi/g							
Thorium-234	U	-0.0474	+/-1.36	2.69	+/-1.36		pCi/g							
Tin-113	U	-0.0119	+/-0.0442	0.0839	+/-0.0446		pCi/g							
Uranium-235	U	0.101	+/-0.176	0.347	+/-0.176		pCi/g							
Uranium-238	U	-0.0474	+/-1.36	2.69	+/-1.36		pCi/g							
Yttrium-88	U	-0.0290	+/-0.0633	0.131	+/-0.0647		pCi/g							
Zinc-65	U	0.0529	+/-0.0905	0.212	+/-0.0937		pCi/g							
Zirconium-95	U	0.0646	+/-0.0960	0.219	+/-0.101		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: Control 2
Sample ID: 674299037
Matrix: Soil
Collect Date: 26-JUN-24
Receive Date: 05-JUL-24
Collector: Client
Moisture: 21.9%

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis														
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>														
Thorium-232	U	0.332	+/-0.367	0.435	+/-0.370	1.00	pCi/g			CM4	07/18/24	1237	2640431	1
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>														
Uranium-235/236	U	-0.0287	+/-0.127	0.331	+/-0.127	1.00	pCi/g			CM4	07/18/24	1328	2640430	2
Uranium-238		0.571	+/-0.359	0.340	+/-0.367	1.00	pCi/g							
Rad Gamma Spec Analysis														
<i>Gammasespec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Actinium-228	U	0.360	+/-0.255	0.450	+/-0.306		pCi/g			MXR1	07/31/24	1614	2636543	3
Americium-241	U	0.0380	+/-0.0796	0.153	+/-0.0815		pCi/g							
Antimony-124	U	0.0603	+/-0.103	0.262	+/-0.106		pCi/g							
Antimony-125	U	0.0168	+/-0.0861	0.167	+/-0.0864		pCi/g							
Barium-133	U	0.000314	+/-0.0442	0.0750	+/-0.0442		pCi/g							
Barium-140	U	0.402	+/-0.662	1.39	+/-0.687		pCi/g							
Beryllium-7	U	0.541	+/-0.428	0.924	+/-0.495		pCi/g							
Bismuth-212	U	0.433	+/-0.569	0.642	+/-0.570		pCi/g							
Bismuth-214		0.587	+/-0.148	0.0906	+/-0.156		pCi/g							
Cerium-139	U	-0.0327	+/-0.0280	0.0420	+/-0.0324		pCi/g							
Cerium-141	U	-0.0855	+/-0.0855	0.134	+/-0.0941		pCi/g							
Cerium-144	U	0.0178	+/-0.168	0.302	+/-0.168		pCi/g							
Cesium-134	U	0.0115	+/-0.0416	0.0781	+/-0.0420		pCi/g							
Cesium-136	U	-0.135	+/-0.213	0.371	+/-0.222		pCi/g							
Cesium-137	U	0.0250	+/-0.0340	0.0719	+/-0.0359	0.100	pCi/g							
Chromium-51	U	-0.445	+/-0.496	0.838	+/-0.537		pCi/g							
Cobalt-56	U	0.0297	+/-0.0394	0.0860	+/-0.0417		pCi/g							
Cobalt-57	U	0.0153	+/-0.0202	0.0393	+/-0.0213		pCi/g							
Cobalt-58	U	0.0143	+/-0.0393	0.0791	+/-0.0398		pCi/g							
Cobalt-60	U	-0.0156	+/-0.0349	0.0628	+/-0.0357		pCi/g							
Europium-152	U	0.0295	+/-0.0937	0.183	+/-0.0947		pCi/g							
Europium-154	U	-0.0372	+/-0.122	0.224	+/-0.123		pCi/g							
Europium-155	U	0.129	+/-0.105	0.162	+/-0.121		pCi/g							
Iridium-192	U	0.00527	+/-0.0343	0.0672	+/-0.0344		pCi/g							
Iron-59	U	-0.0345	+/-0.0930	0.175	+/-0.0943		pCi/g							
Lead-210	U	0.298	+/-1.48	2.79	+/-1.49		pCi/g							
Lead-212		0.381	+/-0.0925	0.0823	+/-0.101		pCi/g							
Lead-214		0.503	+/-0.170	0.112	+/-0.177		pCi/g							
Manganese-54	U	0.0165	+/-0.0319	0.0700	+/-0.0328		pCi/g							
Mercury-203	U	-0.0125	+/-0.0463	0.0855	+/-0.0466		pCi/g							
Neodymium-147	U	0.417	+/-2.12	4.03	+/-2.12		pCi/g							
Neptunium-239	U	0.151	+/-0.180	0.359	+/-0.193		pCi/g							

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Certificate of Analysis

Company : MJW Technical Services
Address : 15 Hazelwood Drive
Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: Control 2
Sample ID: 674299037

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
<i>Gammasepec, Gamma, Solid (Standard List) "Dry Weight Corrected"</i>														
Niobium-94	U	-0.0109	+/-0.0329	0.0572	+/-0.0332		pCi/g							
Niobium-95	U	0.0250	+/-0.0500	0.105	+/-0.0513		pCi/g							
Potassium-40		2.64	+/-0.957	0.822	+/-1.01		pCi/g							
Promethium-144	U	0.00305	+/-0.0361	0.0675	+/-0.0361		pCi/g							
Promethium-146	U	0.0177	+/-0.0300	0.0646	+/-0.0311		pCi/g							
Radium-226		0.503	+/-0.170	0.112	+/-0.177		pCi/g							
Radium-228	U	0.360	+/-0.255	0.450	+/-0.306		pCi/g							
Ruthenium-106	U	-0.164	+/-0.344	0.586	+/-0.352		pCi/g							
Silver-110m	U	-0.0322	+/-0.0438	0.0756	+/-0.0463		pCi/g							
Sodium-22	U	-0.0133	+/-0.0434	0.0799	+/-0.0438		pCi/g							
Thallium-208		0.101	+/-0.0635	0.0676	+/-0.0640		pCi/g							
Thorium-234	U	0.950	+/-1.05	1.23	+/-1.07		pCi/g							
Tin-113	U	0.0669	+/-0.0455	0.0712	+/-0.0458		pCi/g							
Uranium-235	U	-0.0435	+/-0.181	0.308	+/-0.182		pCi/g							
Uranium-238	U	0.950	+/-1.05	1.23	+/-1.07		pCi/g							
Yttrium-88	U	0.0178	+/-0.0407	0.102	+/-0.0415		pCi/g							
Zinc-65	U	0.0513	+/-0.0926	0.185	+/-0.0955		pCi/g							
Zirconium-95	U	-0.0344	+/-0.0942	0.175	+/-0.0956		pCi/g							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LC2	07/08/24	2004	2636364

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Th-01-RC Modified
2	DOE EML HASL-300, U-02-RC Modified
3	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Thorium-229 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"	2640431	92.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"	2640430	95.3	(15%-125%)

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Company : MJW Technical Services
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Suite 112
Amherst, New York 14228

Report Date: August 2, 2024

Contact: Alex Bartels
Project: Inventum

Client Sample ID: Control 2
Sample ID: 674299037

Project: MJWC01524
Client ID: MJWC001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	Test										Batch ID	Recovery%	Acceptable Limits	

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Mtd.: Method
DL: Detection Limit	PF: Prep Factor
Lc/LC: Critical Level	RL: Reporting Limit
MDA: Minimum Detectable Activity	TPU: Total Propagated Uncertainty
MDC: Minimum Detectable Concentration	

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Client : MJW Technical Services
15 Hazelwood Drive
Suite 112
Amherst, New York

Contact: Alex Bartels

Workorder: 674299

Report Date: August 2, 2024
Page 1 of 23

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	2640430										
QC1205789021	674299011	DUP									
Uranium-235/236	U	0.0801	U	0.123	pCi/g	0		N/A	CM4	07/18/24	13:27
	Uncert:	+/-0.184		+/-0.283							
	TPU:	+/-0.184		+/-0.283							
Uranium-238	U	0.160		0.443	pCi/g	73.7		(0% - 100%)			
	Uncert:	+/-0.189		+/-0.366							
	TPU:	+/-0.190		+/-0.371							
QC1205789022	LCS										
Uranium-235/236				0.957	pCi/g				CM4	07/18/24	13:28
	Uncert:			+/-0.564							
	TPU:			+/-0.580							
Uranium-238	22.9			21.6	pCi/g		94.4	(75%-125%)			
	Uncert:			+/-2.28							
	TPU:			+/-3.79							
QC1205789020	MB										
Uranium-235/236			U	0.0568	pCi/g				CM4	07/18/24	13:27
	Uncert:			+/-0.213							
	TPU:			+/-0.213							
Uranium-238			U	0.0604	pCi/g						
	Uncert:			+/-0.170							
	TPU:			+/-0.170							
Batch	2640431										
QC1205789024	674299011	DUP									
Thorium-232		0.460	U	0.286	pCi/g	14.3		(0% - 100%)	CM4	07/18/24	12:37
	Uncert:	+/-0.397		+/-0.347							
	TPU:	+/-0.402		+/-0.349							
QC1205789025	LCS										
Thorium-232	16.7			15.6	pCi/g		93.2	(75%-125%)	CM4	07/18/24	12:37
	Uncert:			+/-2.19							
	TPU:			+/-3.16							
QC1205789023	MB										
Thorium-232			U	-0.00734	pCi/g				CM4	07/18/24	12:37
	Uncert:			+/-0.168							
	TPU:			+/-0.168							
Batch	2641120										
QC1205790382	674299006	DUP									
Uranium-235/236	U	0.0966	U	0.0436	pCi/g	0		N/A	RM3	07/19/24	08:21
	Uncert:	+/-0.222		+/-0.242							
	TPU:	+/-0.222		+/-0.242							
Uranium-238	U	0.220	U	0.0217	pCi/g	0		N/A			
	Uncert:	+/-0.252		+/-0.247							

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QC Summary

Workorder: 674299

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Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	2641120										
		TPU:	+/-0.253	+/-0.247							
QC1205790383	LCS										
Uranium-235/236				2.09	pCi/g				RM3	07/19/2408:21	
		Uncert:		+/-1.16							
		TPU:		+/-1.22							
Uranium-238	22.5			19.2	pCi/g		85	(75%-125%)			
		Uncert:		+/-3.02							
		TPU:		+/-4.67							
QC1205790381	MB										
Uranium-235/236			U	-0.0201	pCi/g				RM3	07/19/2408:21	
		Uncert:		+/-0.173							
		TPU:		+/-0.174							
Uranium-238			U	0.106	pCi/g						
		Uncert:		+/-0.278							
		TPU:		+/-0.279							
Batch	2641153										
QC1205790431	674299006	DUP									
Thorium-232		U	-0.102	U	0.235	pCi/g	0		N/A	AG2	07/19/2410:43
		Uncert:	+/-0.151		+/-0.360						
		TPU:	+/-0.151		+/-0.362						
QC1205790432	LCS										
Thorium-232	14.0			15.0	pCi/g		107	(75%-125%)	AG2	07/19/2410:43	
		Uncert:		+/-2.35							
		TPU:		+/-3.46							
QC1205790430	MB										
Thorium-232			U	0.0579	pCi/g				AG2	07/19/2410:43	
		Uncert:		+/-0.218							
		TPU:		+/-0.218							
Rad Gamma Spec											
Batch	2636542										
QC1205781344	674299001	DUP									
Actinium-228			0.465	0.811	pCi/g	54.3		(0% - 100%)	RXF2	07/30/2413:39	
		Uncert:	+/-0.298	+/-0.364							
		TPU:	+/-0.303	+/-0.372							
Americium-241		U	0.0858	U	-0.0335	pCi/g	0		N/A		
		Uncert:	+/-0.190	+/-0.309							
		TPU:	+/-0.194	+/-0.309							
Antimony-124		U	0.0824	U	0.0270	pCi/g	0		N/A		
		Uncert:	+/-0.102	+/-0.171							
		TPU:	+/-0.109	+/-0.172							
Antimony-125		U	0.0294	U	-0.0184	pCi/g	0		N/A		
		Uncert:	+/-0.0961	+/-0.138							
		TPU:	+/-0.0971	+/-0.138							
Barium-133		U	0.00685	U	-0.00494	pCi/g	0		N/A		
		Uncert:	+/-0.0562	+/-0.0555							

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QC Summary

Workorder: 674299

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636542										
Barium-140	TPU:	+/-0.0563		+/-0.0555							
	U	0.293	U	0.910	pCi/g	0			N/A		
	Uncert:	+/-0.790		+/-0.987							
Beryllium-7	TPU:	+/-0.801		+/-1.07							
	U	-0.124	U	0.553	pCi/g	0			N/A		
	Uncert:	+/-0.471		+/-0.619							
Bismuth-212	TPU:	+/-0.474		+/-0.669							
	U	0.929	U	0.473	pCi/g	0			N/A		
	Uncert:	+/-0.883		+/-0.662							
Bismuth-214	TPU:	+/-0.887		+/-0.697							
		3.06		3.09	pCi/g	1.07		(0%-20%)			
	Uncert:	+/-0.296		+/-0.306							
Cerium-139	TPU:	+/-0.390		+/-0.406							
	U	0.0205	U	-0.0336	pCi/g	0			N/A		
	Uncert:	+/-0.0374		+/-0.0461							
Cerium-141	TPU:	+/-0.0388		+/-0.0491							
	U	0.134	U	0.0953	pCi/g	0			N/A		
	Uncert:	+/-0.183		+/-0.262							
Cerium-144	TPU:	+/-0.193		+/-0.263							
	U	0.287	U	-0.0316	pCi/g	0			N/A		
	Uncert:	+/-0.237		+/-0.286							
Cesium-134	TPU:	+/-0.271		+/-0.286							
	U	0.0444	U	-0.00364	pCi/g	0			N/A		
	Uncert:	+/-0.0444		+/-0.0541							
Cesium-136	TPU:	+/-0.0489		+/-0.0542							
	U	-0.124	U	-0.172	pCi/g	0			N/A		
	Uncert:	+/-0.356		+/-0.385							
Cesium-137	TPU:	+/-0.361		+/-0.393							
	U	0.0428	U	0.00705	pCi/g	0			N/A		
	Uncert:	+/-0.0339		+/-0.0421							
Chromium-51	TPU:	+/-0.0340		+/-0.0422							
	U	0.219	U	0.181	pCi/g	0			N/A		
	Uncert:	+/-0.626		+/-0.817							
Cobalt-56	TPU:	+/-0.634		+/-0.821							
	U	-0.0203	U	-0.0301	pCi/g	0			N/A		
	Uncert:	+/-0.0509		+/-0.0730							
Cobalt-57	TPU:	+/-0.0518		+/-0.0743							
	U	-0.0111	U	0.0504	pCi/g	0			N/A		
	Uncert:	+/-0.0284		+/-0.0366							
Cobalt-58	TPU:	+/-0.0289		+/-0.0432							
	U	-0.0518	U	0.0119	pCi/g	0			N/A		
	Uncert:	+/-0.0547		+/-0.0541							
Cobalt-60	TPU:	+/-0.0598		+/-0.0543							
	U	-0.0184	U	0.0397	pCi/g	0			N/A		
	Uncert:	+/-0.0465		+/-0.0522							
	TPU:	+/-0.0473		+/-0.0553							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636542										
Europium-152	U	-0.0560	U	-0.0383	pCi/g	0			N/A		
	Uncert:	+/-0.112		+/-0.161							
	TPU:	+/-0.115		+/-0.162							
Europium-154	U	0.138	U	0.0718	pCi/g	0			N/A		
	Uncert:	+/-0.124		+/-0.133							
	TPU:	+/-0.140		+/-0.137							
Europium-155	UI	0.000	U	0.0362	pCi/g	0			N/A		
	Uncert:	+/-0.194		+/-0.147							
	TPU:	+/-0.195		+/-0.148							
Iridium-192	U	-0.0384	U	0.0443	pCi/g	0			N/A		
	Uncert:	+/-0.0435		+/-0.0562							
	TPU:	+/-0.0469		+/-0.0598							
Iron-59	U	-0.0323	U	0.0211	pCi/g	0			N/A		
	Uncert:	+/-0.110		+/-0.116							
	TPU:	+/-0.111		+/-0.117							
Lead-210	U	-0.148	U	6.31	pCi/g	0			N/A		
	Uncert:	+/-4.74		+/-14.0							
	TPU:	+/-4.74		+/-14.0							
Lead-212		0.511		0.555	pCi/g	8.29		(0% - 100%)			
	Uncert:	+/-0.136		+/-0.152							
	TPU:	+/-0.144		+/-0.163							
Lead-214		3.51		3.70	pCi/g	5.44		(0%-20%)			
	Uncert:	+/-0.330		+/-0.350							
	TPU:	+/-0.450		+/-0.501							
Manganese-54	U	-0.0147	U	0.00847	pCi/g	0			N/A		
	Uncert:	+/-0.0464		+/-0.0496							
	TPU:	+/-0.0469		+/-0.0498							
Mercury-203	U	0.00474	U	-0.0463	pCi/g	0			N/A		
	Uncert:	+/-0.0554		+/-0.0705							
	TPU:	+/-0.0555		+/-0.0737							
Neodymium-147	U	0.284	U	2.16	pCi/g	0			N/A		
	Uncert:	+/-2.08		+/-2.44							
	TPU:	+/-2.09		+/-2.63							
Neptunium-239	U	0.199	U	-0.100	pCi/g	0			N/A		
	Uncert:	+/-0.283		+/-0.388							
	TPU:	+/-0.297		+/-0.391							
Niobium-94	U	0.0203	U	0.0131	pCi/g	0			N/A		
	Uncert:	+/-0.0339		+/-0.0504							
	TPU:	+/-0.0351		+/-0.0508							
Niobium-95	U	0.0396	U	0.0114	pCi/g	0			N/A		
	Uncert:	+/-0.0516		+/-0.0766							
	TPU:	+/-0.0547		+/-0.0768							
Potassium-40	UI	0.000		1.94	pCi/g	72.6		(0% - 100%)			
	Uncert:	+/-1.07		+/-1.07							
	TPU:	+/-1.14		+/-1.08							
Promethium-144	U	0.0566	U	-0.00335	pCi/g	0			N/A		

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Rad Gamma Spec											
Batch	2636542										
Promethium-146		Uncert:	+/-0.0580	+/-0.0515							
		TPU:	+/-0.0635	+/-0.0515							
	U	0.0275	U	0.00139	pCi/g	0			N/A		
Radium-226		Uncert:	+/-0.0453	+/-0.0623							
		TPU:	+/-0.0471	+/-0.0623							
		3.51		3.70	pCi/g	5.44		(0%-20%)			
Radium-228		Uncert:	+/-0.330	+/-0.350							
		TPU:	+/-0.450	+/-0.501							
		0.465		0.811	pCi/g	54.3		(0% - 100%)			
Ruthenium-106		Uncert:	+/-0.298	+/-0.364							
		TPU:	+/-0.303	+/-0.372							
	U	-0.0725	U	0.0107	pCi/g	0			N/A		
Silver-110m		Uncert:	+/-0.373	+/-0.414							
		TPU:	+/-0.375	+/-0.414							
	U	0.0164	U	-0.0456	pCi/g	0			N/A		
Sodium-22		Uncert:	+/-0.0469	+/-0.0716							
		TPU:	+/-0.0475	+/-0.0746							
	U	0.0493	U	0.0219	pCi/g	0			N/A		
Thallium-208		Uncert:	+/-0.0442	+/-0.0465							
		TPU:	+/-0.0498	+/-0.0476							
		0.175		0.205	pCi/g	15.9		(0% - 100%)			
Thorium-234		Uncert:	+/-0.0949	+/-0.117							
		TPU:	+/-0.0960	+/-0.118							
		3.26	UI	0.000	pCi/g	20.3		(0% - 100%)			
Tin-113		Uncert:	+/-2.97	+/-5.82							
		TPU:	+/-3.07	+/-5.97							
	U	0.0527	U	-0.0465	pCi/g	0			N/A		
Uranium-235		Uncert:	+/-0.0813	+/-0.0654							
		TPU:	+/-0.0814	+/-0.0688							
	U	0.286	UI	0.000	pCi/g	0			N/A		
Uranium-238		Uncert:	+/-0.389	+/-0.540							
		TPU:	+/-0.390	+/-0.543							
		3.26	UI	0.000	pCi/g	20.3		(0% - 100%)			
Yttrium-88		Uncert:	+/-2.97	+/-5.82							
		TPU:	+/-3.07	+/-5.97							
	U	-0.0379	U	0.000102	pCi/g	0			N/A		
Zinc-65		Uncert:	+/-0.0355	+/-0.0656							
		TPU:	+/-0.0395	+/-0.0656							
	U	0.00630	U	0.0229	pCi/g	0			N/A		
Zirconium-95		Uncert:	+/-0.119	+/-0.112							
		TPU:	+/-0.119	+/-0.112							
	U	-0.0334	U	0.0451	pCi/g	0			N/A		
Actinium-228		Uncert:	+/-0.0981	+/-0.103							
		TPU:	+/-0.0993	+/-0.105							
QC1205781345	LCS										
Actinium-228			U	-0.0390	pCi/g				RXF2	07/30/2413:39	

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Rad Gamma Spec											
Batch	2636542										
		Uncert:		+/-1.69							
		TPU:		+/-1.69							
Americium-241	483			589	pCi/g		122	(75%-125%)			
		Uncert:		+/-16.7							
		TPU:		+/-78.0							
Antimony-124			U	-0.330	pCi/g						
		Uncert:		+/-0.481							
		TPU:		+/-0.505							
Antimony-125			U	-0.480	pCi/g						
		Uncert:		+/-1.43							
		TPU:		+/-1.45							
Barium-133			U	-0.276	pCi/g						
		Uncert:		+/-0.538							
		TPU:		+/-0.553							
Barium-140			U	1.36	pCi/g						
		Uncert:		+/-4.61							
		TPU:		+/-4.66							
Beryllium-7			U	0.0242	pCi/g						
		Uncert:		+/-5.46							
		TPU:		+/-5.46							
Bismuth-212			U	-2.58	pCi/g						
		Uncert:		+/-4.91							
		TPU:		+/-5.05							
Bismuth-214			U	0.0351	pCi/g						
		Uncert:		+/-0.751							
		TPU:		+/-0.751							
Cerium-139			U	-0.177	pCi/g						
		Uncert:		+/-0.297							
		TPU:		+/-0.309							
Cerium-141			U	0.166	pCi/g						
		Uncert:		+/-0.670							
		TPU:		+/-0.674							
Cerium-144			U	-0.948	pCi/g						
		Uncert:		+/-2.23							
		TPU:		+/-2.27							
Cesium-134			U	-0.280	pCi/g						
		Uncert:		+/-0.425							
		TPU:		+/-0.444							
Cesium-136			U	-0.492	pCi/g						
		Uncert:		+/-1.79							
		TPU:		+/-1.81							
Cesium-137	150			145	pCi/g		96.4	(75%-125%)			
		Uncert:		+/-2.93							
		TPU:		+/-12.2							
Chromium-51			U	2.08	pCi/g						
		Uncert:		+/-5.14							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636542										
		TPU:		+/-5.23							
Cobalt-56			U	0.104	pCi/g						
		Uncert:		+/-0.454							
		TPU:		+/-0.457							
Cobalt-57			U	-0.0324	pCi/g						
		Uncert:		+/-0.289							
		TPU:		+/-0.289							
Cobalt-58			U	0.192	pCi/g						
		Uncert:		+/-0.496							
		TPU:		+/-0.504							
Cobalt-60	57.8			58.0	pCi/g			100 (75%-125%)			
		Uncert:		+/-2.30							
		TPU:		+/-7.81							
Europium-152			U	-1.02	pCi/g						
		Uncert:		+/-1.20							
		TPU:		+/-1.29							
Europium-154			U	-0.638	pCi/g						
		Uncert:		+/-0.658							
		TPU:		+/-0.722							
Europium-155			U	-1.39	pCi/g						
		Uncert:		+/-1.21							
		TPU:		+/-1.37							
Iridium-192			U	-0.142	pCi/g						
		Uncert:		+/-0.436							
		TPU:		+/-0.441							
Iron-59			U	0.0251	pCi/g						
		Uncert:		+/-1.21							
		TPU:		+/-1.21							
Lead-210				4210	pCi/g						
		Uncert:		+/-522							
		TPU:		+/-831							
Lead-212			U	-0.543	pCi/g						
		Uncert:		+/-0.605							
		TPU:		+/-0.655							
Lead-214			U	0.379	pCi/g						
		Uncert:		+/-0.898							
		TPU:		+/-0.914							
Manganese-54			U	0.0698	pCi/g						
		Uncert:		+/-0.396							
		TPU:		+/-0.397							
Mercury-203			U	-0.00150	pCi/g						
		Uncert:		+/-0.482							
		TPU:		+/-0.482							
Neodymium-147			U	-10.8	pCi/g						
		Uncert:		+/-10.2							
		TPU:		+/-11.3							

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Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636542										
Neptunium-239			U	-1.59	pCi/g						
	Uncert:			+/-3.09							
	TPU:			+/-3.18							
Niobium-94			U	-0.0759	pCi/g						
	Uncert:			+/-0.304							
	TPU:			+/-0.306							
Niobium-95			U	0.0207	pCi/g						
	Uncert:			+/-0.425							
	TPU:			+/-0.425							
Potassium-40			U	0.511	pCi/g						
	Uncert:			+/-1.40							
	TPU:			+/-1.42							
Promethium-144			U	-0.122	pCi/g						
	Uncert:			+/-0.301							
	TPU:			+/-0.306							
Promethium-146			U	-0.0817	pCi/g						
	Uncert:			+/-0.693							
	TPU:			+/-0.694							
Radium-226			U	0.379	pCi/g						
	Uncert:			+/-0.898							
	TPU:			+/-0.914							
Radium-228			U	-0.0390	pCi/g						
	Uncert:			+/-1.69							
	TPU:			+/-1.69							
Ruthenium-106			U	0.525	pCi/g						
	Uncert:			+/-3.69							
	TPU:			+/-3.70							
Silver-110m			U	-0.322	pCi/g						
	Uncert:			+/-0.624							
	TPU:			+/-0.642							
Sodium-22			U	-0.240	pCi/g						
	Uncert:			+/-0.230							
	TPU:			+/-0.256							
Thallium-208			U	-0.255	pCi/g						
	Uncert:			+/-0.390							
	TPU:			+/-0.408							
Thorium-234			U	4.66	pCi/g						
	Uncert:			+/-25.0							
	TPU:			+/-25.1							
Tin-113			U	0.523	pCi/g						
	Uncert:			+/-0.618							
	TPU:			+/-0.663							
Uranium-235			U	-0.766	pCi/g						
	Uncert:			+/-1.95							
	TPU:			+/-1.98							
Uranium-238			U	4.66	pCi/g						

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Rad Gamma Spec											
Batch	2636542										
Yttrium-88	Uncert:			+/-25.0							
	TPU:			+/-25.1							
			U	0.0168	pCi/g						
Zinc-65	Uncert:			+/-0.176							
	TPU:			+/-0.176							
			U	-0.221	pCi/g						
Zirconium-95	Uncert:			+/-1.05							
	TPU:			+/-1.05							
			U	-0.150	pCi/g						
QC1205781343 MB	Uncert:			+/-0.772							
	TPU:			+/-0.775							
			U	0.0120	pCi/g				RXF2	07/30/2413:38	
Actinium-228	Uncert:			+/-0.0924							
	TPU:			+/-0.0926							
			U	0.000595	pCi/g						
Americium-241	Uncert:			+/-0.0574							
	TPU:			+/-0.0574							
			U	-0.0157	pCi/g						
Antimony-124	Uncert:			+/-0.0515							
	TPU:			+/-0.0520							
			U	0.0370	pCi/g						
Antimony-125	Uncert:			+/-0.0374							
	TPU:			+/-0.0411							
			U	0.00447	pCi/g						
Barium-133	Uncert:			+/-0.0218							
	TPU:			+/-0.0219							
			U	0.134	pCi/g						
Barium-140	Uncert:			+/-0.186							
	TPU:			+/-0.196							
			U	0.0904	pCi/g						
Beryllium-7	Uncert:			+/-0.179							
	TPU:			+/-0.184							
			U	-0.105	pCi/g						
Bismuth-212	Uncert:			+/-0.331							
	TPU:			+/-0.334							
			U	-0.0618	pCi/g						
Bismuth-214	Uncert:			+/-0.0434							
	TPU:			+/-0.0518							
			U	-0.00773	pCi/g						
Cerium-139	Uncert:			+/-0.0123							
	TPU:			+/-0.0129							
			U	-0.0201	pCi/g						
Cerium-141	Uncert:			+/-0.0244							
	TPU:			+/-0.0261							
			U	-0.0101	pCi/g						
Cerium-144											

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Rad Gamma Spec											
Batch	2636542										
				Uncert:							
				TPU:							
Cesium-134			U	+/-0.0719							
				+/-0.0720							
				0.00727	pCi/g						
				Uncert:							
				+/-0.0217							
				TPU:							
				+/-0.0219							
Cesium-136			U	-0.0106	pCi/g						
				Uncert:							
				+/-0.0873							
				TPU:							
				+/-0.0874							
Cesium-137			U	-0.00469	pCi/g						
				Uncert:							
				+/-0.0223							
				TPU:							
				+/-0.0224							
Chromium-51			U	-0.0939	pCi/g						
				Uncert:							
				+/-0.227							
				TPU:							
				+/-0.231							
Cobalt-56			U	0.00883	pCi/g						
				Uncert:							
				+/-0.0213							
				TPU:							
				+/-0.0217							
Cobalt-57			U	-0.00440	pCi/g						
				Uncert:							
				+/-0.0103							
				TPU:							
				+/-0.0105							
Cobalt-58			U	-0.00283	pCi/g						
				Uncert:							
				+/-0.0222							
				TPU:							
				+/-0.0223							
Cobalt-60			U	-0.0124	pCi/g						
				Uncert:							
				+/-0.0247							
				TPU:							
				+/-0.0253							
Europium-152			U	0.0361	pCi/g						
				Uncert:							
				+/-0.0456							
				TPU:							
				+/-0.0486							
Europium-154			U	0.0322	pCi/g						
				Uncert:							
				+/-0.0513							
				TPU:							
				+/-0.0534							
Europium-155			U	0.00650	pCi/g						
				Uncert:							
				+/-0.0330							
				TPU:							
				+/-0.0331							
Iridium-192			U	-0.00364	pCi/g						
				Uncert:							
				+/-0.0207							
				TPU:							
				+/-0.0207							
Iron-59			U	-0.00234	pCi/g						
				Uncert:							
				+/-0.0404							
				TPU:							
				+/-0.0404							
Lead-210			U	-1.52	pCi/g						
				Uncert:							
				+/-2.01							
				TPU:							
				+/-2.13							
Lead-212			U	0.0741	pCi/g						
				Uncert:							
				+/-0.0803							

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Rad Gamma Spec											
Batch	2636542										
Lead-214	TPU:			+/-0.0872							
			U	0.0325	pCi/g						
	Uncert:			+/-0.0523							
Manganese-54	TPU:			+/-0.0544							
			U	0.0177	pCi/g						
	Uncert:			+/-0.0191							
Mercury-203	TPU:			+/-0.0208							
			U	-0.000730	pCi/g						
	Uncert:			+/-0.0197							
Neodymium-147	TPU:			+/-0.0197							
			U	0.201	pCi/g						
	Uncert:			+/-0.385							
Neptunium-239	TPU:			+/-0.396							
			U	0.0830	pCi/g						
	Uncert:			+/-0.0984							
Niobium-94	TPU:			+/-0.106							
			U	0.00718	pCi/g						
	Uncert:			+/-0.0205							
Niobium-95	TPU:			+/-0.0207							
			U	-0.00626	pCi/g						
	Uncert:			+/-0.0223							
Potassium-40	TPU:			+/-0.0225							
			U	-0.0958	pCi/g						
	Uncert:			+/-0.222							
Promethium-144	TPU:			+/-0.226							
			U	-0.00171	pCi/g						
	Uncert:			+/-0.0228							
Promethium-146	TPU:			+/-0.0228							
			U	0.00464	pCi/g						
	Uncert:			+/-0.0208							
Radium-226	TPU:			+/-0.0209							
			U	0.0325	pCi/g						
	Uncert:			+/-0.0523							
Radium-228	TPU:			+/-0.0544							
			U	0.0120	pCi/g						
	Uncert:			+/-0.0924							
Ruthenium-106	TPU:			+/-0.0926							
			U	-0.0523	pCi/g						
	Uncert:			+/-0.144							
Silver-110m	TPU:			+/-0.146							
			U	0.0181	pCi/g						
	Uncert:			+/-0.0257							
Sodium-22	TPU:			+/-0.0270							
			U	0.00966	pCi/g						
	Uncert:			+/-0.0174							
	TPU:			+/-0.0179							

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Parmname		NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec												
Batch	2636542											
Thallium-208				U	-0.00102	pCi/g						
		Uncert:			+/-0.0218							
		TPU:			+/-0.0218							
Thorium-234				U	-0.260	pCi/g						
		Uncert:			+/-0.585							
		TPU:			+/-0.600							
Tin-113				U	-0.00412	pCi/g						
		Uncert:			+/-0.0227							
		TPU:			+/-0.0228							
Uranium-235				U	-0.0451	pCi/g						
		Uncert:			+/-0.0889							
		TPU:			+/-0.0912							
Uranium-238				U	-0.260	pCi/g						
		Uncert:			+/-0.585							
		TPU:			+/-0.600							
Yttrium-88				U	-0.0145	pCi/g						
		Uncert:			+/-0.0137							
		TPU:			+/-0.0152							
Zinc-65				U	-0.00858	pCi/g						
		Uncert:			+/-0.0385							
		TPU:			+/-0.0387							
Zirconium-95				U	-0.00331	pCi/g						
		Uncert:			+/-0.0494							
		TPU:			+/-0.0494							
Batch	2636543											
QC1205781347	674299021	DUP										
Actinium-228			0.887		0.873	pCi/g	1.63		(0% - 100%)	MXR1	07/31/24	16:15
		Uncert:	+/-0.342		+/-0.412							
		TPU:	+/-0.358		+/-0.421							
Americium-241		U	0.124	U	-0.145	pCi/g	0			N/A		
		Uncert:	+/-0.624		+/-0.239							
		TPU:	+/-0.627		+/-0.248							
Antimony-124		U	-0.0356	U	-0.00967	pCi/g	0			N/A		
		Uncert:	+/-0.117		+/-0.0957							
		TPU:	+/-0.118		+/-0.0958							
Antimony-125		U	-0.126	U	-0.0313	pCi/g	0			N/A		
		Uncert:	+/-0.136		+/-0.124							
		TPU:	+/-0.148		+/-0.125							
Barium-133		U	-0.0869	U	0.0232	pCi/g	0			N/A		
		Uncert:	+/-0.0671		+/-0.0558							
		TPU:	+/-0.0781		+/-0.0568							
Barium-140		U	1.30	U	-0.421	pCi/g	0			N/A		
		Uncert:	+/-1.41		+/-1.05							
		TPU:	+/-1.53		+/-1.07							
Beryllium-7		U	-0.714	U	-0.191	pCi/g	0			N/A		
		Uncert:	+/-0.589		+/-0.607							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Bismuth-212	TPU:	+/-0.674		+/-0.613							
	UI	0.000	U	0.555	pCi/g	0			N/A		
	Uncert:	+/-1.43		+/-0.699							
Bismuth-214	TPU:	+/-1.43		+/-0.744							
		4.34		4.61	pCi/g	5.97		(0%-20%)			
	Uncert:	+/-0.308		+/-0.387							
Cerium-139	TPU:	+/-0.535		+/-0.575							
	U	-0.0287	U	-0.0359	pCi/g	0			N/A		
	Uncert:	+/-0.0561		+/-0.0487							
Cerium-141	TPU:	+/-0.0580		+/-0.0519							
	U	0.237	U	0.0627	pCi/g	0			N/A		
	Uncert:	+/-0.195		+/-0.140							
Cerium-144	TPU:	+/-0.223		+/-0.143							
	U	0.315	U	-0.0201	pCi/g	0			N/A		
	Uncert:	+/-0.344		+/-0.284							
Cesium-134	TPU:	+/-0.374		+/-0.284							
	U	0.0635	U	0.0875	pCi/g	0			N/A		
	Uncert:	+/-0.0497		+/-0.0511							
Cesium-136	TPU:	+/-0.0578		+/-0.0651							
	U	0.170	U	0.113	pCi/g	0			N/A		
	Uncert:	+/-0.355		+/-0.405							
Cesium-137	TPU:	+/-0.364		+/-0.408							
	U	0.00345	U	-0.00748	pCi/g	0			N/A		
	Uncert:	+/-0.0475		+/-0.0499							
Chromium-51	TPU:	+/-0.0475		+/-0.0500							
	U	0.0279	U	-0.262	pCi/g	0			N/A		
	Uncert:	+/-0.949		+/-0.862							
Cobalt-56	TPU:	+/-0.949		+/-0.871							
	U	0.0771	U	-0.0253	pCi/g	0			N/A		
	Uncert:	+/-0.0574		+/-0.0713							
Cobalt-57	TPU:	+/-0.0676		+/-0.0722							
	U	-0.00109	U	-0.0207	pCi/g	0			N/A		
	Uncert:	+/-0.0460		+/-0.0362							
Cobalt-58	TPU:	+/-0.0460		+/-0.0374							
	U	-0.0139	U	-0.0283	pCi/g	0			N/A		
	Uncert:	+/-0.0626		+/-0.0634							
Cobalt-60	TPU:	+/-0.0629		+/-0.0647							
	U	-0.0159	U	-0.00392	pCi/g	0			N/A		
	Uncert:	+/-0.0490		+/-0.0537							
Europium-152	TPU:	+/-0.0495		+/-0.0538							
	U	-0.0856	U	-0.0684	pCi/g	0			N/A		
	Uncert:	+/-0.161		+/-0.138							
Europium-154	TPU:	+/-0.166		+/-0.142							
	U	0.0372	U	0.0600	pCi/g	0			N/A		
	Uncert:	+/-0.129		+/-0.161							
	TPU:	+/-0.130		+/-0.163							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Europium-155	U	0.120	U	0.0686	pCi/g	0			N/A		
	Uncert:	+/-0.174		+/-0.139							
	TPU:	+/-0.183		+/-0.143							
Iridium-192	U	-0.0371	U	0.0457	pCi/g	0			N/A		
	Uncert:	+/-0.0659		+/-0.0553							
	TPU:	+/-0.0680		+/-0.0591							
Iron-59	U	0.0198	U	0.0278	pCi/g	0			N/A		
	Uncert:	+/-0.130		+/-0.125							
	TPU:	+/-0.131		+/-0.125							
Lead-210	U	-12.6	U	-3.24	pCi/g	0			N/A		
	Uncert:	+/-24.6		+/-6.08							
	TPU:	+/-25.3		+/-6.26							
Lead-212		1.09		0.929	pCi/g	15.9		(0%-20%)			
	Uncert:	+/-0.167		+/-0.154							
	TPU:	+/-0.210		+/-0.177							
Lead-214		5.77		6.10	pCi/g	5.52		(0%-20%)			
	Uncert:	+/-0.377		+/-0.406							
	TPU:	+/-0.654		+/-0.646							
Manganese-54	U	0.000935	U	-0.0101	pCi/g	0			N/A		
	Uncert:	+/-0.0515		+/-0.0529							
	TPU:	+/-0.0515		+/-0.0531							
Mercury-203	U	-0.0300	U	-0.0137	pCi/g	0			N/A		
	Uncert:	+/-0.0845		+/-0.0750							
	TPU:	+/-0.0856		+/-0.0752							
Neodymium-147	U	2.16	U	-0.0990	pCi/g	0			N/A		
	Uncert:	+/-3.37		+/-2.79							
	TPU:	+/-3.52		+/-2.79							
Neptunium-239	U	-0.271	U	0.0903	pCi/g	0			N/A		
	Uncert:	+/-0.438		+/-0.362							
	TPU:	+/-0.456		+/-0.365							
Niobium-94	U	0.0109	U	0.0928	pCi/g	0			N/A		
	Uncert:	+/-0.0455		+/-0.0504							
	TPU:	+/-0.0458		+/-0.0660							
Niobium-95	U	0.144	U	0.0910	pCi/g	0			N/A		
	Uncert:	+/-0.0810		+/-0.0868							
	TPU:	+/-0.105		+/-0.0964							
Potassium-40		2.73		3.68	pCi/g	29.7		(0% - 100%)			
	Uncert:	+/-0.981		+/-1.13							
	TPU:	+/-1.02		+/-1.18							
Promethium-144	U	-0.0509	U	-0.00347	pCi/g	0			N/A		
	Uncert:	+/-0.0429		+/-0.0410							
	TPU:	+/-0.0489		+/-0.0410							
Promethium-146	U	0.0190	U	-0.00544	pCi/g	0			N/A		
	Uncert:	+/-0.0561		+/-0.0572							
	TPU:	+/-0.0568		+/-0.0572							
Radium-226		5.77		6.10	pCi/g	5.52		(0%-20%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
				Uncert:							
				TPU:							
Antimony-125			U	+/-0.300							
				+/-0.303							
				0.0127	pCi/g						
				Uncert:							
				+/-0.890							
				TPU:							
				+/-0.890							
Barium-133			U	0.109	pCi/g						
				Uncert:							
				+/-0.338							
				TPU:							
				+/-0.342							
Barium-140			U	-2.50	pCi/g						
				+/-3.26							
				TPU:							
				+/-3.46							
Beryllium-7			U	-0.617	pCi/g						
				Uncert:							
				+/-3.71							
				TPU:							
				+/-3.72							
Bismuth-212			U	0.300	pCi/g						
				Uncert:							
				+/-3.26							
				TPU:							
				+/-3.27							
Bismuth-214			U	0.123	pCi/g						
				Uncert:							
				+/-0.490							
				TPU:							
				+/-0.493							
Cerium-139			U	-0.0966	pCi/g						
				Uncert:							
				+/-0.192							
				TPU:							
				+/-0.198							
Cerium-141			U	0.235	pCi/g						
				Uncert:							
				+/-0.467							
				TPU:							
				+/-0.479							
Cerium-144			U	0.771	pCi/g						
				Uncert:							
				+/-1.25							
				TPU:							
				+/-1.29							
Cesium-134			U	-0.125	pCi/g						
				Uncert:							
				+/-0.286							
				TPU:							
				+/-0.292							
Cesium-136			U	-0.385	pCi/g						
				Uncert:							
				+/-1.40							
				TPU:							
				+/-1.41							
Cesium-137	150			142	pCi/g			94.9	(75%-125%)		
				Uncert:							
				+/-2.02							
				TPU:							
				+/-11.7							
Chromium-51			U	2.95	pCi/g						
				Uncert:							
				+/-5.32							
				TPU:							
				+/-5.32							
Cobalt-56			U	-0.137	pCi/g						
				Uncert:							
				+/-0.405							
				TPU:							
				+/-0.410							
Cobalt-57			U	-0.0167	pCi/g						
				Uncert:							
				+/-0.160							

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Niobium-95			U	-0.0554	pCi/g						
	Uncert:			+/-0.311							
	TPU:			+/-0.312							
Potassium-40			U	0.114	pCi/g						
	Uncert:			+/-1.10							
	TPU:			+/-1.10							
Promethium-144			U	0.103	pCi/g						
	Uncert:			+/-0.220							
	TPU:			+/-0.225							
Promethium-146			U	-0.264	pCi/g						
	Uncert:			+/-0.432							
	TPU:			+/-0.449							
Radium-226			U	0.0417	pCi/g						
	Uncert:			+/-0.586							
	TPU:			+/-0.587							
Radium-228			U	0.619	pCi/g						
	Uncert:			+/-1.25							
	TPU:			+/-1.28							
Ruthenium-106			U	0.889	pCi/g						
	Uncert:			+/-2.23							
	TPU:			+/-2.27							
Silver-110m			U	-0.0652	pCi/g						
	Uncert:			+/-0.439							
	TPU:			+/-0.440							
Sodium-22			U	-0.0111	pCi/g						
	Uncert:			+/-0.163							
	TPU:			+/-0.163							
Thallium-208			U	0.145	pCi/g						
	Uncert:			+/-0.255							
	TPU:			+/-0.264							
Thorium-234			U	-0.122	pCi/g						
	Uncert:			+/-8.26							
	TPU:			+/-8.26							
Tin-113			U	-0.350	pCi/g						
	Uncert:			+/-0.416							
	TPU:			+/-0.446							
Uranium-235			U	0.448	pCi/g						
	Uncert:			+/-1.24							
	TPU:			+/-1.26							
Uranium-238			U	-0.122	pCi/g						
	Uncert:			+/-8.26							
	TPU:			+/-8.26							
Yttrium-88			U	-0.0702	pCi/g						
	Uncert:			+/-0.150							
	TPU:			+/-0.153							
Zinc-65			U	0.497	pCi/g						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Zirconium-95	Uncert:			+/-0.730							
	TPU:			+/-0.765							
			U	0.264	pCi/g						
	Uncert:			+/-0.533							
QC1205781346 MB Actinium-228	TPU:			+/-0.547							
			U	0.0623	pCi/g				MXR1	07/31/2416:15	
	Uncert:			+/-0.104							
	TPU:			+/-0.108							
Americium-241			U	0.0148	pCi/g						
	Uncert:			+/-0.0645							
	TPU:			+/-0.0649							
			U	-0.0138	pCi/g						
Antimony-124	Uncert:			+/-0.0453							
	TPU:			+/-0.0458							
			U	-0.0178	pCi/g						
	Uncert:			+/-0.0432							
Antimony-125	TPU:			+/-0.0439							
			U	-0.0119	pCi/g						
	Uncert:			+/-0.0208							
	TPU:			+/-0.0215							
Barium-133			U	0.0580	pCi/g						
	Uncert:			+/-0.166							
	TPU:			+/-0.168							
			U	-0.0812	pCi/g						
Beryllium-7	Uncert:			+/-0.180							
	TPU:			+/-0.184							
			U	0.0476	pCi/g						
	Uncert:			+/-0.235							
Bismuth-212	TPU:			+/-0.236							
			U	-0.0257	pCi/g						
	Uncert:			+/-0.0512							
	TPU:			+/-0.0526							
Cerium-139			U	-0.0125	pCi/g						
	Uncert:			+/-0.0144							
	TPU:			+/-0.0157							
			U	-0.00939	pCi/g						
Cerium-141	Uncert:			+/-0.0353							
	TPU:			+/-0.0356							
			U	-0.0324	pCi/g						
	Uncert:			+/-0.0858							
Cerium-144	TPU:			+/-0.0871							
			U	0.00135	pCi/g						
	Uncert:			+/-0.0176							
	TPU:			+/-0.0177							
Cesium-134			U	0.00408	pCi/g						
	Uncert:			+/-0.0176							
	TPU:			+/-0.0177							
			U	0.00408	pCi/g						
Cesium-136											

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Rad Gamma Spec											
Batch	2636543										
				Uncert:							
				TPU:							
Cesium-137			U	-0.00232	pCi/g						
				Uncert:							
				TPU:							
Chromium-51			U	0.00650	pCi/g						
				Uncert:							
				TPU:							
Cobalt-56			U	-0.000158	pCi/g						
				Uncert:							
				TPU:							
Cobalt-57			U	0.00605	pCi/g						
				Uncert:							
				TPU:							
Cobalt-58			U	0.000454	pCi/g						
				Uncert:							
				TPU:							
Cobalt-60			U	0.00701	pCi/g						
				Uncert:							
				TPU:							
Europium-152			U	-0.000536	pCi/g						
				Uncert:							
				TPU:							
Europium-154			U	-0.00864	pCi/g						
				Uncert:							
				TPU:							
Europium-155			U	0.0394	pCi/g						
				Uncert:							
				TPU:							
Iridium-192			U	-0.00982	pCi/g						
				Uncert:							
				TPU:							
Iron-59			U	0.0283	pCi/g						
				Uncert:							
				TPU:							
Lead-210			U	1.42	pCi/g						
				Uncert:							
				TPU:							
Lead-212			U	0.0175	pCi/g						
				Uncert:							
				TPU:							
Lead-214			U	-0.00769	pCi/g						
				Uncert:							
				TPU:							
Manganese-54			U	-0.00228	pCi/g						
				Uncert:							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Mercury-203	TPU:			+/-0.0181							
			U	-0.00100	pCi/g						
	Uncert:			+/-0.0204							
Neodymium-147	TPU:			+/-0.0204							
			U	0.0184	pCi/g						
	Uncert:			+/-0.359							
Neptunium-239	TPU:			+/-0.359							
			U	0.0203	pCi/g						
	Uncert:			+/-0.112							
Niobium-94	TPU:			+/-0.113							
			U	-0.000237	pCi/g						
	Uncert:			+/-0.0187							
Niobium-95	TPU:			+/-0.0187							
			U	0.00130	pCi/g						
	Uncert:			+/-0.0237							
Potassium-40	TPU:			+/-0.0237							
			U	0.226	pCi/g						
	Uncert:			+/-0.318							
Promethium-144	TPU:			+/-0.335							
			U	0.00164	pCi/g						
	Uncert:			+/-0.0209							
Promethium-146	TPU:			+/-0.0209							
			U	0.00431	pCi/g						
	Uncert:			+/-0.0198							
Radium-226	TPU:			+/-0.0199							
			U	-0.00769	pCi/g						
	Uncert:			+/-0.0370							
Radium-228	TPU:			+/-0.0372							
			U	0.0623	pCi/g						
	Uncert:			+/-0.104							
Ruthenium-106	TPU:			+/-0.108							
			U	0.0904	pCi/g						
	Uncert:			+/-0.192							
Silver-110m	TPU:			+/-0.197							
			U	-0.0143	pCi/g						
	Uncert:			+/-0.0254							
Sodium-22	TPU:			+/-0.0263							
			U	0.000653	pCi/g						
	Uncert:			+/-0.0211							
Thallium-208	TPU:			+/-0.0211							
			U	-0.00121	pCi/g						
	Uncert:			+/-0.0231							
Thorium-234	TPU:			+/-0.0231							
			U	-0.485	pCi/g						
	Uncert:			+/-0.609							
	TPU:			+/-0.659							

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QC Summary

Workorder: 674299

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Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	2636543										
Tin-113			U	-0.00341	pCi/g						
	Uncert:			+/-0.0234							
	TPU:			+/-0.0234							
Uranium-235			U	-0.0622	pCi/g						
	Uncert:			+/-0.0921							
	TPU:			+/-0.0964							
Uranium-238			U	-0.485	pCi/g						
	Uncert:			+/-0.609							
	TPU:			+/-0.659							
Yttrium-88			U	0.00731	pCi/g						
	Uncert:			+/-0.0209							
	TPU:			+/-0.0212							
Zinc-65			U	0.00764	pCi/g						
	Uncert:			+/-0.0395							
	TPU:			+/-0.0397							
Zirconium-95			U	-0.0169	pCi/g						
	Uncert:			+/-0.0441							
	TPU:			+/-0.0448							

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the Lc.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- UI Gamma Spectroscopy--Uncertain identification
- BD Results are either below the MDC or tracer recovery is low
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- M M if above MDC and less than LLD
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- FA Failed analysis.
- M REMP Result > MDC/CL and < RDL
- UJ Gamma Spectroscopy--Uncertain identification
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- UL Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

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QC Summary

Workorder: 674299

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.									
N1	See case narrative									
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.									
**	Analyte is a Tracer compound									
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** Indicates analyte is a surrogate/tracer compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Alpha Spectroscopy Raw Data

Batch 2640430 Check-list

This check-list was completed on 19-JUL-24 by Melanie Aycock

This batch was reviewed by Melanie Aycock on 19-JUL-24 and Jessica Davis on 23-JUL-24.

Batch ID: 2640430

Product: ASP__UUS

Description: Alpha Spec Uranium GL-RAD-A-011

#	Criteria	Yes	No	Comments
Preparation Information				
1	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
2	Are instrument source checks within limits?	Yes		
3	Have samples been blank corrected?		No	
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Were manual integrations performed on any sample or QC data files in this batch?		No	
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Uranium

Batch ID: 2640430

Analyst: Chandler Metts (CM4)

Prep: Ryan Monroe (RM3)

Method: DOE EML HASL-300, U-02-RC
Modified

Lab SOP: GL-RAD-A-011 REV# 29

Instrument: BAL-C409669499

Due Dates for Lab: 31-JUL-2024

Package: 01-AUG-2024

SDG: 02-AUG-2024

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205789022	Uranium-238 AS SPIKE	1600-R	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)
1	674299011	16-JUL-2024	1	Dry to Dry	0.113	0.113
2	674299012	16-JUL-2024	1	Dry to Dry	0.106	0.106
3	674299013	16-JUL-2024	1	Dry to Dry	0.105	0.105
4	674299016	16-JUL-2024	1	Dry to Dry	0.116	0.116
5	674299019	16-JUL-2024	1	Dry to Dry	0.104	0.104
6	674299020	16-JUL-2024	1	Dry to Dry	0.106	0.106
7	674299022	16-JUL-2024	1	Dry to Dry	0.113	0.113
8	674299027	16-JUL-2024	1	Dry to Dry	0.113	0.113
9	674299030	16-JUL-2024	1	Dry to Dry	0.103	0.103
10	674299031	16-JUL-2024	1	Dry to Dry	0.105	0.105
11	674299033	16-JUL-2024	1	Dry to Dry	0.108	0.108
12	674299034	16-JUL-2024	1	Dry to Dry	0.106	0.106
13	674299037	16-JUL-2024	1	Dry to Dry	0.117	0.117
14	1205789020 MB	16-JUL-2024	1	Dry to Wet		0.117
15	1205789021 DUP (674299011)	16-JUL-2024	1	Dry to Dry	0.117	0.117
16	1205789022 LCS	16-JUL-2024	1	Dry to Wet		0.117

Reagent/Solvent Lot ID	Description	Amount	Comments:
WORK 1564-JJ	Uranium-232 AS TRACER	.1 ml	Pipet Id: RAD-ASP-184002Z Pu-236 Tracer Used: No Analyzed With: N/A Data Entry Date2: 16-JUL-2024 00:00
REGNT 4355090	Acetone	1 mL	
REGNT 4351215.2	Hydrogen Peroxide 30% ACS Reagent	.1 mL	
REGNT 4363409	0.1M HCl	15 mL	
REGNT 4316586	5% Saturated Boric Acid	1 mL	
REGNT 4372159	6M Hydrochloric Acid/0.52M Hydrofluoric Acid	15 mL	
REGNT 4224853	RASP-6M Hydrochloric Acid	5 mL	
REGNT 4356267.1	Anion Exchange Resin 1x8 100-200 Mesh Resin	3 mL	
REGNT 4375816	RASP- Ethyl Alcohol (80%)	5 mL	
REGNT 4208162	Iron Carrier	2 mL	
REGNT 4323560	Neodymium 500 MG/L in 4% HNO3	.1 mL	
REGNT 4373285	RASP-Neodymium Substrate	5 mL	
REGNT 3943828.12	RASP-Titanium Chloride	.5 mL	
REGNT 4374162	9M Hydrochloric Acid	30 mL	
REGNT 4364508.4	RASP-Ammonium Hydroxide	10 mL	
REGNT 4371728.10	RASP-Hydrochloric Acid	20 mL	
REGNT 4324094.3	RASP-Hydrofluoric Acid	30 mL	

Analytical Logbook version 1 11-04-2002

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Prep Logbook

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)
Reagent/Solvent Lot ID		Description		Amount		Comments:
REGNT 4364420.14		Nitric Acid		20 mL		

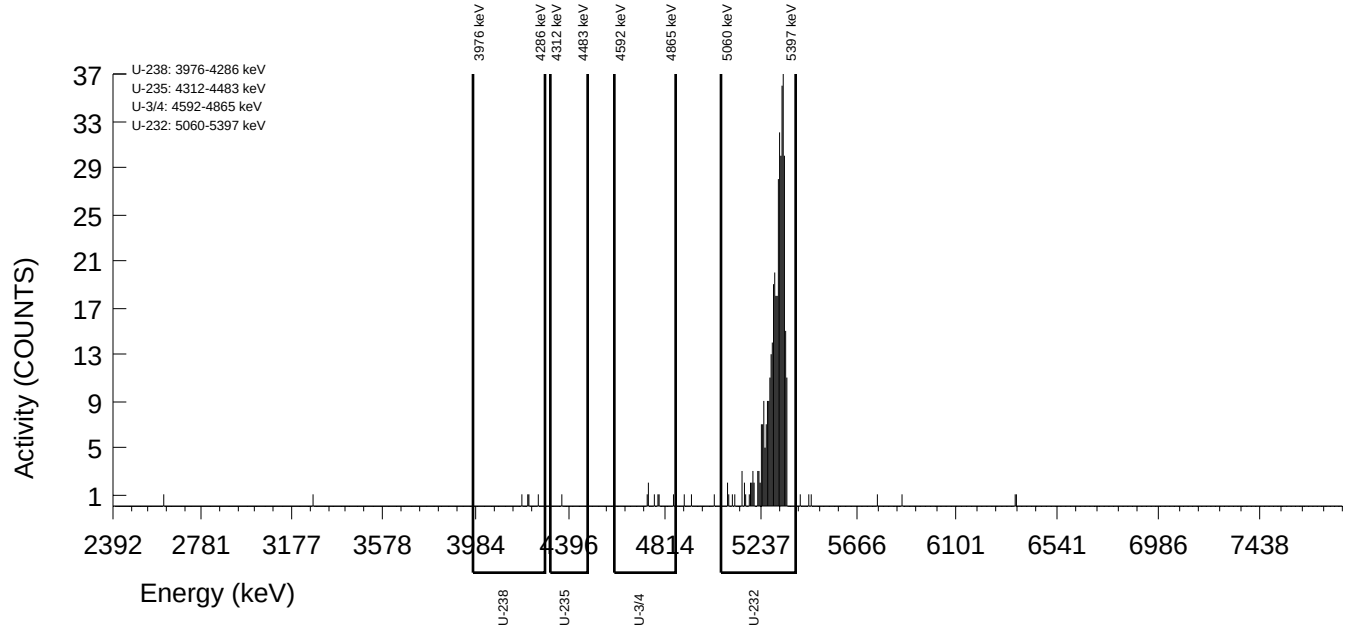
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299011_UU SAMPLE QTY : 0.113 G +/-0.885 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 103 +/-5.857 %	CHAMBER : 160 DETECTOR S/N : 155815 AVERAGE %EFFICIENCY : 37.8896 AVERAGE %EFF ERROR : 0.7301 COUNT DATE : 18-Jul-2024 08:40:30 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B160.CNF;1922 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W160.CNF;137 CAL DATE : 16-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.5317E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5303.99	47.722	414.000	411.840	2.160	1.4697	100.000	1.76E+01		2.74E+00	3.58E-01	1.15E-01	1.71E+00
U-3/4	4763.02	4777.40	7.255	7.000	4.154	1.440	1.2000	100.000	1.77E-01		2.44E-01	3.79E-01	1.25E-01	2.42E-01
U-235	4391.00	4422.42	111.244	2.000	1.520	0.480	0.6928	80.900	8.01E-02		1.84E-01	2.92E-01	6.69E-02	1.84E-01
U-238	4184.73	4221.93	72.550	4.000	3.760	0.240	0.4899	100.000	1.60E-01		1.90E-01	2.05E-01	3.83E-02	1.89E-01

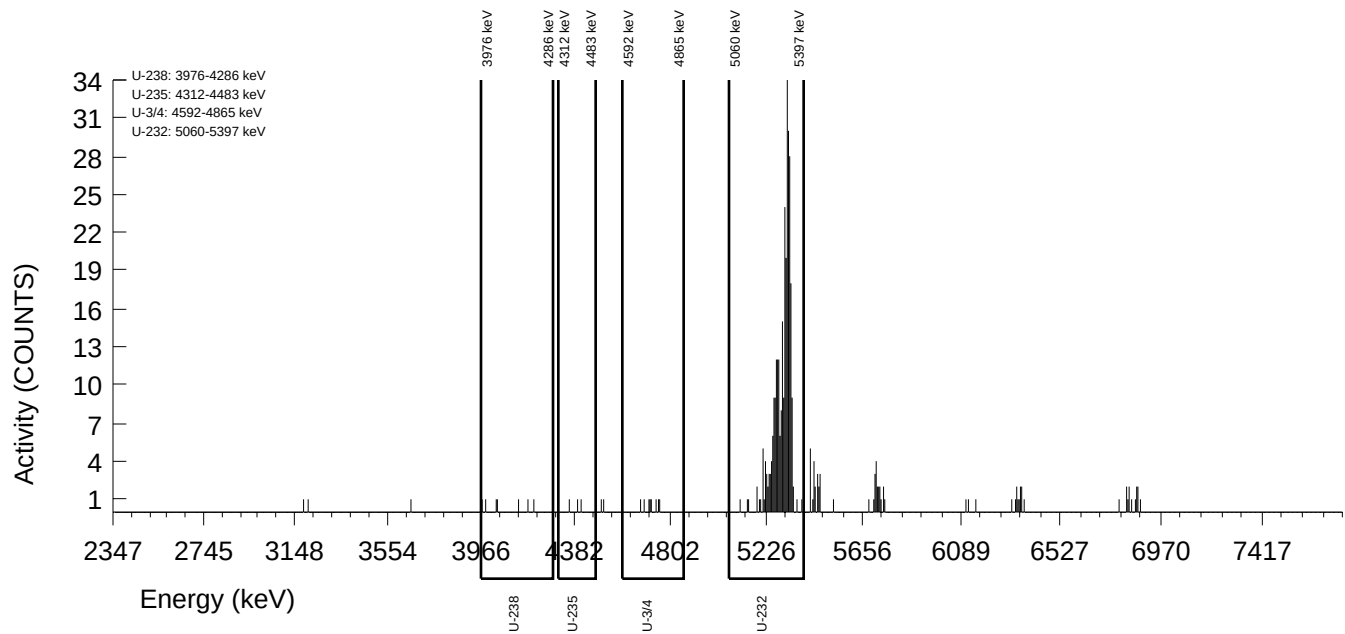
NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.406 +/-0.042)



BATCH NUMBER : 2640430 SAMPLE ID : S0674299012_UU SAMPLE QTY : 0.106 G +/-0.943 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 86.4 +/-6.812 %	CHAMBER : 007 DETECTOR S/N : 149004 AVERAGE %EFFICIENCY : 31.3640 AVERAGE %EFF ERROR : 0.6069 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B007.CNF;2679 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W007.CNF;724 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.8109E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5301.28	27.586	297.000	286.680	10.320	3.2125	100.000	1.87E+01	3.44E+00	9.65E-01	3.85E-01	2.22E+00
U-3/4	4763.02	4721.96	84.076	8.000	5.101	1.920	1.3856	100.000	3.33E-01	3.99E-01	5.90E-01	1.97E-01	3.95E-01
U-235	4391.00	4390.22	54.402	3.000	2.040	0.960	0.9798	80.900	1.65E-01	3.29E-01	5.32E-01	1.45E-01	3.28E-01
U-238	4184.73	4081.10	0.000	7.000	6.520	0.480	0.6928	100.000	4.26E-01	3.71E-01	3.62E-01	8.29E-02	3.66E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.979 +/-0.029)



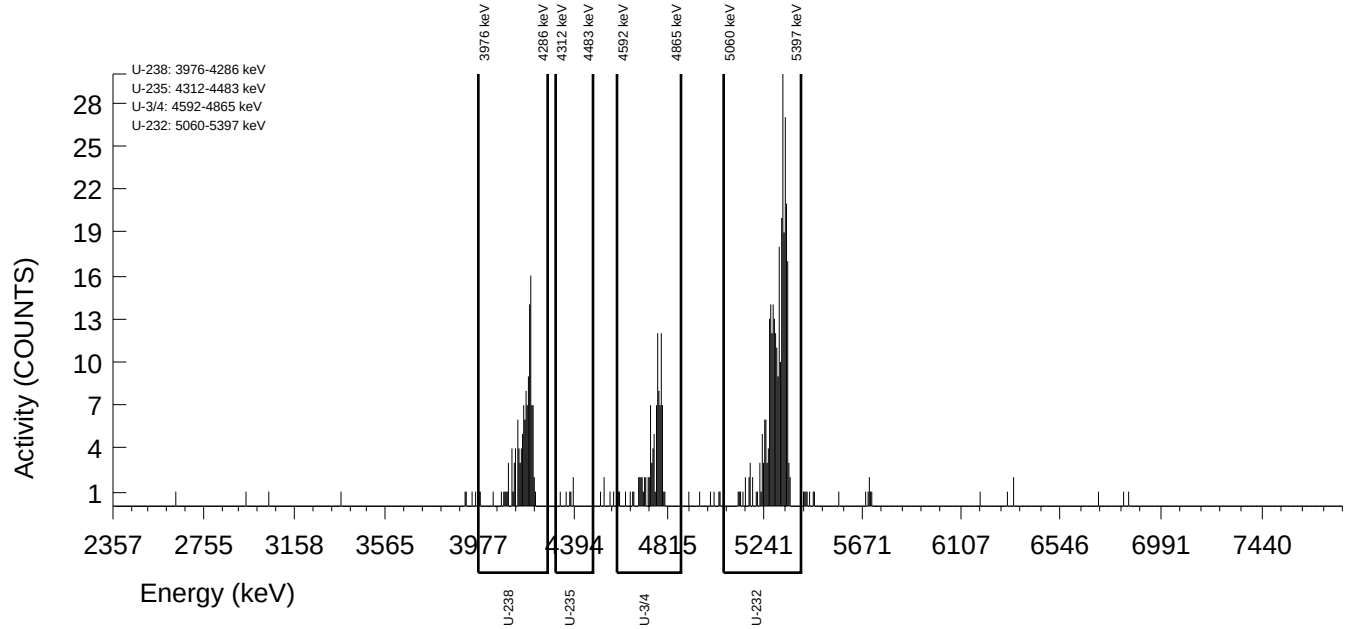
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299013_UU SAMPLE QTY : 0.105 G +/-0.952 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 87.1 +/-6.566 %	CHAMBER : 008 DETECTOR S/N : 148044 AVERAGE %EFFICIENCY : 33.3652 AVERAGE %EFF ERROR : 0.6446 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B008.CNF;2690 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W008.CNF;716 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.8387E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5294.33	36.990	312.000	307.200	4.800	2.1909	100.000	1.89E+01	3.34E+00	6.79E-01	2.47E-01	2.14E+00
U-3/4	4763.02	4748.22	51.291	98.000	95.031	1.920	1.3856	100.000	5.85E+00	1.45E+00	5.60E-01	1.87E-01	1.20E+00
U-235	4391.00	4374.58	4.948	6.000	6.000	0.000	1.0000	80.900	4.56E-01	4.01E-01	2.28E-01	1.39E-01	3.96E-01
U-238	4184.73	4173.97	16.767	129.000	127.320	1.680	1.2961	100.000	7.84E+00	1.74E+00	4.77E-01	1.46E-01	1.38E+00

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.049 +/-0.031)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

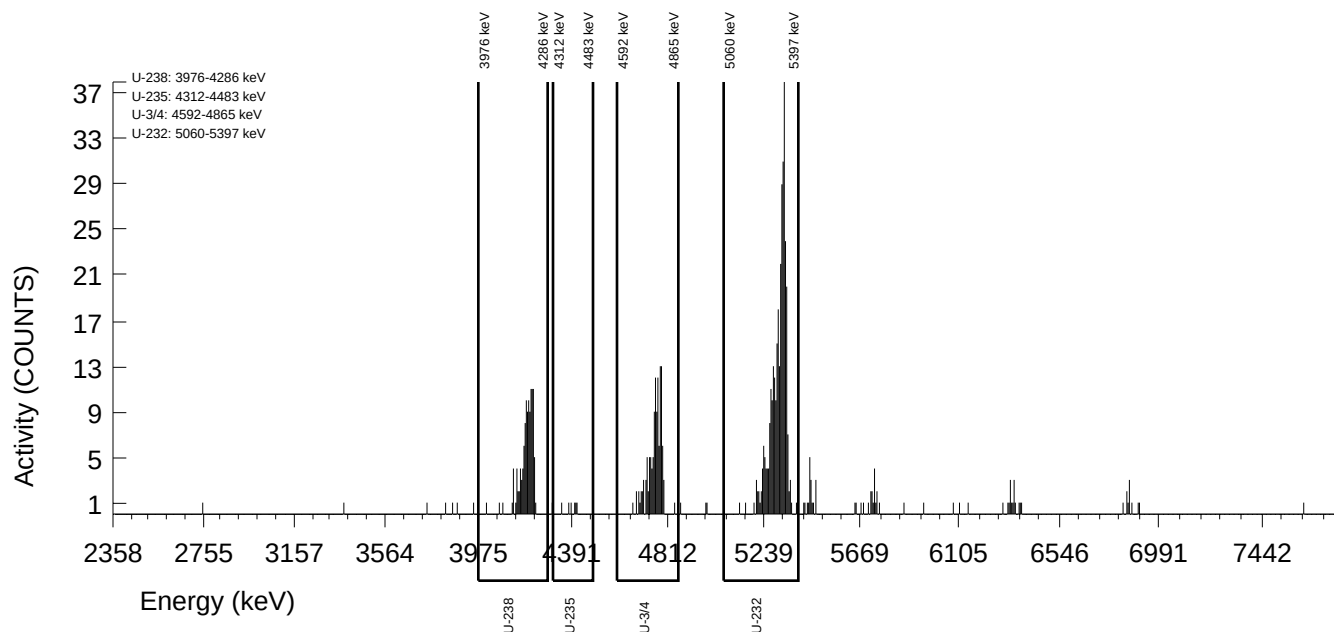
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299016_UU SAMPLE QTY : 0.116 G +/-0.862 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 89.3 +/-6.461 %	CHAMBER : 009 DETECTOR S/N : 149015 AVERAGE %EFFICIENCY : 34.0679 AVERAGE %EFF ERROR : 0.6579 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B009.CNF;2672 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W009.CNF;713 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.9377E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5303.67	26.669	328.000	321.760	6.240	2.4980	100.000	1.71E+01	2.97E+00	6.47E-01	2.44E-01	1.90E+00
U-3/4	4763.02	4755.17	37.234	127.000	124.462	1.440	1.2000	100.000	6.62E+00	1.48E+00	4.57E-01	1.49E-01	1.18E+00
U-235	4391.00	4387.82	69.010	6.000	6.000	0.000	1.0000	80.900	3.94E-01	3.46E-01	1.97E-01	1.20E-01	3.42E-01
U-238	4184.73	4187.74	45.185	119.000	119.000	0.000	1.0000	100.000	6.33E+00	1.42E+00	1.60E-01	9.74E-02	1.14E+00

NOTES:

* Correction made to the following net area due to tracer impurity:
U-3/4 (1.098 +/-0.033)



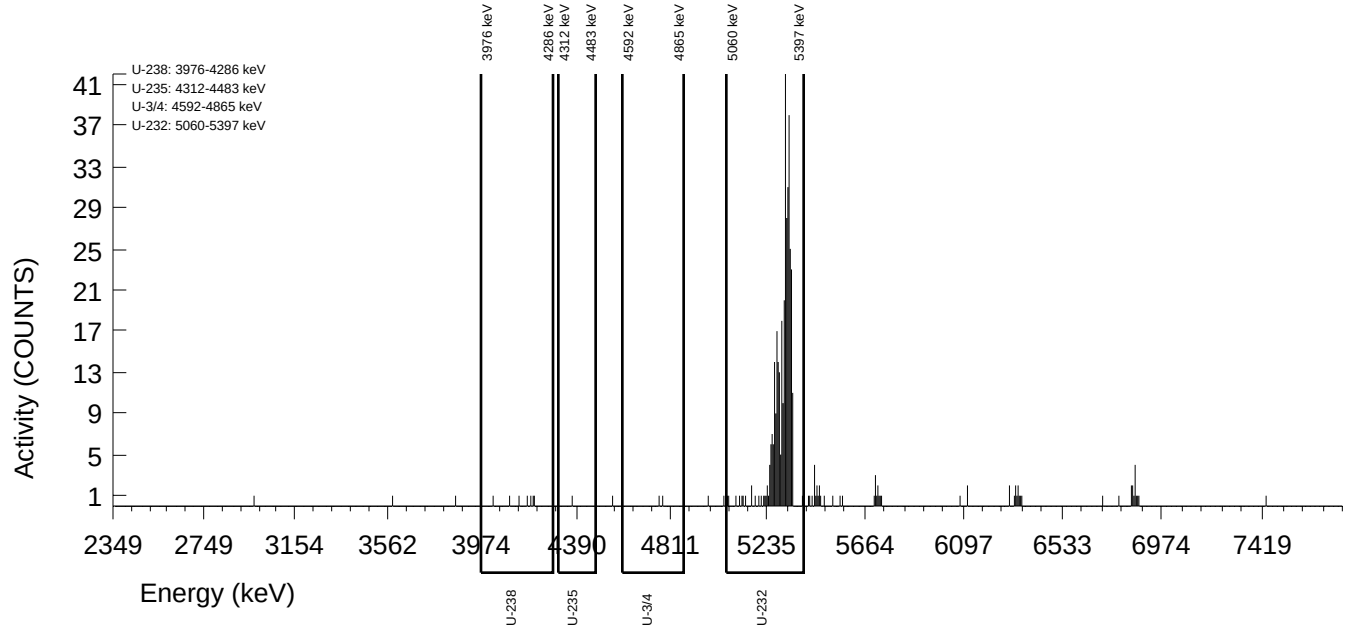
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299019_UU SAMPLE QTY : 0.104 G +/-0.962 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 100 +/-6.225 %	CHAMBER : 010 DETECTOR S/N : 149014 AVERAGE %EFFICIENCY : 33.3985 AVERAGE %EFF ERROR : 0.6453 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B010.CNF;2721 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W010.CNF;722 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.4256E+00 dpm		

NUCLIDE ACTIVITY SUMMARY												1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
U-232	5302.10	5303.24	30.450	361.000	354.520	6.480	2.5456	100.000	1.91E+01	3.18E+00	6.64E-01	2.51E-01	2.01E+00
U-3/4	4763.02	4766.00	19.898	2.000	-0.890	1.680	1.2961	100.000	-4.79E-02	1.96E-01	4.83E-01	1.61E-01	1.96E-01
U-235	4391.00	4374.75	4.974	1.000	0.760	0.240	0.4899	80.900	5.06E-02	1.90E-01	3.19E-01	5.97E-02	1.90E-01
U-238	4184.73	4149.05	179.080	7.000	6.520	0.480	0.6928	100.000	3.51E-01	3.05E-01	2.98E-01	6.83E-02	3.02E-01

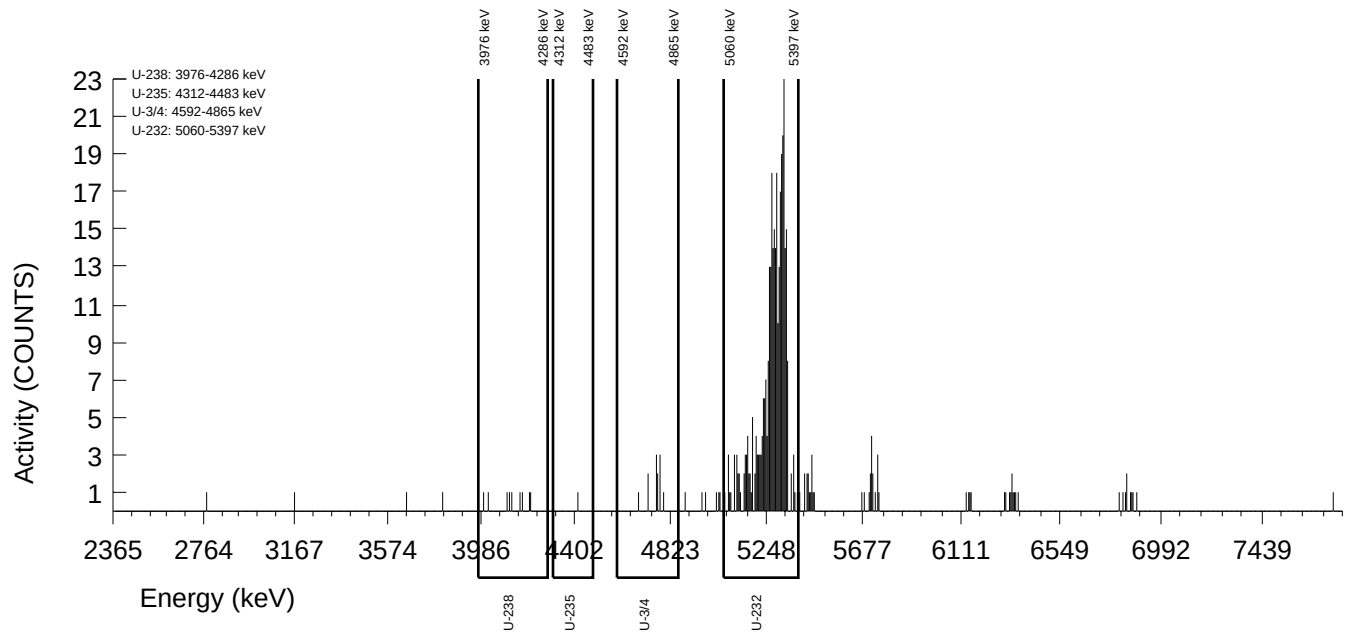
NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.210 +/-0.036)



BATCH NUMBER : 2640430 SAMPLE ID : S0674299020_UU SAMPLE QTY : 0.106 G +/-0.943 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 100 +/-6.430 %	CHAMBER : 011 DETECTOR S/N : 72531 AVERAGE %EFFICIENCY : 31.3295 AVERAGE %EFF ERROR : 0.6062 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B011.CNF;2694 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W011.CNF;728 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.4214E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5277.36	73.366	344.000	332.240	11.760	3.4293	100.000	1.87E+01	3.23E+00	8.78E-01	3.54E-01	2.06E+00
U-3/4	4763.02	4759.70	53.290	12.000	9.426	1.440	1.2000	100.000	5.31E-01	4.12E-01	4.86E-01	1.58E-01	4.04E-01
U-235	4391.00	4418.14	4.957	1.000	1.000	0.000	1.0000	80.900	6.97E-02	1.96E-01	2.09E-01	1.28E-01	1.96E-01
U-238	4184.73	4124.44	203.244	9.000	7.080	1.920	1.3856	100.000	3.99E-01	3.62E-01	4.55E-01	1.43E-01	3.58E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.134 +/-0.034)



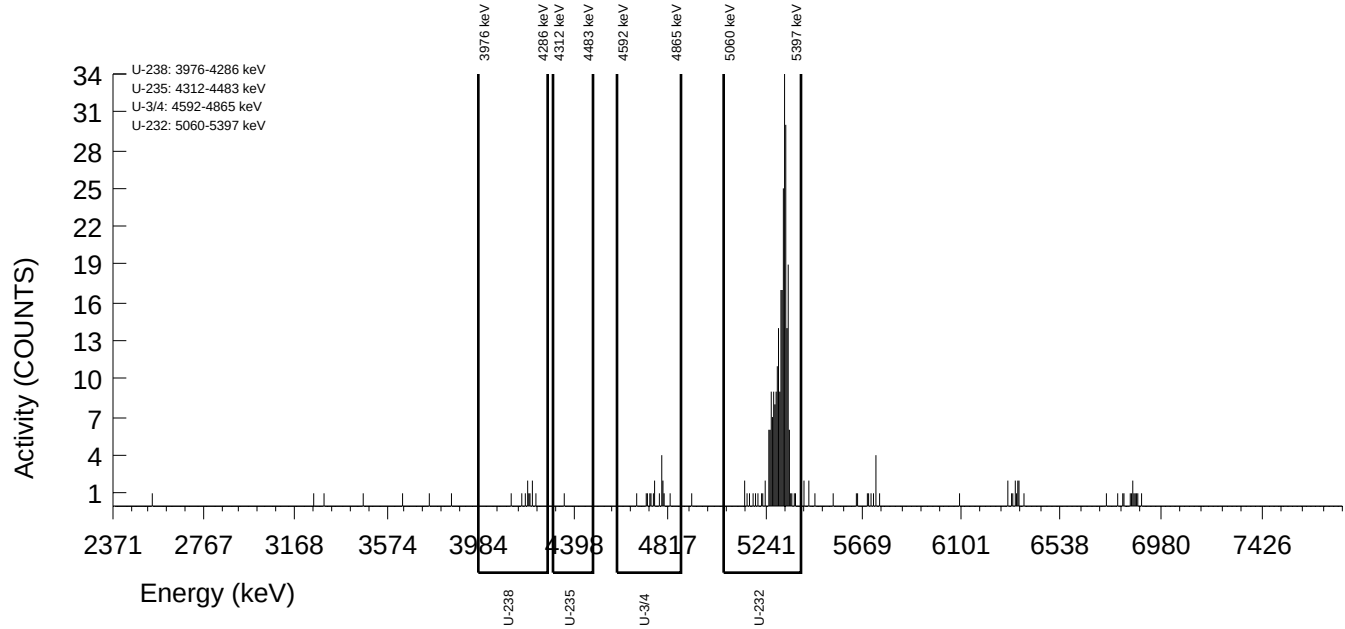
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299022_UU SAMPLE QTY : 0.113 G +/-0.885 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 79.9 +/-7.057 %		CHAMBER : 012 DETECTOR S/N : 158176 AVERAGE %EFFICIENCY : 30.6286 AVERAGE %EFF ERROR : 0.5930 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : UU BKG FILE : B012.CNF;2693 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W012.CNF;700 CAL DATE : 02-Jul-2024	
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.5223E+00 dpm					

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5307.59	25.387	265.000	258.760	6.240	2.4980	100.000	1.76E+01		3.35E+00	8.25E-01	3.11E-01	2.18E+00
U-3/4	4763.02	4762.35	7.389	17.000	13.477	2.640	1.6248	100.000	9.15E-01		5.92E-01	6.59E-01	2.28E-01	5.75E-01
U-235	4391.00	4356.50	4.926	1.000	-0.200	1.200	1.0954	80.900	-1.68E-02		2.52E-01	5.89E-01	1.68E-01	2.52E-01
U-238	4184.73	4193.98	24.630	10.000	8.560	1.440	1.2000	100.000	5.81E-01		4.57E-01	5.02E-01	1.49E-01	4.49E-01

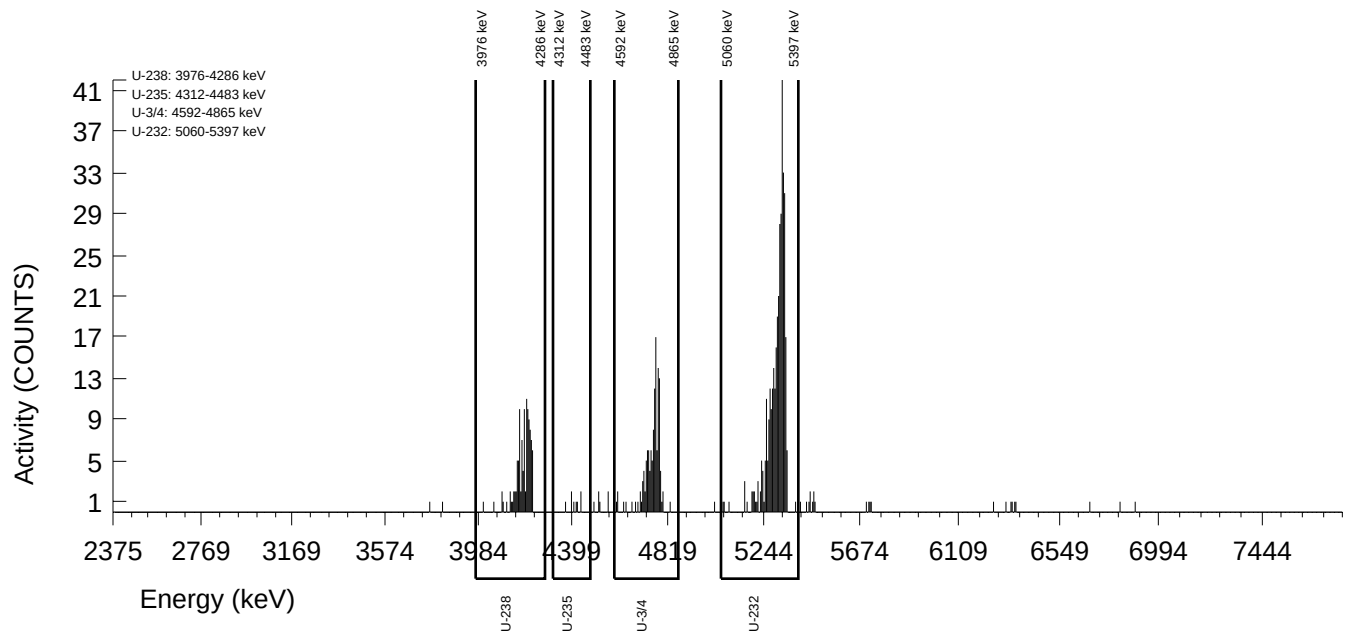
NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.883 +/-0.027)



BATCH NUMBER : 2640430 SAMPLE ID : S0674299027_UU SAMPLE QTY : 0.113 G +/-0.885 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 94.3 +/-6.163 %	CHAMBER : 013 DETECTOR S/N : 148040 AVERAGE %EFFICIENCY : 36.0908 AVERAGE %EFF ERROR : 0.6961 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B013.CNF;2657 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W013.CNF;715 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.1574E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5304.59	28.017	363.000	359.880	3.120	1.7664	100.000	1.76E+01	2.90E+00	4.63E-01	1.58E-01	1.83E+00
U-3/4	4763.02	4754.45	26.353	130.000	127.811	0.960	0.9798	100.000	6.24E+00	1.36E+00	3.96E-01	1.25E-01	1.10E+00
U-235	4391.00	4413.29	44.126	8.000	7.760	0.240	0.4899	80.900	4.68E-01	3.62E-01	2.89E-01	5.41E-02	3.57E-01
U-238	4184.73	4184.84	58.754	112.000	111.760	0.240	0.4899	100.000	5.46E+00	1.23E+00	2.34E-01	4.38E-02	1.02E+00

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.229 +/-0.037)



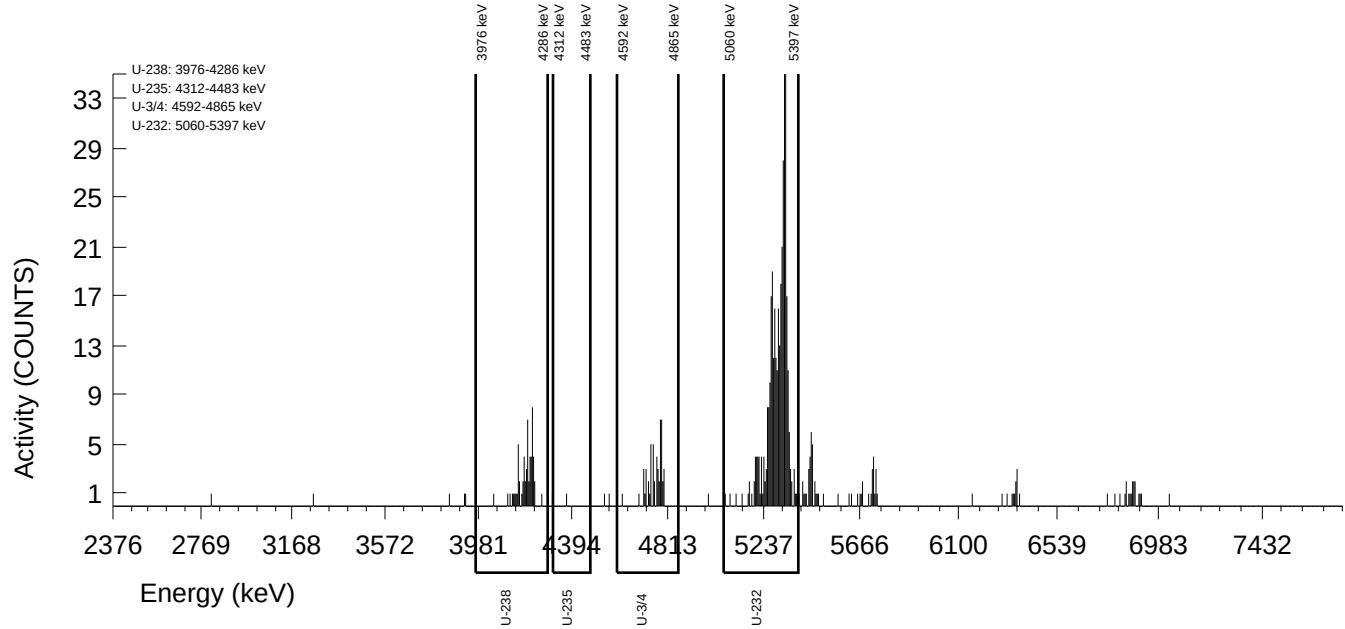
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299030_UU SAMPLE QTY : 0.103 G +/-0.971 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 97.0 +/-6.304 %	CHAMBER : 014 DETECTOR S/N : 83289 AVERAGE %EFFICIENCY : 34.2512 AVERAGE %EFF ERROR : 0.6614 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B014.CNF;2649 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W014.CNF;727 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.2765E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5302.52	62.194	365.000	351.320	13.680	3.6986	100.000	1.93E+01	3.26E+00	9.08E-01	3.72E-01	2.07E+00
U-3/4	4763.02	4761.63	49.253	52.000	48.641	2.160	1.4697	100.000	2.67E+00	8.64E-01	5.20E-01	1.78E-01	7.87E-01
U-235	4391.00	4342.37	0.000	2.000	1.040	0.960	0.9798	80.900	7.05E-02	2.41E-01	4.47E-01	1.22E-01	2.41E-01
U-238	4184.73	4193.22	64.774	59.000	58.040	0.960	0.9798	100.000	3.18E+00	9.33E-01	3.61E-01	9.85E-02	8.35E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.199 +/-0.036)



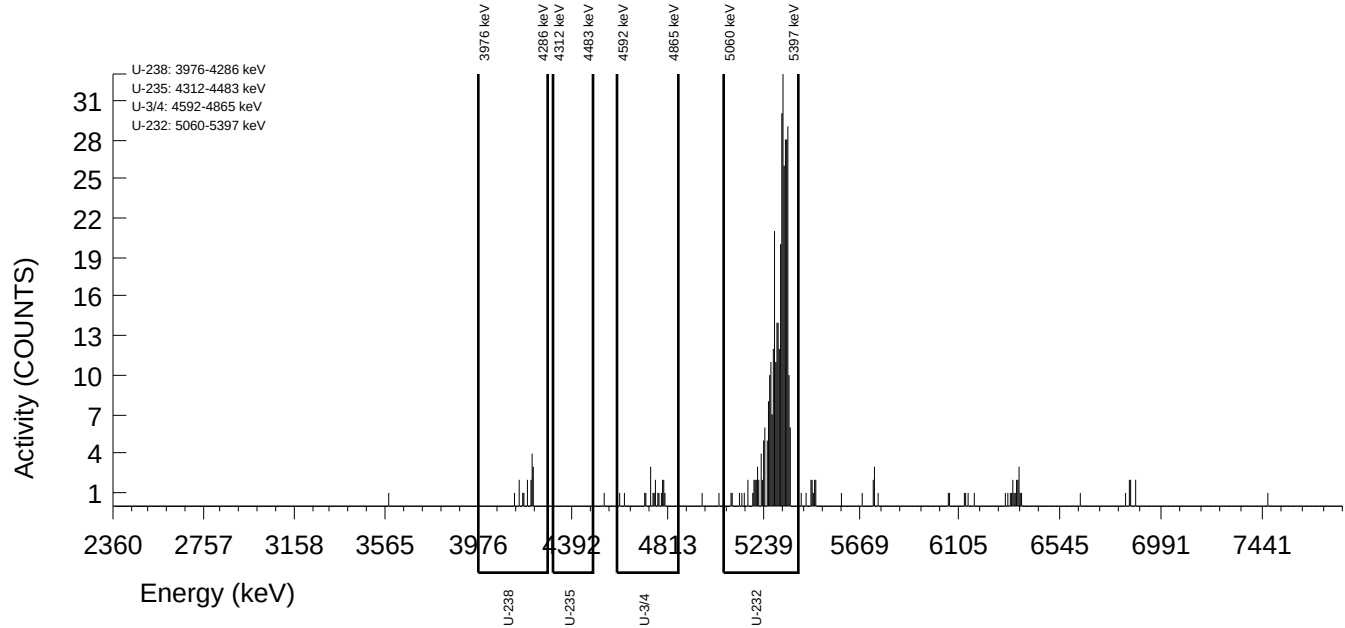
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299031_UU SAMPLE QTY : 0.105 G +/-0.952 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 99.6 +/-6.149 %	CHAMBER : 015 DETECTOR S/N : 80055 AVERAGE %EFFICIENCY : 34.6746 AVERAGE %EFF ERROR : 0.6694 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B015.CNF;2689 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W015.CNF;766 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.3916E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5304.03	59.873	371.000	365.240	5.760	2.4000	100.000	1.89E+01	3.11E+00	6.11E-01	2.28E-01	1.96E+00
U-3/4	4763.02	4747.61	59.096	19.000	17.513	0.240	0.4899	100.000	9.06E-01	4.72E-01	3.67E-01	1.06E-01	4.55E-01
U-235	4391.00	4397.17	0.000	0.000	0.000	0.000	1.0000	80.900	0.00E+00	1.29E-01	1.92E-01	1.17E-01	1.29E-01
U-238	4184.73	4195.17	11.491	16.000	15.520	0.480	0.6928	100.000	8.03E-01	4.33E-01	2.87E-01	6.57E-02	4.20E-01

NOTES:
* Correction made to the following net area due to tracer impurity:
U-3/4 (1.247 +/-0.037)



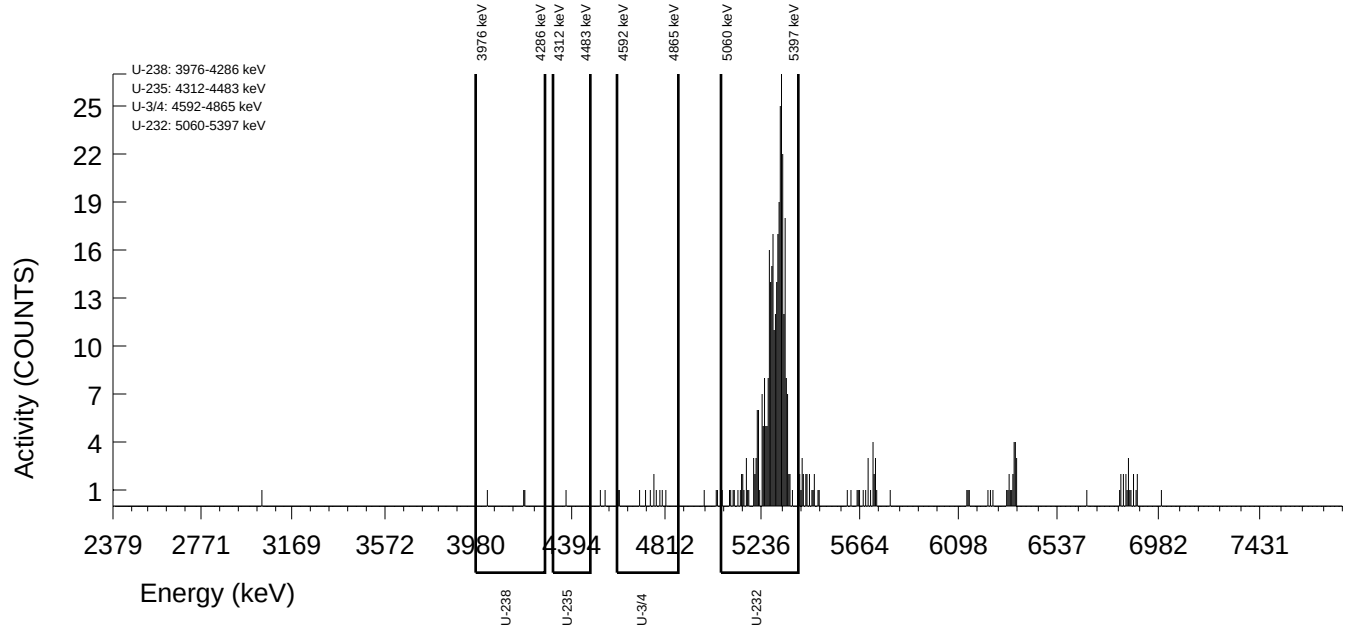
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299033_UU SAMPLE QTY : 0.108 G +/-0.926 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 89.7 +/-6.472 %	CHAMBER : 016 DETECTOR S/N : 78774 AVERAGE %EFFICIENCY : 34.3049 AVERAGE %EFF ERROR : 0.6624 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B016.CNF;2672 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W016.CNF;708 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.9553E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5287.07	67.095	336.000	325.440	10.560	3.2496	100.000	1.84E+01		3.19E+00	8.42E-01	3.36E-01	2.04E+00
U-3/4	4763.02	4732.18	4.875	11.000	8.209	1.680	1.2961	100.000	4.64E-01		3.97E-01	5.02E-01	1.66E-01	3.91E-01
U-235	4391.00	4372.75	4.875	1.000	0.520	0.480	0.6928	80.900	3.63E-02		2.02E-01	3.87E-01	8.86E-02	2.02E-01
U-238	4184.73	4134.62	160.882	3.000	2.760	0.240	0.4899	100.000	1.56E-01		2.26E-01	2.71E-01	5.07E-02	2.25E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.111 +/-0.033)



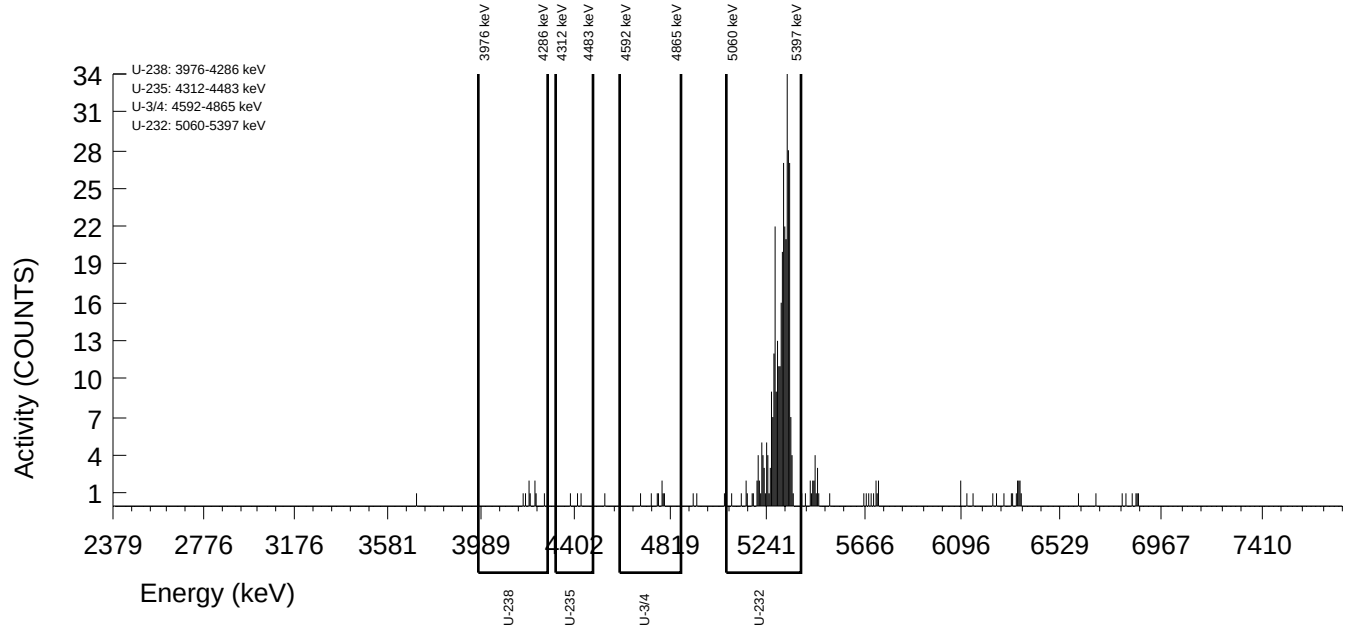
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299034_UU SAMPLE QTY : 0.106 G +/-0.943 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 107 +/-6.316 %	CHAMBER : 017 DETECTOR S/N : 158179 AVERAGE %EFFICIENCY : 29.9048 AVERAGE %EFF ERROR : 0.5794 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B017.CNF;3502 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W017.CNF;1652 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.7324E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5300.32	64.047	344.000	339.440	4.560	2.1354	100.000	1.87E+01		3.17E+00	5.97E-01	2.16E-01	2.01E+00
U-3/4	4763.02	4762.46	7.390	8.000	4.921	1.920	1.3856	100.000	2.71E-01		3.36E-01	5.07E-01	1.71E-01	3.34E-01
U-235	4391.00	4407.49	49.267	3.000	2.520	0.480	0.6928	80.900	1.72E-01		2.74E-01	3.78E-01	8.65E-02	2.73E-01
U-238	4184.73	4213.09	32.023	9.000	8.280	0.720	0.8485	100.000	4.57E-01		3.51E-01	3.37E-01	8.58E-02	3.46E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.159 +/-0.035)



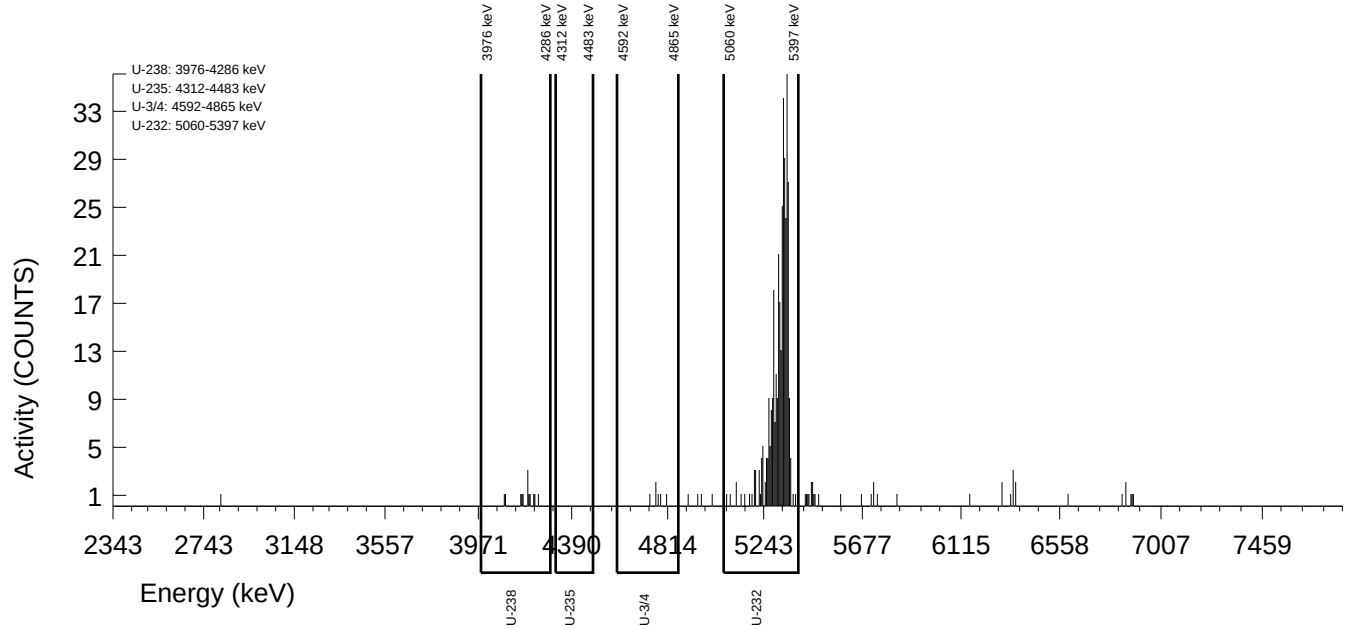
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S0674299037_UU SAMPLE QTY : 0.117 G +/-0.855 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 95.3 +/-6.229 %	CHAMBER : 018 DETECTOR S/N : 80015 AVERAGE %EFFICIENCY : 34.7718 AVERAGE %EFF ERROR : 0.6712 COUNT DATE : 18-Jul-2024 13:28:04 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B018.CNF;2651 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W018.CNF;752 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.2014E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G		cnt Unc pCi/G
U-232	5302.10	5310.60	43.462	354.000	350.400	3.600	1.8974	100.000	1.70E+01	2.83E+00	4.82E-01	1.68E-01		1.79E+00
U-3/4	4763.02	4770.00	4.967	6.000	2.644	2.160	1.4697	100.000	1.28E-01	2.62E-01	4.59E-01	1.57E-01		2.61E-01
U-235	4391.00	4397.17	0.000	0.000	-0.480	0.480	0.6928	80.900	-2.87E-02	1.27E-01	3.31E-01	7.60E-02		1.27E-01
U-238	4184.73	4178.25	6.209	13.000	11.800	1.200	1.0954	100.000	5.71E-01	3.67E-01	3.40E-01	9.72E-02		3.59E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.196 +/-0.036)



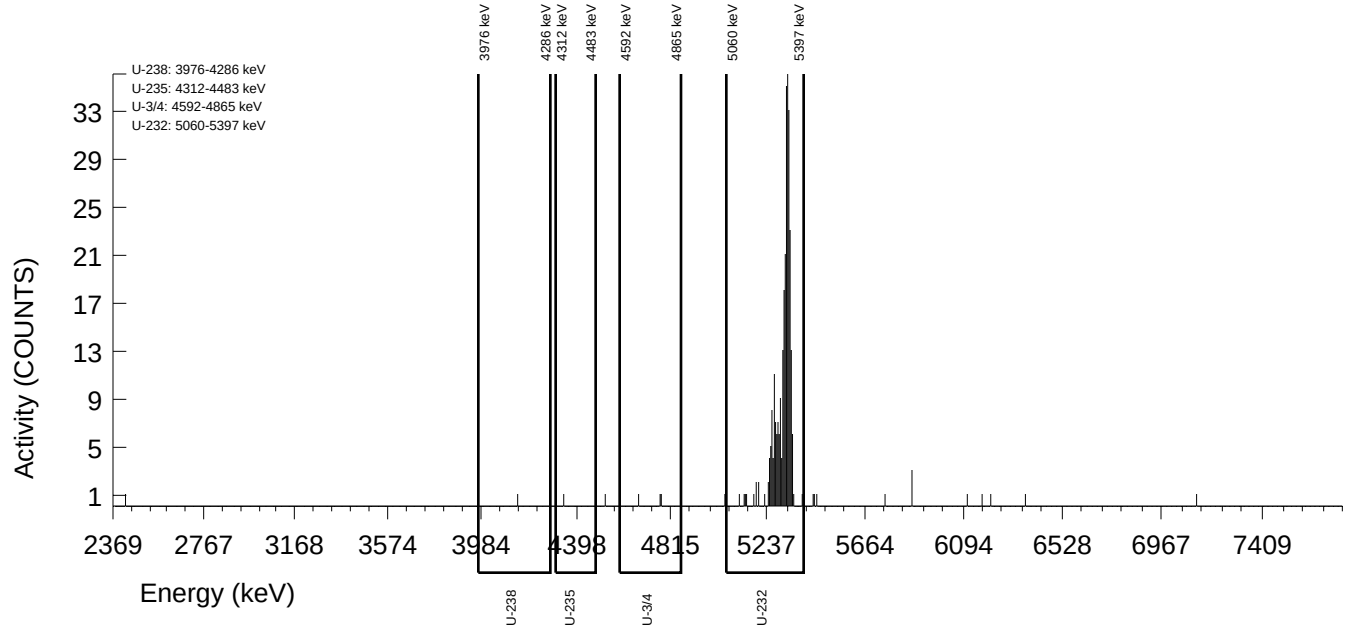
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S1205789020_UU SAMPLE QTY : 0.117 G +/-0.855 % SAMPLE DATE : 16-Jul-2024 00:00:00 ANALYST : CM4 % YIELD : 101 +/-6.779 %		CHAMBER : 125 DETECTOR S/N : 84060 AVERAGE %EFFICIENCY : 26.1623 AVERAGE %EFF ERROR : 0.5087 COUNT DATE : 18-Jul-2024 13:27:56 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : UU BKG FILE : B125.CNF;2000 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W125.CNF;550 CAL DATE : 13-Jul-2024	
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4071E+00 dpm RESULTS : 4.4730E+00 dpm					

NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	1.96-sigma TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
U-232	5302.10	5308.03	27.178	283.000	280.840	2.160	1.4697	100.000	1.70E+01	3.09E+00	5.07E-01	1.63E-01	2.00E+00
U-3/4	4763.02	4738.53	98.827	3.000	0.121	1.920	1.3856	100.000	7.32E-03	2.52E-01	5.44E-01	1.82E-01	2.52E-01
U-235	4391.00	4345.59	4.941	1.000	0.760	0.240	0.4899	80.900	5.68E-02	2.13E-01	3.58E-01	6.70E-02	2.13E-01
U-238	4184.73	4143.60	4.941	1.000	1.000	0.000	1.0000	100.000	6.04E-02	1.70E-01	1.81E-01	1.11E-01	1.70E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.959 +/-0.029)



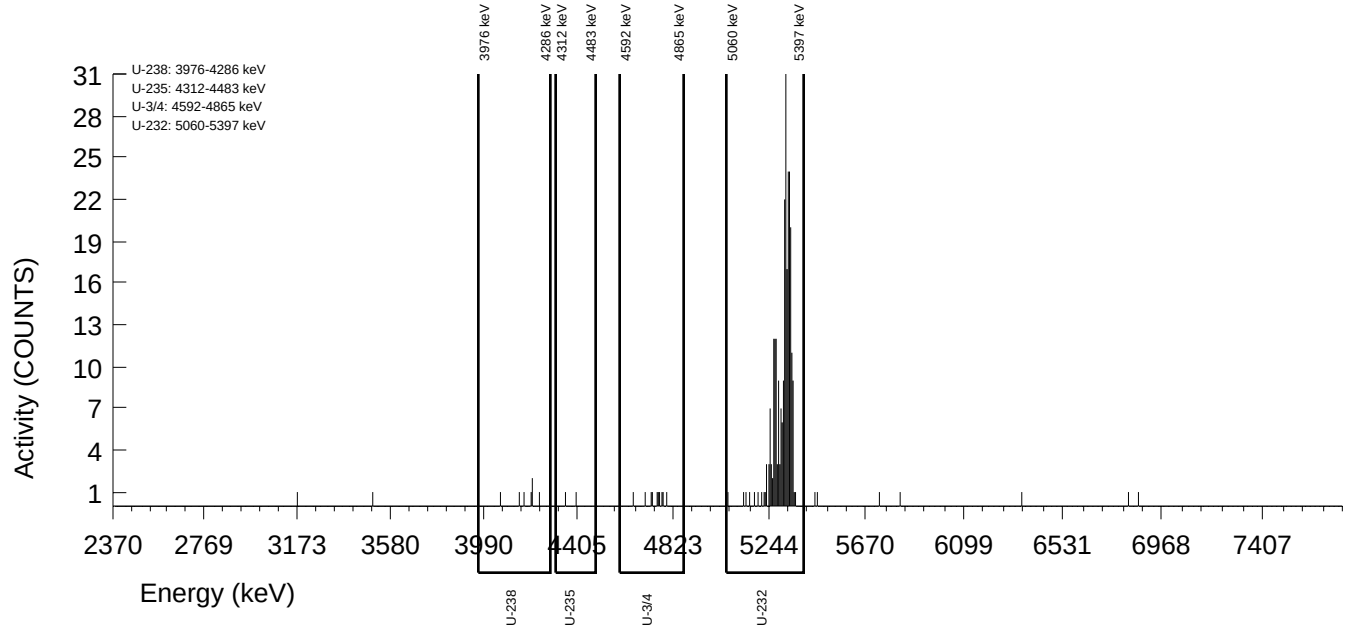
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S1205789021_UU SAMPLE QTY : 0.117 G +/-0.855 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 95.8 +/-6.993 %	CHAMBER : 126 DETECTOR S/N : 126133 AVERAGE %EFFICIENCY : 25.5465 AVERAGE %EFF ERROR : 0.4972 COUNT DATE : 18-Jul-2024 13:27:57 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B126.CNF;1990 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W126.CNF;123 CAL DATE : 13-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.2237E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY	PEAK	PEAK	GROSS	NET	BKG	BKG	%ABUN	ACTIVITY	TPU	MDA	Lc	cnt Unc
	ENERGY	ENERGY	FWHM	AREA	AREA	AREA	StDev		pCi/G	pCi/G	pCi/G	pCi/G	pCi/G
U-232	5302.10	5305.29	29.834	260.000	258.800	1.200	1.0954	100.000	1.70E+01	3.20E+00	4.60E-01	1.32E-01	2.08E+00
U-3/4	4763.02	4744.57	144.198	10.000	7.916	1.200	1.0954	100.000	5.19E-01	4.41E-01	5.29E-01	1.66E-01	4.33E-01
U-235	4391.00	4376.12	49.723	2.000	1.520	0.480	0.6928	80.900	1.23E-01	2.83E-01	4.49E-01	1.03E-01	2.83E-01
U-238	4184.73	4177.87	7.459	7.000	6.760	0.240	0.4899	100.000	4.43E-01	3.71E-01	3.14E-01	5.88E-02	3.66E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.884 +/-0.027)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

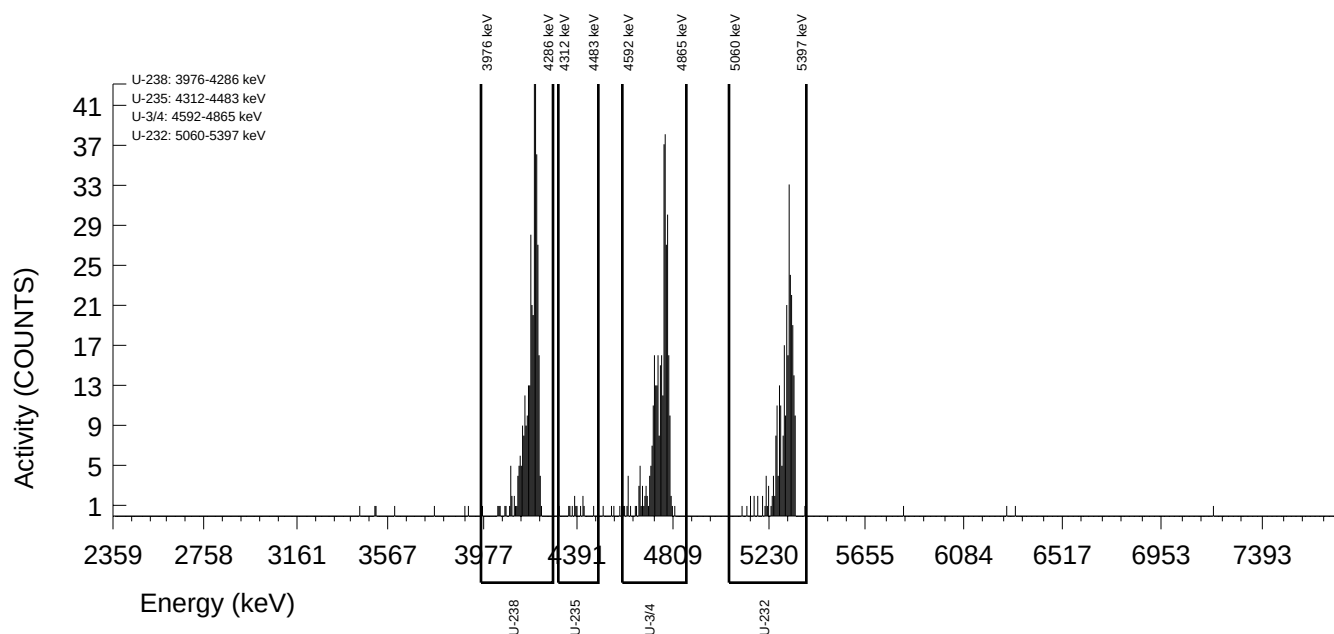
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2640430 SAMPLE ID : S1205789022_UU SAMPLE QTY : 0.117 G +/-0.855 % SAMPLE DATE : 16-Jul-2024 00:00:00 ANALYST : CM4 % YIELD : 100 +/-6.826 %			CHAMBER : 135 DETECTOR S/N : 80005 AVERAGE %EFFICIENCY : 25.8243 AVERAGE %EFF ERROR : 0.5023 COUNT DATE : 18-Jul-2024 13:28:01 ELAPSED LIVE TIME(SEC) : 14400.00			LIB FILE : UU BKG FILE : B135.CNF;1990 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W135.CNF;541 CAL DATE : 13-Jul-2024		
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4071E+00 dpm RESULTS : 4.4257E+00 dpm			LCS ID 1600-R NUCLIDE U-238 NOMINAL (pCi/G) 2.2927E+01 % RECOVERY 94.374					

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5301.60	37.501	275.000	274.280	0.720	0.8485	100.000	1.70E+01	3.12E+00	3.78E-01	9.62E-02	2.02E+00
U-3/4	4763.02	4754.54	22.364	329.000	325.184	2.880	1.6971	100.000	2.01E+01	3.58E+00	6.18E-01	2.16E-01	2.20E+00
U-235	4391.00	4389.63	42.189	13.000	12.520	0.480	0.6928	80.900	9.57E-01	5.80E-01	4.23E-01	9.70E-02	5.64E-01
U-238	4184.73	4189.56	34.413	351.000	349.800	1.200	1.0954	100.000	2.16E+01	3.79E+00	4.34E-01	1.24E-01	2.28E+00

NOTES:

* Correction made to the following net area due to tracer impurity:
U-3/4 (0.936 +/-0.028)



Batch 2641120 Check-list

This check-list was completed on 19-JUL-24 by Melanie Aycock

This batch was reviewed by Melanie Aycock on 19-JUL-24 and Jessica Davis on 23-JUL-24.

Batch ID: 2641120

Product: ASP__UUS

Description: Alpha Spec Uranium GL-RAD-A-011

#	Criteria	Yes	No	Comments
Preparation Information				
1	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
2	Are instrument source checks within limits?	Yes		
3	Have samples been blank corrected?		No	
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Were manual integrations performed on any sample or QC data files in this batch?		No	
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Uranium

Batch ID: 2641120

Analyst: Ryan Monroe (RM3)

Prep: Alexander Gauger (AG2)

Method: DOE EML HASL-300, U-02-RC
Modified

Lab SOP: GL-RAD-A-011 REV# 29

Instrument: BAL-C326419771

Due Dates for Lab: 31-JUL-2024

Package: 01-AUG-2024

SDG: 02-AUG-2024

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205790383	Uranium-238 AS SPIKE	1600-R	.1	mL

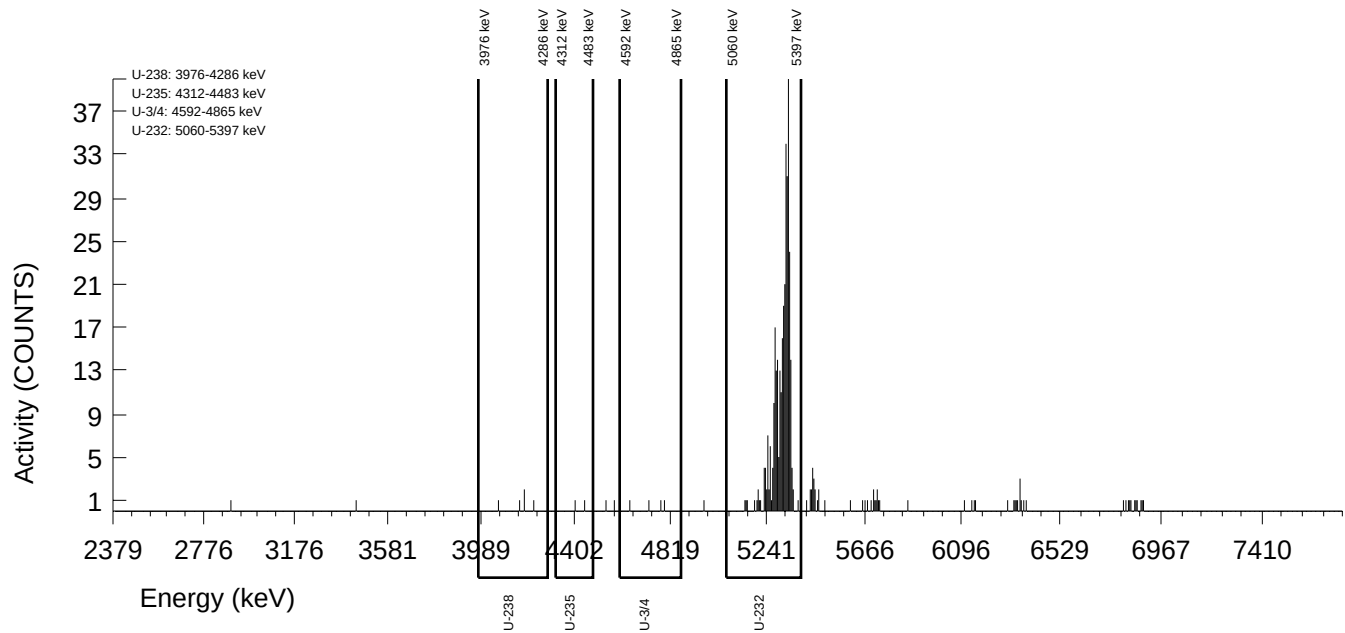
#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)
1	674299006	17-JUL-2024	1	Dry to Dry	0.119	0.119
2	674299010	17-JUL-2024	1	Dry to Dry	0.116	0.116
3	1205790381 MB	17-JUL-2024	1	Dry to Wet		0.119
4	1205790382 DUP (674299006)	17-JUL-2024	1	Dry to Dry	0.112	0.112
5	1205790383 LCS	17-JUL-2024	1	Dry to Wet		0.119

Reagent/Solvent Lot ID	Description	Amount	Comments:
WORK 1564-JJ	Uranium-232 AS TRACER	.1 mL	Pipet Id: R2-428724 Pu-236 Tracer Used: No Analyzed With: N/A Data Entry Date2: 17-JUL-2024 00:00
REGNT 4355090	Acetone	1 mL	
REGNT 4351215.2	Hydrogen Peroxide 30% ACS Reagent	.1 mL	
REGNT 4363409	0.1M HCl	15 mL	
REGNT 4316586	5% Saturated Boric Acid	1 mL	
REGNT 4372159	6M Hydrochloric Acid/0.52M Hydrofluoric Acid	15 mL	
REGNT 4224853	RASP-6M Hydrochloric Acid	5 mL	
REGNT 4356267.1	Anion Exchange Resin 1x8 100-200 Mesh Resin	3 mL	
REGNT 4375816	RASP- Ethyl Alcohol (80%)	5 mL	
REGNT 4208162	Iron Carrier	2 mL	
REGNT 4323560	Neodymium 500 MG/L in 4% HNO3	.1 mL	
REGNT 4373285	RASP-Neodymium Substrate	5 mL	
REGNT 3943828.12	RASP-Titanium Chloride	.5 mL	
REGNT 4376362	9M Hydrochloric Acid	30 mL	
REGNT 4364508.4	RASP-Ammonium Hydroxide	10 mL	
REGNT 4371728.10	RASP-Hydrochloric Acid	20 mL	
REGNT 4324094.3	RASP-Hydrofluoric Acid	30 mL	
REGNT 4364420.14	Nitric Acid	20 mL	

BATCH NUMBER : 2641120 SAMPLE ID : S0674299006_UU SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : RM3 % YIELD : 103 +/-6.427 %	CHAMBER : 017 DETECTOR S/N : 158179 AVERAGE %EFFICIENCY : 29.9048 AVERAGE %EFF ERROR : 0.5794 COUNT DATE : 19-Jul-2024 08:21:26 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B017.CNF;3502 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W017.CNF;1652 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.5234E+00 dpm		

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
U-232	5302.10	5307.94	24.141	329.000	324.440	4.560	2.1354	100.000	1.67E+01	2.87E+00	5.57E-01	2.01E-01	1.83E+00
U-3/4	4763.02	4734.34	147.801	4.000	0.972	1.920	1.3856	100.000	5.00E-02	2.37E-01	4.70E-01	1.58E-01	2.37E-01
U-235	4391.00	4423.06	44.340	2.000	1.520	0.480	0.6928	80.900	9.66E-02	2.22E-01	3.52E-01	8.07E-02	2.22E-01
U-238	4184.73	4161.26	4.927	5.000	4.280	0.720	0.8485	100.000	2.20E-01	2.53E-01	3.14E-01	7.99E-02	2.52E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.108 +/-0.033)



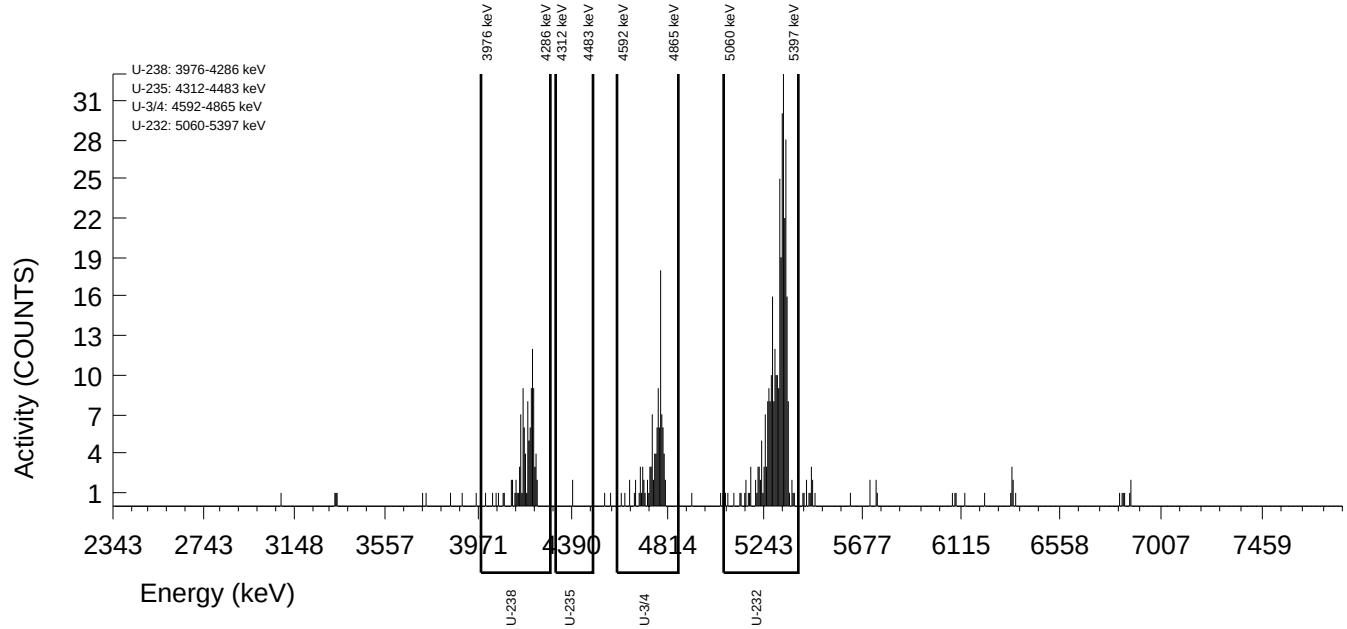
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2641120 SAMPLE ID : S0674299010_UU SAMPLE QTY : 0.116 G +/-0.862 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : RM3 % YIELD : 88.8 +/-6.401 %	CHAMBER : 018 DETECTOR S/N : 80015 AVERAGE %EFFICIENCY : 34.7718 AVERAGE %EFF ERROR : 0.6712 COUNT DATE : 19-Jul-2024 08:21:26 ELAPSED LIVE TIME(SEC) : 14399.99	LIB FILE : UU BKG FILE : B018.CNF;2651 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W018.CNF;752 CAL DATE : 02-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 3.9137E+00 dpm		

NUCLIDE ACTIVITY SUMMARY												1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
U-232	5302.10	5299.95	32.234	330.000	326.400	3.600	1.8974	100.000	1.71E+01	2.94E+00	5.22E-01	1.82E-01	1.87E+00
U-3/4	4763.02	4755.65	7.789	103.000	99.726	2.160	1.4697	100.000	5.23E+00	1.26E+00	4.93E-01	1.68E-01	1.05E+00
U-235	4391.00	4390.43	4.967	2.000	1.520	0.480	0.6928	80.900	9.85E-02	2.27E-01	3.59E-01	8.22E-02	2.26E-01
U-238	4184.73	4181.02	58.363	104.000	102.800	1.200	1.0954	100.000	5.39E+00	1.27E+00	3.68E-01	1.05E-01	1.05E+00

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (1.114 +/-0.033)



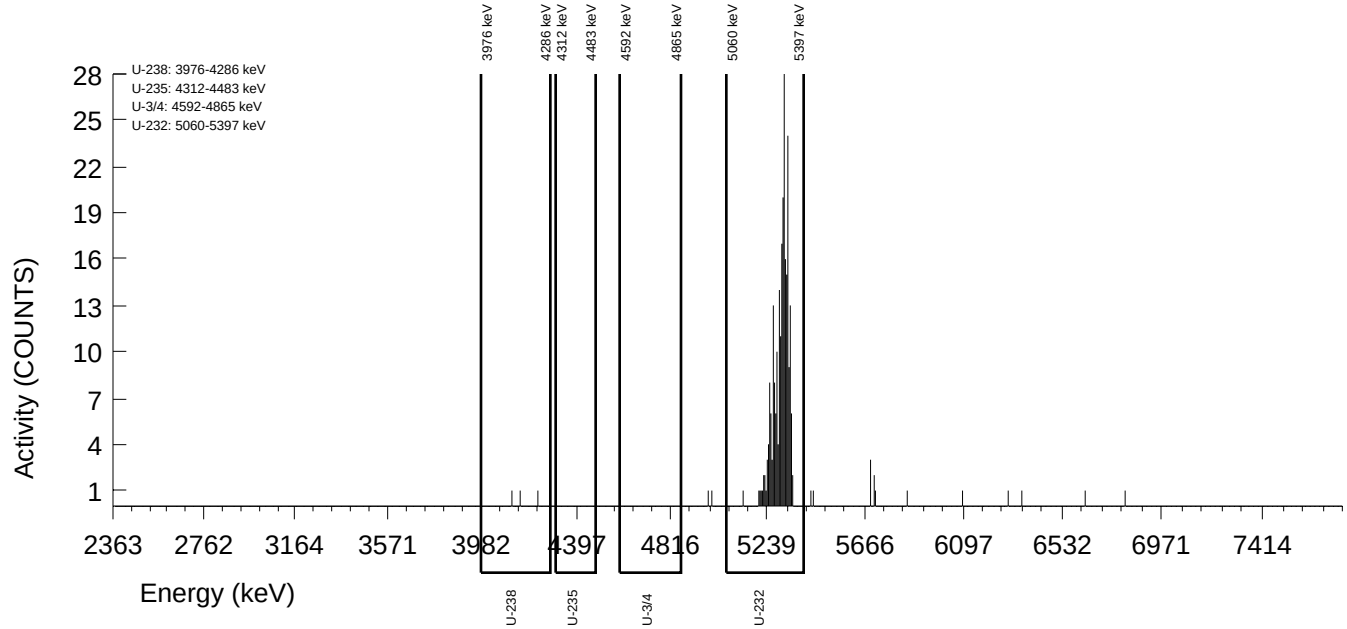
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2641120 SAMPLE ID : S1205790381_UU SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 17-Jul-2024 00:00:00 ANALYST : RM3 % YIELD : 90.6 +/-7.167 %	CHAMBER : 113 DETECTOR S/N : 67598 AVERAGE %EFFICIENCY : 25.7066 AVERAGE %EFF ERROR : 0.5001 COUNT DATE : 19-Jul-2024 08:21:10 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B113.CNF;1997 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W113.CNF;527 CAL DATE : 13-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4069E+00 dpm RESULTS : 3.9941E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY	PEAK	PEAK	GROSS	NET	BKG	BKG	%ABUN	ACTIVITY		TPU	MDA	Lc	cnt Unc
	ENERGY	ENERGY	FWHM	AREA	AREA	AREA	StDev		pCi/G		pCi/G	pCi/G	pCi/G	pCi/G
U-232	5302.10	5299.14	30.563	250.000	246.400	3.600	1.8974	100.000	1.67E+01		3.23E+00	6.74E-01	2.35E-01	2.11E+00
U-3/4	4763.02	4728.36	0.000	0.000	-2.041	1.200	1.0954	100.000	-1.38E-01		1.54E-01	5.43E-01	1.70E-01	1.54E-01
U-235	4391.00	4397.19	0.000	0.000	-0.240	0.240	0.4899	80.900	-2.01E-02		1.74E-01	4.01E-01	7.51E-02	1.73E-01
U-238	4184.73	4166.41	113.993	3.000	1.560	1.440	1.2000	100.000	1.06E-01		2.79E-01	5.01E-01	1.49E-01	2.78E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.841 +/-0.025)



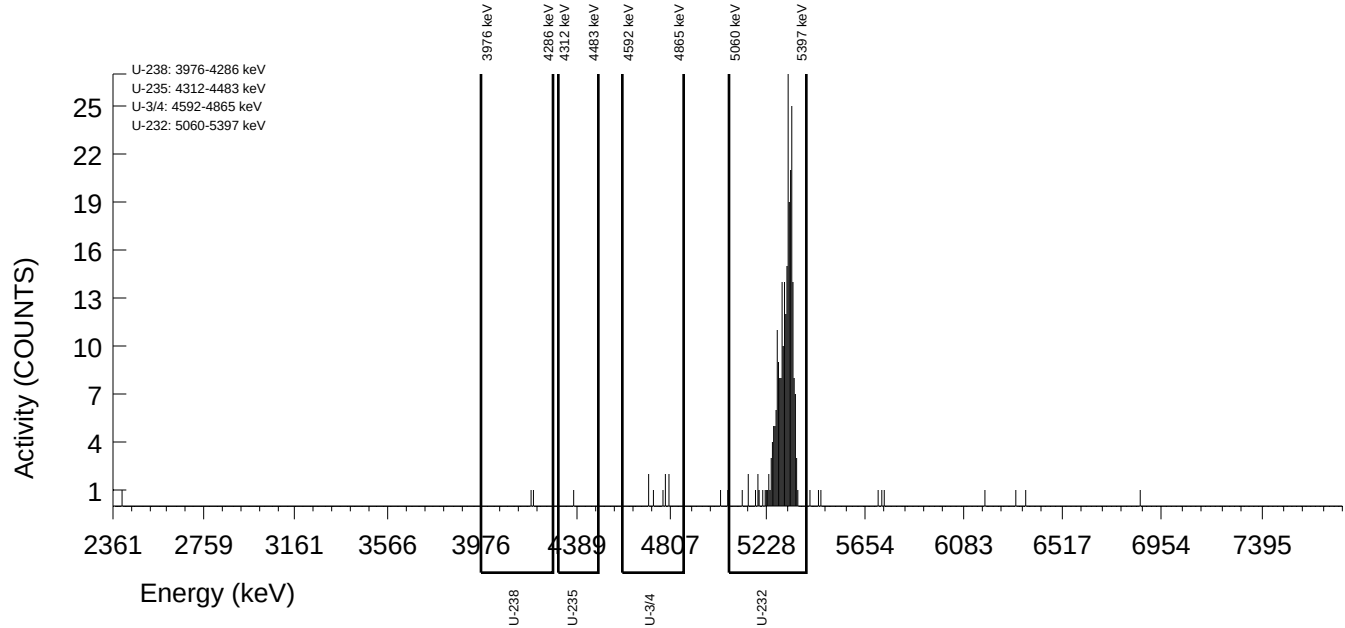
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2641120 SAMPLE ID : S1205790382_UU SAMPLE QTY : 0.112 G +/-0.893 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : RM3 % YIELD : 94.3 +/-6.966 %	CHAMBER : 117 DETECTOR S/N : 80003 AVERAGE %EFFICIENCY : 26.2255 AVERAGE %EFF ERROR : 0.5100 COUNT DATE : 19-Jul-2024 08:21:12 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : UU BKG FILE : B117.CNF;1993 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W117.CNF;520 CAL DATE : 13-Jul-2024
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4095E+00 dpm RESULTS : 4.1583E+00 dpm		

NUCLIDE ACTIVITY SUMMARY												1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
U-232	5302.10	5303.14	45.339	263.000	261.560	1.440	1.2000	100.000	1.77E+01	3.33E+00	5.01E-01	1.49E-01	2.16E+00
U-3/4	4763.02	4758.39	89.030	8.000	6.147	0.960	0.9798	100.000	4.17E-01	4.10E-01	5.25E-01	1.61E-01	4.05E-01
U-235	4391.00	4378.95	4.946	1.000	0.520	0.480	0.6928	80.900	4.36E-02	2.42E-01	4.64E-01	1.06E-01	2.42E-01
U-238	4184.73	4197.57	14.838	2.000	0.320	1.680	1.2961	100.000	2.17E-02	2.47E-01	5.25E-01	1.61E-01	2.47E-01

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.893 +/-0.027)



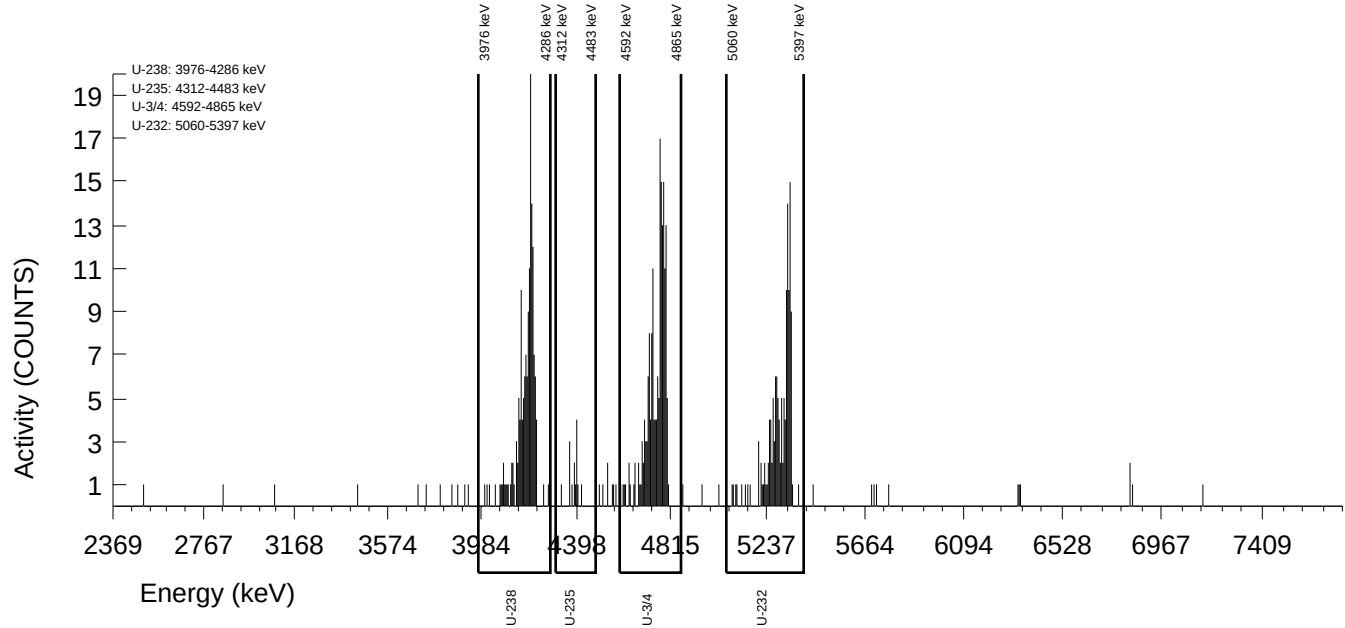
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-011

BATCH NUMBER : 2641120 SAMPLE ID : S1205790383_UU SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 17-Jul-2024 00:00:00 ANALYST : RM3 % YIELD : 49.1 +/-9.247 %		CHAMBER : 125 DETECTOR S/N : 84060 AVERAGE %EFFICIENCY : 26.1623 AVERAGE %EFF ERROR : 0.5087 COUNT DATE : 19-Jul-2024 08:21:15 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : UU BKG FILE : B125.CNF;2000 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W125.CNF;550 CAL DATE : 13-Jul-2024	
TRACER ID : 1564-JJ NUCLIDE : U-232 NOMINAL : 4.4069E+00 dpm RESULTS : 2.1636E+00 dpm		LCS ID 1600-R NUCLIDE U-238 NOMINAL (pCi/G) 2.2542E+01 % RECOVERY 84.979			

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY	PEAK	PEAK	GROSS	NET	BKG	BKG	%ABUN	ACTIVITY	TPU	MDA	Lc	cnt Unc
	ENERGY	ENERGY	FWHM	AREA	AREA	AREA	StDev		pCi/G	pCi/G	pCi/G	pCi/G	pCi/G
U-232	5302.10	5289.59	22.751	138.000	135.840	2.160	1.4697	100.000	1.67E+01	4.21E+00	1.03E+00	3.31E-01	2.84E+00
U-3/4	4763.02	4749.32	61.252	179.000	176.616	1.920	1.3856	100.000	2.17E+01	5.18E+00	1.05E+00	3.41E-01	3.23E+00
U-235	4391.00	4389.75	34.590	14.000	13.760	0.240	0.4899	80.900	2.09E+00	1.22E+00	7.28E-01	1.36E-01	1.16E+00
U-238	4184.73	4177.43	19.271	156.000	156.000	0.000	1.0000	100.000	1.92E+01	4.67E+00	3.68E-01	2.25E-01	3.02E+00

NOTES:
* Correction made to the following net area
due to tracer impurity:
U-3/4 (0.464 +/-0.014)



Batch 2641153 Check-list

This check-list was completed on 19-JUL-24 by Melanie Aycock

This batch was reviewed by Melanie Aycock on 19-JUL-24 and Jessica Davis on 23-JUL-24.

Batch ID: 2641153

Product: ASP__THS

Description: Alpha Spec Thorium GL-RAD-A-038

#	Criteria	Yes	No	Comments
Preparation Information				
1	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
2	Are instrument source checks within limits?	Yes		
3	Have samples been blank corrected?		No	
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Were manual integrations performed on any sample or QC data files in this batch?		No	
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Thorium

Batch ID: 2641153

Analyst: Alexander Gauger (AG2)

Method: DOE EML HASL-300, Th-01-RC
Modified

Lab SOP: GL-RAD-A-038 REV# 19

Instrument: BAL-C326419771

Due Dates for Lab: 31-JUL-2024

Package: 01-AUG-2024

SDG: 02-AUG-2024

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205790432	Thorium-232 AS SPIKE	1513-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)
1	674299006	17-JUL-2024	1	Dry to Dry	0.142	0.142
2	674299010	17-JUL-2024	1	Dry to Dry	0.111	0.111
3	1205790430 MB	17-JUL-2024	1	Dry to Wet		0.142
4	1205790431 DUP (674299006)	17-JUL-2024	1	Dry to Dry	0.14	0.14
5	1205790432 LCS	17-JUL-2024	1	Dry to Wet		0.142

Reagent/Solvent Lot ID	Description	Amount	Comments:
WORK 1845-J	Thorium-229 AS TRACER, RASP	.1 mL	Pipet ID: RAD-ASP-184002Z Data Entry Date2: 17-JUL-2024 00:00
REGNT 4355090	Acetone	1 mL	
REGNT 4351215.2	Hydrogen Peroxide 30% ACS Reagent	3 mL	
REGNT 4363411	RASP-2M Hydrochloric Acid	4 mL	
REGNT 4316586	5% Saturated Boric Acid	1 mL	
REGNT 4356267.1	Anion Exchange Resin 1x8 100-200 Mesh Resin	3 mL	
REGNT 4375816	RASP- Ethyl Alcohol (80%)	5 mL	
REGNT 4208162	Iron Carrier	2 mL	
REGNT 4323560	Neodymium 500 MG/L in 4% HNO3	.1 mL	
REGNT 4373285	RASP-Neodymium Substrate	5 mL	
REGNT 4373865	8M Nitric Acid	30 mL	
REGNT 4376362	9M Hydrochloric Acid	20 mL	
REGNT 4364508.4	RASP-Ammonium Hydroxide	10 mL	
REGNT 4371728.10	RASP-Hydrochloric Acid	20 mL	
REGNT 4324094.3	RASP-Hydrofluoric Acid	30 mL	
REGNT 4364420.14	Nitric Acid	20 mL	

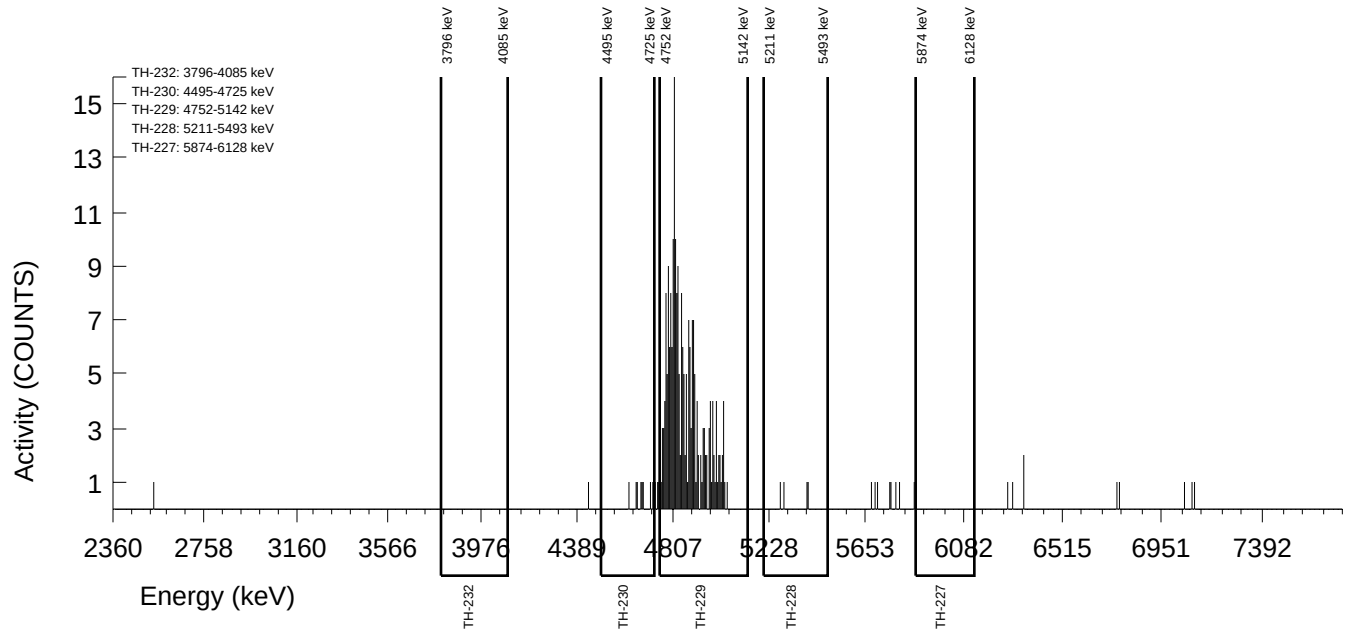
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2641153 SAMPLE ID : S0674299006_TH SAMPLE QTY : 0.142 G +/-0.704 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : AG2 % YIELD : 87.7 +/-7.096 %	CHAMBER : 207 DETECTOR S/N : 158102 AVERAGE %EFFICIENCY : 26.4171 AVERAGE %EFF ERROR : 0.5136 COUNT DATE : 19-Jul-2024 10:08:56 ELAPSED LIVE TIME(SEC) : 12338.54	LIB FILE : TH BKG FILE : B207.CNF;1646 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W207.CNF;412 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.2461E+00 dpm		

NUCLIDE ACTIVITY SUMMARY												1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	1.96-sigma TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
TH-227	5994.04	6000.76	0.000	0.000	-1.439	1.439	1.1998	57.440	-3.99E-01	6.29E-01	2.03E+00	6.00E-01	6.28E-01
TH-228	5363.00	5344.56	118.898	4.000	2.965	1.028	1.0140	99.940	2.02E-01	3.08E-01	4.55E-01	1.25E-01	3.06E-01
TH-229	4900.00	4864.39	42.110	231.000	229.561	1.439	1.1998	99.520	1.54E+01	2.99E+00	4.91E-01	1.45E-01	2.00E+00
TH-230	4671.39	4673.31	0.000	8.000	5.590	1.028	1.0140	99.700	3.73E-01	4.04E-01	5.56E-01	1.78E-01	3.98E-01
TH-232	3972.00	3940.45	0.000	0.000	-1.532	1.439	1.1998	100.000	-1.02E-01	1.51E-01	4.96E-01	1.48E-01	1.51E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.381 +/-0.021)
TH-232 (0.092 +/-0.001)



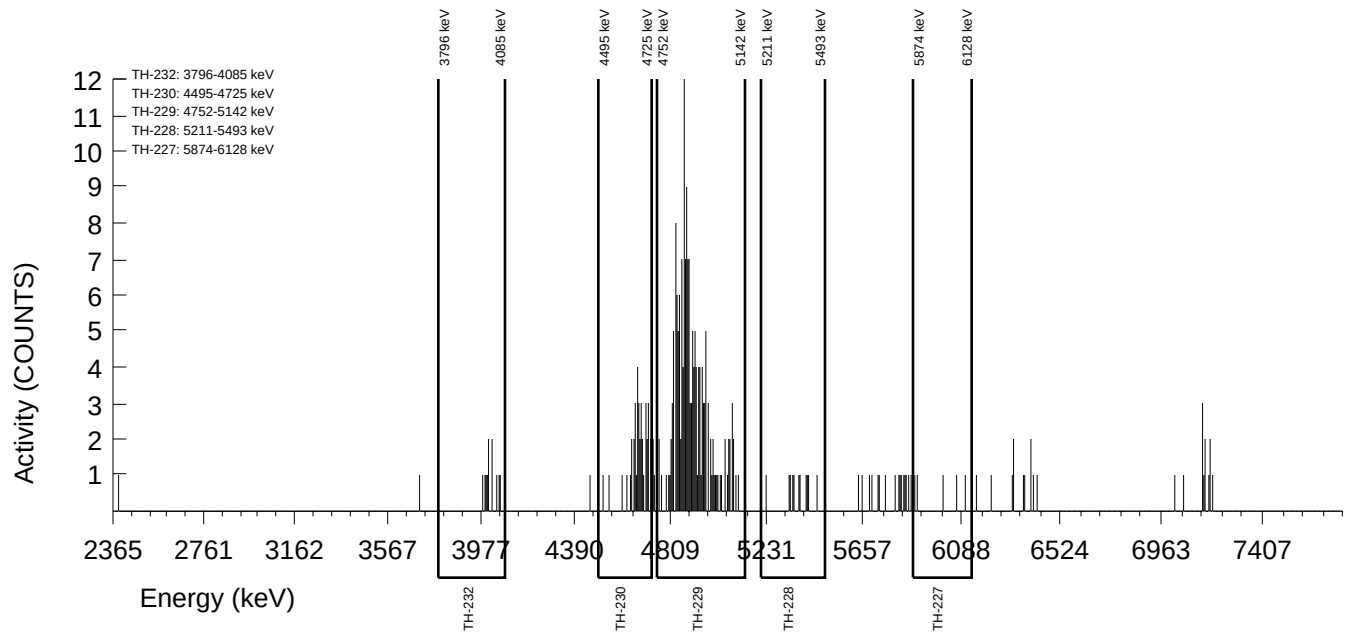
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2641153 SAMPLE ID : S0674299010_TH SAMPLE QTY : 0.111 G +/-0.901 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : AG2 % YIELD : 63.1 +/-8.089 %	CHAMBER : 031 DETECTOR S/N : 155850 AVERAGE %EFFICIENCY : 32.8524 AVERAGE %EFF ERROR : 0.6350 COUNT DATE : 19-Jul-2024 10:43:02 ELAPSED LIVE TIME(SEC) : 10346.03	LIB FILE : TH BKG FILE : B031.CNF;2678 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W031.CNF;738 CAL DATE : 03-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.0528E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	5991.03	207.025	5.000	0.172	4.828	2.1973	57.440	8.12E-02		2.43E+00	5.12E+00	1.85E+00	2.43E+00
TH-228	5363.00	5367.56	211.954	11.000	10.478	0.517	0.7192	99.940	1.22E+00		8.19E-01	6.48E-01	1.50E-01	7.94E-01
TH-229	4900.00	4905.86	56.685	174.000	172.103	1.897	1.3772	99.520	1.96E+01		4.38E+00	9.02E-01	2.80E-01	2.96E+00
TH-230	4671.39	4668.47	60.793	38.000	36.102	0.862	0.9285	99.700	4.11E+00		1.56E+00	8.78E-01	2.68E-01	1.40E+00
TH-232	3972.00	4022.63	22.181	11.000	10.241	0.690	0.8305	100.000	1.16E+00		7.99E-01	6.91E-01	1.75E-01	7.76E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.005 +/-0.000)
TH-230 (1.036 +/-0.016)
TH-232 (0.069 +/-0.001)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

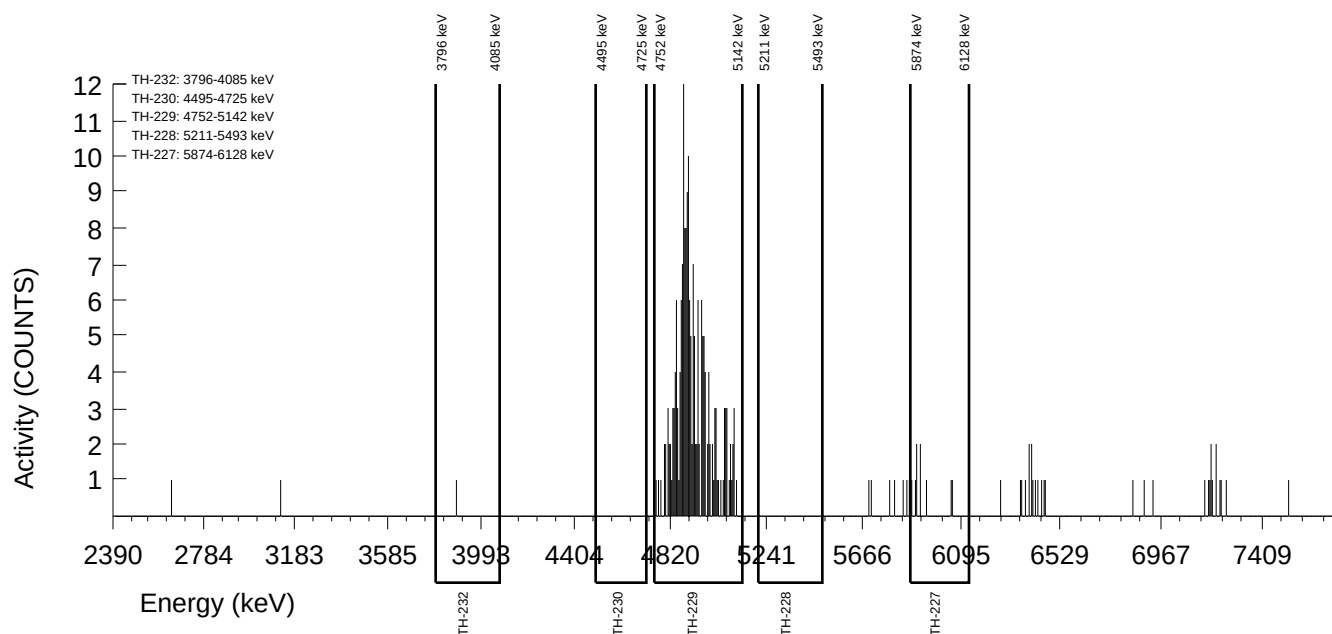
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2641153 SAMPLE ID : S1205790430_TH SAMPLE QTY : 0.142 G +/-0.704 % SAMPLE DATE : 17-Jul-2024 00:00:00 ANALYST : AG2 % YIELD : 76.3 +/-7.575 %	CHAMBER : 032 DETECTOR S/N : 155849 AVERAGE %EFFICIENCY : 31.1135 AVERAGE %EFF ERROR : 0.6022 COUNT DATE : 19-Jul-2024 10:43:02 ELAPSED LIVE TIME(SEC) : 10357.69	LIB FILE : TH BKG FILE : B032.CNF;2675 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W032.CNF;729 CAL DATE : 03-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.6913E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt	Unc pCi/G
TH-227	5994.04	5934.06	22.036	10.000	2.059	7.941	2.8180	57.440	3.05E-01	1.02E+00	1.93E+00	7.43E-01	1.02E+00	1.02E+00
TH-228	5363.00	5351.76	0.000	0.000	-1.214	1.208	1.0993	99.940	-9.43E-02	1.70E-01	5.38E-01	1.52E-01	1.69E-01	1.69E-01
TH-229	4900.00	4925.90	51.417	198.000	197.309	0.691	0.8310	99.520	1.54E+01	3.20E+00	4.64E-01	1.15E-01	2.15E+00	2.15E+00
TH-230	4671.39	4609.90	0.000	0.000	-1.878	0.691	0.8310	99.700	-1.46E-01	1.64E-01	5.94E-01	1.81E-01	1.63E-01	1.63E-01
TH-232	3972.00	3890.39	4.897	1.000	0.748	0.173	0.4155	100.000	5.79E-02	2.18E-01	3.68E-01	6.76E-02	2.18E-01	2.18E-01

NOTES:

* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.006 +/-0.000)
TH-230 (1.187 +/-0.018)
TH-232 (0.079 +/-0.001)



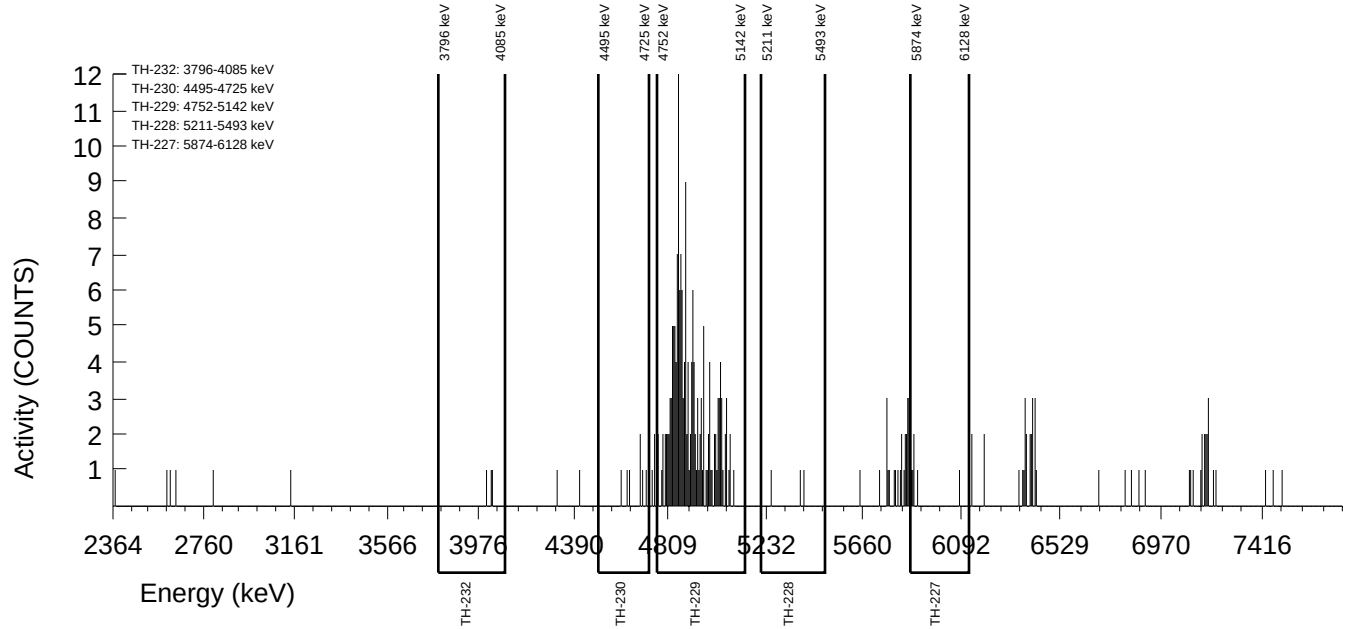
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2641153 SAMPLE ID : S1205790431_TH SAMPLE QTY : 0.140 G +/-0.714 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : AG2 % YIELD : 59.4 +/-8.100 %	CHAMBER : 034 DETECTOR S/N : 147828 AVERAGE %EFFICIENCY : 34.5383 AVERAGE %EFF ERROR : 0.6668 COUNT DATE : 19-Jul-2024 10:43:02 ELAPSED LIVE TIME(SEC) : 10367.57	LIB FILE : TH BKG FILE : B034.CNF;2666 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W034.CNF;705 CAL DATE : 03-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 2.8756E+00 dpm		

NUCLIDE ACTIVITY SUMMARY												1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	1.96-sigma TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
TH-227	5994.04	5919.35	7.386	6.000	-0.048	6.048	2.4592	57.440	-1.80E-02	2.10E+00	4.44E+00	1.65E+00	2.10E+00
TH-228	5363.00	5349.10	137.881	3.000	1.613	1.382	1.1757	99.940	1.50E-01	3.77E-01	6.69E-01	1.95E-01	3.76E-01
TH-229	4900.00	4902.26	38.222	172.000	170.790	1.210	1.0998	99.520	1.56E+01	3.47E+00	6.31E-01	1.79E-01	2.35E+00
TH-230	4671.39	4660.87	4.924	7.000	5.108	0.864	0.9295	99.700	4.65E-01	5.18E-01	7.01E-01	2.14E-01	5.10E-01
TH-232	3972.00	4022.09	29.546	3.000	2.586	0.346	0.5879	100.000	2.35E-01	3.62E-01	4.78E-01	1.03E-01	3.60E-01

NOTES:
* Corrections made to the following net areas
due to tracer impurity:
TH-228 (0.005 +/-0.000)
TH-230 (1.028 +/-0.016)
TH-232 (0.069 +/-0.001)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

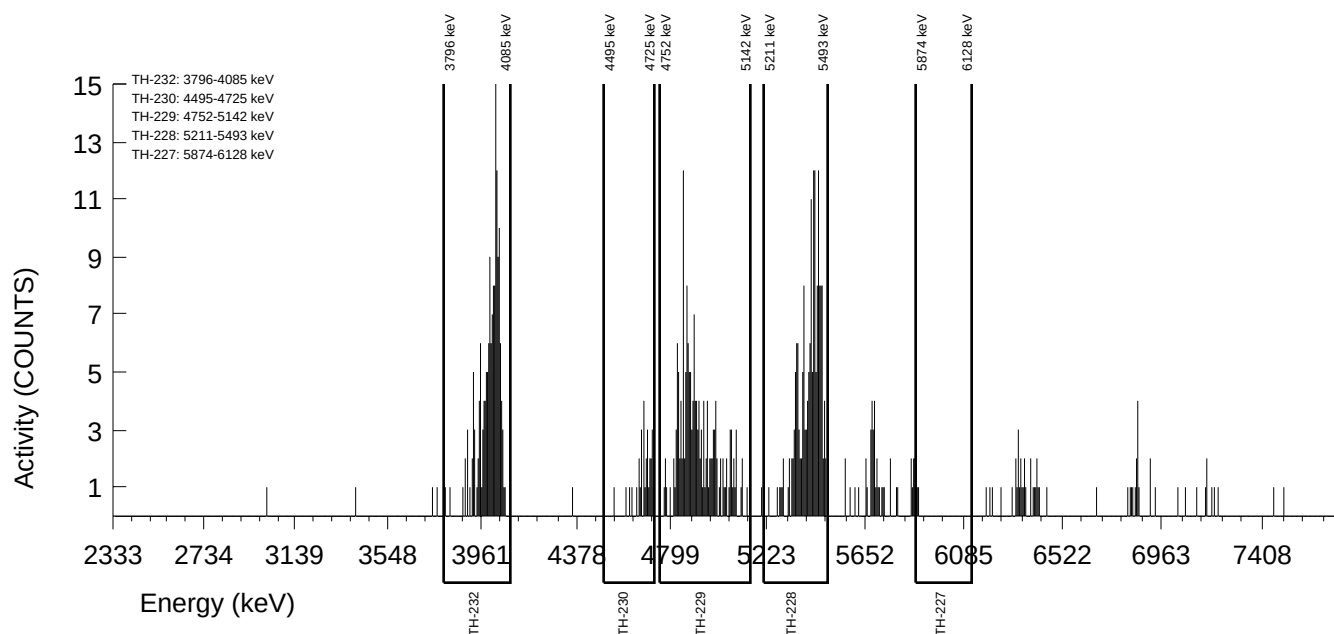
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2641153 SAMPLE ID : S1205790432_TH SAMPLE QTY : 0.142 G +/-0.704 % SAMPLE DATE : 17-Jul-2024 00:00:00 ANALYST : AG2 % YIELD : 66.2 +/-8.390 %	CHAMBER : 035 DETECTOR S/N : 147877 AVERAGE %EFFICIENCY : 29.2613 AVERAGE %EFF ERROR : 0.5673 COUNT DATE : 19-Jul-2024 10:43:02 ELAPSED LIVE TIME(SEC) : 10371.29	LIB FILE : TH BKG FILE : B035.CNF;2654 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 59999.99 EFF FILE : W035.CNF;759 CAL DATE : 03-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.2024E+00 dpm	LCS ID 1513-J NUCLIDE TH-232 NOMINAL (pCi/G) 1.3993E+01 % RECOVERY 107.313	

NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	1.96-sigma TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
TH-227	5994.04	5880.41	0.000	4.000	-1.013	5.013	2.2389	57.440	-1.83E-01	8.62E-01	1.99E+00	7.22E-01	8.62E-01
TH-228	5363.00	5407.49	79.765	172.000	170.958	1.037	1.0184	99.940	1.63E+01	3.69E+00	6.31E-01	1.73E-01	2.45E+00
TH-229	4900.00	4917.80	49.521	165.000	161.197	3.803	1.9501	99.520	1.54E+01	3.55E+00	9.48E-01	3.31E-01	2.41E+00
TH-230	4671.39	4674.35	49.853	30.000	27.647	1.383	1.1759	99.700	2.63E+00	1.14E+00	7.89E-01	2.52E-01	1.04E+00
TH-232	3972.00	3995.88	45.491	159.000	158.417	0.519	0.7201	100.000	1.50E+01	3.46E+00	5.40E-01	1.28E-01	2.35E+00

NOTES:

* Corrections made to the following net areas due to tracer impurity:
 TH-228 (0.005 +/-0.000)
 TH-230 (0.970 +/-0.015)
 TH-232 (0.065 +/-0.001)



Batch 2640431 Check-list

This check-list was completed on 19-JUL-24 by Melanie Aycock

This batch was reviewed by Melanie Aycock on 19-JUL-24 and Jessica Davis on 23-JUL-24.

Batch ID: 2640431

Product: ASP__THS

Description: Alpha Spec Thorium GL-RAD-A-038

#	Criteria	Yes	No	Comments
Preparation Information				
1	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
2	Are instrument source checks within limits?	Yes		
3	Have samples been blank corrected?		No	
4	Has an Aliquot Correction been completed for this batch?		No	
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were all the samples prepared/analyzed within the required holding time period?	Yes		
7	Are any sample results more negative than 3xTPU?		No	
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were all tracer/carrier recoveries within the required acceptance limits?	Yes		
10	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
11	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
12	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
13	Were manual integrations performed on any sample or QC data files in this batch?		No	
14	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Thorium

Batch ID: 2640431

Analyst: Chandler Metts (CM4)

Prep: Ryan Monroe (RM3)

Method: DOE EML HASL-300, Th-01-RC
Modified

Lab SOP: GL-RAD-A-038 REV# 19

Instrument: BAL-C409669499

Due Dates for Lab: 31-JUL-2024

Package: 01-AUG-2024

SDG: 02-AUG-2024

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205789025	Thorium-232 AS SPIKE	1513-J	.1	mL

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)
1	674299011	16-JUL-2024	1	Dry to Dry	0.115	0.115
2	674299012	16-JUL-2024	1	Dry to Dry	0.102	0.102
3	674299013	16-JUL-2024	1	Dry to Dry	0.103	0.103
4	674299016	16-JUL-2024	1	Dry to Dry	0.114	0.114
5	674299019	16-JUL-2024	1	Dry to Dry	0.101	0.101
6	674299020	16-JUL-2024	1	Dry to Dry	0.106	0.106
7	674299022	16-JUL-2024	1	Dry to Dry	0.119	0.119
8	674299027	16-JUL-2024	1	Dry to Dry	0.111	0.111
9	674299030	16-JUL-2024	1	Dry to Dry	0.114	0.114
10	674299031	16-JUL-2024	1	Dry to Dry	0.107	0.107
11	674299033	16-JUL-2024	1	Dry to Dry	0.112	0.112
12	674299034	16-JUL-2024	1	Dry to Dry	0.102	0.102
13	674299037	16-JUL-2024	1	Dry to Dry	0.103	0.103
14	1205789023 MB	16-JUL-2024	1	Dry to Wet		0.119
15	1205789024 DUP (674299011)	16-JUL-2024	1	Dry to Dry	0.104	0.104
16	1205789025 LCS	16-JUL-2024	1	Dry to Wet		0.119

Reagent/Solvent Lot ID	Description	Amount	Comments:
WORK 1845-J	Thorium-229 AS TRACER, RASP	.1 mL	Pipet ID: RAD-ASP-184002Z Data Entry Date2: 16-JUL-2024 00:00
REGNT 4355090	Acetone	1 mL	
REGNT 4351215.2	Hydrogen Peroxide 30% ACS Reagent	3 mL	
REGNT 4363411	RASP-2M Hydrochloric Acid	4 mL	
REGNT 4316586	5% Saturated Boric Acid	1 mL	
REGNT 4356267.1	Anion Exchange Resin 1x8 100-200 Mesh Resin	3 mL	
REGNT 4375816	RASP- Ethyl Alcohol (80%)	5 mL	
REGNT 4208162	Iron Carrier	2 mL	
REGNT 4323560	Neodymium 500 MG/L in 4% HNO3	.1 mL	
REGNT 4373285	RASP-Neodymium Substrate	5 mL	
REGNT 4373865	8M Nitric Acid	30 mL	
REGNT 4374162	9M Hydrochloric Acid	20 mL	
REGNT 4364508.4	RASP-Ammonium Hydroxide	10 mL	
REGNT 4371728.10	RASP-Hydrochloric Acid	20 mL	
REGNT 4324094.3	RASP-Hydrofluoric Acid	30 mL	
REGNT 4364420.14	Nitric Acid	20 mL	

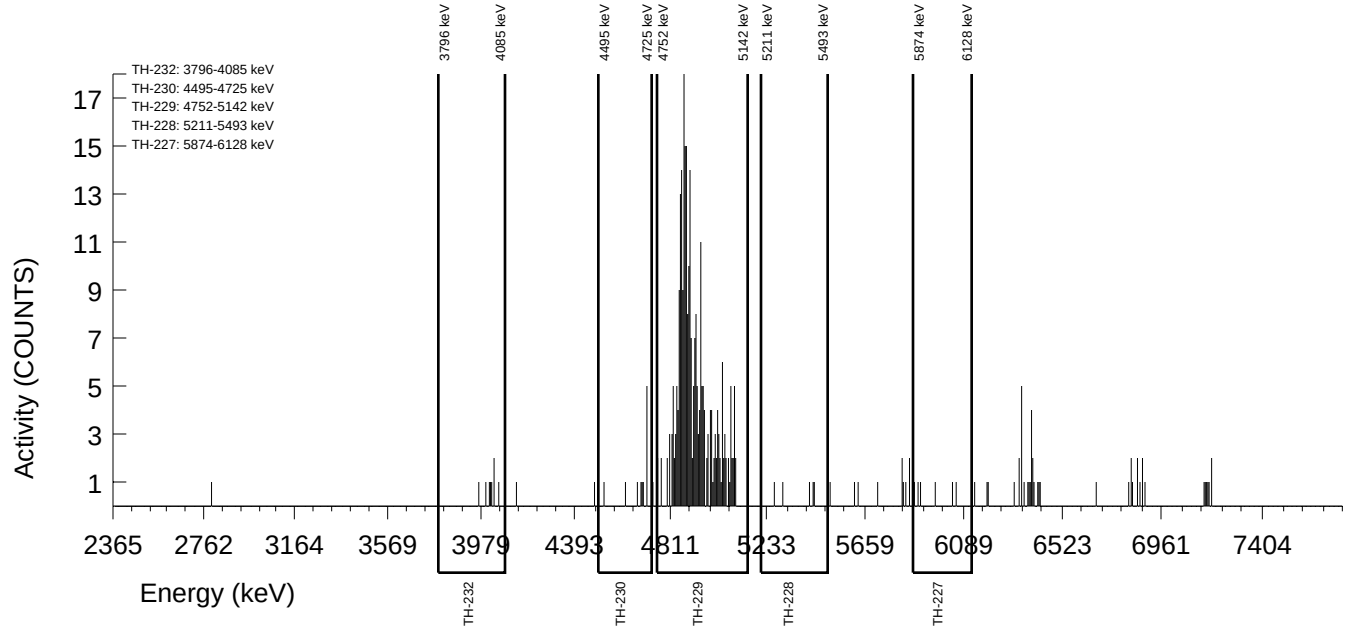
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299011_TH SAMPLE QTY : 0.115 G +/-0.870 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 92.4 +/-6.461 %		CHAMBER : 197 DETECTOR S/N : 140621 AVERAGE %EFFICIENCY : 26.5832 AVERAGE %EFF ERROR : 0.5167 COUNT DATE : 18-Jul-2024 10:28:36 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : TH BKG FILE : B197.CNF;1636 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W197.CNF;135 CAL DATE : 21-Jun-2024	
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.4736E+00 dpm					

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY	PEAK	PEAK	GROSS	NET	BKG	BKG	%ABUN	ACTIVITY	TPU	MDA	Lc	cnt Unc
	ENERGY	ENERGY	FWHM	AREA	AREA	AREA	StDev		pCi/G	pCi/G	pCi/G	pCi/G	pCi/G
TH-227	5994.04	5947.15	0.000	7.000	3.640	3.360	1.8330	57.440	9.70E-01	1.56E+00	2.59E+00	8.95E-01	1.56E+00
TH-228	5363.00	5371.88	168.073	5.000	2.832	2.160	1.4697	99.940	1.92E-01	3.43E-01	5.70E-01	1.83E-01	3.42E-01
TH-229	4900.00	4914.52	90.627	285.000	284.040	0.960	0.9798	99.520	1.90E+01	3.36E+00	4.40E-01	1.20E-01	2.21E+00
TH-230	4671.39	4675.46	4.943	12.000	8.611	1.680	1.2961	99.700	5.74E-01	4.88E-01	6.27E-01	2.13E-01	4.79E-01
TH-232	3972.00	4019.70	4.943	8.000	6.926	0.960	0.9798	100.000	4.60E-01	4.02E-01	4.49E-01	1.25E-01	3.97E-01

NOTES:
* Corrections made to the following net areas
due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.709 +/-0.026)
TH-232 (0.114 +/-0.002)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

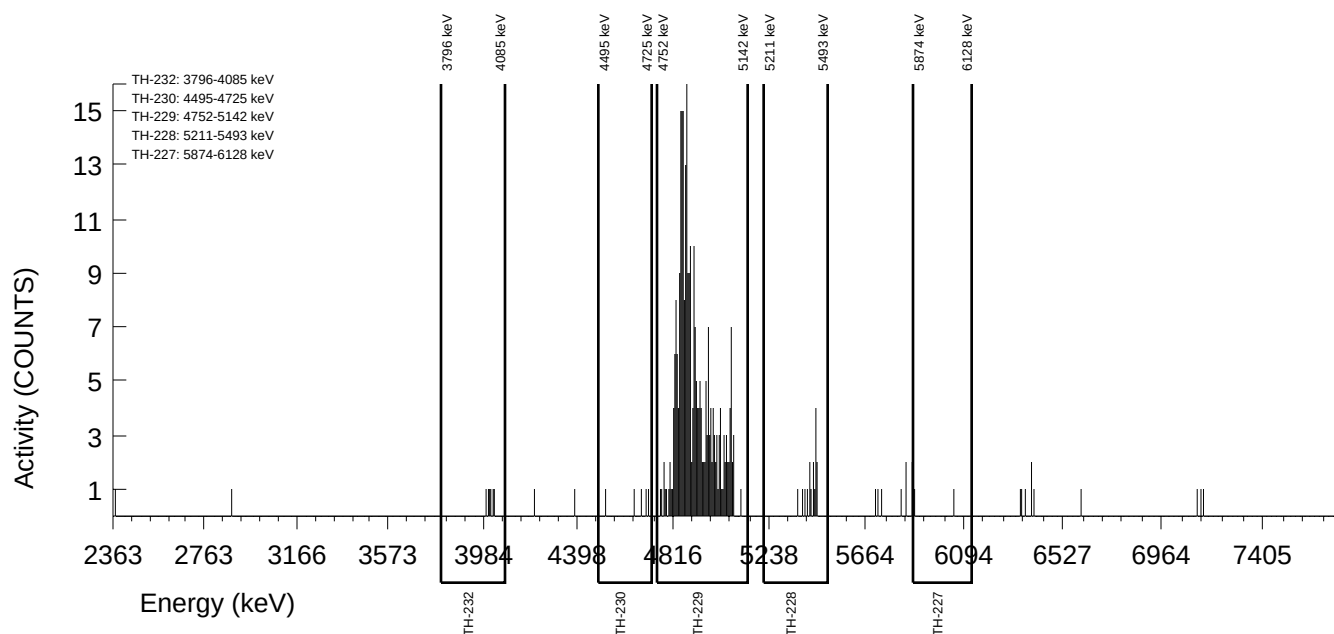
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299012_TH SAMPLE QTY : 0.102 G +/-0.980 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 92.5 +/-6.492 %	CHAMBER : 199 DETECTOR S/N : 140623 AVERAGE %EFFICIENCY : 26.3791 AVERAGE %EFF ERROR : 0.5128 COUNT DATE : 18-Jul-2024 10:28:37 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B199.CNF;1633 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W199.CNF;134 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.4771E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	5964.30	163.969	2.000	1.520	0.480	0.6928	57.440	4.60E-01	1.06E+00	1.68E+00	3.84E-01	1.06E+00
TH-228	5363.00	5413.48	8.281	17.000	15.072	1.920	1.3856	99.940	1.16E+00	6.69E-01	6.24E-01	1.96E-01	6.51E-01
TH-229	4900.00	4913.24	63.931	284.000	282.080	1.920	1.3856	99.520	2.14E+01	3.81E+00	6.12E-01	1.92E-01	2.51E+00
TH-230	4671.39	4652.80	183.844	5.000	2.823	0.480	0.6928	99.700	2.14E-01	3.71E-01	6.04E-01	1.88E-01	3.68E-01
TH-232	3972.00	4018.07	39.750	6.000	5.646	0.240	0.4899	100.000	4.26E-01	3.99E-01	3.85E-01	7.95E-02	3.94E-01

NOTES:

* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.697 +/-0.026)
TH-232 (0.114 +/-0.002)



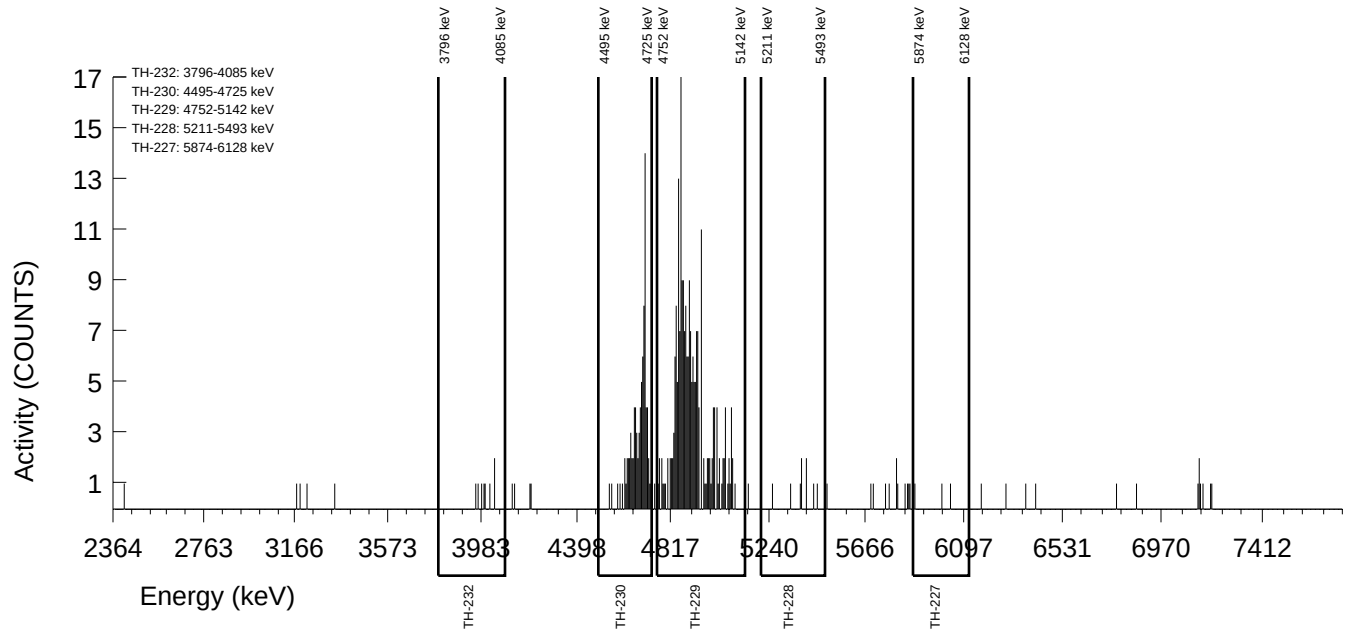
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299013_TH SAMPLE QTY : 0.103 G +/-0.971 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 76.7 +/-7.064 %	CHAMBER : 200 DETECTOR S/N : 101464 AVERAGE %EFFICIENCY : 26.2508 AVERAGE %EFF ERROR : 0.5104 COUNT DATE : 18-Jul-2024 10:28:41 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B200.CNF;1647 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W200.CNF;456 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.7136E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	5978.03	148.853	3.000	1.560	1.440	1.2000	57.440	5.66E-01		1.50E+00	2.68E+00	7.98E-01	1.49E+00
TH-228	5363.00	5386.68	27.290	9.000	7.793	1.200	1.0954	99.940	7.21E-01		5.93E-01	6.50E-01	1.86E-01	5.84E-01
TH-229	4900.00	4905.71	98.192	235.000	232.840	2.160	1.4697	99.520	2.12E+01		4.11E+00	7.62E-01	2.45E-01	2.74E+00
TH-230	4671.39	4672.48	10.916	86.000	84.119	0.480	0.6928	99.700	7.63E+00		2.01E+00	6.94E-01	2.11E-01	1.66E+00
TH-232	3972.00	4000.11	4.962	8.000	7.906	0.000	1.0000	100.000	7.15E-01		5.44E-01	3.63E-01	1.72E-01	5.34E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.401 +/-0.022)
TH-232 (0.094 +/-0.001)



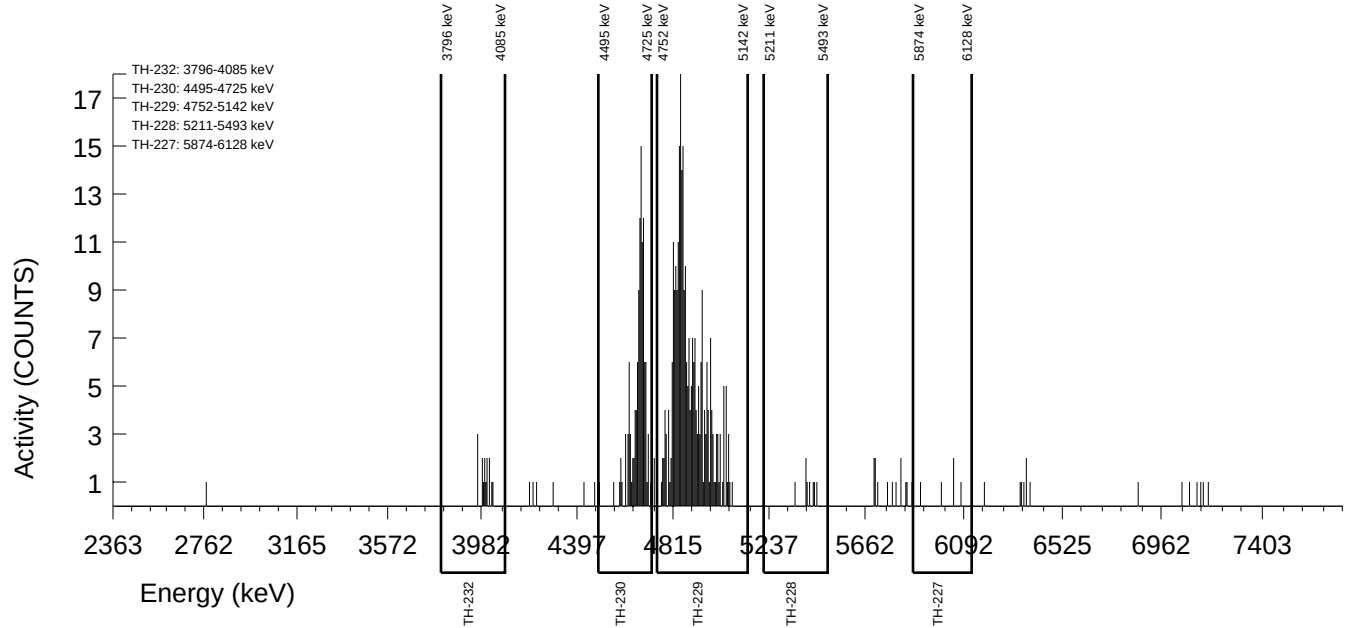
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299016_TH SAMPLE QTY : 0.114 G +/-0.877 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 96.8 +/-6.382 %	CHAMBER : 203 DETECTOR S/N : 140626 AVERAGE %EFFICIENCY : 26.2079 AVERAGE %EFF ERROR : 0.5095 COUNT DATE : 18-Jul-2024 10:28:42 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B203.CNF;533 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W203.CNF;134 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.6859E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	6015.37	4.967	5.000	4.760	0.240	0.4899	57.440	1.24E+00		1.27E+00	1.25E+00	2.34E-01	1.26E+00
TH-228	5363.00	5412.57	7.450	8.000	5.831	2.160	1.4697	99.940	3.87E-01		4.06E-01	5.57E-01	1.79E-01	4.03E-01
TH-229	4900.00	4892.69	52.895	295.000	293.320	1.680	1.2961	99.520	1.91E+01		3.35E+00	5.05E-01	1.55E-01	2.20E+00
TH-230	4671.39	4665.28	26.075	116.000	113.515	0.720	0.8485	99.700	7.39E+00		1.70E+00	5.44E-01	1.75E-01	1.38E+00
TH-232	3972.00	3993.77	53.392	15.000	13.922	0.960	0.9798	100.000	9.03E-01		5.27E-01	4.39E-01	1.22E-01	5.13E-01

NOTES:
* Corrections made to the following net areas
due to tracer impurity:
TH-228 (0.009 +/-0.000)
TH-230 (1.765 +/-0.027)
TH-232 (0.118 +/-0.002)



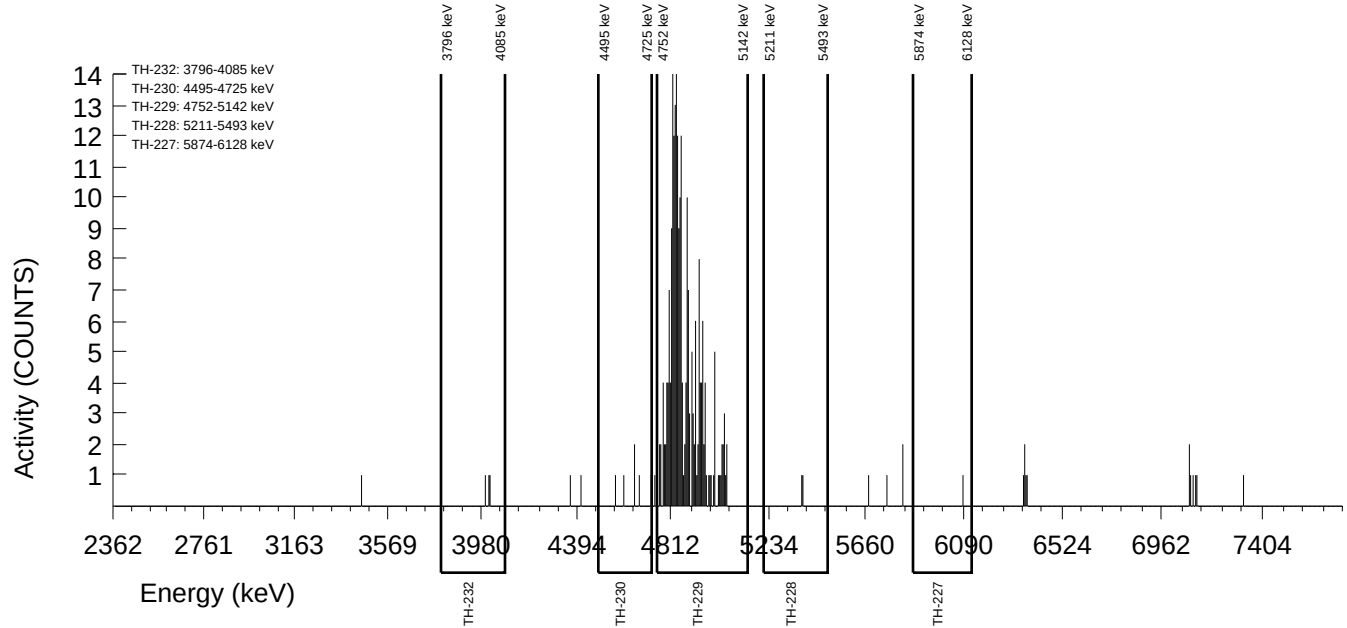
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299019_TH SAMPLE QTY : 0.101 G +/-0.990 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 78.3 +/-7.010 %	CHAMBER : 205 DETECTOR S/N : 140628 AVERAGE %EFFICIENCY : 26.0349 AVERAGE %EFF ERROR : 0.5063 COUNT DATE : 18-Jul-2024 10:28:45 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B205.CNF;1637 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W205.CNF;420 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.7920E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	6090.19	4.955	1.000	0.520	0.480	0.6928	57.440	1.90E-01		1.06E+00	2.02E+00	4.64E-01	1.06E+00
TH-228	5363.00	5385.49	9.911	2.000	0.313	1.680	1.2961	99.940	2.92E-02		3.40E-01	7.23E-01	2.22E-01	3.40E-01
TH-229	4900.00	4870.41	117.197	237.000	235.800	1.200	1.0954	99.520	2.16E+01		4.16E+00	6.42E-01	1.84E-01	2.77E+00
TH-230	4671.39	4643.46	4.955	6.000	4.101	0.480	0.6928	99.700	3.75E-01		4.85E-01	7.01E-01	2.13E-01	4.80E-01
TH-232	3972.00	4007.19	24.777	3.000	2.905	0.000	1.0000	100.000	2.65E-01		3.62E-01	3.66E-01	1.73E-01	3.60E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.419 +/-0.022)
TH-232 (0.095 +/-0.001)



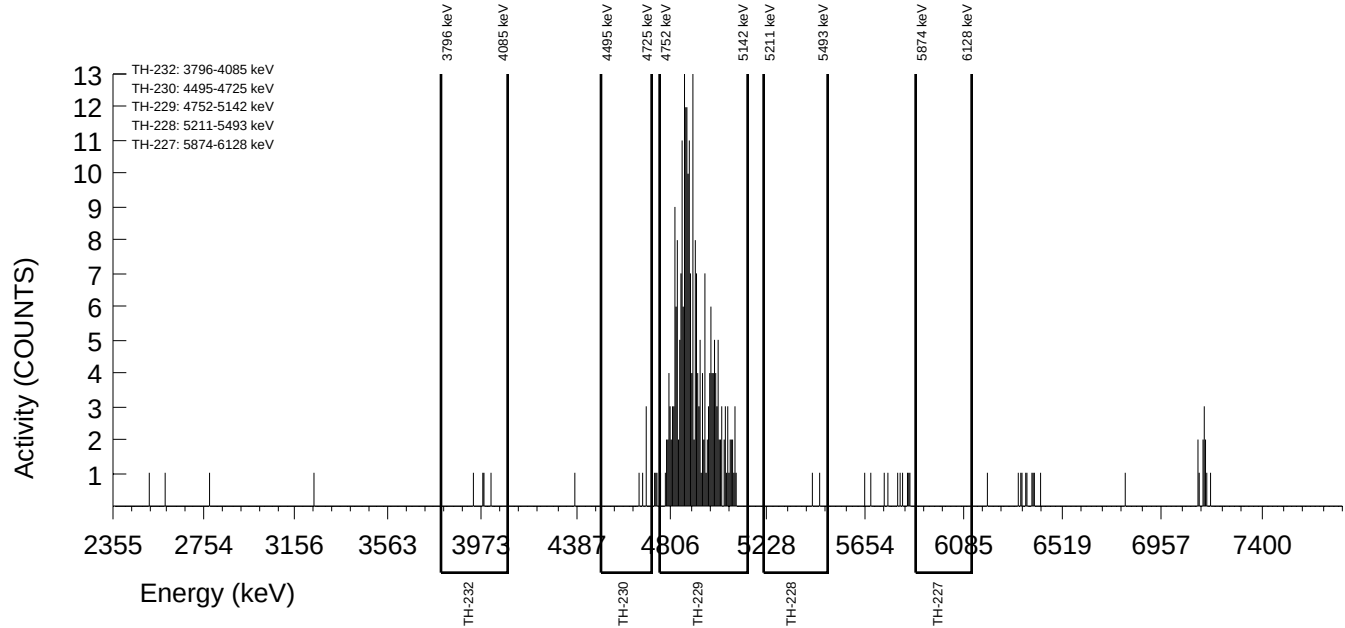
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299020_TH SAMPLE QTY : 0.106 G +/-0.943 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 90.4 +/-6.660 %		CHAMBER : 206 DETECTOR S/N : 140629 AVERAGE %EFFICIENCY : 25.4965 AVERAGE %EFF ERROR : 0.4962 COUNT DATE : 18-Jul-2024 10:28:47 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : TH BKG FILE : B206.CNF;1643 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W206.CNF;414 CAL DATE : 21-Jun-2024	
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.3779E+00 dpm					

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	6000.76	0.000	0.000	-1.440	1.440	1.2000	57.440	-4.44E-01	7.16E-01	2.28E+00	6.77E-01	7.15E-01
TH-228	5363.00	5440.80	34.683	2.000	0.792	1.200	1.0954	99.940	6.22E-02	2.82E-01	5.52E-01	1.58E-01	2.82E-01
TH-229	4900.00	4907.80	126.344	269.000	266.600	2.400	1.5492	99.520	2.06E+01	3.76E+00	6.69E-01	2.19E-01	2.49E+00
TH-230	4671.39	4654.51	4.955	6.000	3.916	0.480	0.6928	99.700	3.02E-01	4.08E-01	6.07E-01	1.88E-01	4.04E-01
TH-232	3972.00	3978.15	79.275	4.000	3.653	0.240	0.4899	100.000	2.80E-01	3.43E-01	3.91E-01	8.04E-02	3.40E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.604 +/-0.025)
TH-232 (0.107 +/-0.002)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

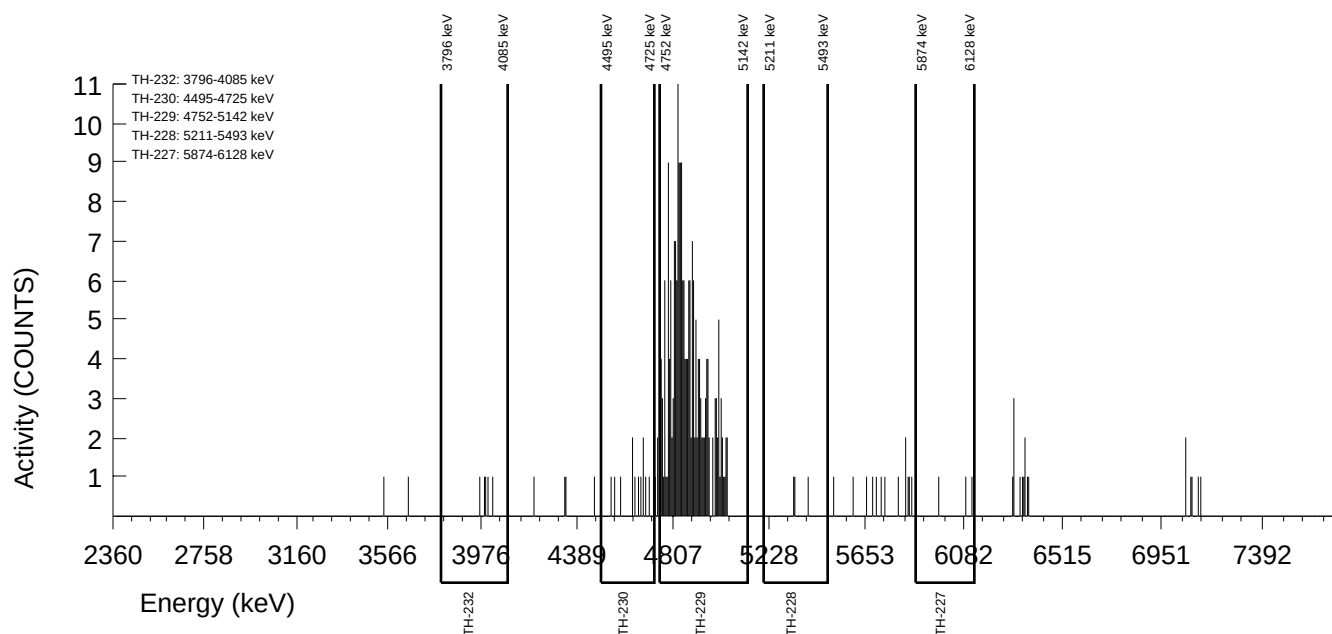
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299022_TH SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 70.2 +/-7.322 %	CHAMBER : 207 DETECTOR S/N : 158102 AVERAGE %EFFICIENCY : 26.4171 AVERAGE %EFF ERROR : 0.5136 COUNT DATE : 18-Jul-2024 10:28:49 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B207.CNF;1646 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W207.CNF;412 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.3967E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt	Unc pCi/G
TH-227	5994.04	6062.30	138.715	3.000	1.320	1.680	1.2961	57.440	4.51E-01	1.41E+00	2.64E+00	8.10E-01	1.41E+00	1.41E+00
TH-228	5363.00	5362.24	64.403	3.000	1.794	1.200	1.0954	99.940	1.56E-01	3.56E-01	6.11E-01	1.75E-01	3.56E-01	3.56E-01
TH-229	4900.00	4876.68	120.013	216.000	214.320	1.680	1.2961	99.520	1.83E+01	3.69E+00	6.62E-01	2.03E-01	2.47E+00	2.47E+00
TH-230	4671.39	4640.22	49.541	12.000	9.510	1.200	1.0954	99.700	8.12E-01	6.26E-01	7.24E-01	2.34E-01	6.11E-01	6.11E-01
TH-232	3972.00	3993.25	59.449	5.000	3.234	1.680	1.2961	100.000	2.75E-01	4.26E-01	6.67E-01	2.06E-01	4.24E-01	4.24E-01

NOTES:

* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.006 +/-0.000)
TH-230 (1.290 +/-0.020)
TH-232 (0.086 +/-0.001)



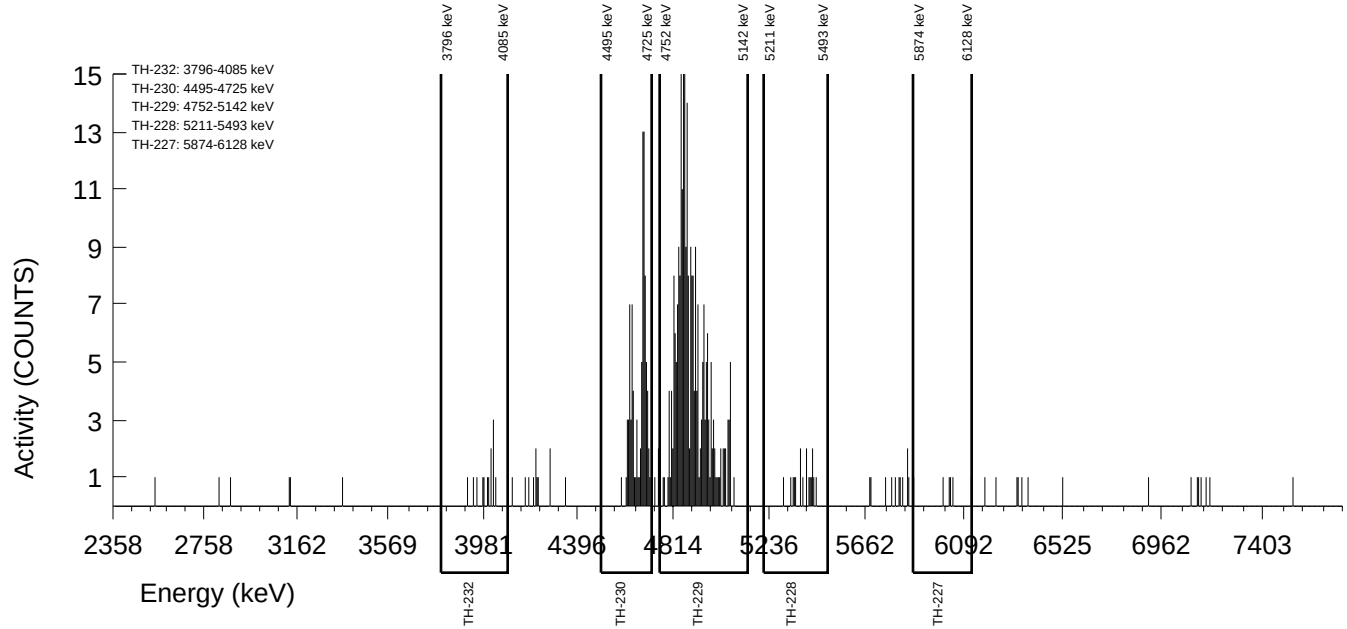
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299027_TH SAMPLE QTY : 0.111 G +/-0.901 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 91.9 +/-6.604 %		CHAMBER : 166 DETECTOR S/N : 155809 AVERAGE %EFFICIENCY : 25.4198 AVERAGE %EFF ERROR : 0.4947 COUNT DATE : 18-Jul-2024 12:37:08 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : TH BKG FILE : B166.CNF;1729 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W166.CNF;493 CAL DATE : 18-Jul-2024	
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.4477E+00 dpm					

NUCLIDE ACTIVITY SUMMARY										1.96-sigma			1.96-sigma
NUCLIDE	LIBRARY	PEAK	PEAK	GROSS	NET	BKG	BKG	%ABUN	ACTIVITY	TPU	MDA	Lc	cnt Unc
	ENERGY	ENERGY	FWHM	AREA	AREA	AREA	StDev		pCi/G	pCi/G	pCi/G	pCi/G	pCi/G
TH-227	5994.04	6045.52	119.507	5.000	1.640	3.360	1.8330	57.440	4.78E-01	1.50E+00	2.83E+00	9.78E-01	1.50E+00
TH-228	5363.00	5387.86	57.264	17.000	14.832	2.160	1.4697	99.940	1.10E+00	6.43E-01	6.22E-01	2.00E-01	6.26E-01
TH-229	4900.00	4896.40	91.539	271.000	270.040	0.960	0.9798	99.520	1.96E+01	3.56E+00	4.79E-01	1.31E-01	2.35E+00
TH-230	4671.39	4667.29	67.845	90.000	87.655	0.720	0.8485	99.700	6.36E+00	1.62E+00	5.97E-01	1.90E-01	1.36E+00
TH-232	3972.00	3994.96	13.694	13.000	12.891	0.000	1.0000	100.000	9.33E-01	5.47E-01	2.96E-01	1.38E-01	5.32E-01

NOTES:
* Corrections made to the following net areas
due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.625 +/-0.025)
TH-232 (0.109 +/-0.002)



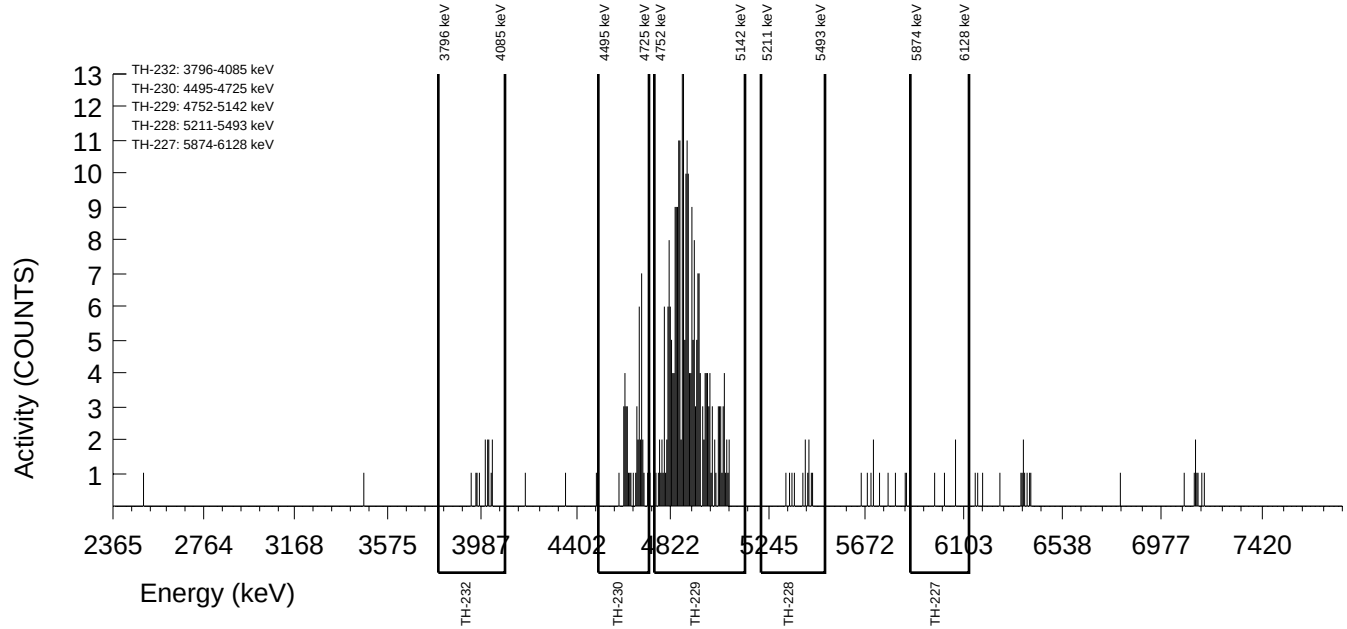
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299030_TH SAMPLE QTY : 0.114 G +/-0.877 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 91.8 +/-6.572 %	CHAMBER : 176 DETECTOR S/N : 92558 AVERAGE %EFFICIENCY : 25.6845 AVERAGE %EFF ERROR : 0.4998 COUNT DATE : 18-Jul-2024 12:37:10 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B176.CNF;1696 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W176.CNF;407 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.4423E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt	Unc pCi/G
TH-227	5994.04	6035.55	4.970	4.000	0.880	3.120	1.7664	57.440	2.47E-01	1.33E+00	2.66E+00	9.10E-01	1.33E+00	
TH-228	5363.00	5395.71	19.880	12.000	8.872	3.120	1.7664	99.940	6.34E-01	5.28E-01	6.77E-01	2.31E-01	5.20E-01	
TH-229	4900.00	4895.86	128.806	273.000	272.520	0.480	0.6928	99.520	1.91E+01	3.45E+00	3.89E-01	8.91E-02	2.28E+00	
TH-230	4671.39	4659.98	75.544	44.000	42.120	0.240	0.4899	99.700	2.95E+00	1.01E+00	5.31E-01	1.60E-01	9.22E-01	
TH-232	3972.00	4000.45	34.790	13.000	12.170	0.720	0.8485	100.000	8.50E-01	5.29E-01	4.40E-01	1.15E-01	5.16E-01	

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.640 +/-0.025)
TH-232 (0.110 +/-0.002)



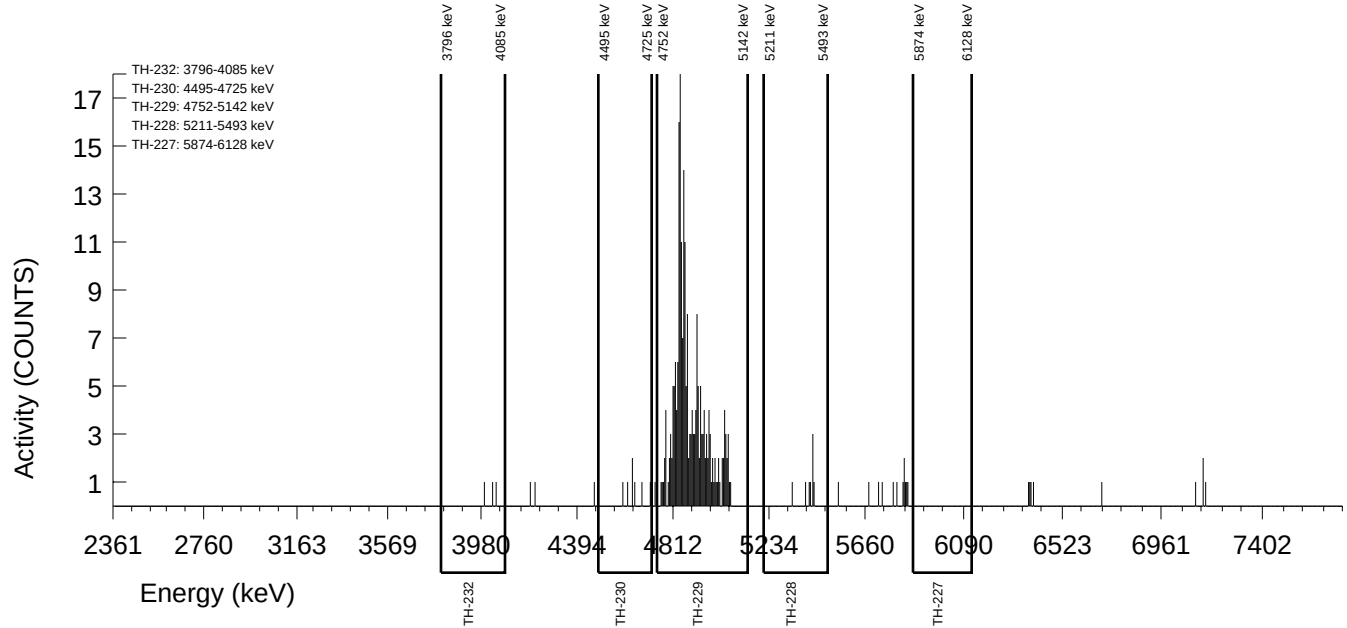
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299031_TH SAMPLE QTY : 0.107 G +/-0.935 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 73.2 +/-7.132 %	CHAMBER : 177 DETECTOR S/N : 92559 AVERAGE %EFFICIENCY : 26.8491 AVERAGE %EFF ERROR : 0.5217 COUNT DATE : 18-Jul-2024 12:37:12 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B177.CNF;1710 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W177.CNF;446 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.5448E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	6000.76	0.000	0.000	-1.200	1.200	1.0954	57.440	-4.31E-01		8.18E-01	2.52E+00	7.21E-01	8.16E-01
TH-228	5363.00	5412.68	6.200	8.000	6.793	1.200	1.0954	99.940	6.20E-01		5.54E-01	6.41E-01	1.84E-01	5.47E-01
TH-229	4900.00	4894.59	29.927	229.000	227.320	1.680	1.2961	99.520	2.04E+01		4.00E+00	6.95E-01	2.13E-01	2.67E+00
TH-230	4671.39	4648.86	4.960	7.000	4.912	0.720	0.8485	99.700	4.40E-01		5.10E-01	7.11E-01	2.21E-01	5.03E-01
TH-232	3972.00	4019.18	54.564	3.000	2.429	0.480	0.6928	100.000	2.17E-01		3.59E-01	5.11E-01	1.22E-01	3.57E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.368 +/-0.021)
TH-232 (0.091 +/-0.001)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

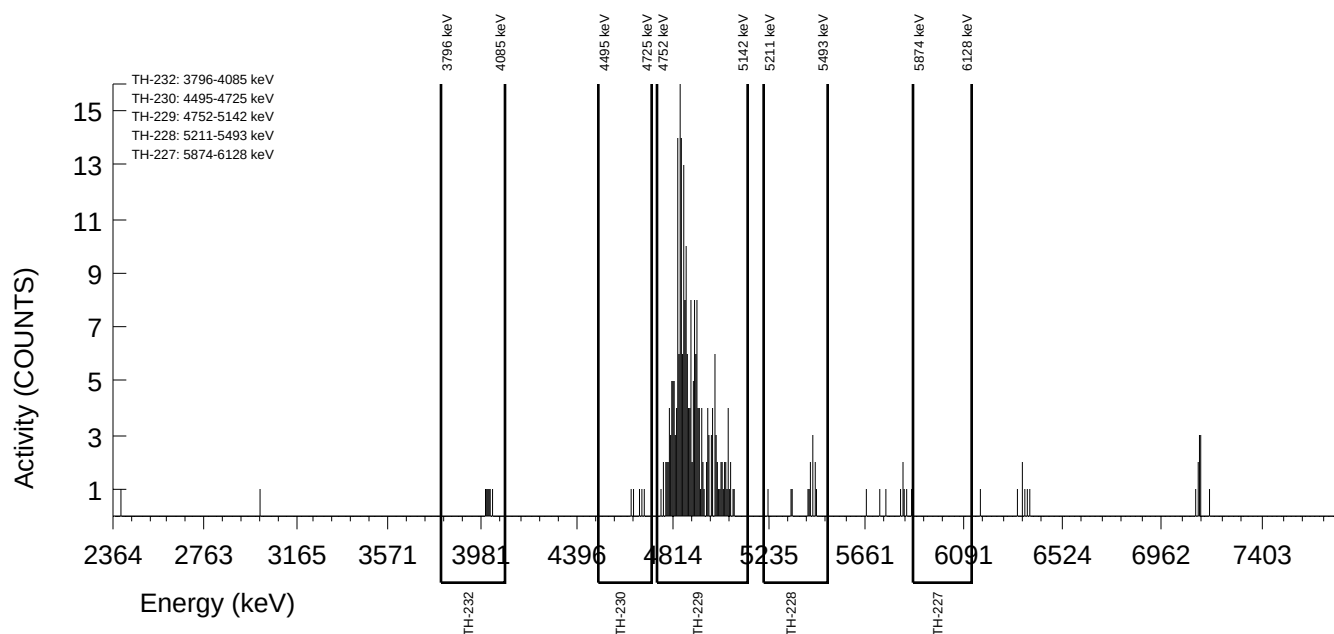
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299033_TH SAMPLE QTY : 0.112 G +/-0.893 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 78.5 +/-6.984 %	CHAMBER : 178 DETECTOR S/N : 92562 AVERAGE %EFFICIENCY : 26.2471 AVERAGE %EFF ERROR : 0.5103 COUNT DATE : 18-Jul-2024 12:37:15 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B178.CNF;1716 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W178.CNF;448 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.8015E+00 dpm		

NUCLIDE ACTIVITY SUMMARY													
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	1.96-sigma TPU pCi/G	MDA pCi/G	Lc pCi/G	1.96-sigma cnt Unc pCi/G
TH-227	5994.04	6000.76	0.000	0.000	-3.600	3.600	1.8974	57.440	-1.18E+00	8.90E-01	3.26E+00	1.14E+00	8.89E-01
TH-228	5363.00	5400.69	24.782	13.000	11.313	1.680	1.2961	99.940	9.41E-01	6.34E-01	6.45E-01	1.98E-01	6.20E-01
TH-229	4900.00	4897.37	40.146	240.000	238.320	1.680	1.2961	99.520	1.95E+01	3.74E+00	6.33E-01	1.94E-01	2.49E+00
TH-230	4671.39	4665.74	59.476	5.000	3.326	0.240	0.4899	99.700	2.71E-01	3.99E-01	5.98E-01	1.76E-01	3.95E-01
TH-232	3972.00	4010.68	34.694	6.000	5.664	0.240	0.4899	100.000	4.60E-01	4.30E-01	4.12E-01	8.39E-02	4.25E-01

NOTES:

* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.434 +/-0.022)
TH-232 (0.096 +/-0.001)



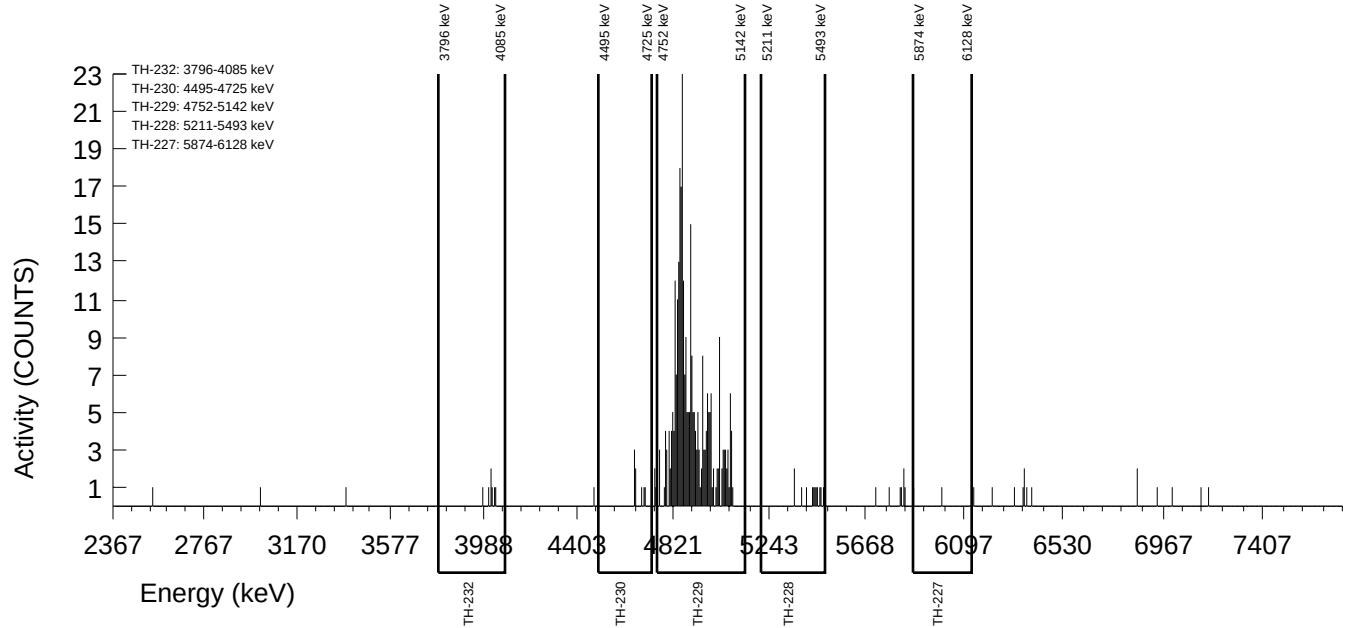
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299034_TH SAMPLE QTY : 0.102 G +/-0.980 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 102 +/-6.234 %	CHAMBER : 179 DETECTOR S/N : 92563 AVERAGE %EFFICIENCY : 26.2993 AVERAGE %EFF ERROR : 0.5113 COUNT DATE : 18-Jul-2024 12:37:17 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B179.CNF;1714 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W179.CNF;458 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.9281E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	5938.52	119.392	2.000	1.280	0.720	0.8485	57.440	3.54E-01		9.76E-01	1.69E+00	4.30E-01	9.74E-01
TH-228	5363.00	5432.75	4.975	13.000	9.151	3.840	1.9596	99.940	6.43E-01		5.40E-01	7.16E-01	2.53E-01	5.33E-01
TH-229	4900.00	4903.39	67.469	311.000	309.560	1.440	1.2000	99.520	2.14E+01		3.66E+00	5.11E-01	1.52E-01	2.39E+00
TH-230	4671.39	4669.36	8.706	8.000	5.657	0.480	0.6928	99.700	3.90E-01		4.15E-01	5.62E-01	1.78E-01	4.09E-01
TH-232	3972.00	4023.43	7.462	7.000	6.635	0.240	0.4899	100.000	4.56E-01		3.88E-01	3.53E-01	7.34E-02	3.84E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.009 +/-0.000)
TH-230 (1.863 +/-0.029)
TH-232 (0.125 +/-0.002)



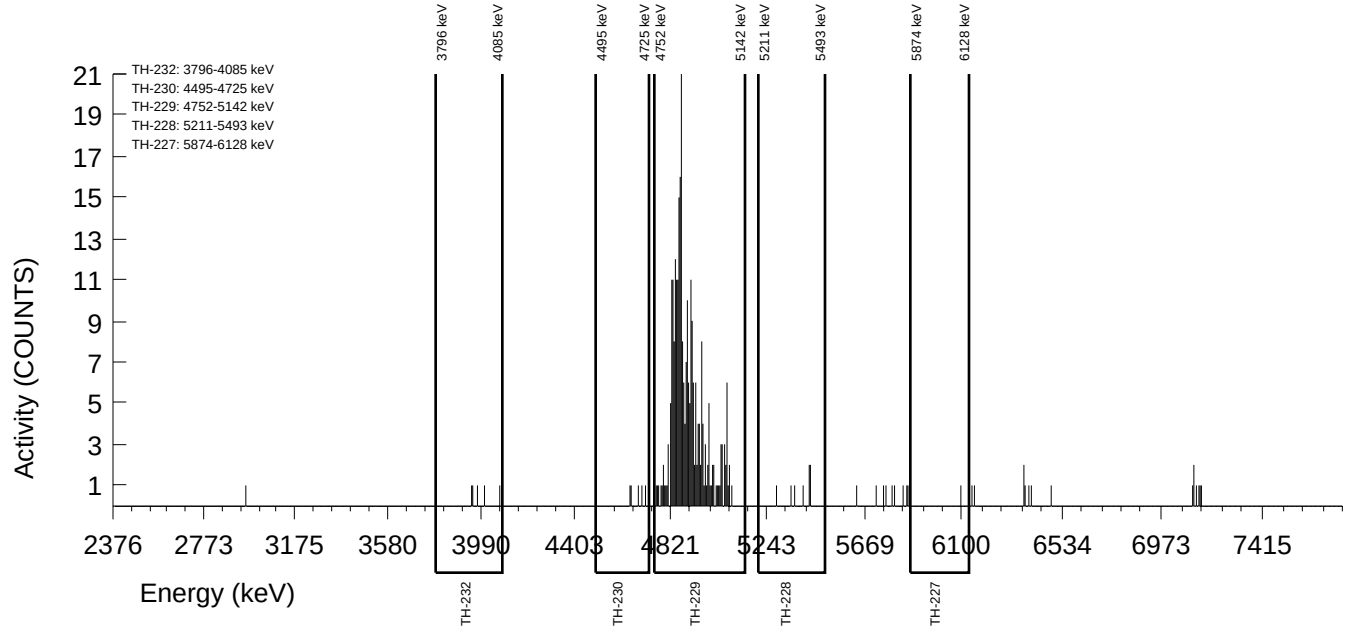
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S0674299037_TH SAMPLE QTY : 0.103 G +/-0.971 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 92.3 +/-6.517 %		CHAMBER : 180 DETECTOR S/N : 158175 AVERAGE %EFFICIENCY : 26.1872 AVERAGE %EFF ERROR : 0.5092 COUNT DATE : 18-Jul-2024 12:37:20 ELAPSED LIVE TIME(SEC) : 14400.00		LIB FILE : TH BKG FILE : B180.CNF;1711 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W180.CNF;116 CAL DATE : 18-Jul-2024	
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.4657E+00 dpm					

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G		TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	6094.19	4.938	1.000	-0.680	1.680	1.2961	57.440	-2.06E-01		9.34E-01	2.35E+00	7.21E-01	9.33E-01
TH-228	5363.00	5391.21	9.876	8.000	5.832	2.160	1.4697	99.940	4.50E-01		4.72E-01	6.48E-01	2.08E-01	4.68E-01
TH-229	4900.00	4897.64	80.650	281.000	279.320	1.680	1.2961	99.520	2.12E+01		3.79E+00	5.87E-01	1.80E-01	2.50E+00
TH-230	4671.39	4684.10	0.000	6.000	3.599	0.720	0.8485	99.700	2.72E-01		4.02E-01	6.26E-01	2.00E-01	3.99E-01
TH-232	3972.00	3990.71	123.444	5.000	4.408	0.480	0.6928	100.000	3.32E-01		3.70E-01	4.35E-01	1.04E-01	3.67E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.681 +/-0.026)
TH-232 (0.112 +/-0.002)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

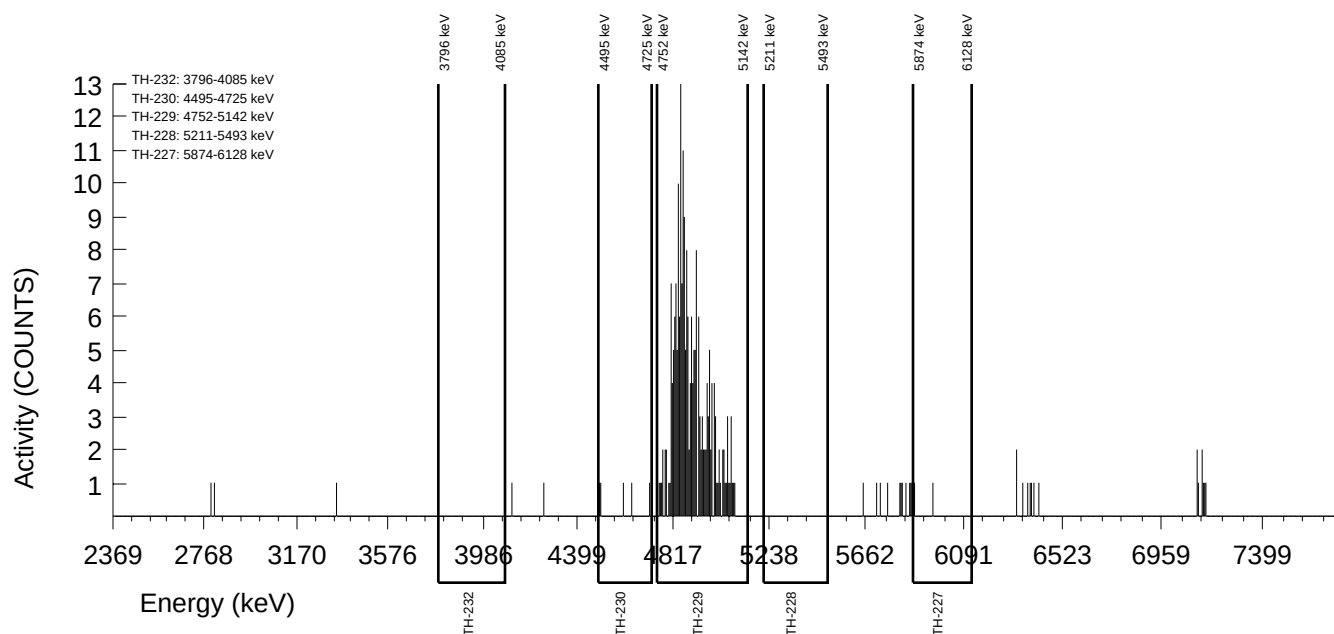
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S1205789023_TH SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 16-Jul-2024 00:00:00 ANALYST : CM4 % YIELD : 73.0 +/-7.255 %	CHAMBER : 181 DETECTOR S/N : 92565 AVERAGE %EFFICIENCY : 25.9668 AVERAGE %EFF ERROR : 0.5051 COUNT DATE : 18-Jul-2024 12:37:22 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B181.CNF;1150 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W181.CNF;306 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.5324E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt	Unc pCi/G
TH-227	5994.04	5986.99	0.000	3.000	2.280	0.720	0.8485	57.440	3.64E-01	6.46E-01	9.75E-01	2.48E-01	6.43E-01	6.43E-01
TH-228	5363.00	5351.79	0.000	0.000	-1.687	1.680	1.2961	99.940	-1.41E-01	1.98E-01	6.48E-01	1.99E-01	1.98E-01	1.98E-01
TH-229	4900.00	4899.62	105.440	221.000	219.080	1.920	1.3856	99.520	1.83E+01	3.65E+00	6.75E-01	2.12E-01	2.45E+00	2.45E+00
TH-230	4671.39	4591.77	213.153	5.000	2.962	0.720	0.8485	99.700	2.47E-01	4.12E-01	6.59E-01	2.04E-01	4.08E-01	4.08E-01
TH-232	3972.00	3940.45	0.000	0.000	-0.088	0.000	1.0000	100.000	-7.34E-03	1.68E-01	3.31E-01	1.58E-01	1.68E-01	1.68E-01

NOTES:

* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.007 +/-0.000)
TH-230 (1.318 +/-0.020)
TH-232 (0.088 +/-0.001)



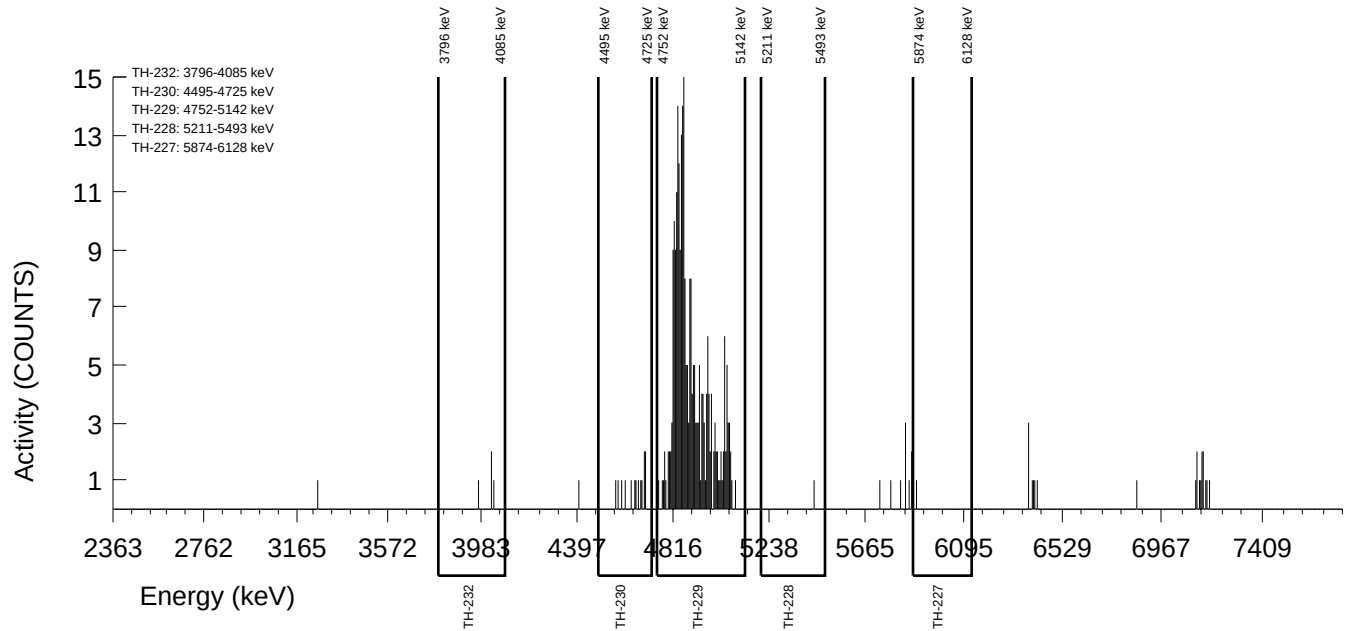
GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S1205789024_TH SAMPLE QTY : 0.104 G +/-0.962 % SAMPLE DATE : 26-Jun-2024 00:00:00 ANALYST : CM4 % YIELD : 89.7 +/-6.659 %	CHAMBER : 182 DETECTOR S/N : 148048 AVERAGE %EFFICIENCY : 25.6988 AVERAGE %EFF ERROR : 0.5000 COUNT DATE : 18-Jul-2024 12:37:24 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B182.CNF;1159 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W182.CNF;309 CAL DATE : 18-Jul-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 4.3434E+00 dpm		

NUCLIDE ACTIVITY SUMMARY											1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt	Unc pCi/G
TH-227	5994.04	5889.97	4.964	1.000	-1.160	2.160	1.4697	57.440	-3.65E-01	9.92E-01	2.64E+00	8.48E-01	9.91E-01	9.91E-01
TH-228	5363.00	5440.35	4.964	1.000	-0.208	1.200	1.0954	99.940	-1.67E-02	2.41E-01	5.62E-01	1.61E-01	2.40E-01	2.40E-01
TH-229	4900.00	4900.42	76.314	269.000	266.600	2.400	1.5492	99.520	2.10E+01	3.84E+00	6.82E-01	2.23E-01	2.54E+00	2.54E+00
TH-230	4671.39	4652.23	9.927	14.000	11.436	0.960	0.9798	99.700	8.98E-01	6.18E-01	6.67E-01	2.16E-01	6.02E-01	6.02E-01
TH-232	3972.00	4012.54	4.964	4.000	3.653	0.240	0.4899	100.000	2.86E-01	3.49E-01	3.99E-01	8.19E-02	3.47E-01	3.47E-01

NOTES:
* Corrections made to the following net areas due to tracer impurity:
TH-228 (0.008 +/-0.000)
TH-230 (1.604 +/-0.025)
TH-232 (0.107 +/-0.002)



GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

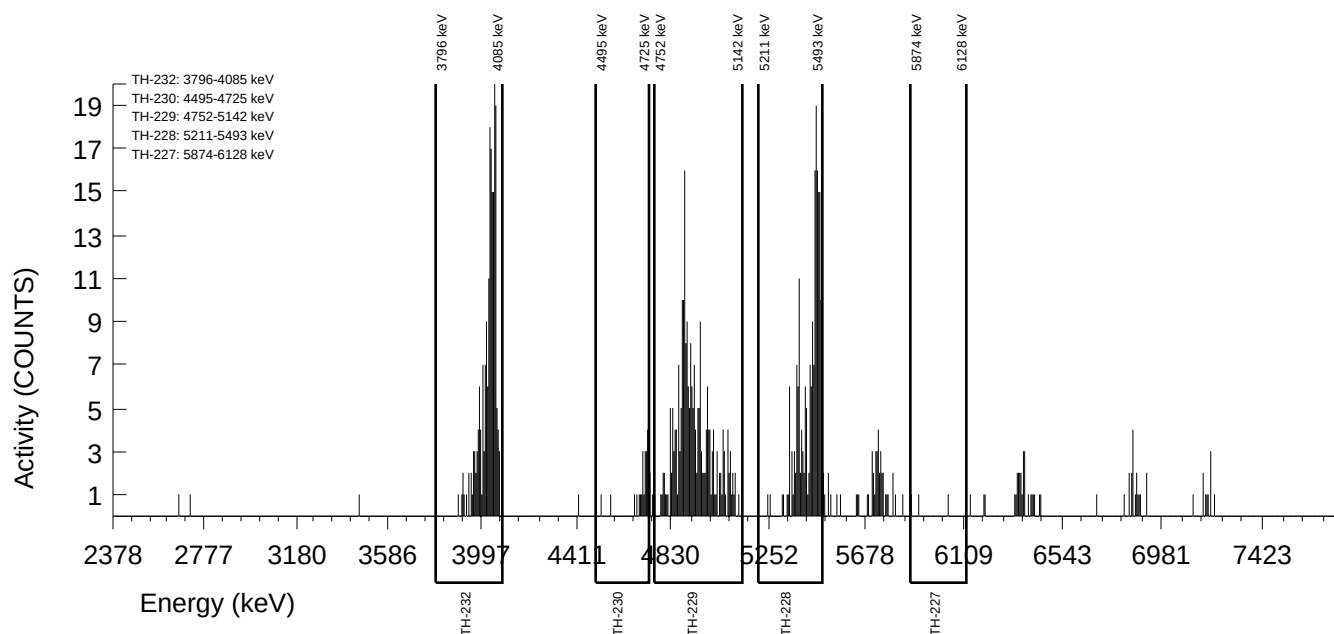
Instrument SOP: GL-RAD-I-009
Analytical SOP: GL-RAD-A-038

BATCH NUMBER : 2640431 SAMPLE ID : S1205789025_TH SAMPLE QTY : 0.119 G +/-0.840 % SAMPLE DATE : 16-Jul-2024 00:00:00 ANALYST : CM4 % YIELD : 74.1 +/-7.142 %	CHAMBER : 195 DETECTOR S/N : 140619 AVERAGE %EFFICIENCY : 26.7439 AVERAGE %EFF ERROR : 0.5197 COUNT DATE : 18-Jul-2024 12:37:26 ELAPSED LIVE TIME(SEC) : 14400.00	LIB FILE : TH BKG FILE : B195.CNF;1717 BKG DATE : 12-Jul-2024 BKG LIVE TIME(SEC) : 60000.00 EFF FILE : W195.CNF;471 CAL DATE : 21-Jun-2024
TRACER ID : 1845-J NUCLIDE : TH-229 NOMINAL : 4.8402E+00 dpm RESULTS : 3.5875E+00 dpm	LCS ID 1513-J NUCLIDE TH-232 NOMINAL (pCi/G) 1.6698E+01 % RECOVERY 93.238	

NUCLIDE ACTIVITY SUMMARY										1.96-sigma		1.96-sigma	
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG StDev	%ABUN	ACTIVITY pCi/G	TPU pCi/G	MDA pCi/G	Lc pCi/G	cnt Unc pCi/G
TH-227	5994.04	5946.90	153.695	3.000	1.320	1.680	1.2961	57.440	2.01E-01	6.32E-01	1.18E+00	3.62E-01	6.32E-01
TH-228	5363.00	5435.89	91.084	193.000	191.793	1.200	1.0954	99.940	1.53E+01	3.12E+00	5.61E-01	1.61E-01	2.18E+00
TH-229	4900.00	4929.54	77.178	233.000	229.160	3.840	1.9596	99.520	1.83E+01	3.60E+00	8.14E-01	2.87E-01	2.40E+00
TH-230	4671.39	4691.72	0.000	21.000	18.181	1.440	1.2000	99.700	1.45E+00	7.75E-01	7.06E-01	2.34E-01	7.40E-01
TH-232	3972.00	4025.47	33.926	196.000	195.668	0.240	0.4899	100.000	1.56E+01	3.16E+00	4.02E-01	8.17E-02	2.19E+00

NOTES:

* Corrections made to the following net areas due to tracer impurity:
 TH-228 (0.007 +/-0.000)
 TH-230 (1.379 +/-0.021)
 TH-232 (0.092 +/-0.001)



Continuing Calibration Data

Review of Alpha Spectrometer QA results (Daily checks) 18-JUL-2024 23:00:00.61

Bank 1 through bank 29 (detectors 1 through 256)

DETECTORS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

	Detector	Parameter	Flag
	-----	-----	-----
18-JUL-2024	19	PSFWHM-5000	Above
18-JUL-2024	19	PSCTSS-5000	Below
28-AUG-2023	115	PSCTSS-5000	Below
28-AUG-2023	116	PSCTSS-5000	Below
18-JUL-2024	118	PSENERGY-5000	Above
18-JUL-2024	154	PSENERGY-5000	Below
18-JUL-2024	169	PSFWHM-5000	Above
18-JUL-2024	171	PSFWHM-5000	Below
18-JUL-2024	171	PSCTSS-5000	Below
28-NOV-2020	198	PSFWHM-5000	Below
28-NOV-2020	198	PSCTSS-5000	Below
5-JUL-2024	201	PSCTSS-5000	Below
5-JUL-2024	202	PSCTSS-5000	Below
18-JUL-2024	216	PSENERGY-5000	Above
8-SEP-2023	221	PSFWHM-5000	Above
8-SEP-2023	221	PSCTSS-5000	Below
8-SEP-2023	222	PSENERGY-5000	Above
8-SEP-2023	222	PSCTSS-5000	Below
7-JUN-2024	227	PSFWHM-5000	Below
7-JUN-2024	227	PSCTSS-5000	Below
7-JUN-2024	228	PSENERGY-5000	Above
7-JUN-2024	228	PSCENTRD-5000	Above
18-JUL-2024	232	PSFWHM-5000	Below
18-JUL-2024	232	PSCENTRD-5000	Below
18-JUL-2024	232	PSCTSS-5000	Below
18-JUL-2024	252	PSFWHM-5000	Below
18-JUL-2024	252	PSCTSS-5000	Below

The following detectors that may not have properly transfered to the QA file

115 may not have run since 18-JUL-2024

116 may not have run since 18-JUL-2024
119 may not have run since 18-JUL-2024
120 may not have run since 18-JUL-2024
121 may not have run since 18-JUL-2024
122 may not have run since 18-JUL-2024
127 may not have run since 18-JUL-2024
128 may not have run since 18-JUL-2024
183 may not have run since 18-JUL-2024
184 may not have run since 18-JUL-2024
187 may not have run since 18-JUL-2024
188 may not have run since 18-JUL-2024
198 may not have run since 18-JUL-2024
201 may not have run since 18-JUL-2024
202 may not have run since 18-JUL-2024
211 may not have run since 18-JUL-2024
212 may not have run since 18-JUL-2024
221 may not have run since 18-JUL-2024
222 may not have run since 18-JUL-2024
227 may not have run since 18-JUL-2024
228 may not have run since 18-JUL-2024
229 may not have run since 18-JUL-2024
230 may not have run since 18-JUL-2024
241 may not have run since 18-JUL-2024
242 may not have run since 18-JUL-2024

APPROVAL DATE: 7/18/24

APPROVAL TIME: 23:10

APPROVED BY: 

PROCEDURE # GL-RAD-I-009

Report completed at 18-JUL-2024 23:02:58.31

Review of Alpha Spectrometer QA results (Daily checks) 19-JUL-2024 13:04:46.61

Bank 1 through bank 29 (detectors 1 through 256)

DETECTORS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

	Detector	Parameter	Flag
	-----	-----	-----
28-AUG-2023	115	PSCTSS-5000	Below
28-AUG-2023	116	PSCTSS-5000	Below
19-JUL-2024	118	PSENERGY-5000	Above
19-JUL-2024	154	PSENERGY-5000	Below
19-JUL-2024	169	PSFWHM-5000	Above
28-NOV-2020	198	PSFWHM-5000	Below
28-NOV-2020	198	PSCTSS-5000	Below
5-JUL-2024	201	PSCTSS-5000	Below
5-JUL-2024	202	PSCTSS-5000	Below
19-JUL-2024	216	PSENERGY-5000	Above
8-SEP-2023	221	PSFWHM-5000	Above
8-SEP-2023	221	PSCTSS-5000	Below
8-SEP-2023	222	PSENERGY-5000	Above
8-SEP-2023	222	PSCTSS-5000	Below
7-JUN-2024	227	PSFWHM-5000	Below
7-JUN-2024	227	PSCTSS-5000	Below
7-JUN-2024	228	PSENERGY-5000	Above
7-JUN-2024	228	PSCENTRD-5000	Above
19-JUL-2024	232	PSFWHM-5000	Below
19-JUL-2024	232	PSCENTRD-5000	Below
19-JUL-2024	232	PSCTSS-5000	Below
19-JUL-2024	252	PSFWHM-5000	Below
19-JUL-2024	252	PSCTSS-5000	Below

The following detectors that may not have properly transferred to the QA file

115	may not have run since 19-JUL-2024
116	may not have run since 19-JUL-2024
119	may not have run since 19-JUL-2024
120	may not have run since 19-JUL-2024
121	may not have run since 19-JUL-2024
122	may not have run since 19-JUL-2024
127	may not have run since 19-JUL-2024

128 may not have run since 19-JUL-2024
183 may not have run since 19-JUL-2024
184 may not have run since 19-JUL-2024
198 may not have run since 19-JUL-2024
201 may not have run since 19-JUL-2024
202 may not have run since 19-JUL-2024
211 may not have run since 19-JUL-2024
212 may not have run since 19-JUL-2024
221 may not have run since 19-JUL-2024
222 may not have run since 19-JUL-2024
227 may not have run since 19-JUL-2024
228 may not have run since 19-JUL-2024
229 may not have run since 19-JUL-2024
230 may not have run since 19-JUL-2024
241 may not have run since 19-JUL-2024
242 may not have run since 19-JUL-2024

APPROVAL DATE: 7/19/24

APPROVAL TIME: 1309

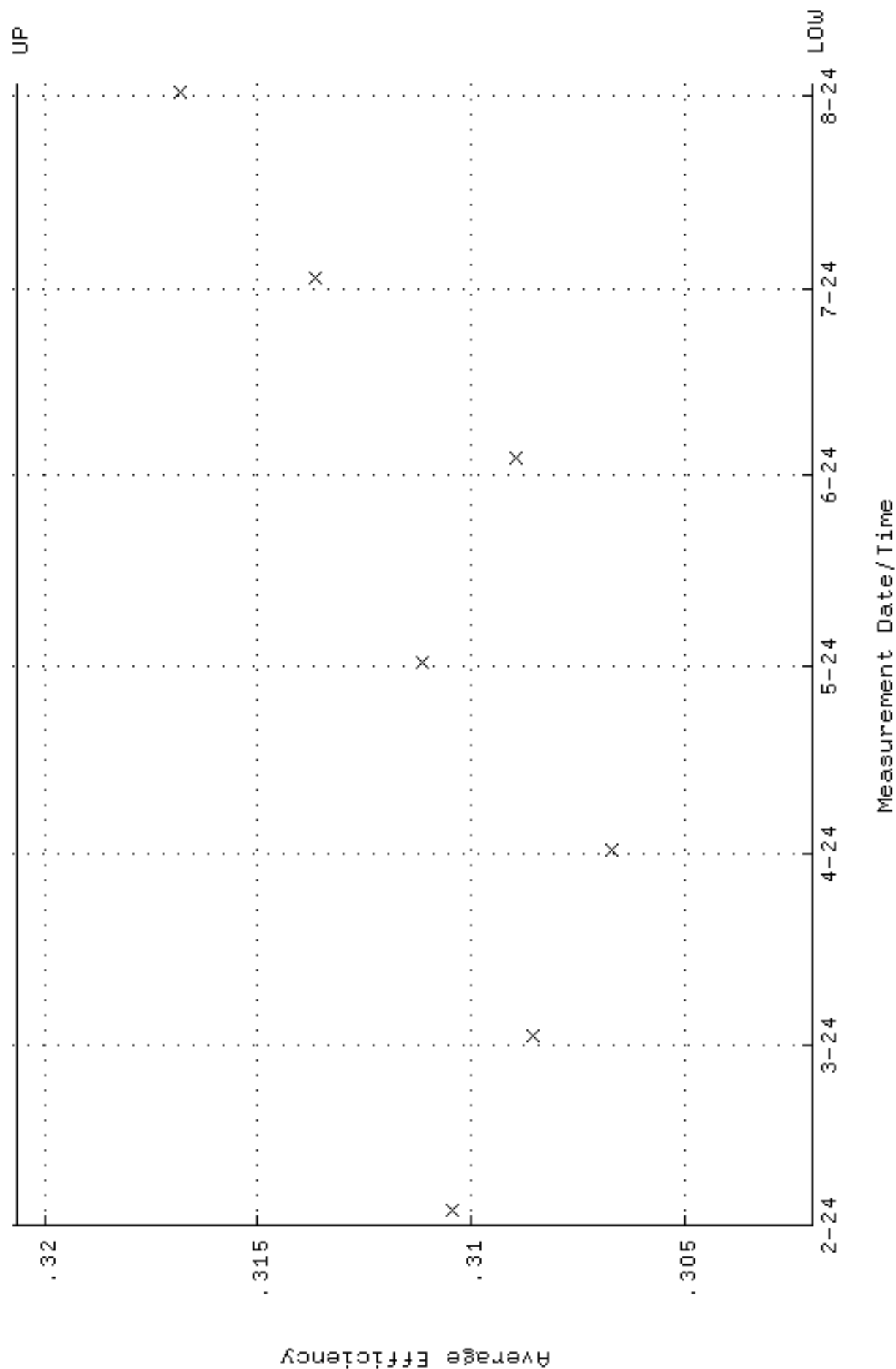
APPROVED BY: 

PROCEDURE # GL-RAD-I-009

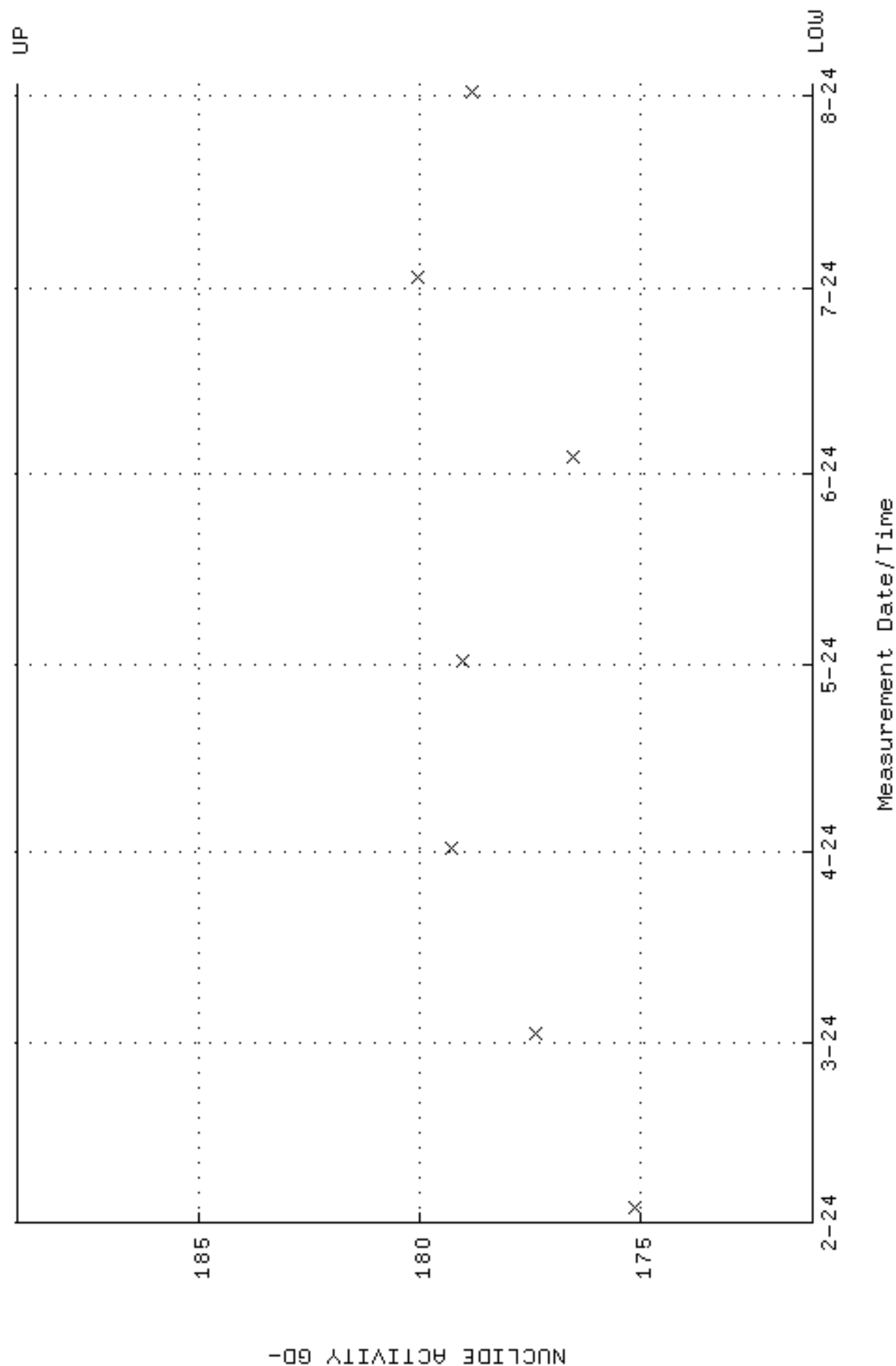
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Background and Efficiency Data

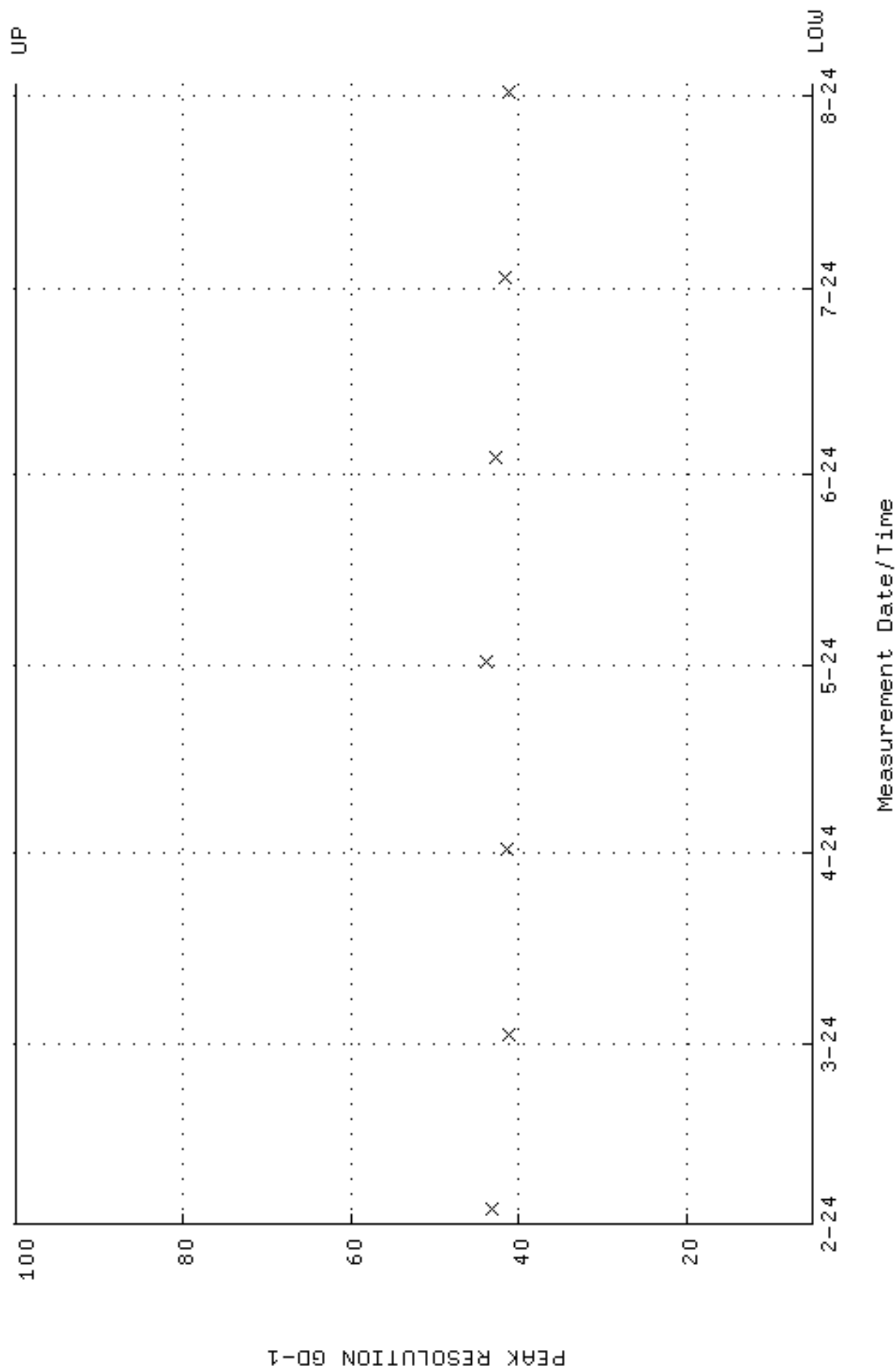
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 Lower/Upper Lmts: 0.302010 through 0.320690



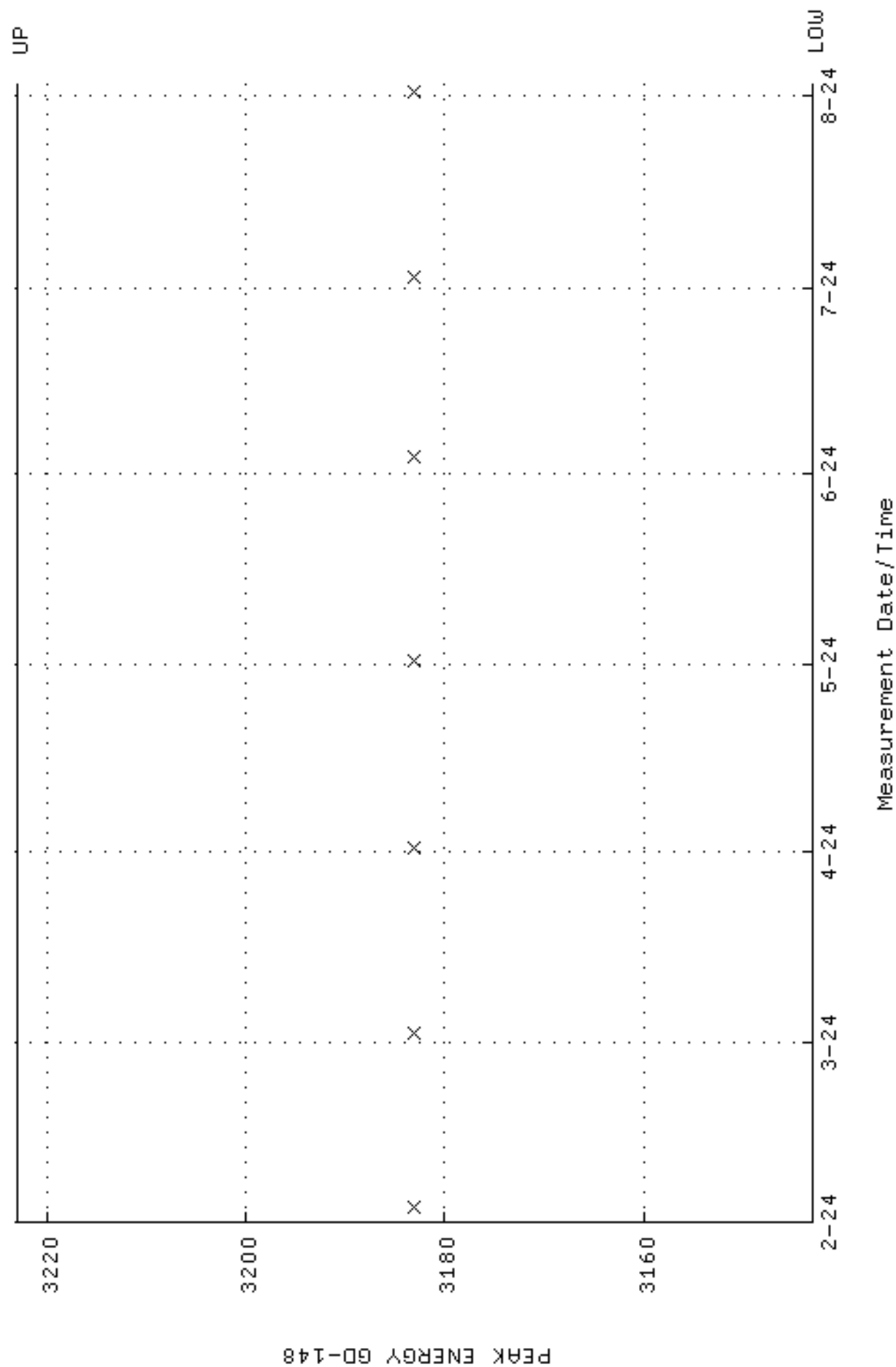
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 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



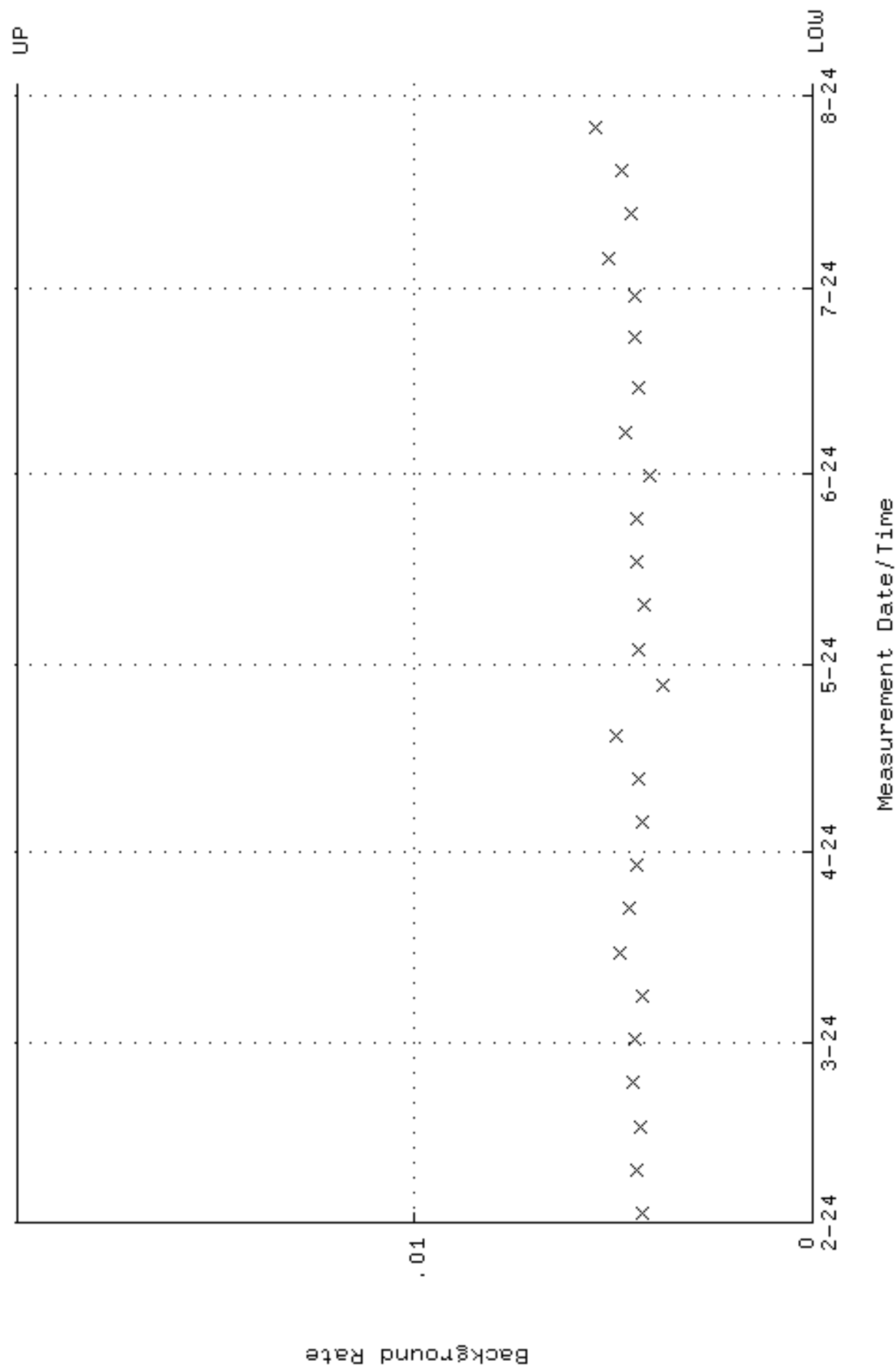
QA filename : DKA100:[ENV_ALPHA.QA.W]W007.QAF;7
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
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 Lower/Upper Lmts: 5.00000 through 100.000



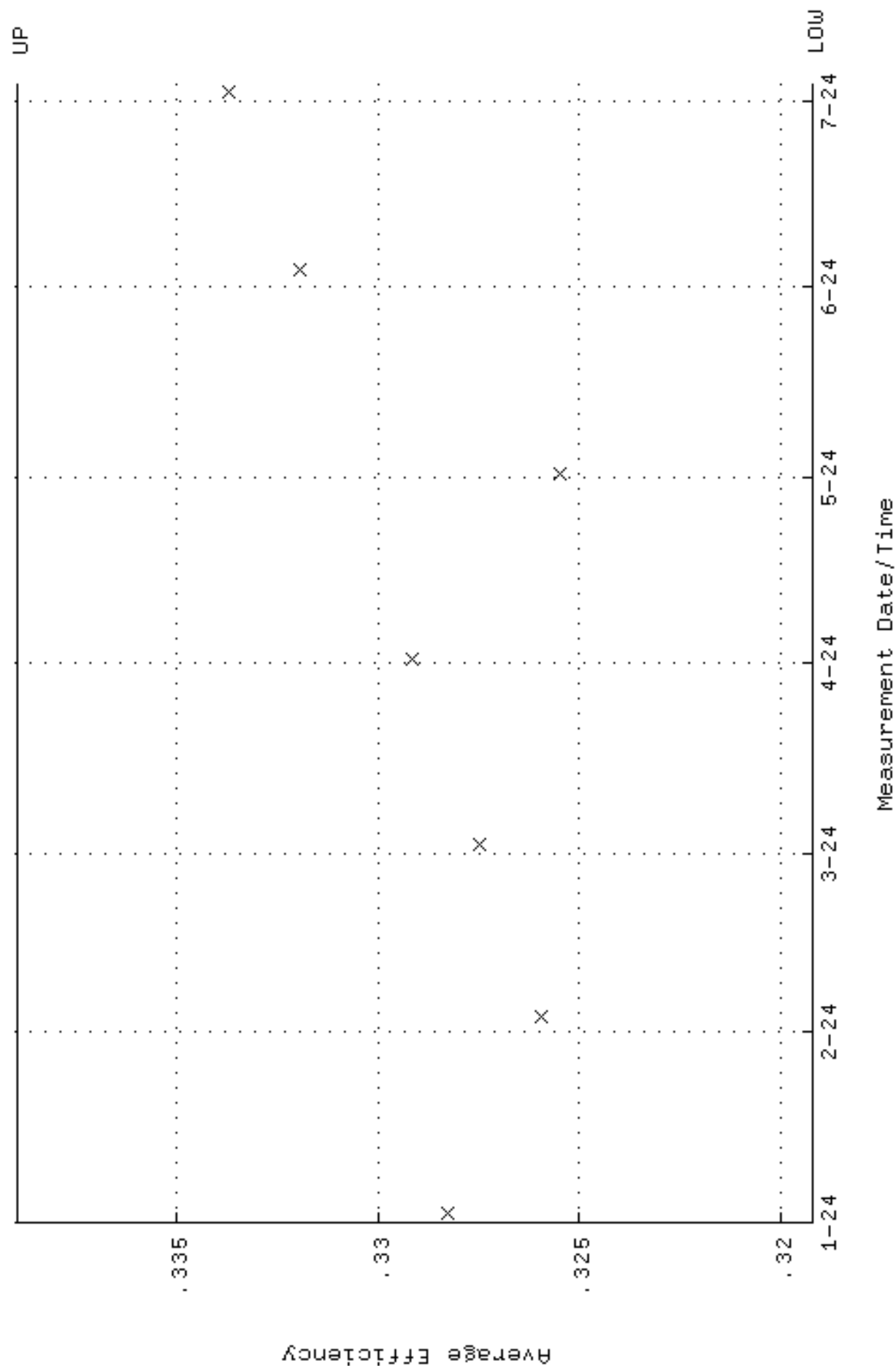
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
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 Lower/Upper Lmts: 3143.00 through 3223.00



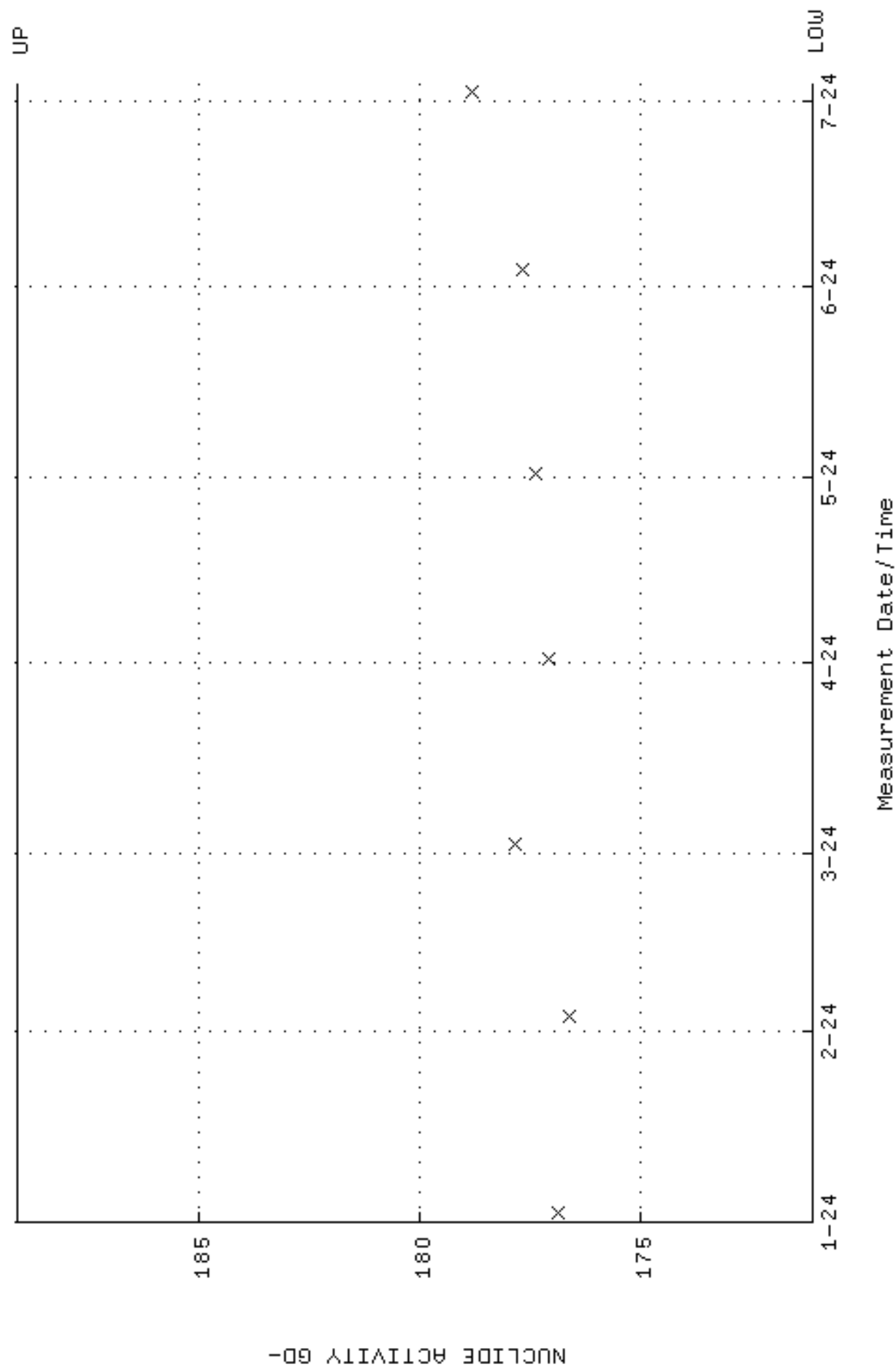
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 Parameter Name : BACKRATE (Background Rate)
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



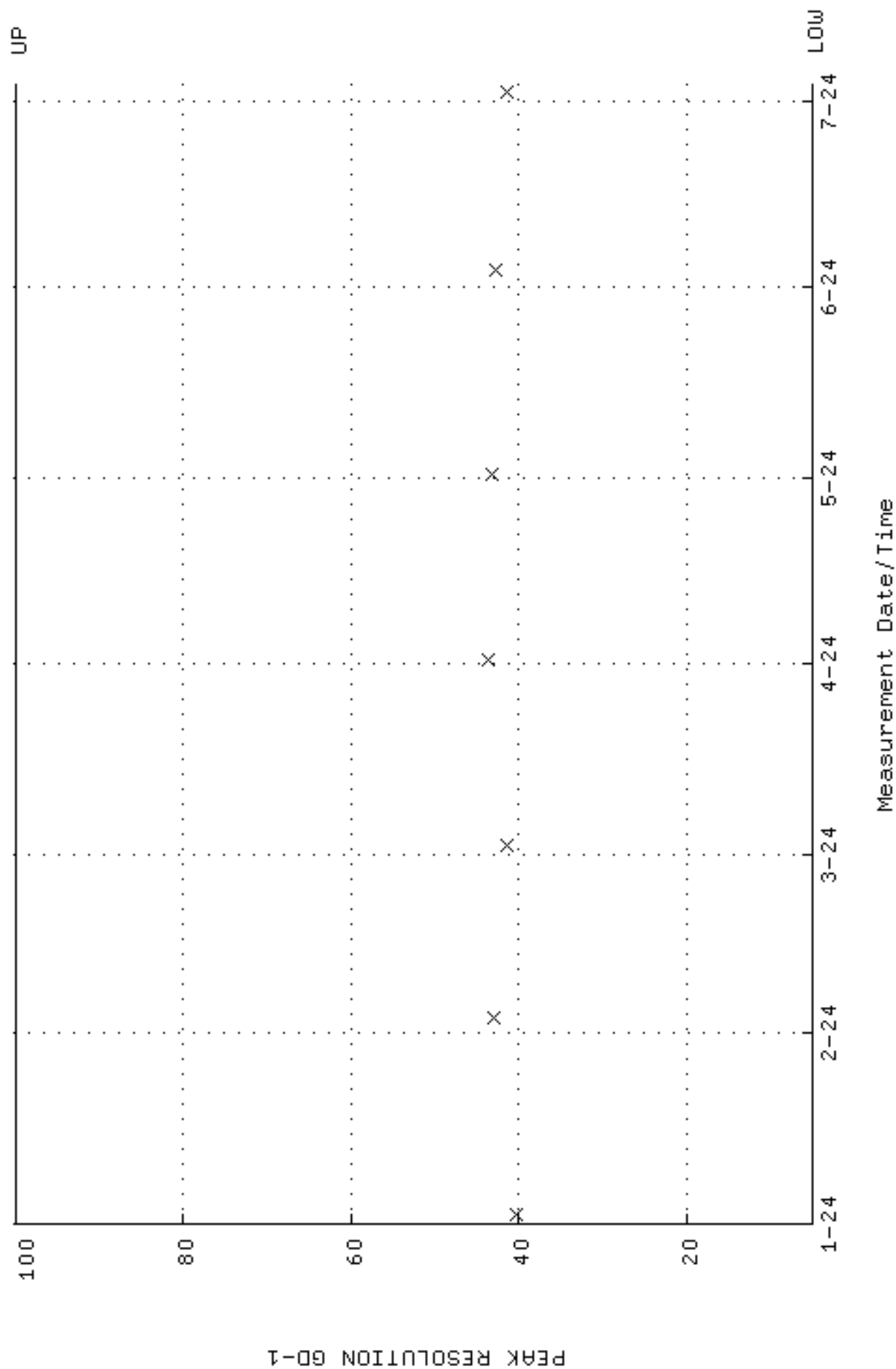
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 Lower/Upper Lmts: 0.319210 through 0.338950



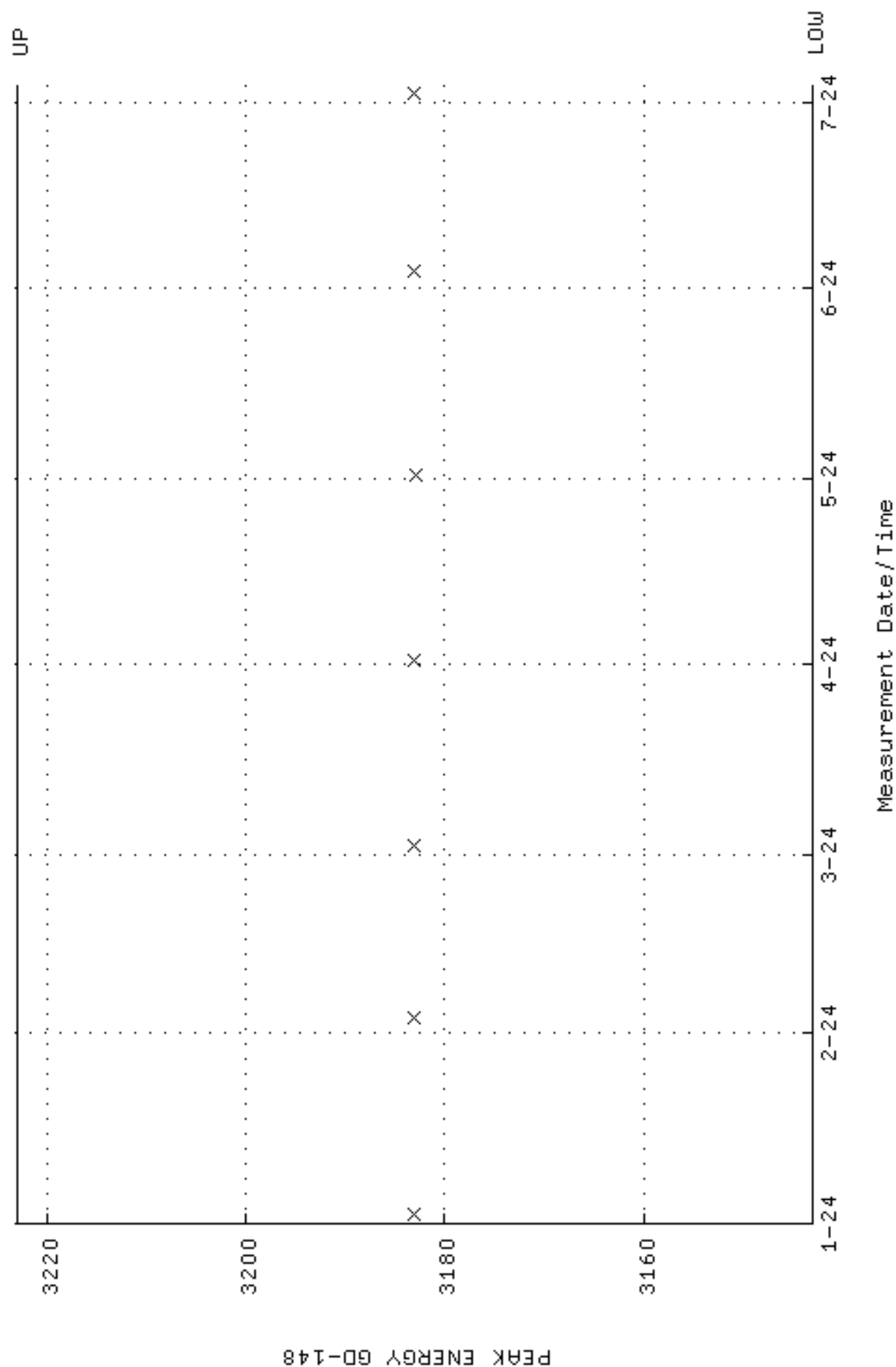
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 Lower/Upper Lmts: 171.090 through 189.100



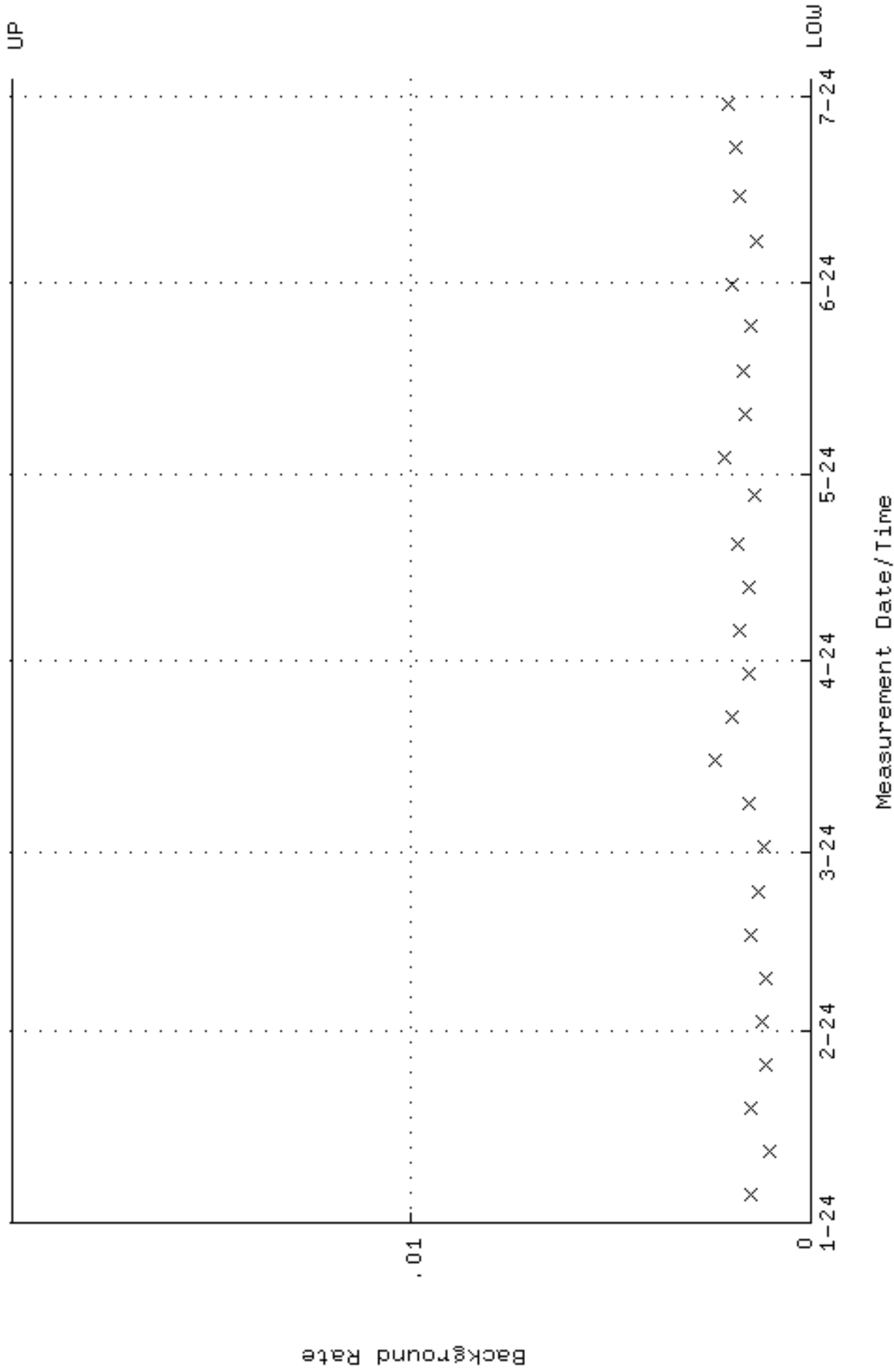
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 Start/End Dates : 2-JAN-2024 11:48:23 through 3-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



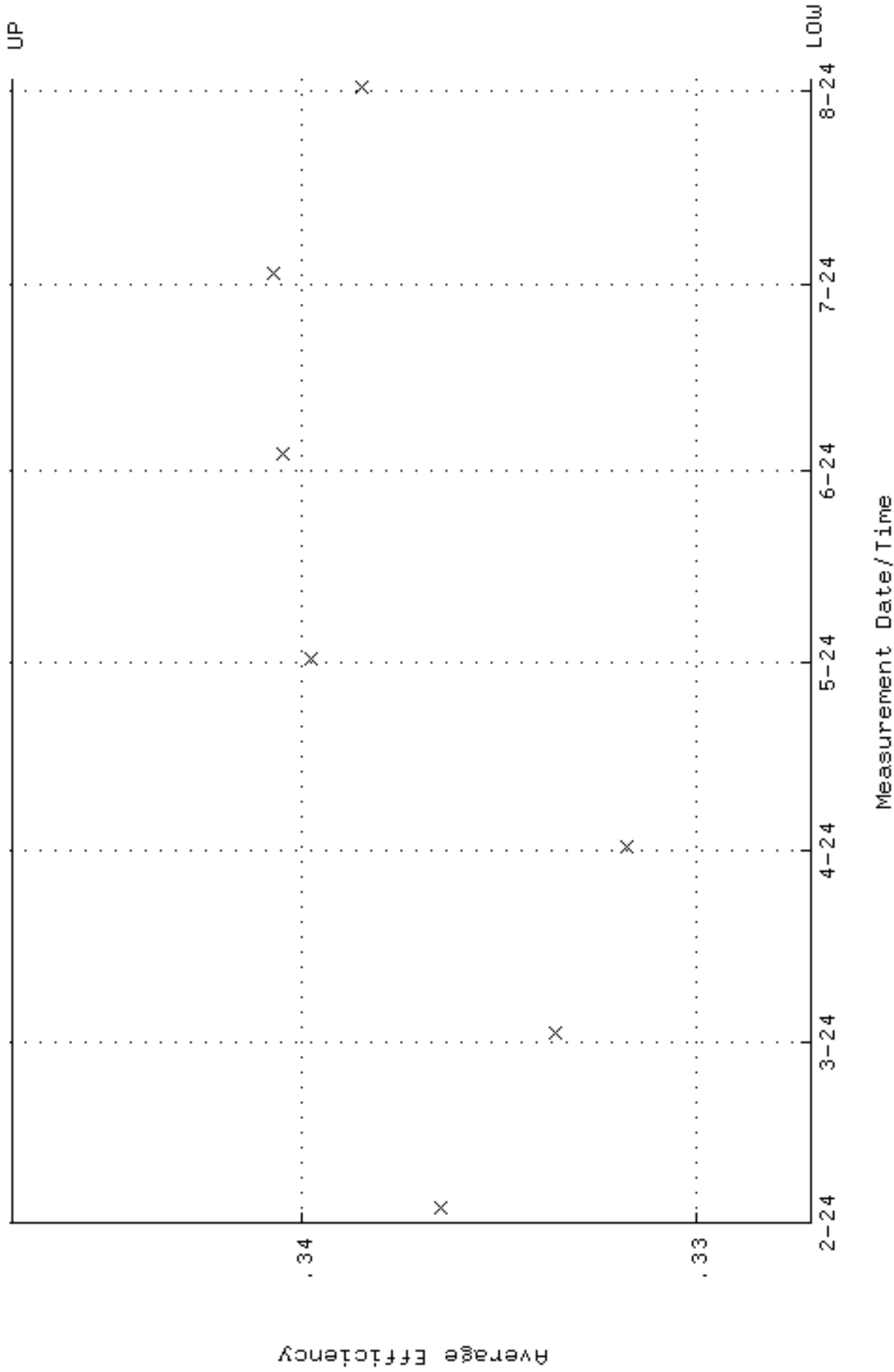
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
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 Lower/Upper Lmts: 3143.00 through 3223.00



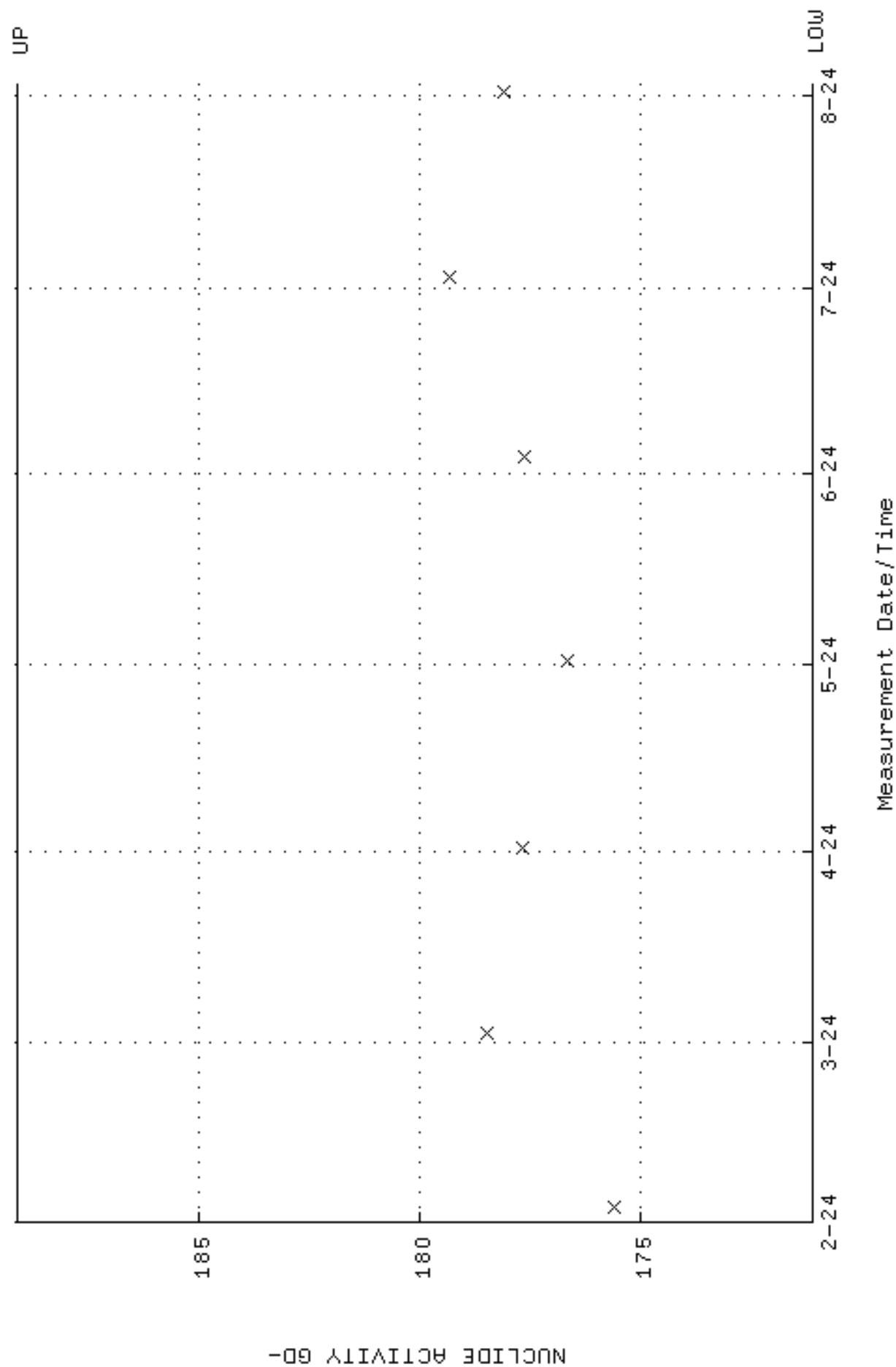
QA filename : DKA100:[ENV_ALPHA.QA.B]B008.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:12:12 through 3-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



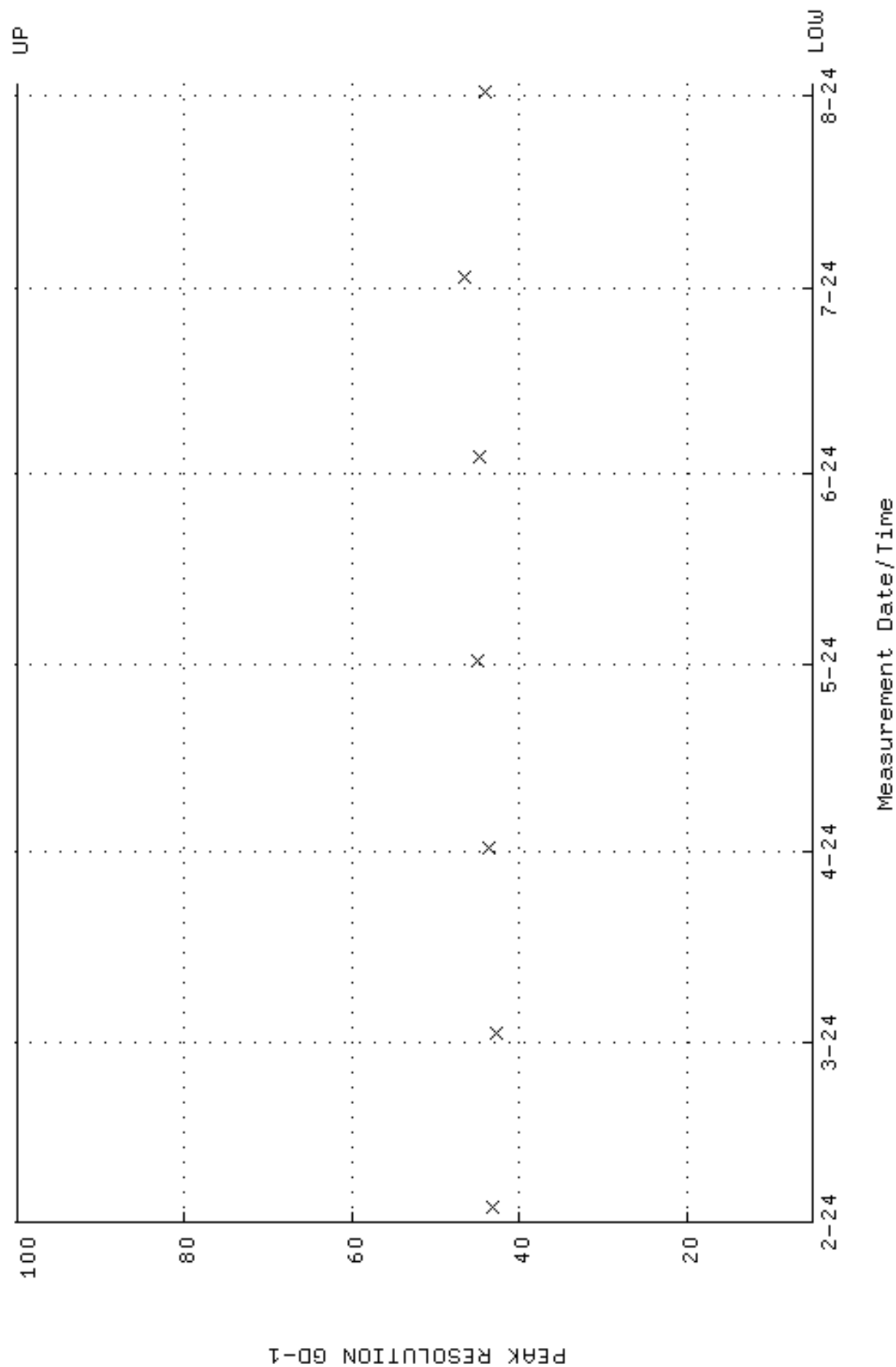
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Parameter Name : AVRGEFF (Average Efficiency)
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Lower/Upper Lmts: 0.327088 through 0.347320



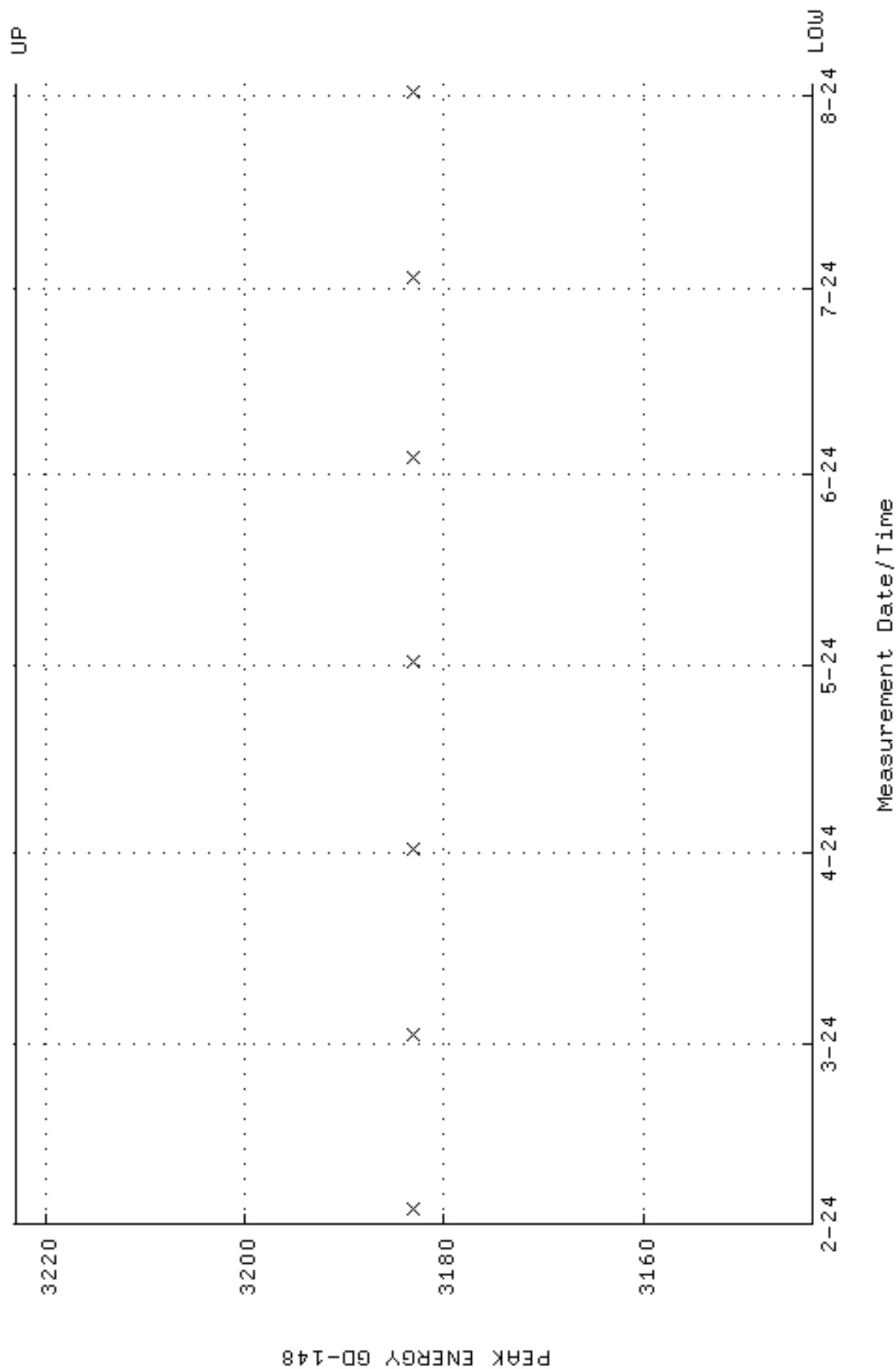
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 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



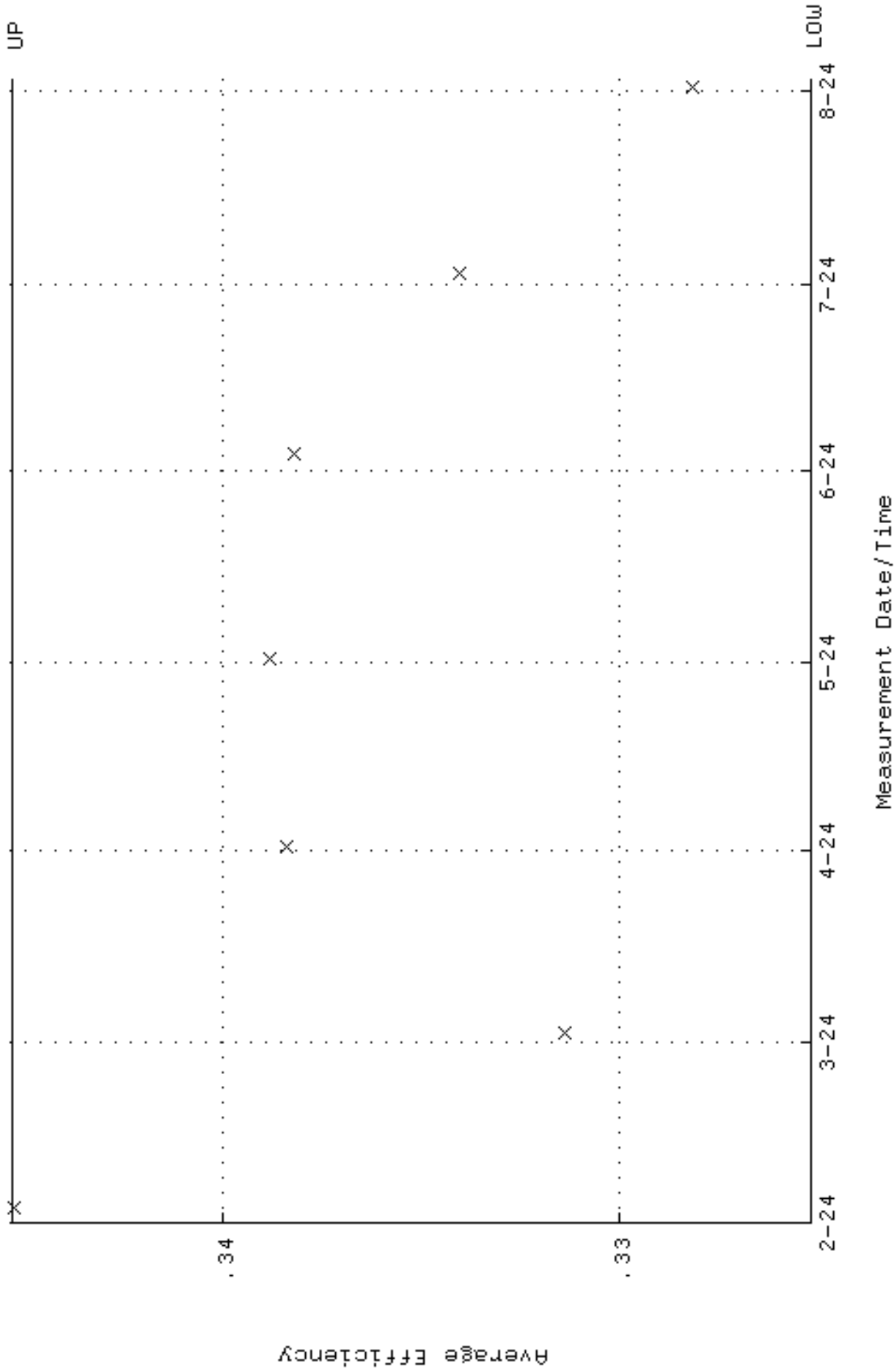
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



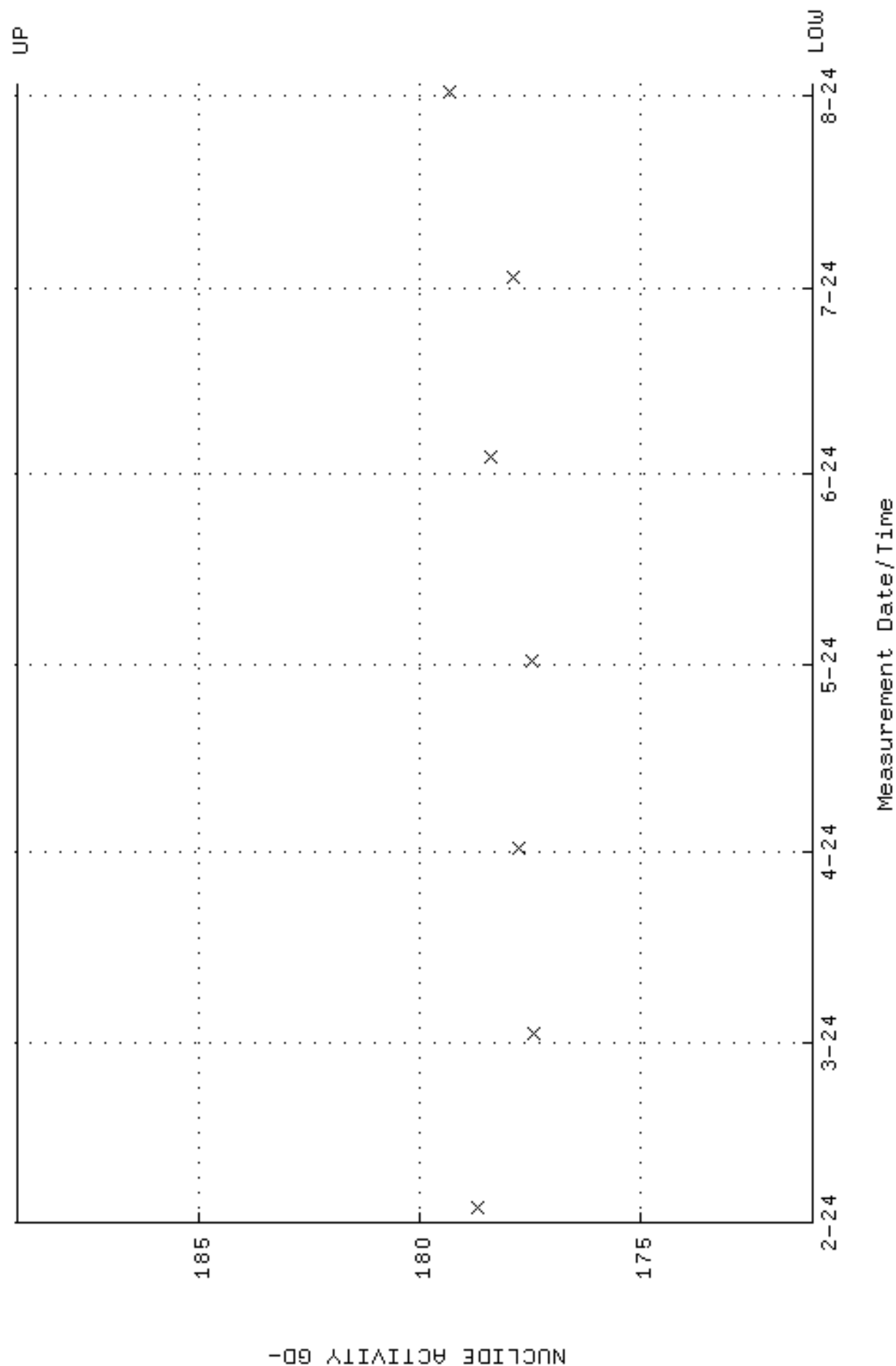
QA filename : DKA100:[ENV_ALPHA.QA.W]W009.QAF;7
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



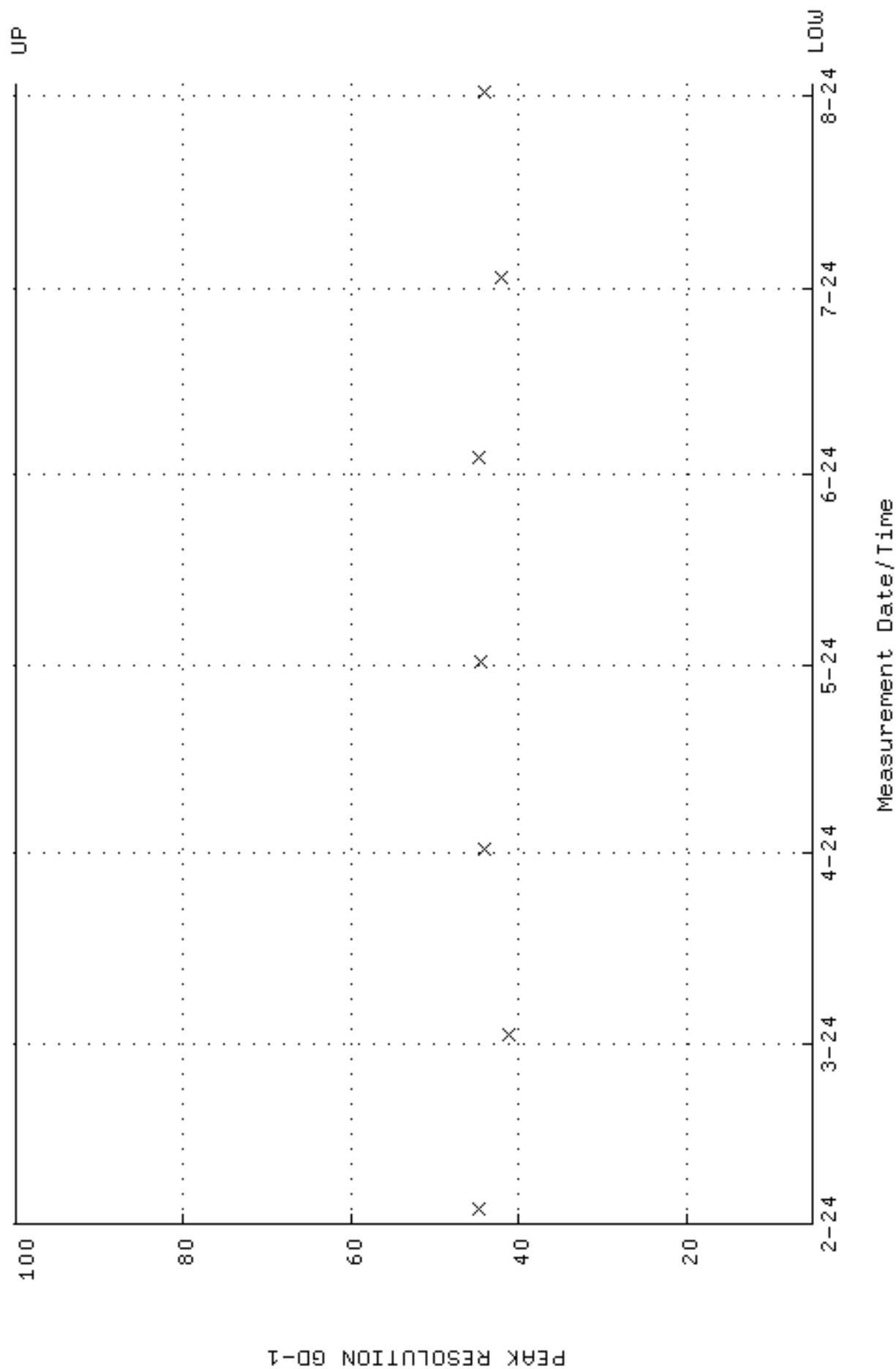
QA filename : DKA100:[ENV_ALPHA.QA.W]W010.QAF;8
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.325170 through 0.345290



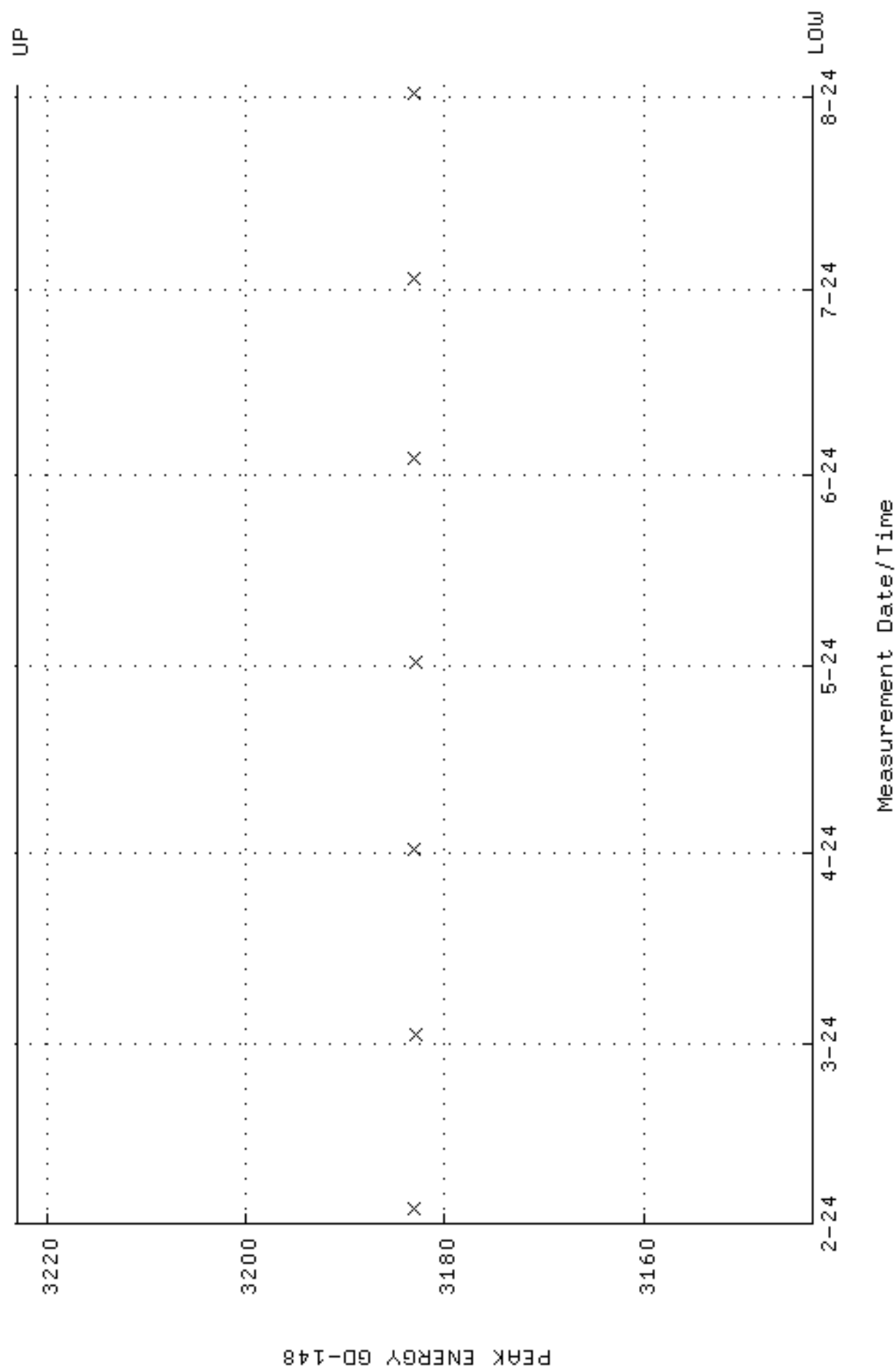
QA filename : DKA100:[ENV_ALPHA.QA.W]W010.QAF;8
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



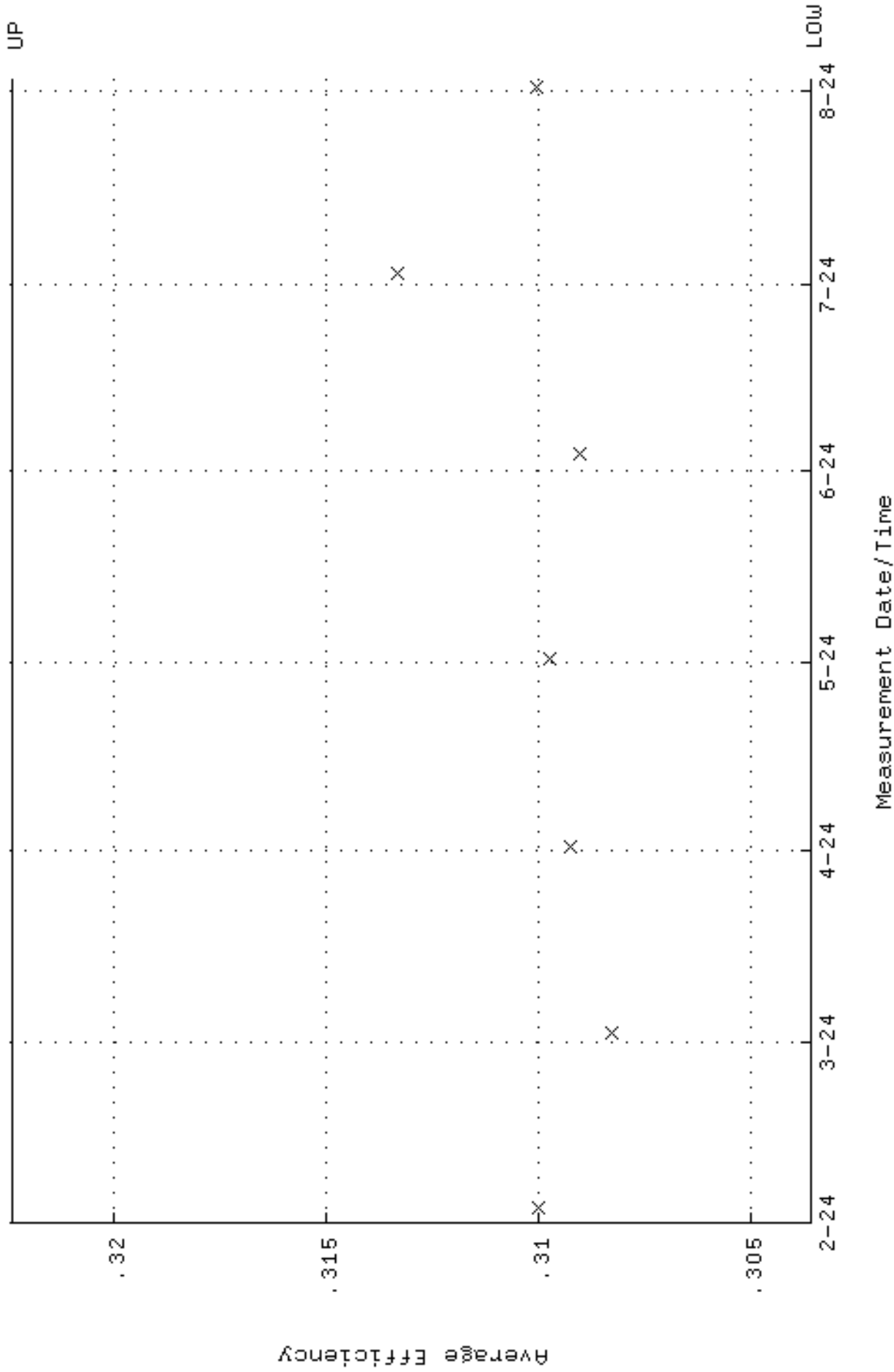
QA filename : DKA100:[ENV_ALPHA.QA.W]W010.QAF;8
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



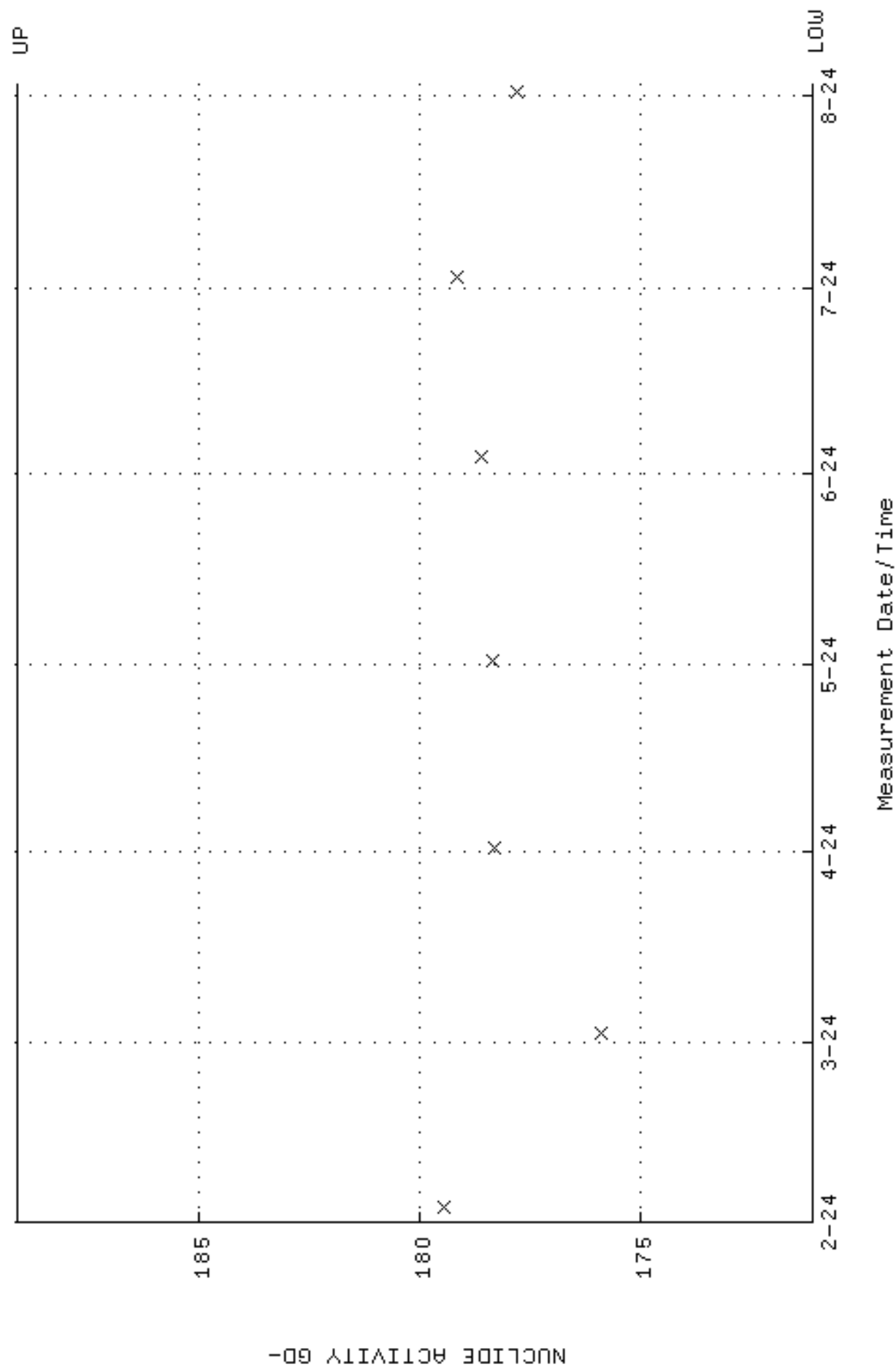
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



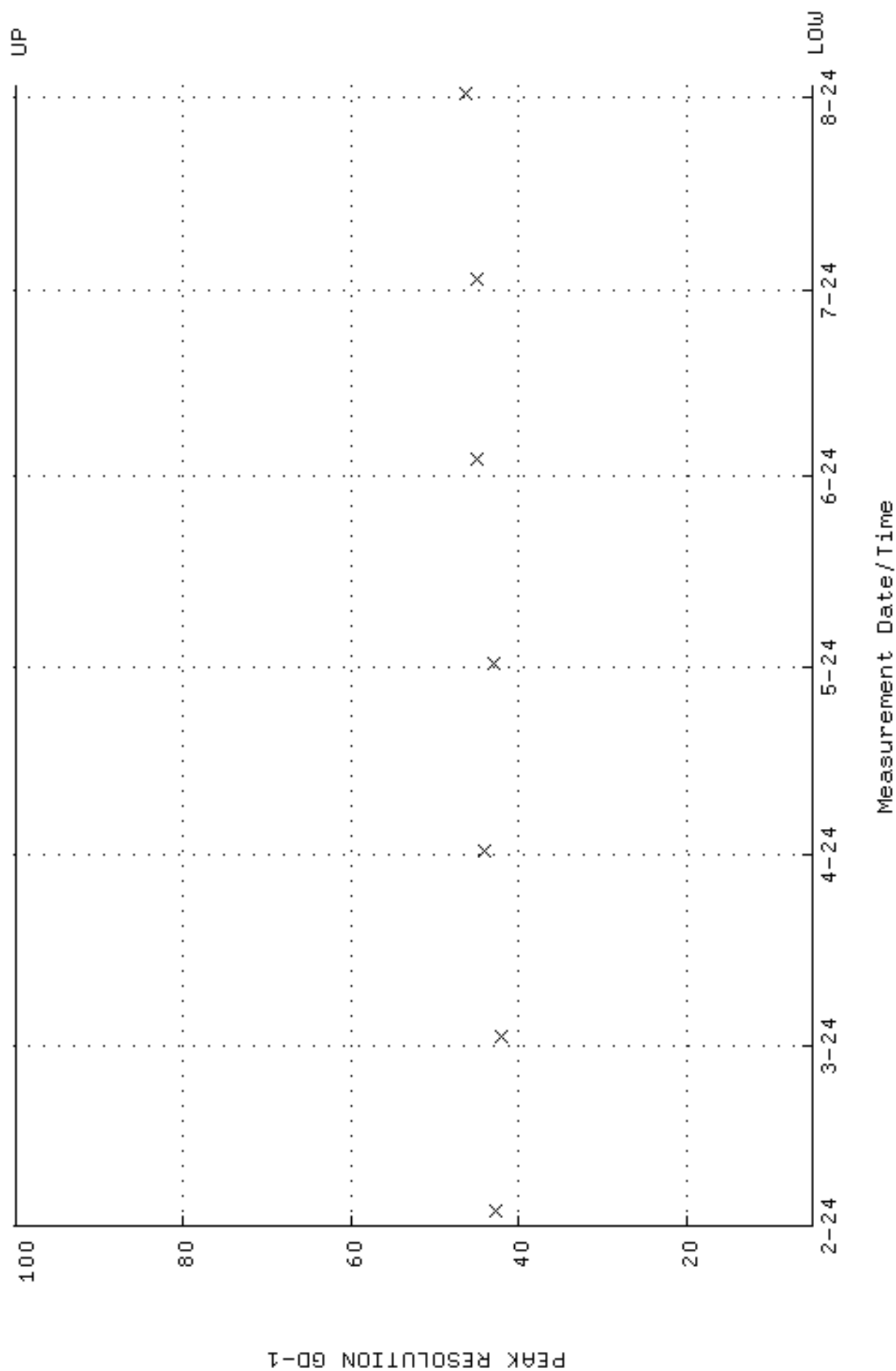
QA filename : DKA100:[ENV_ALPHA.QA.W]W011.QAF;8
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.303590 through 0.322370



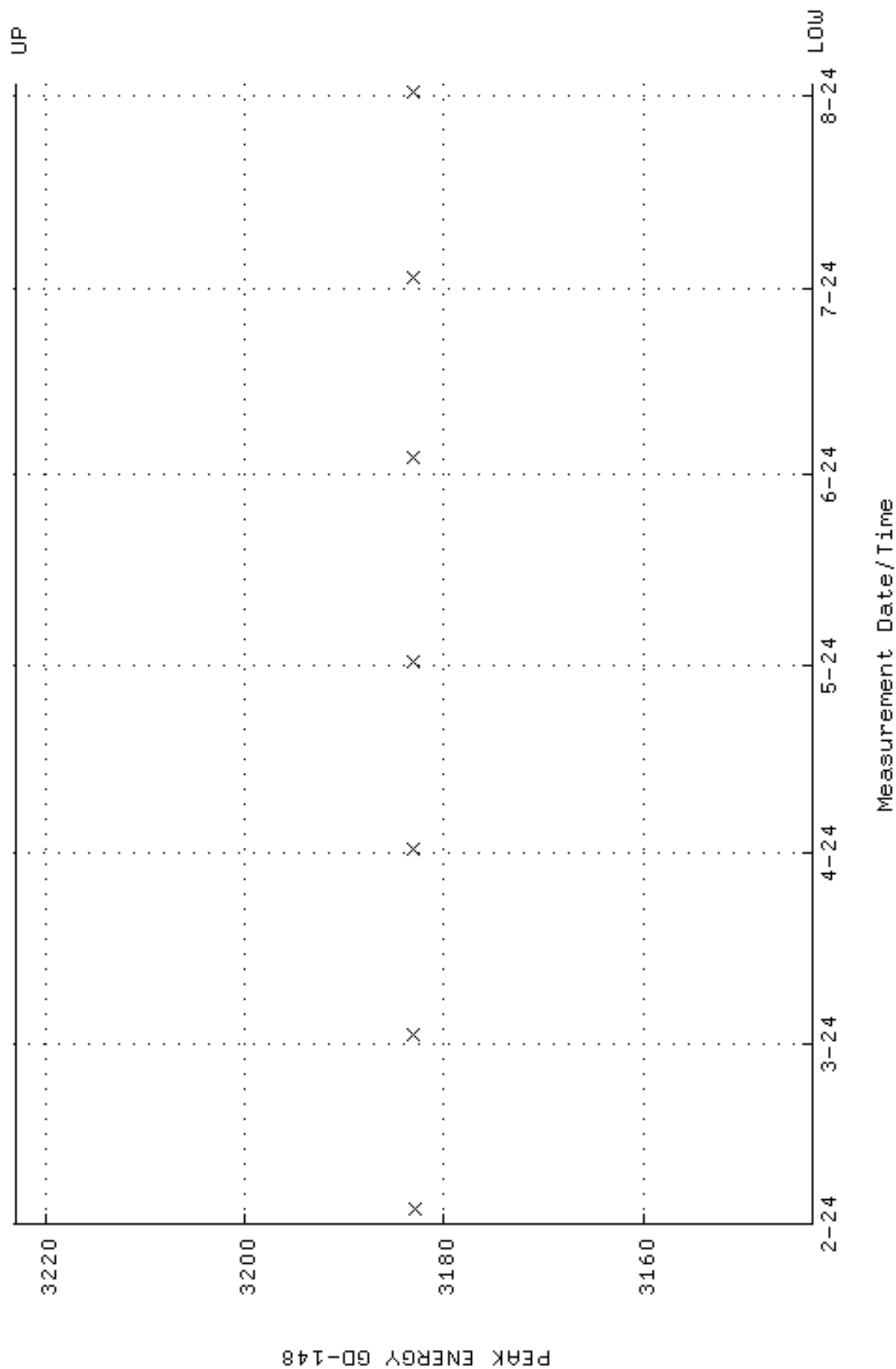
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 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



QA filename : DKA100:[ENV_ALPHA.QA.W]W011.QAF;8
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



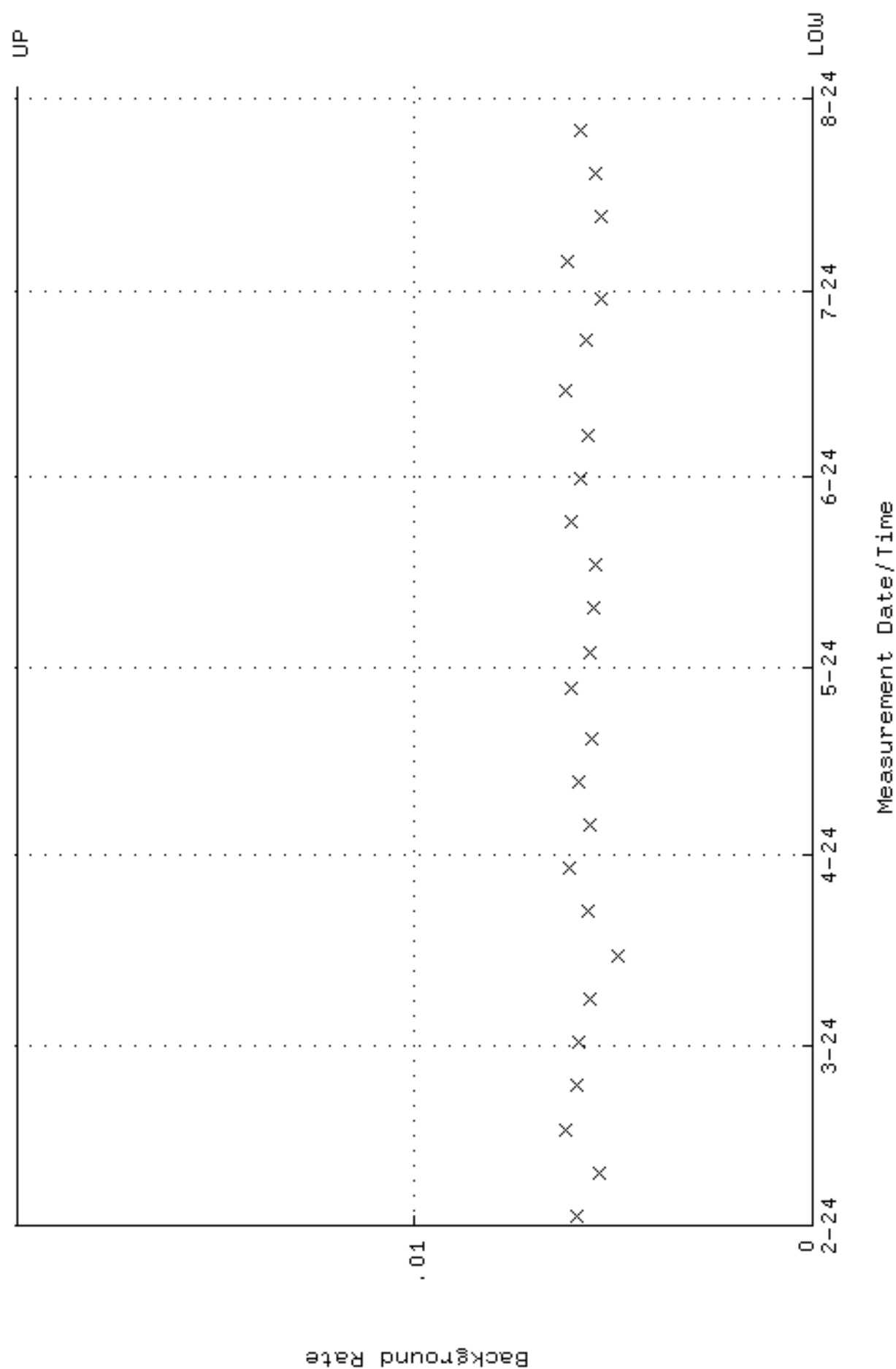
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



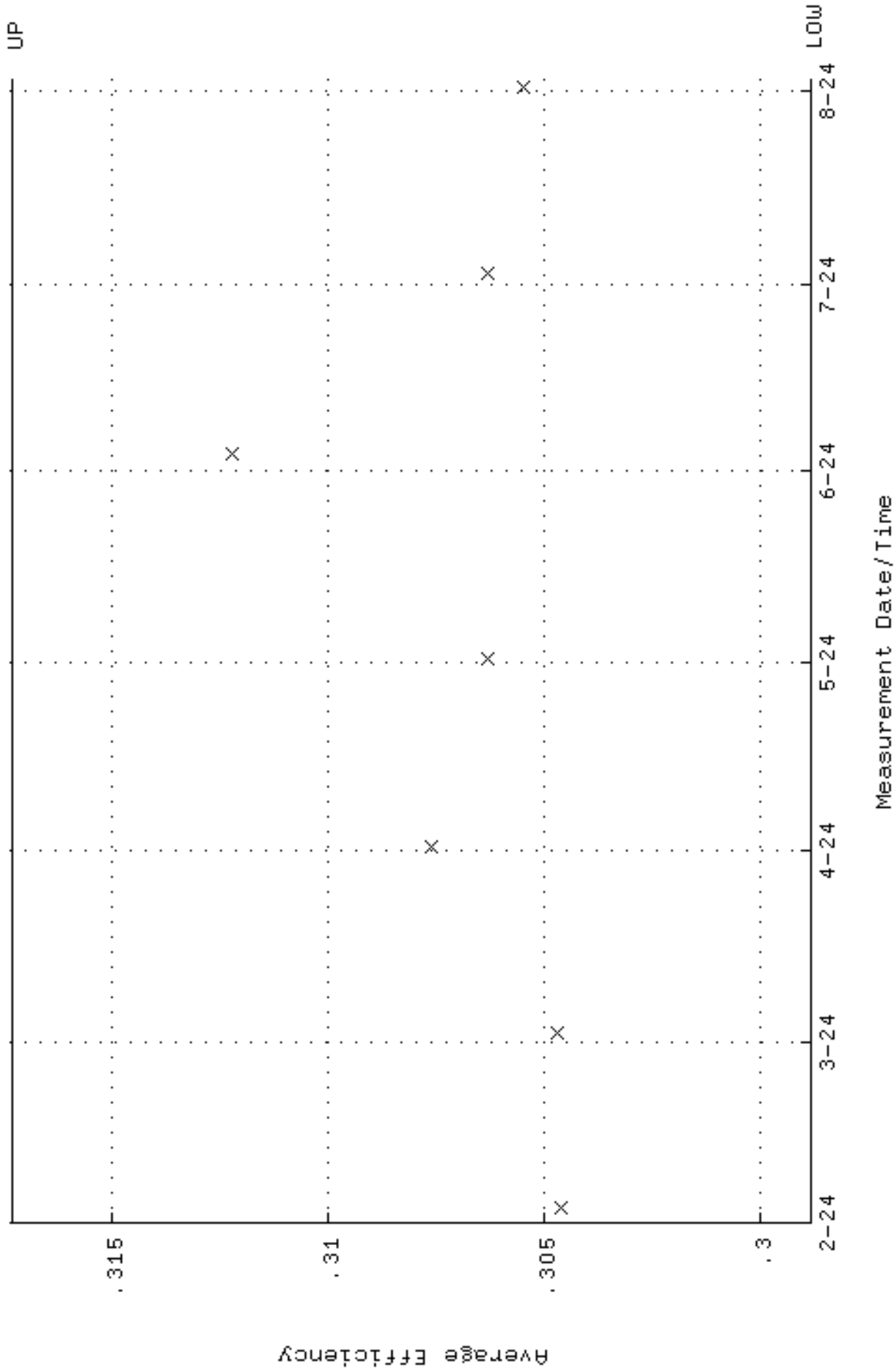
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QA filename      : DKA100:[ENV_ALPHA.QA.B]B011.QAF;5
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 2-FEB-2024 12:51:19 through 2-AUG-
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

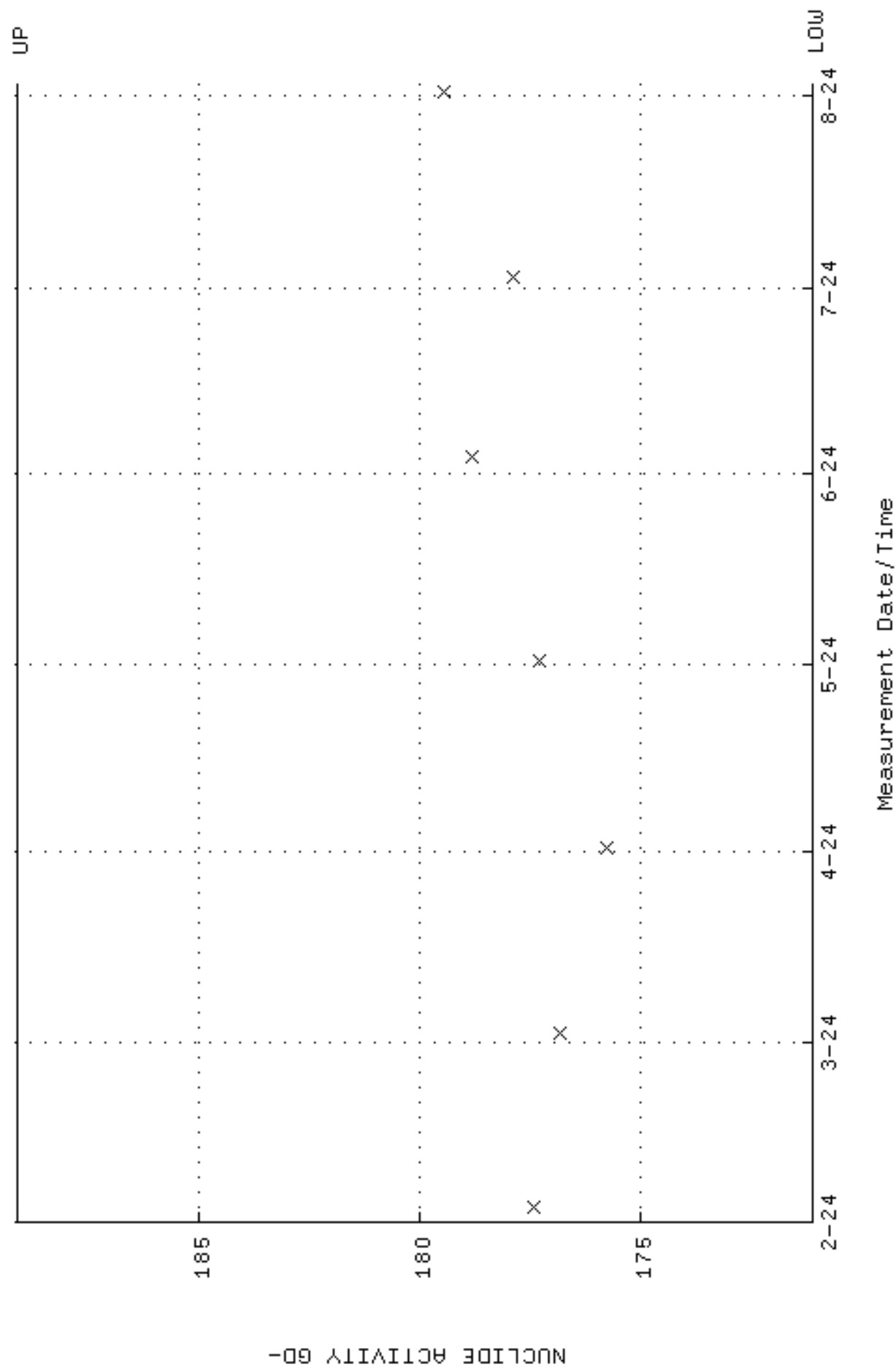
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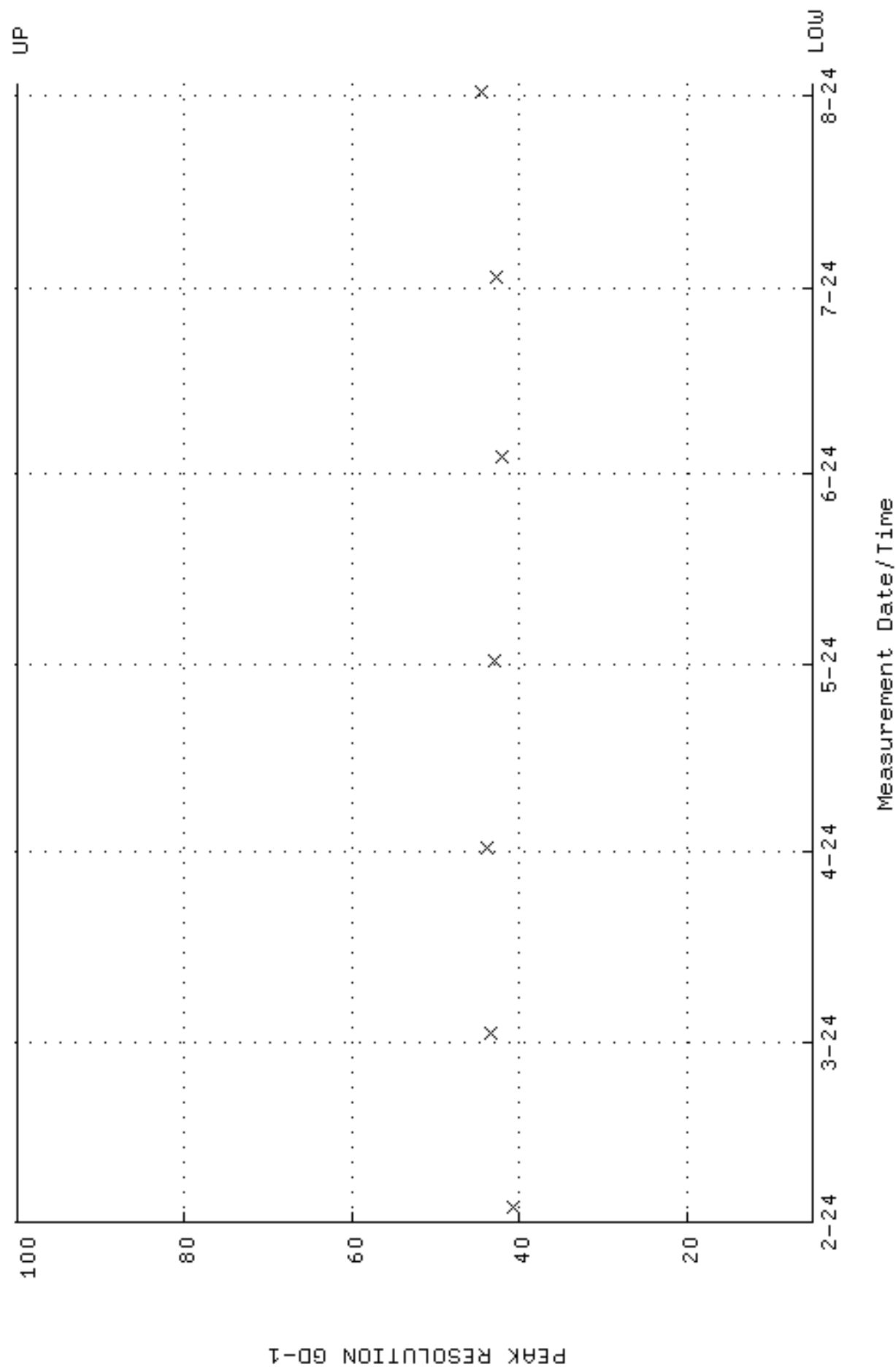
QA filename : DKA100:[ENV_ALPHA.QA.W]W012.QAF;7
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.298821 through 0.317305



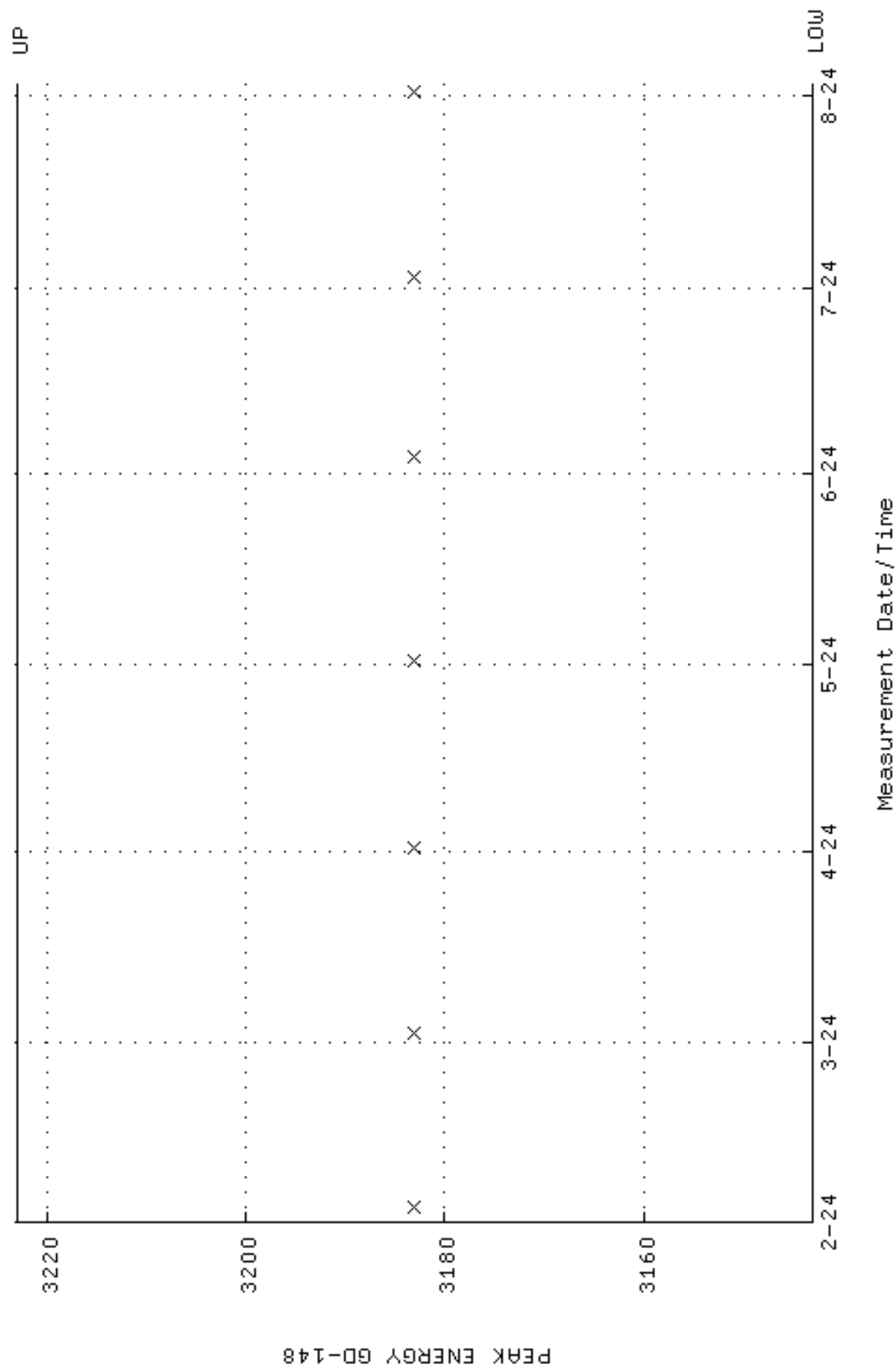
QA filename : DKA100:[ENV_ALPHA.QA.W]W012.QAF;7
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



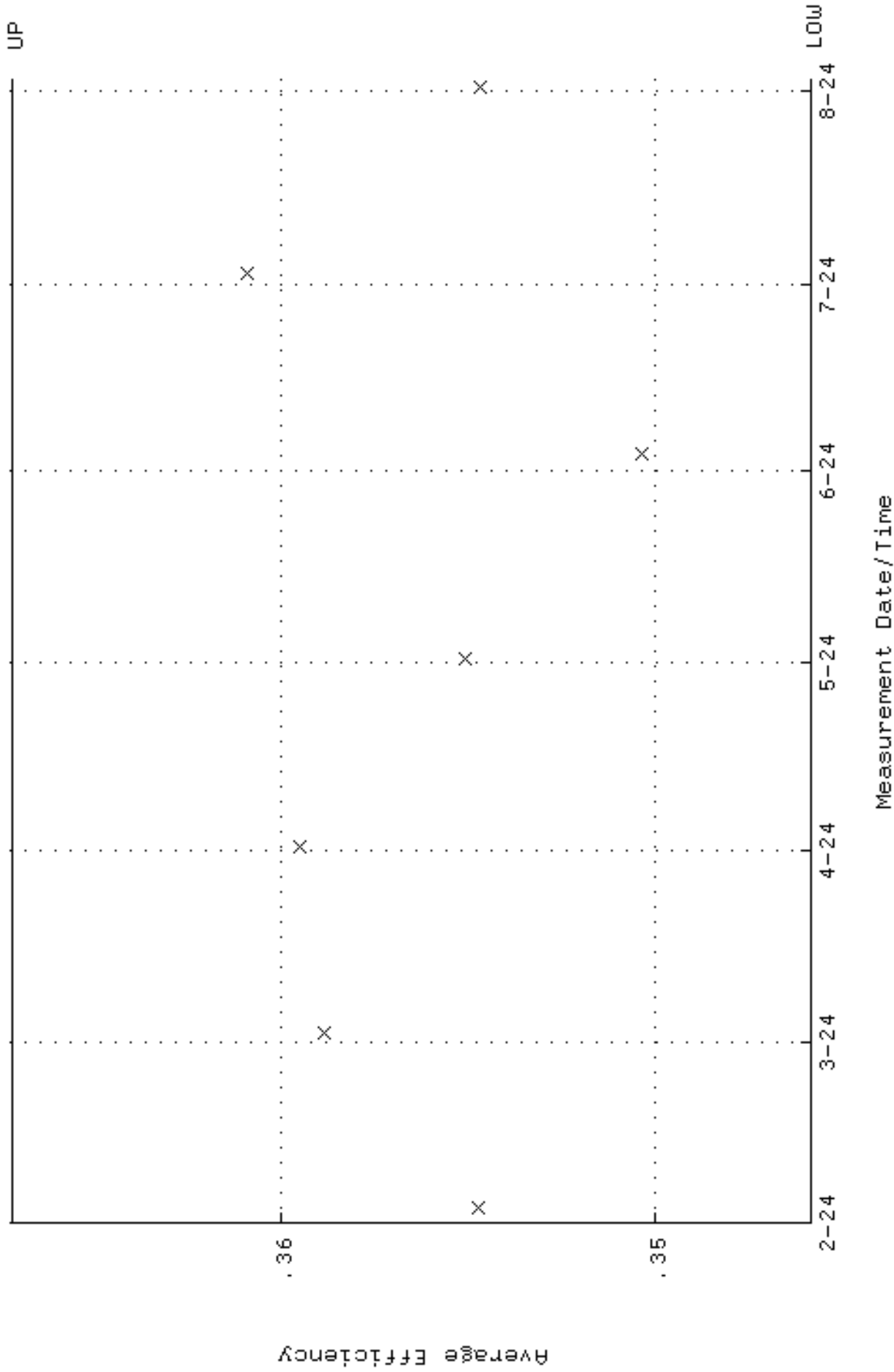
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



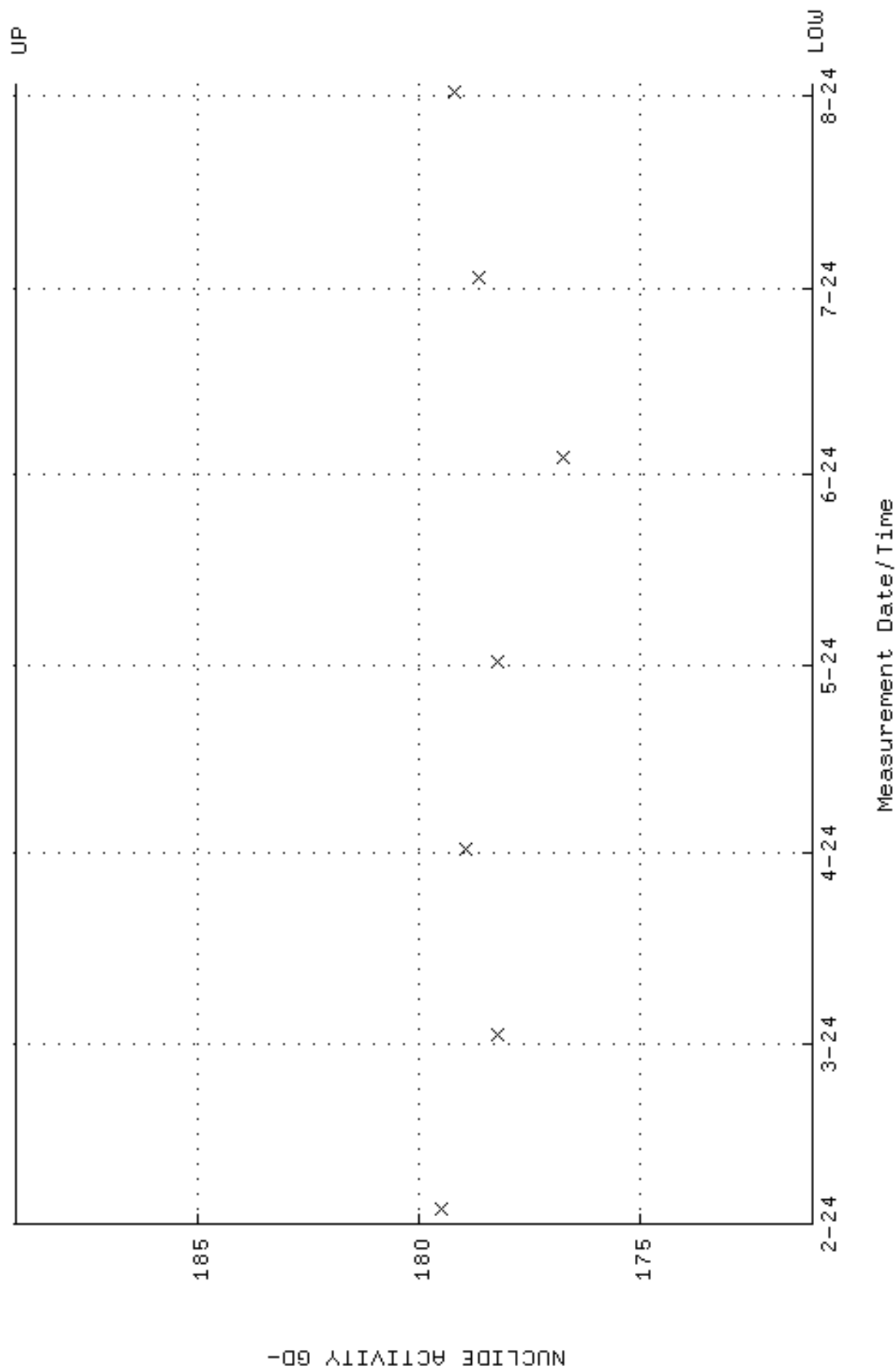
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:07:34 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



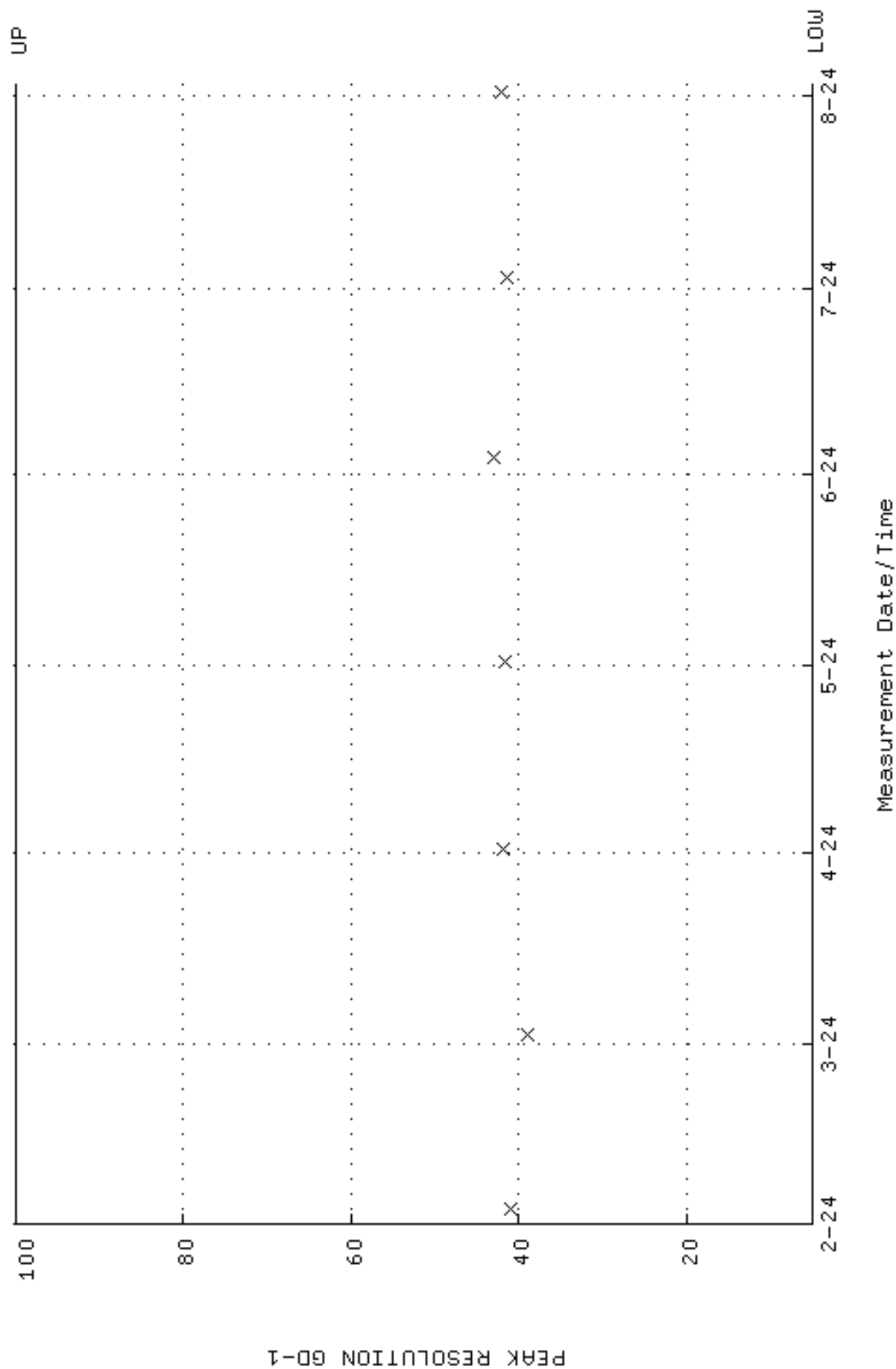
QA filename : DKA100:[ENV_ALPHA.QA.W]W013.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.345830 through 0.367220



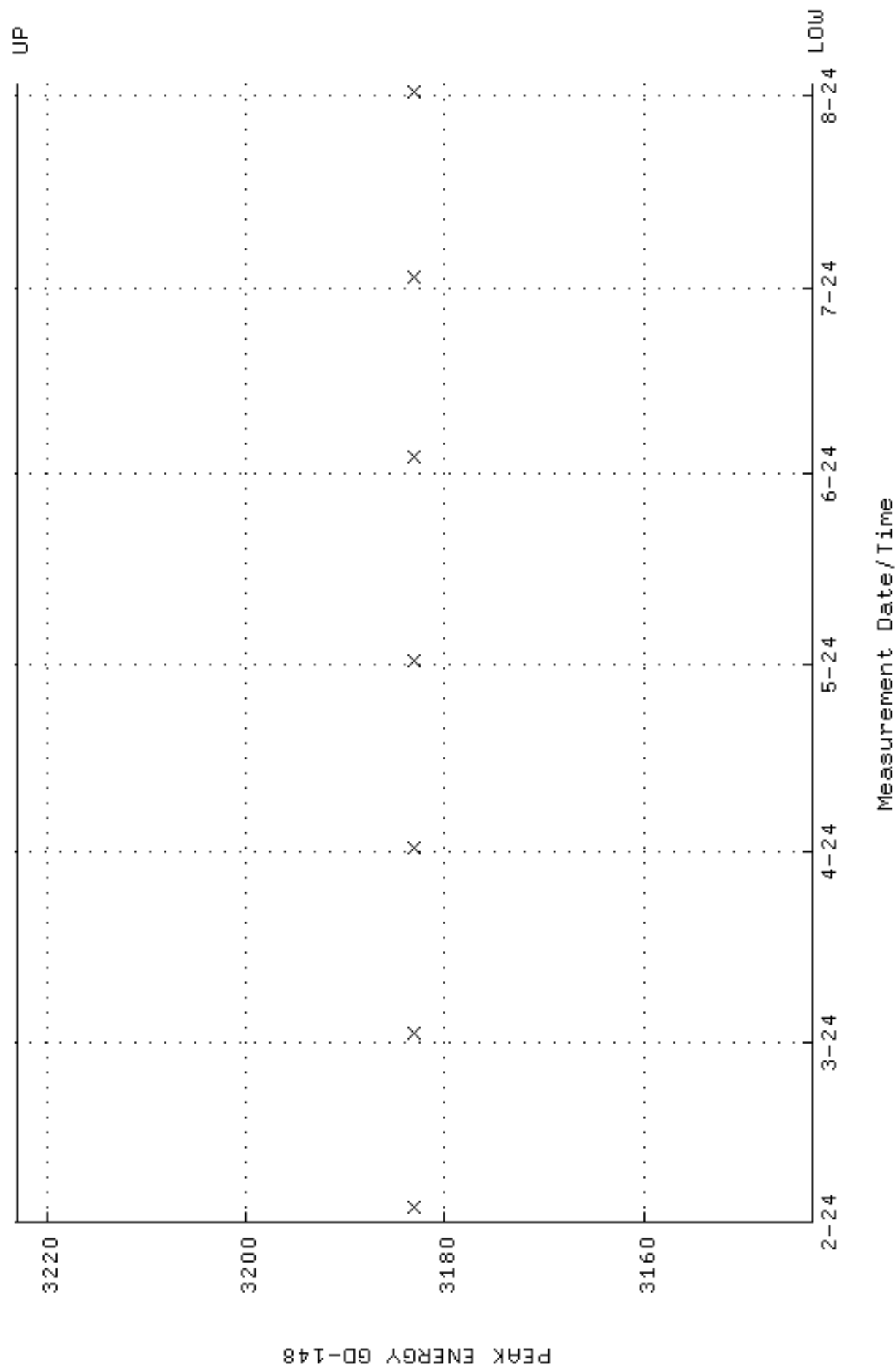
QA filename : DKA100:[ENV_ALPHA.QA.W]W013.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



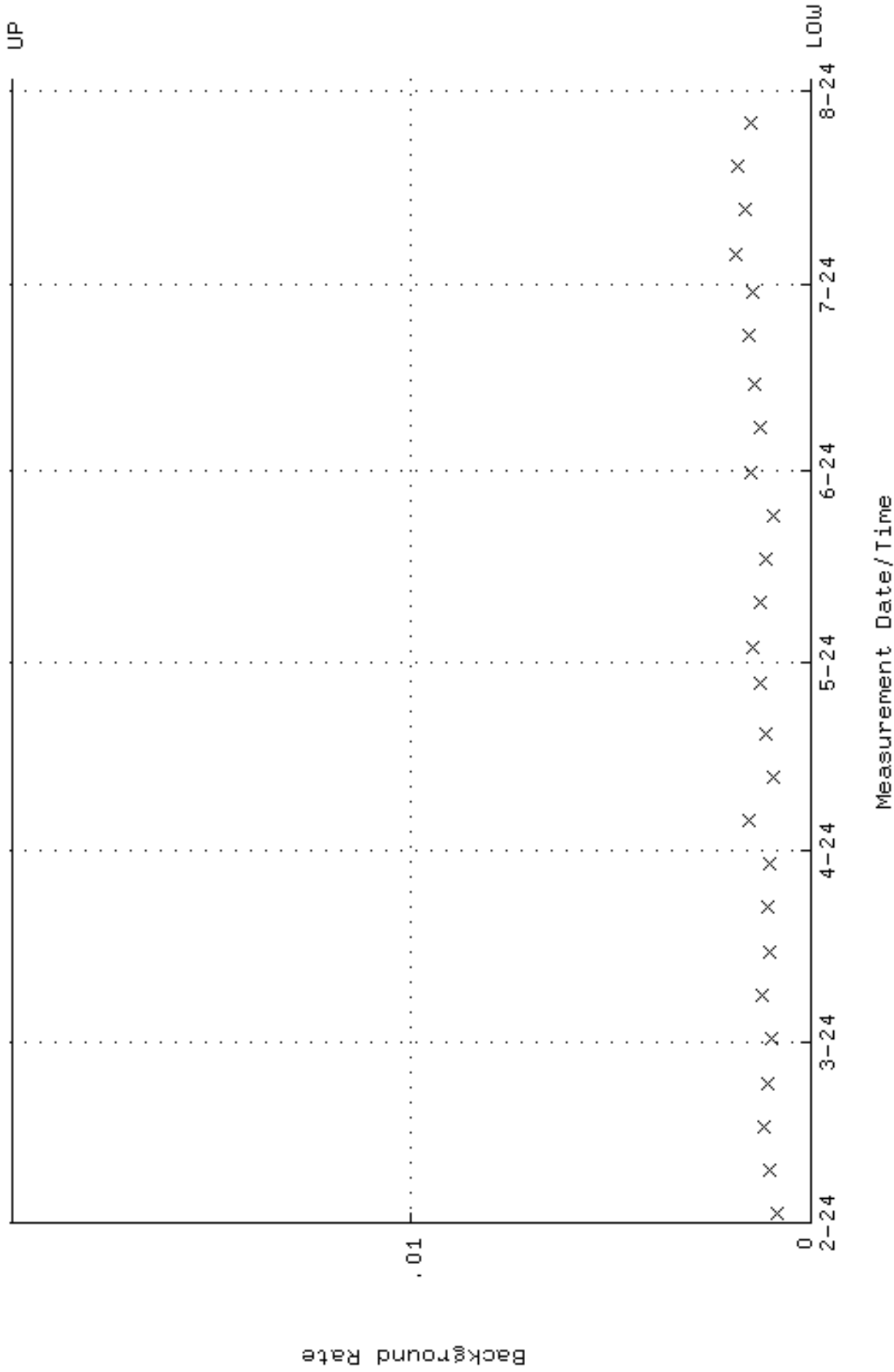
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



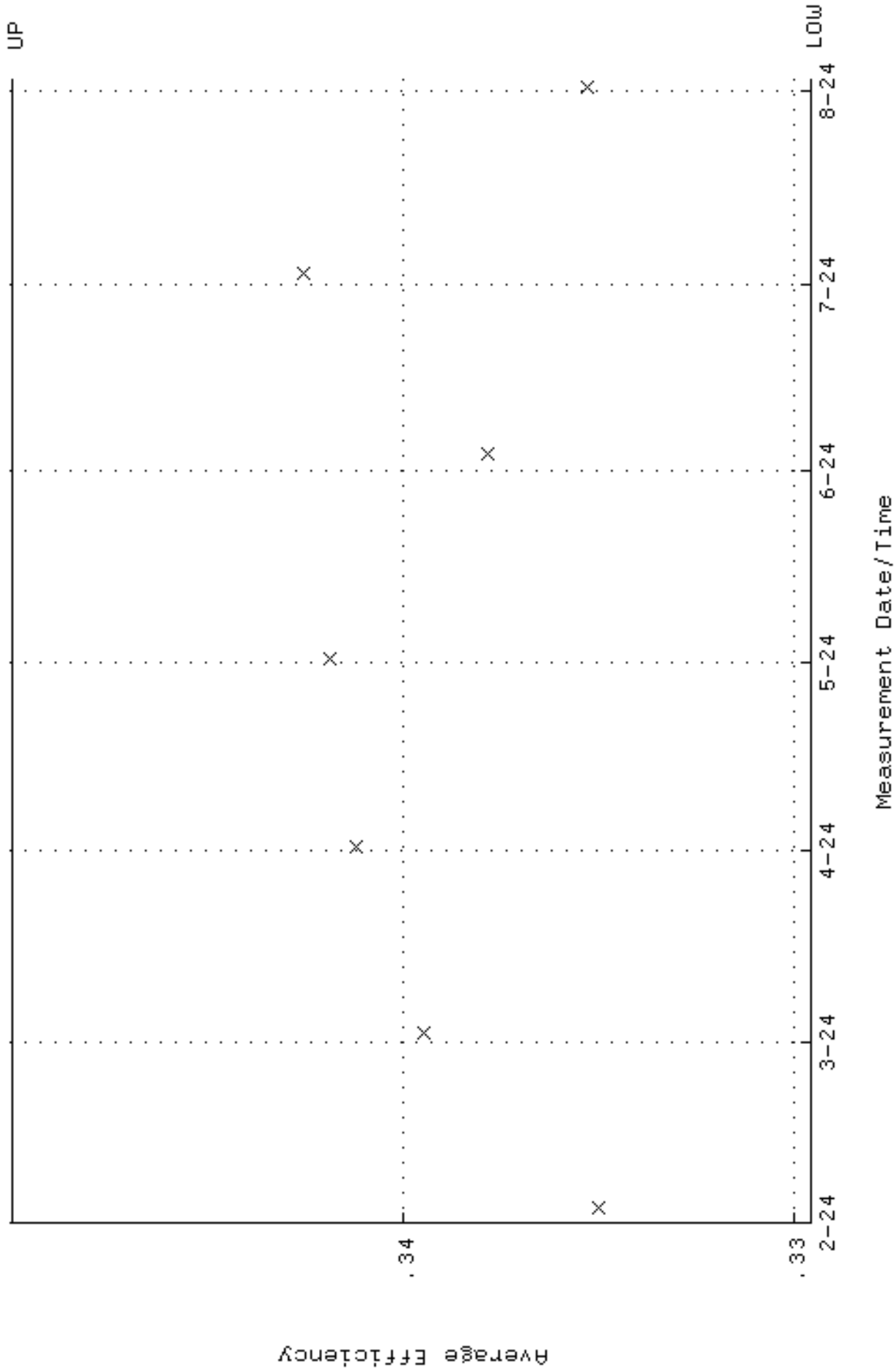
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



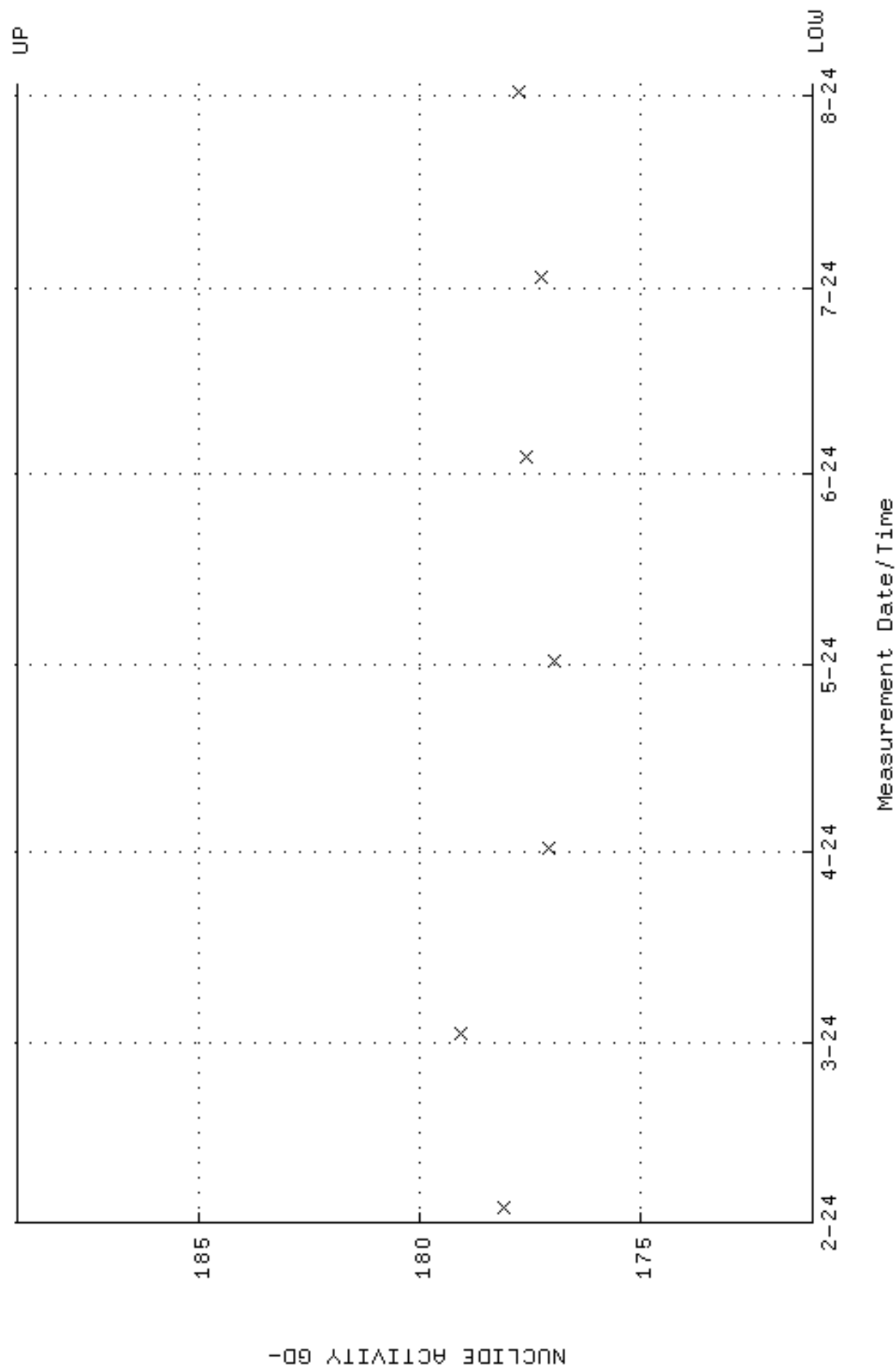
QA filename : DKA100:[ENV_ALPHA.QA.B]B013.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-FEB-2024 12:51:20 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



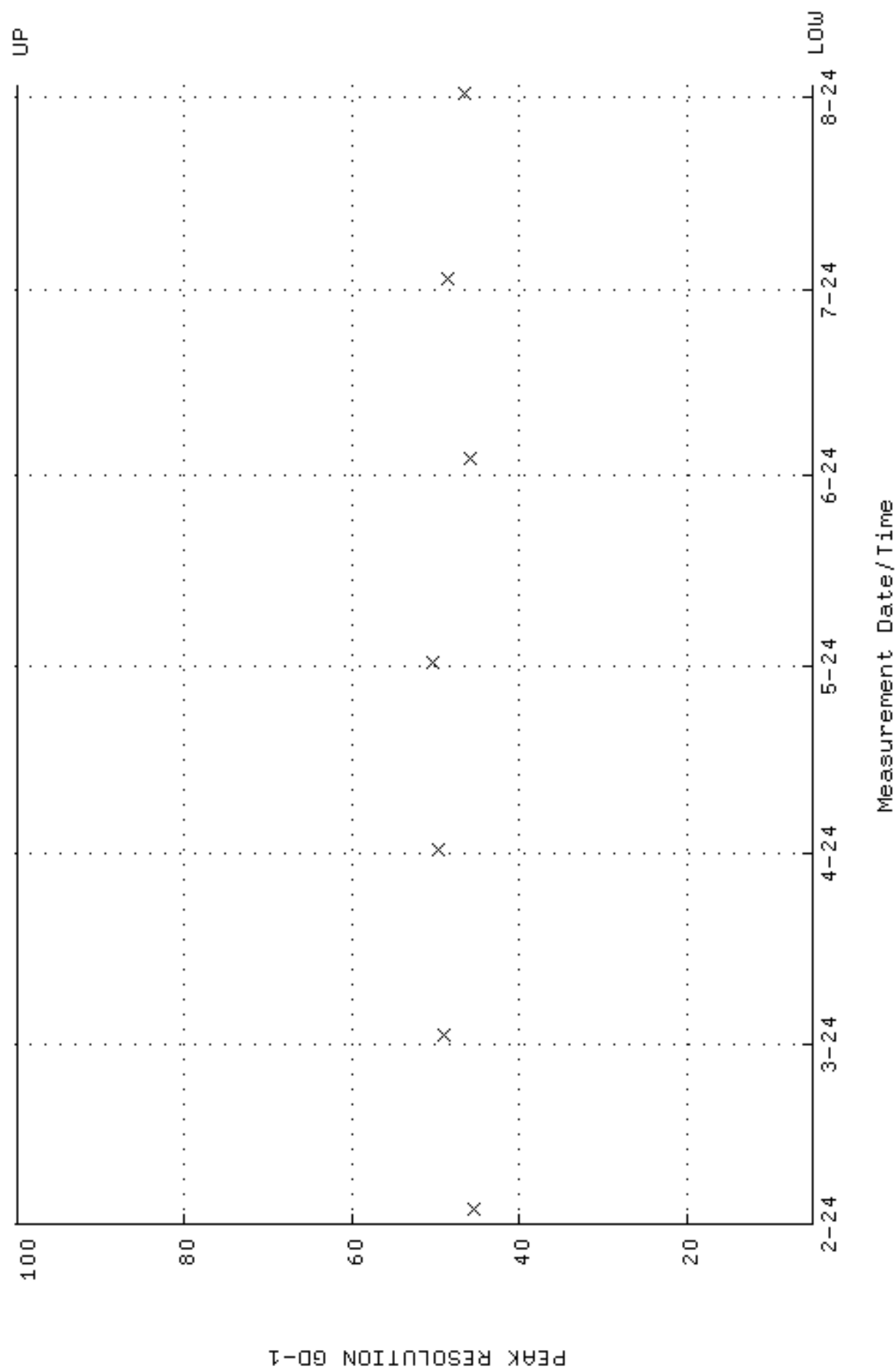
QA filename : DKA100:[ENV_ALPHA.QA.W]W014.QAF;8
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.329580 through 0.349960



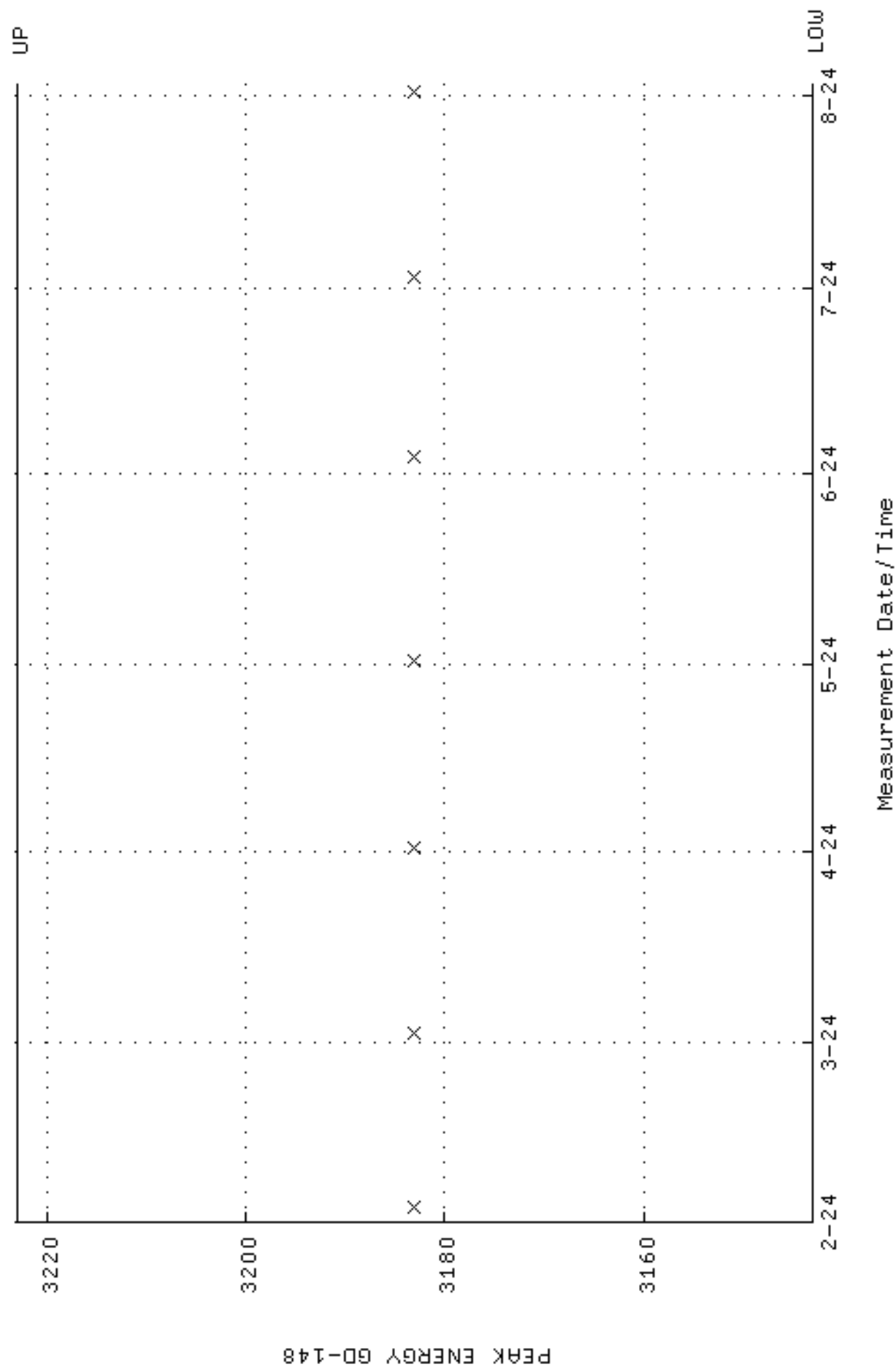
QA filename : DKA100:[ENV_ALPHA.QA.W]W014.QAF;8
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



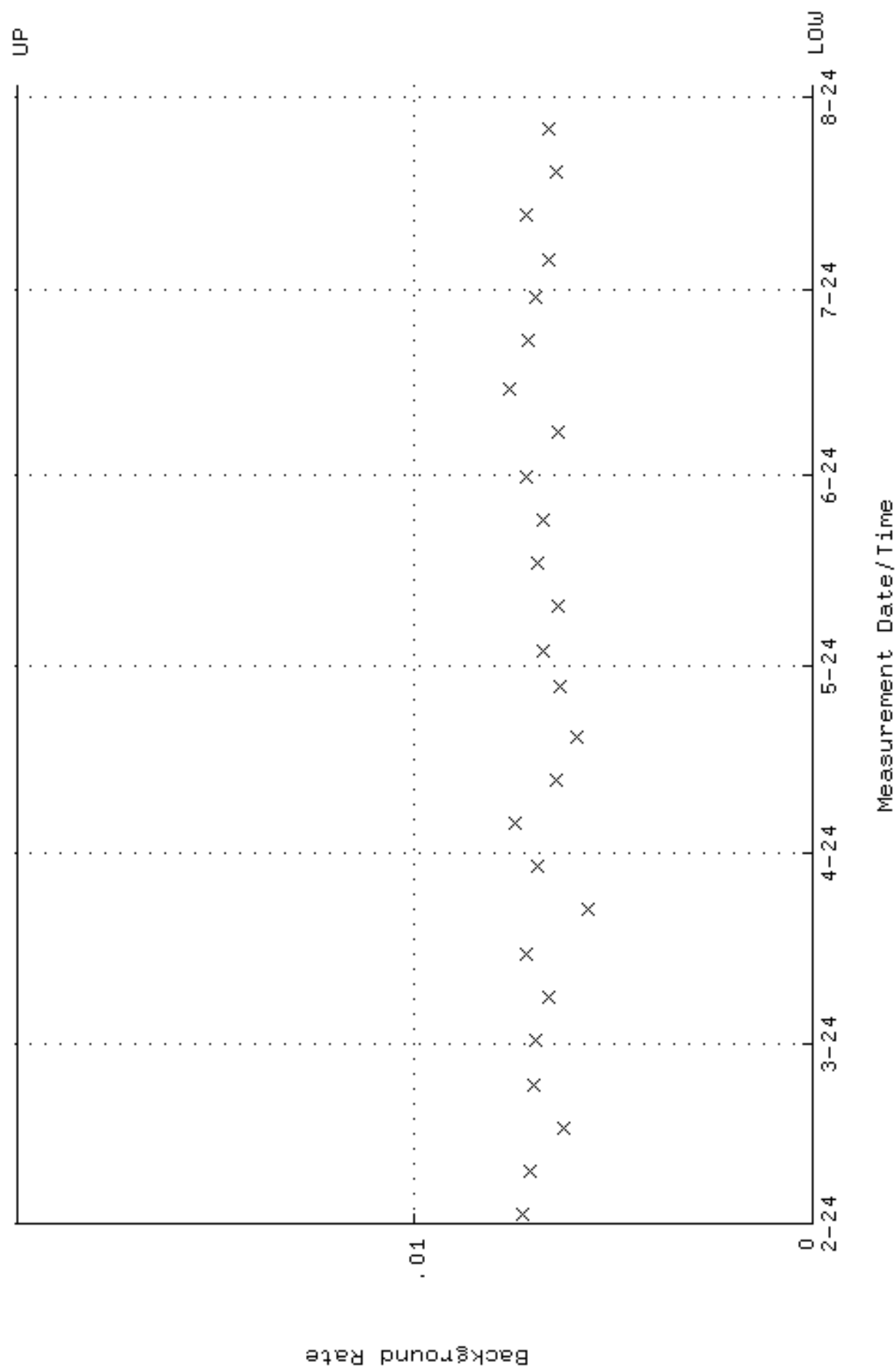
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



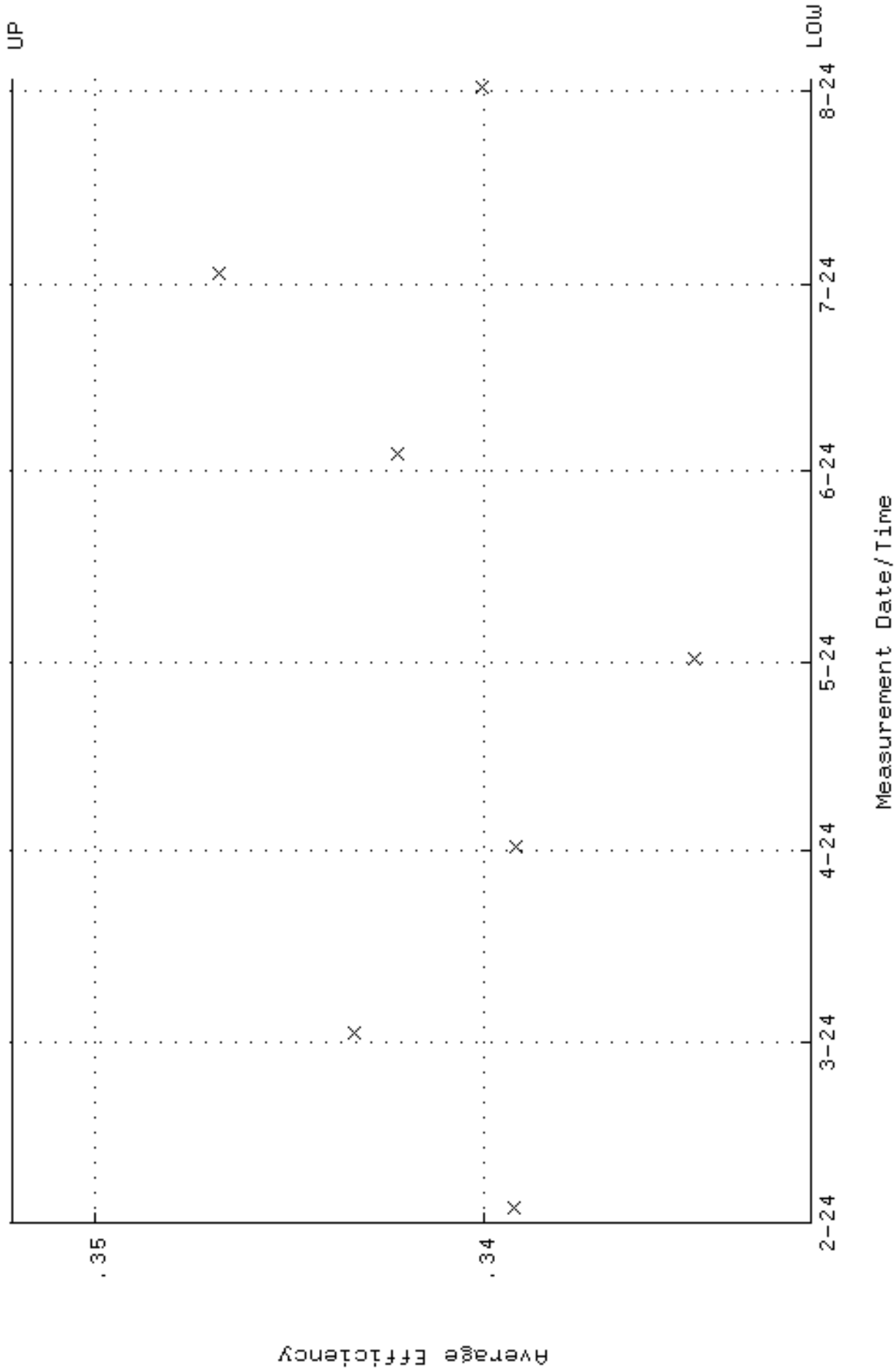
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



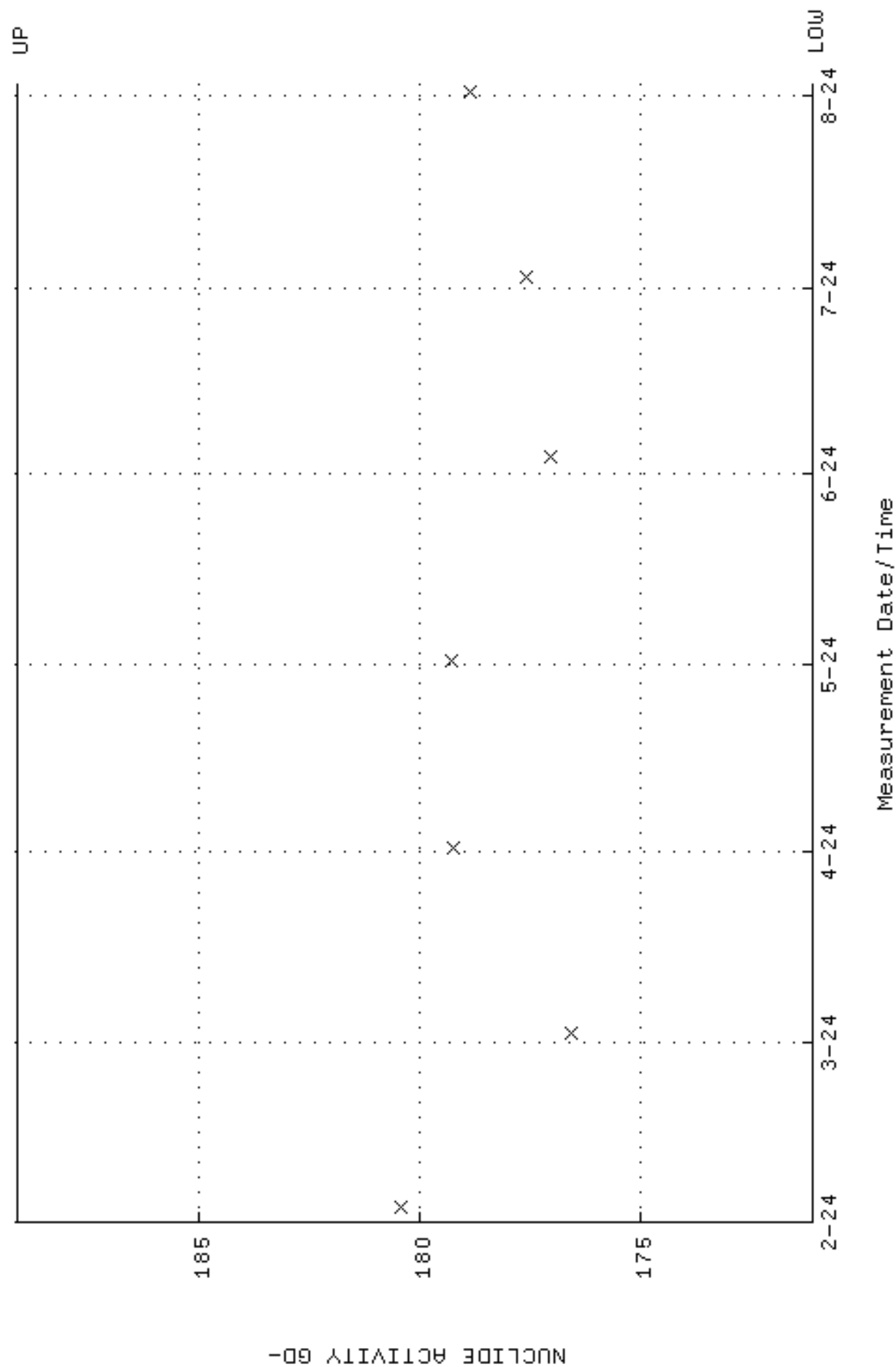
QA filename : DKA100:[ENV_ALPHA.QA.B]B014.QAF;5
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-FEB-2024 12:51:20 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



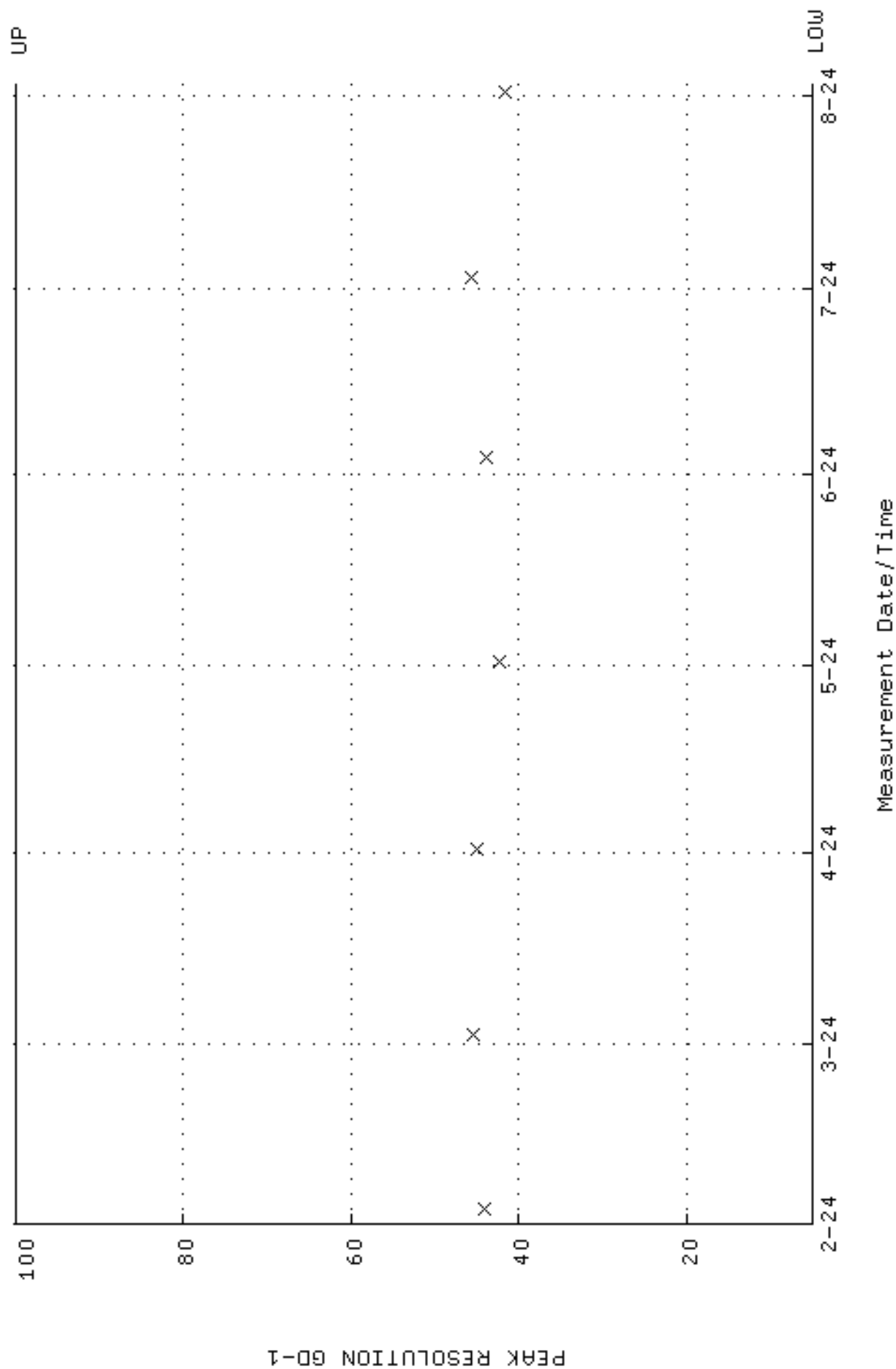
QA filename : DKA100:[ENV_ALPHA.QA.W]W015.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.331590 through 0.352103



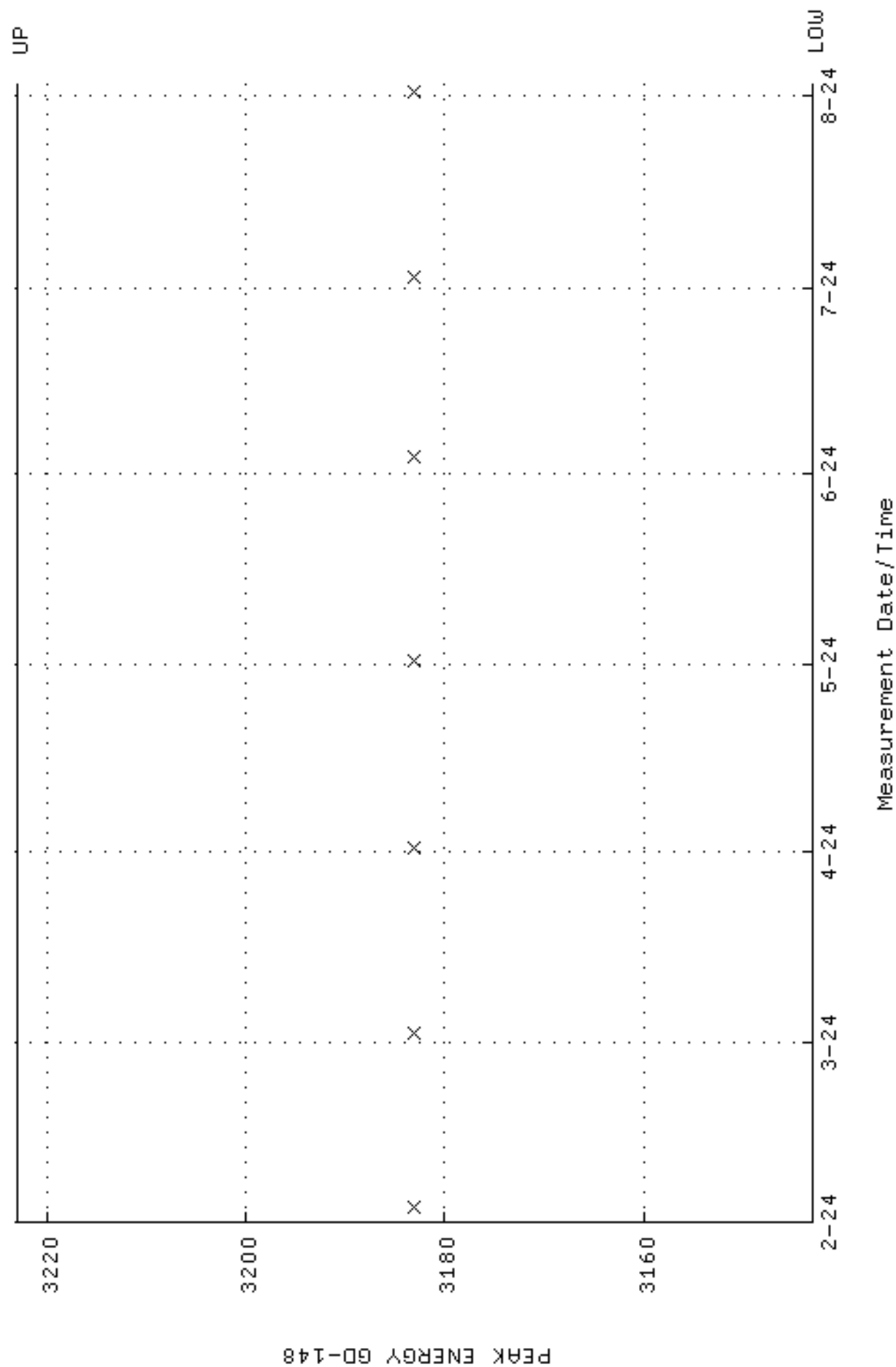
QA filename : DKA100:[ENV_ALPHA.QA.W]W015.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



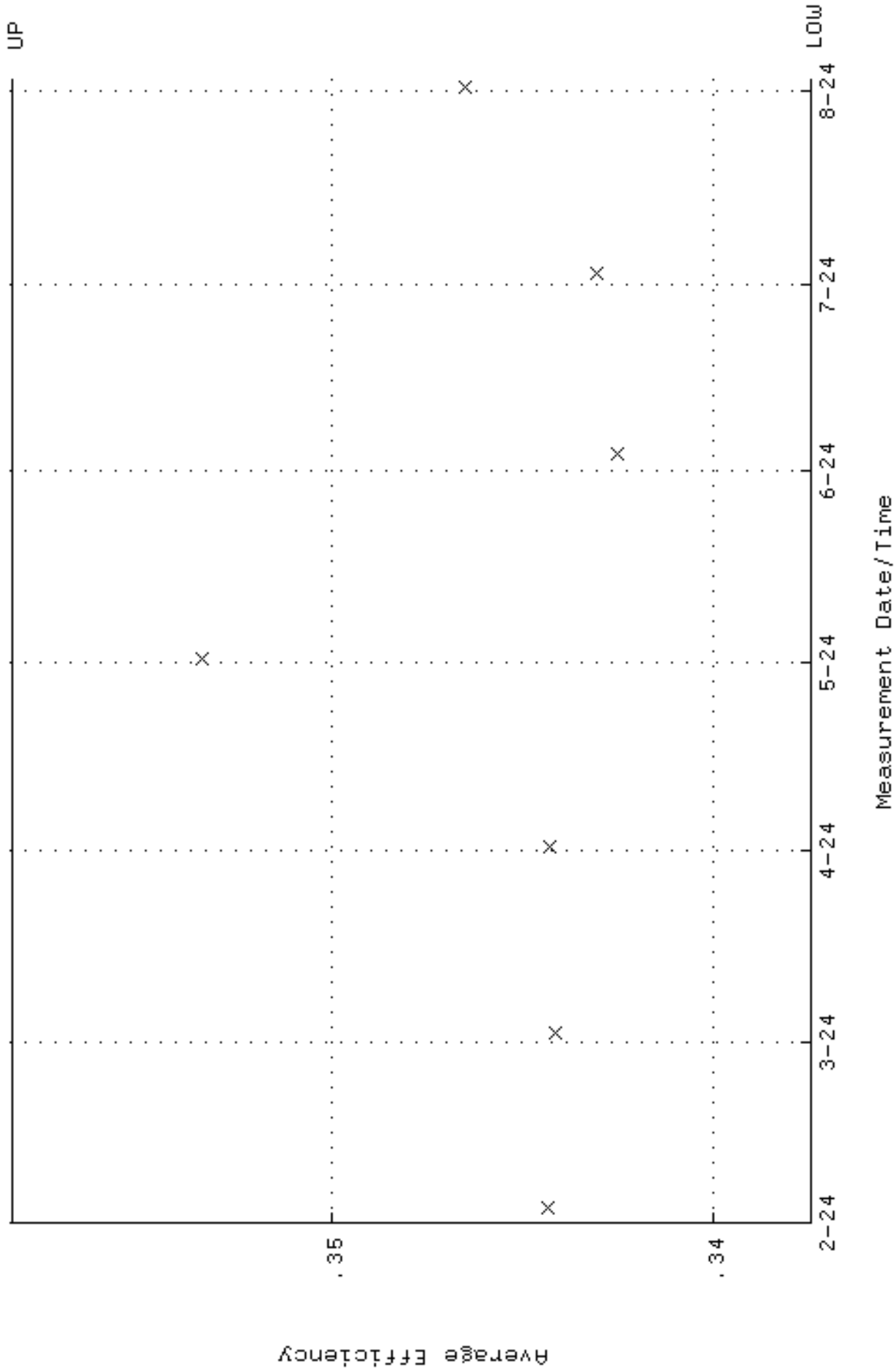
QA filename : DKA100:[ENV_ALPHA.QA.W]W015.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



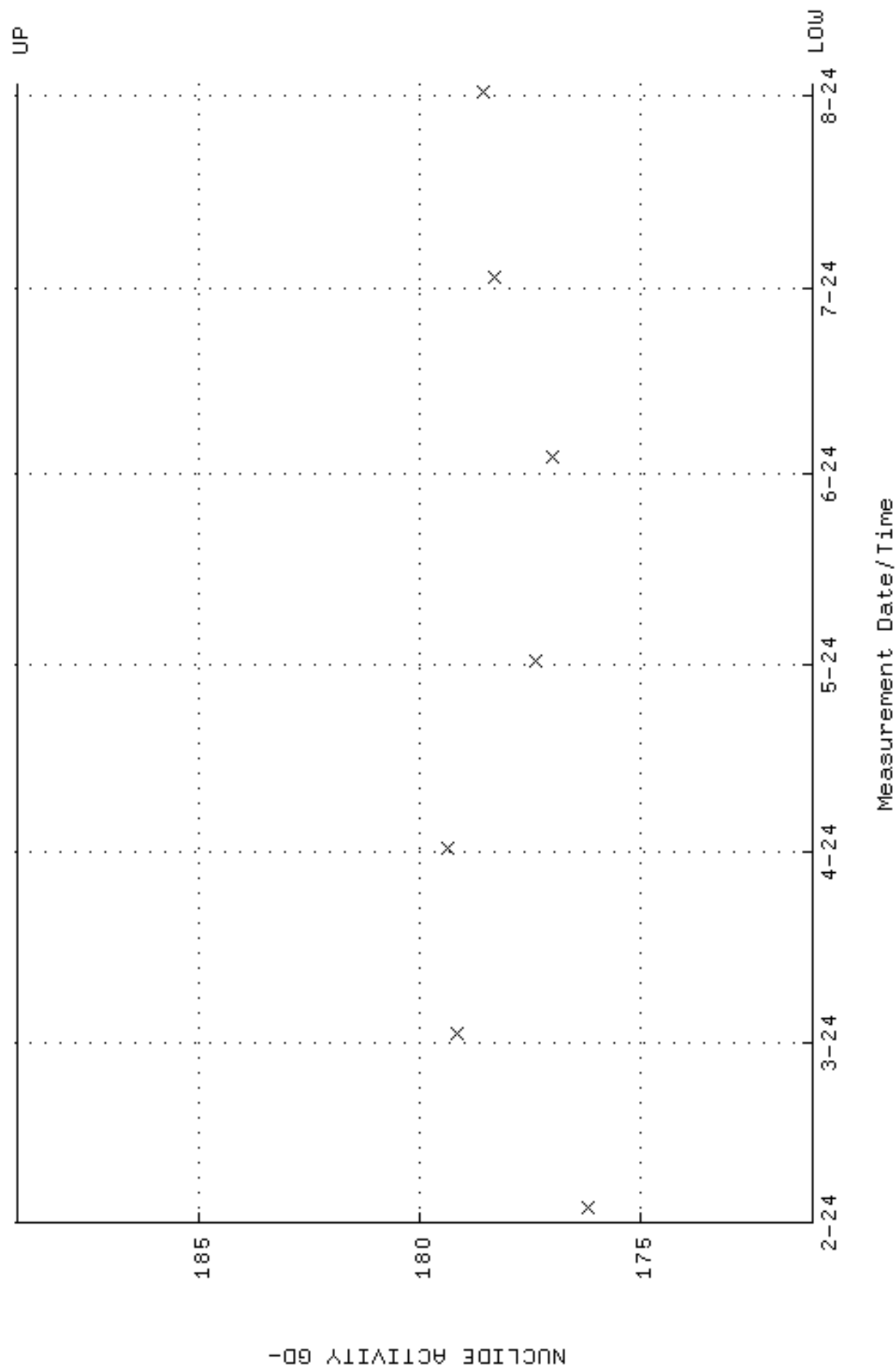
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



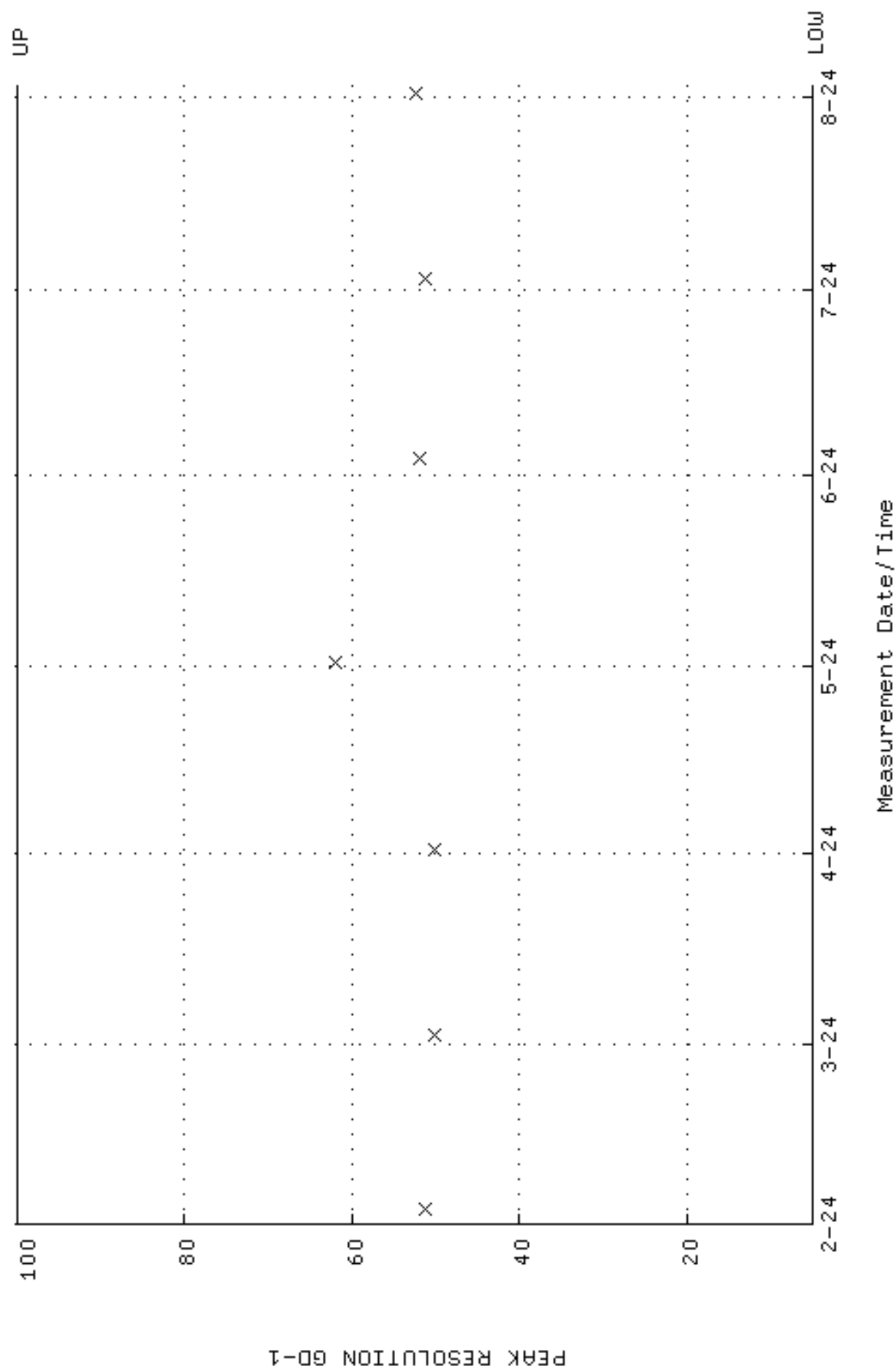
QA filename : DKA100:[ENV_ALPHA.QA.W]W016.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
Lower/Upper Lmts: 0.337470 through 0.358340



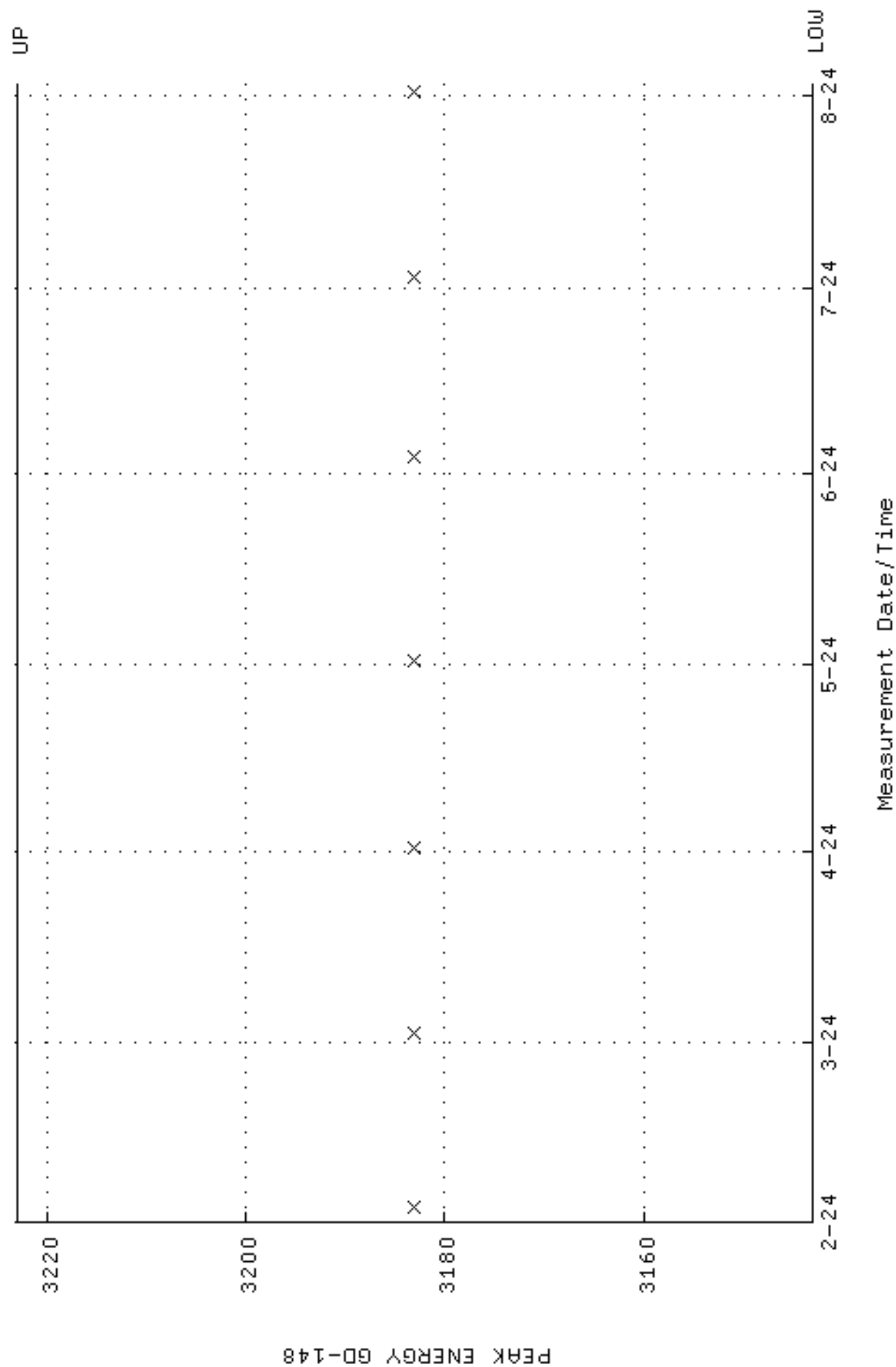
QA filename : DKA100:[ENV_ALPHA.QA.W]W016.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



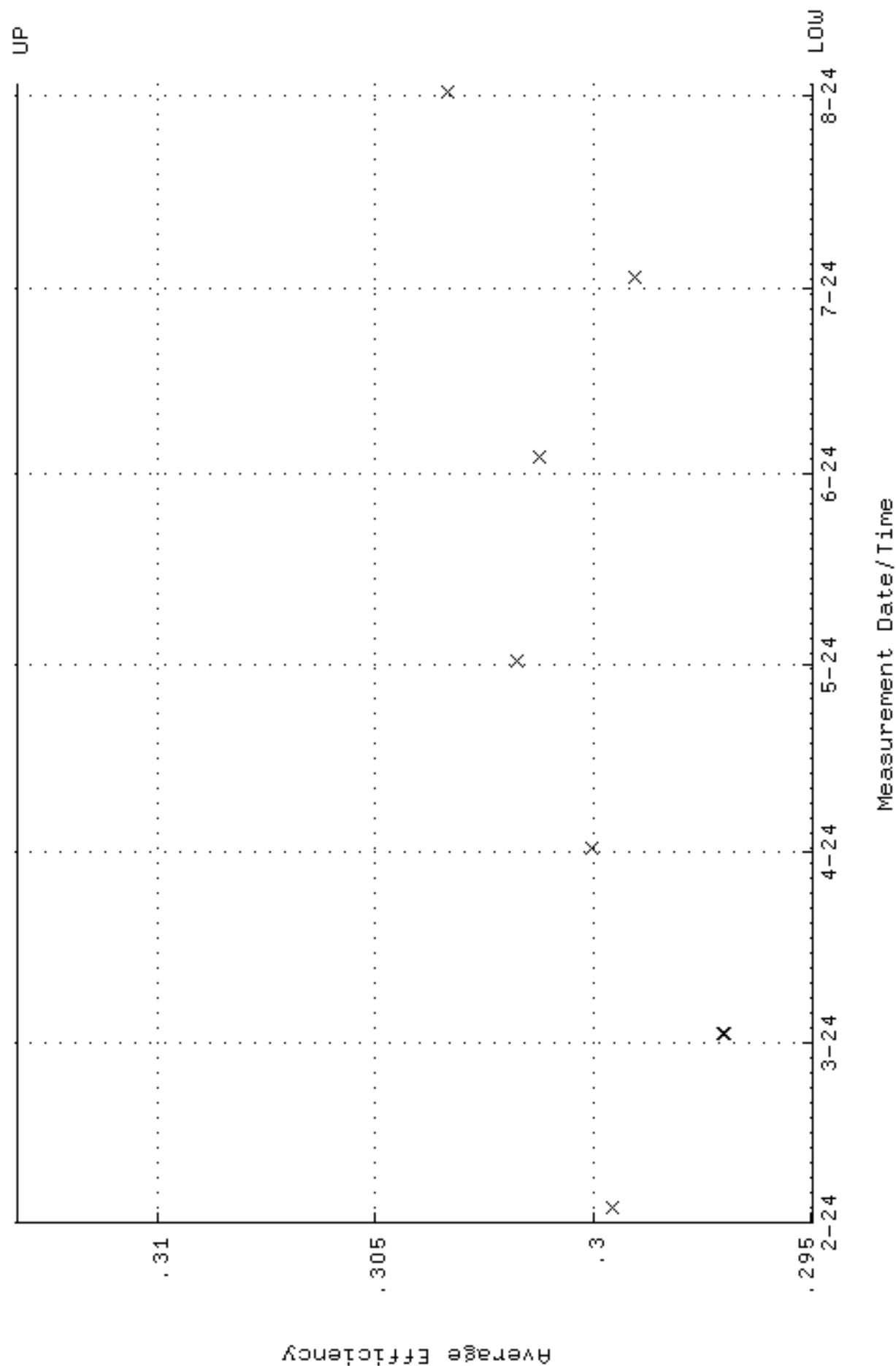
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



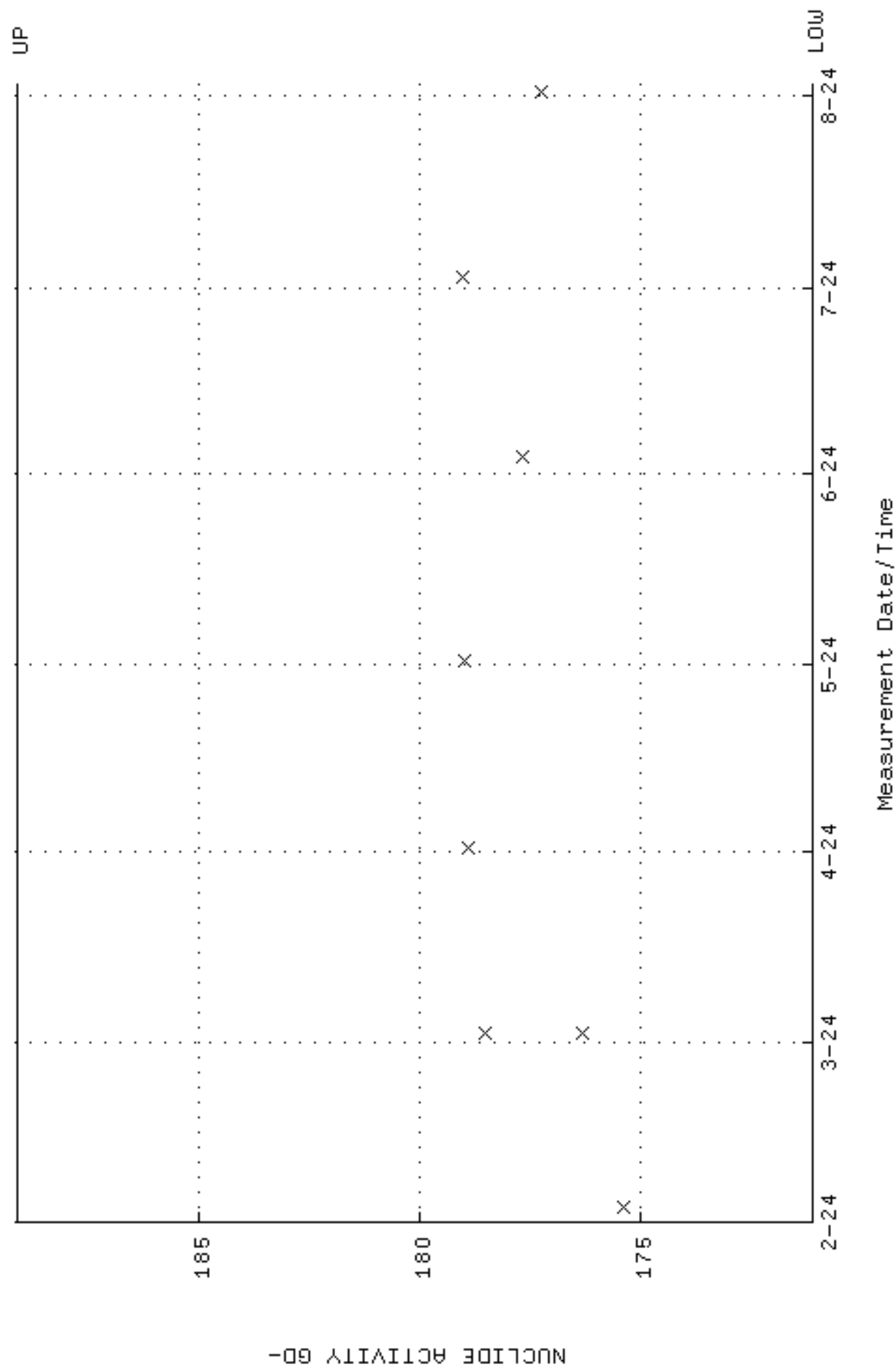
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



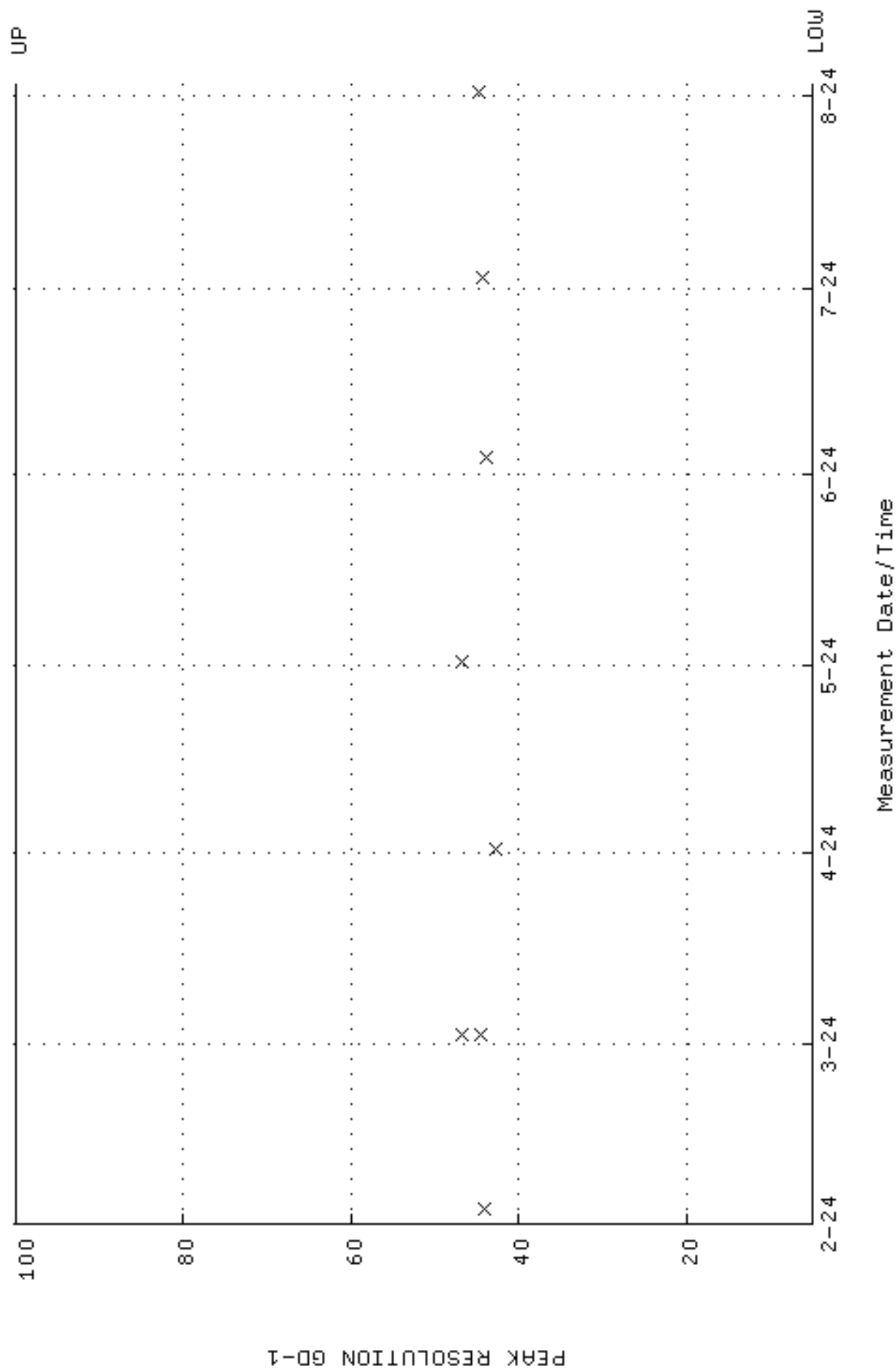
QA filename : DKA100:[ENV_ALPHA.QA.W]W017.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 0.294960 through 0.313204



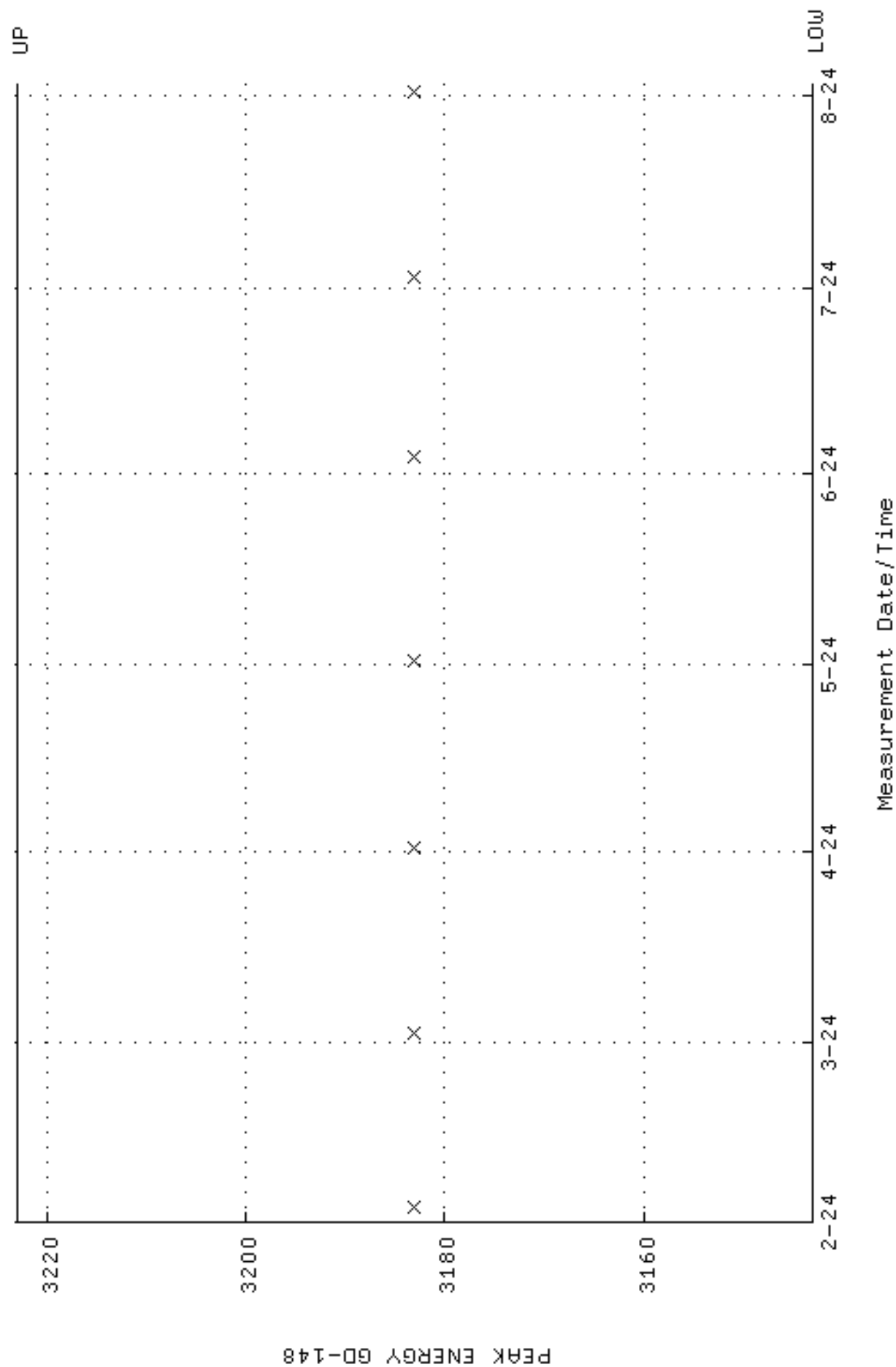
QA filename : DKA100:[ENV_ALPHA.QA.W]W017.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



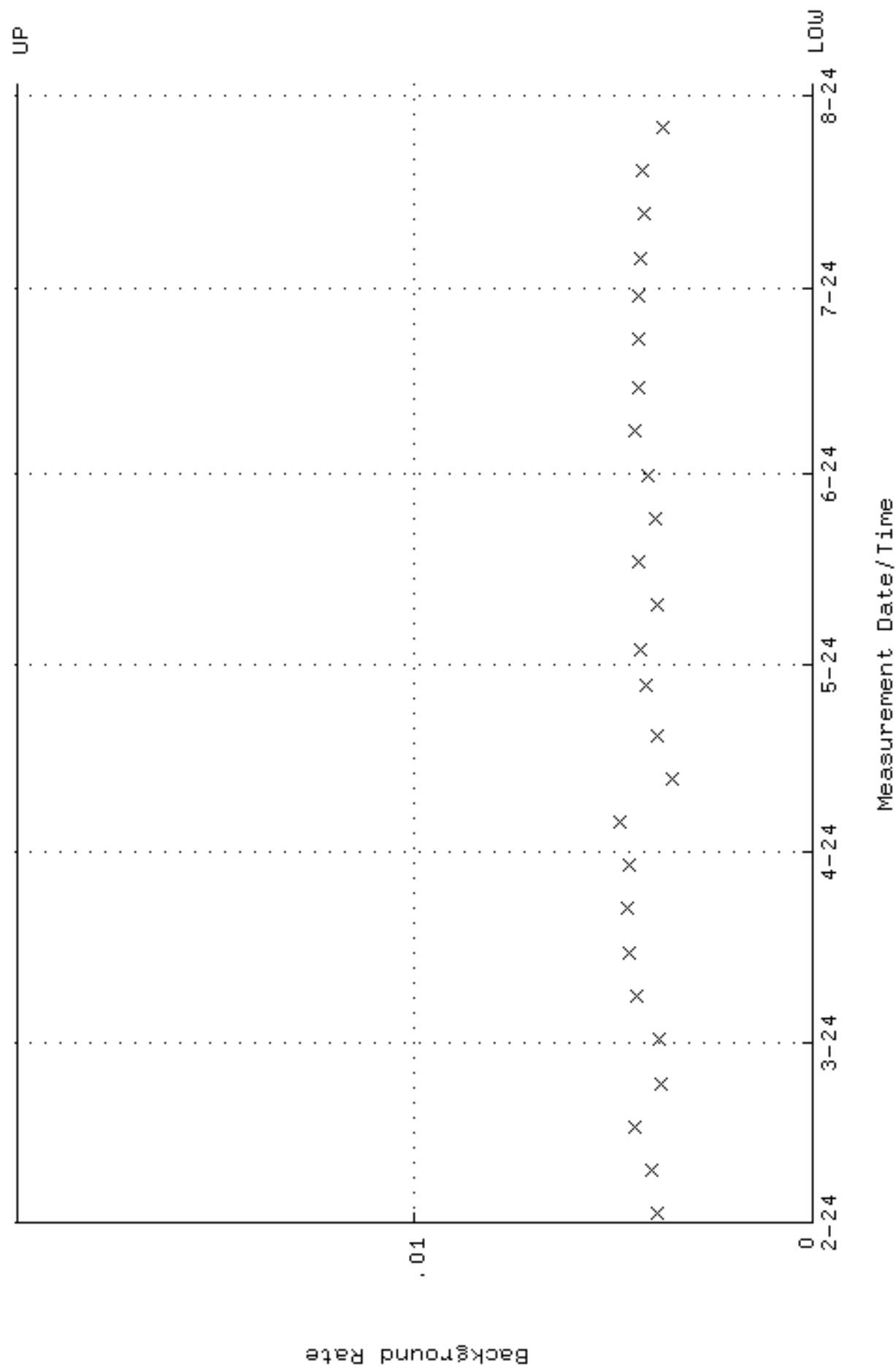
QA filename : DKA100:[ENV_ALPHA.QA.W]W017.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



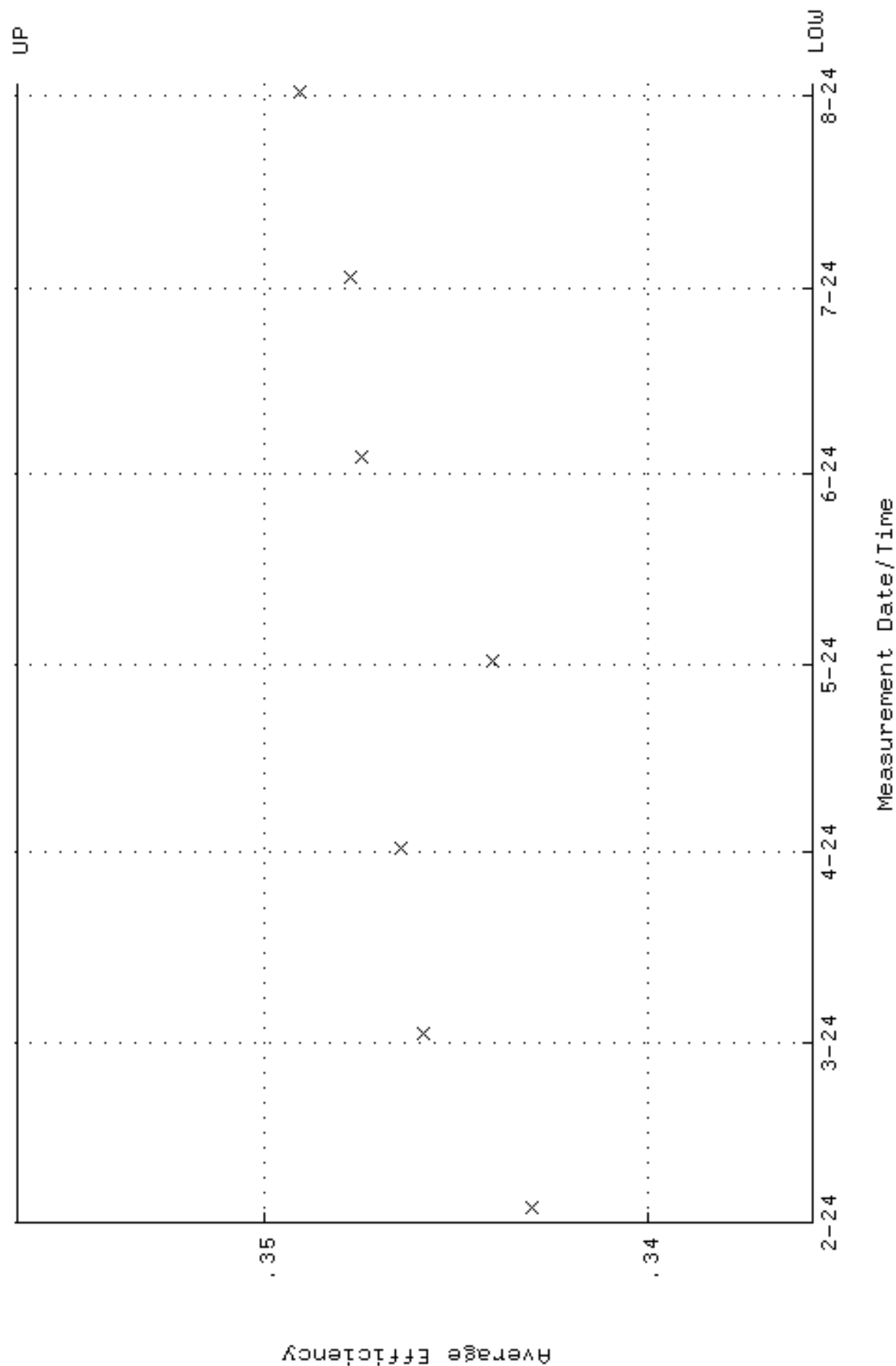
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



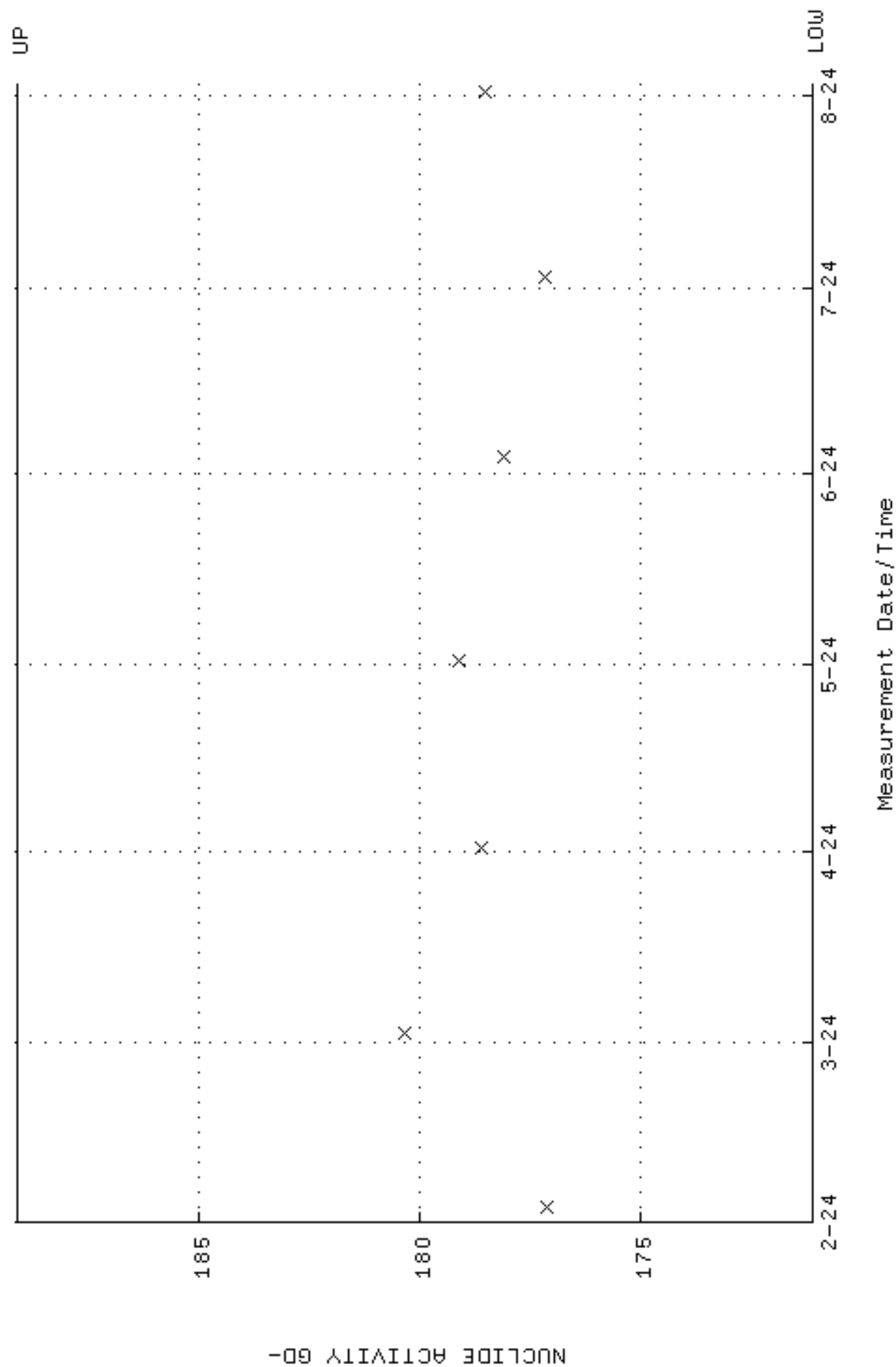
QA filename : DKA100:[ENV_ALPHA.QA.B]B017.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-FEB-2024 12:51:20 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



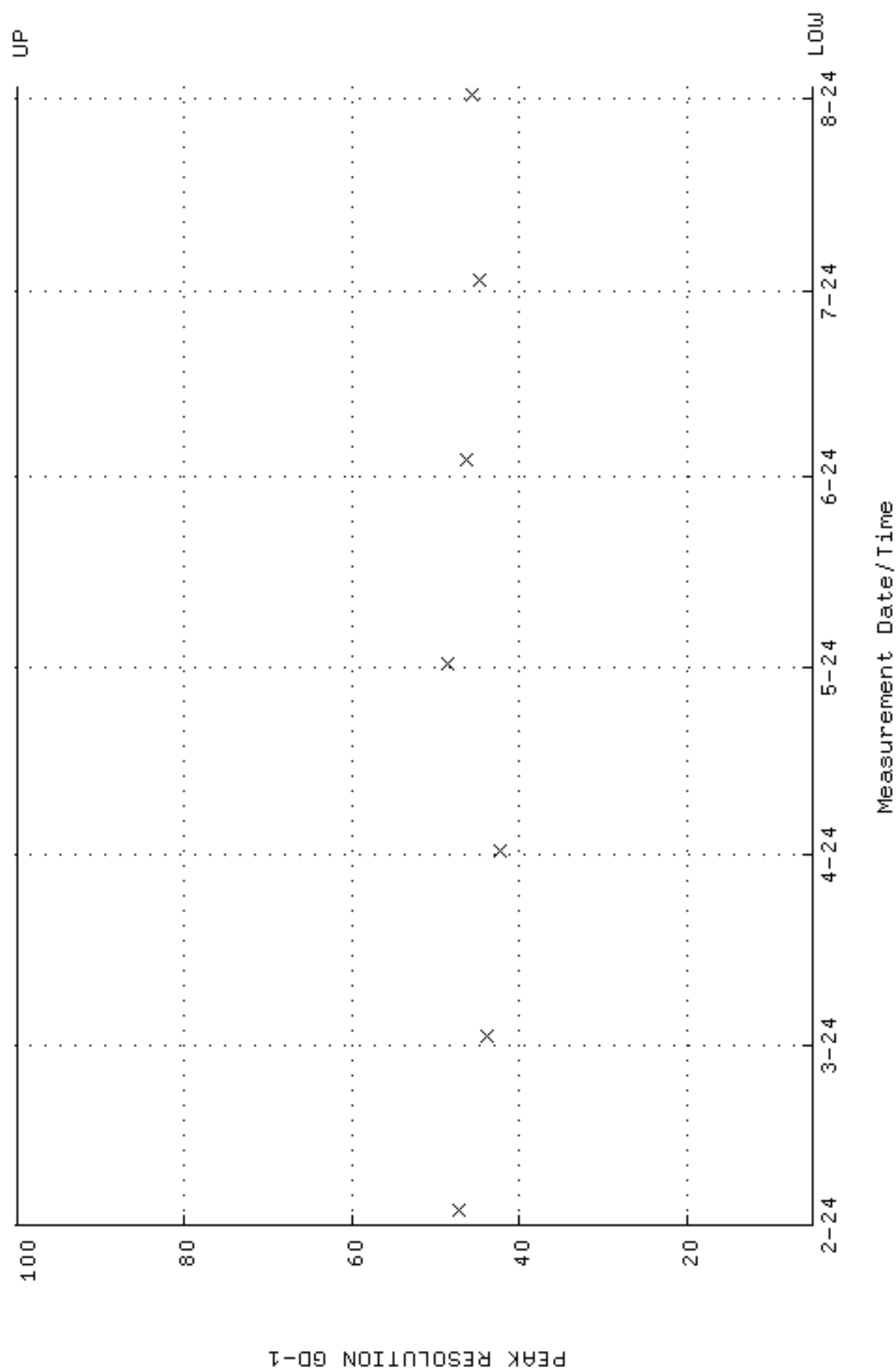
QA filename : DKA100:[ENV_ALPHA.QA.W]W018.QAF;5
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 0.335696 through 0.356460



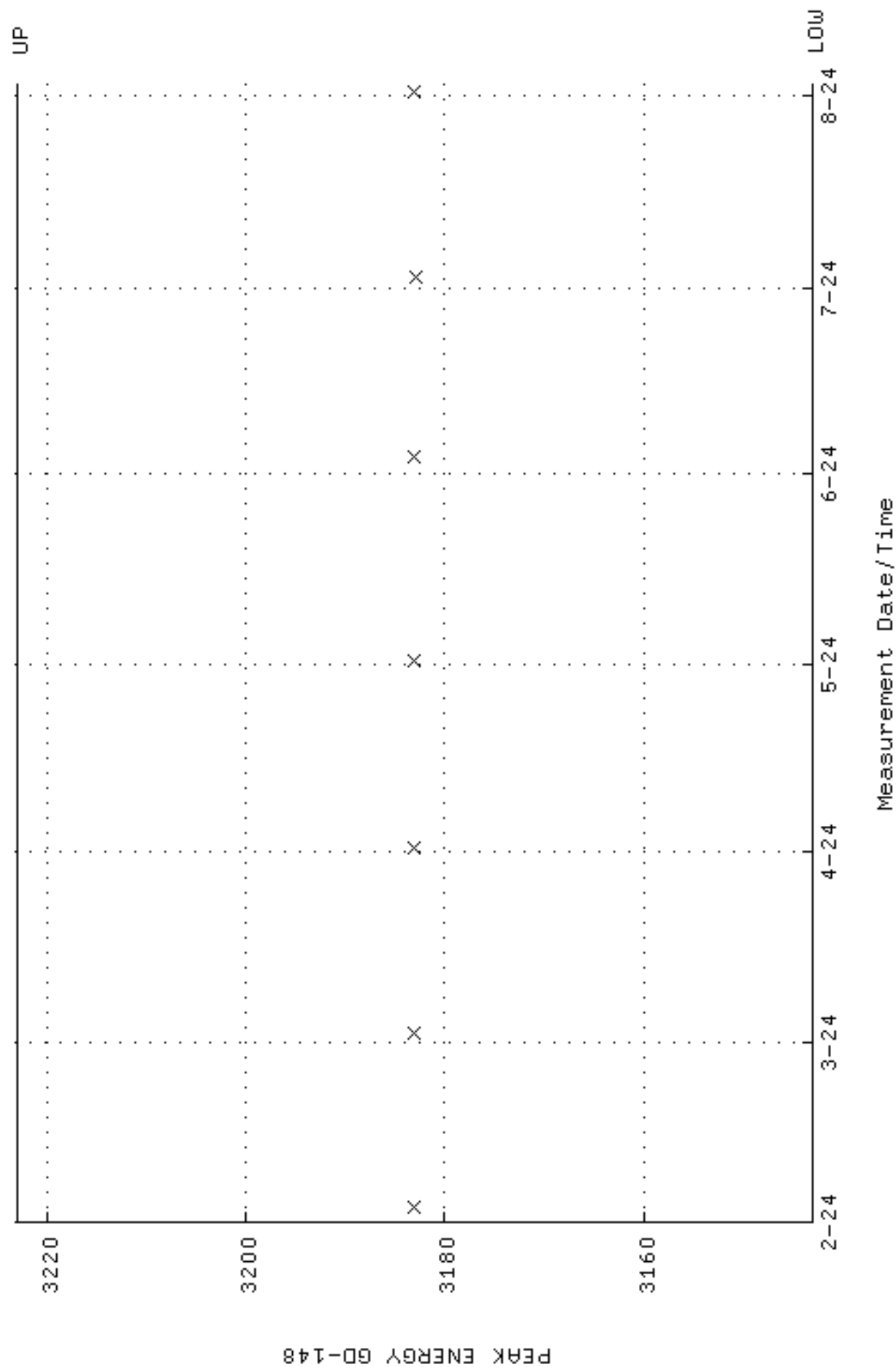
QA filename : DKA100:[ENV_ALPHA.QA.W]W018.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



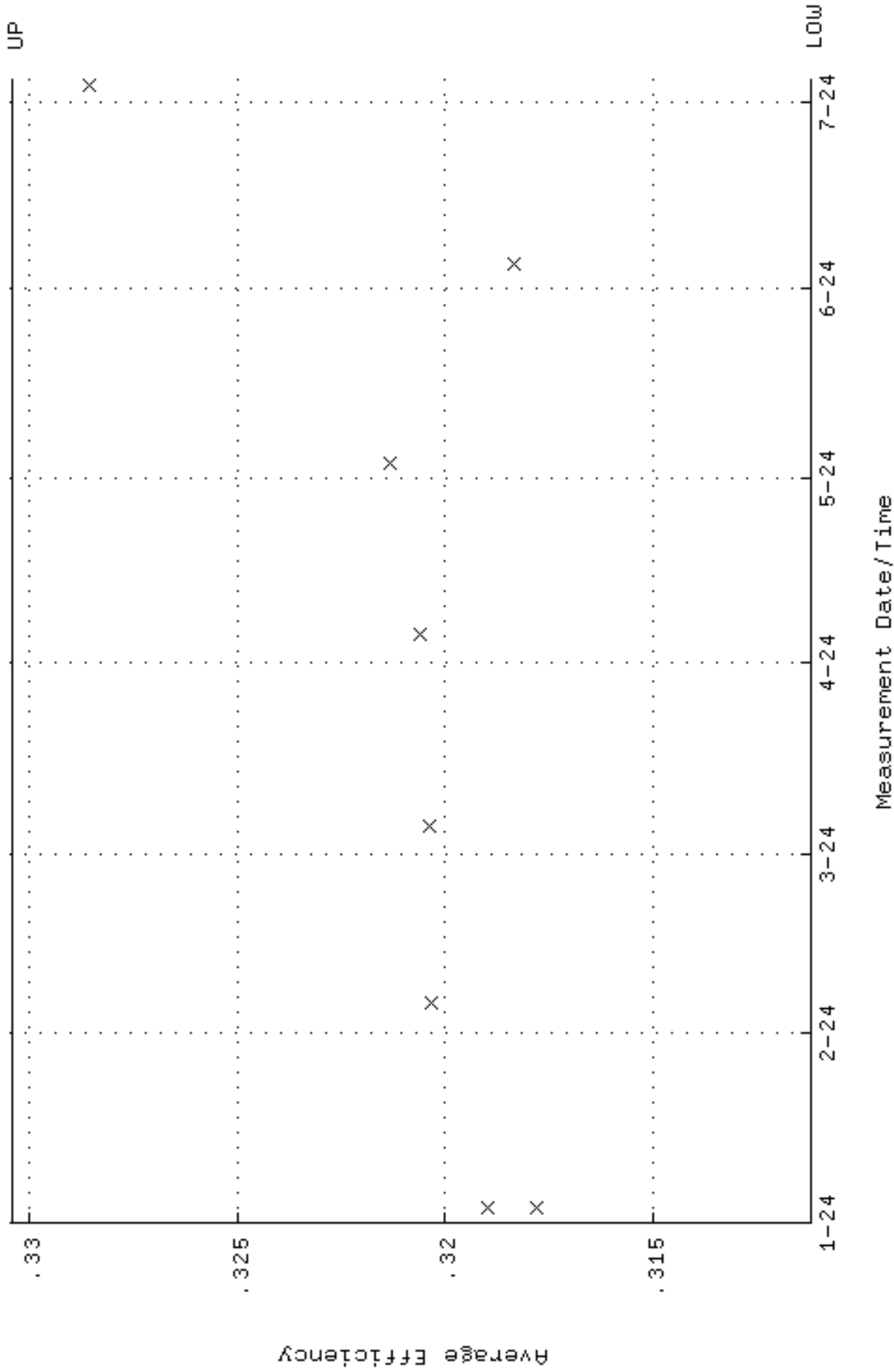
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



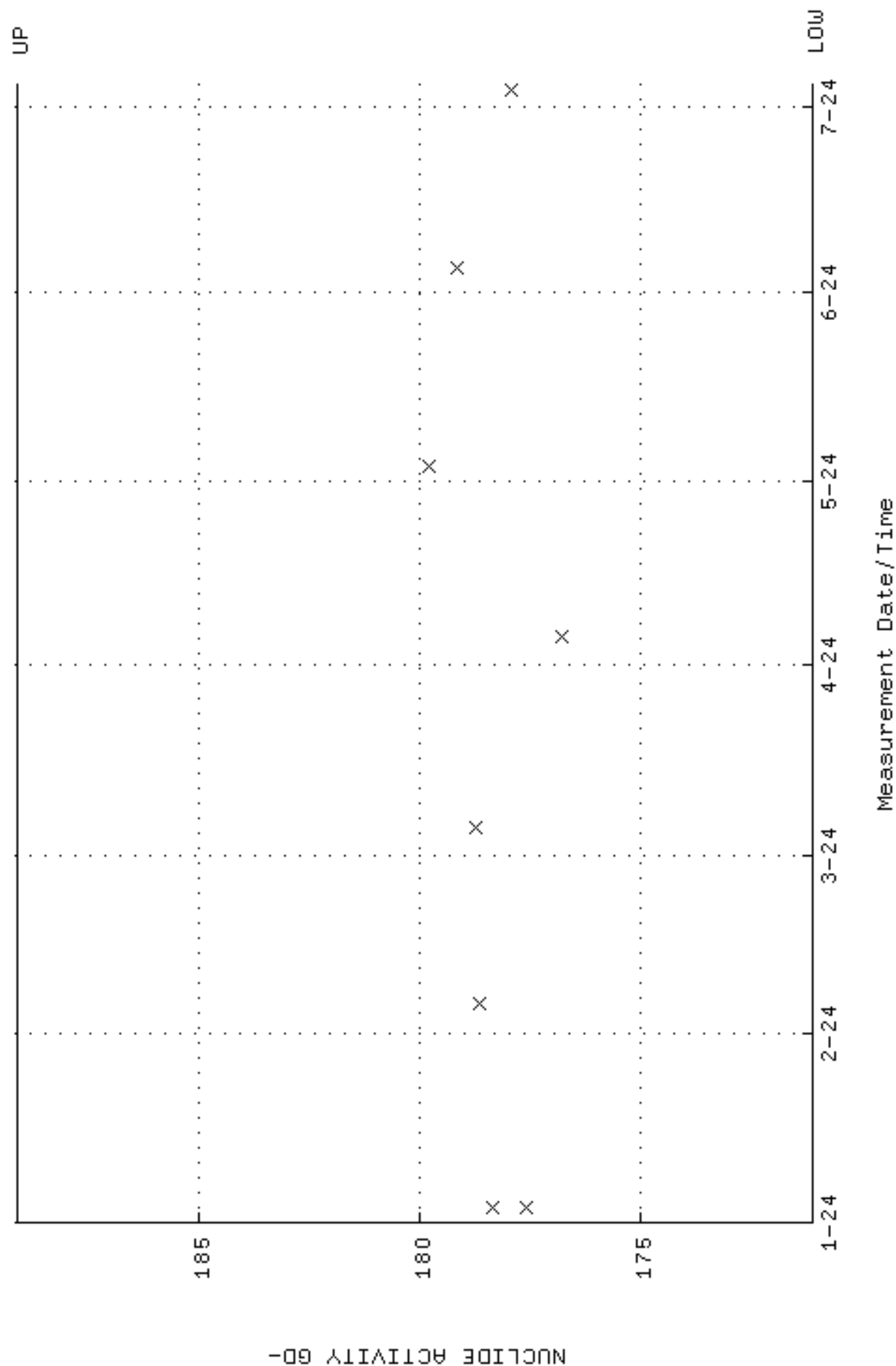
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-FEB-2024 10:53:04 through 2-AUG-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



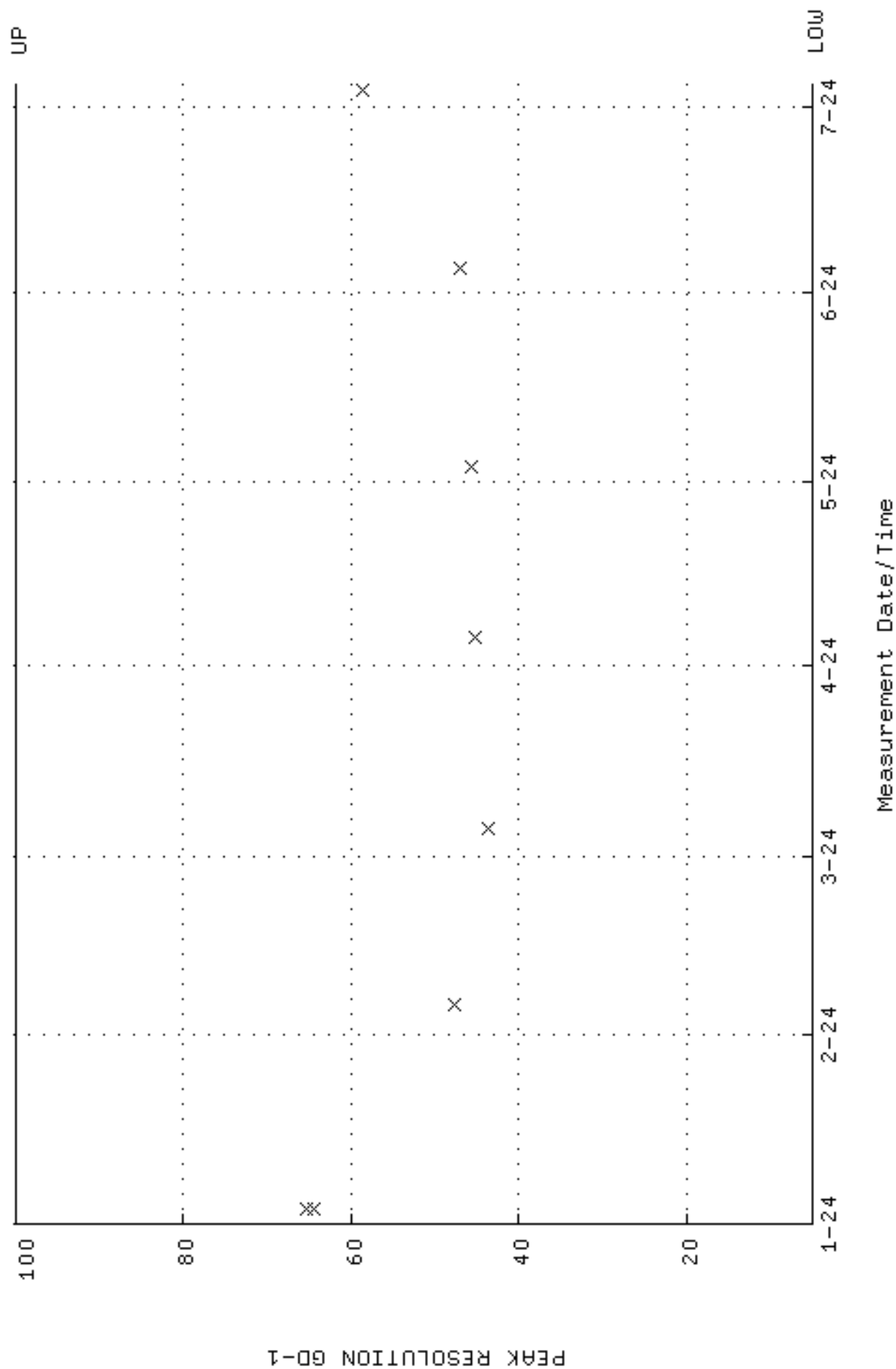
QA filename : DKA100:[ENV_ALPHA.QA.W]W031.QAF;8
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.311180 through 0.330420



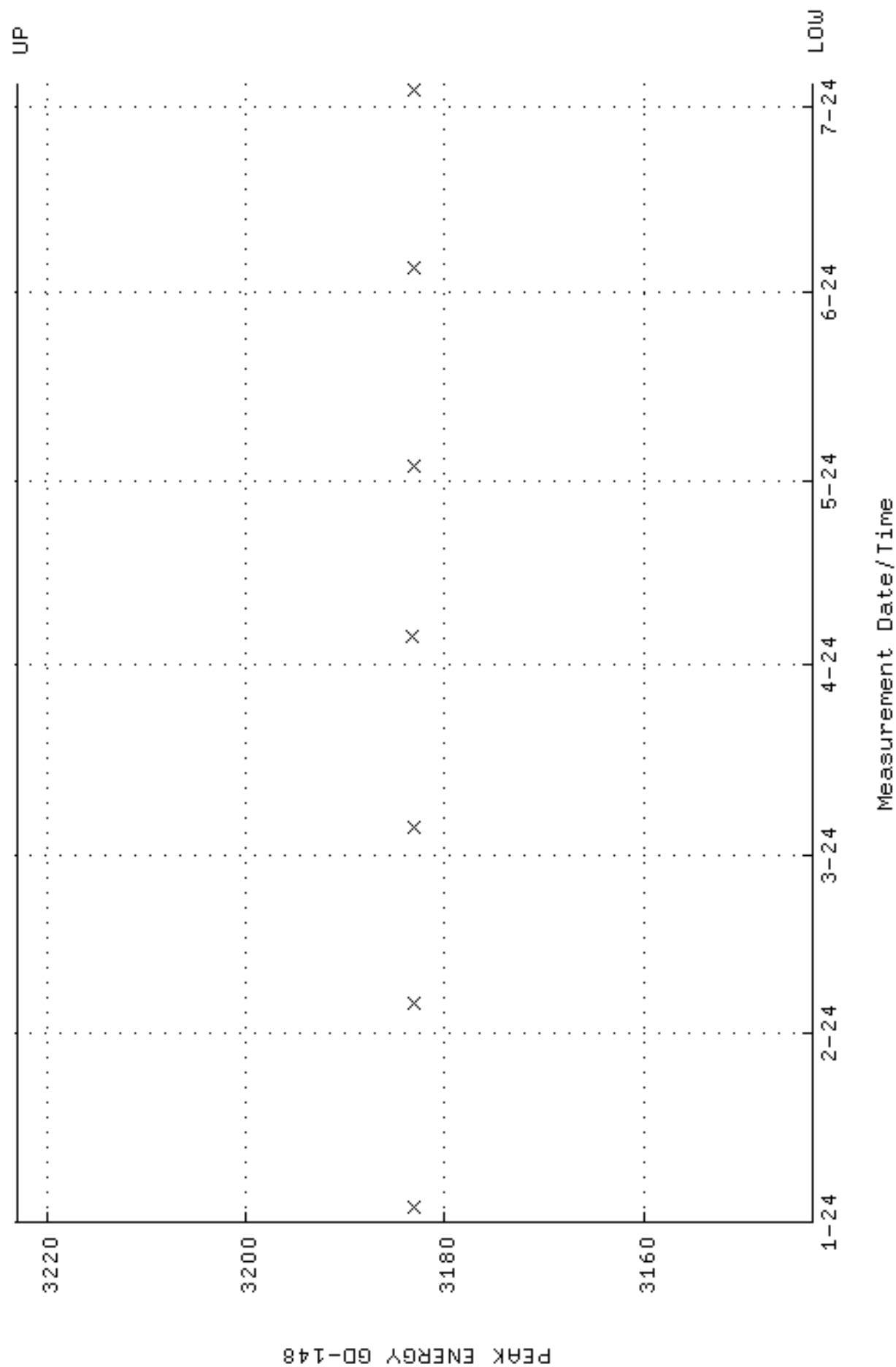
QA filename : DKA100:[ENV_ALPHA.QA.W]W031.QAF;8
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



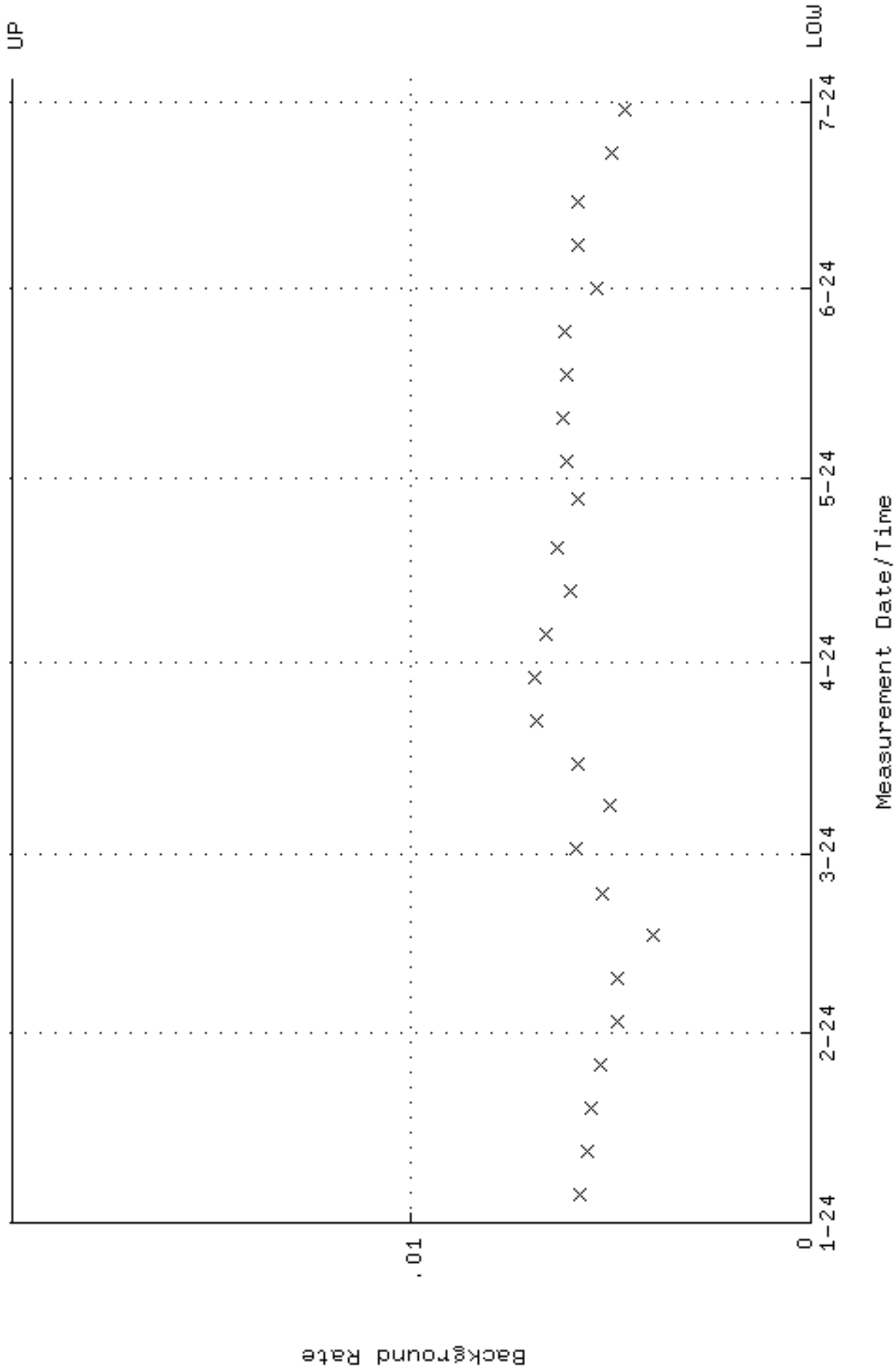
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 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



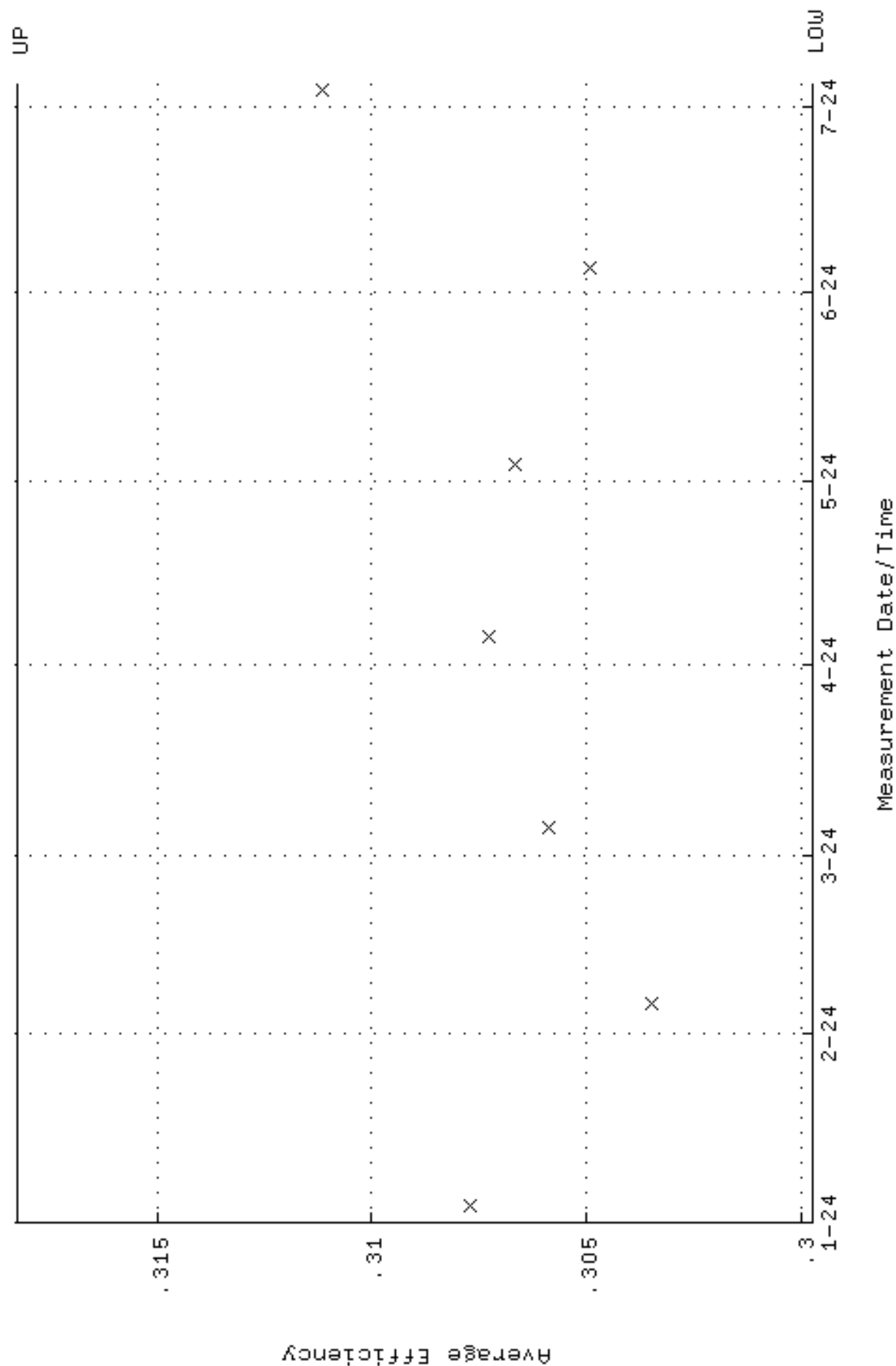
QA filename : DKA100:[ENV_ALPHA.QA.W]W031.QAF;8
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



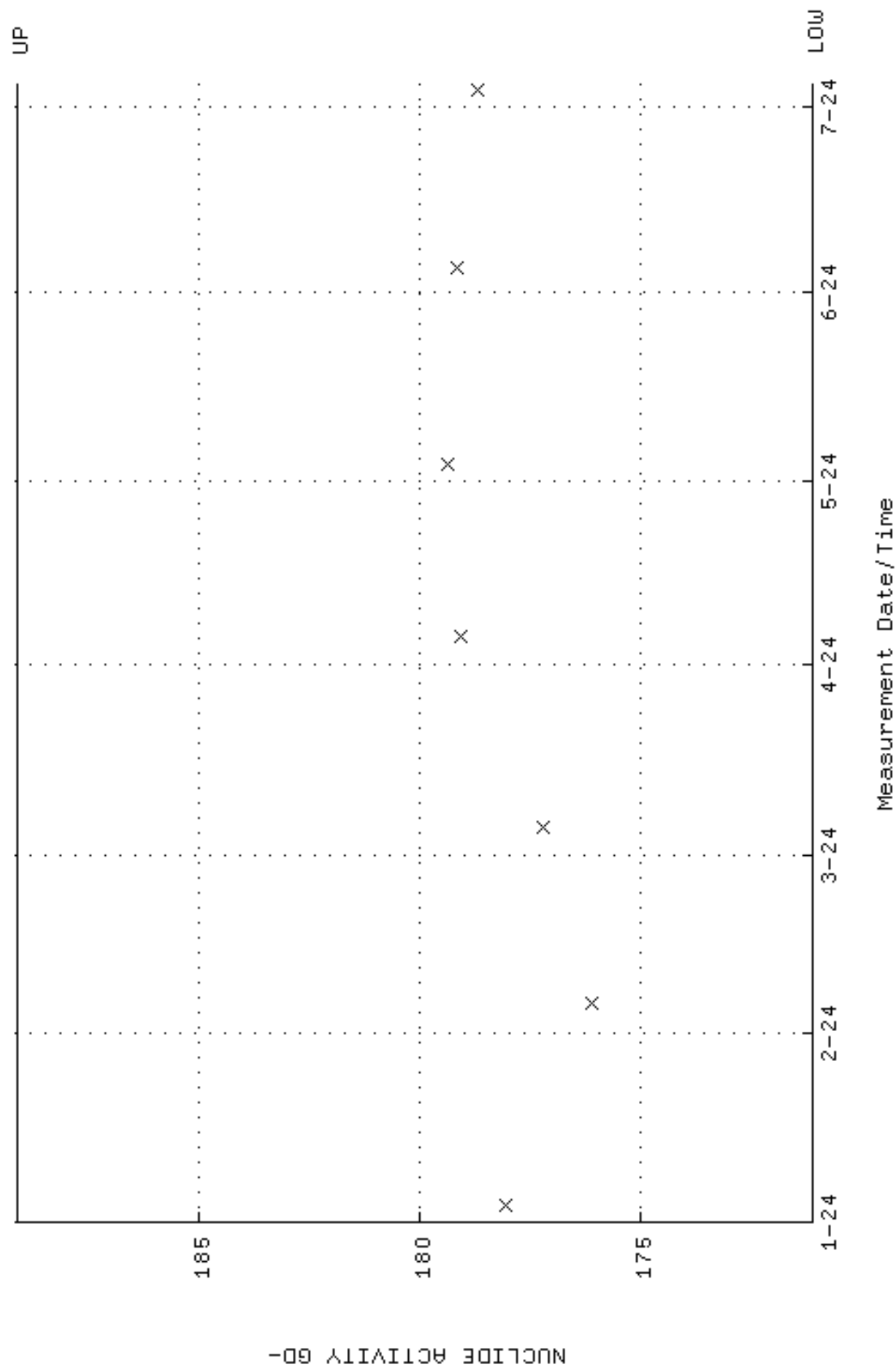
QA filename : DKA100:[ENV_ALPHA.QA.B]B031.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:36:09 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



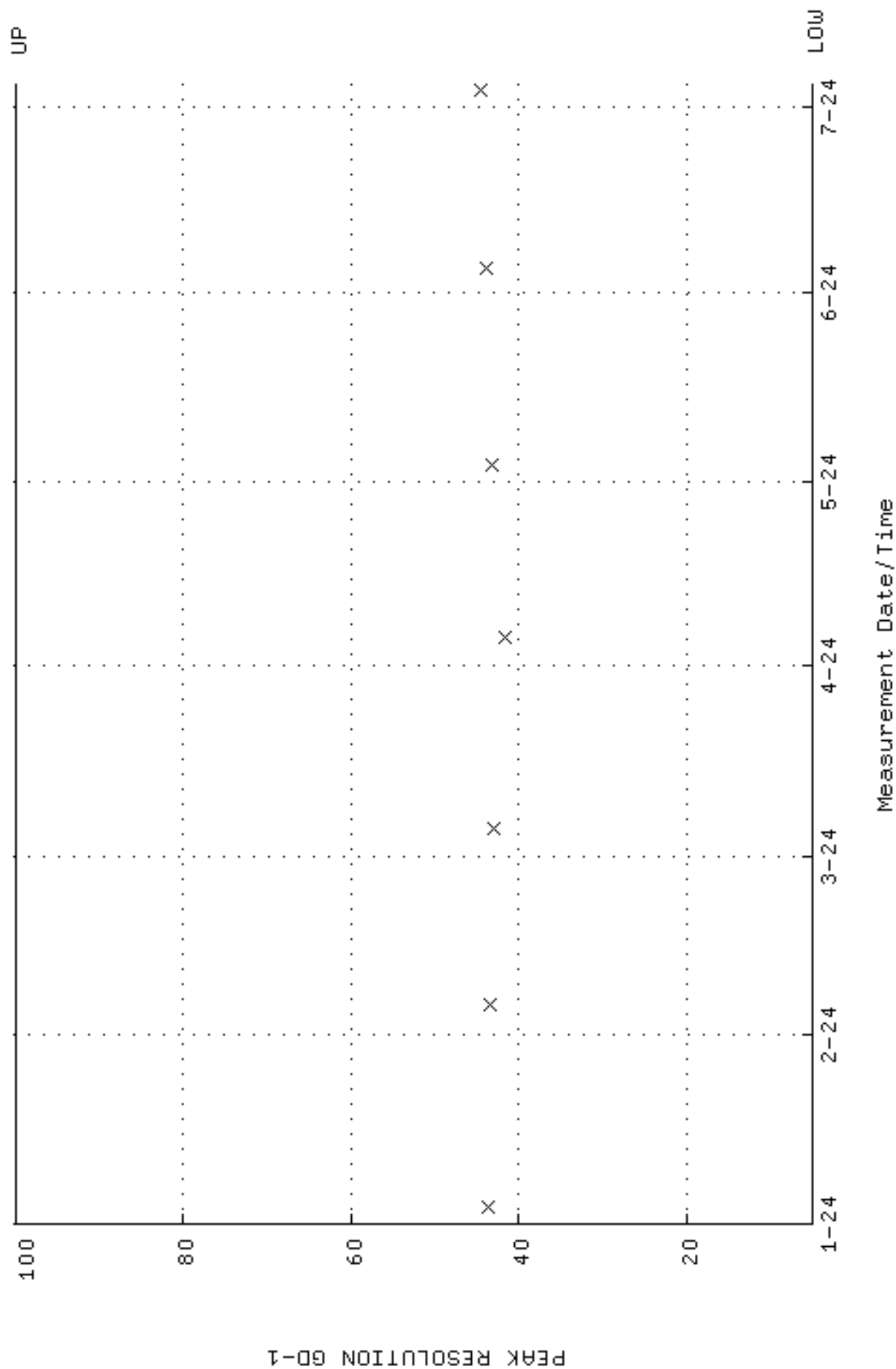
QA filename : DKA100:[ENV_ALPHA.QA.W]W032.QAF;7
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-JAN-2024 14:57:01 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.299720 through 0.318260



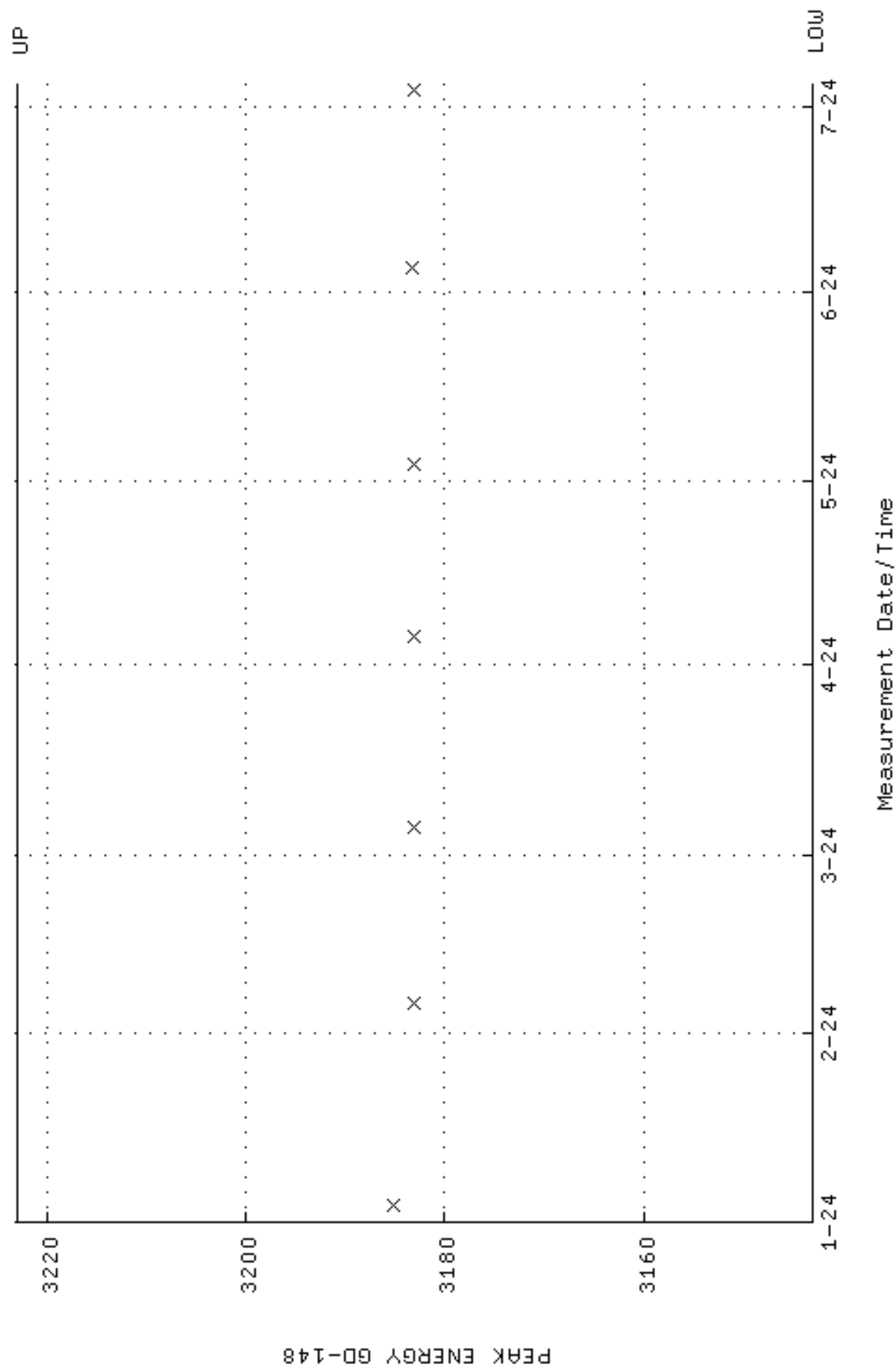
QA filename : DKA100:[ENV_ALPHA.QA.W]W032.QAF;7
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-JAN-2024 14:57:01 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



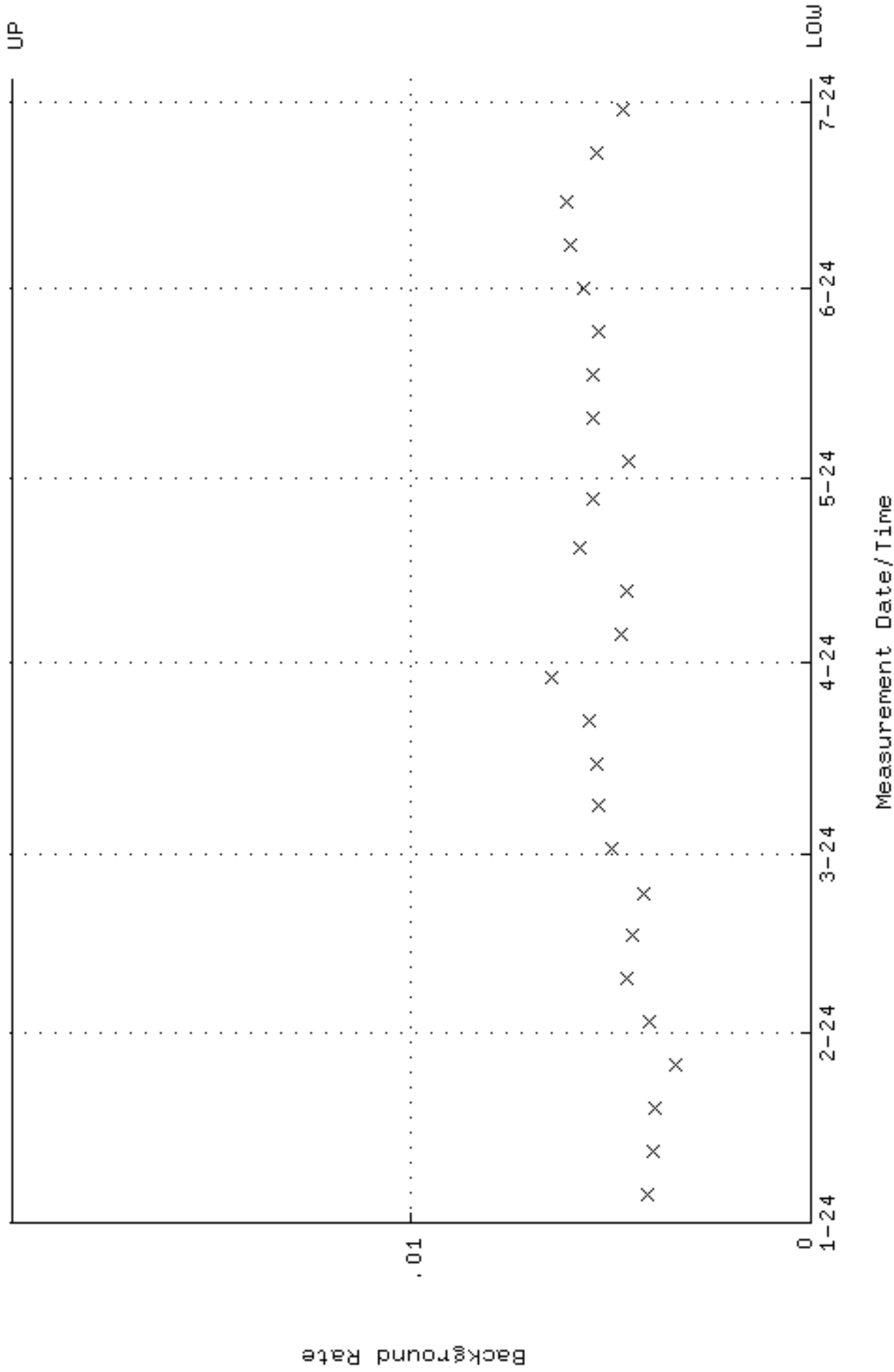
QA filename : DKA100:[ENV_ALPHA.QA.W]W032.QAF;7
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-JAN-2024 14:57:01 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



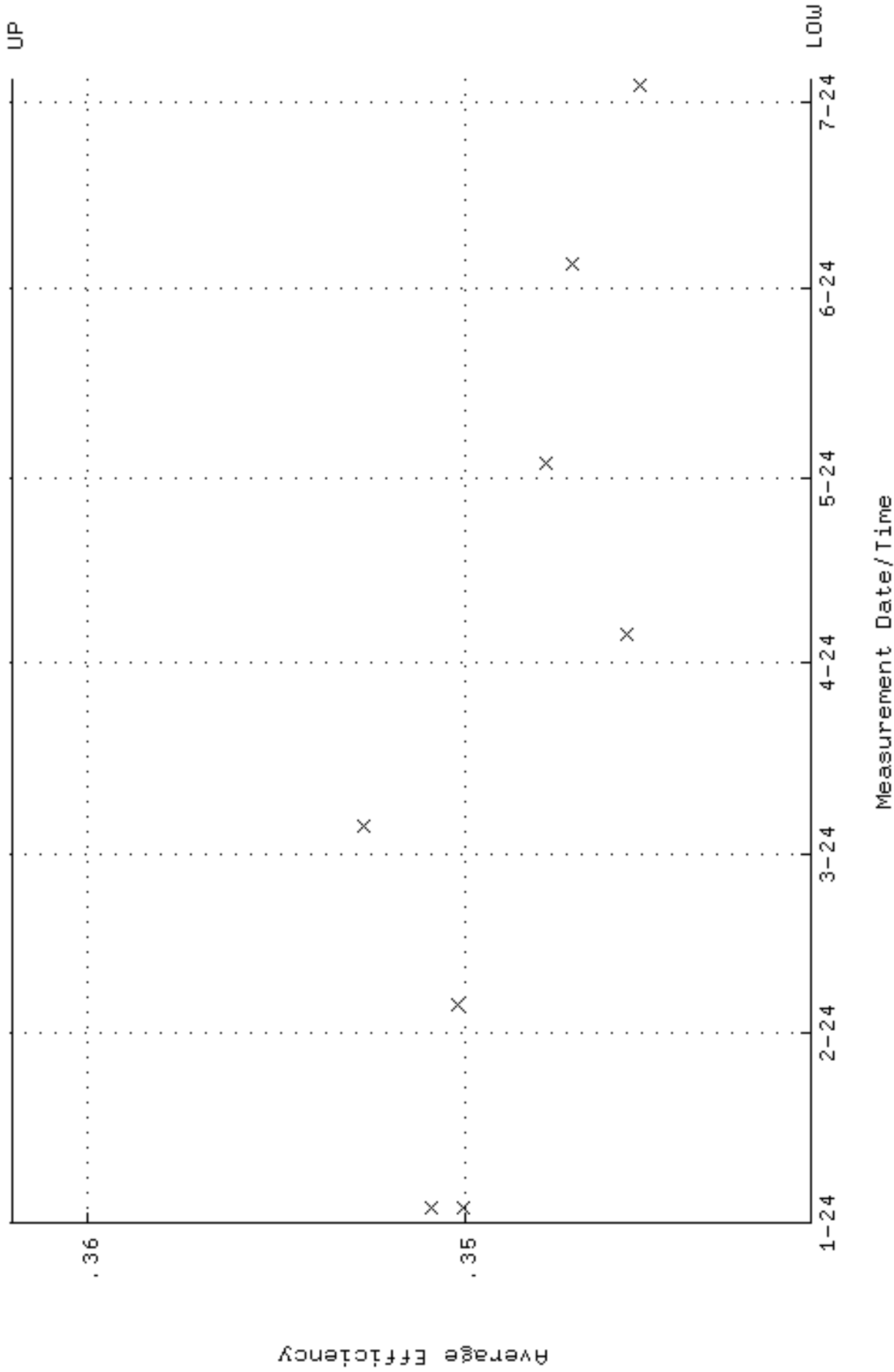
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-JAN-2024 14:57:01 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



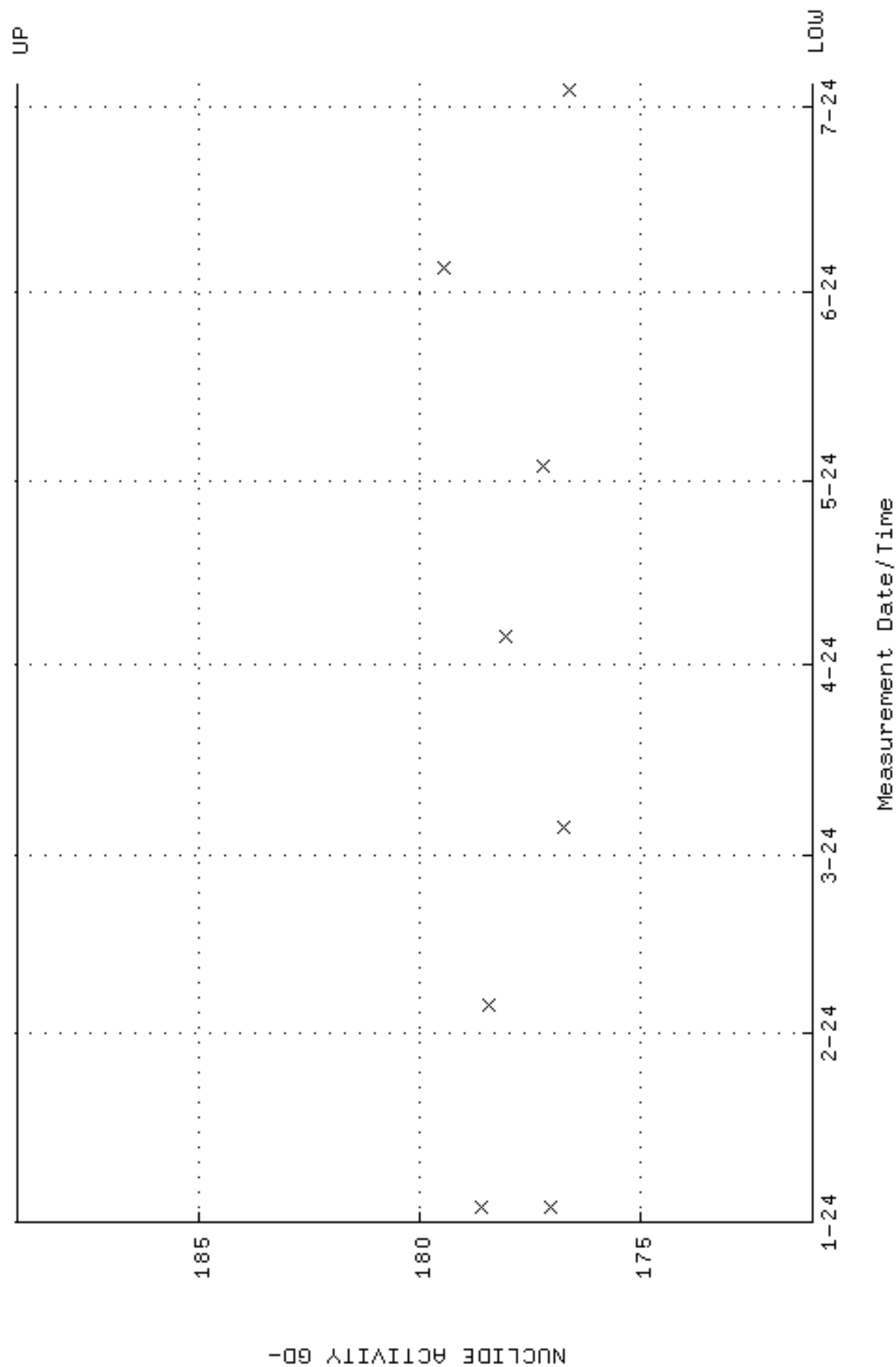
QA filename : DKA100:[ENV_ALPHA.QA.B]B032.QAF;5
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:36:09 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



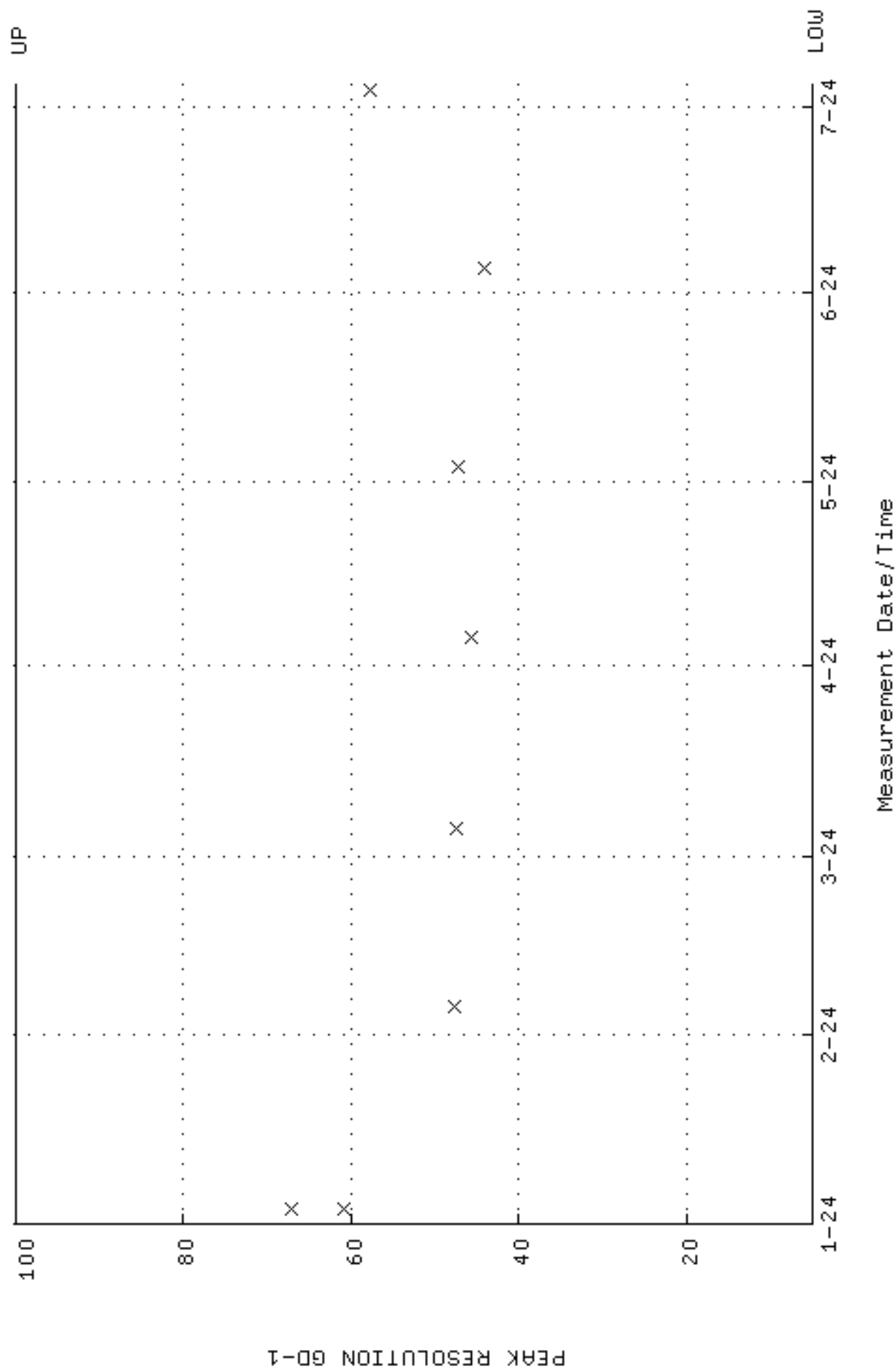
QA filename : DKA100:[ENV_ALPHA.QA.W]W034.QAF;7
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.340880 through 0.361960



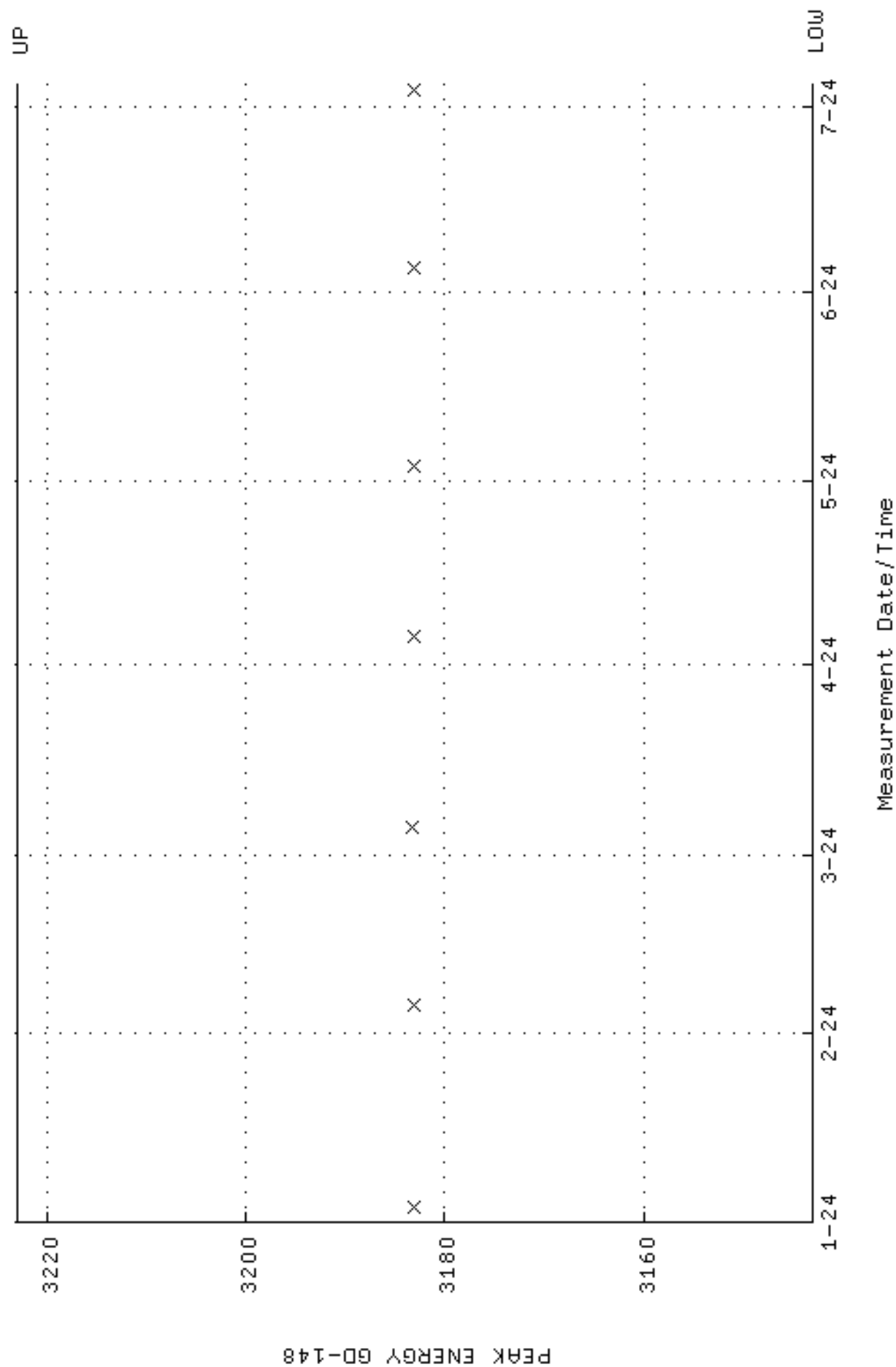
QA filename : DKA100:[ENV_ALPHA.QA.W]W034.QAF;7
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



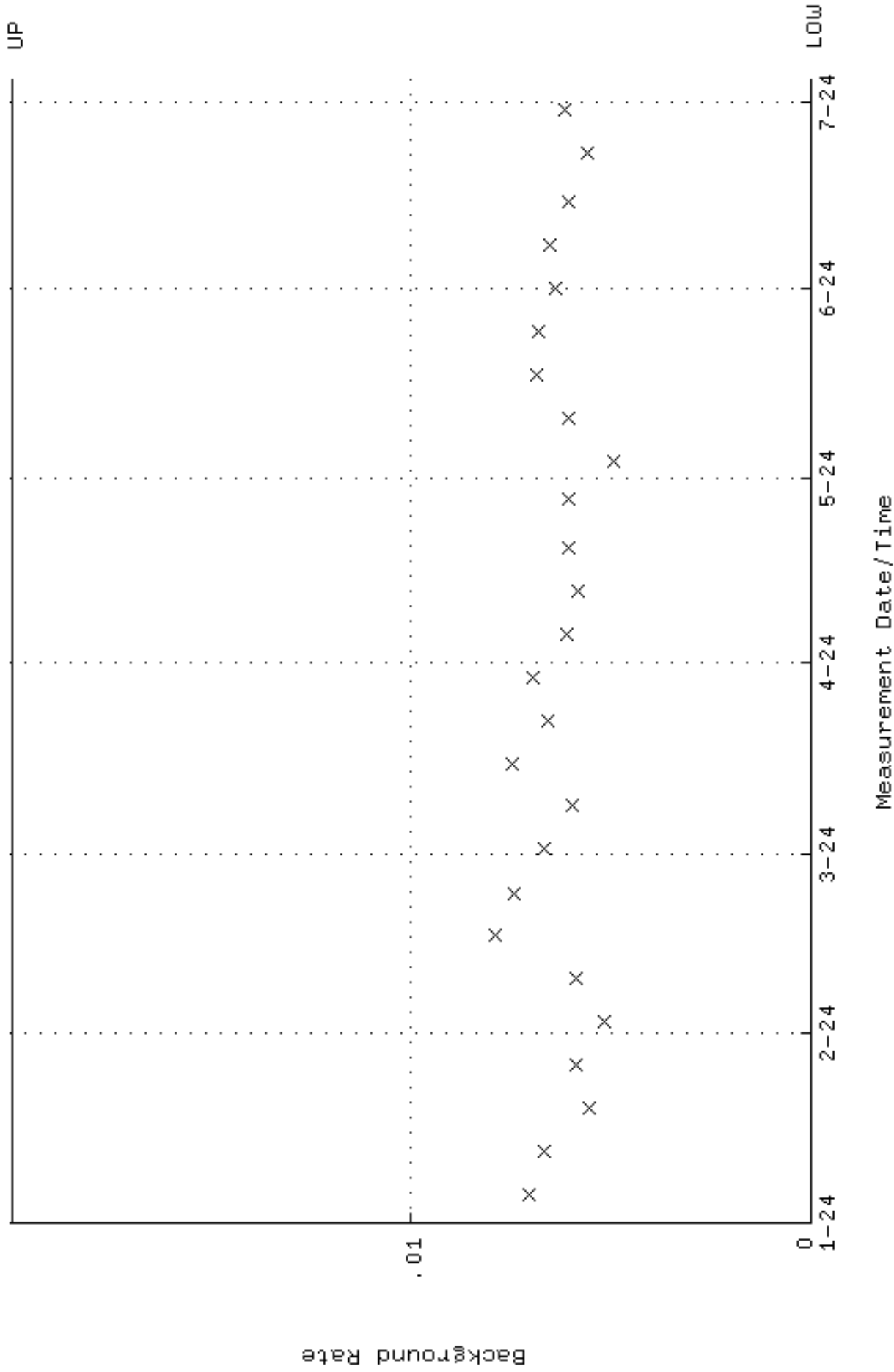
QA filename : DKA100:[ENV_ALPHA.QA.W]W034.QAF;7
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



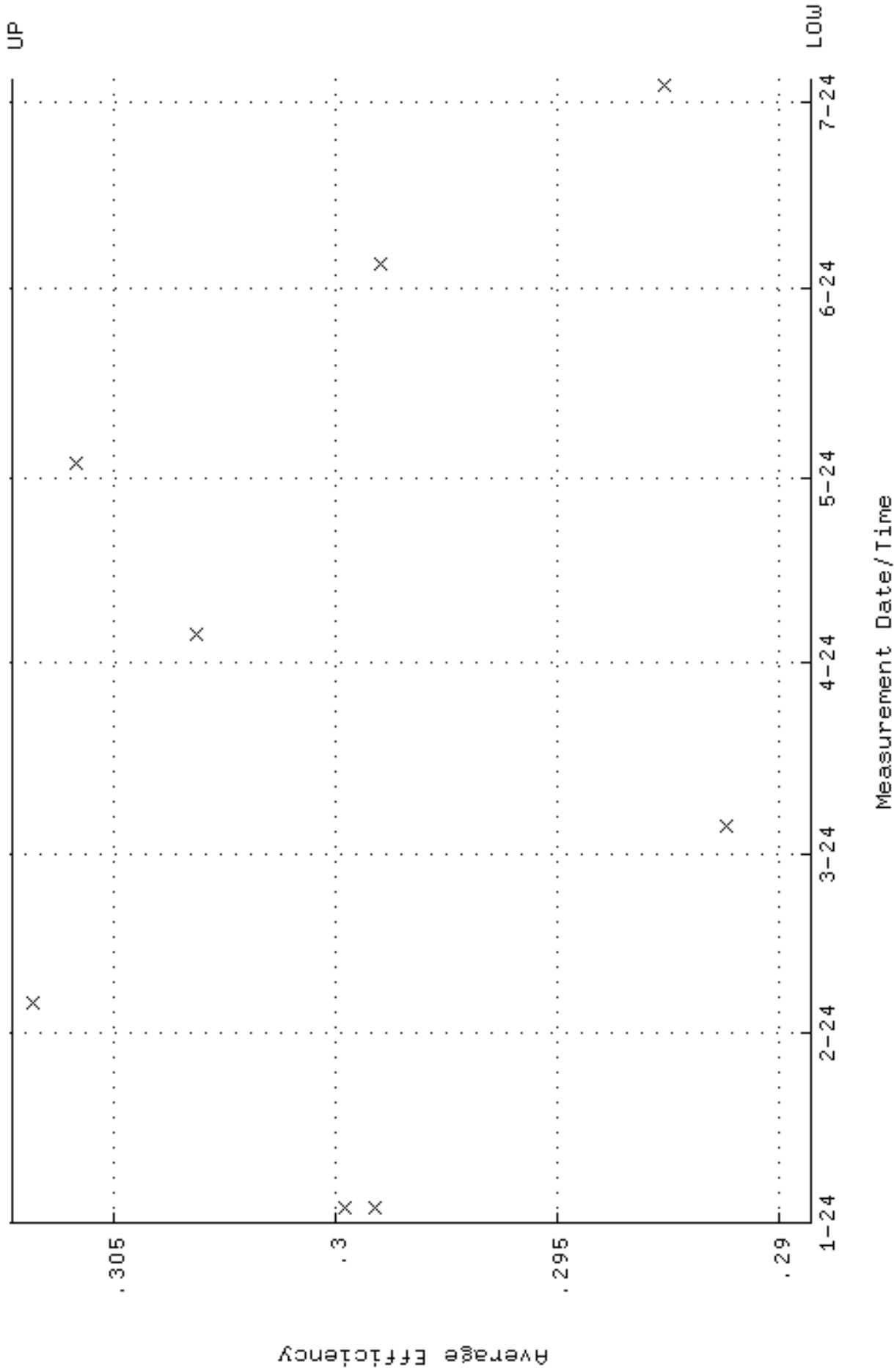
QA filename : DKA100:[ENV_ALPHA.QA.W]W034.QAF;7
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



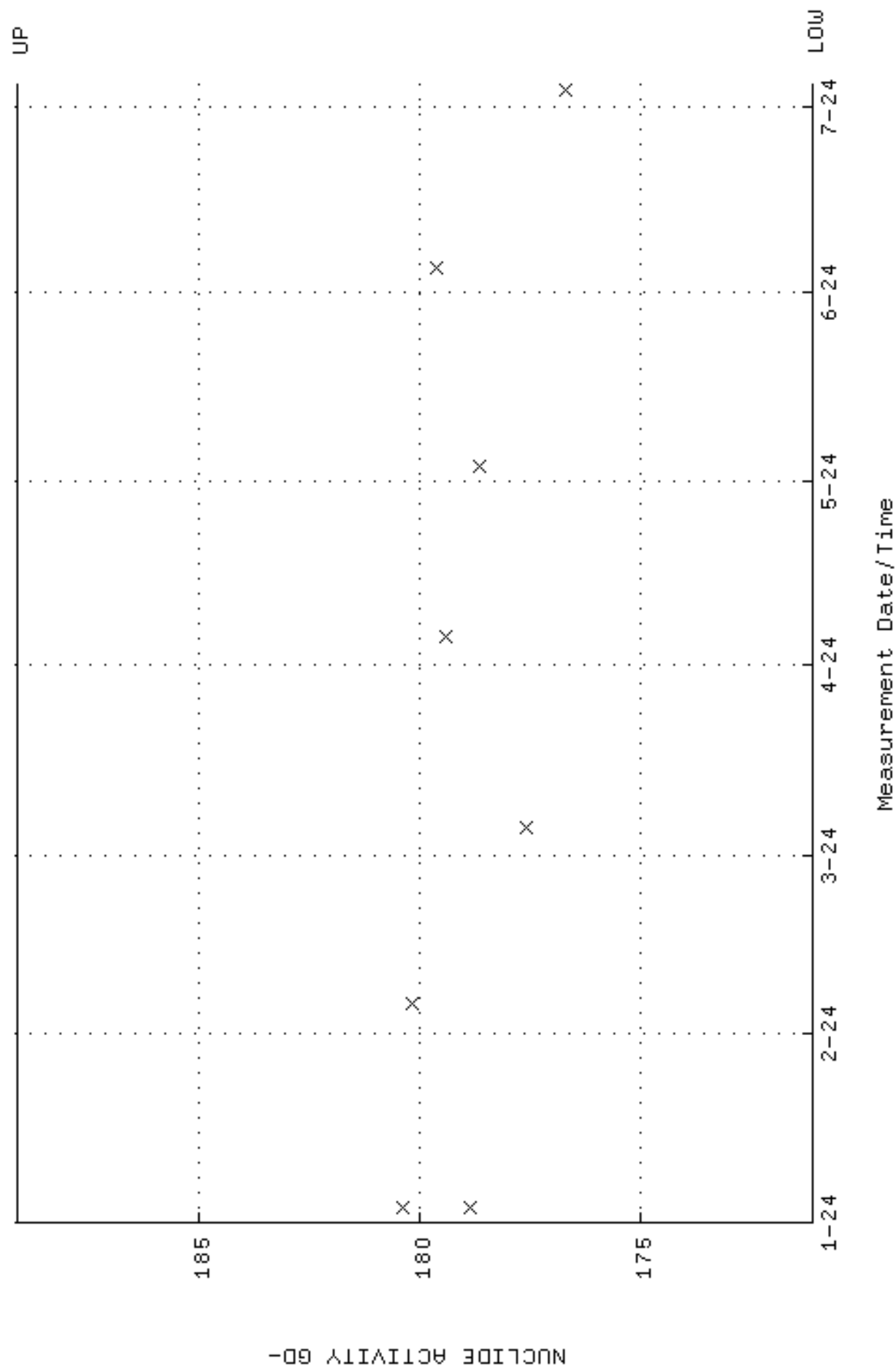
QA filename : DKA100:[ENV_ALPHA.QA.B]B034.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:36:09 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



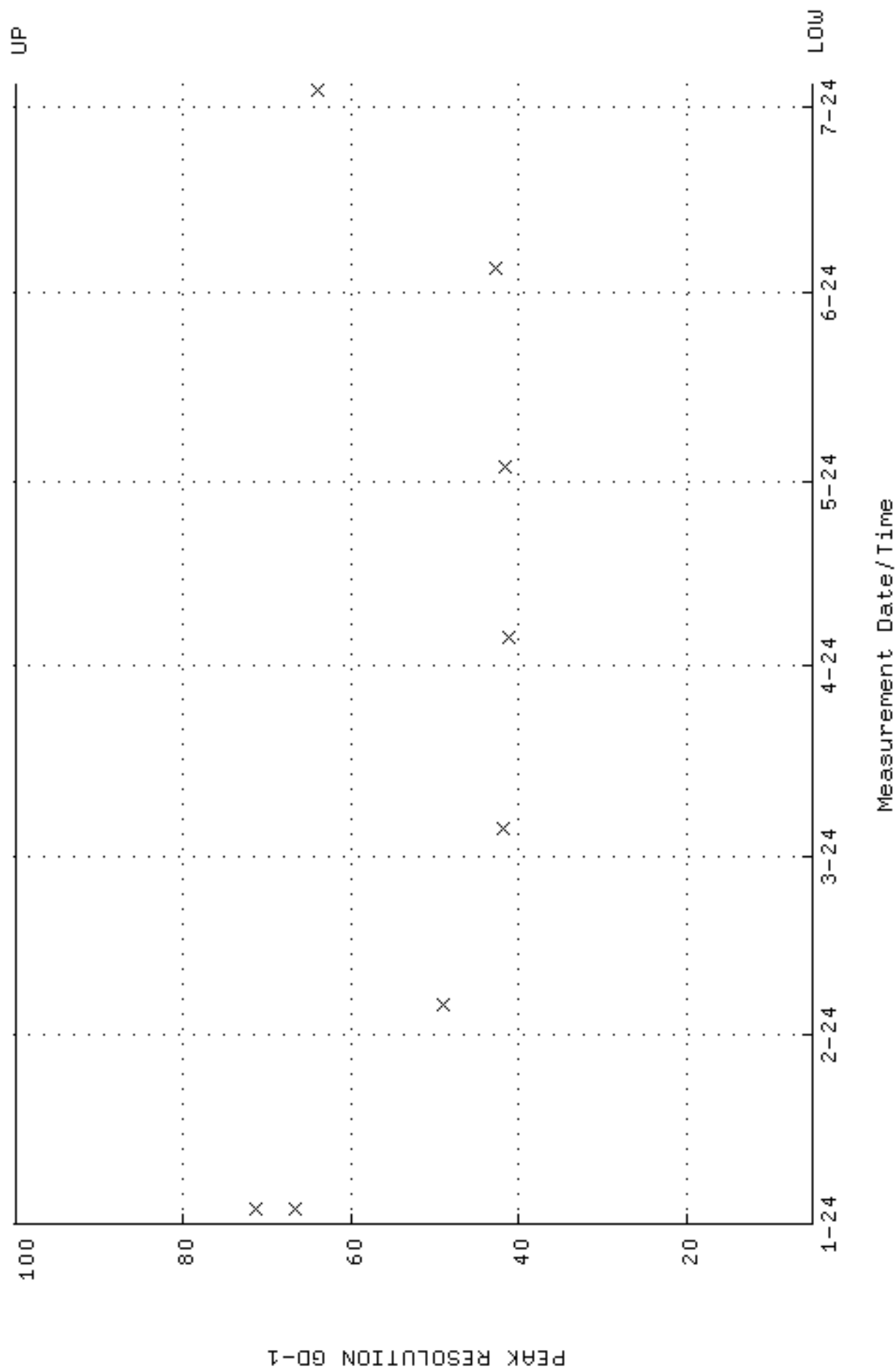
QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;7
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
Lower/Upper Lmts: 0.289300 through 0.307300



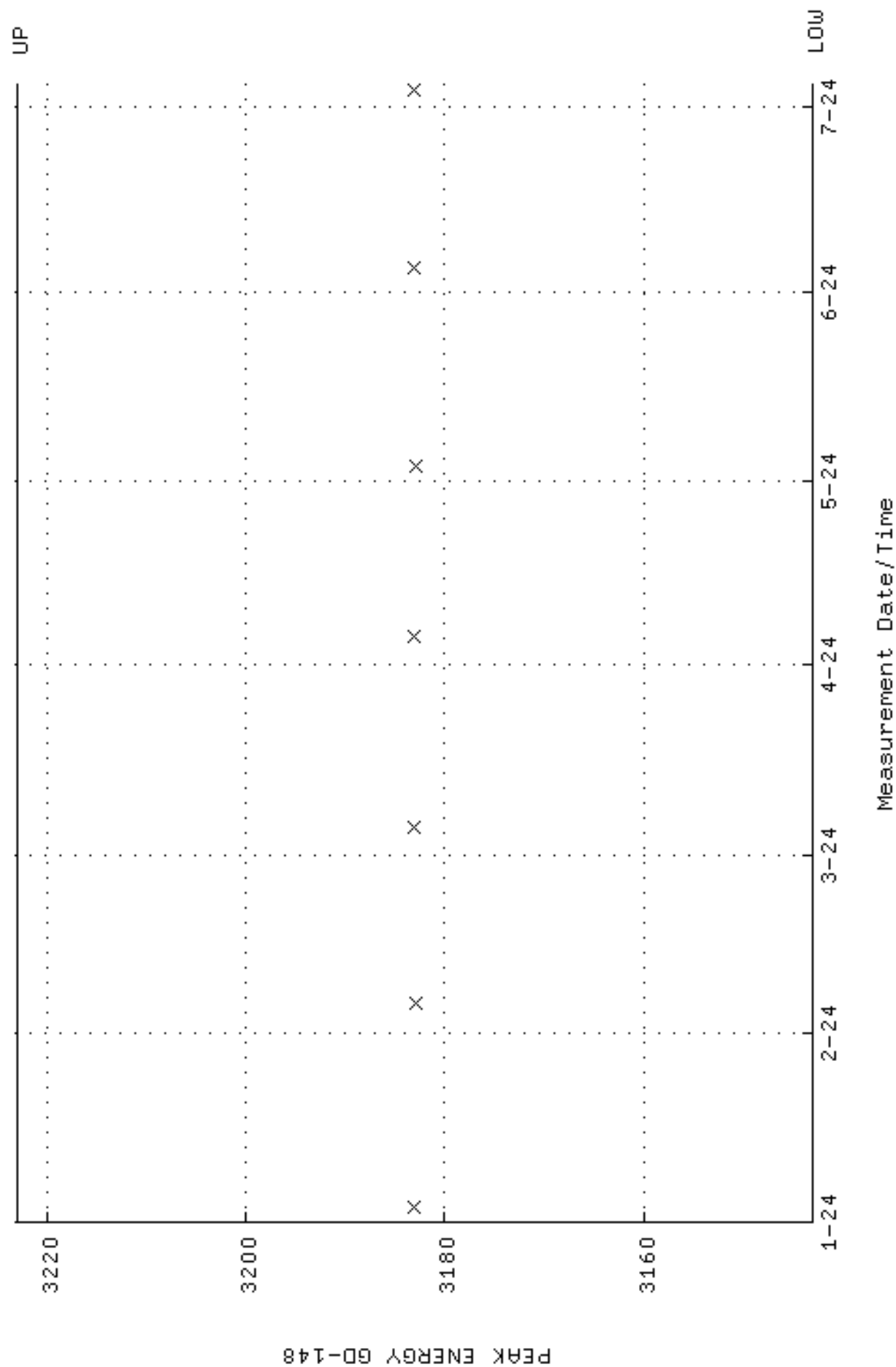
QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;7
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;7
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



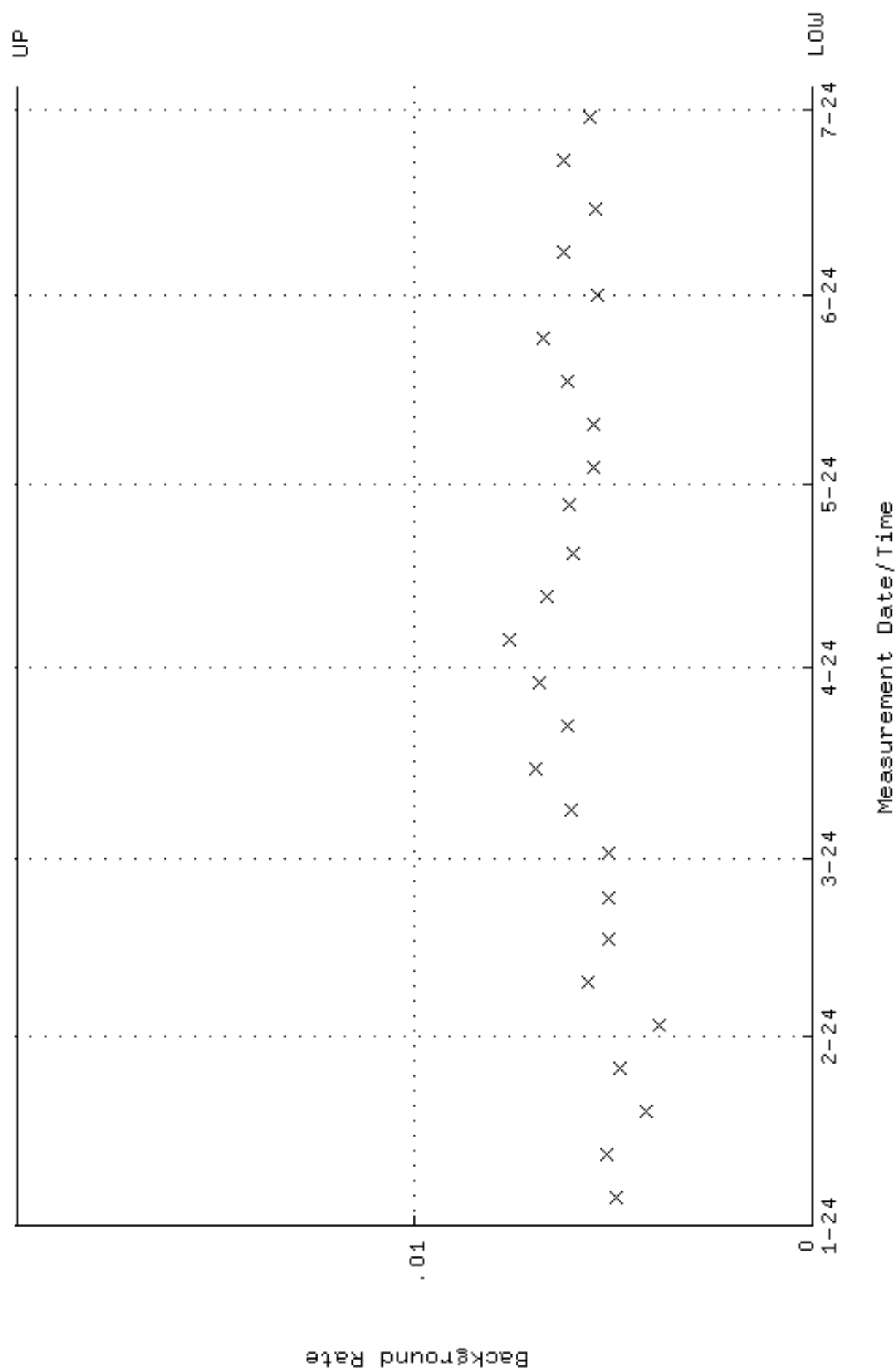
QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;7
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 3-JAN-2024 10:10:05 through 4-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



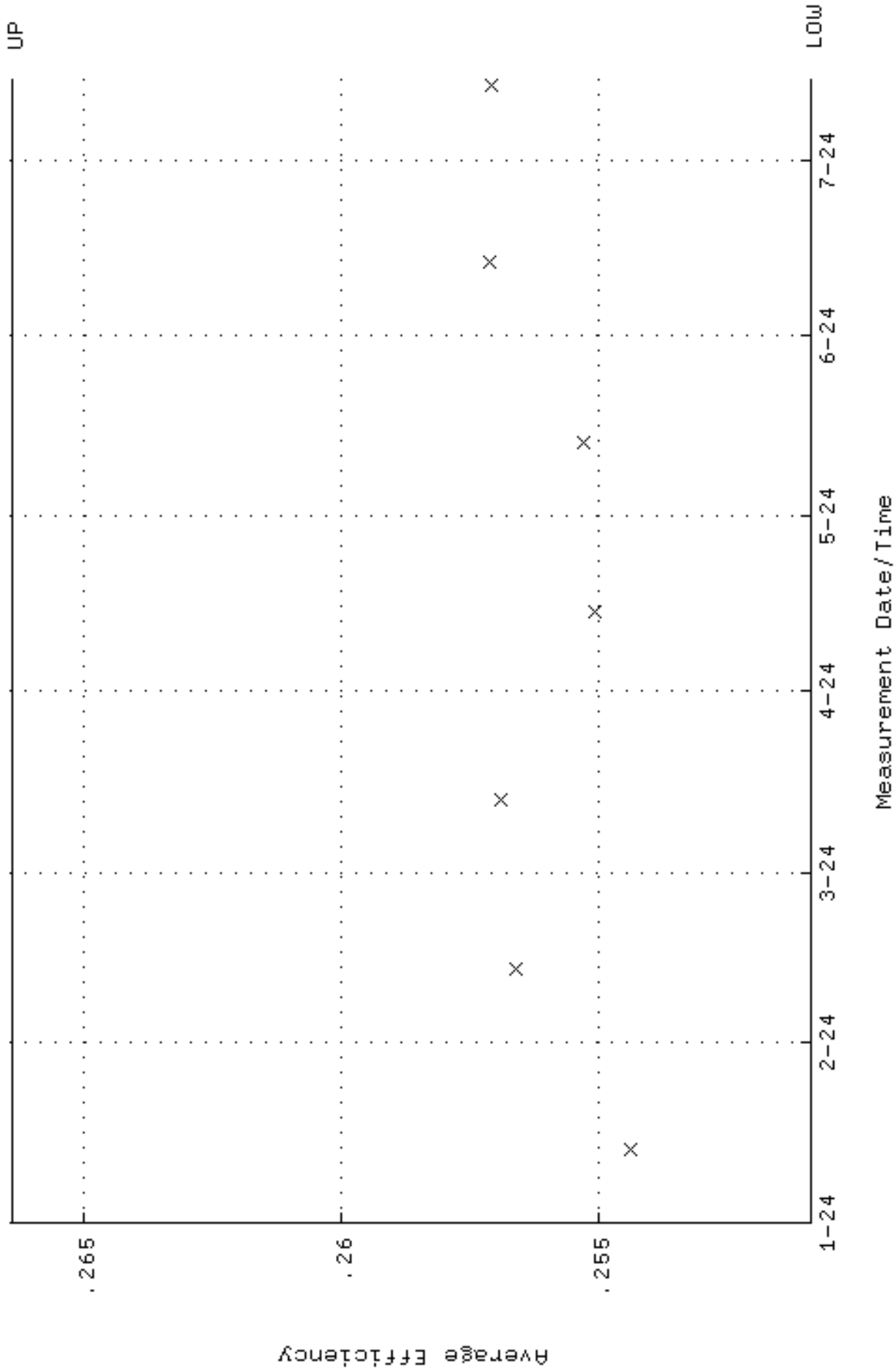

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QA filename      : DKA100:[ENV_ALPHA.QA.B]B035.QAF;4
Parameter Name   : BACKRATE (Background Rate)
Start/End Dates  : 5-JAN-2024 13:36:09 through 4-JUL-
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

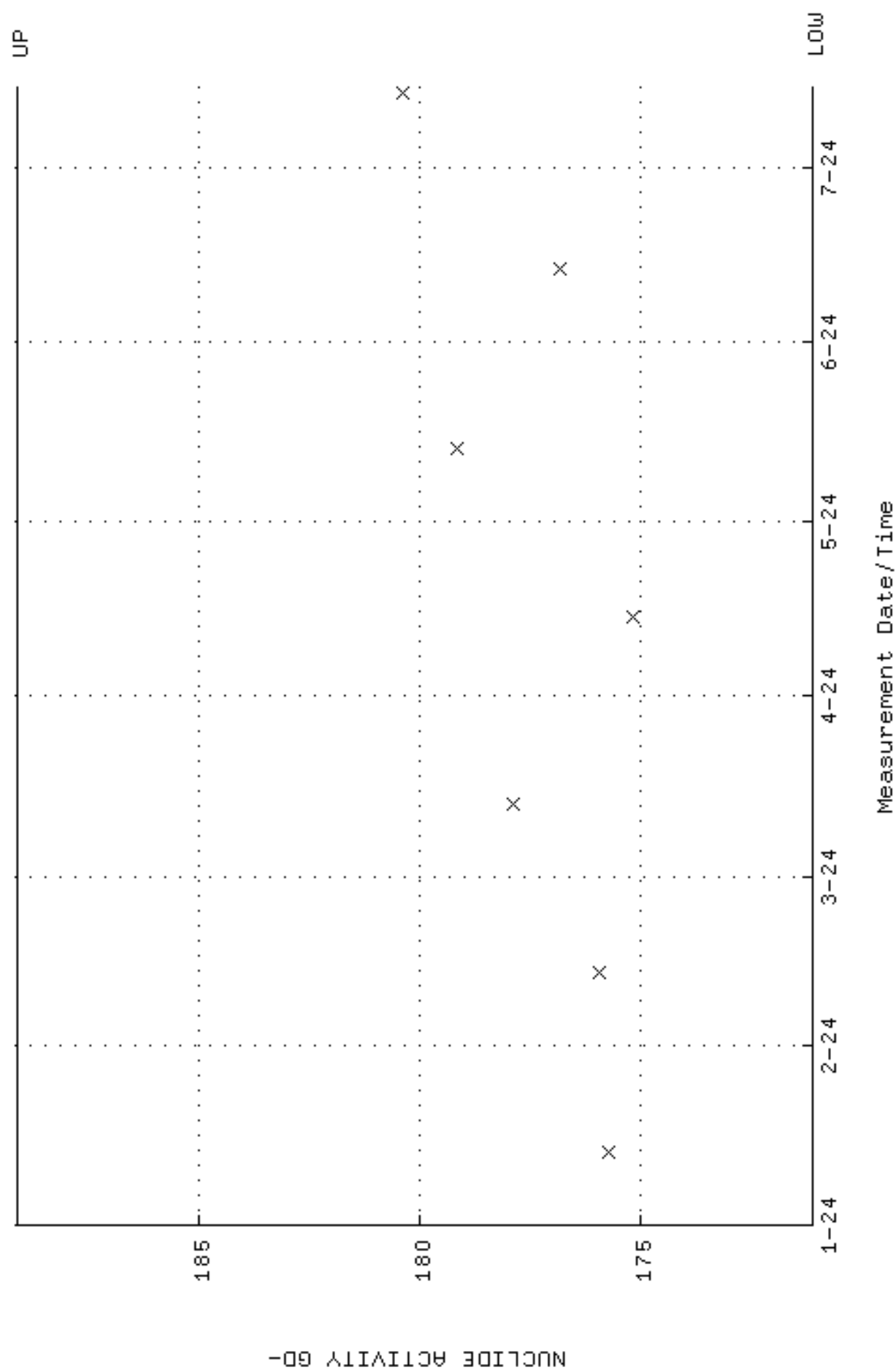
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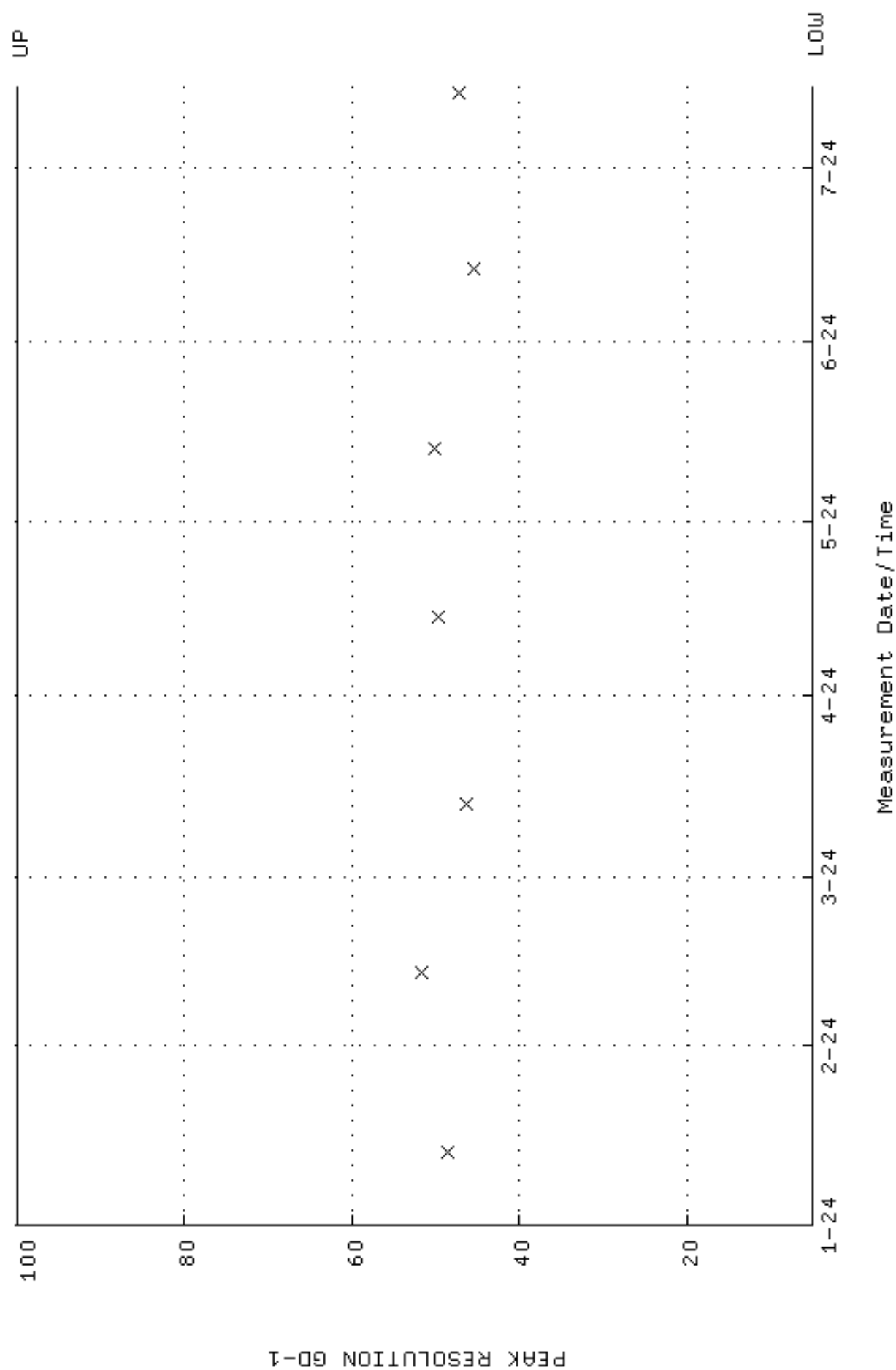
QA filename : DKA100:[ENV_ALPHA.QA.W]W113.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 13-JAN-2024 13:15:13 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.250880 through 0.266390



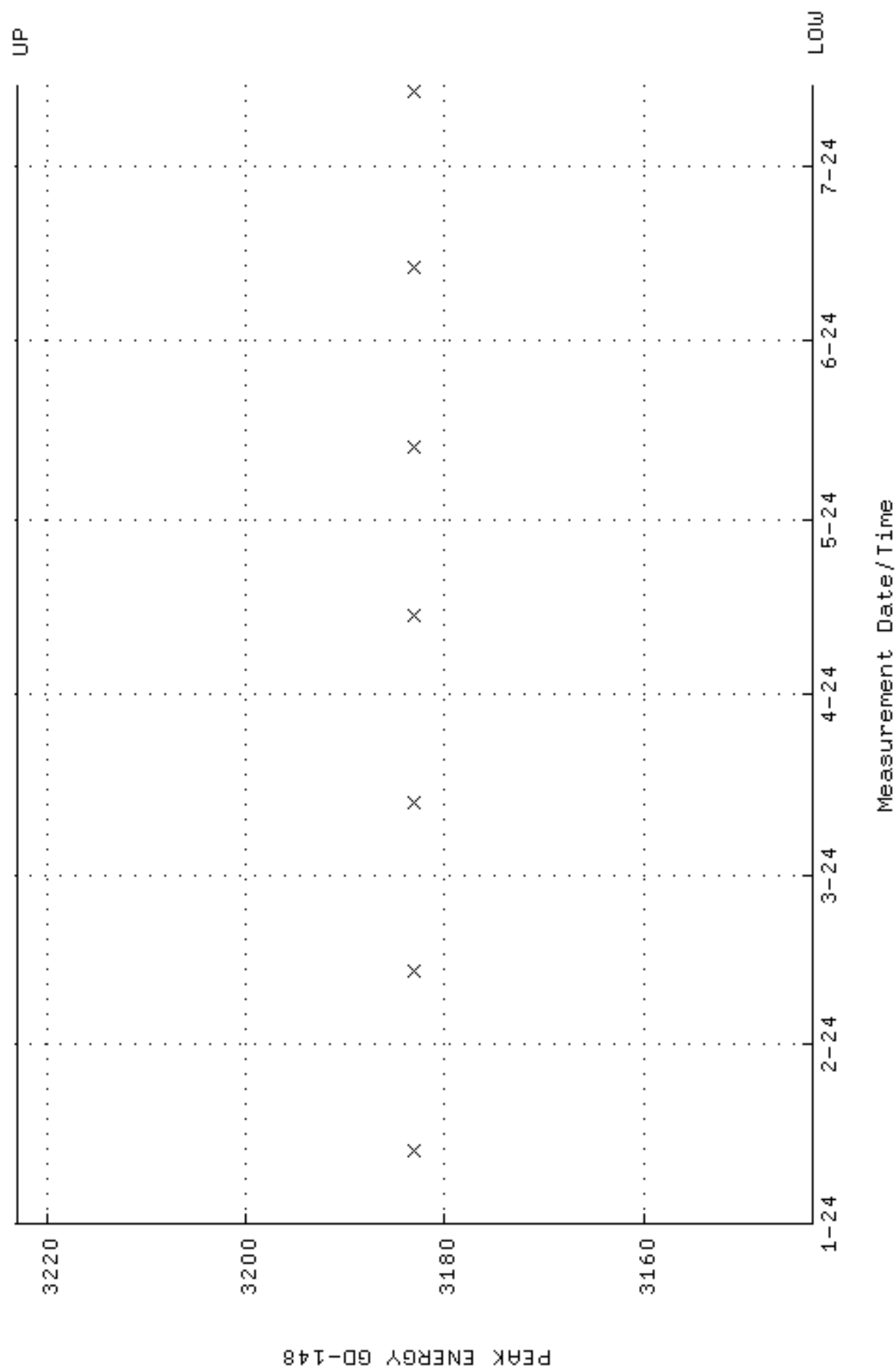
QA filename : DKA100:[ENV_ALPHA.QA.W]W113.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 13-JAN-2024 13:15:13 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



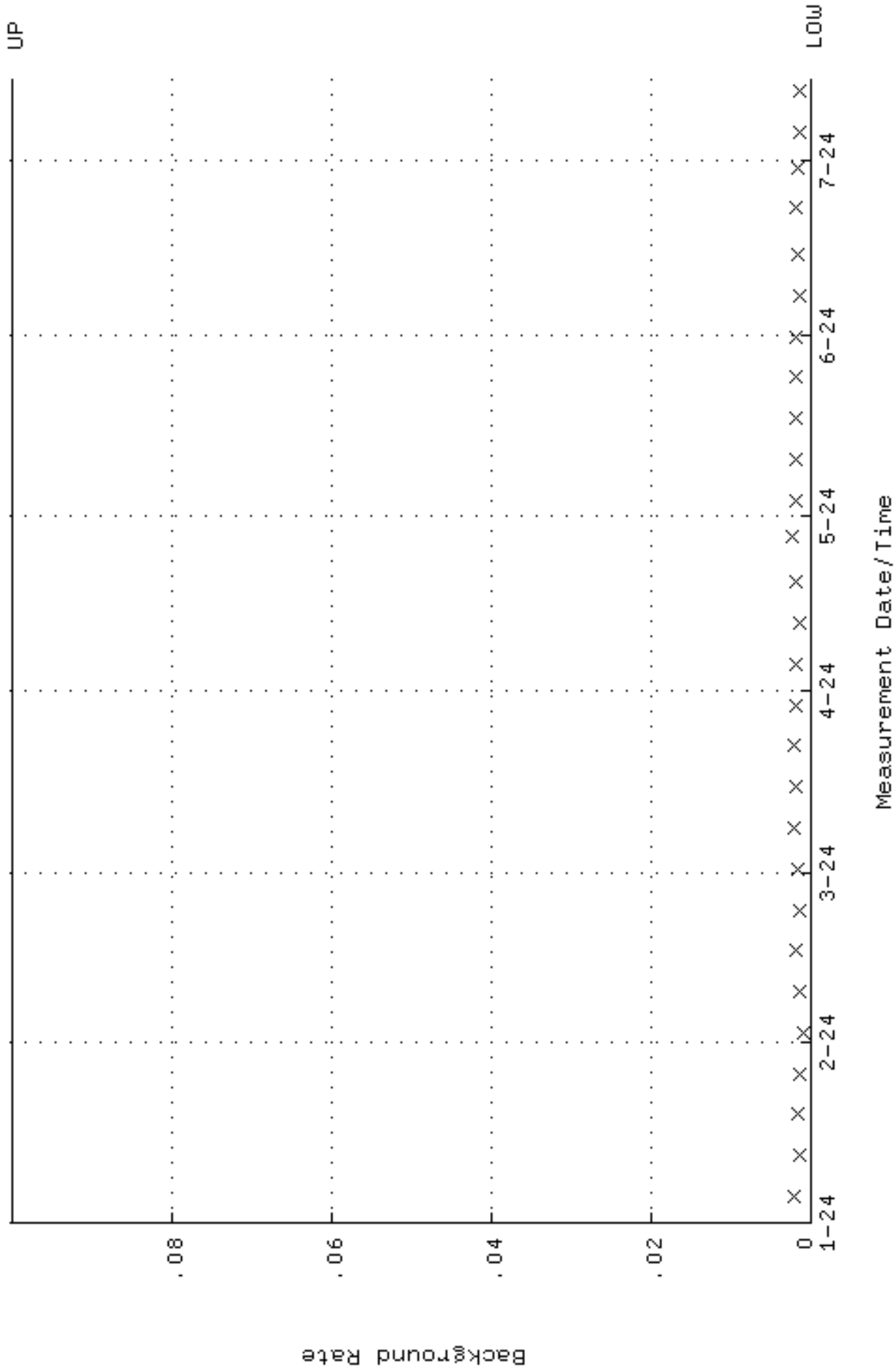
QA filename : DKA100:[ENV_ALPHA.QA.W]W113.QAF;6
Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
Start/End Dates : 13-JAN-2024 13:15:13 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 5.00000 through 100.000



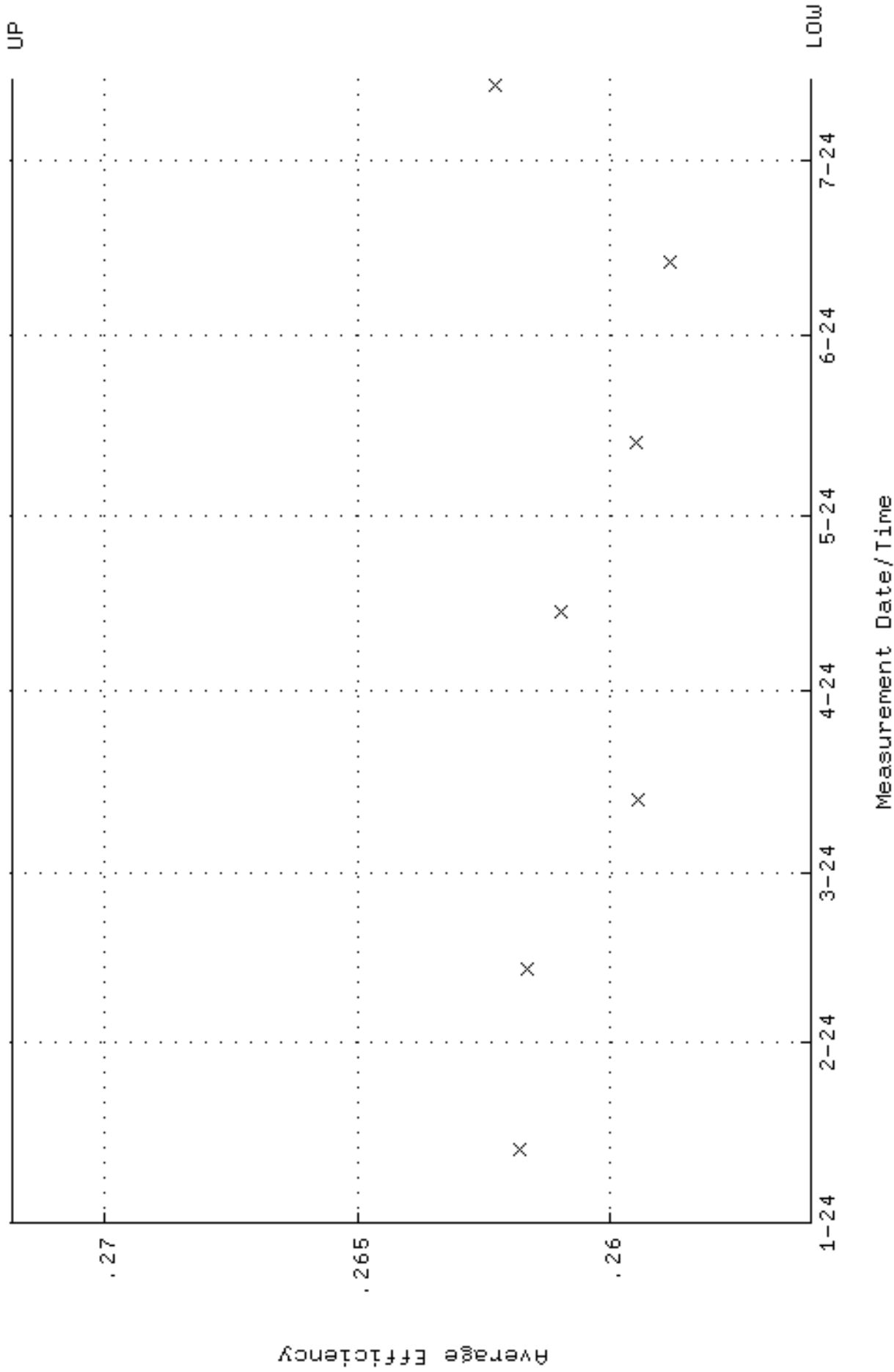
QA filename : DKA100:[ENV_ALPHA.QA.W]W113.QAF;6
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 13-JAN-2024 13:15:13 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



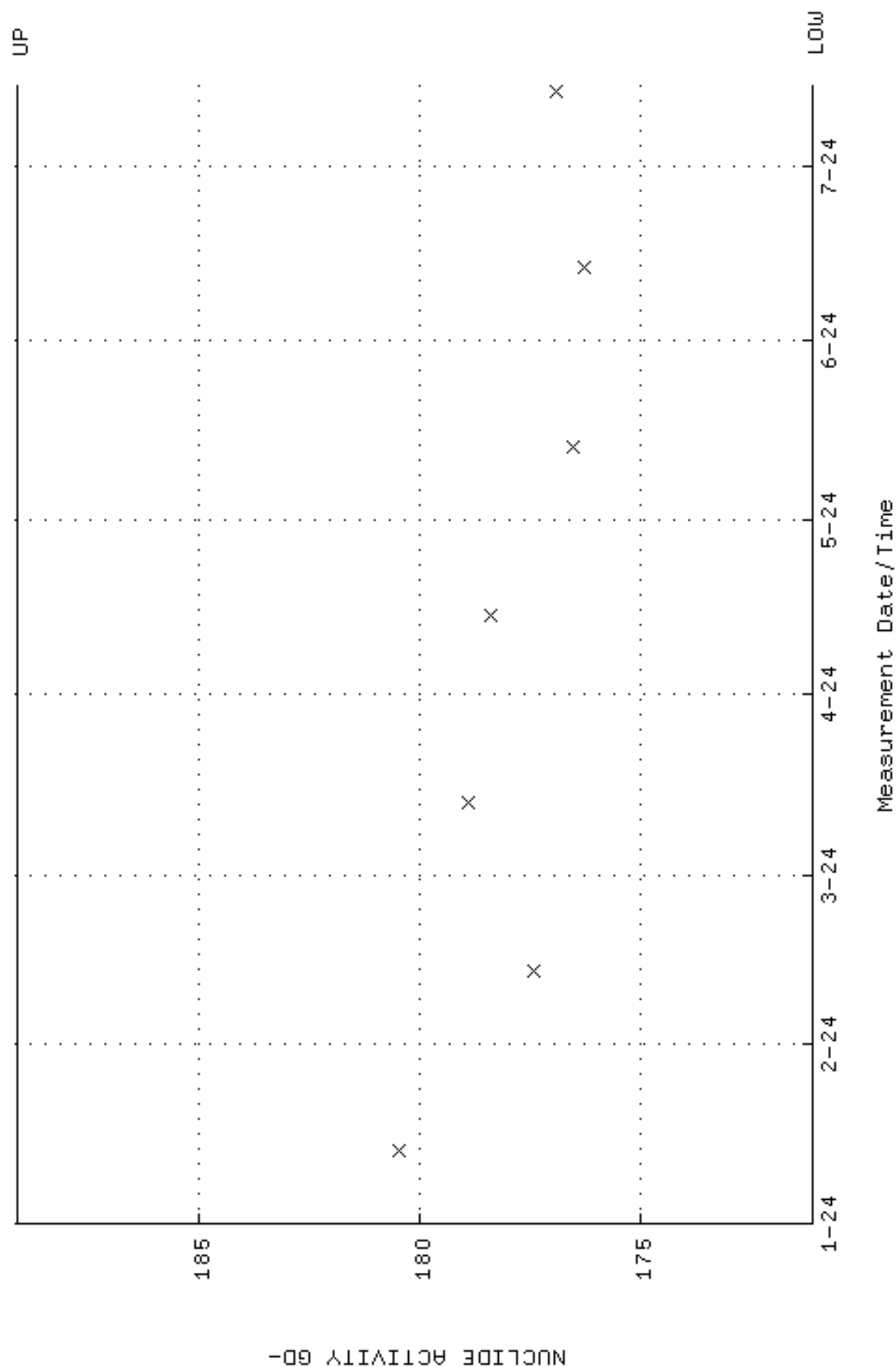
QA filename : DKA100:[ENV_ALPHA.QA.B]B113.QAF;5
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:41:17 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



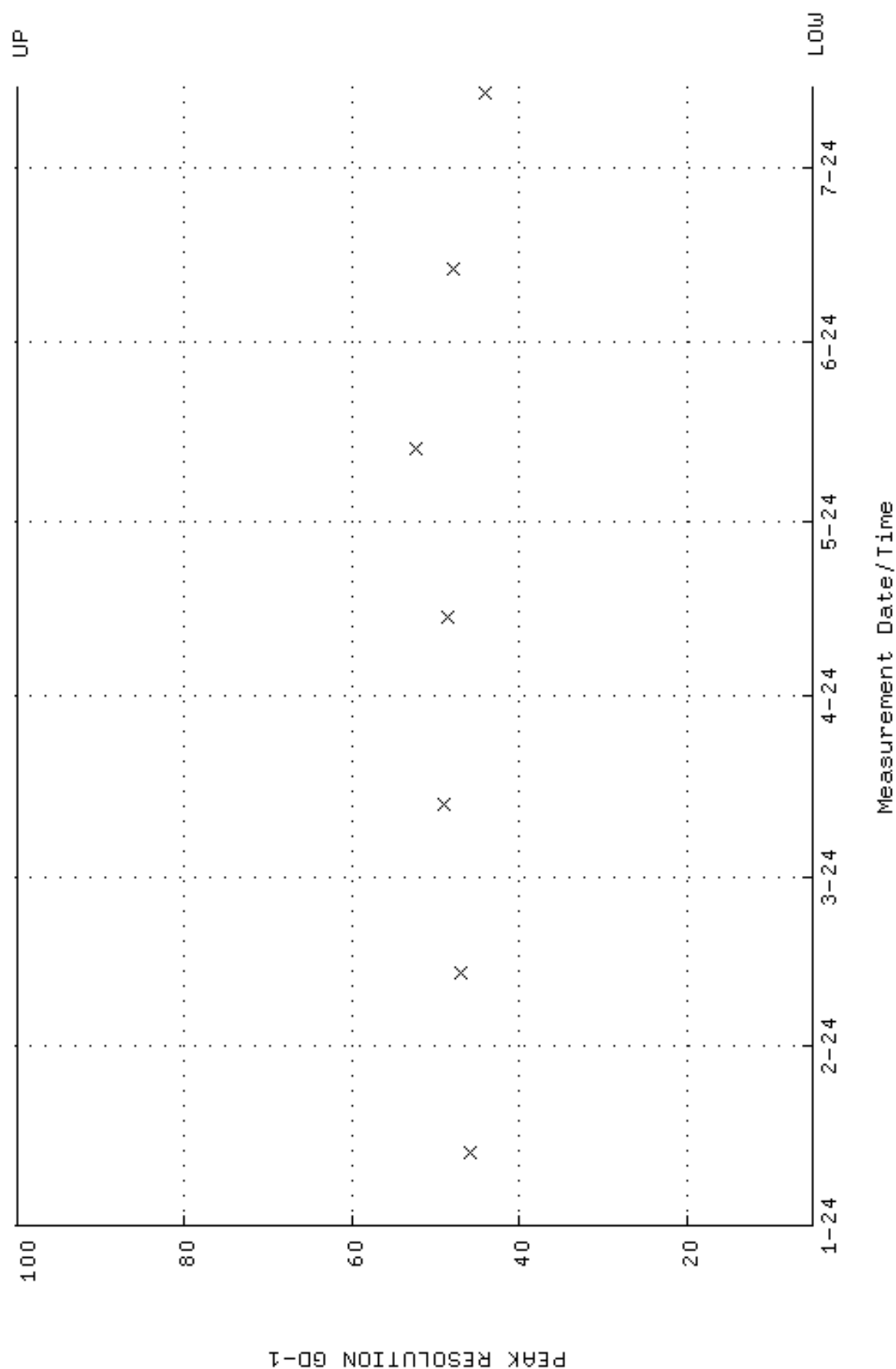
QA filename : DKA100:[ENV_ALPHA.QA.W]W117.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 13-JAN-2024 13:15:17 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.256000 through 0.271840



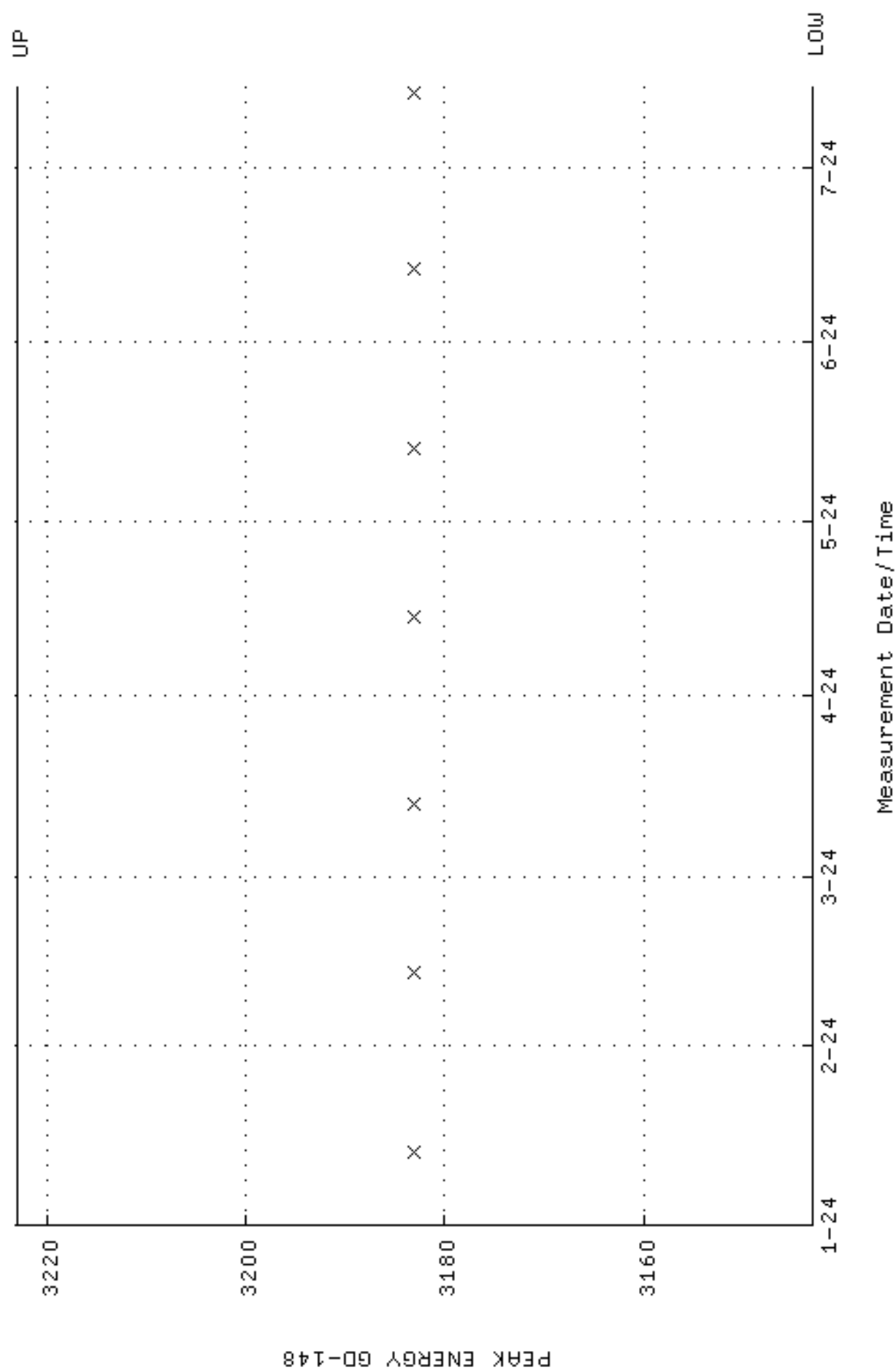
QA filename : DKA100:[ENV_ALPHA.QA.W]W117.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 13-JAN-2024 13:15:17 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



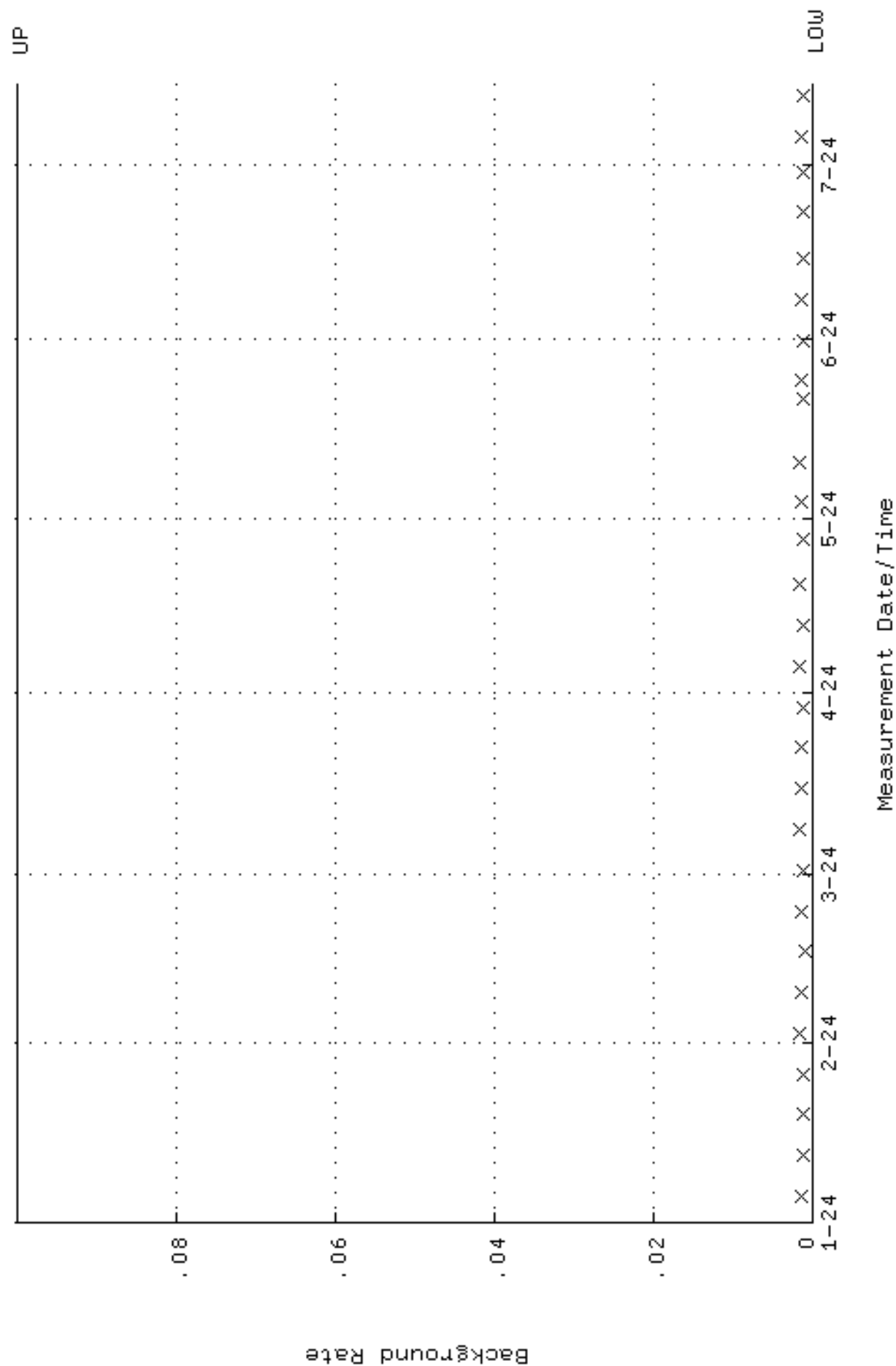
QA filename : DKA100:[ENV_ALPHA.QA.W]W117.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 13-JAN-2024 13:15:17 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



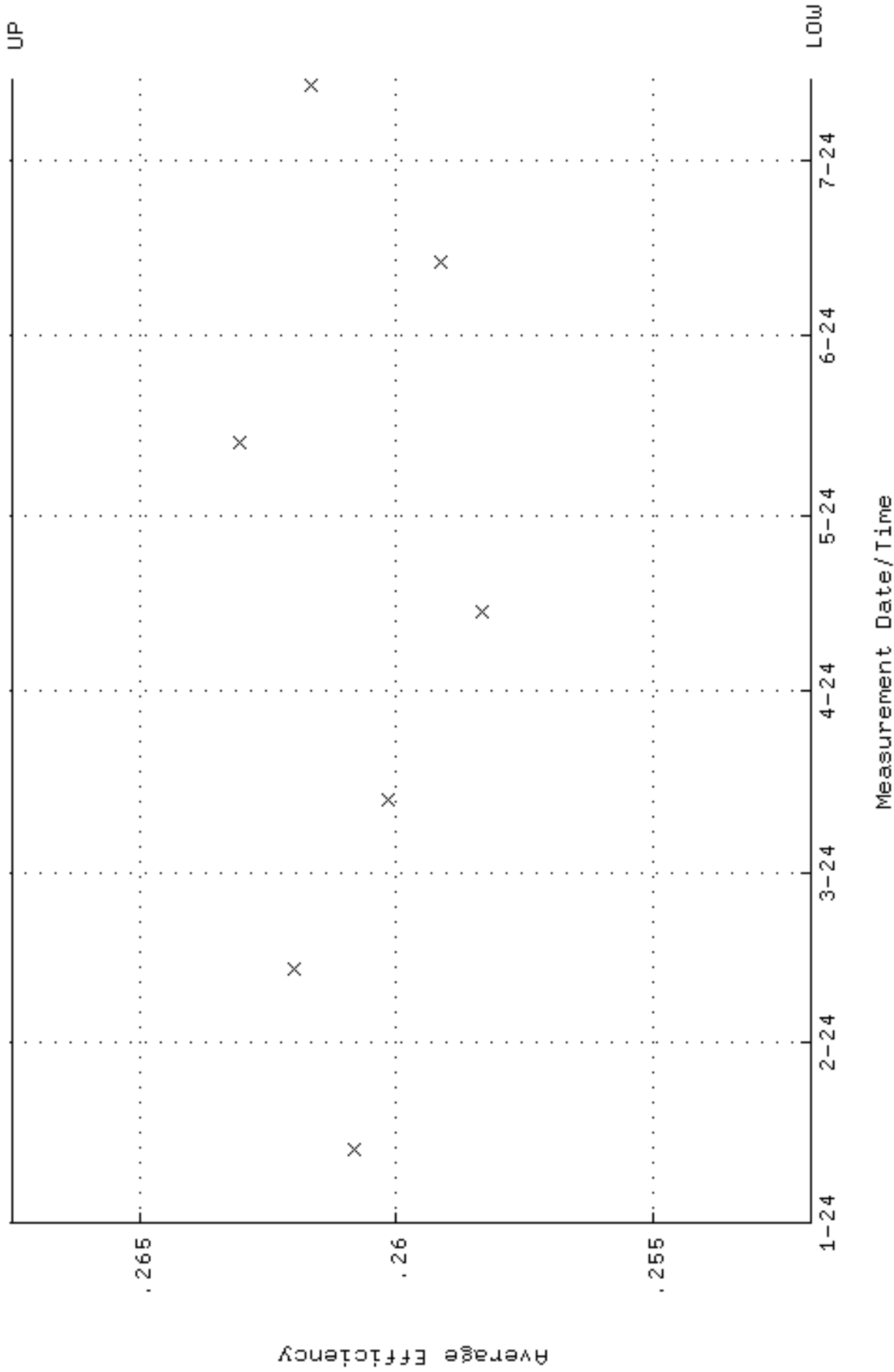
QA filename : DKA100:[ENV_ALPHA.QA.W]W117.QAF;6
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 13-JAN-2024 13:15:17 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



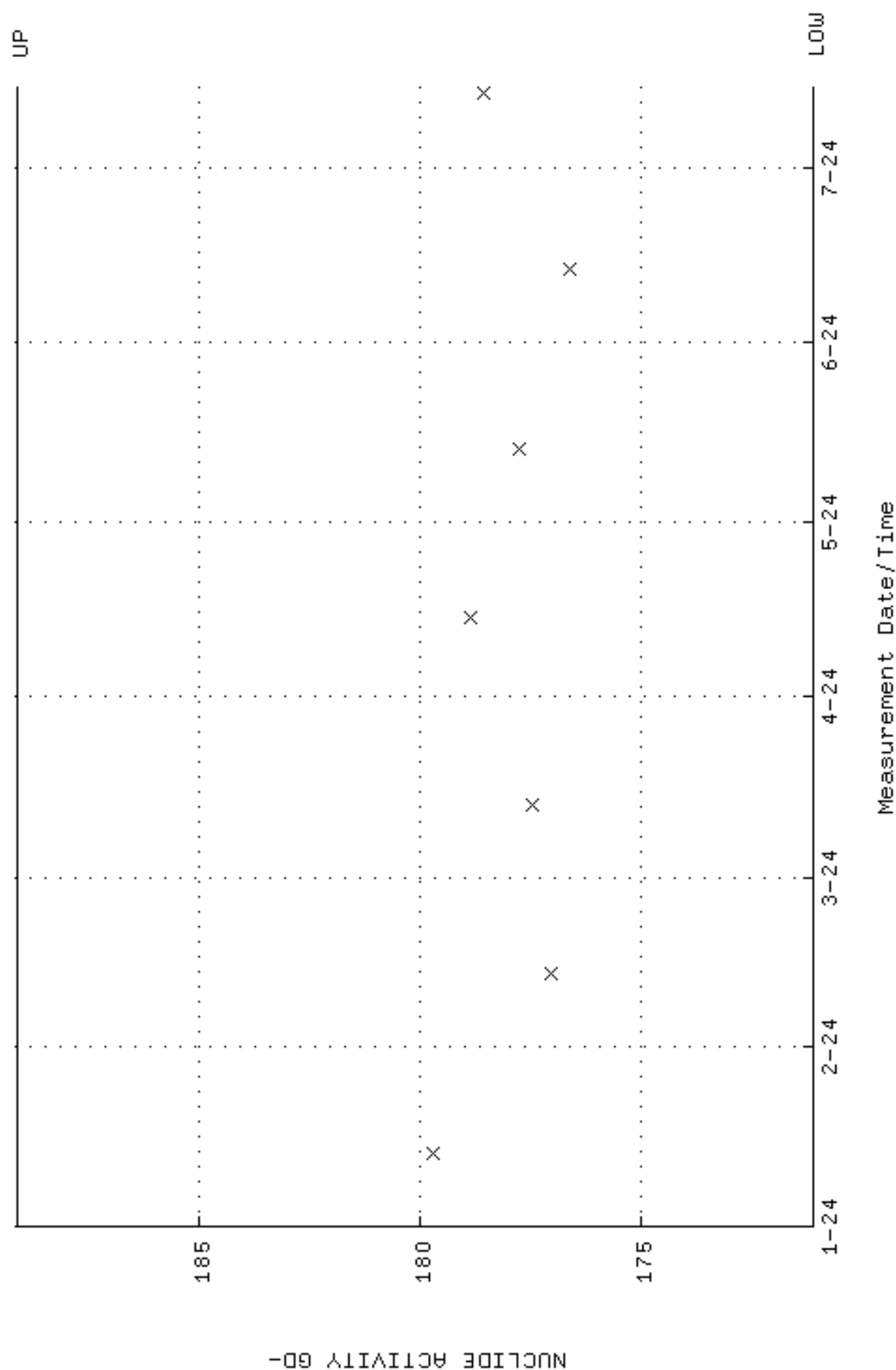
QA filename : DKA100:[ENV_ALPHA.QA.B]B117.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:41:26 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



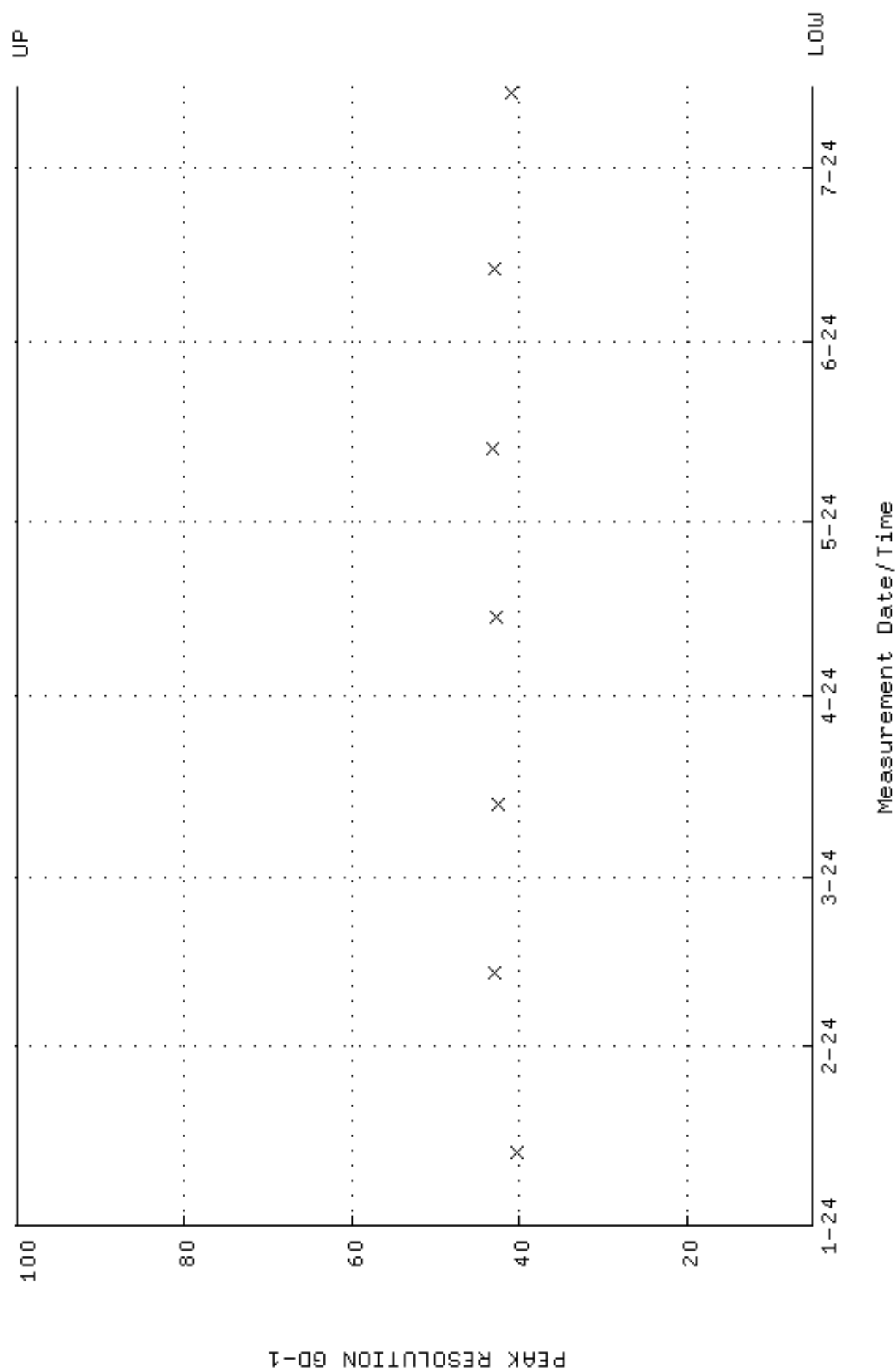
QA filename : DKA100:[ENV_ALPHA.QA.W]W125.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 13-JAN-2024 13:17:22 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.251904 through 0.267486



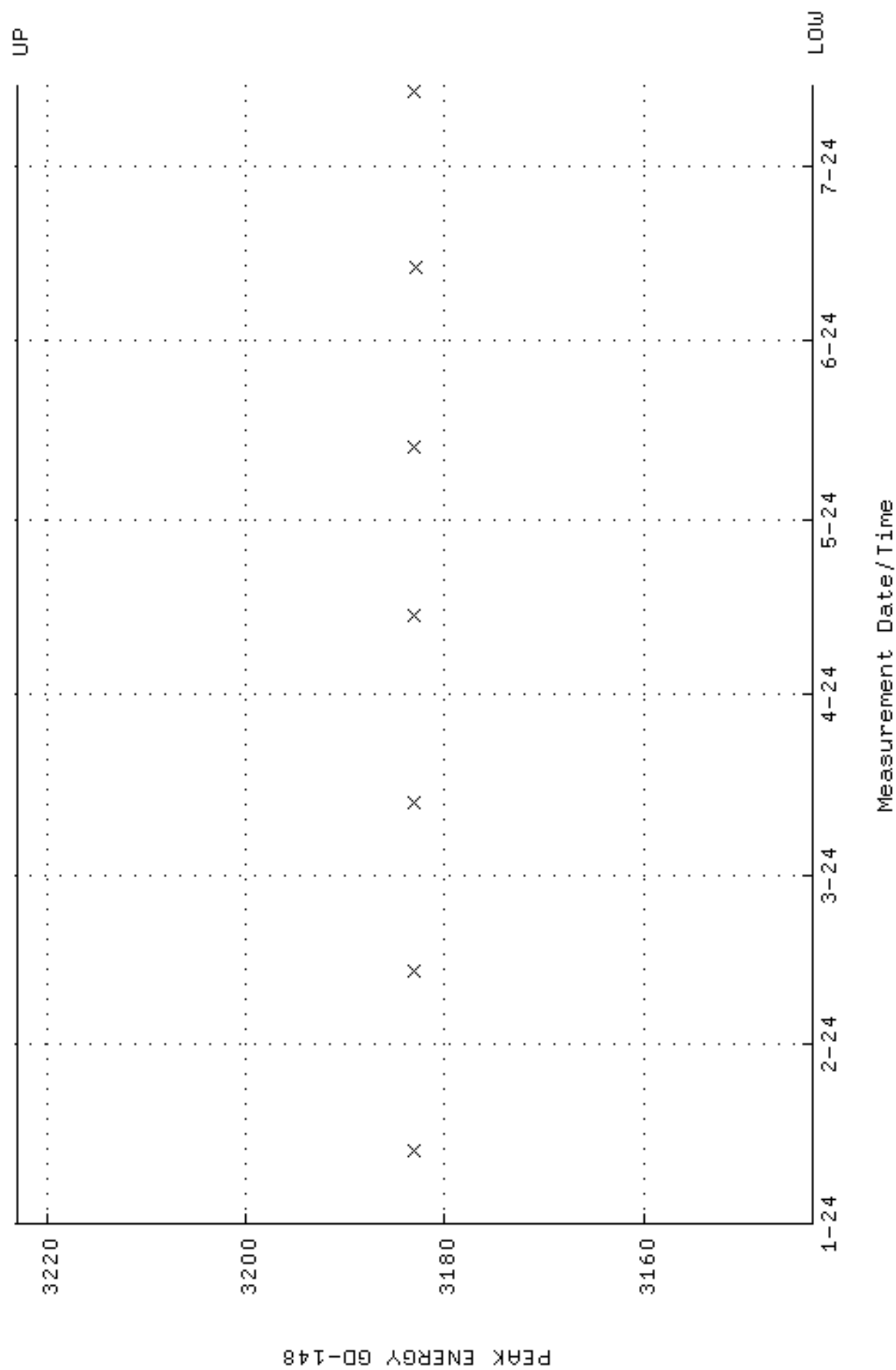
QA filename : DKA100:[ENV_ALPHA.QA.W]W125.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 13-JAN-2024 13:17:22 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



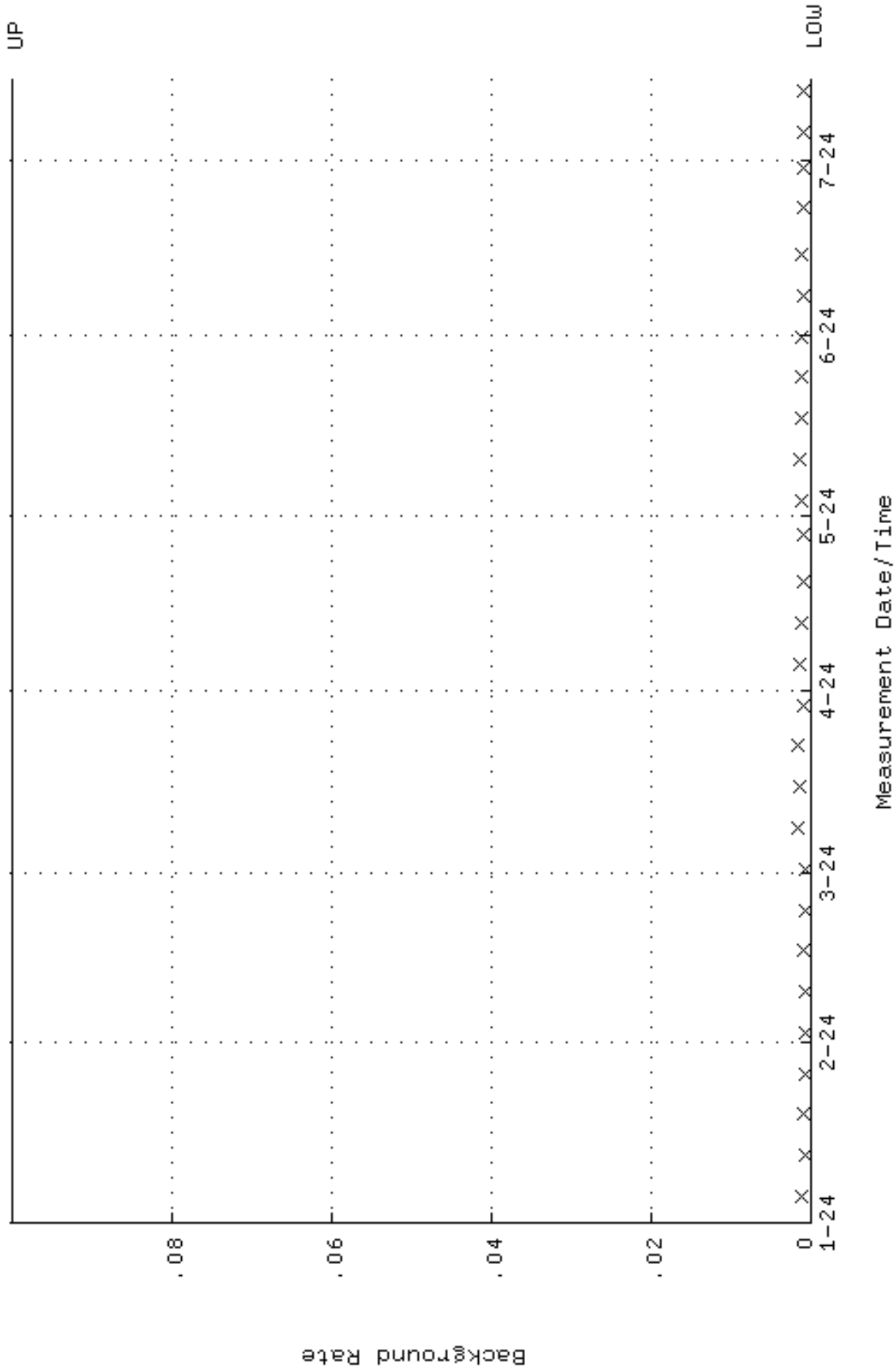
QA filename : DKA100:[ENV_ALPHA.QA.W]W125.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 13-JAN-2024 13:17:22 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



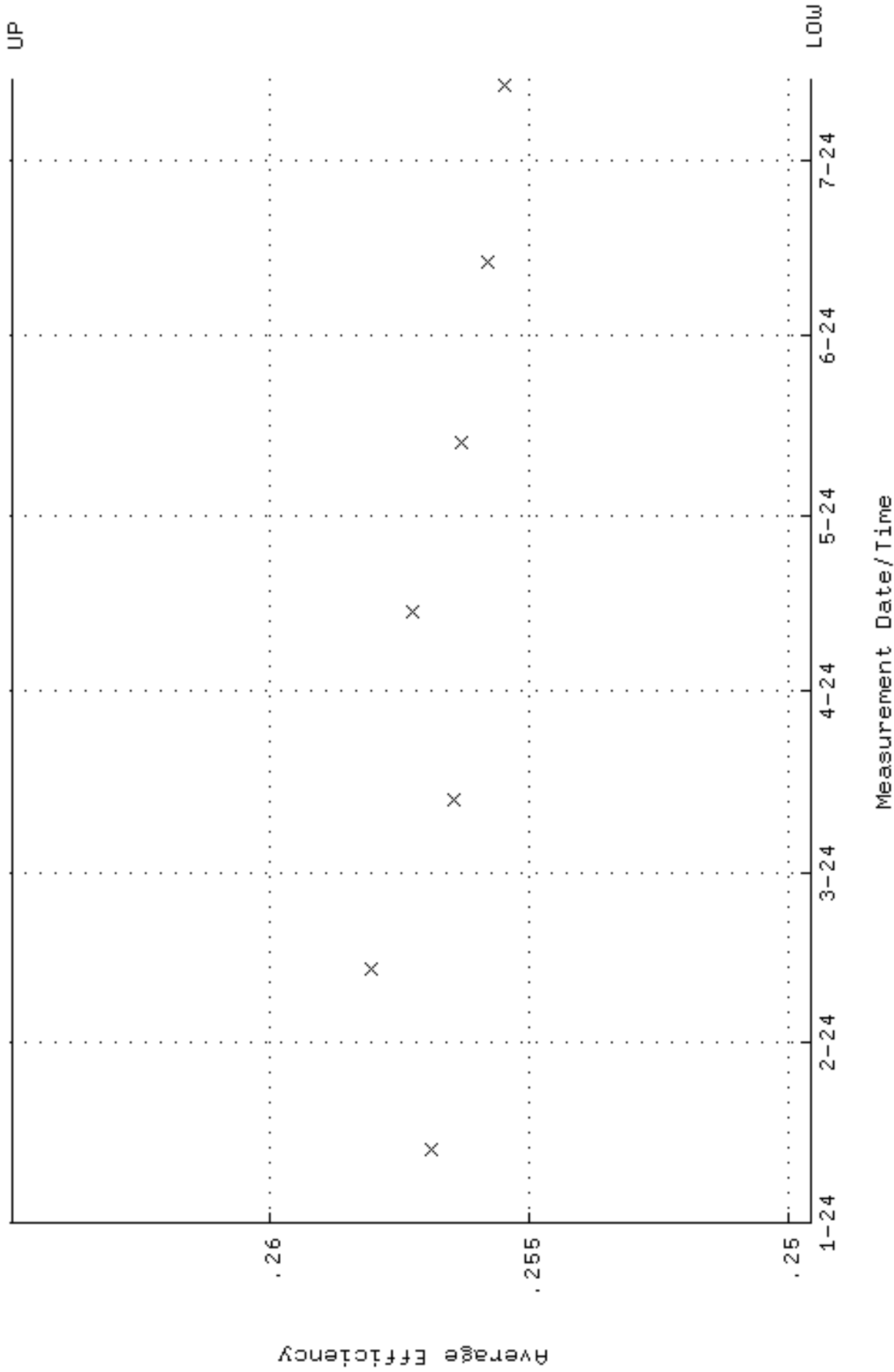
QA filename : DKA100:[ENV_ALPHA.QA.W]W125.QAF;6
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 13-JAN-2024 13:17:22 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



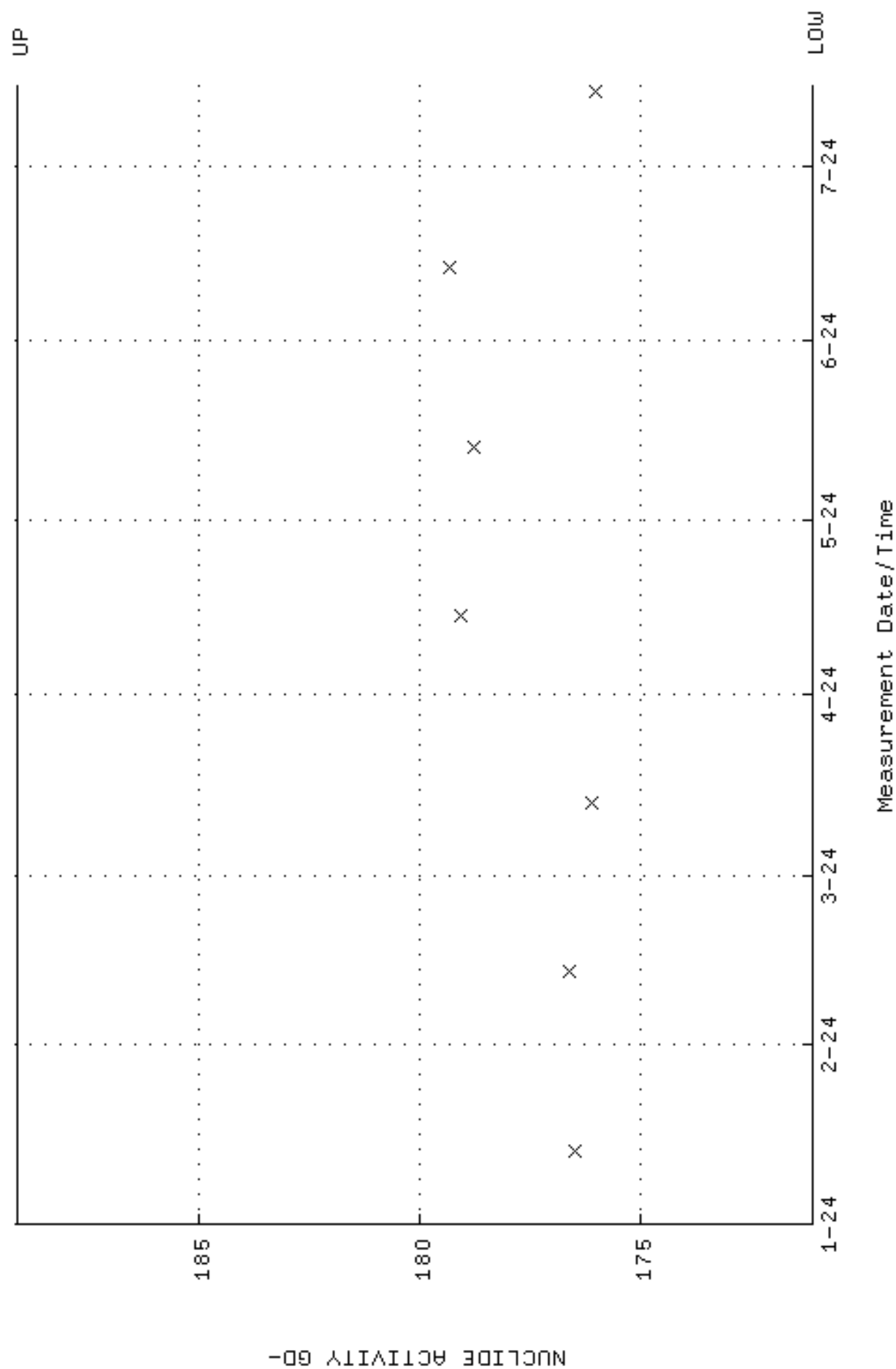
QA filename : DKA100:[ENV_ALPHA.QA.B]B125.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:41:41 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



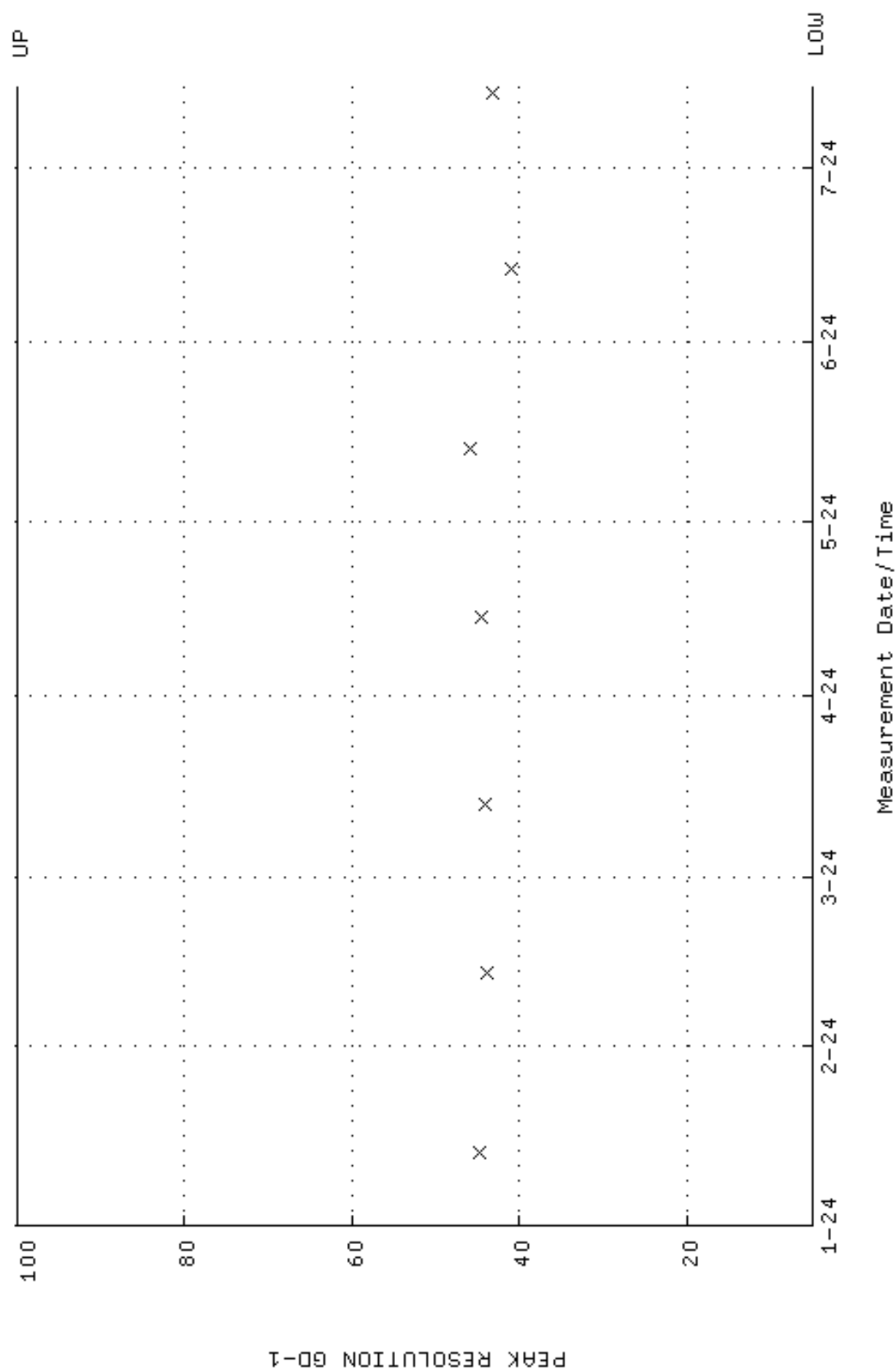
QA filename : DKA100:[ENV_ALPHA.QA.W]W126.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 13-JAN-2024 13:17:26 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.249550 through 0.264985



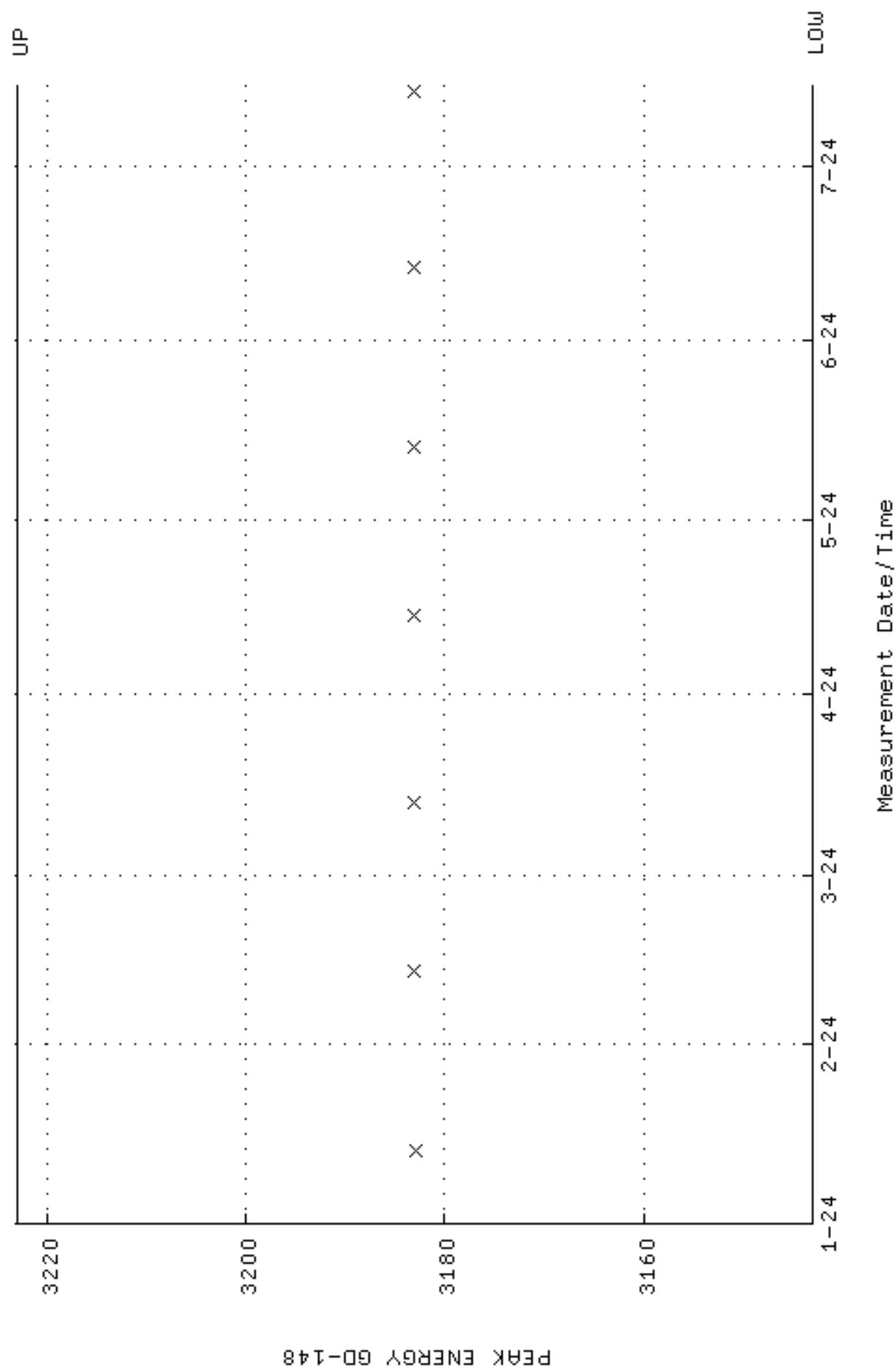
QA filename : DKA100:[ENV_ALPHA.QA.W]W126.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 13-JAN-2024 13:17:26 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



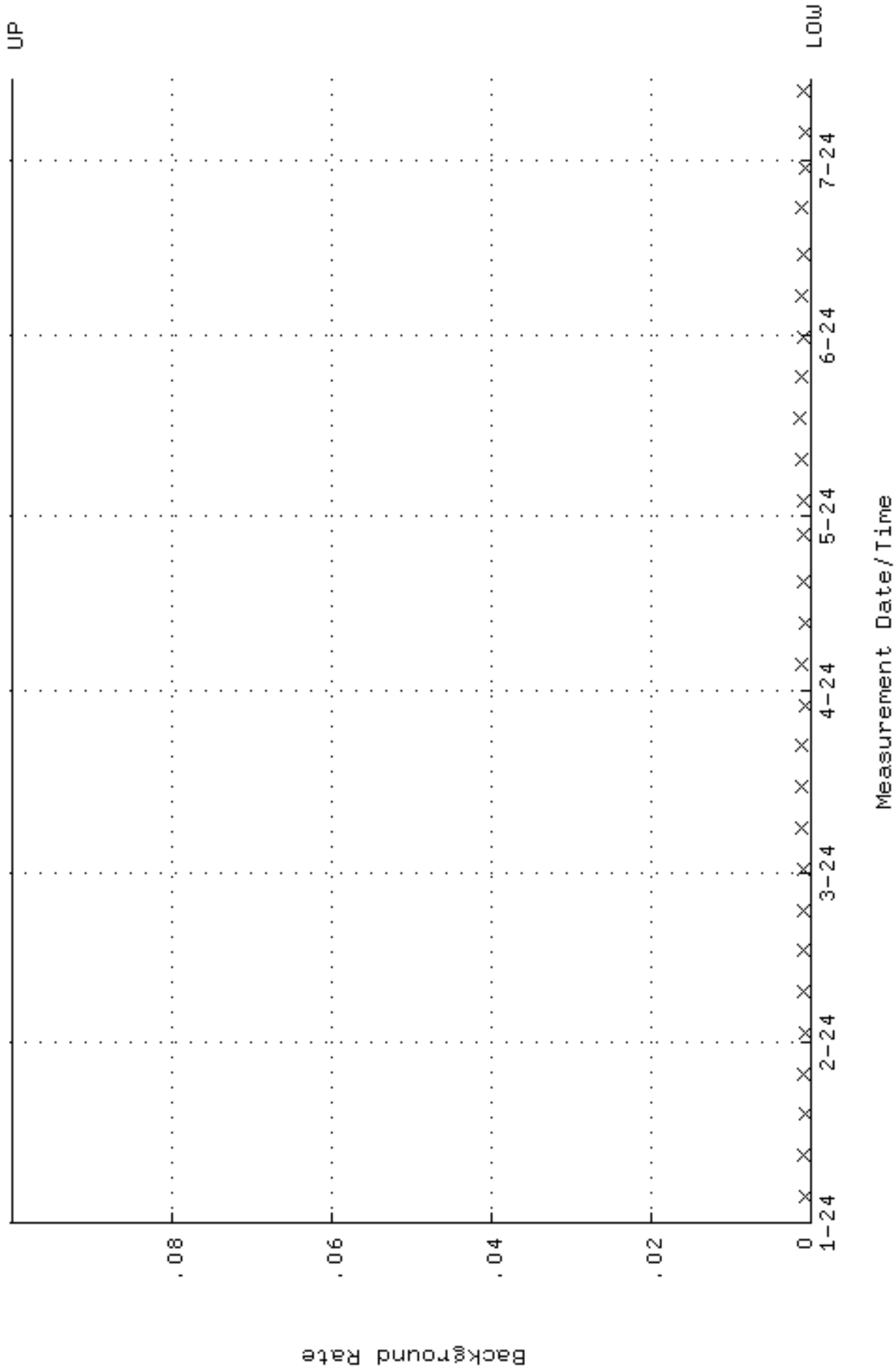
QA filename : DKA100:[ENV_ALPHA.QA.W]W126.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 13-JAN-2024 13:17:26 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



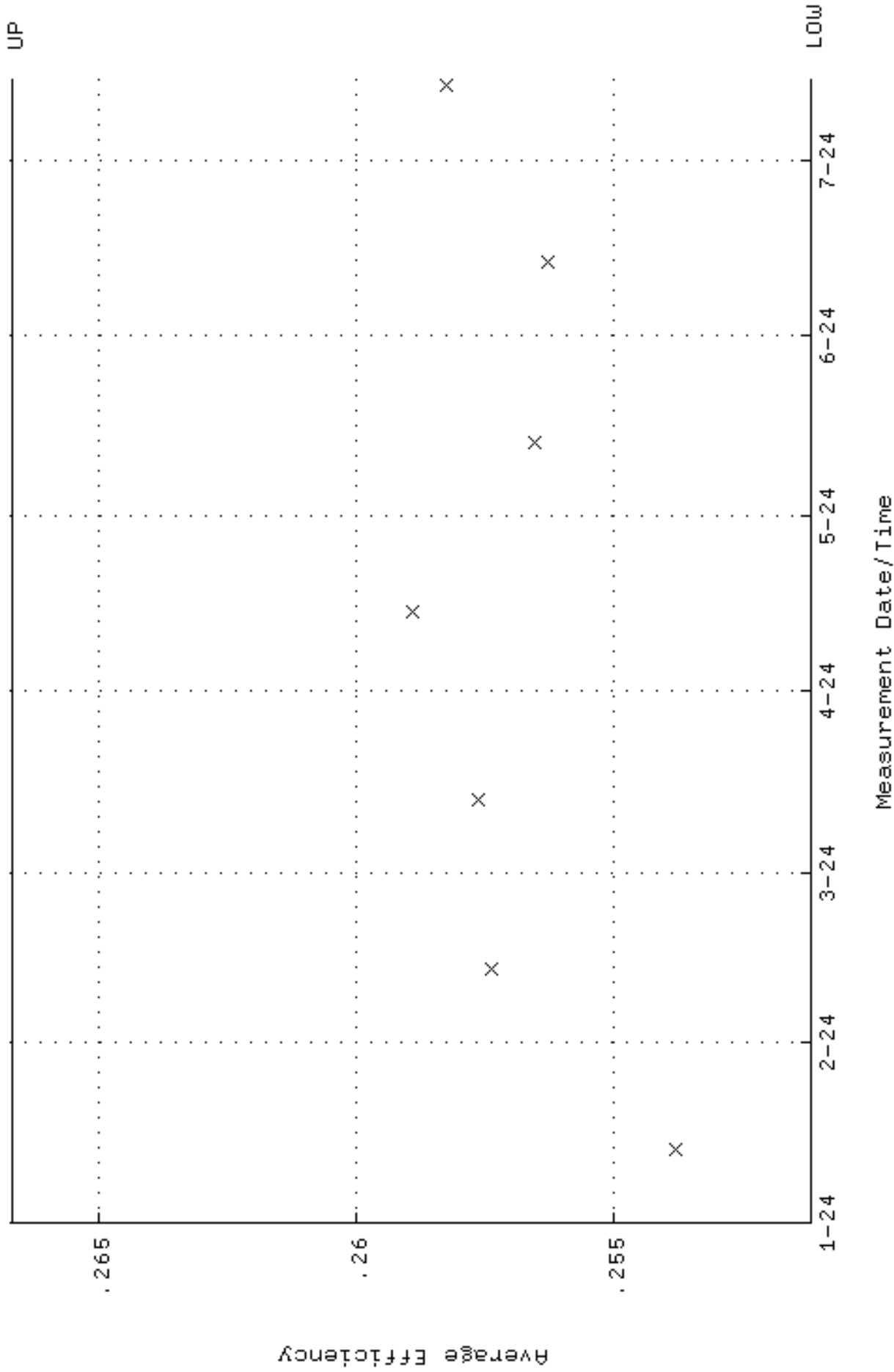
QA filename : DKA100:[ENV_ALPHA.QA.W]W126.QAF;6
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 13-JAN-2024 13:17:26 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



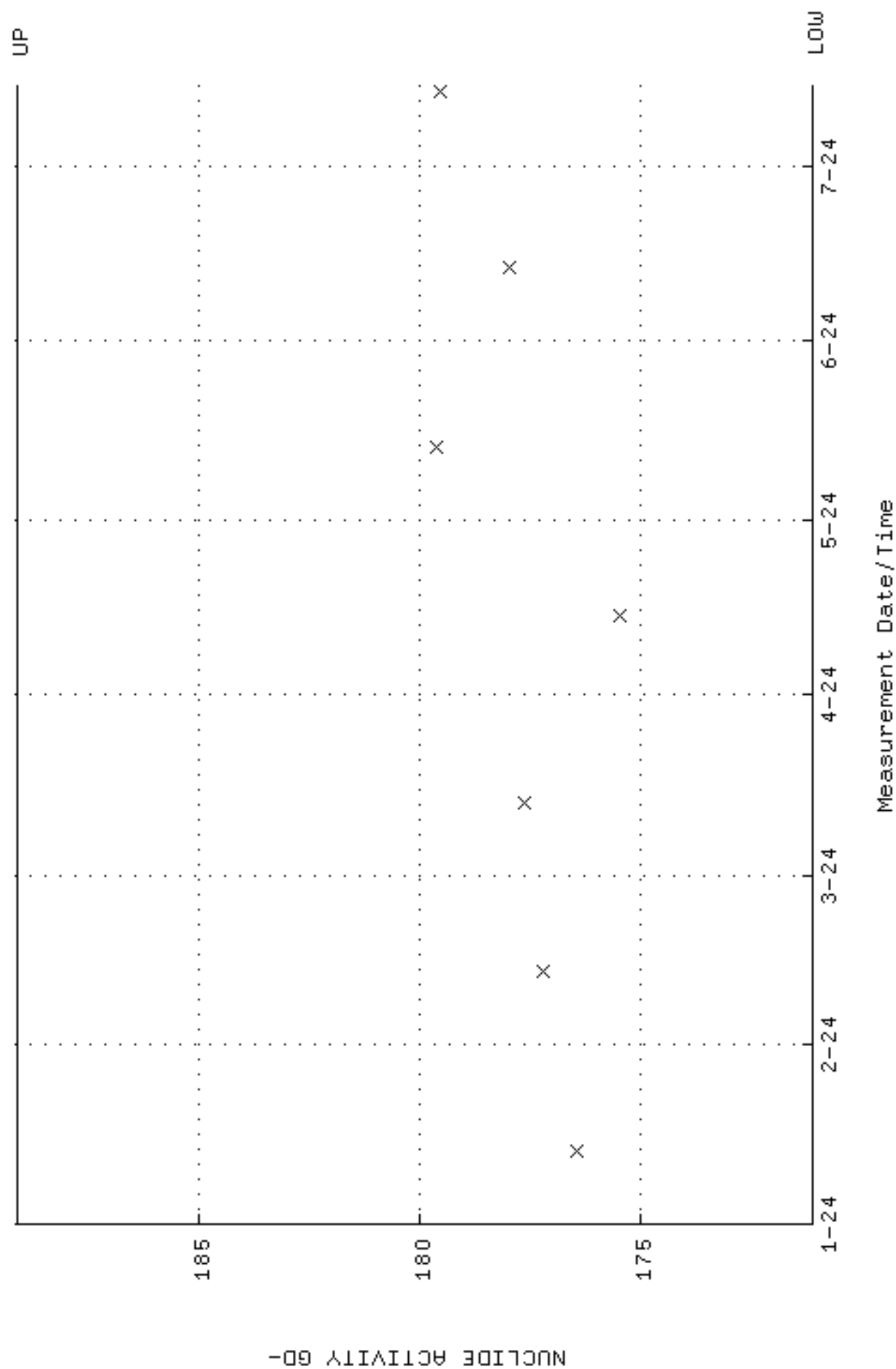
QA filename : DKA100:[ENV_ALPHA.QA.B]B126.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:41:45 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



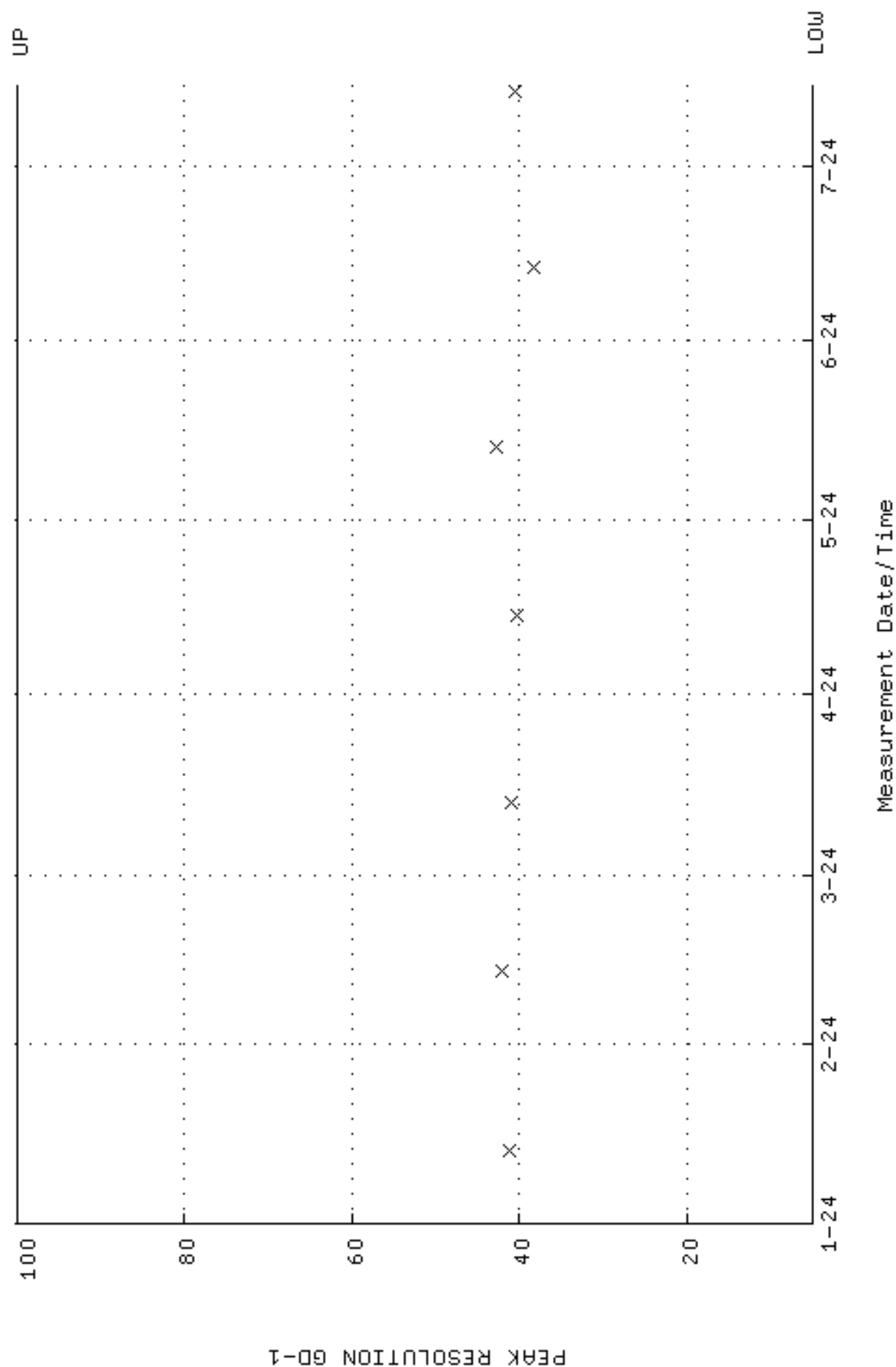
QA filename : DKA100:[ENV_ALPHA.QA.W]W135.QAF;7
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 13-JAN-2024 13:25:07 through 14-JUL-2024 12:00:00
Lower/Upper Lmts: 0.251160 through 0.266690



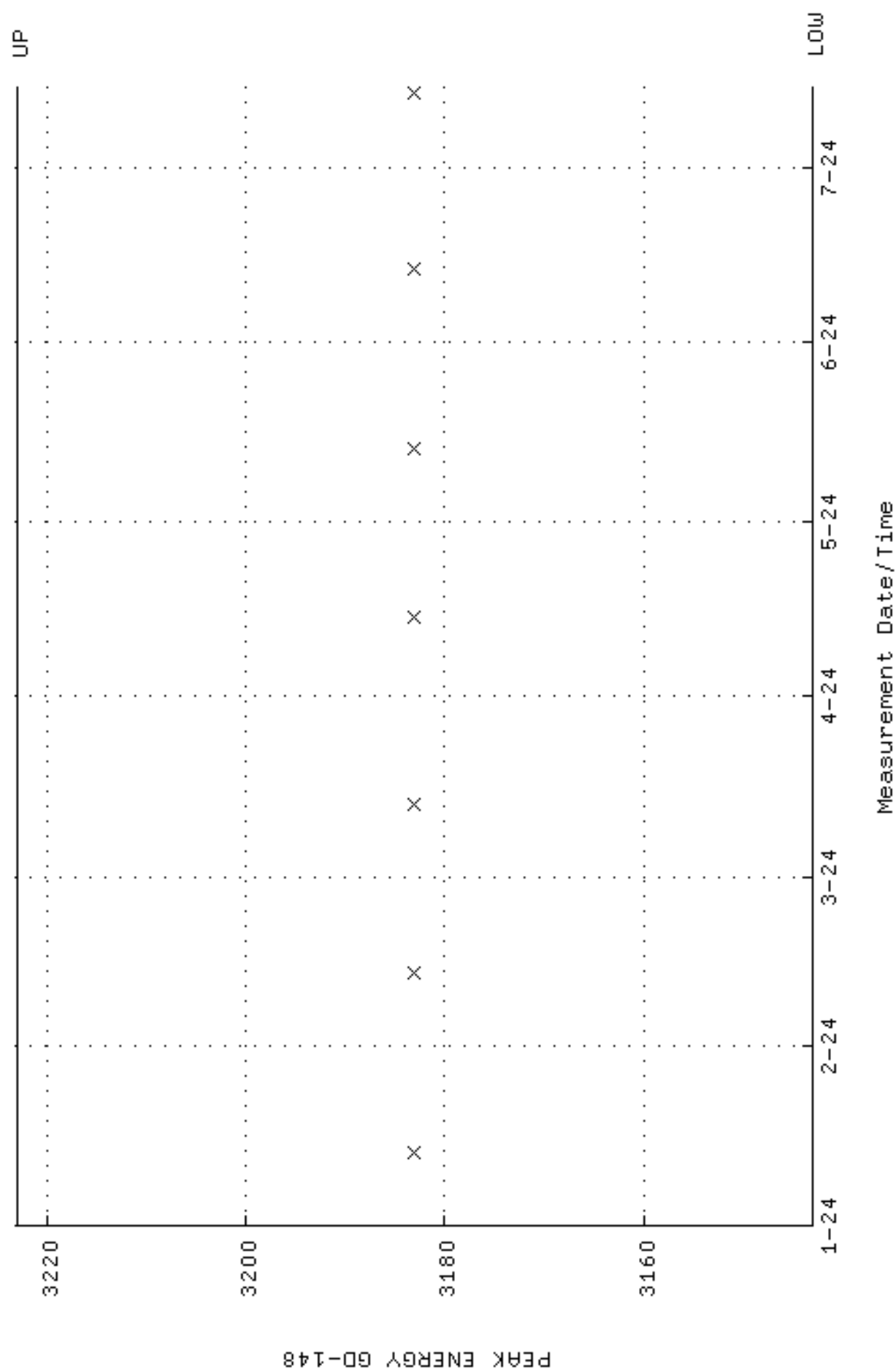
QA filename : DKA100:[ENV_ALPHA.QA.W]W135.QAF;7
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 13-JAN-2024 13:25:07 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



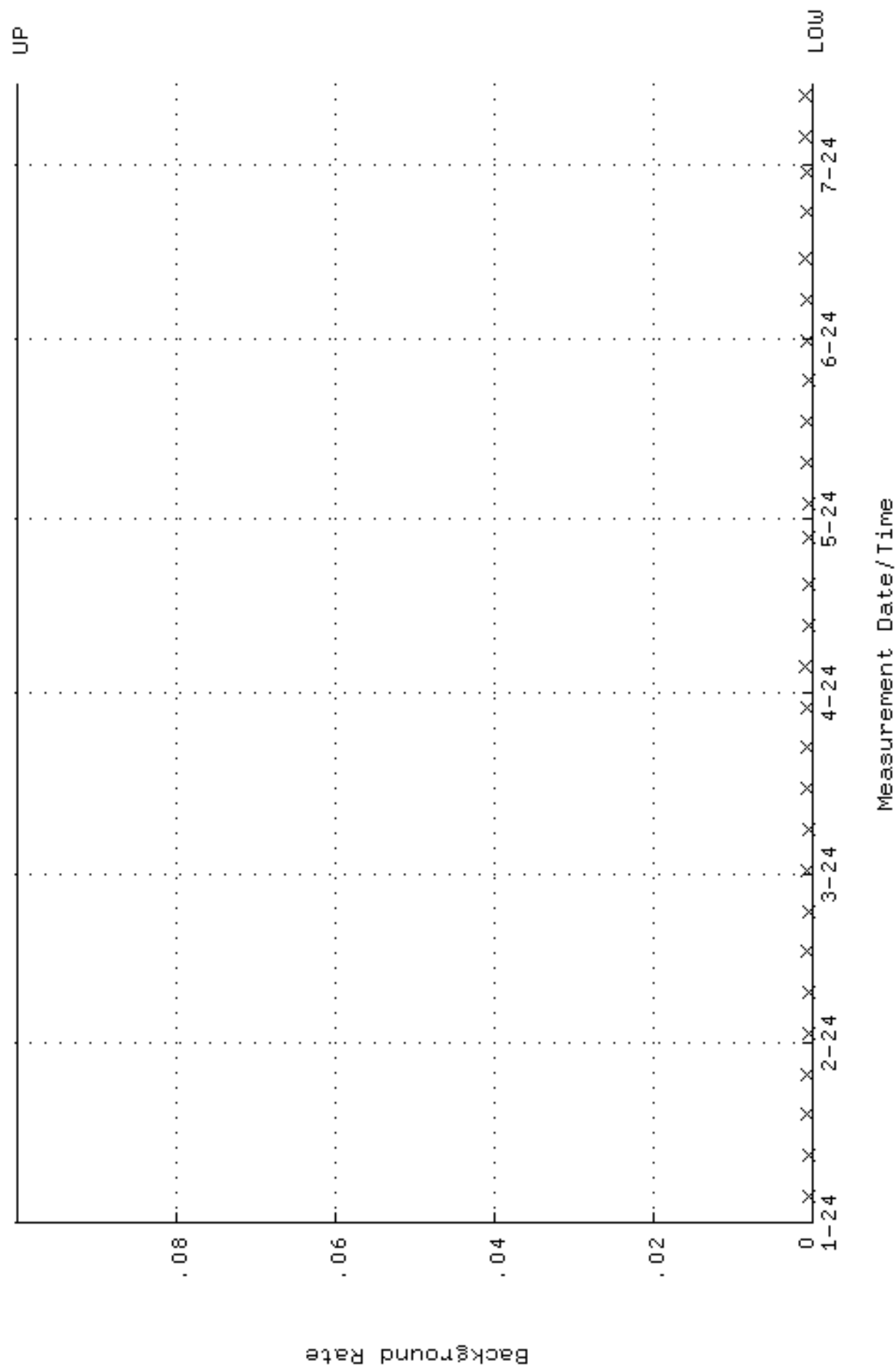
QA filename : DKA100:[ENV_ALPHA.QA.W]W135.QAF;7
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 13-JAN-2024 13:25:07 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



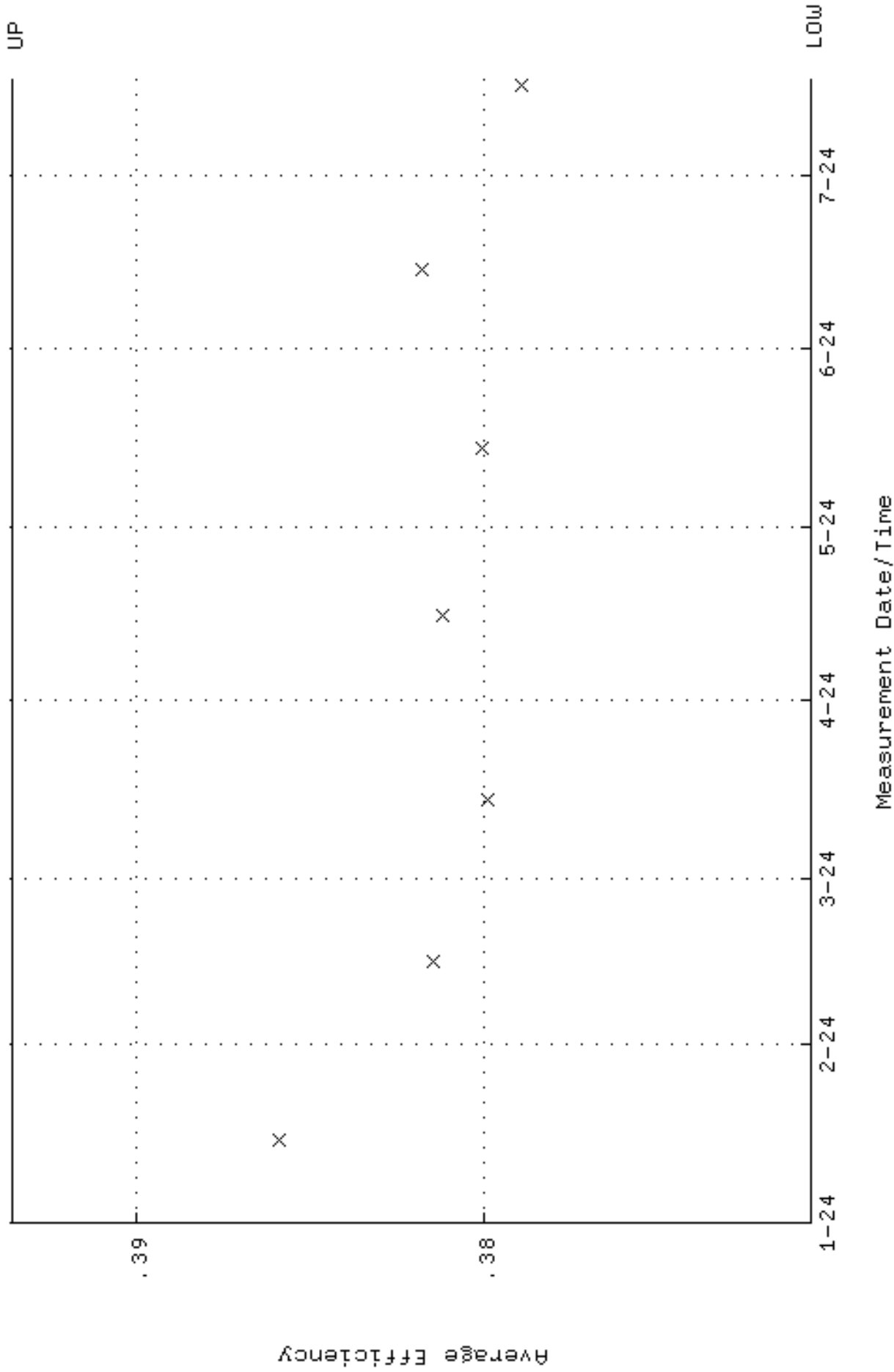
QA filename : DKA100:[ENV_ALPHA.QA.W]W135.QAF;7
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 13-JAN-2024 13:25:07 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



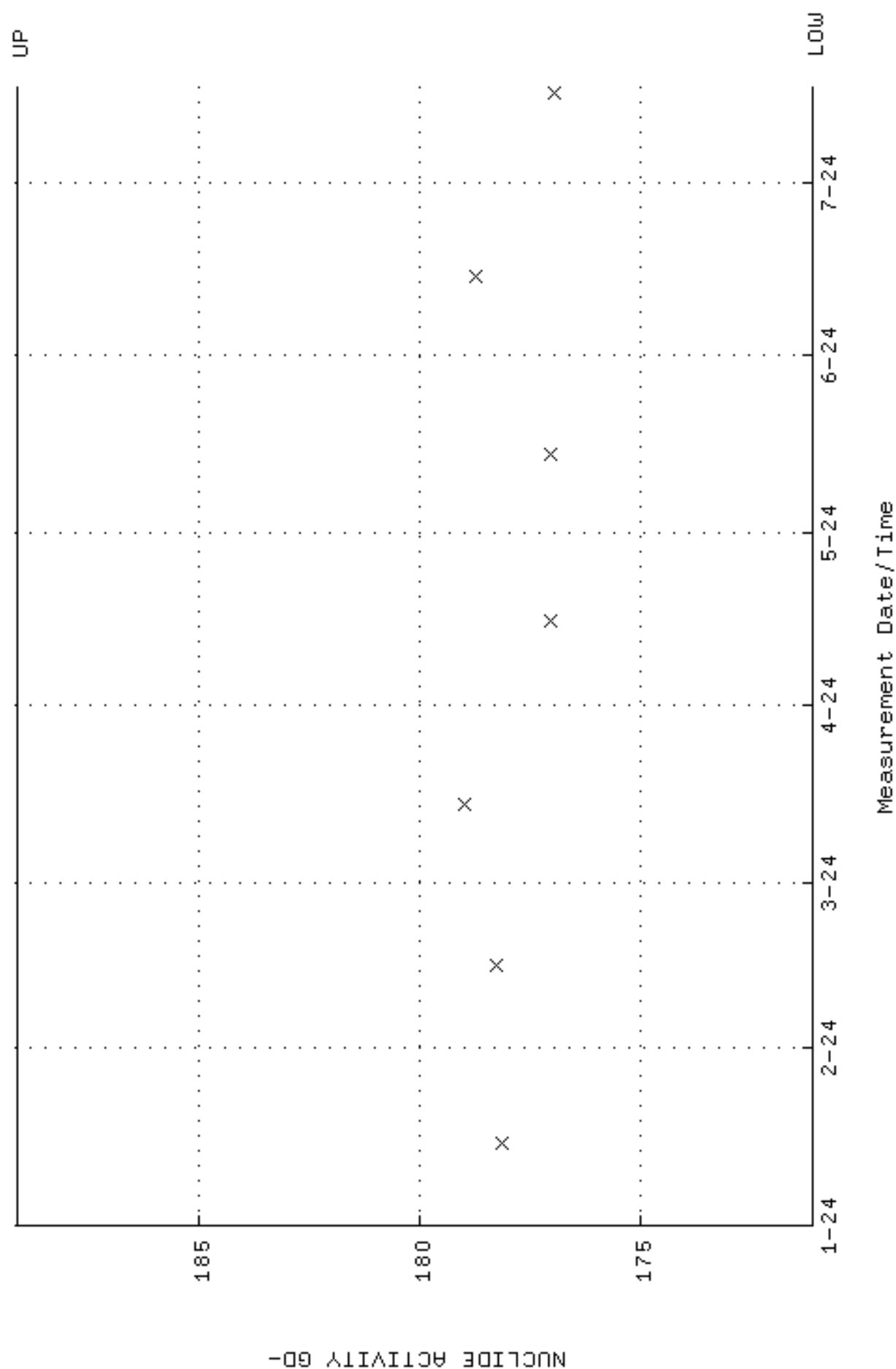
QA filename : DKA100:[ENV_ALPHA.QA.B]B135.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:42:21 through 14-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



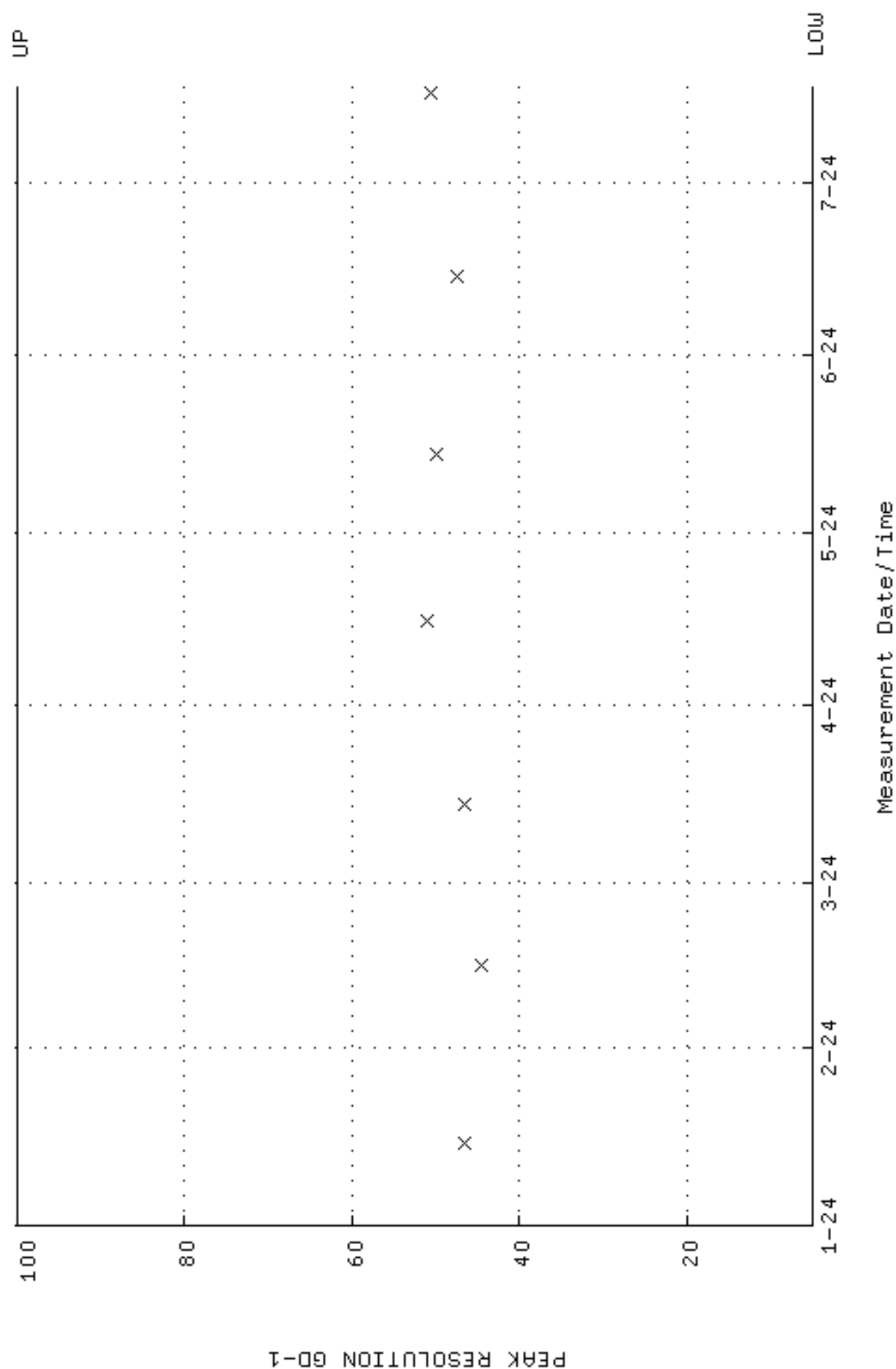
QA filename : DKA100:[ENV_ALPHA.QA.W]W160.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 15-JAN-2024 08:03:51 through 17-JUL-2024 12:00:00
Lower/Upper Lmts: 0.370620 through 0.393540



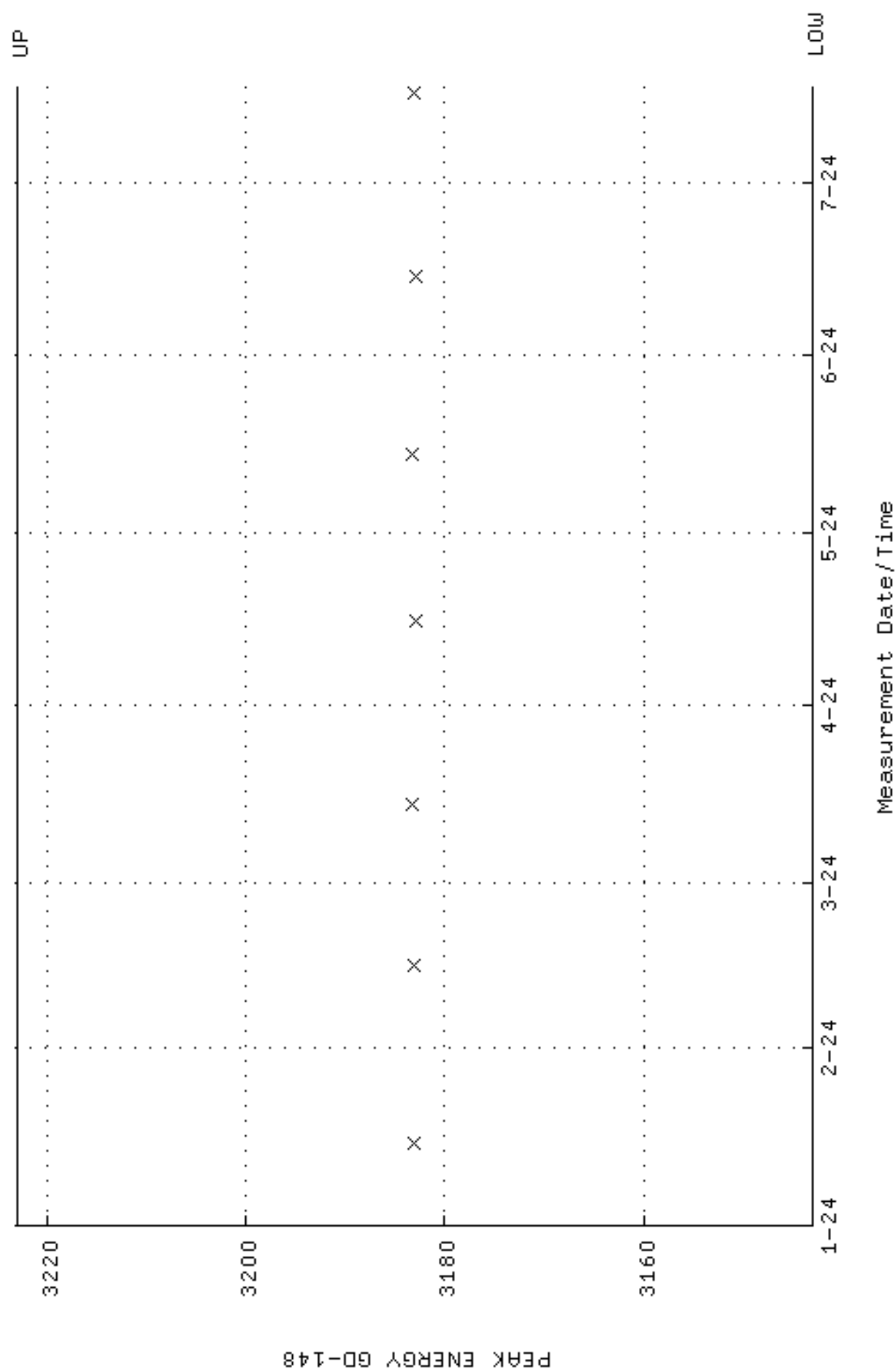
QA filename : DKA100:[ENV_ALPHA.QA.W]W160.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 15-JAN-2024 08:03:51 through 17-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



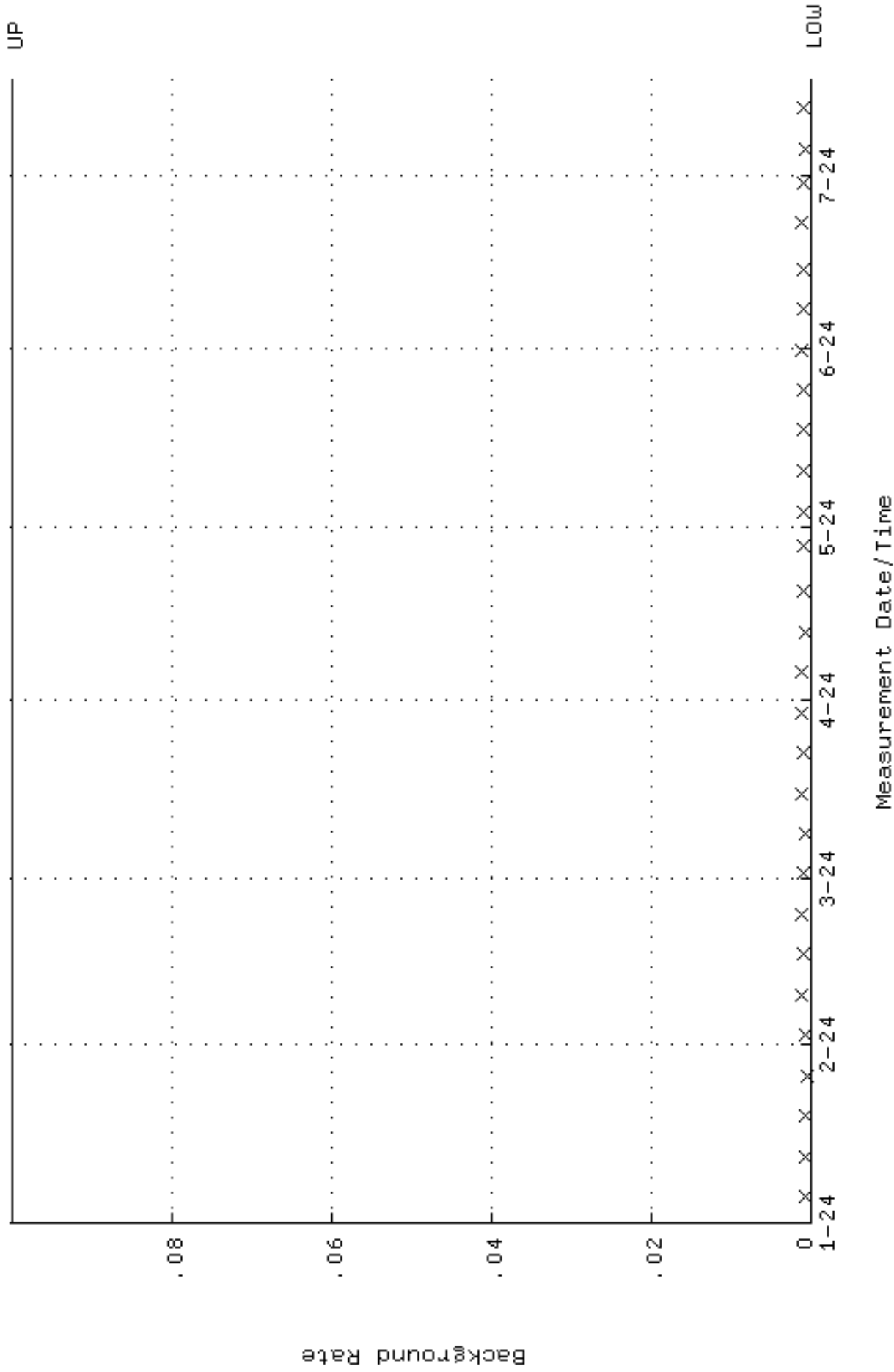
QA filename : DKA100:[ENV_ALPHA.QA.W]W160.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 15-JAN-2024 08:03:51 through 17-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



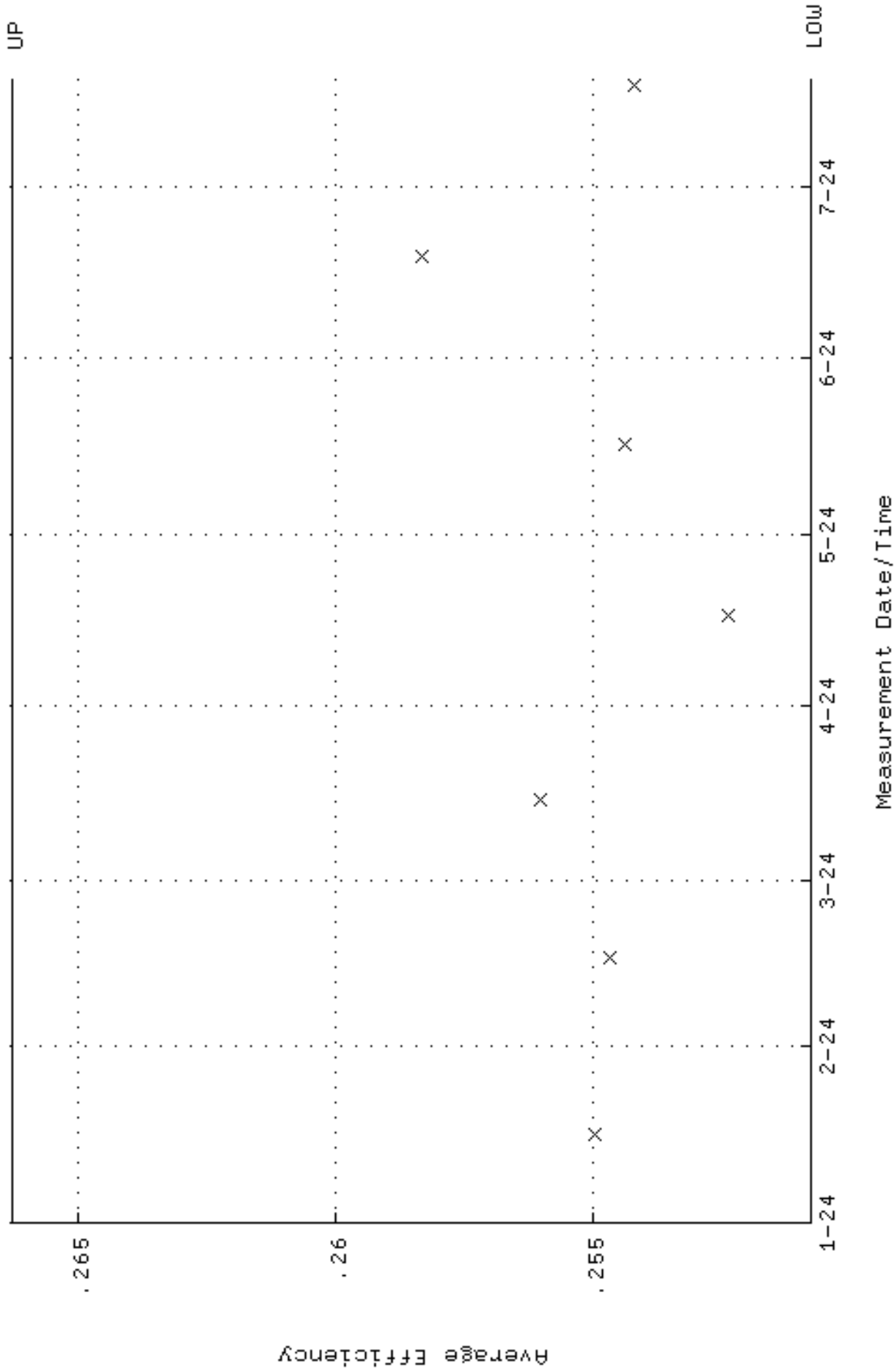
QA filename : DKA100:[ENV_ALPHA.QA.W]W160.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 15-JAN-2024 08:03:51 through 17-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



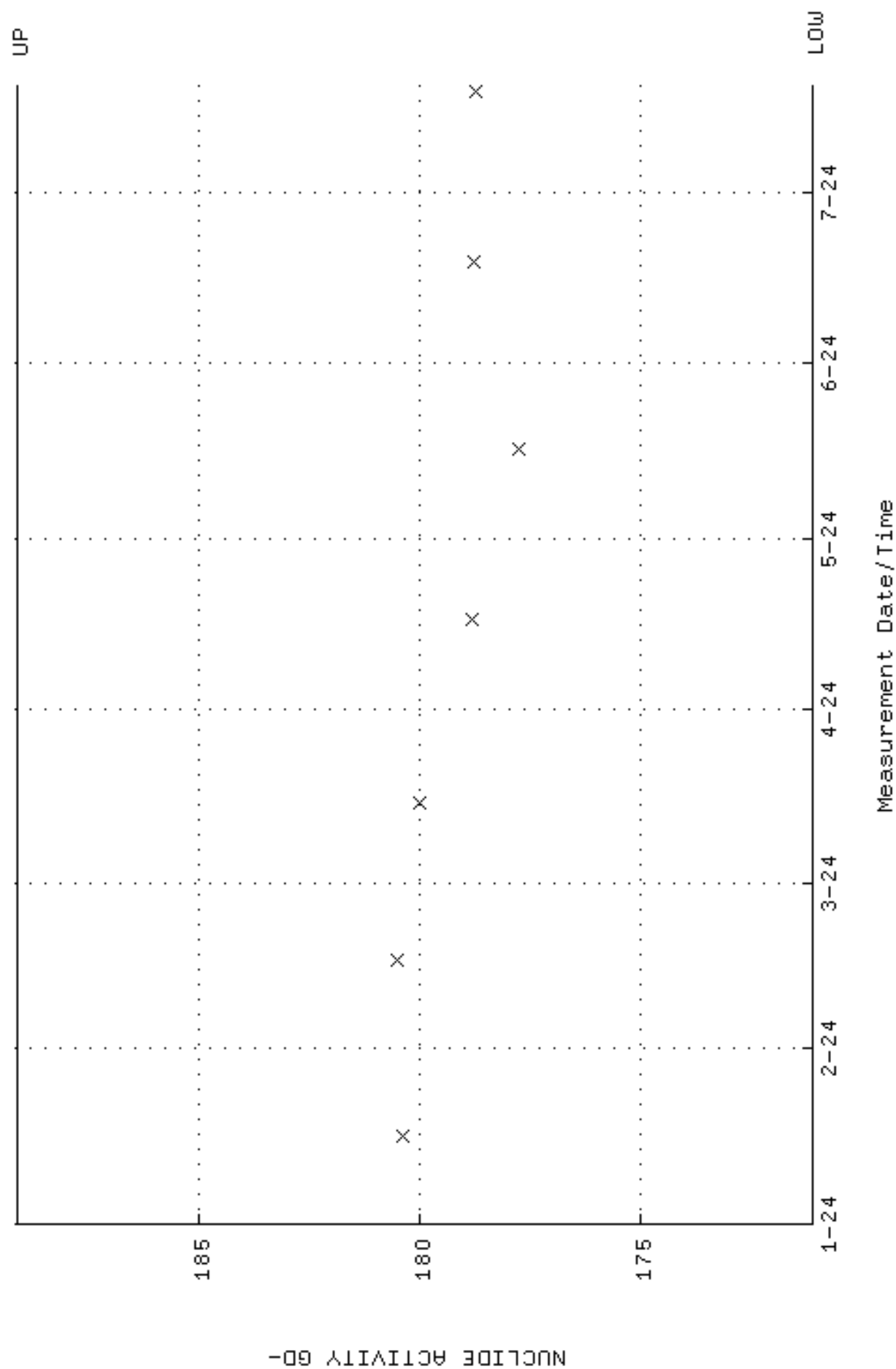
QA filename : DKA100:[ENV_ALPHA.QA.B]B160.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:45:17 through 17-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



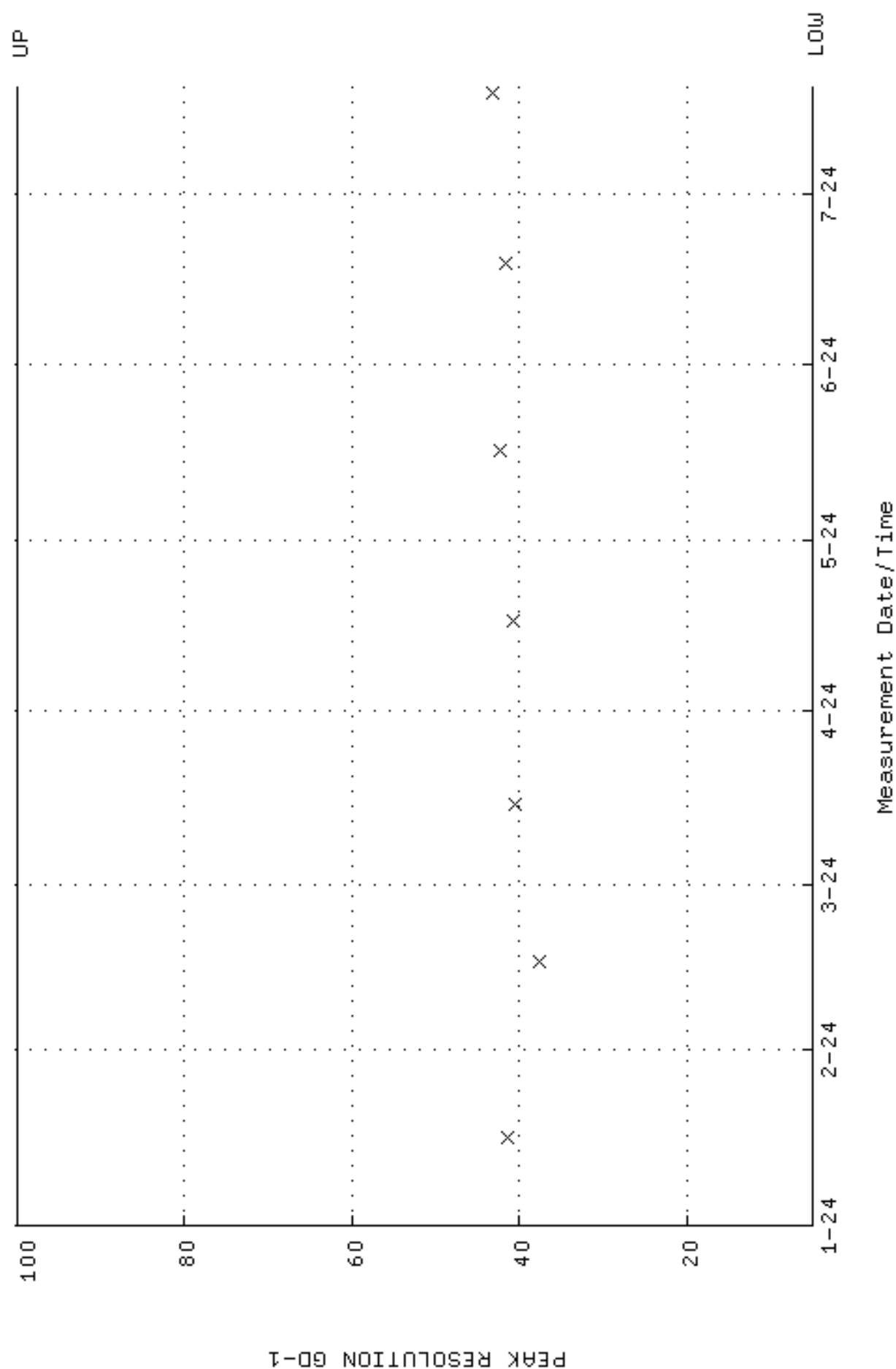
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;6
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 09:13:55 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.250770 through 0.266280



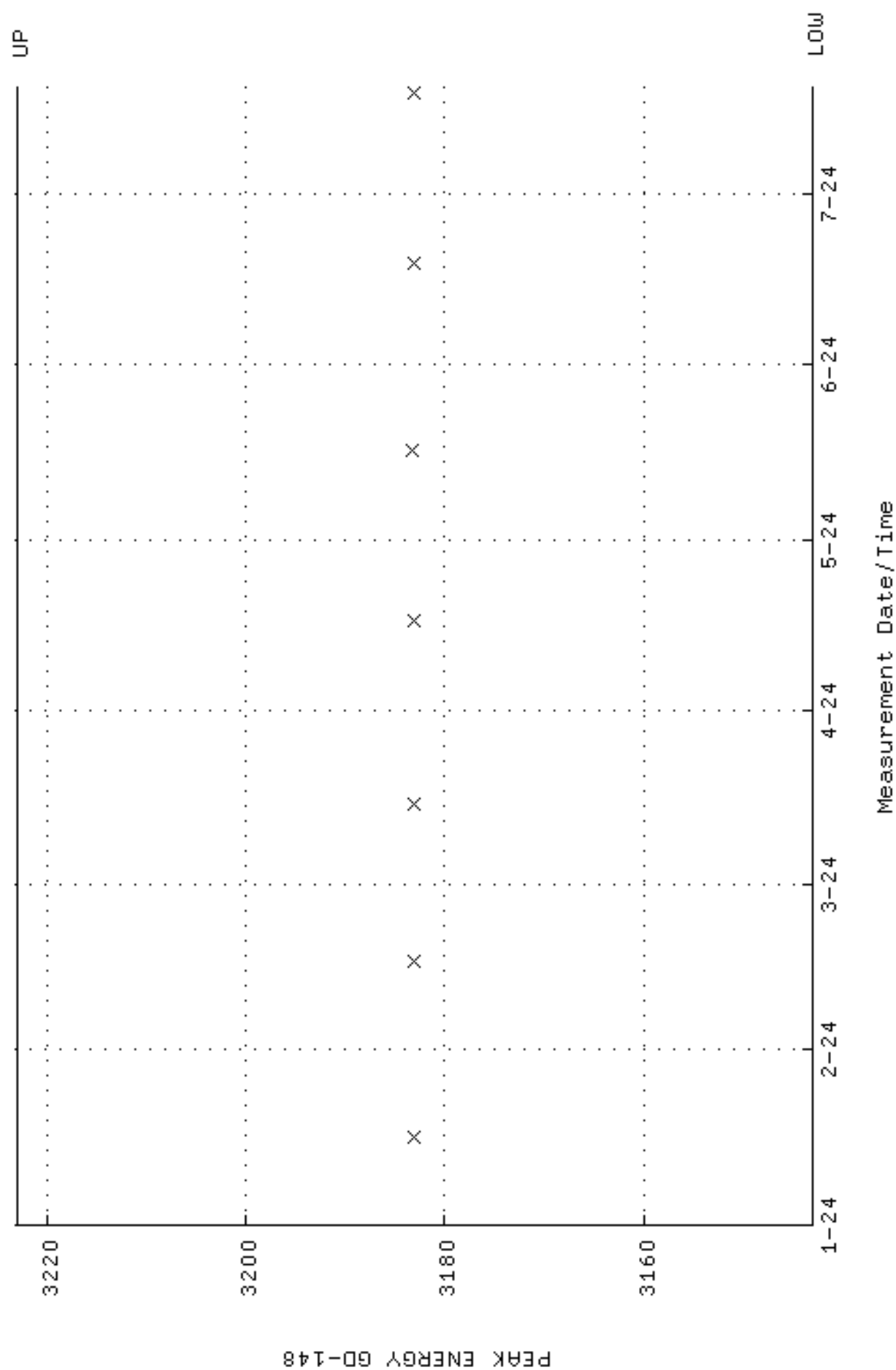
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 09:13:55 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



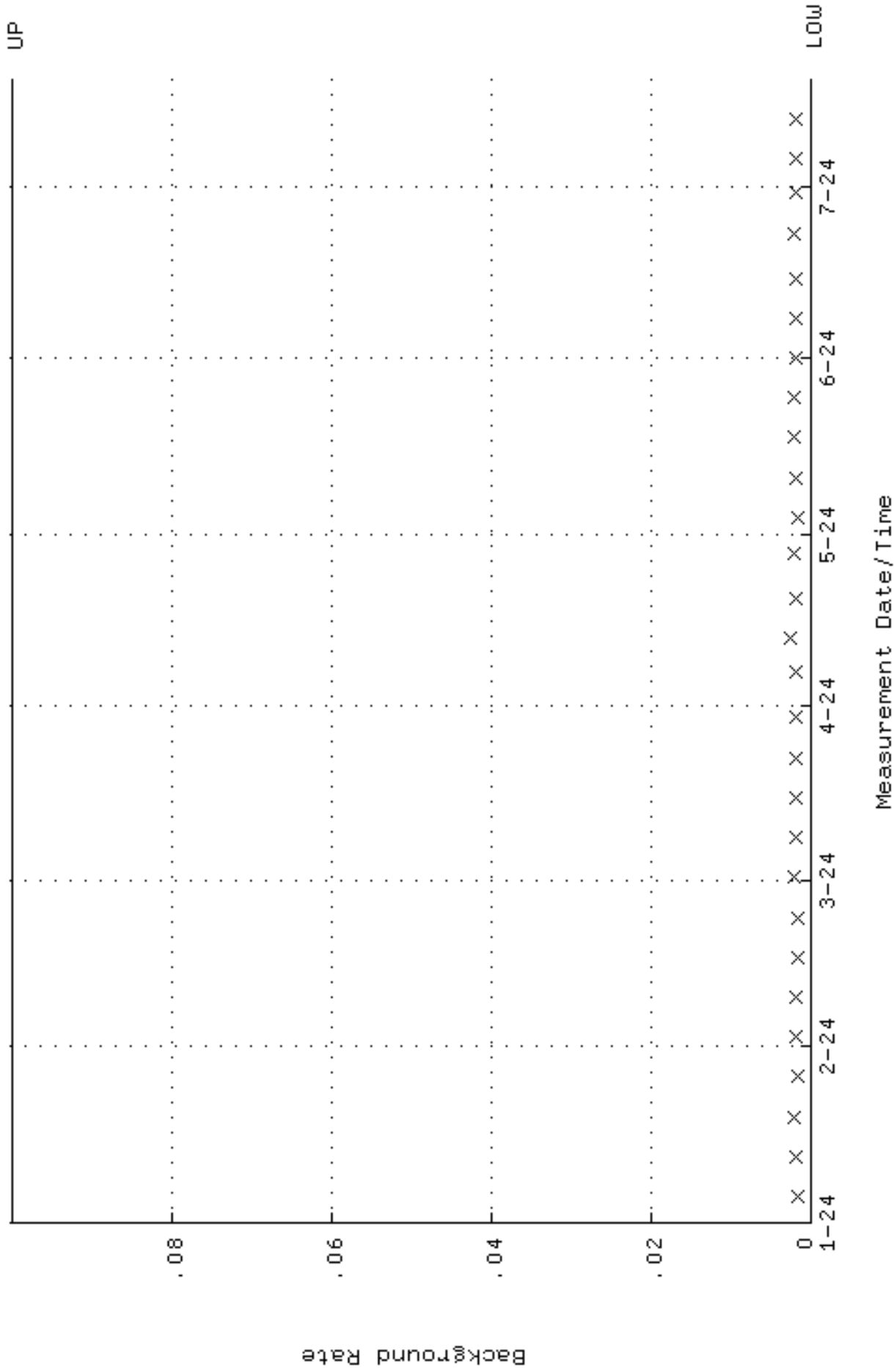
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;6
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 09:13:55 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



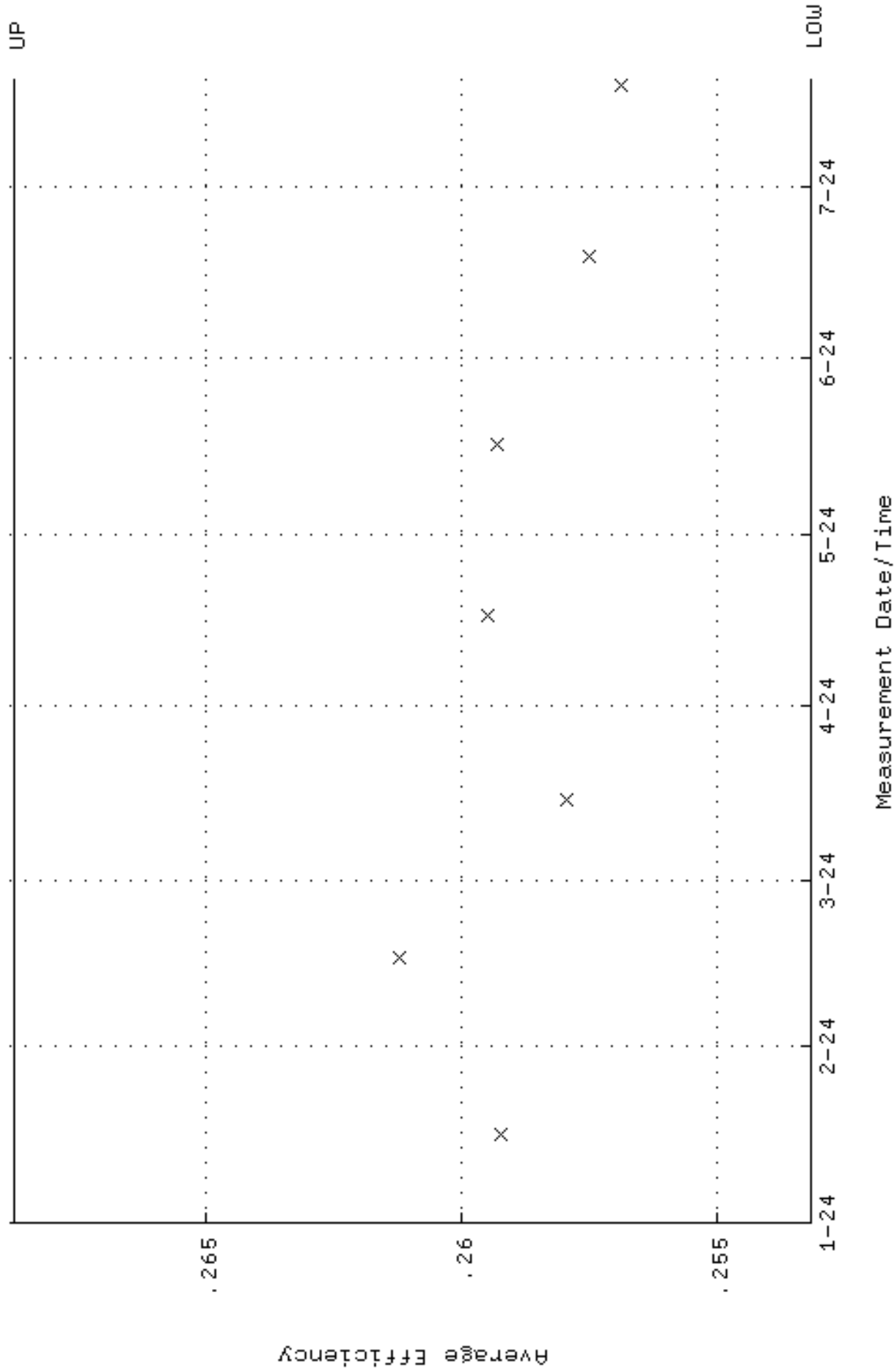
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;6
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 09:13:55 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



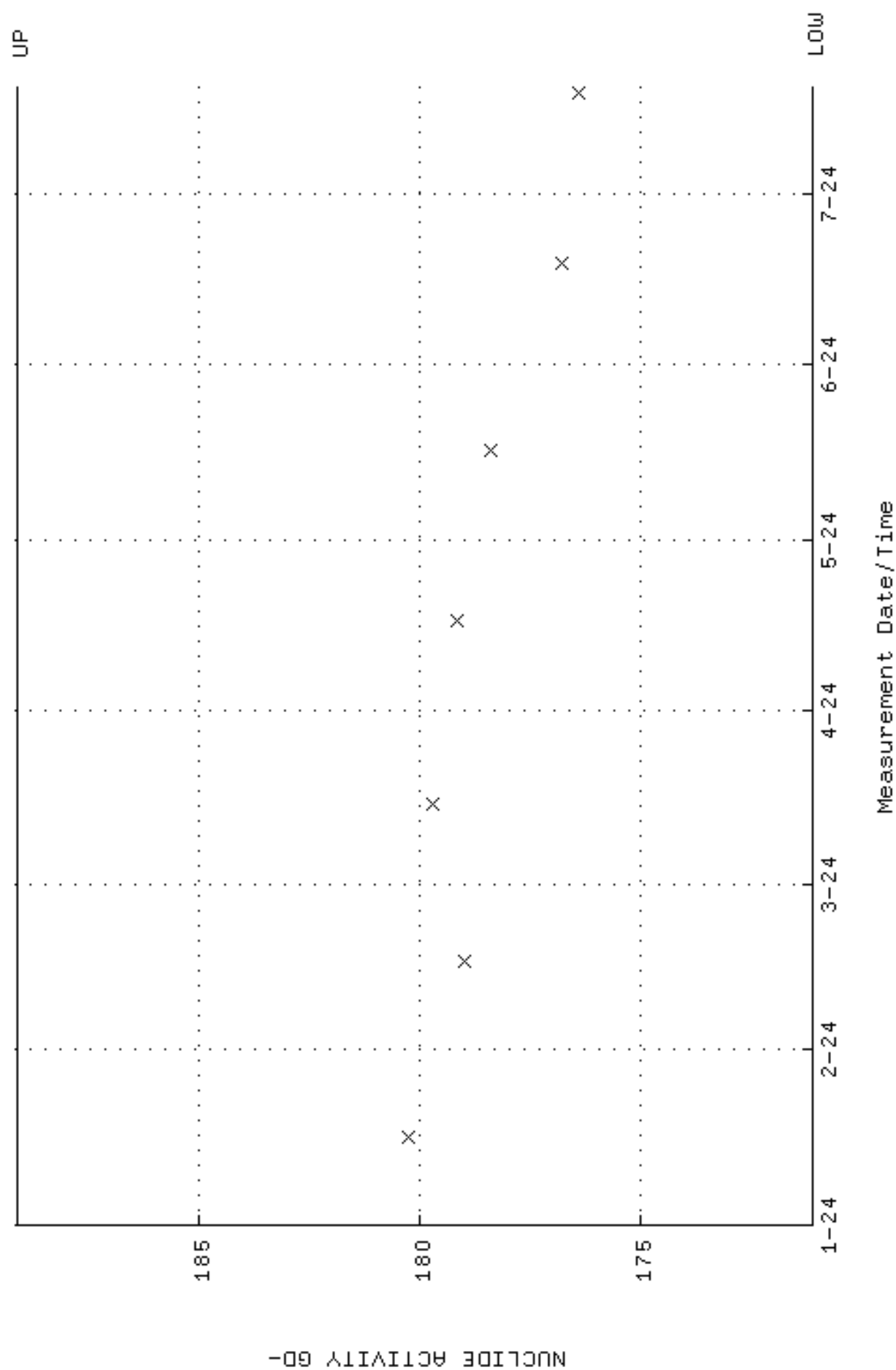
QA filename : DKA100:[ENV_ALPHA.QA.B]B166.QAF;5
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:46:05 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



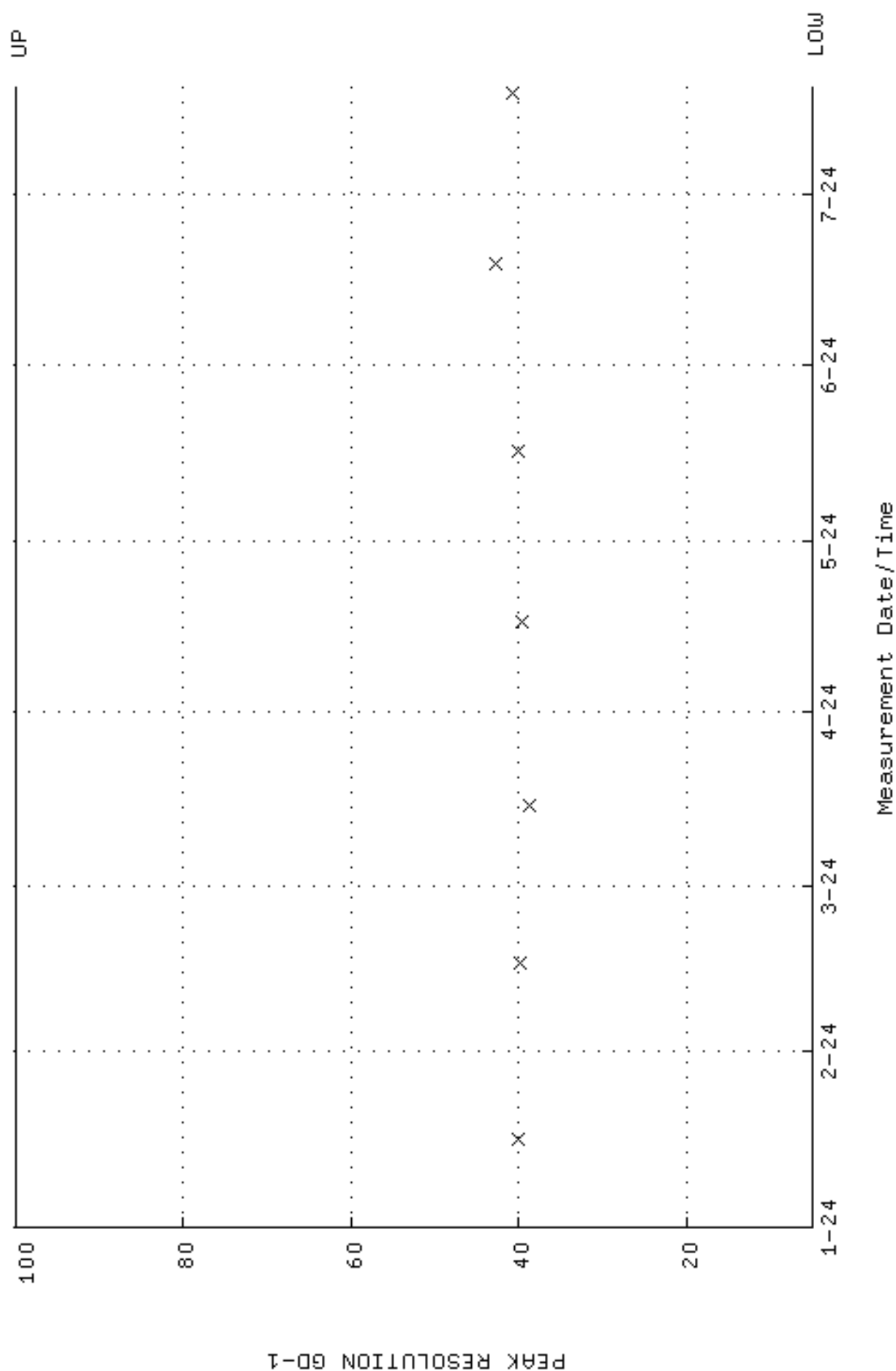
QA filename : DKA100:[ENV_ALPHA.QA.W]W176.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:32:10 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.253140 through 0.268800



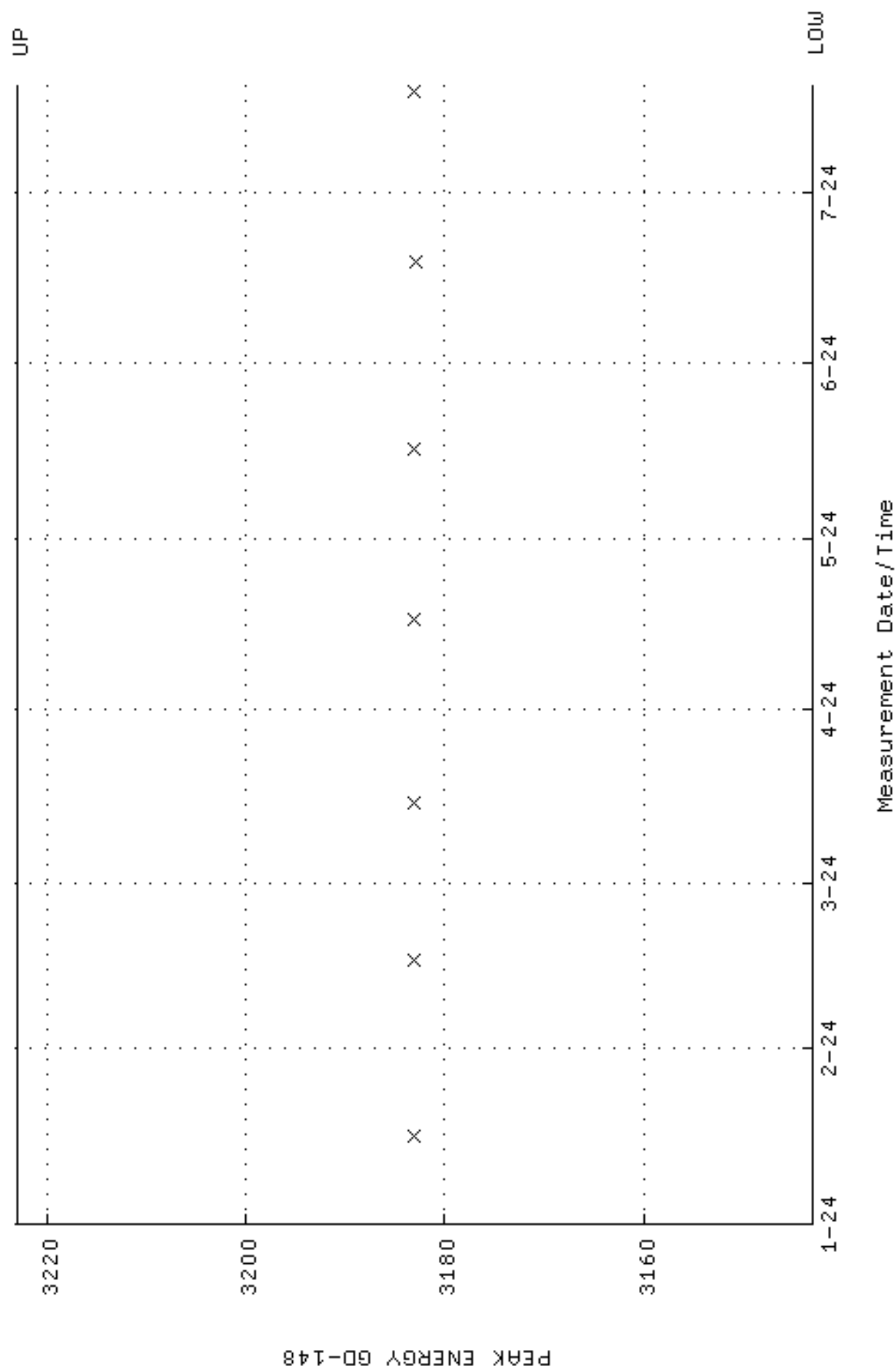
QA filename : DKA100:[ENV_ALPHA.QA.W]W176.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:32:10 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



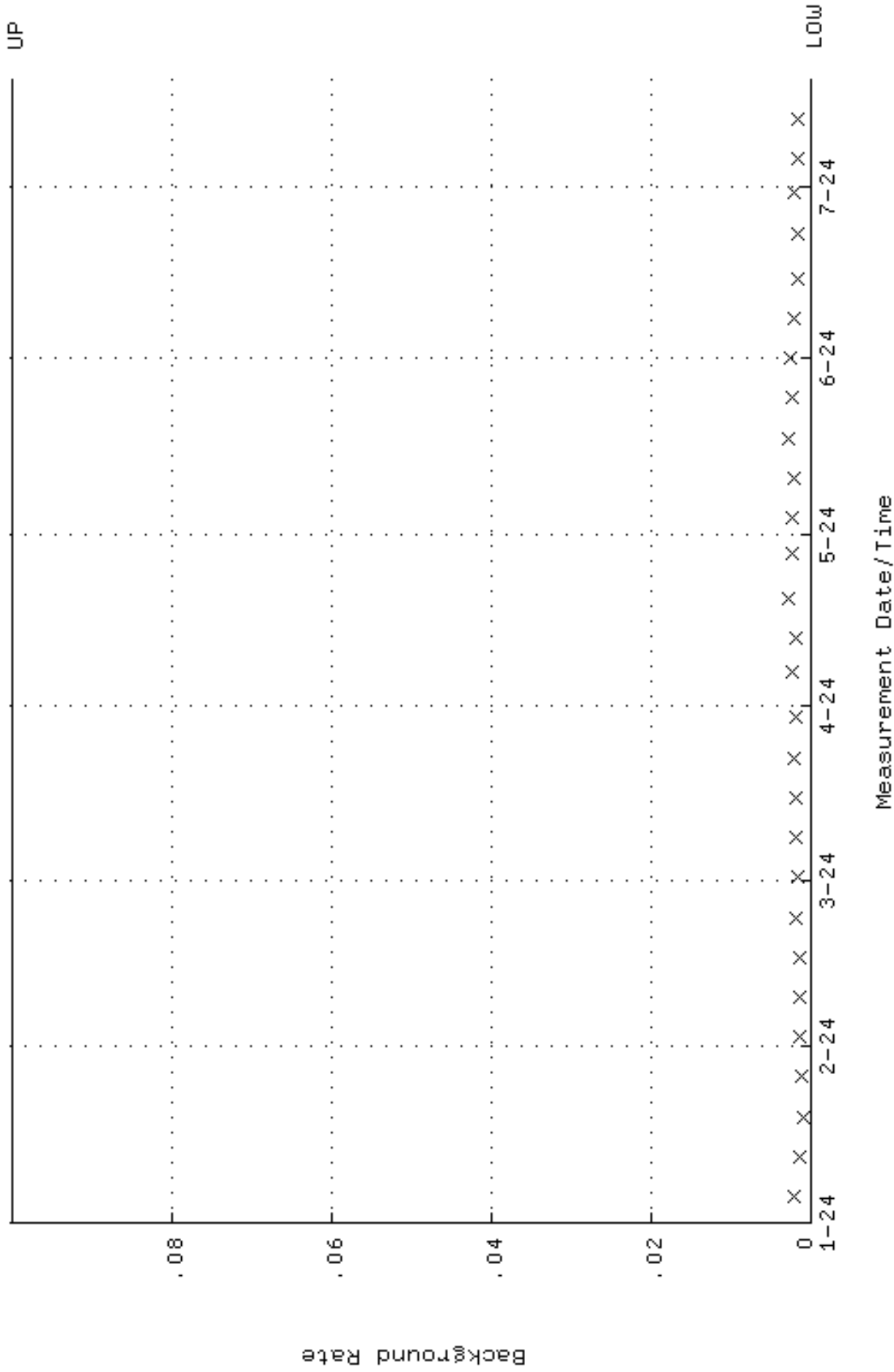
QA filename : DKA100:[ENV_ALPHA.QA.W]W176.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:32:10 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



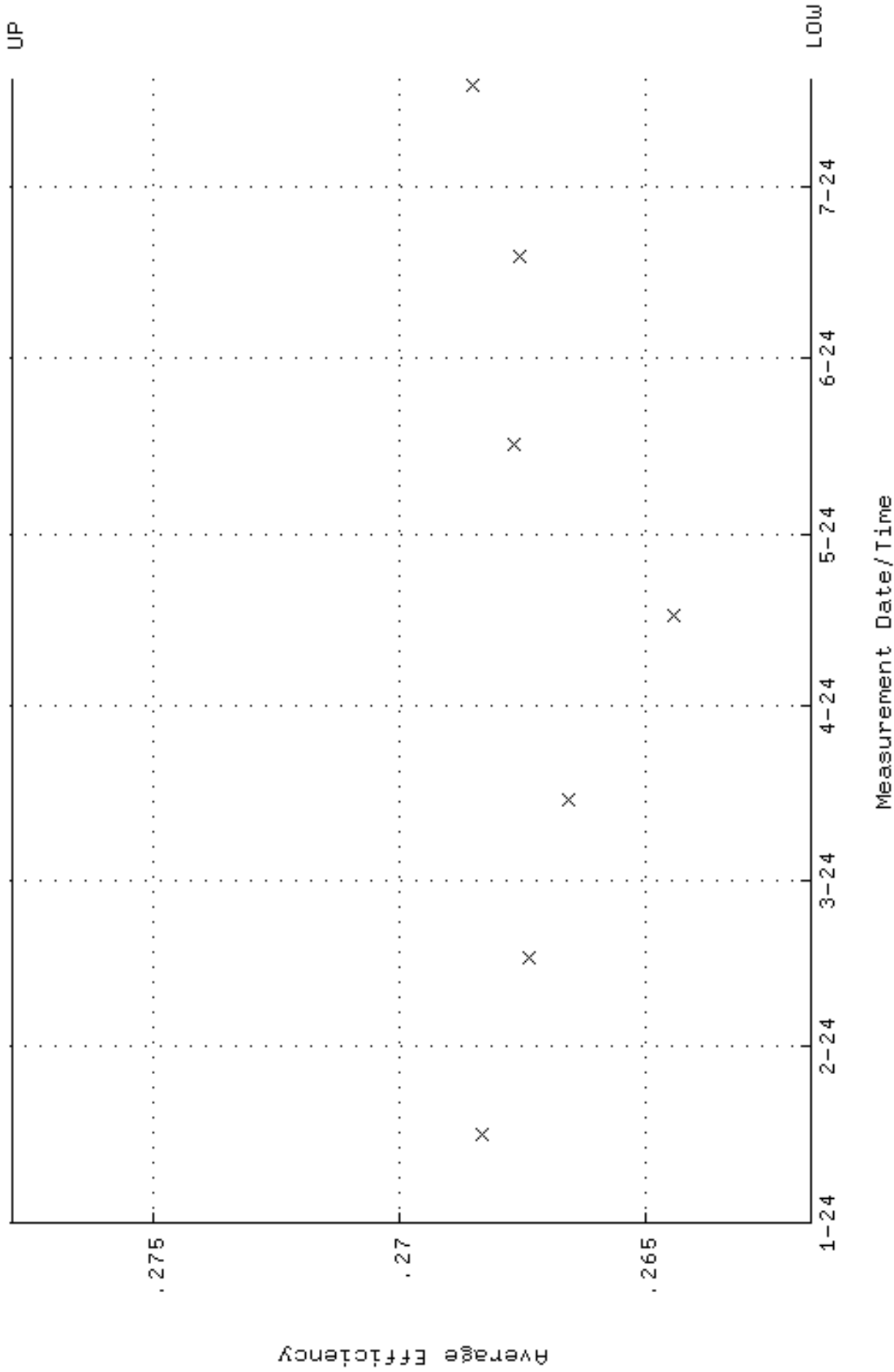
QA filename : DKA100:[ENV_ALPHA.QA.W]W176.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:32:10 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



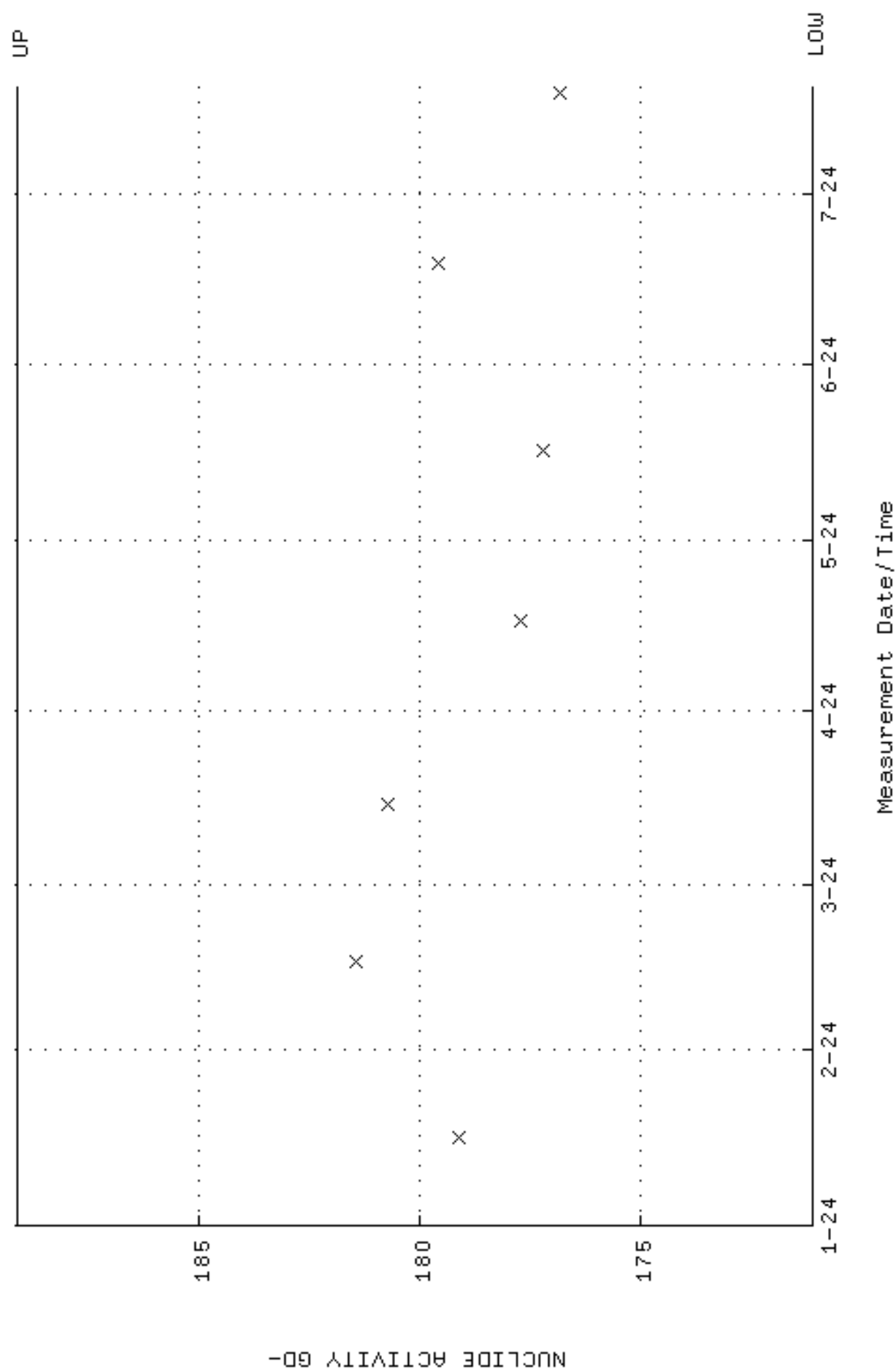
QA filename : DKA100:[ENV_ALPHA.QA.B]B176.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:46:44 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



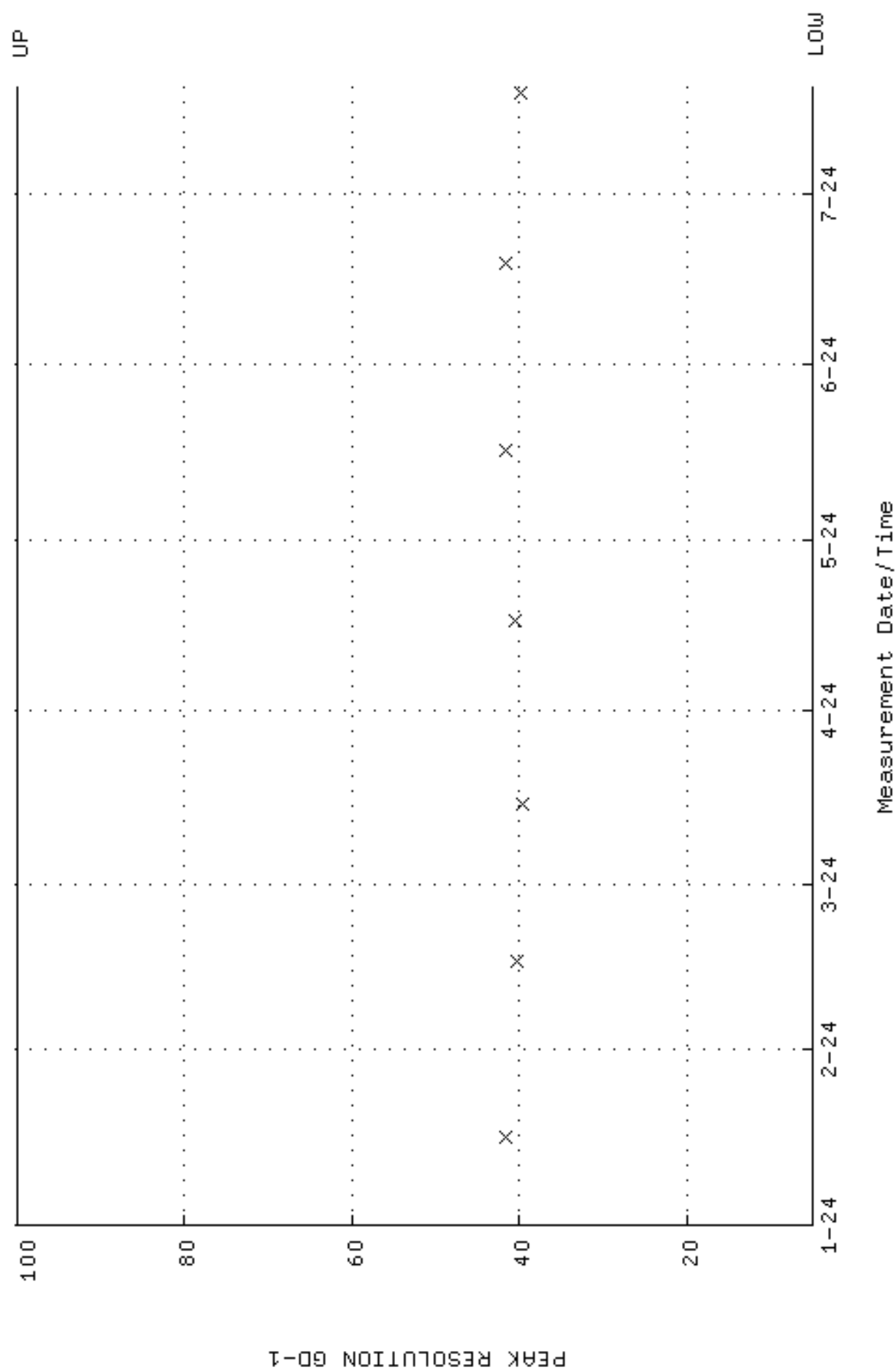
QA filename : DKA100:[ENV_ALPHA.QA.W]W177.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:19:14 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.261660 through 0.277840



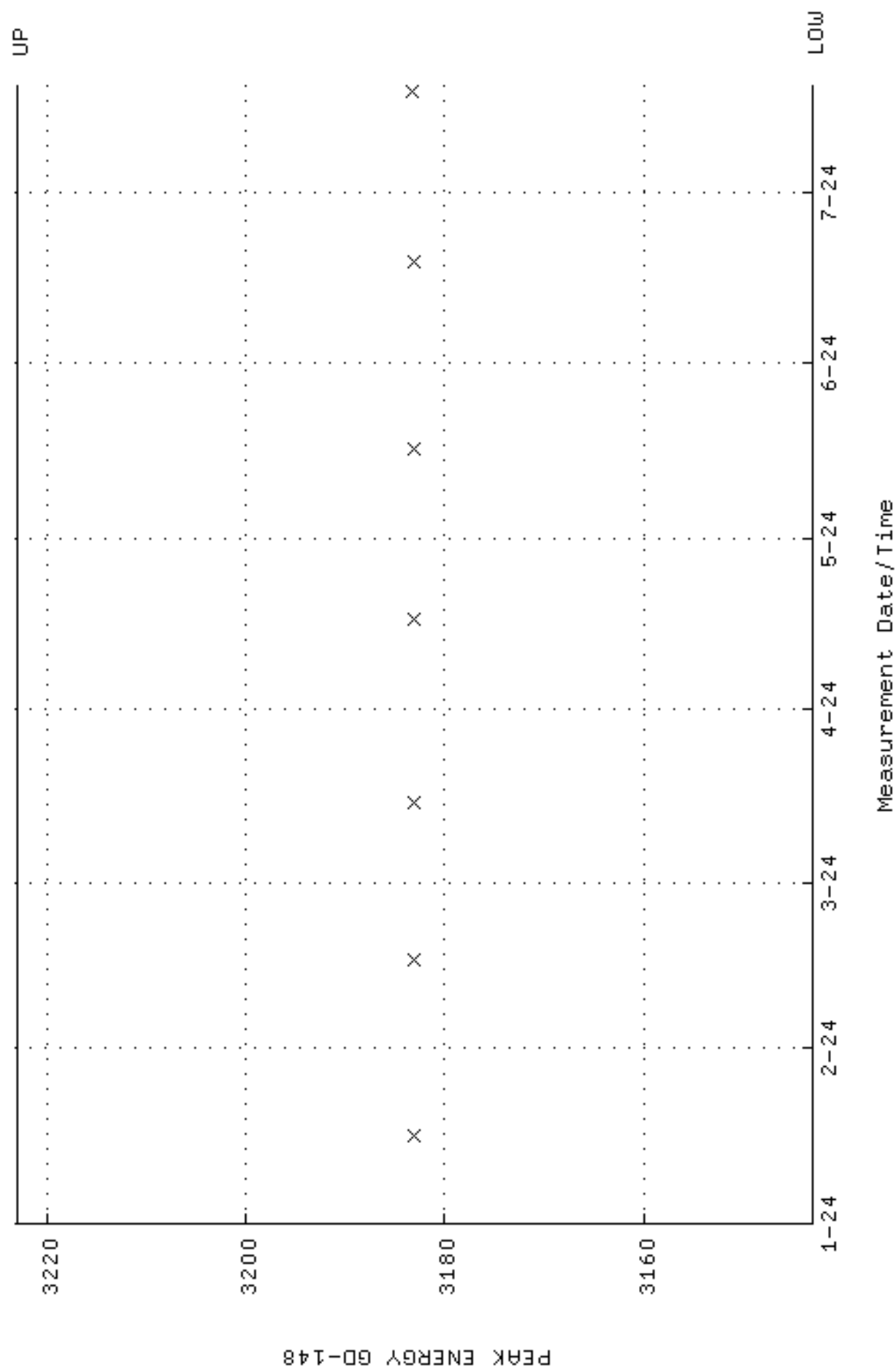
QA filename : DKA100:[ENV_ALPHA.QA.W]W177.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:19:14 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



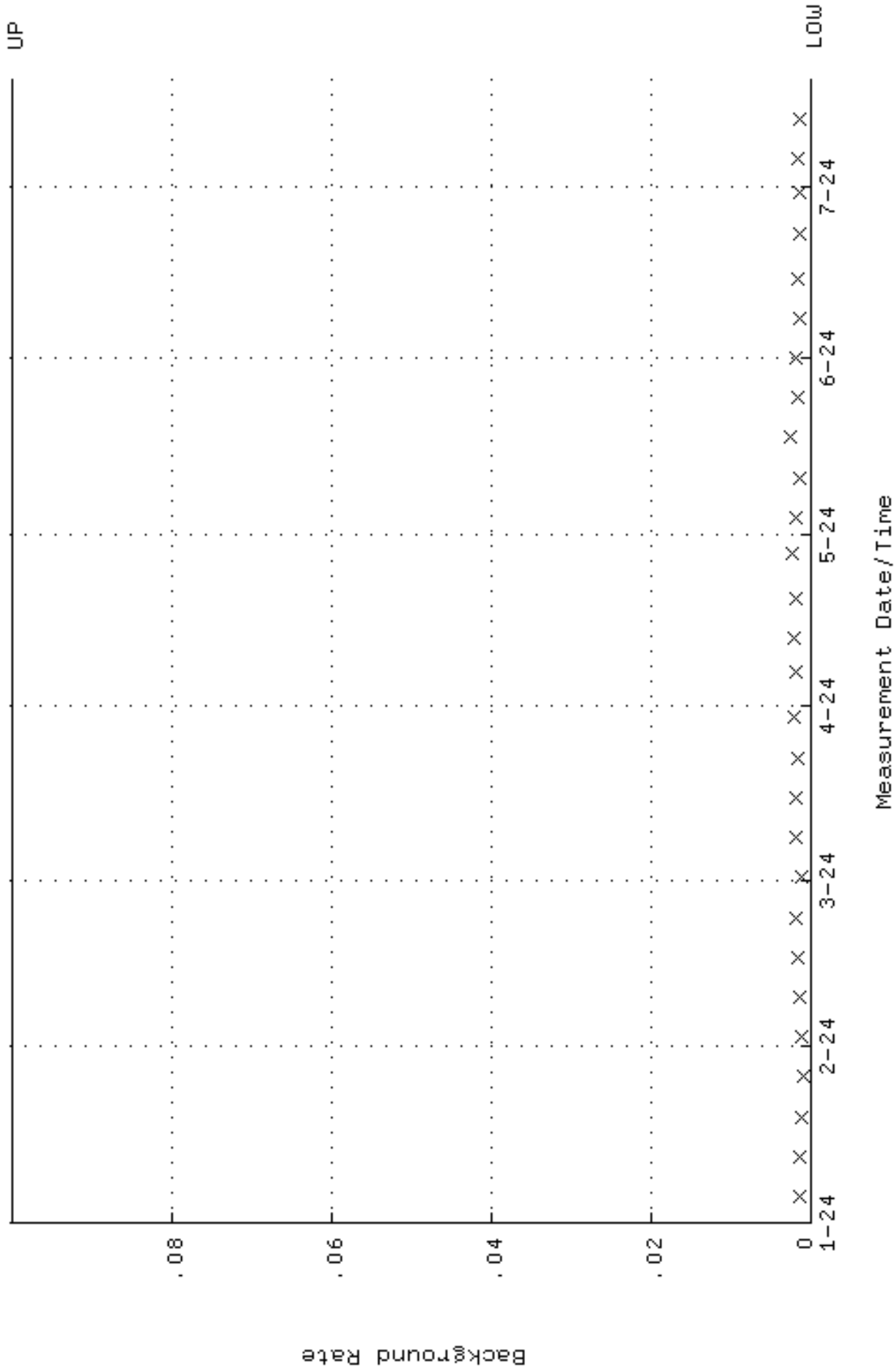
QA filename : DKA100:[ENV_ALPHA.QA.W]W177.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:19:14 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



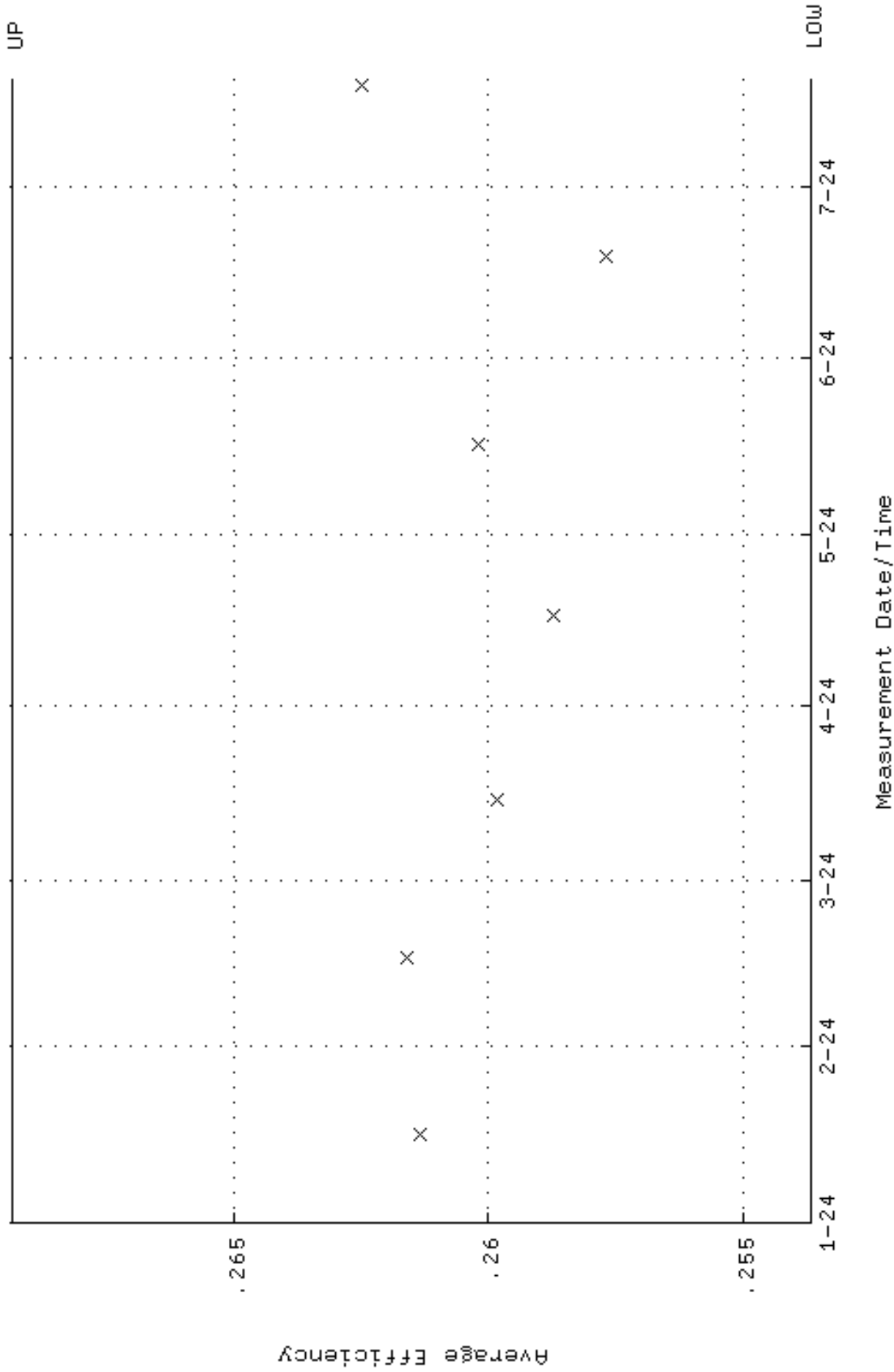
QA filename : DKA100:[ENV_ALPHA.QA.W]W177.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:19:14 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



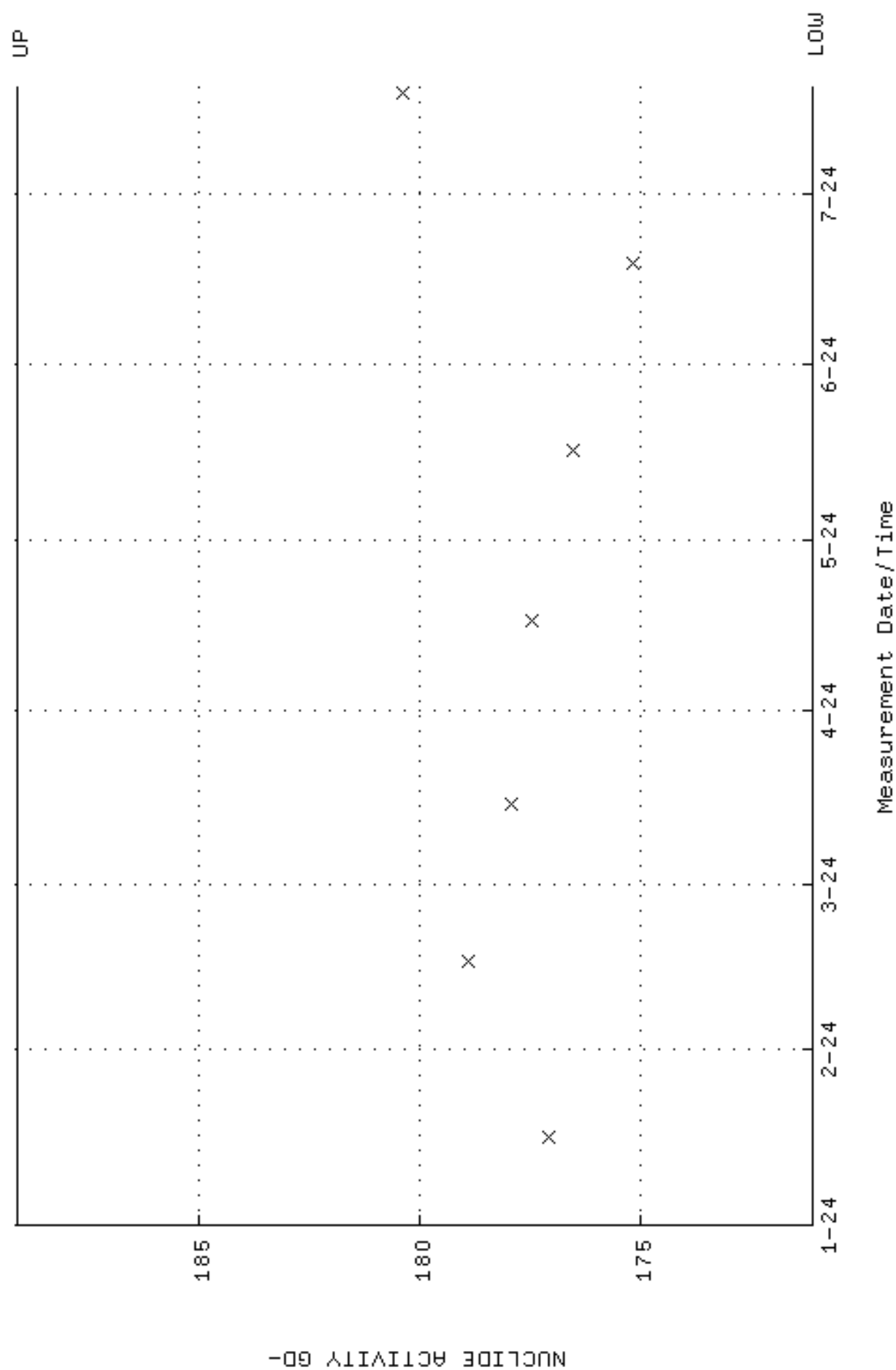
QA filename : DKA100:[ENV_ALPHA.QA.B]B177.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:46:49 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



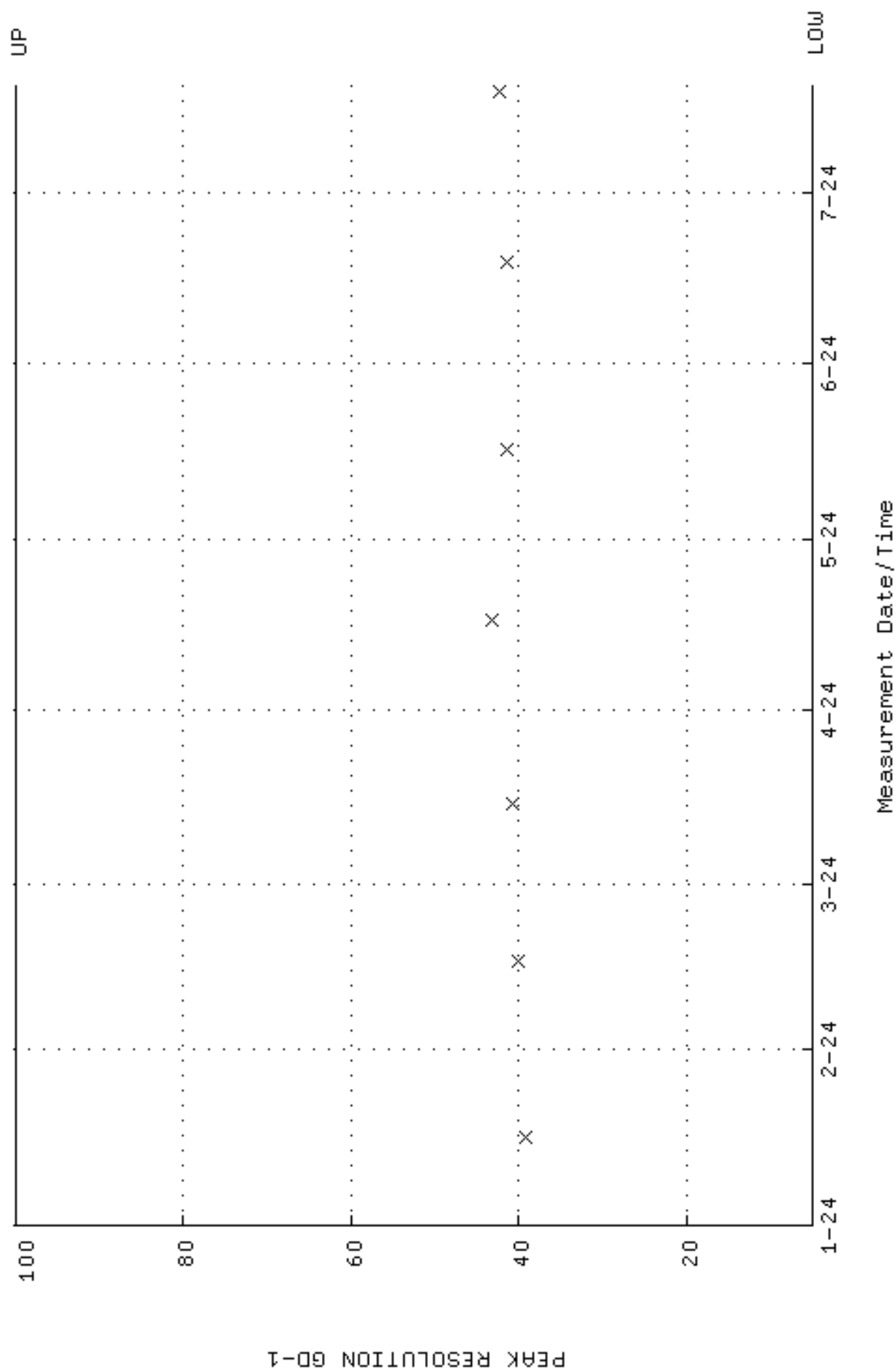
QA filename : DKA100:[ENV_ALPHA.QA.W]W178.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:24:39 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.253660 through 0.269350



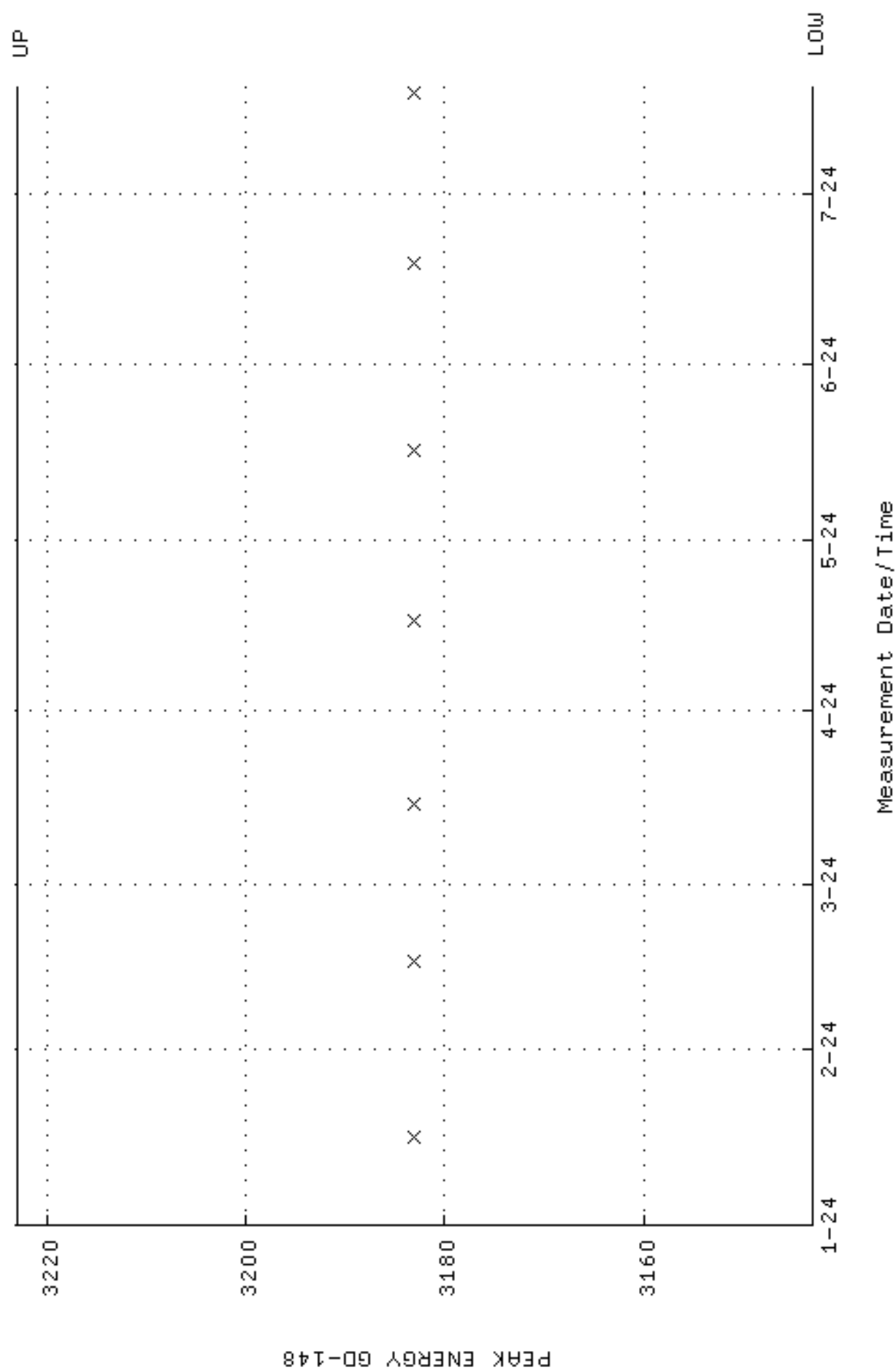
QA filename : DKA100:[ENV_ALPHA.QA.W]W178.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:24:39 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



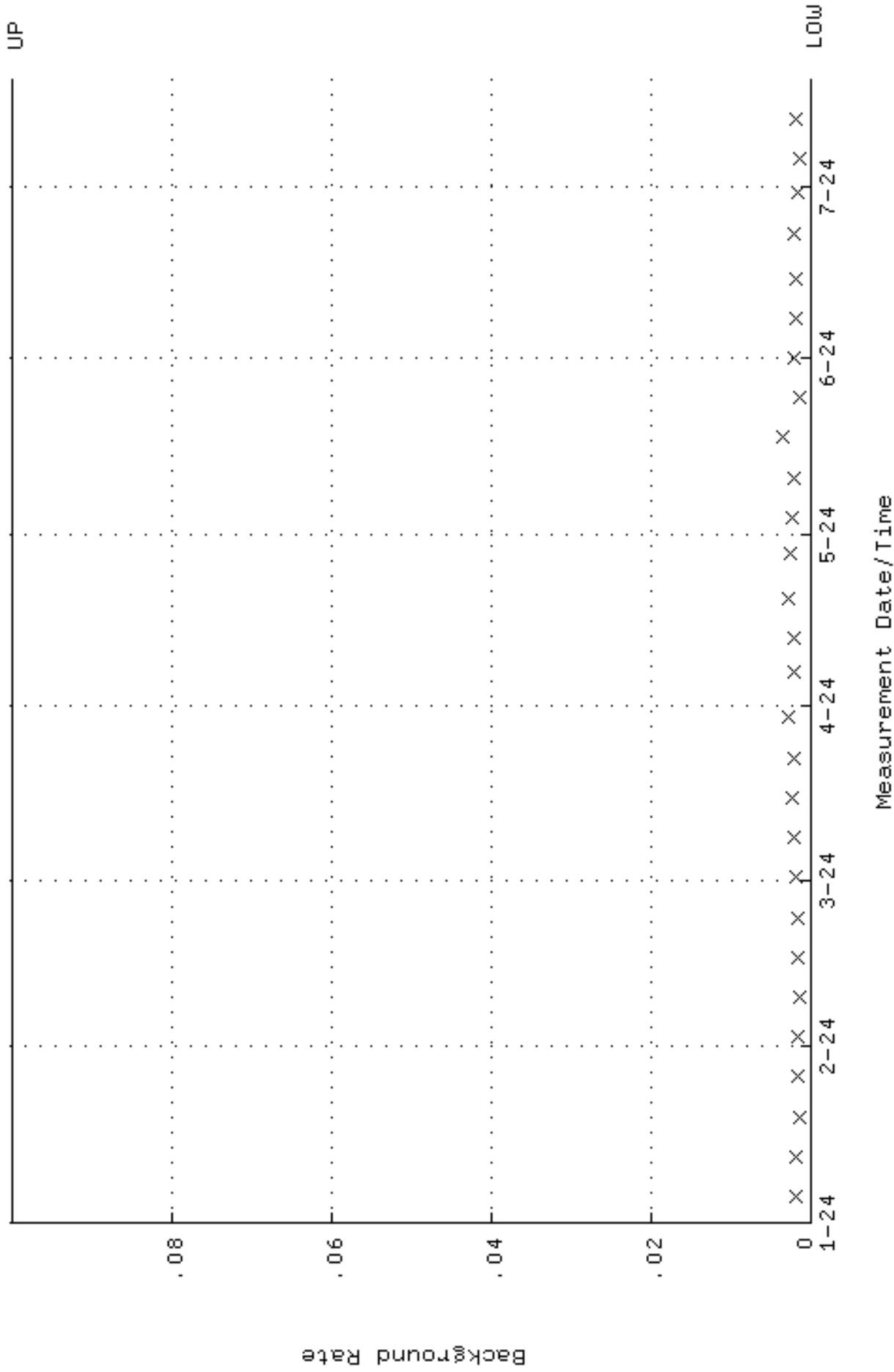
QA filename : DKA100:[ENV_ALPHA.QA.W]W178.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:24:39 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



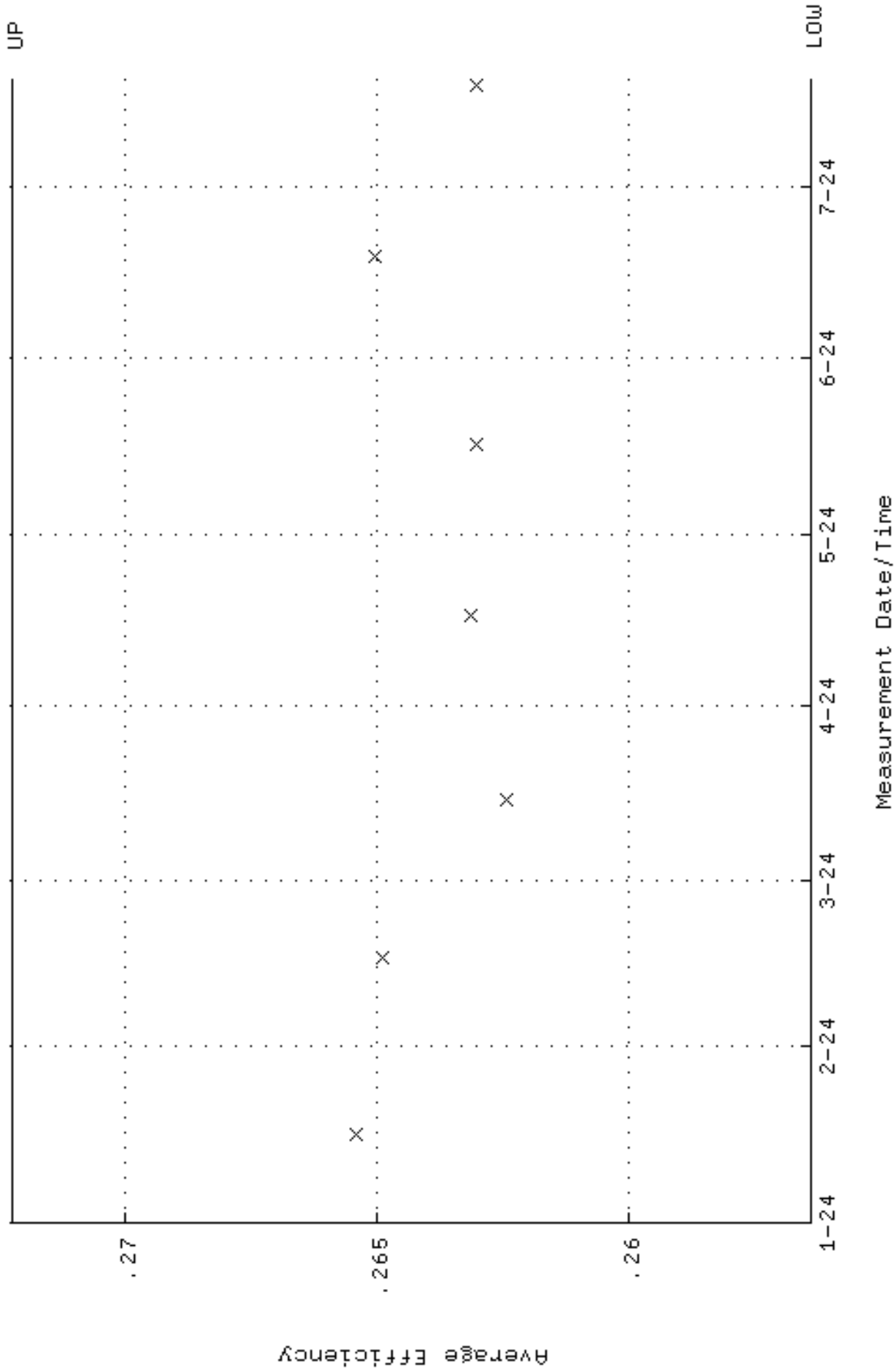
QA filename : DKA100:[ENV_ALPHA.QA.W]W178.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:24:39 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



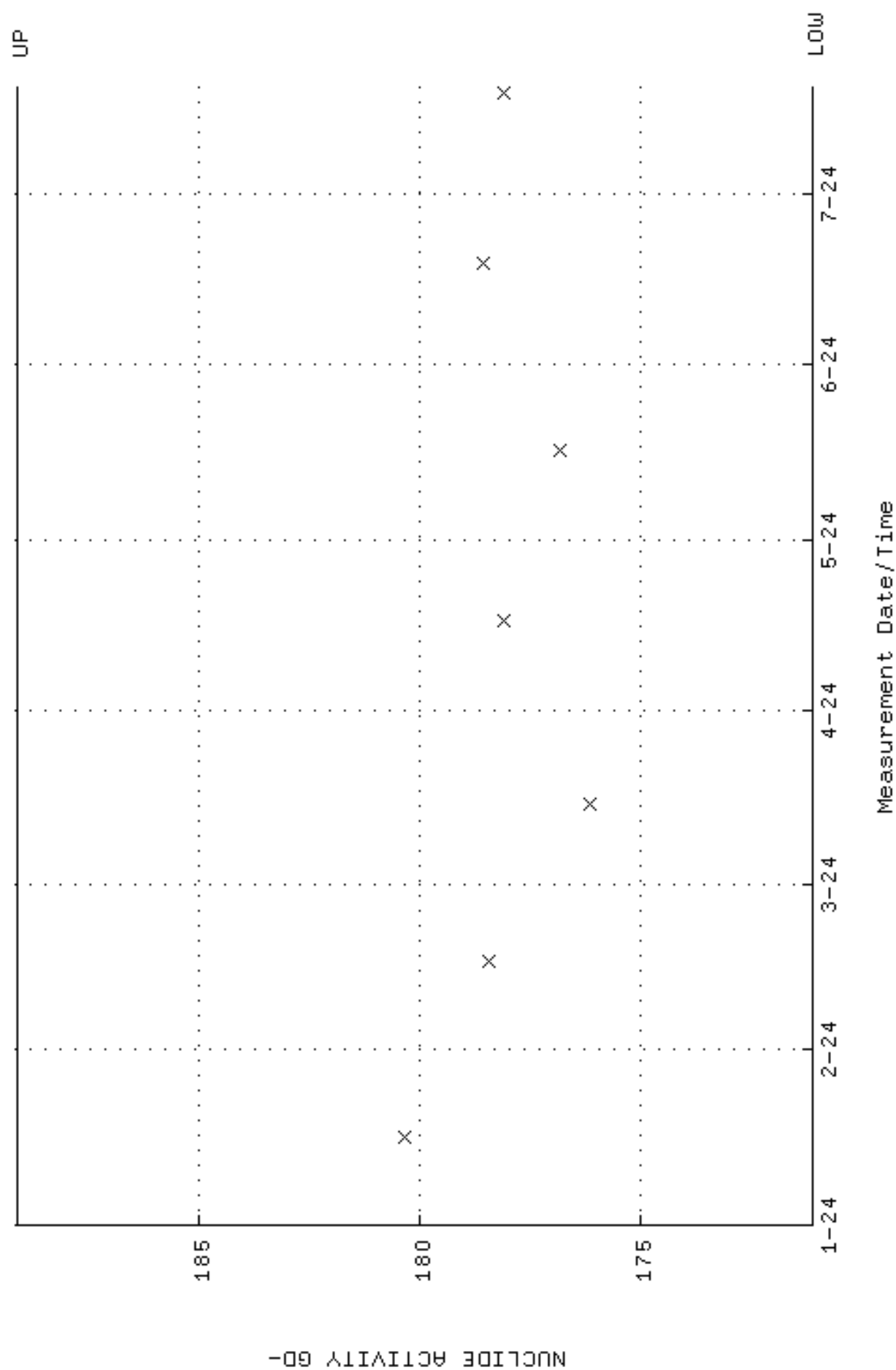
QA filename : DKA100:[ENV_ALPHA.QA.B]B178.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:46:53 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



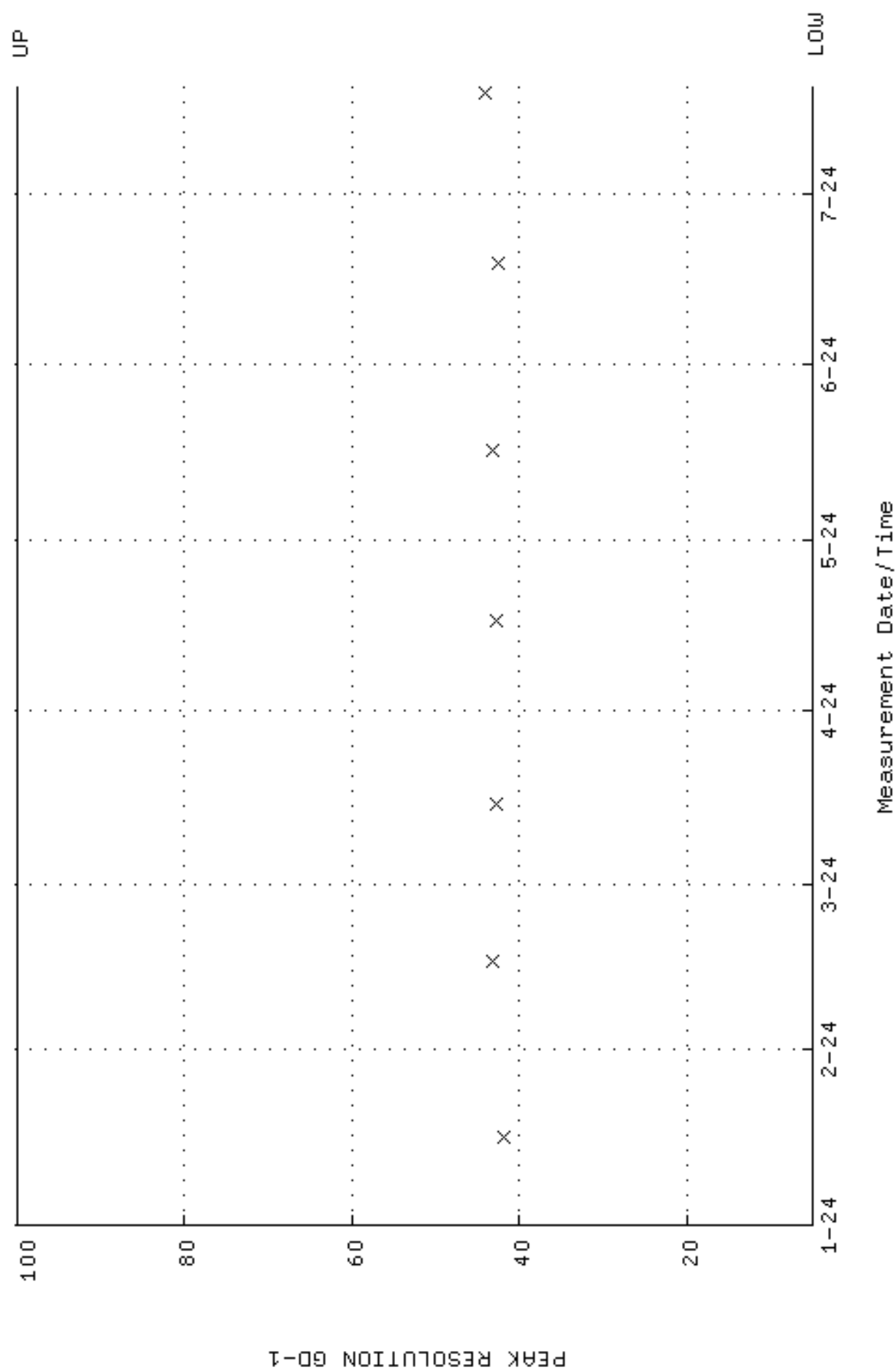
QA filename : DKA100:[ENV_ALPHA.QA.W]W179.QAF;5
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:21:22 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.256380 through 0.272240



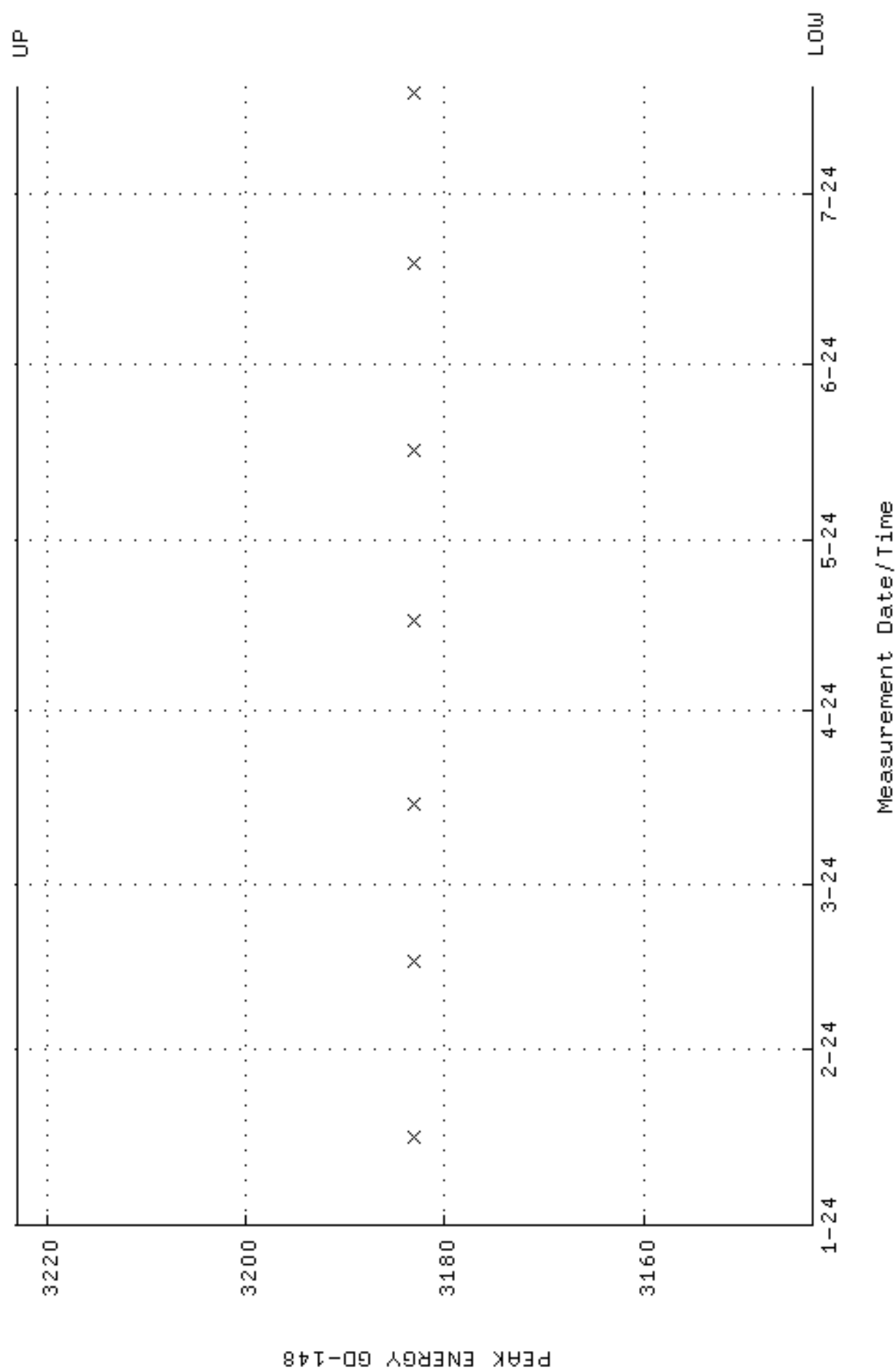
QA filename : DKA100:[ENV_ALPHA.QA.W]W179.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:21:22 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



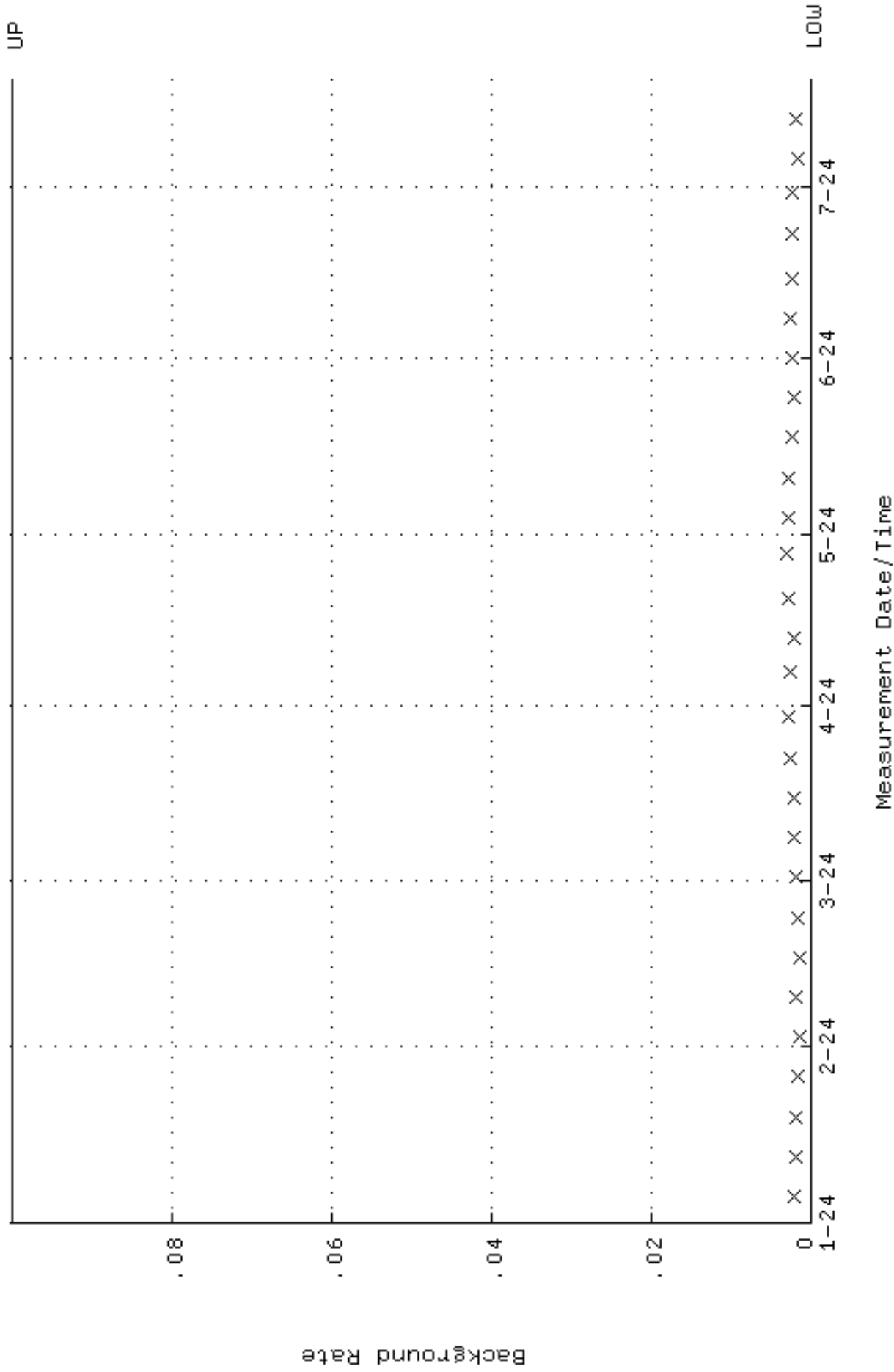
QA filename : DKA100:[ENV_ALPHA.QA.W]W179.QAF;5
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:21:22 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



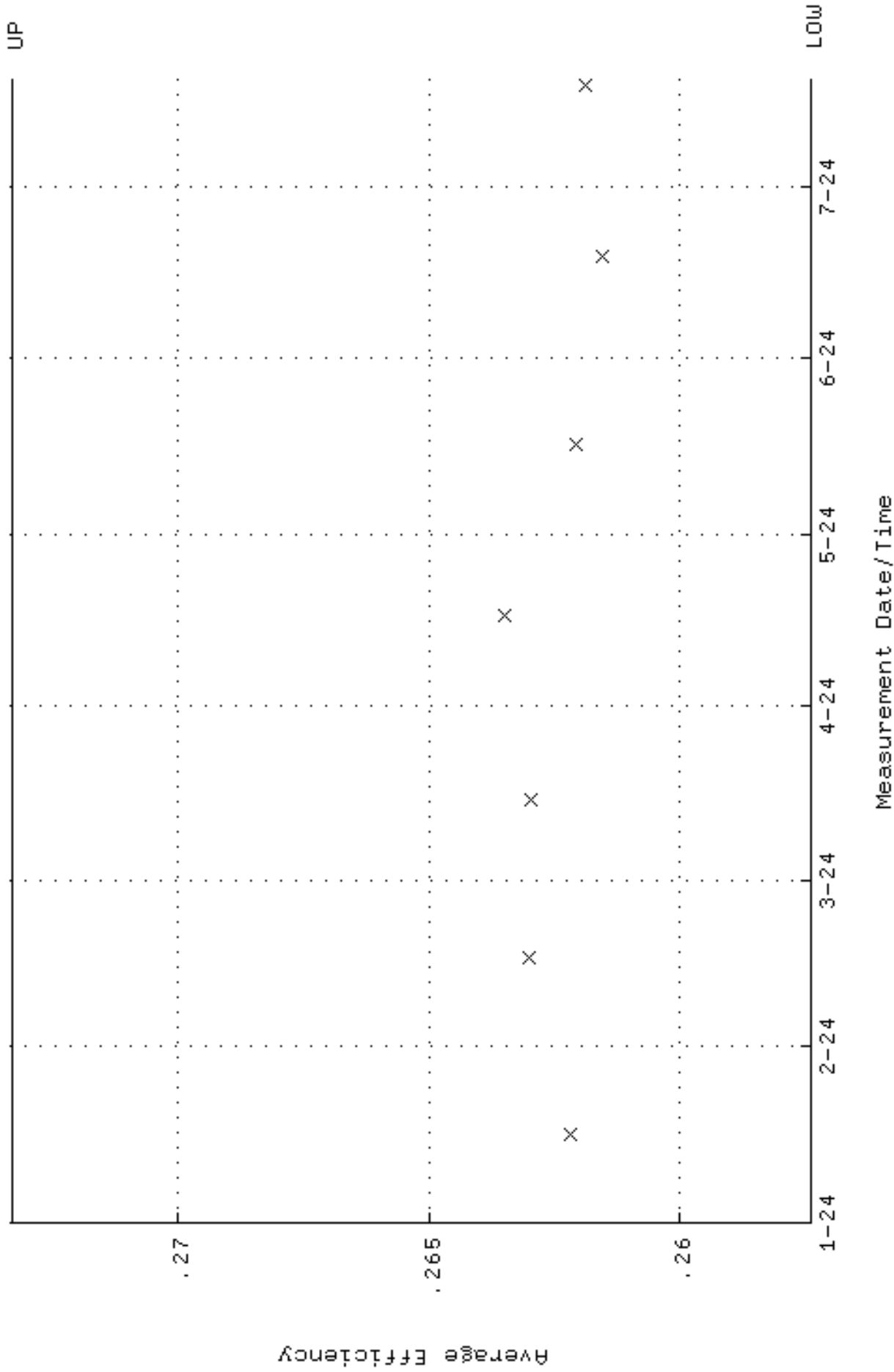
QA filename : DKA100:[ENV_ALPHA.QA.W]W179.QAF;5
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:21:22 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



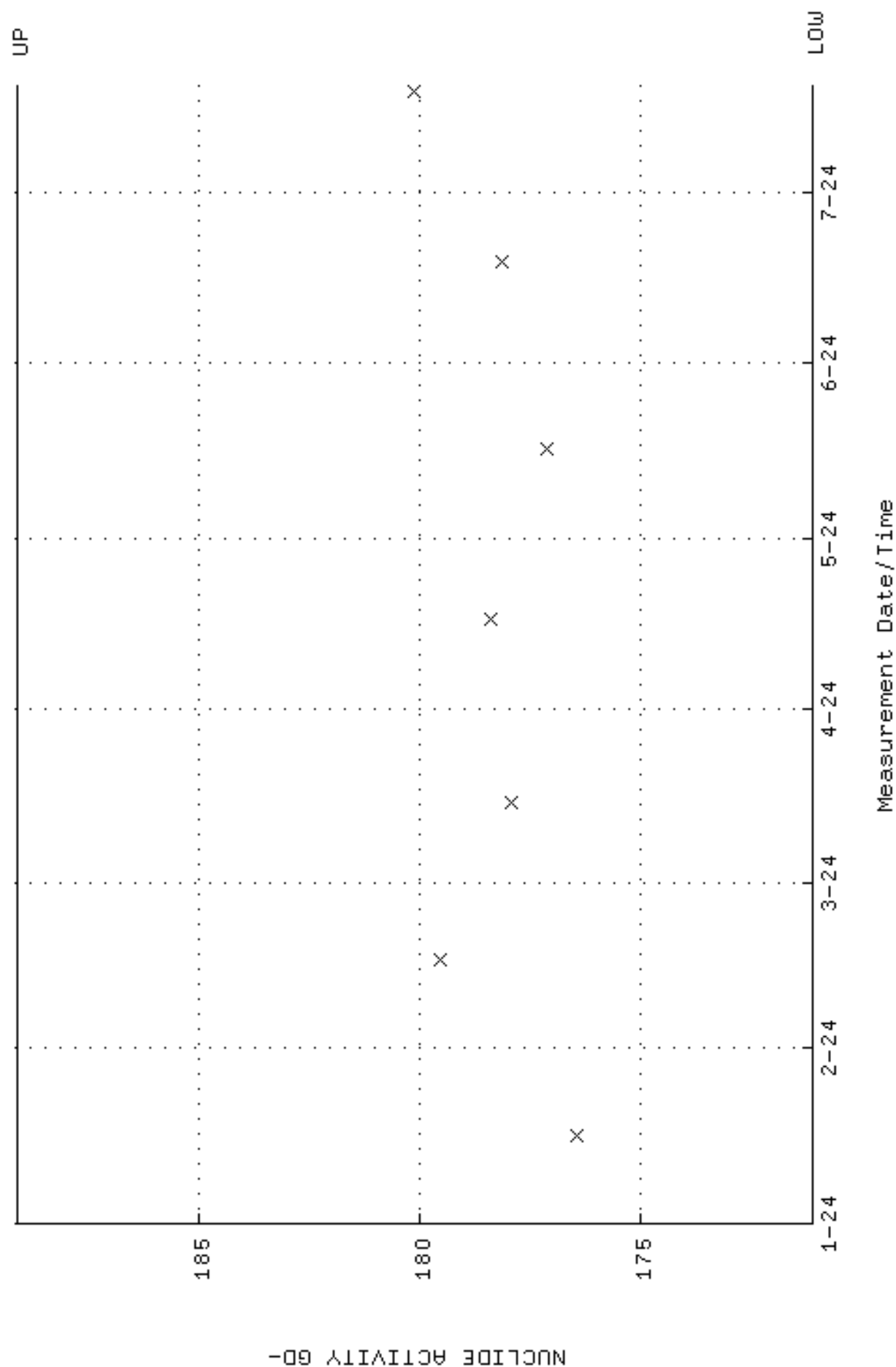
QA filename : DKA100:[ENV_ALPHA.QA.B]B179.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:46:58 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



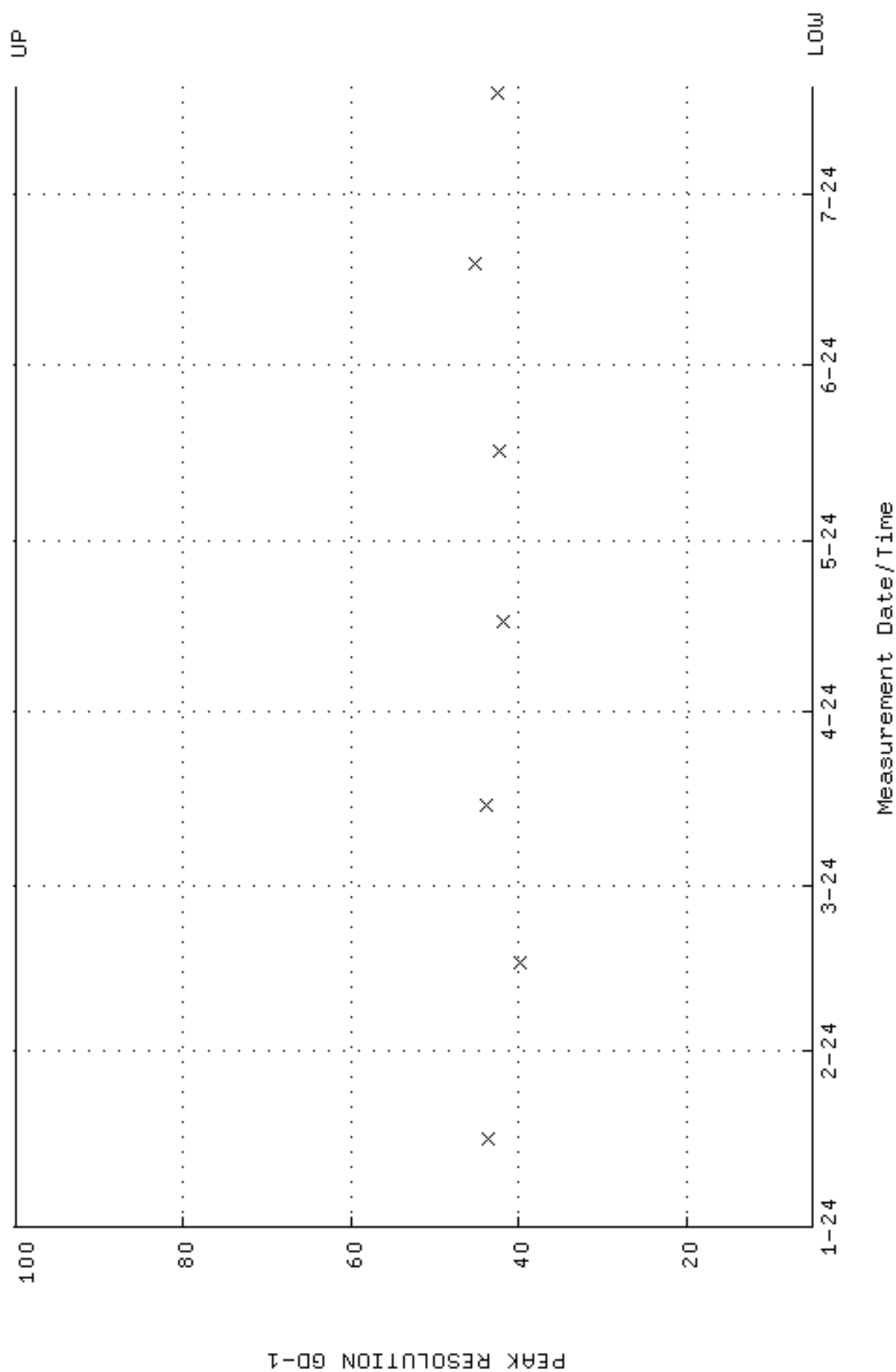
QA filename : DKA100:[ENV_ALPHA.QA.W]W180.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:14:36 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.257380 through 0.273300



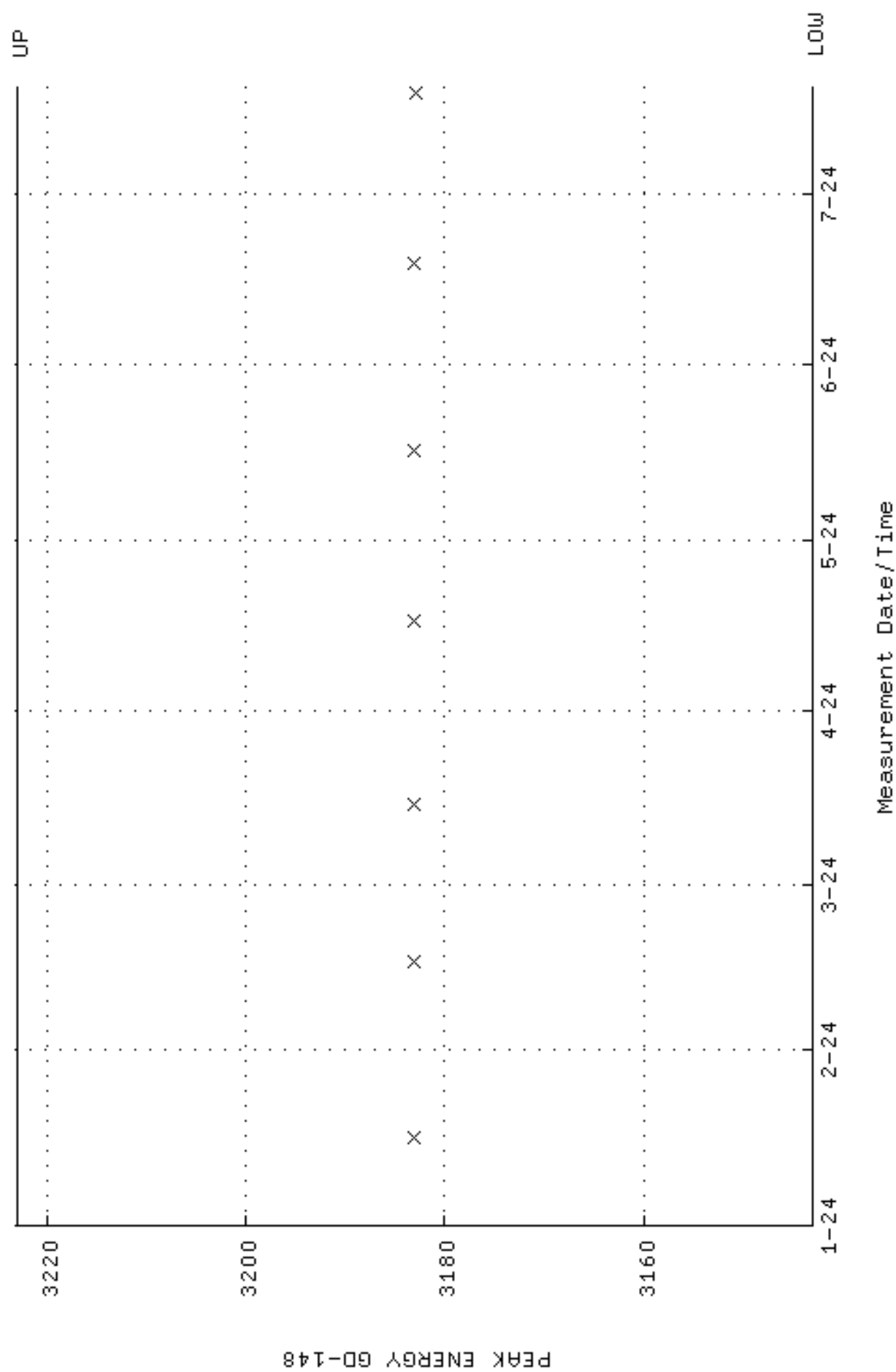
QA filename : DKA100:[ENV_ALPHA.QA.W]W180.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:14:36 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



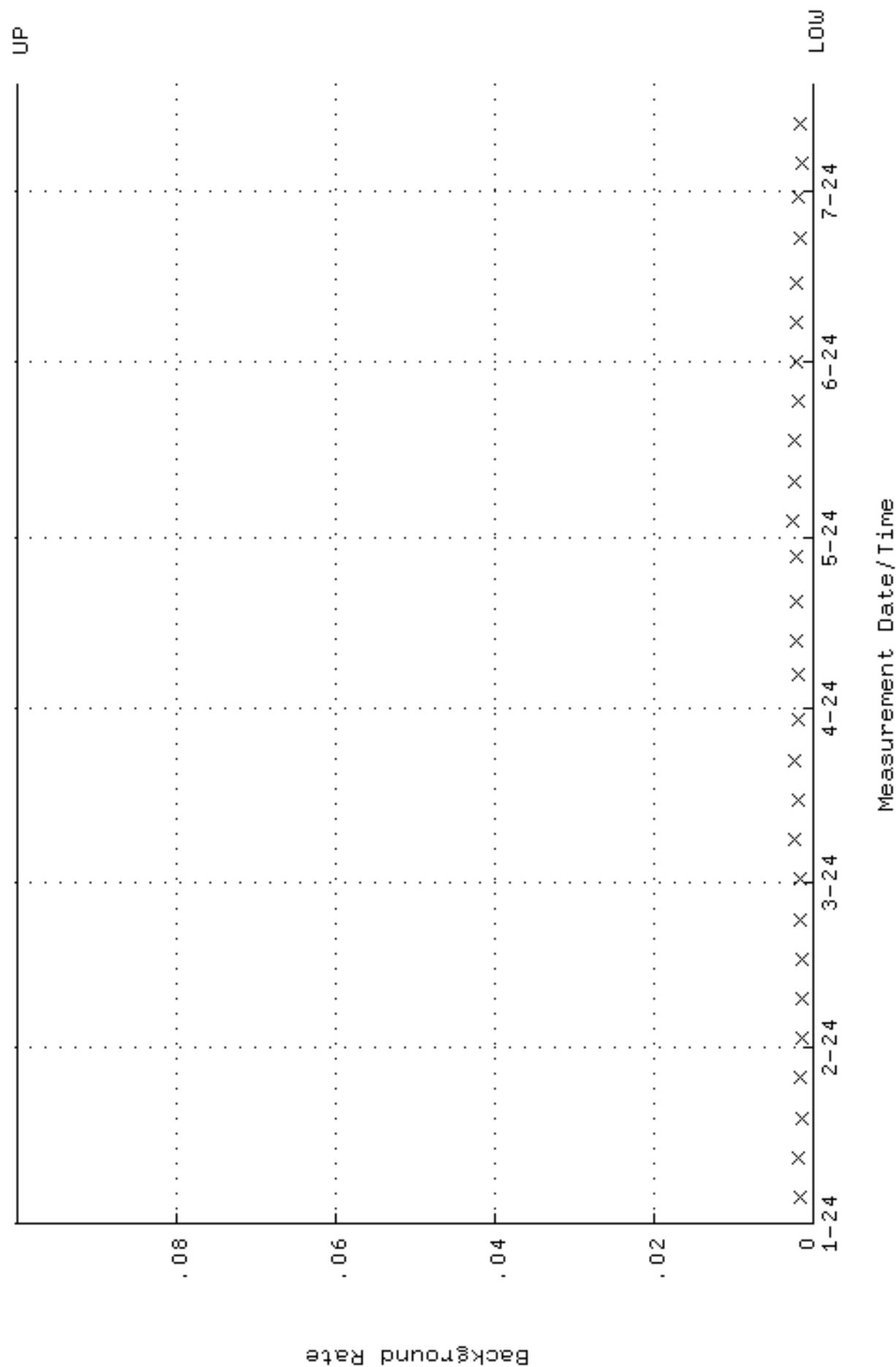
QA filename : DKA100:[ENV_ALPHA.QA.W]W180.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:14:36 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



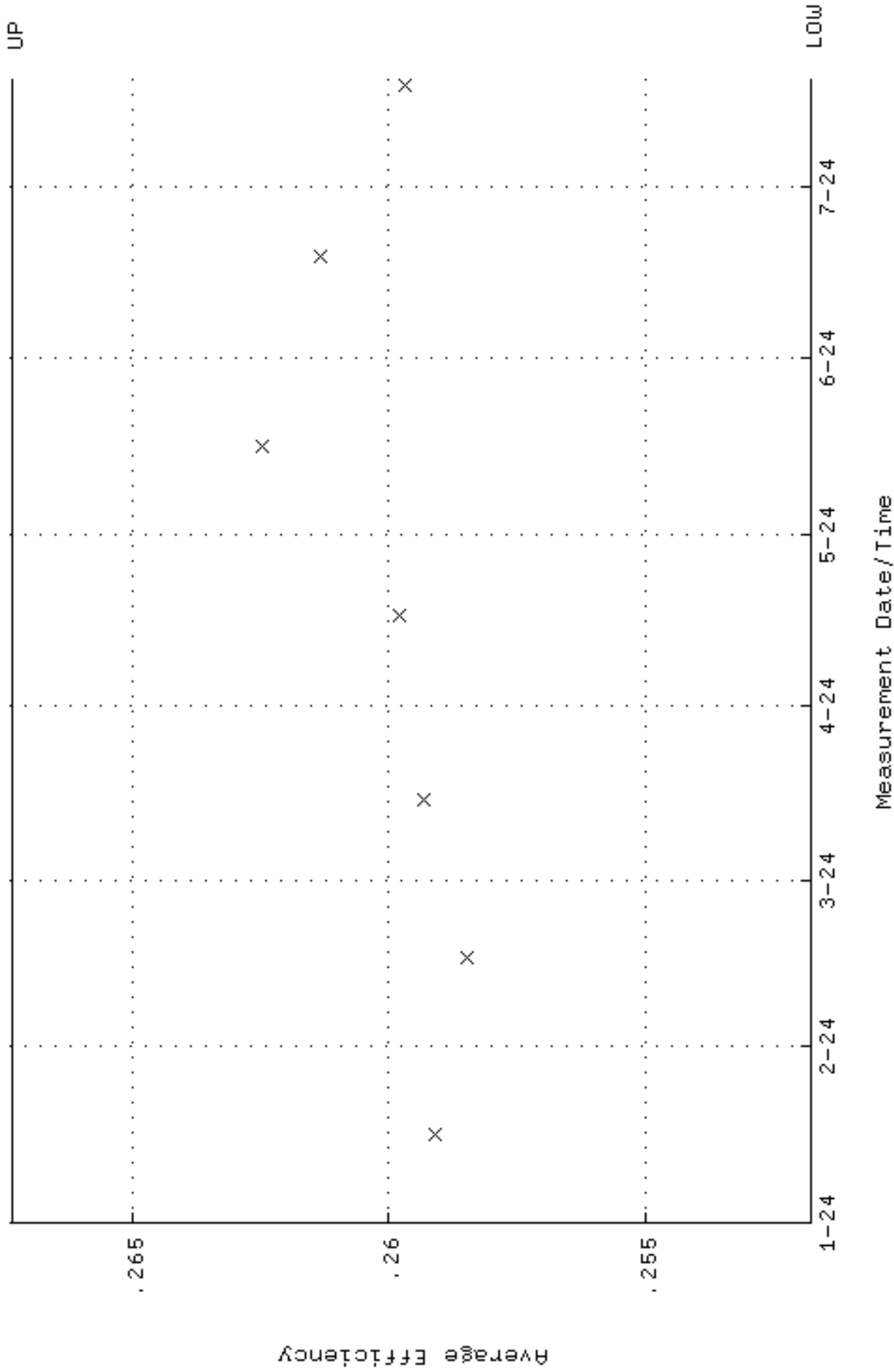
QA filename : DKA100:[ENV_ALPHA.QA.W]W180.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:14:36 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



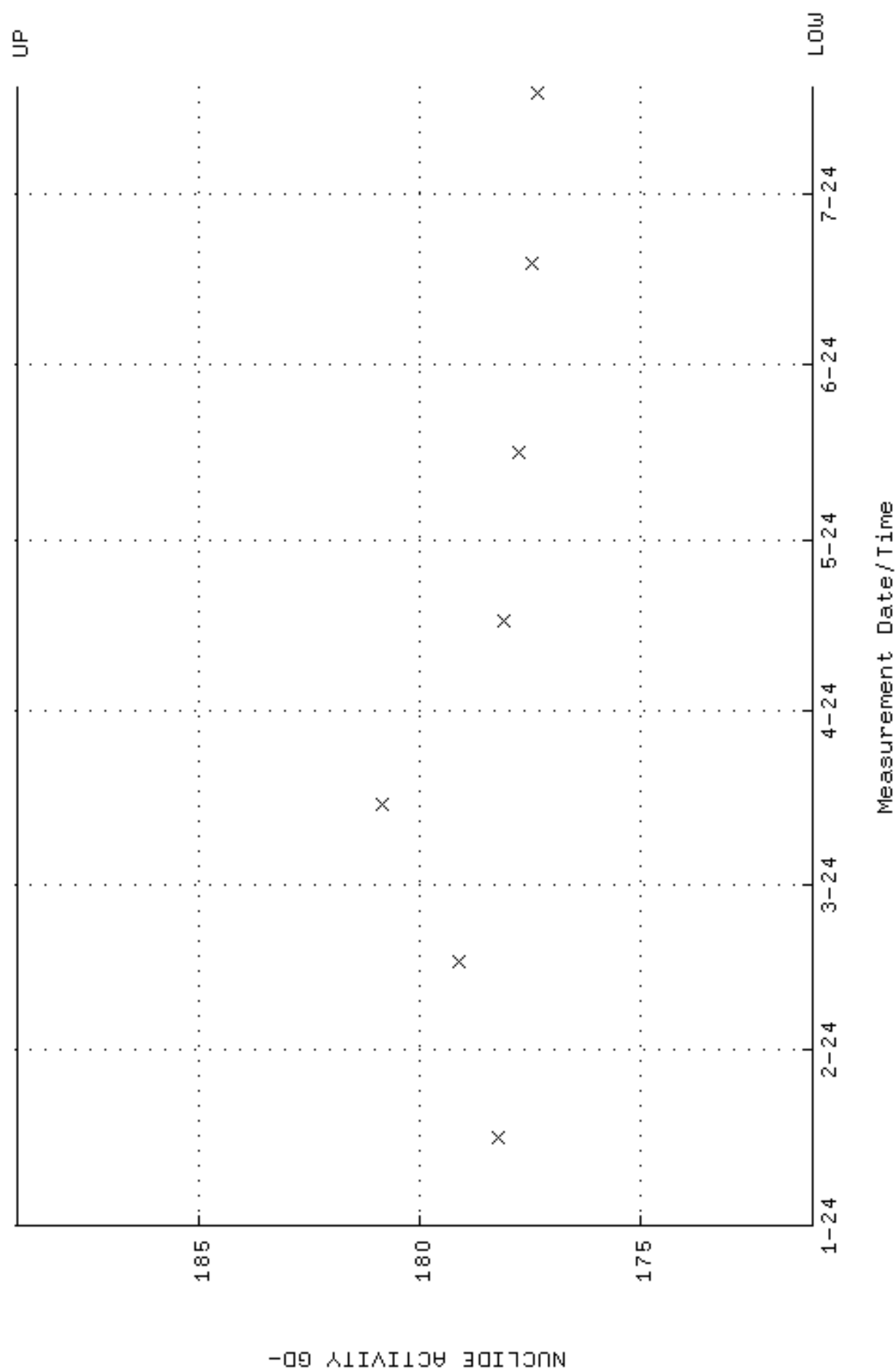
QA filename : DKA100:[ENV_ALPHA.QA.B]B180.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:47:03 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



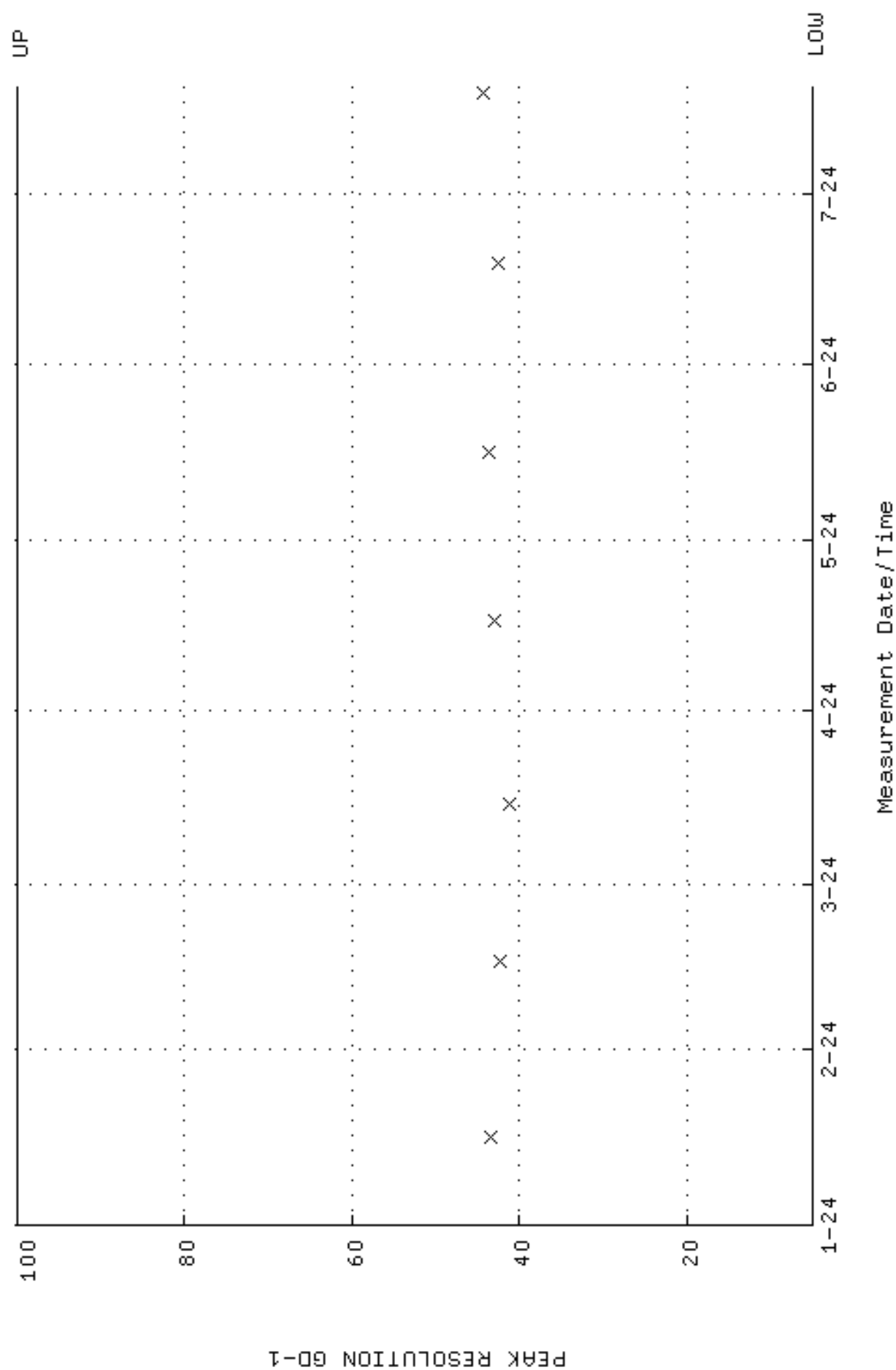
QA filename : DKA100:[ENV_ALPHA.QA.W]W181.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-JAN-2024 10:19:25 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.251760 through 0.267330



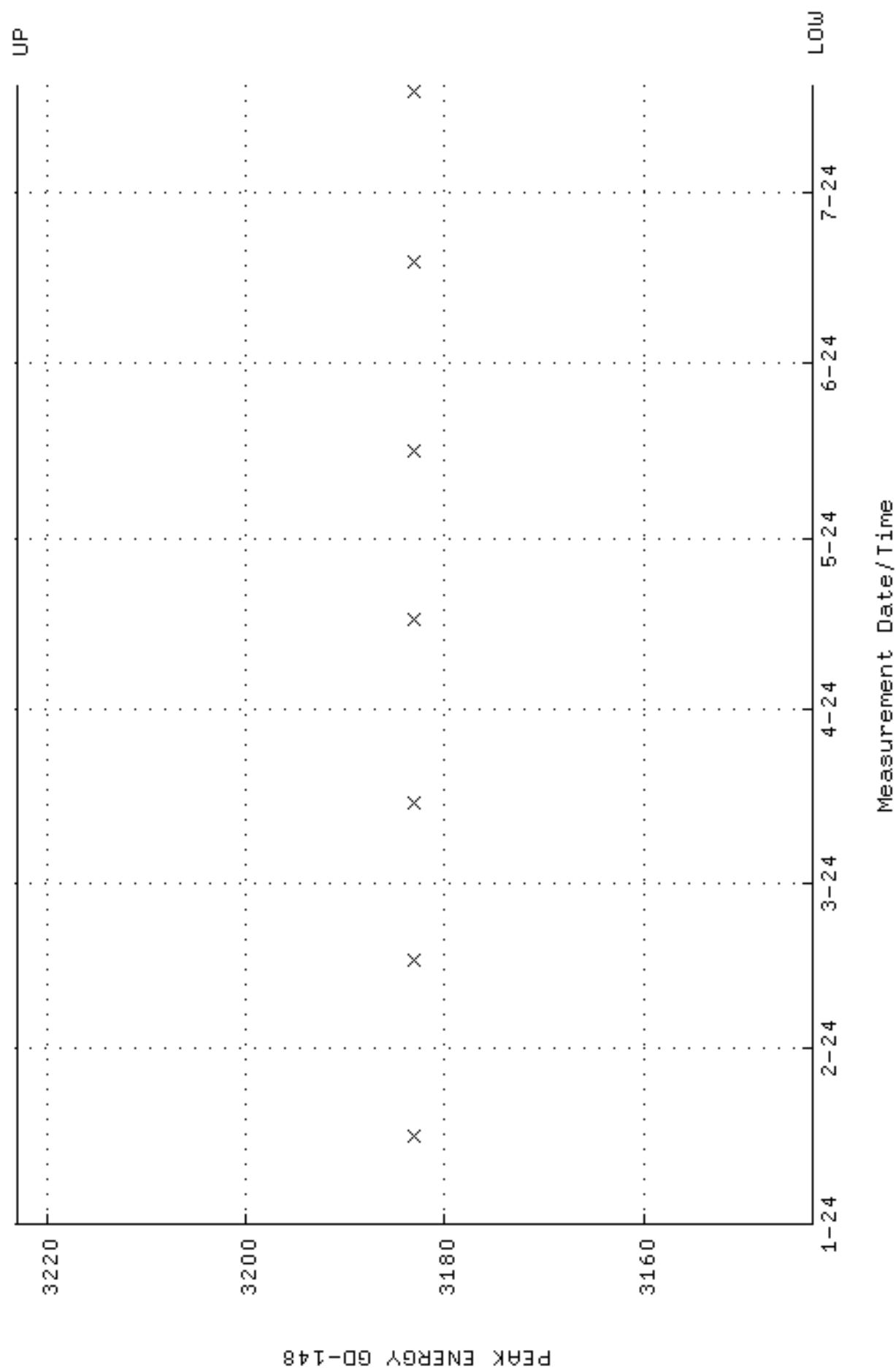
QA filename : DKA100:[ENV_ALPHA.QA.W]W181.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 16-JAN-2024 10:19:25 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



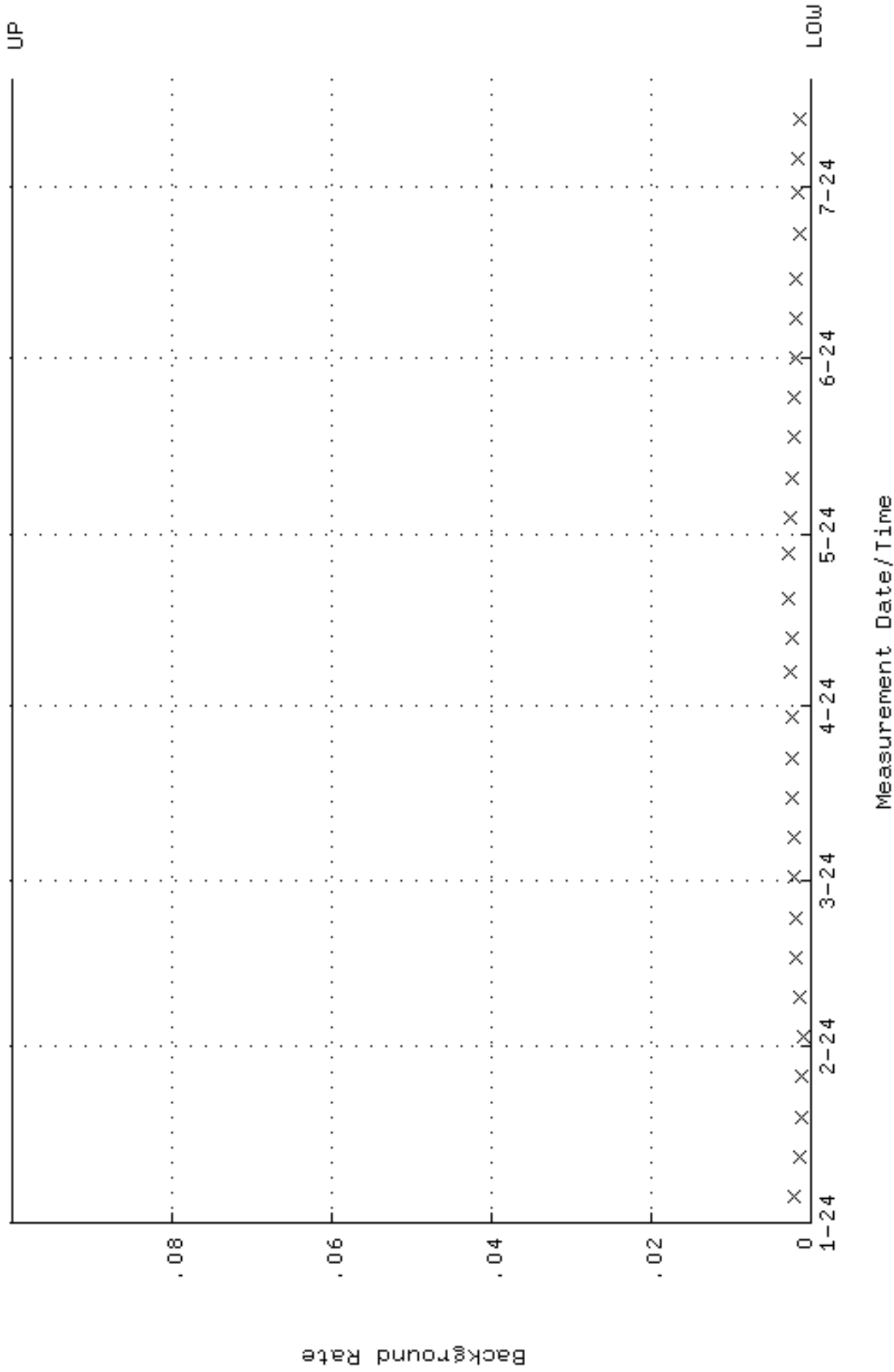
QA filename : DKA100:[ENV_ALPHA.QA.W]W181.QAF;4
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 16-JAN-2024 10:19:25 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



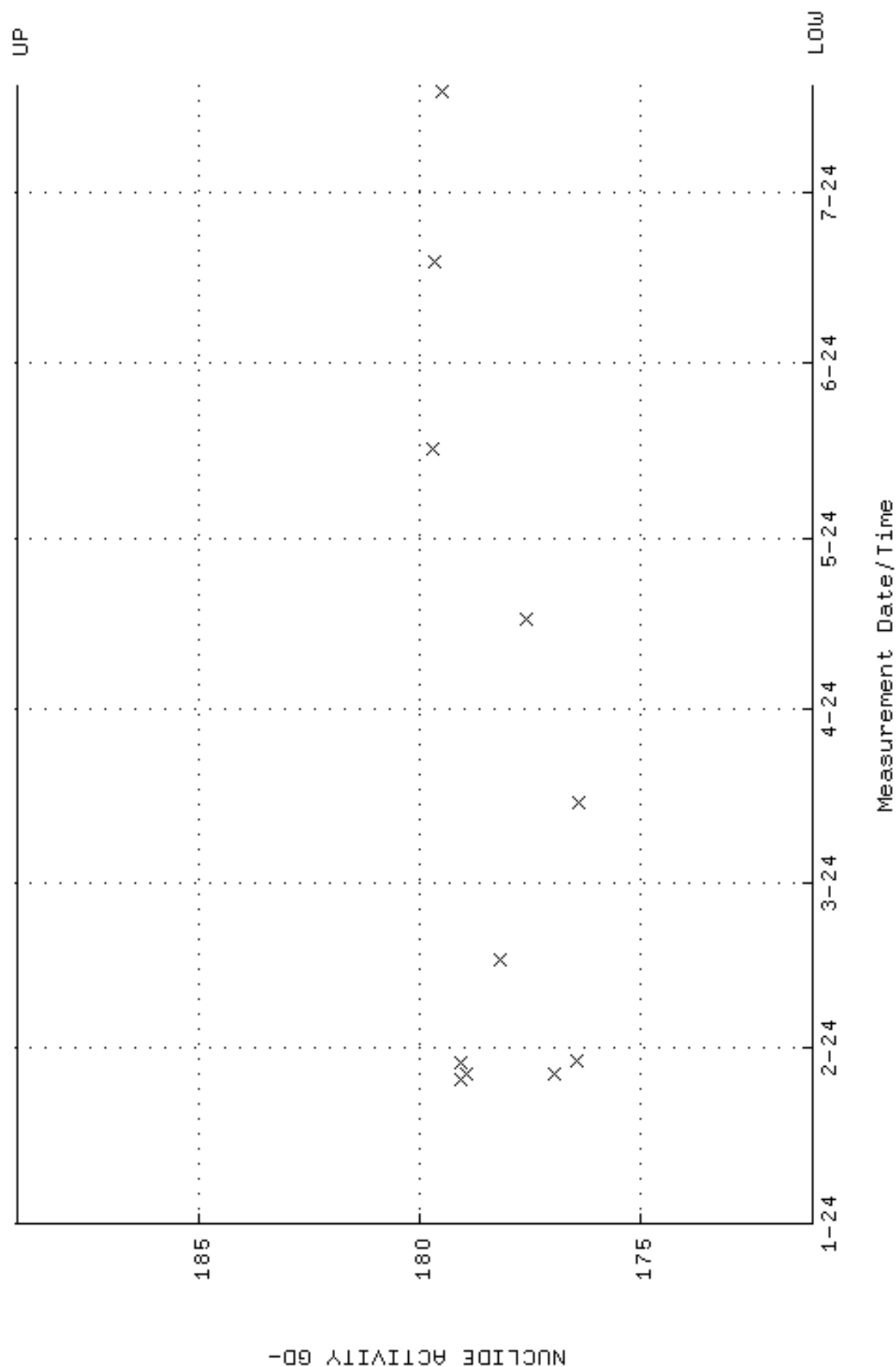
QA filename : DKA100:[ENV_ALPHA.QA.W]W181.QAF;4
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 16-JAN-2024 10:19:25 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



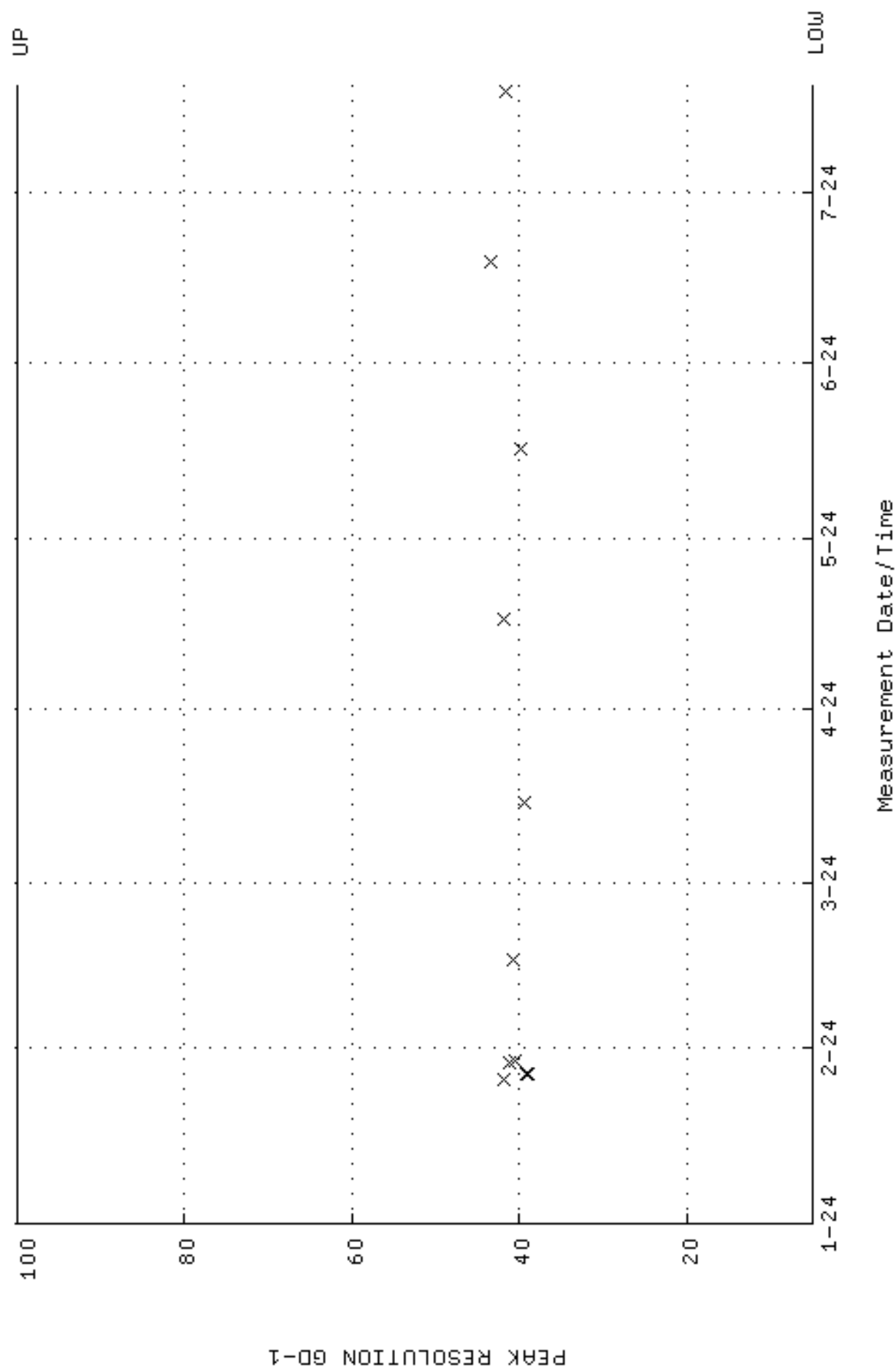
QA filename : DKA100:[ENV_ALPHA.QA.B]B181.QAF;3
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:47:07 through 19-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



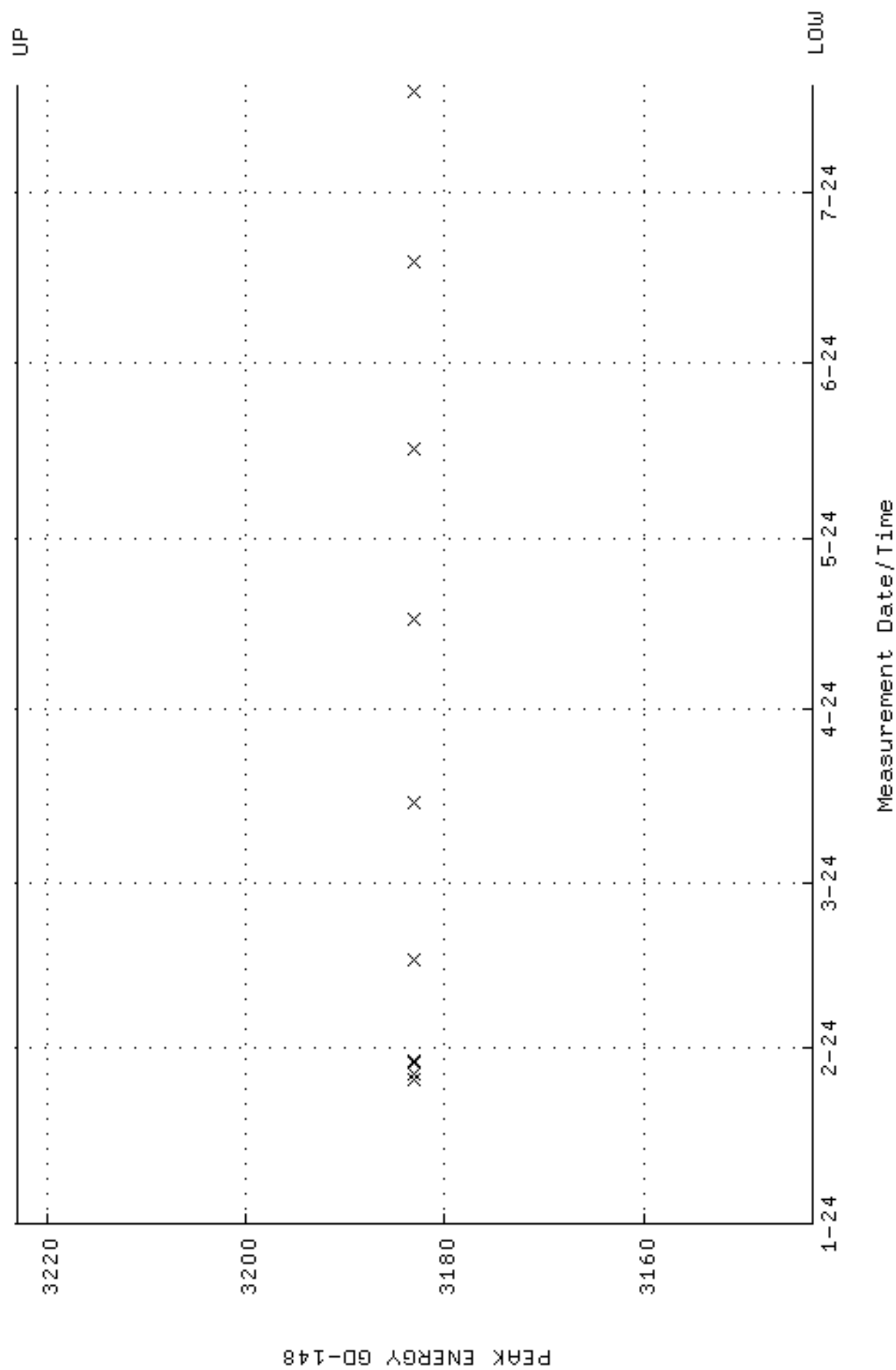
QA filename : DKA100:[ENV_ALPHA.QA.W]W182.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 26-JAN-2024 09:48:18 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



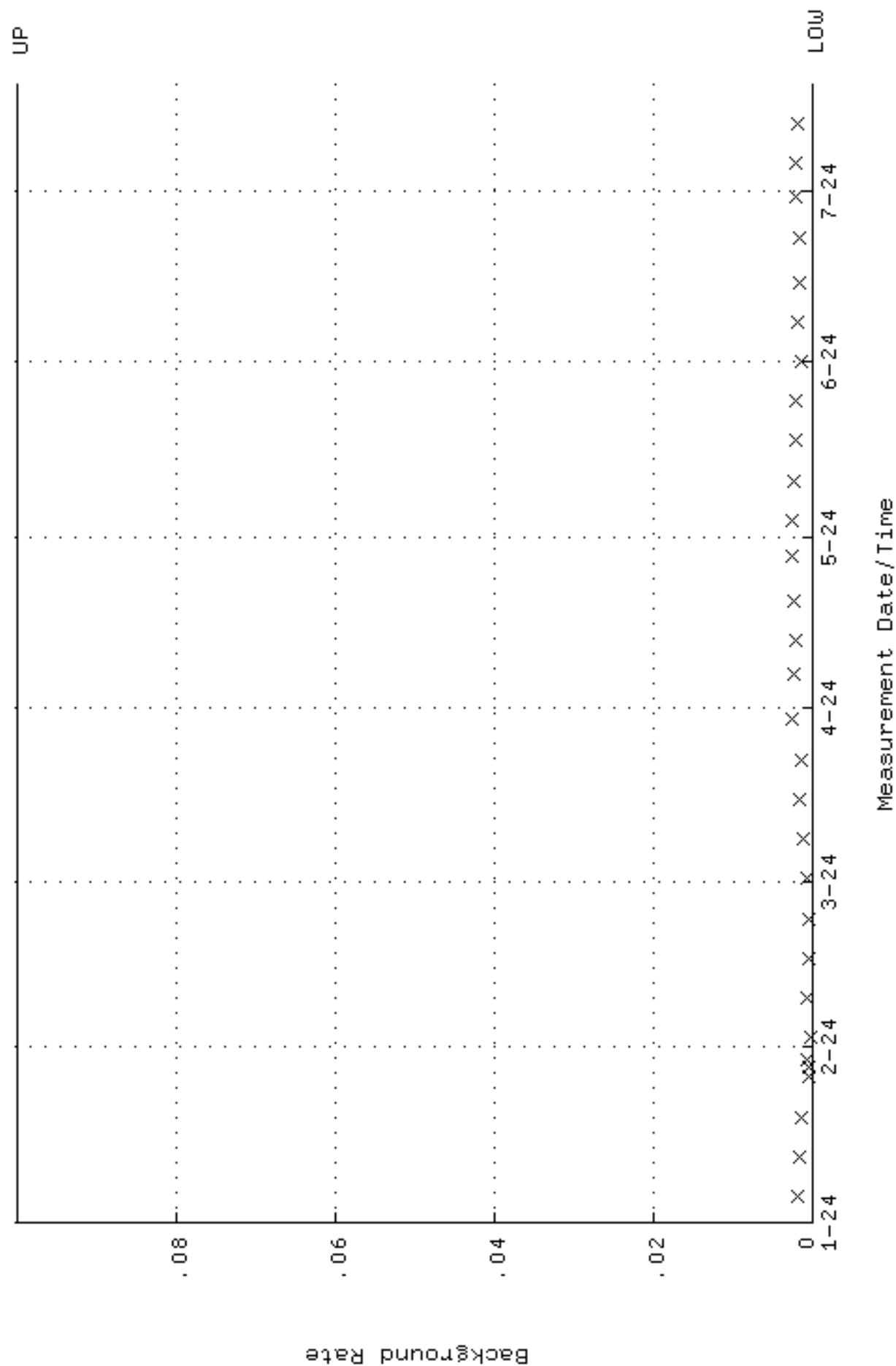
QA filename : DKA100:[ENV_ALPHA.QA.W]W182.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 26-JAN-2024 09:48:18 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



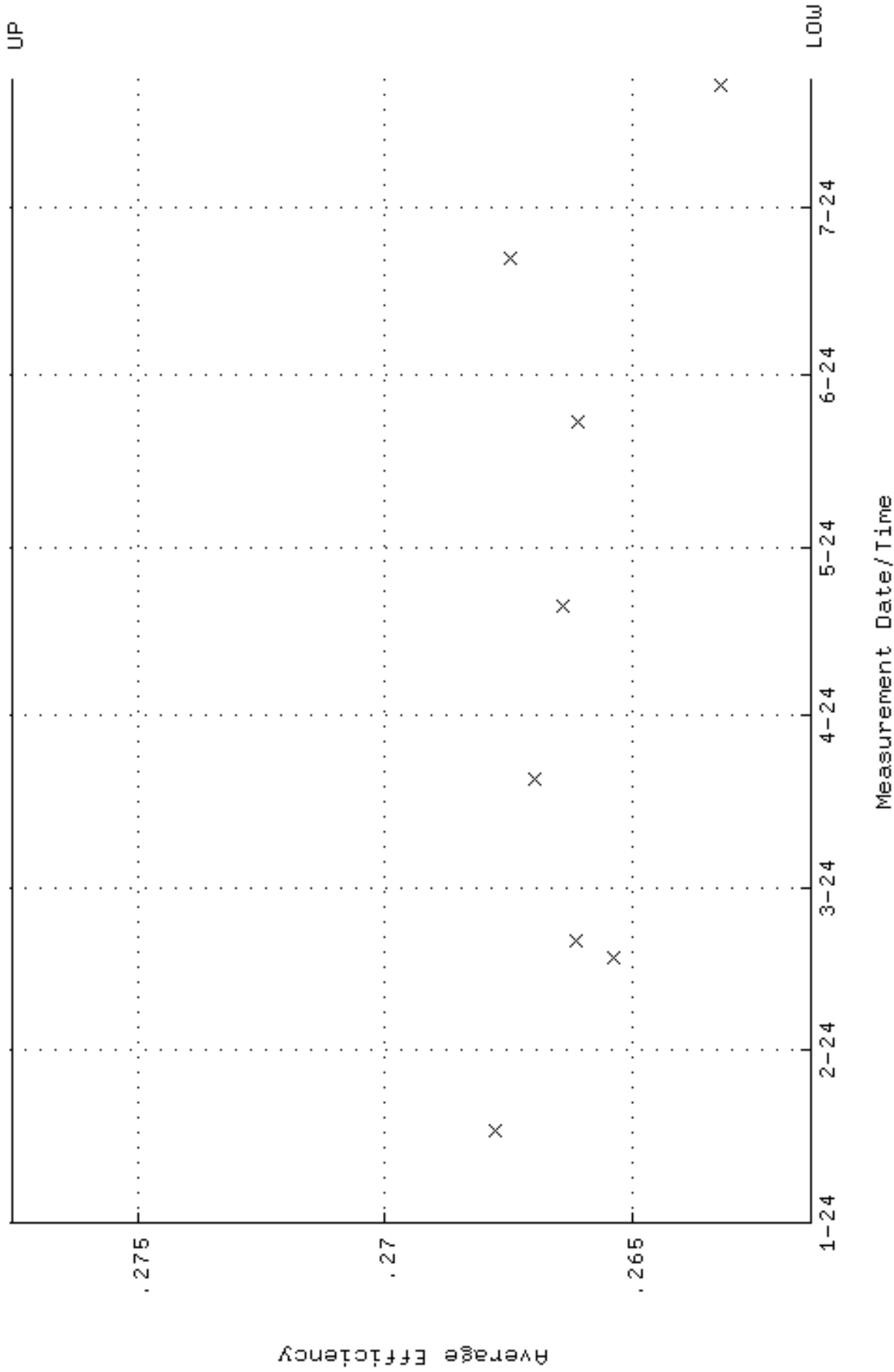
QA filename : DKA100:[ENV_ALPHA.QA.W]W182.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 26-JAN-2024 09:48:18 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



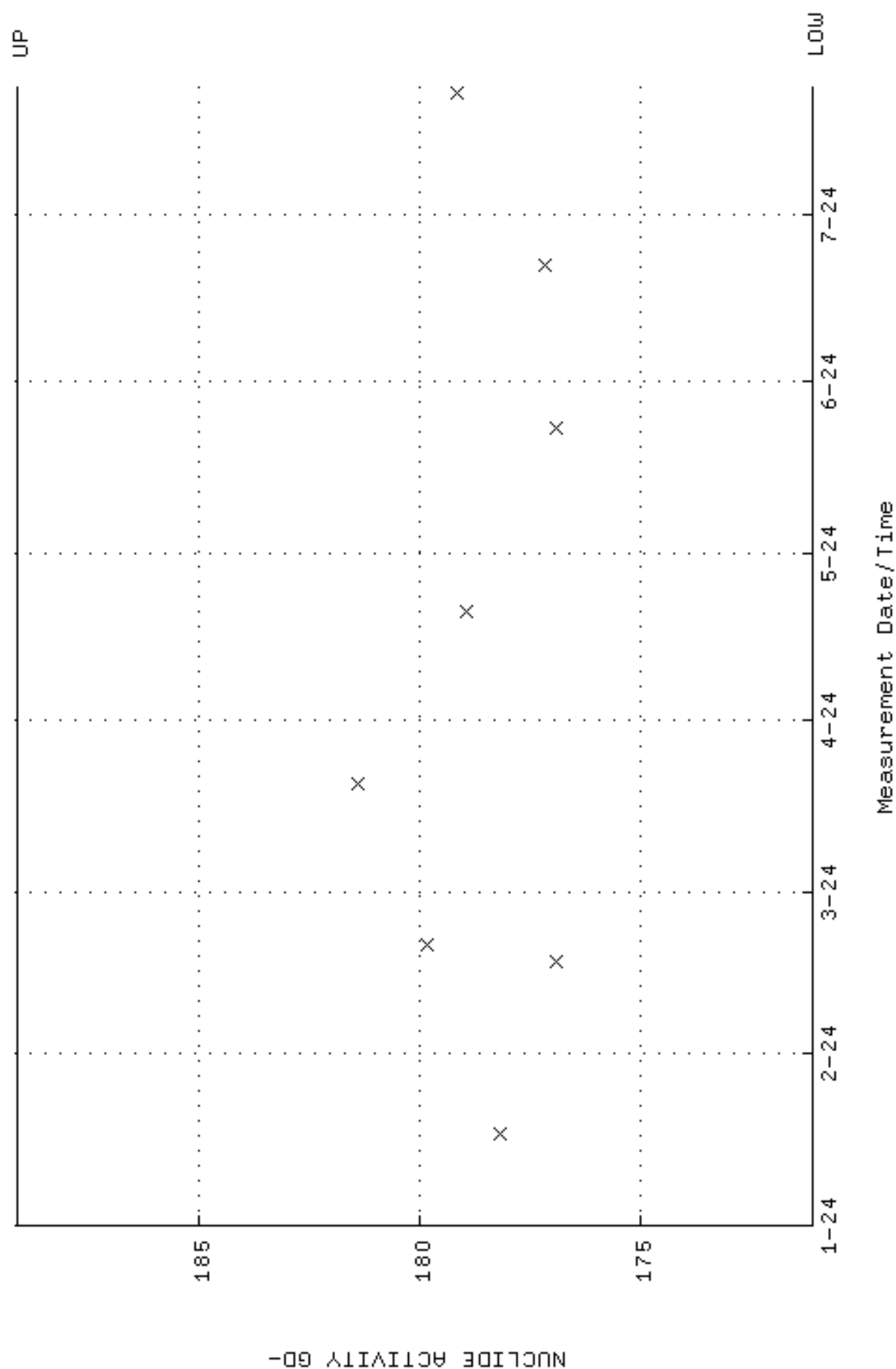
QA filename : DKA100:[ENV_ALPHA.QA.B]B182.QAF;3
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:47:11 through 19-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



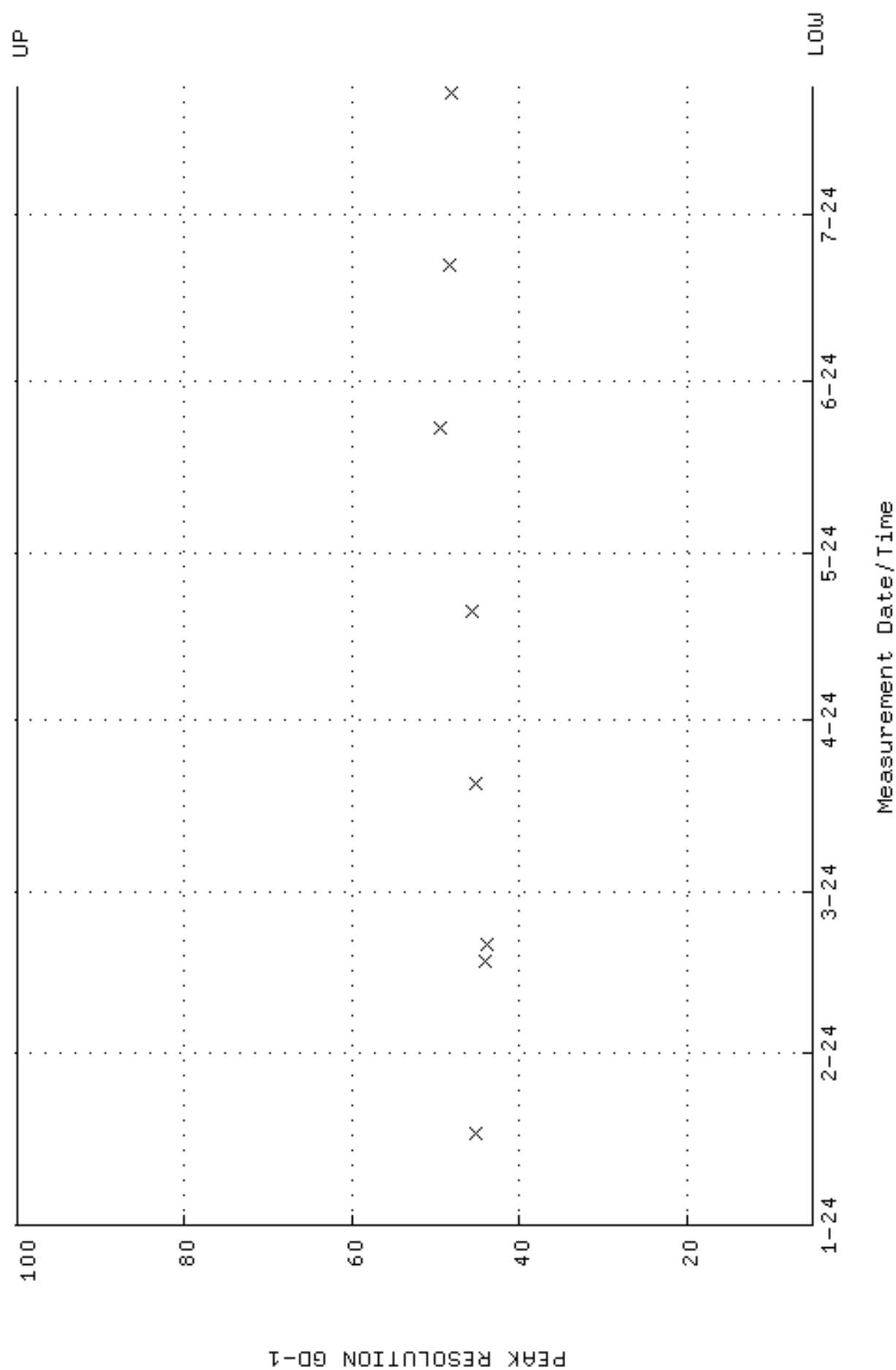
QA filename : DKA100:[ENV_ALPHA.QA.W]W195.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:22:26 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.261380 through 0.277540



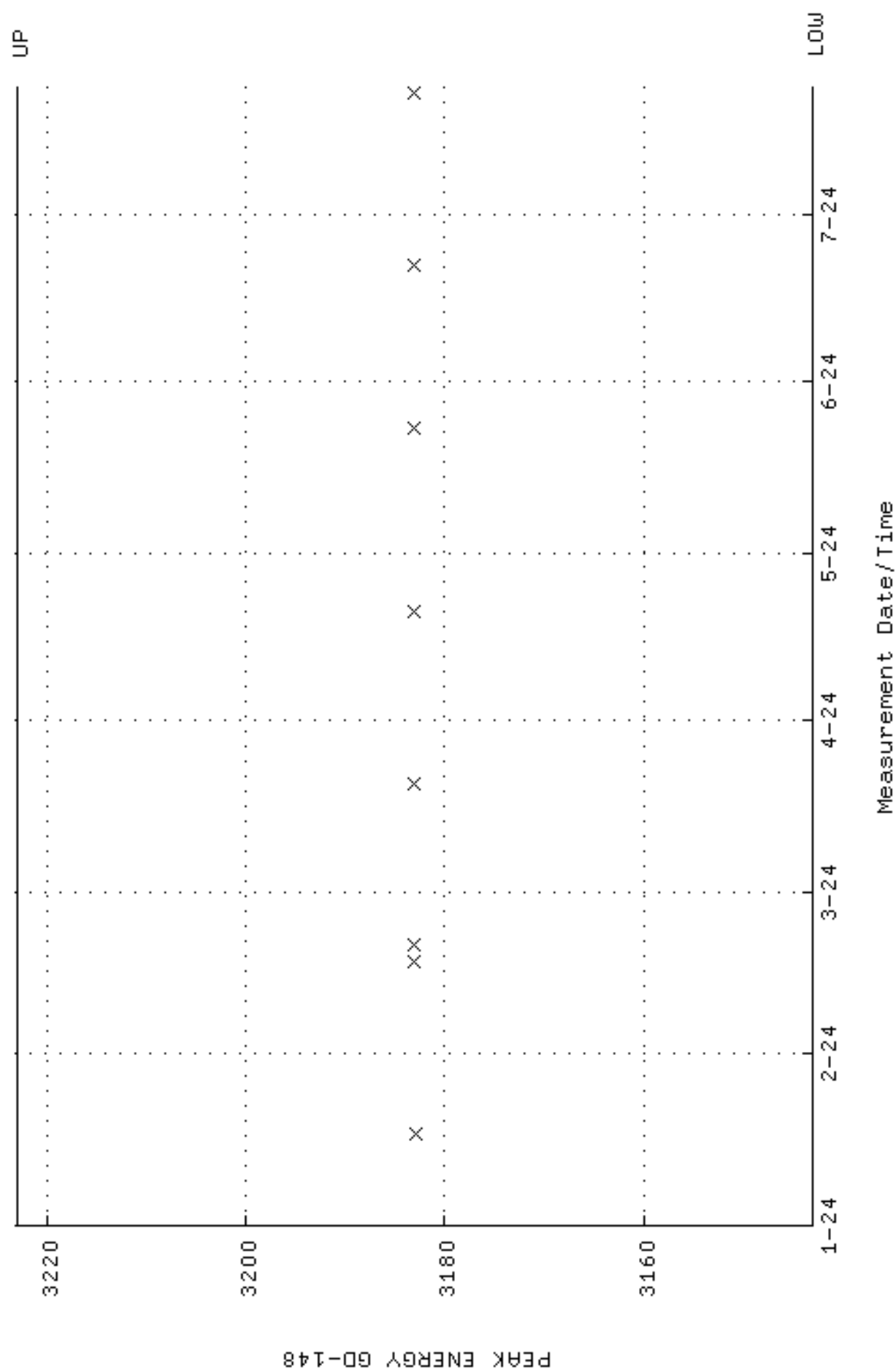
QA filename : DKA100:[ENV_ALPHA.QA.W]W195.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:22:26 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



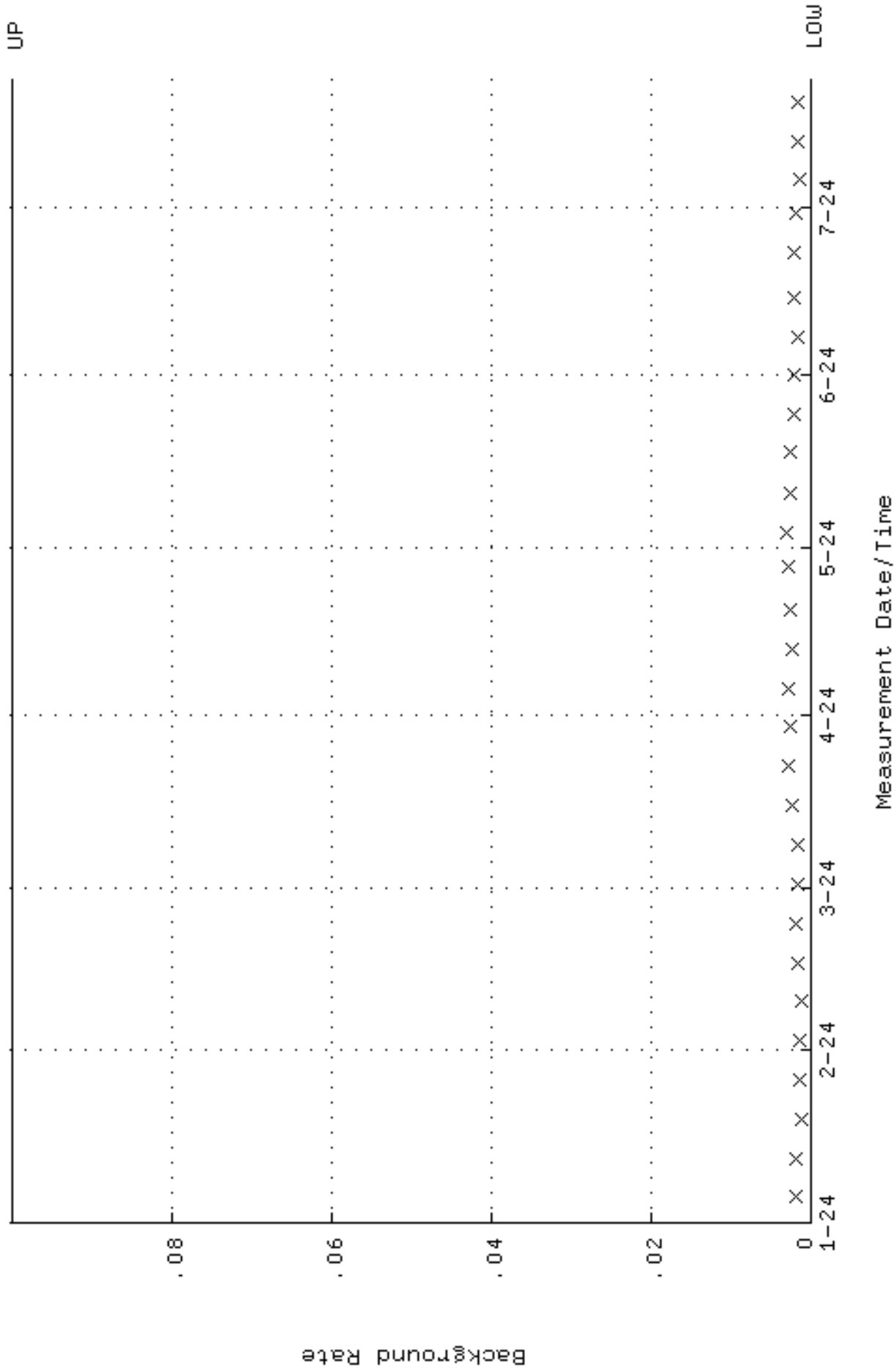
QA filename : DKA100:[ENV_ALPHA.QA.W]W195.QAF;4
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:22:26 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



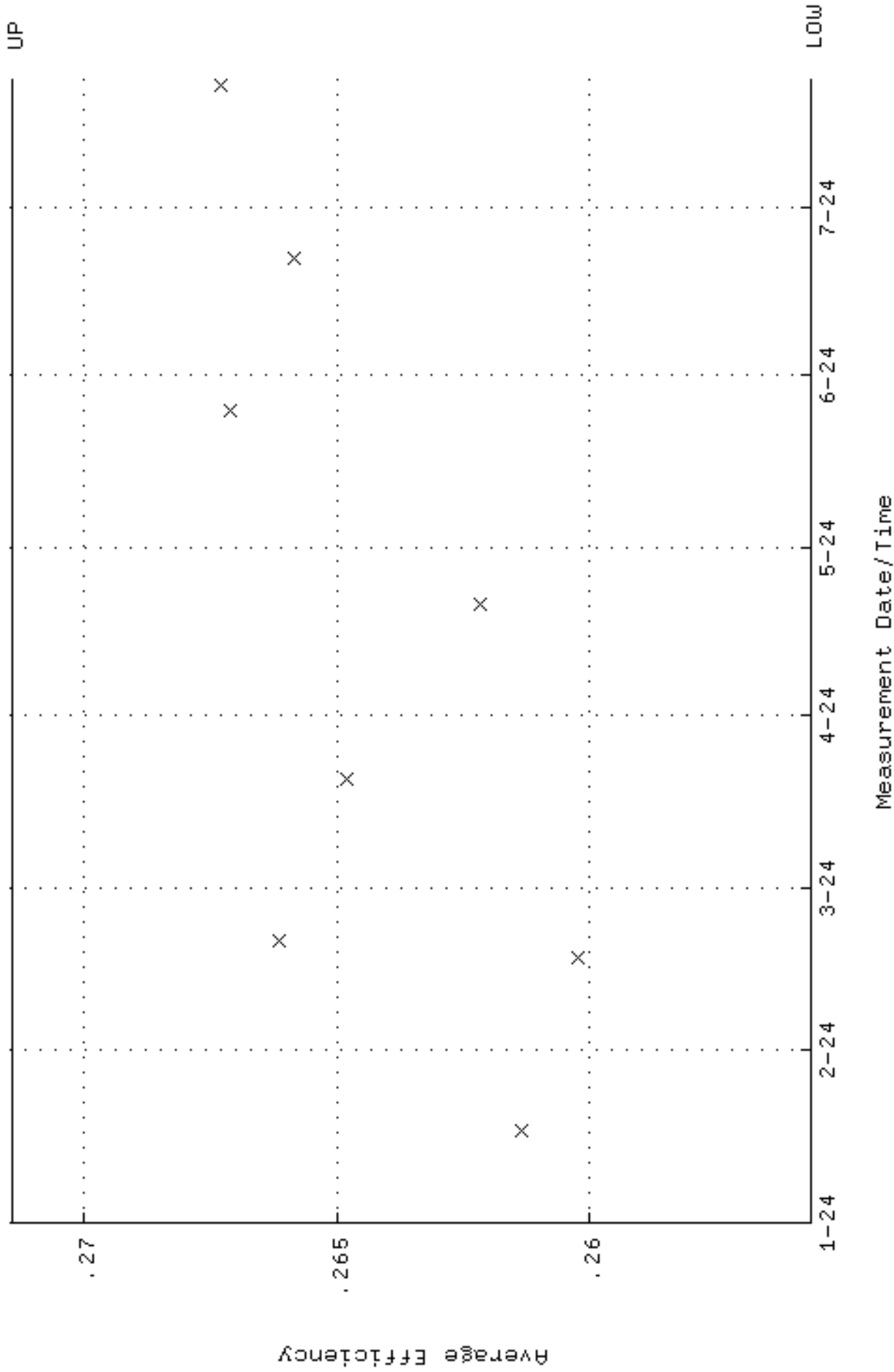
QA filename : DKA100:[ENV_ALPHA.QA.W]W195.QAF;4
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:22:26 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



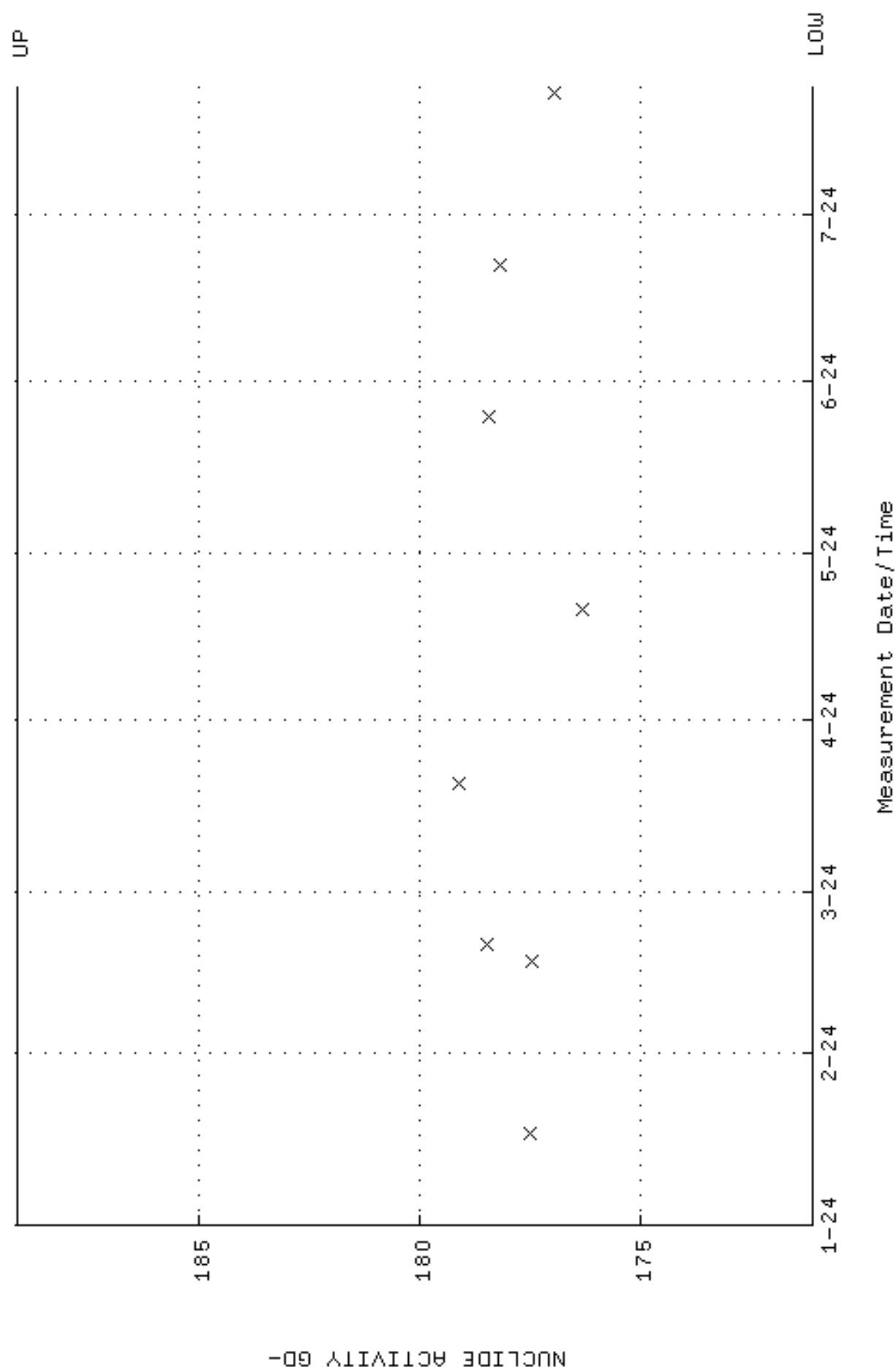
QA filename : DKA100:[ENV_ALPHA.QA.B]B195.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:55:37 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



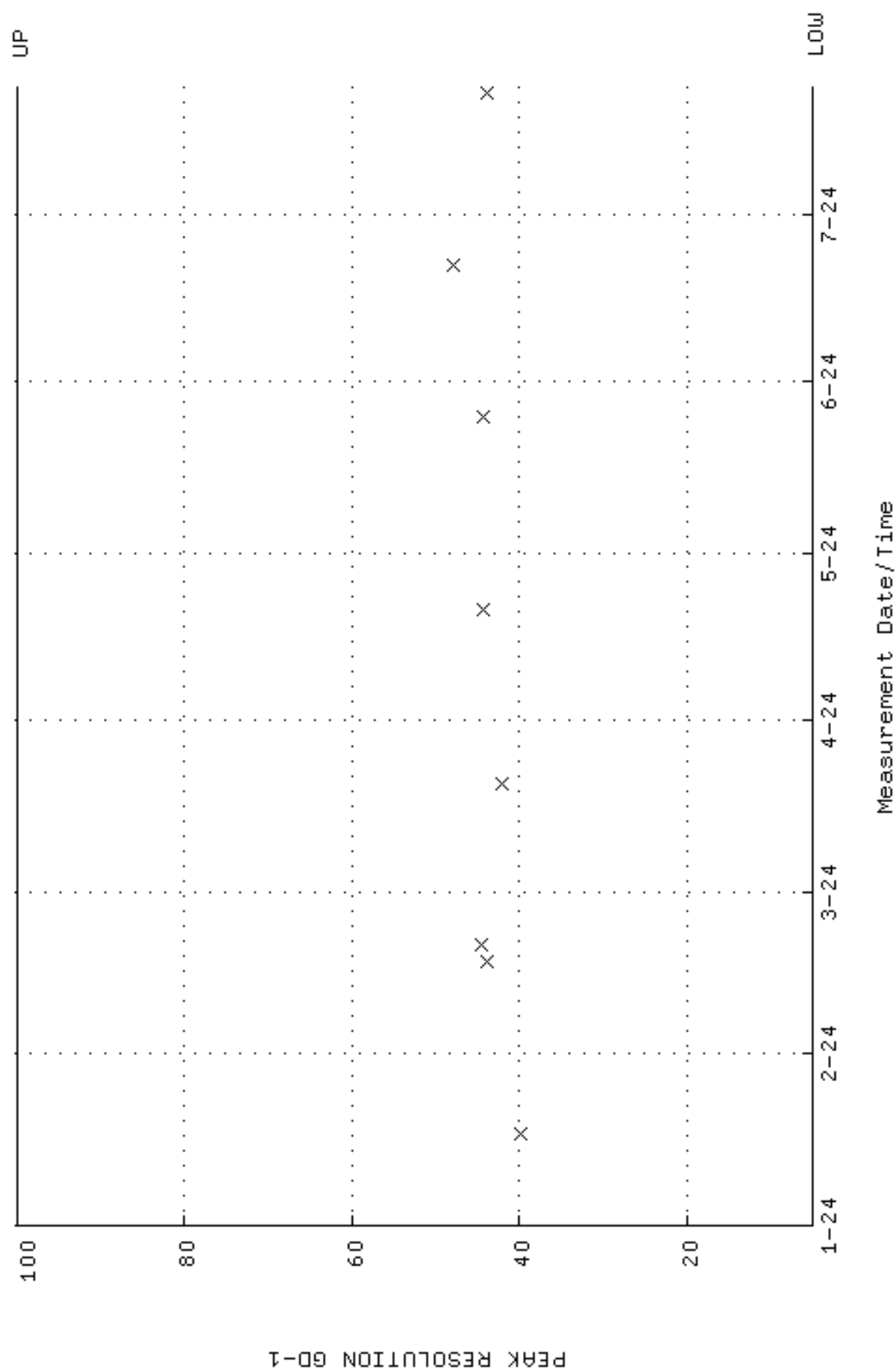
QA filename : DKA100:[ENV_ALPHA.QA.W]W197.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:17:33 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.255618 through 0.271430



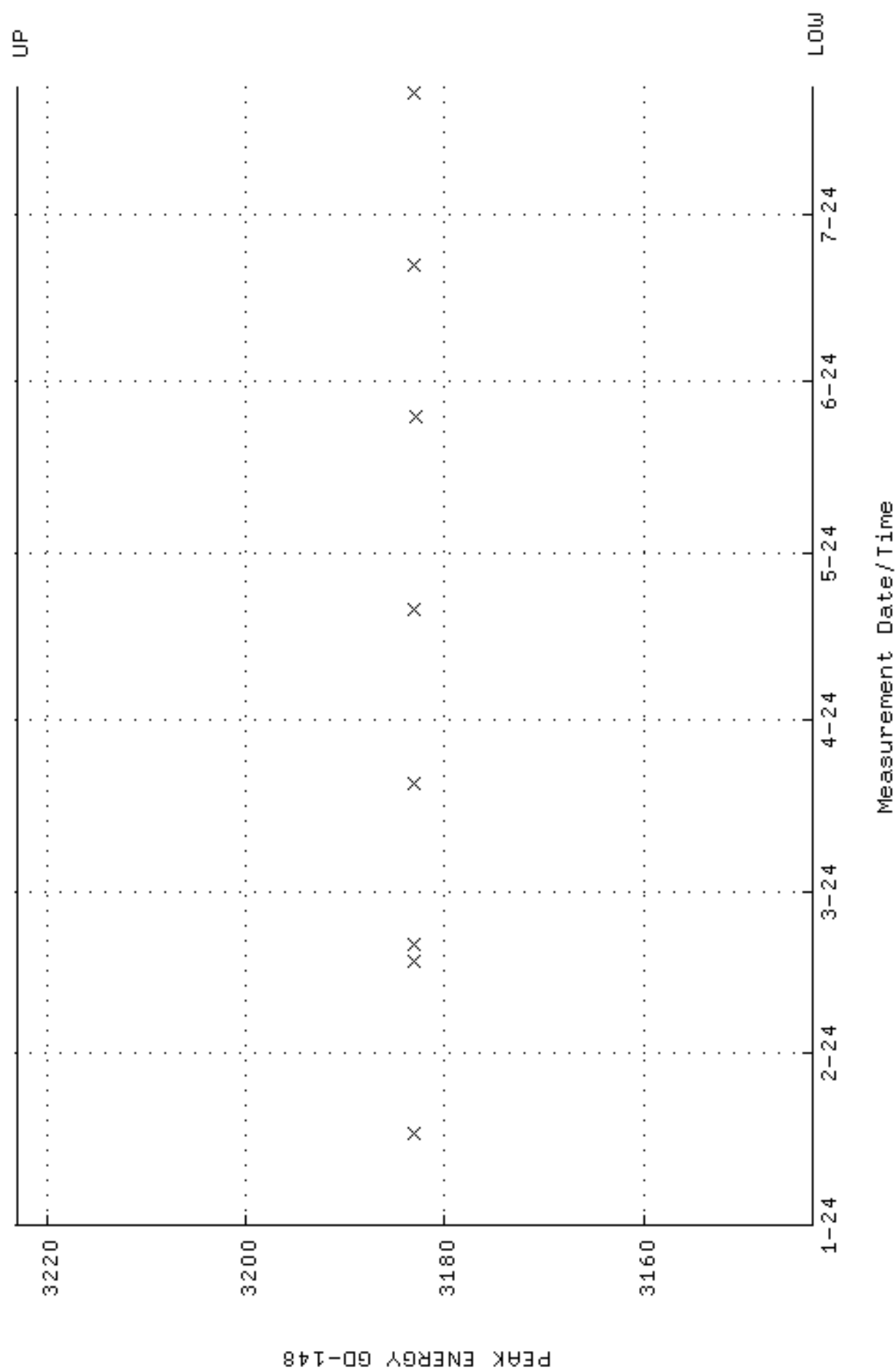
QA filename : DKA100:[ENV_ALPHA.QA.W]W197.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:17:33 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



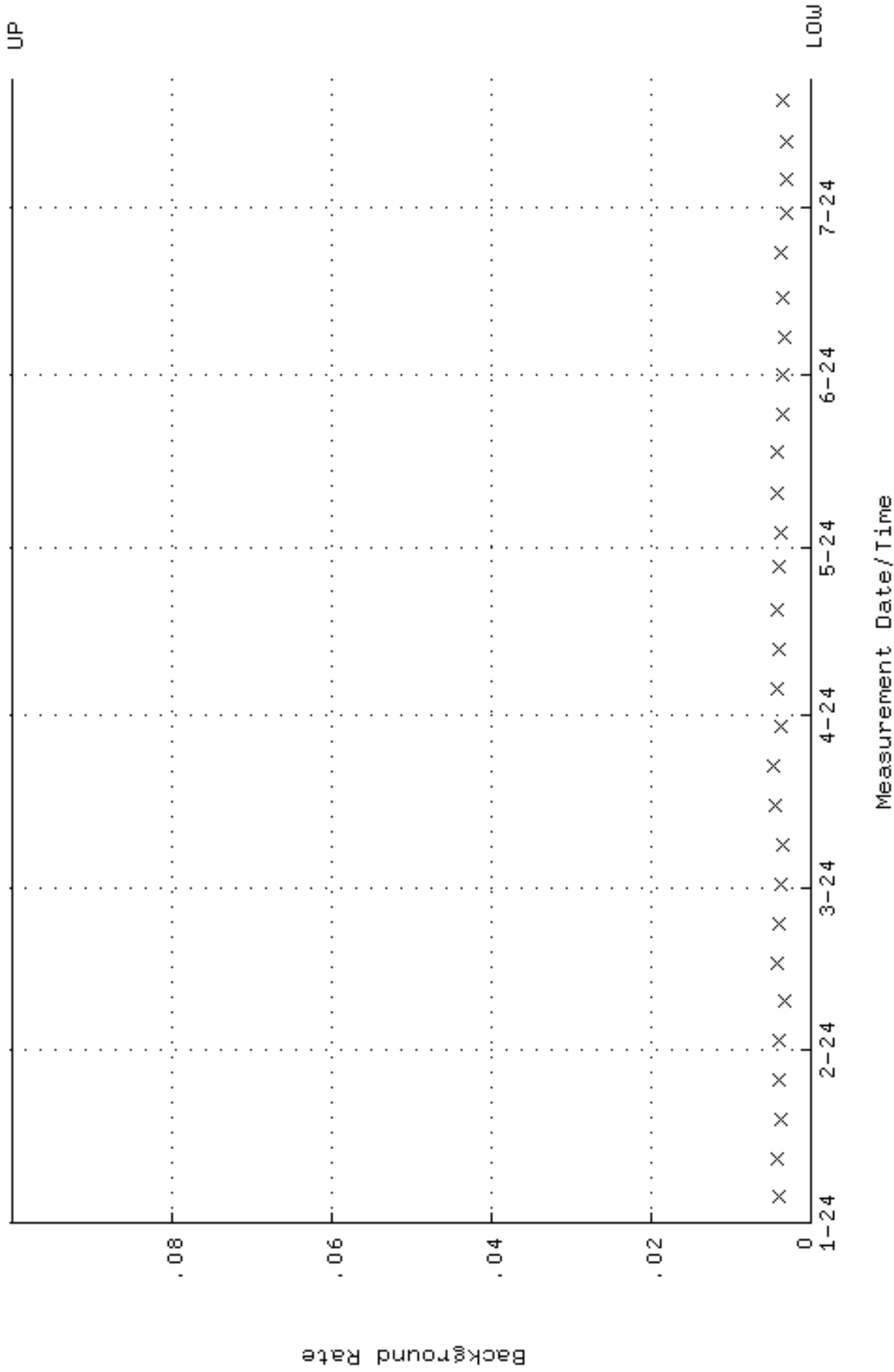
QA filename : DKA100:[ENV_ALPHA.QA.W]W197.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:17:33 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



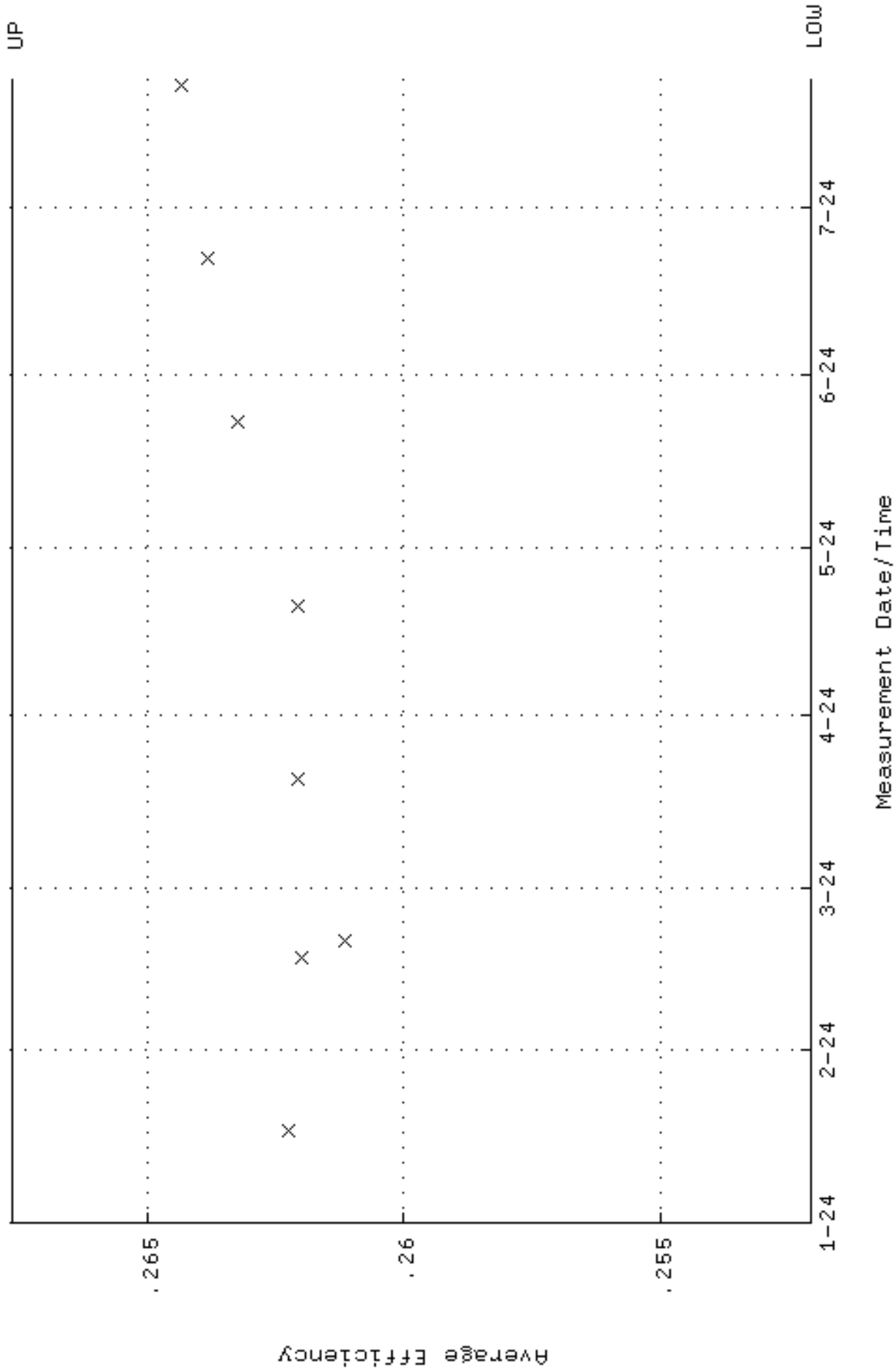
QA filename : DKA100:[ENV_ALPHA.QA.W]W197.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:17:33 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



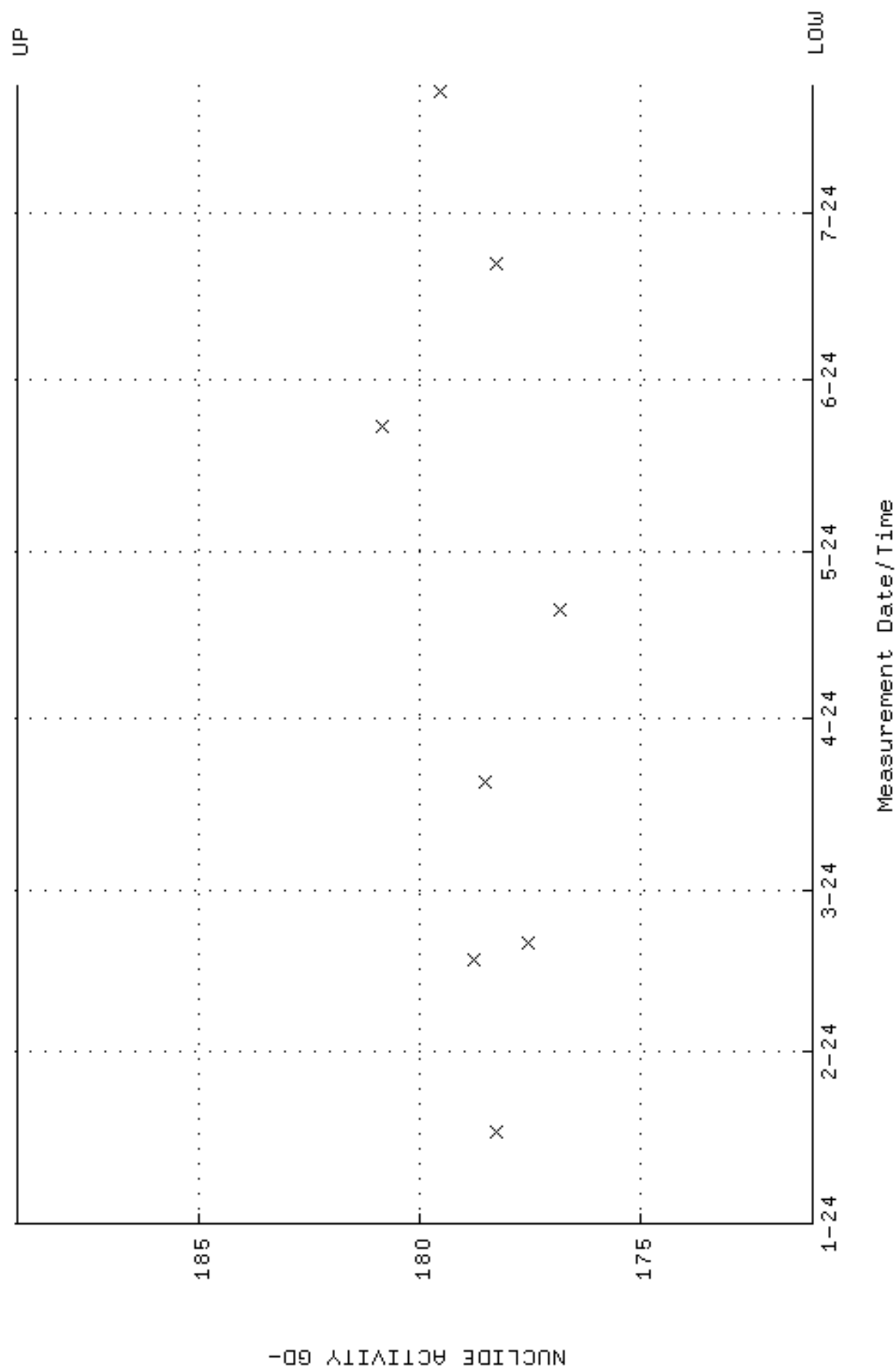
QA filename : DKA100:[ENV_ALPHA.QA.B]B197.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:55:46 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



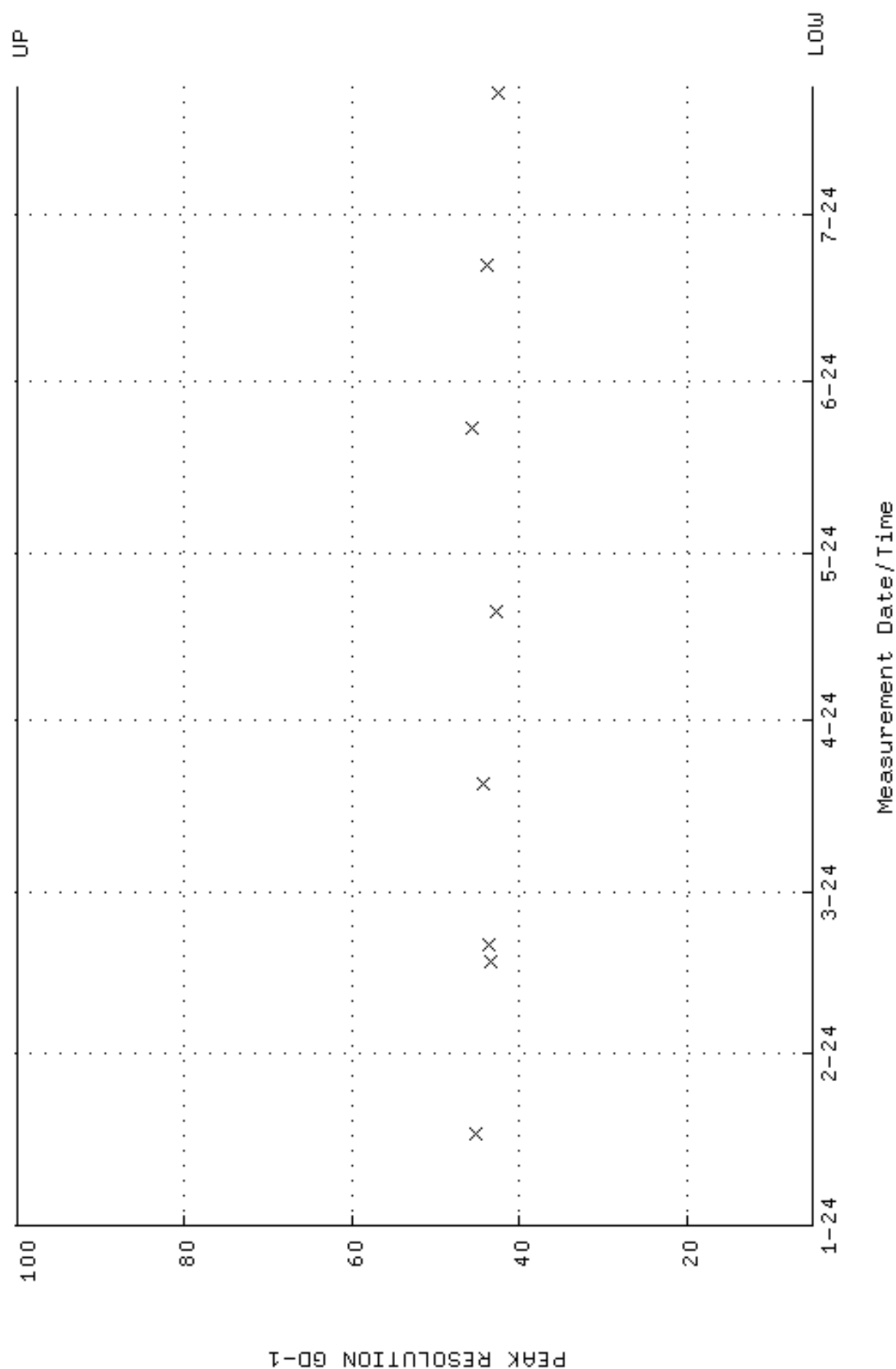
QA filename : DKA100:[ENV_ALPHA.QA.W]W199.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:17:45 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.252050 through 0.267640



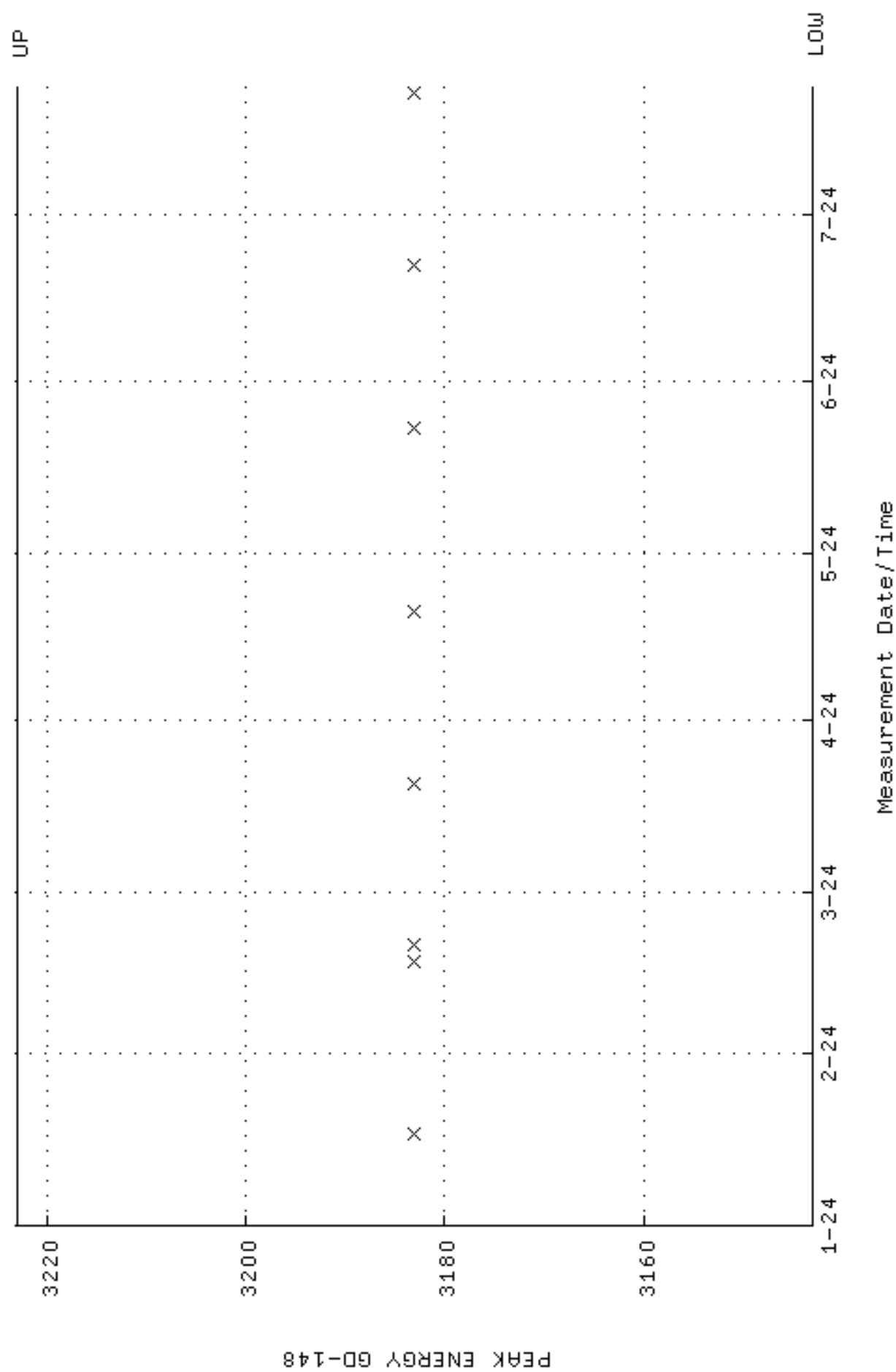
QA filename : DKA100:[ENV_ALPHA.QA.W]W199.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:17:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



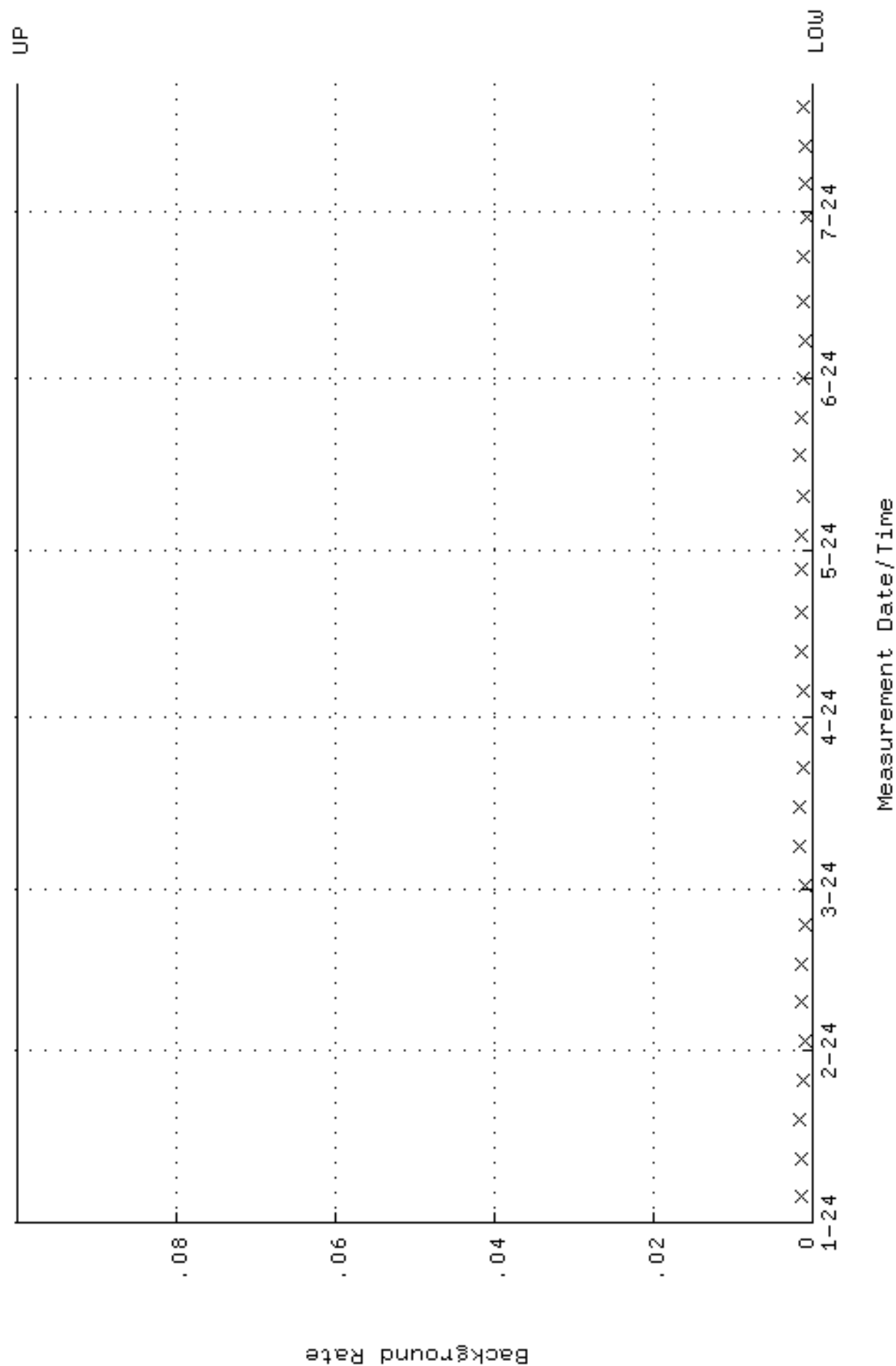
QA filename : DKA100:[ENV_ALPHA.QA.W]W199.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:17:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



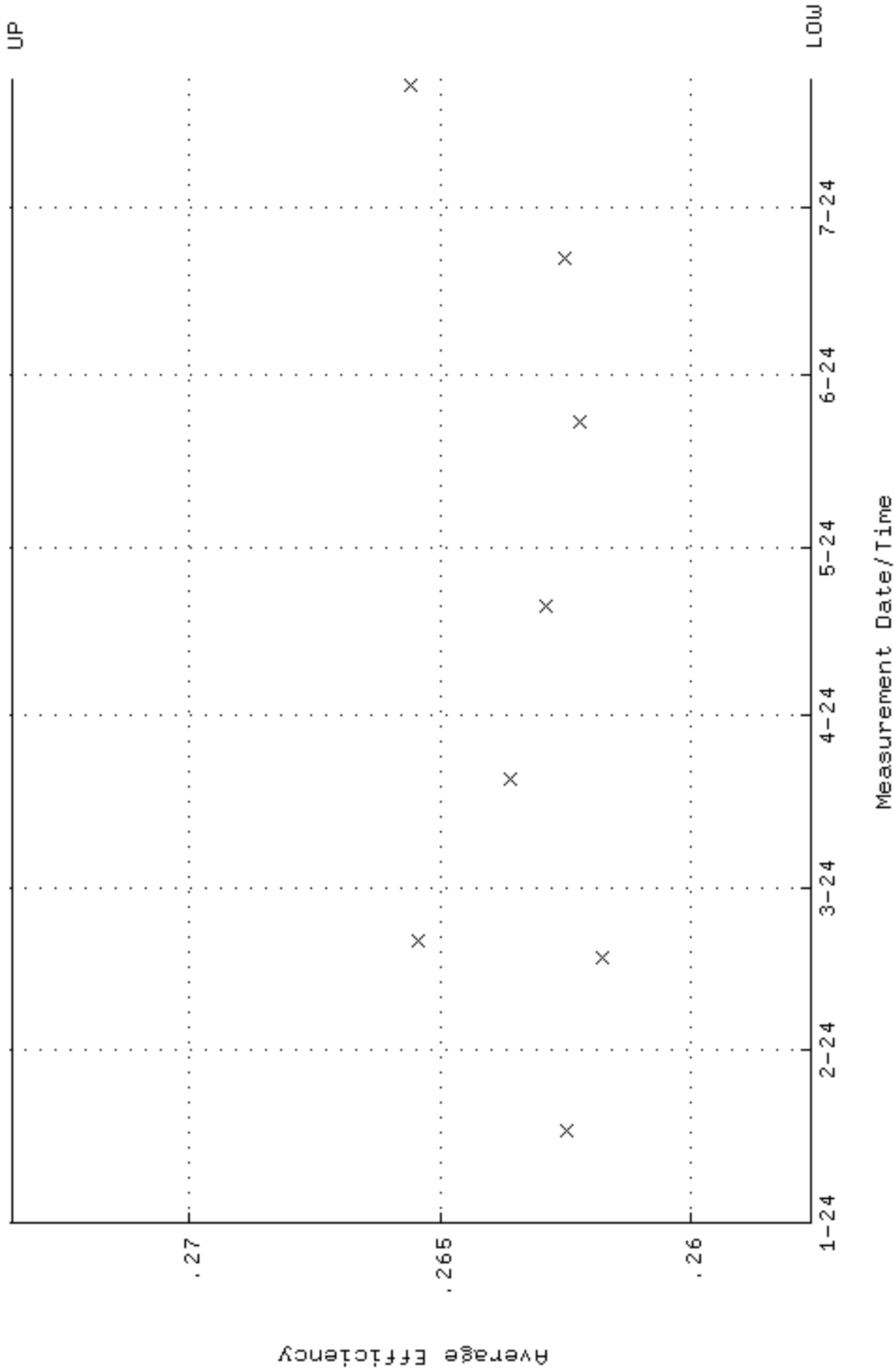
QA filename : DKA100:[ENV_ALPHA.QA.W]W199.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:17:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



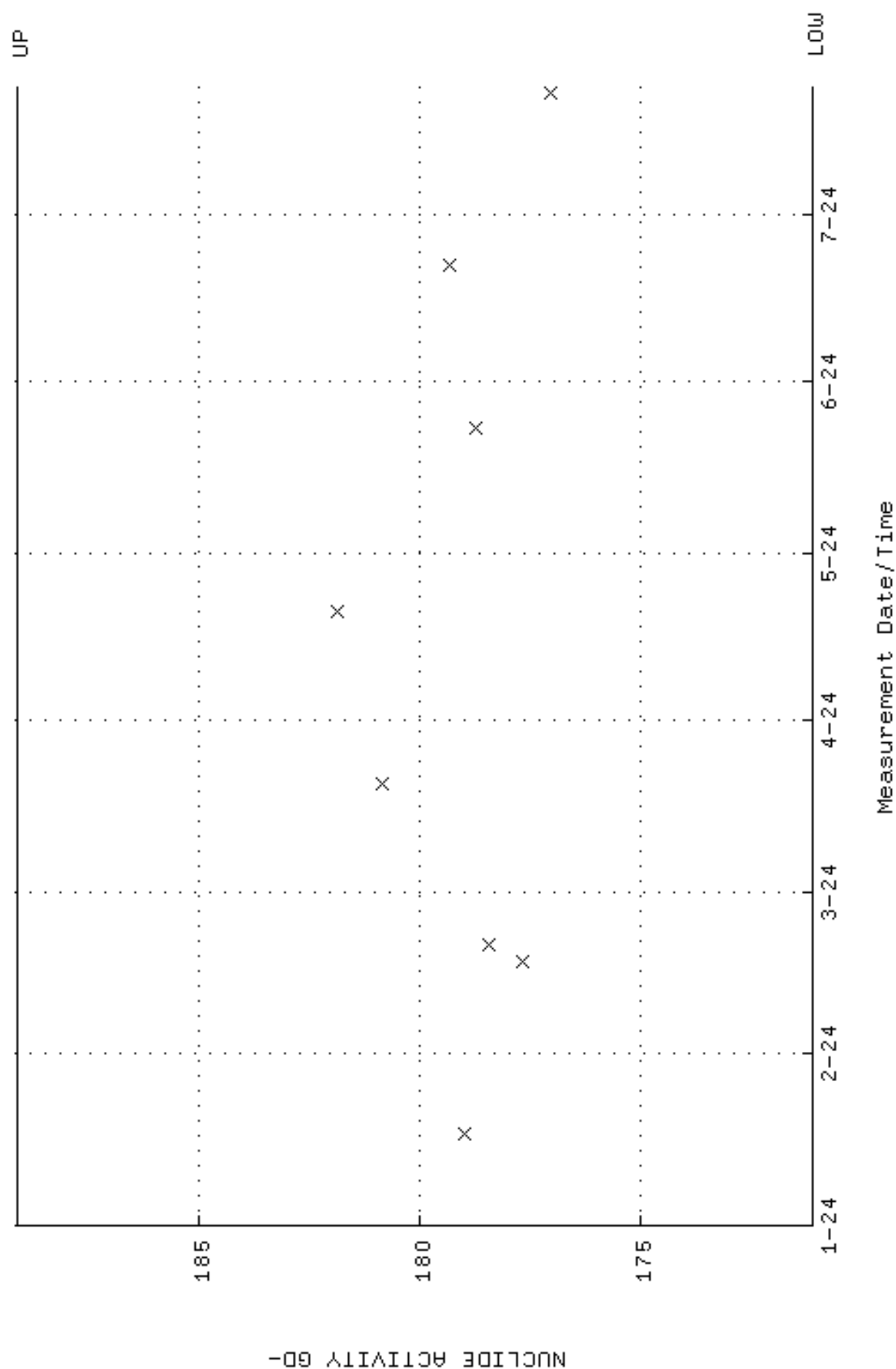
QA filename : DKA100:[ENV_ALPHA.QA.B]B199.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:55:49 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



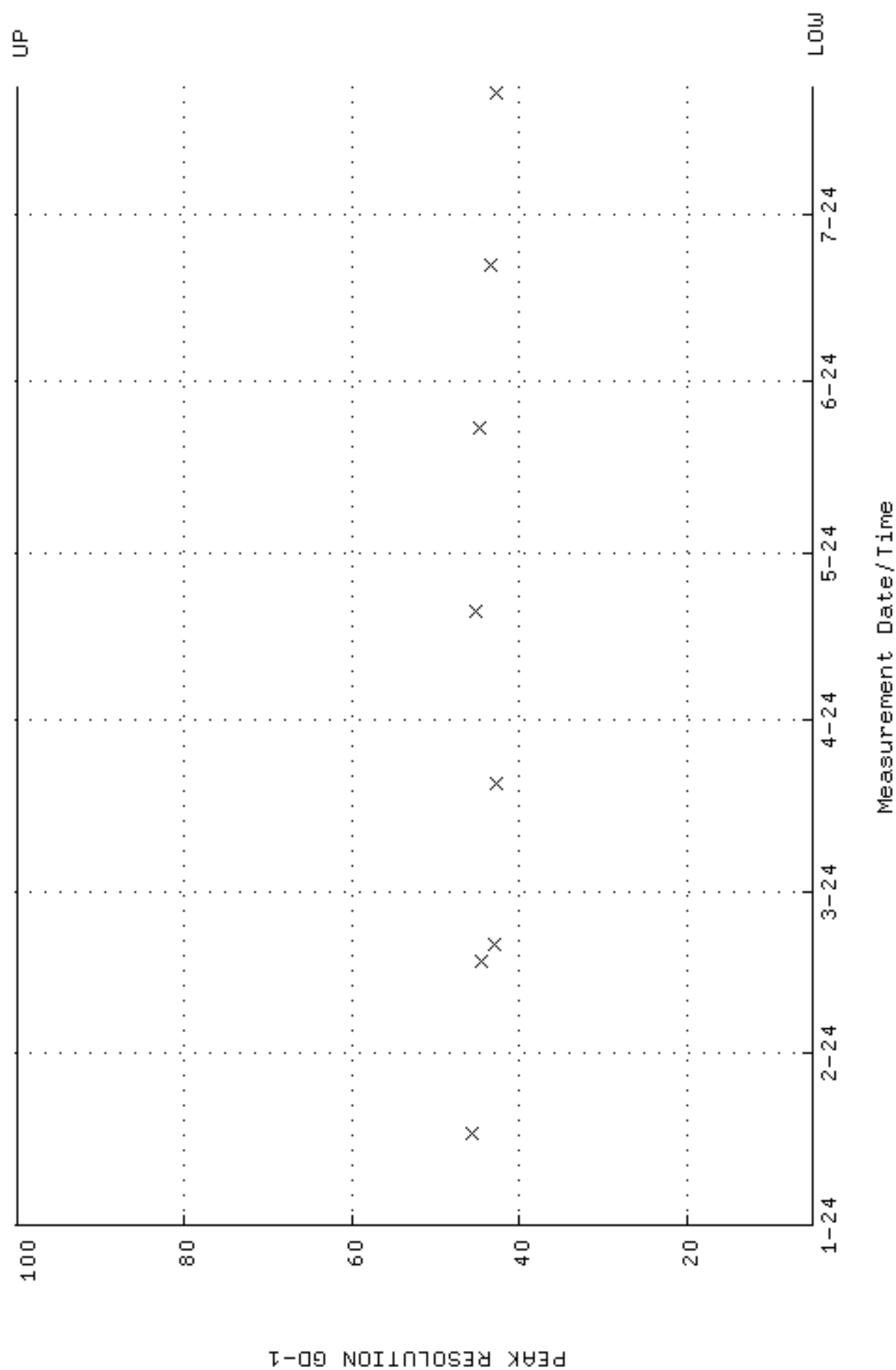
QA filename : DKA100:[ENV_ALPHA.QA.W]W200.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:23:45 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.257600 through 0.273540



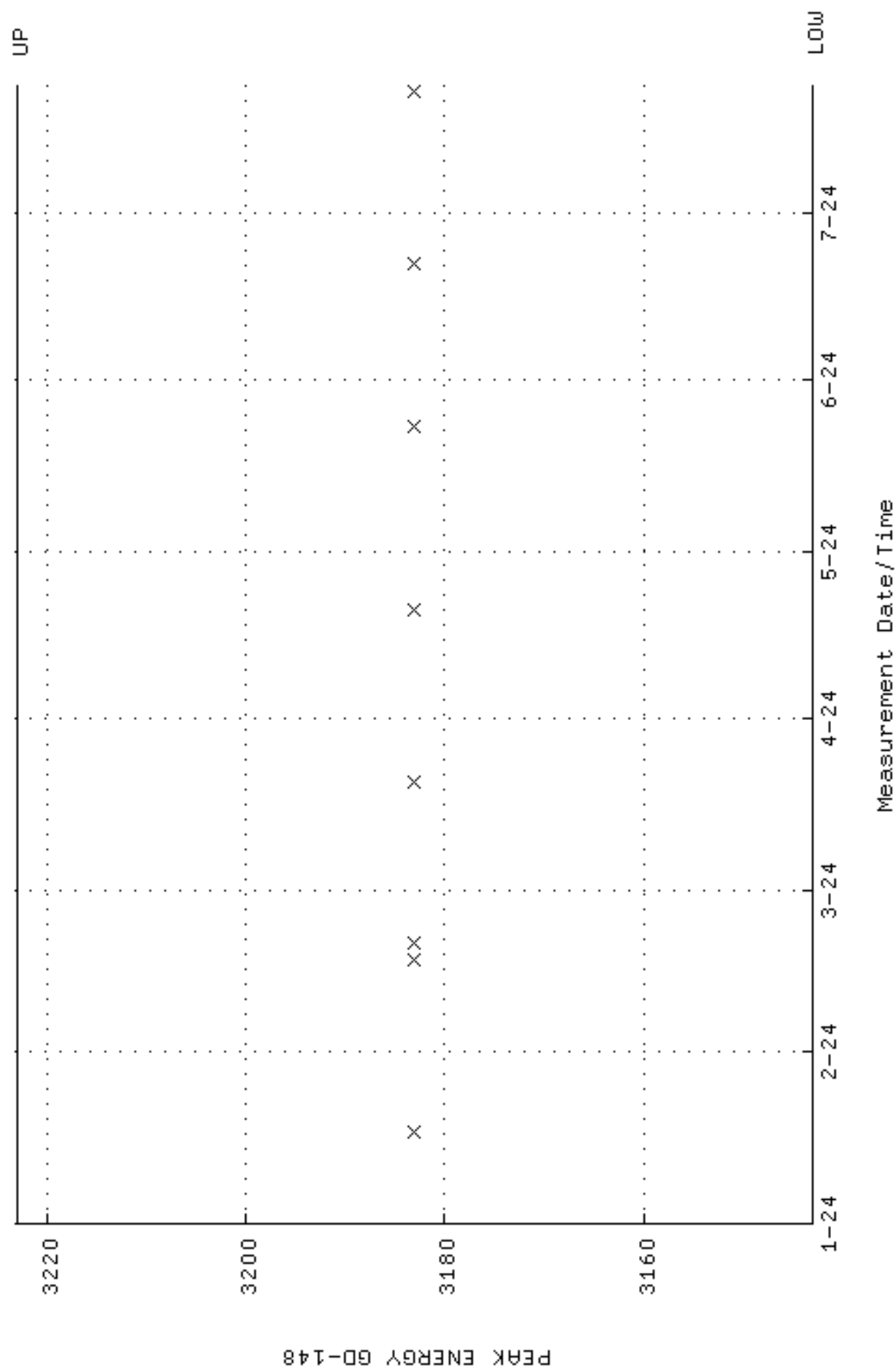
QA filename : DKA100:[ENV_ALPHA.QA.W]W200.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:23:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



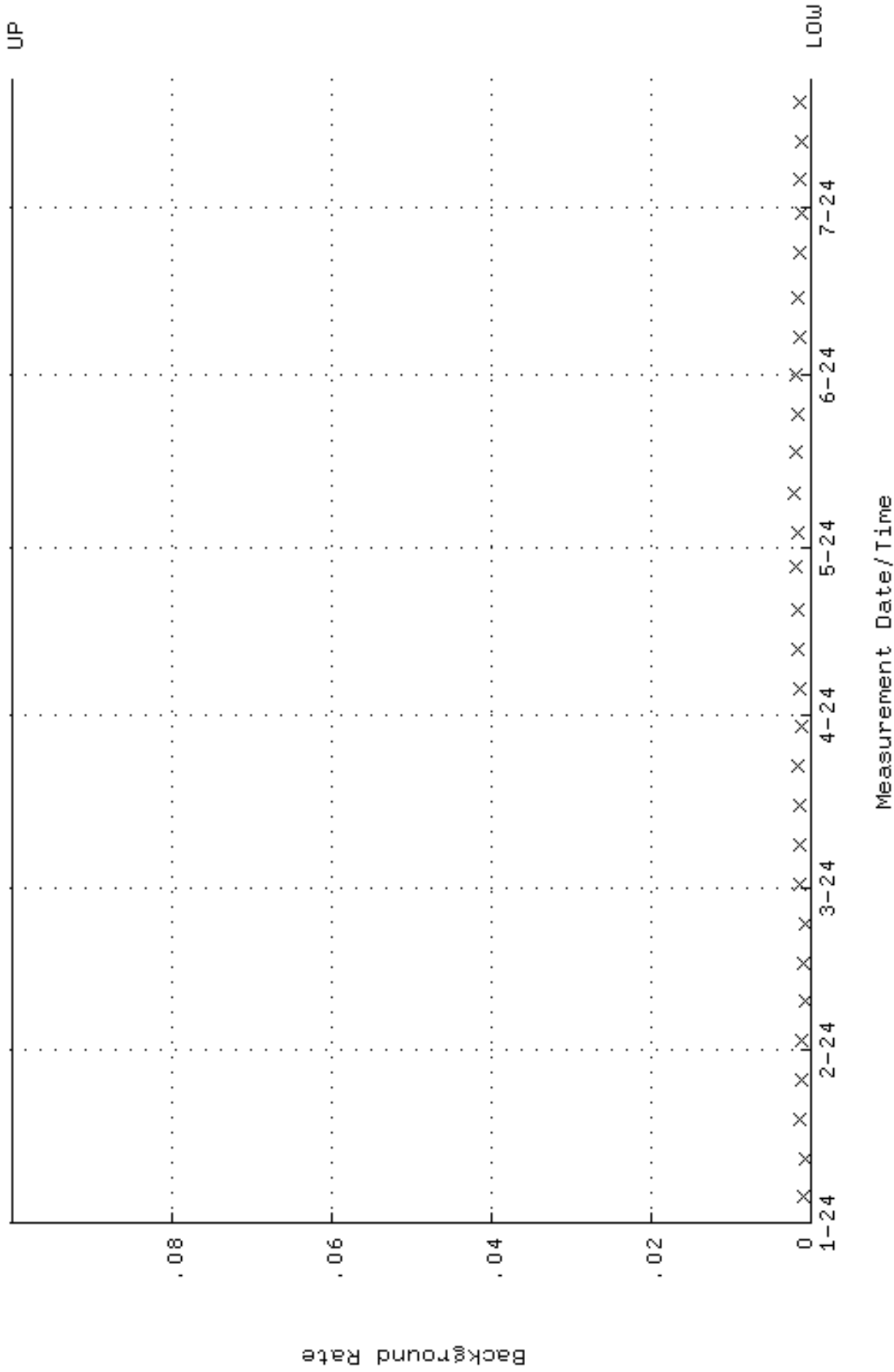
QA filename : DKA100:[ENV_ALPHA.QA.W]W200.QAF;4
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:23:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



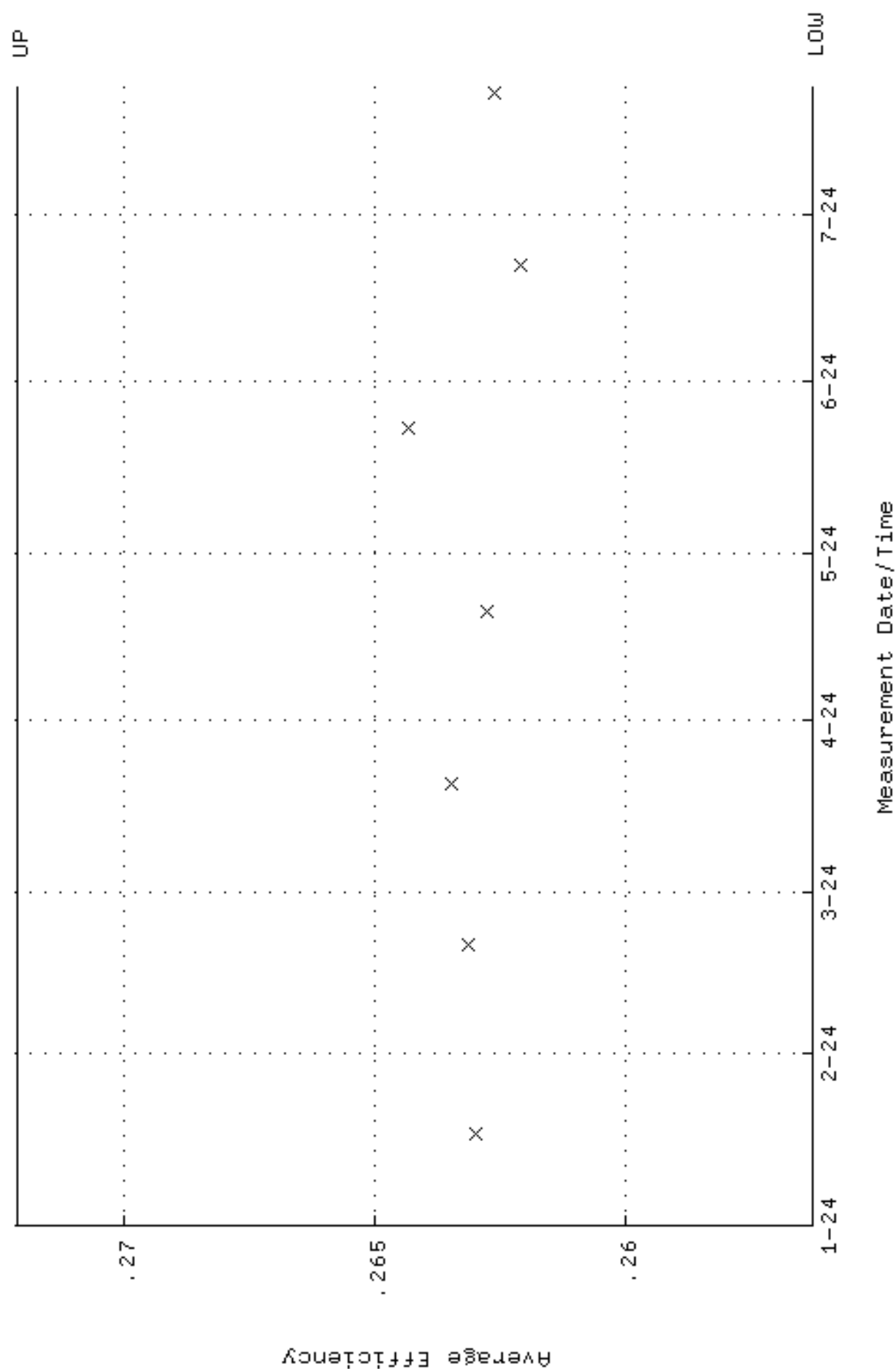
QA filename : DKA100:[ENV_ALPHA.QA.W]W200.QAF;4
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:23:45 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



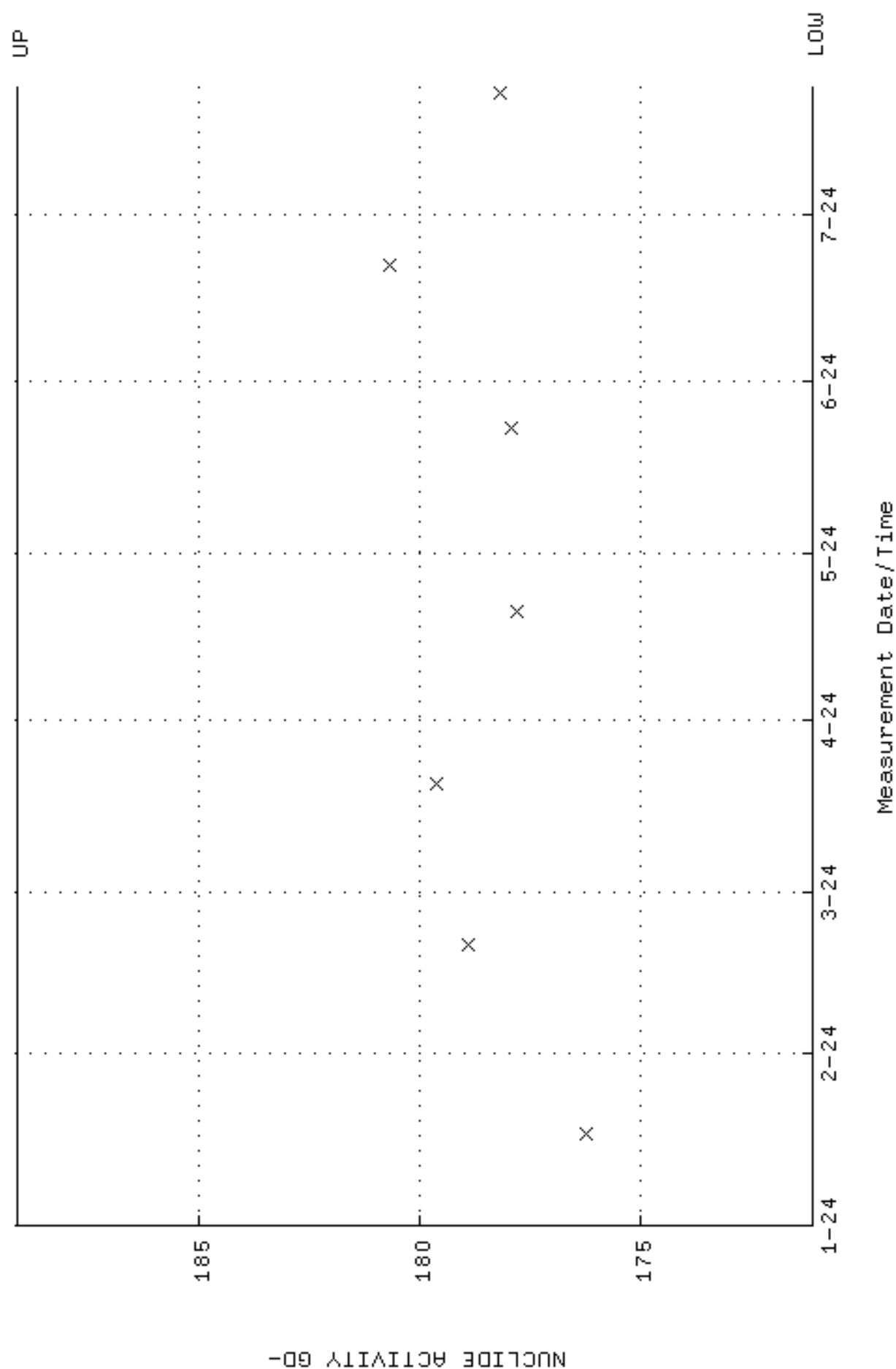
QA filename : DKA100:[ENV_ALPHA.QA.B]B200.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:55:53 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



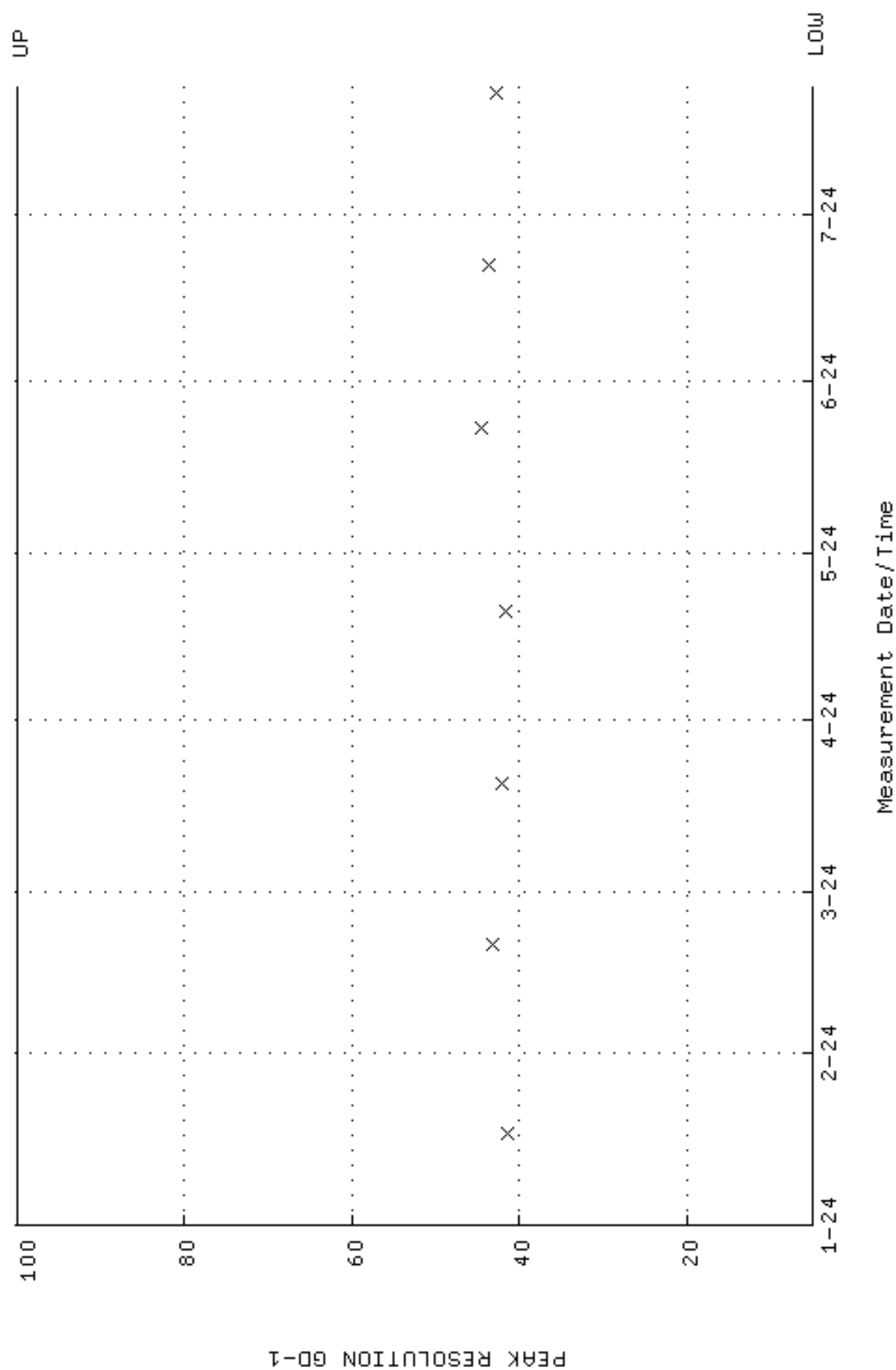
QA filename : DKA100:[ENV_ALPHA.QA.W]W203.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 17-JAN-2024 08:35:30 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.256270 through 0.272120



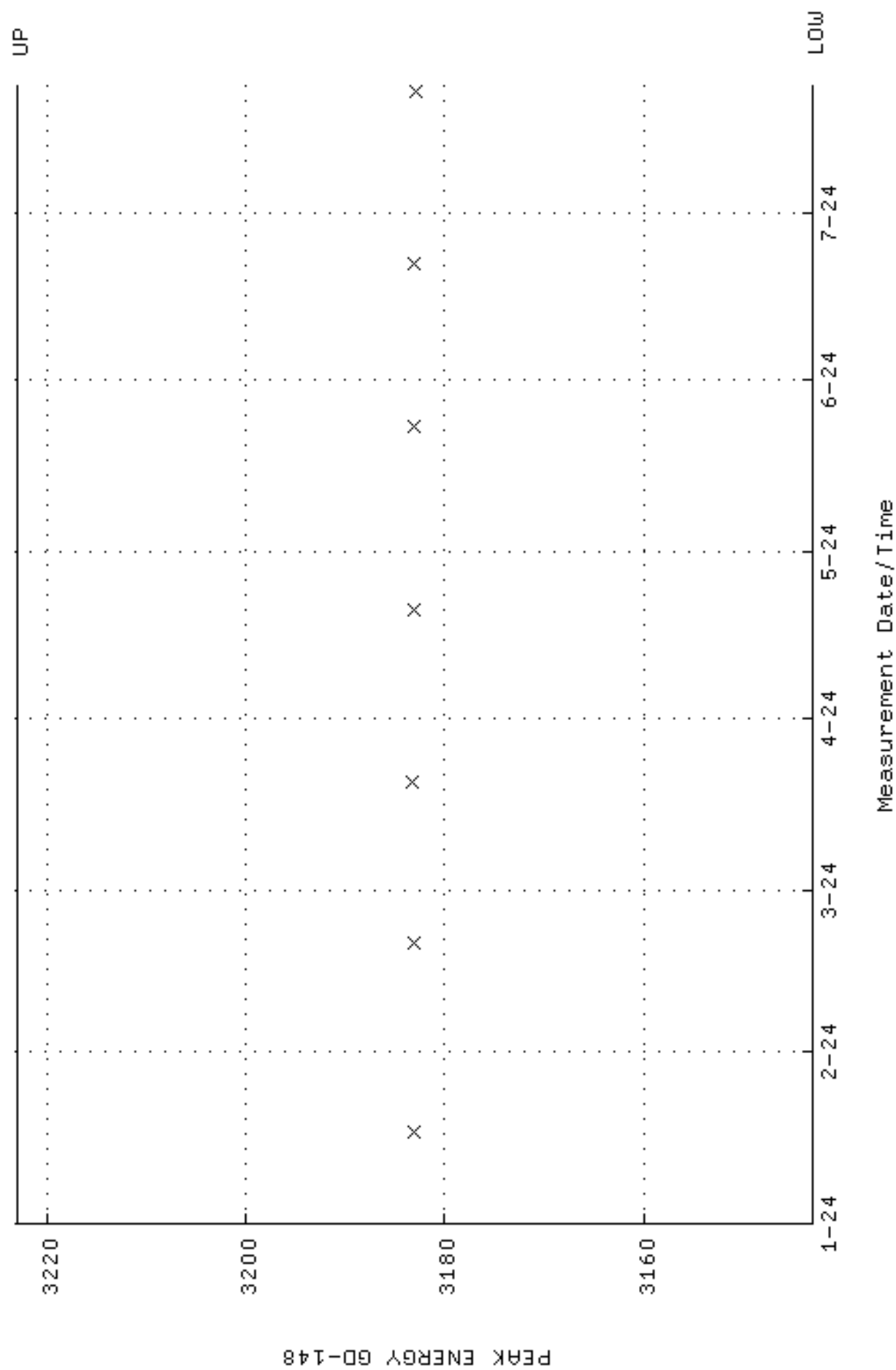
QA filename : DKA100:[ENV_ALPHA.QA.W]W203.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 08:35:30 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



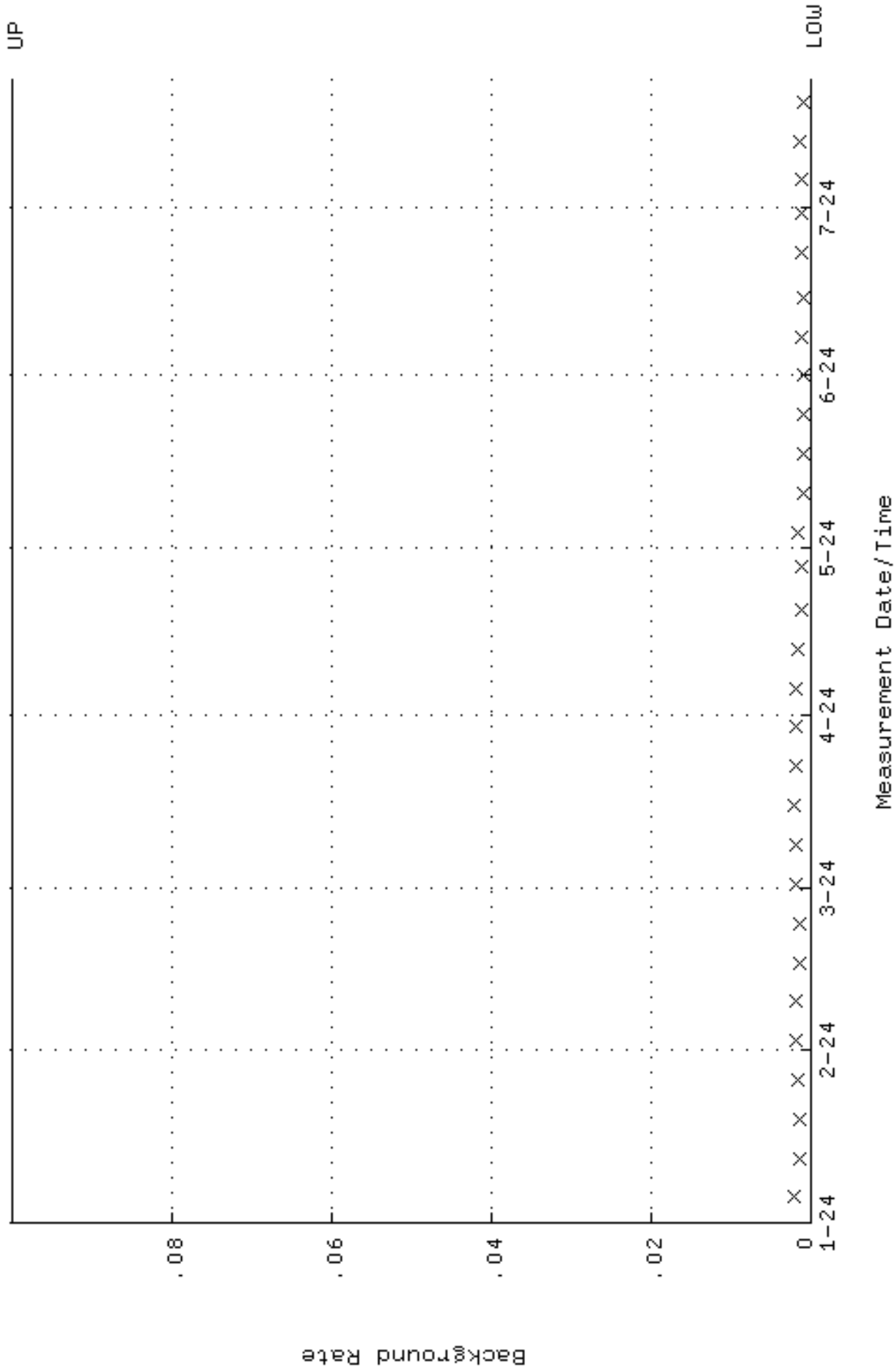
QA filename : DKA100:[ENV_ALPHA.QA.W]W203.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 08:35:30 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



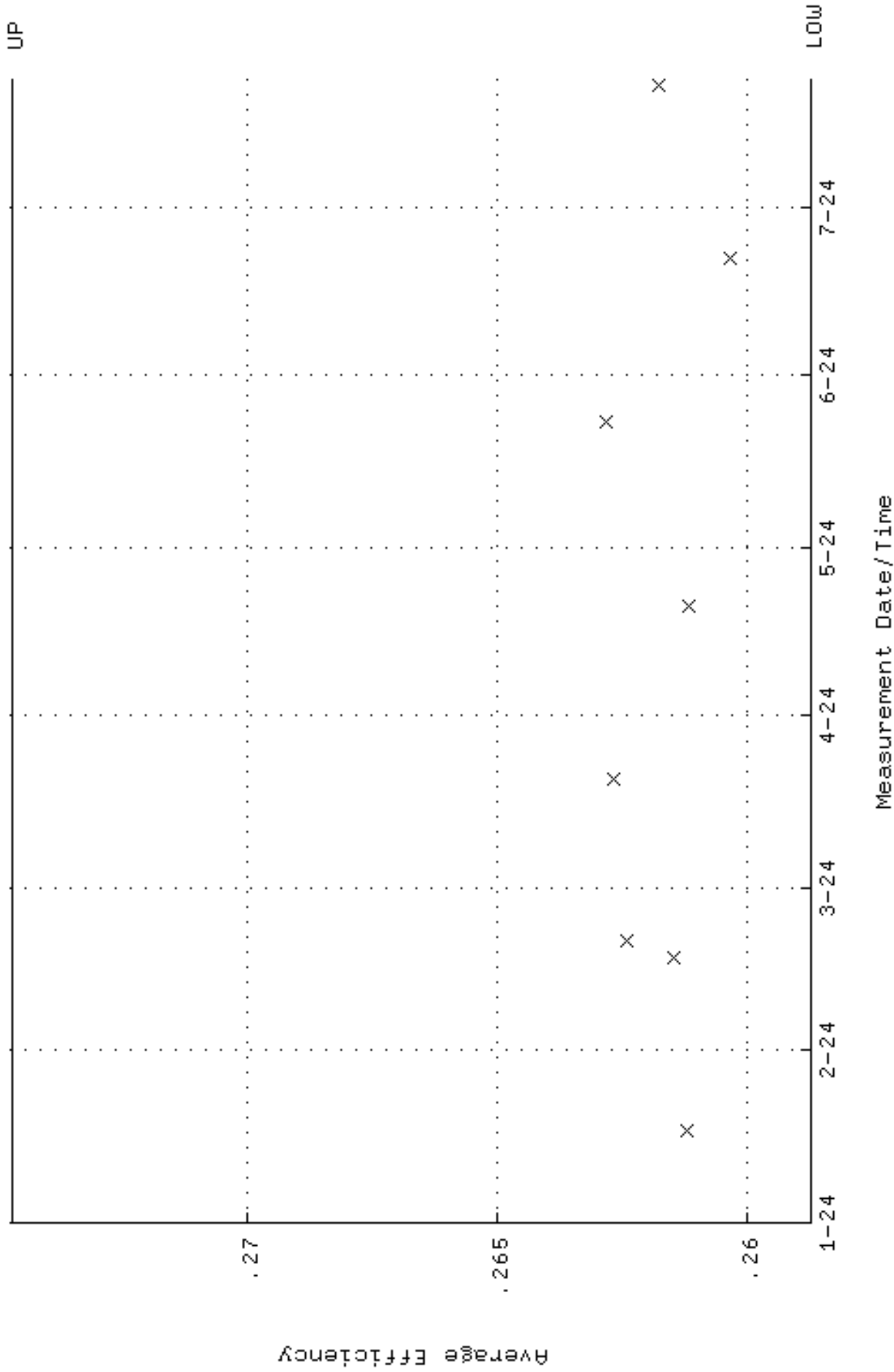
QA filename : DKA100:[ENV_ALPHA.QA.W]W203.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 08:35:30 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



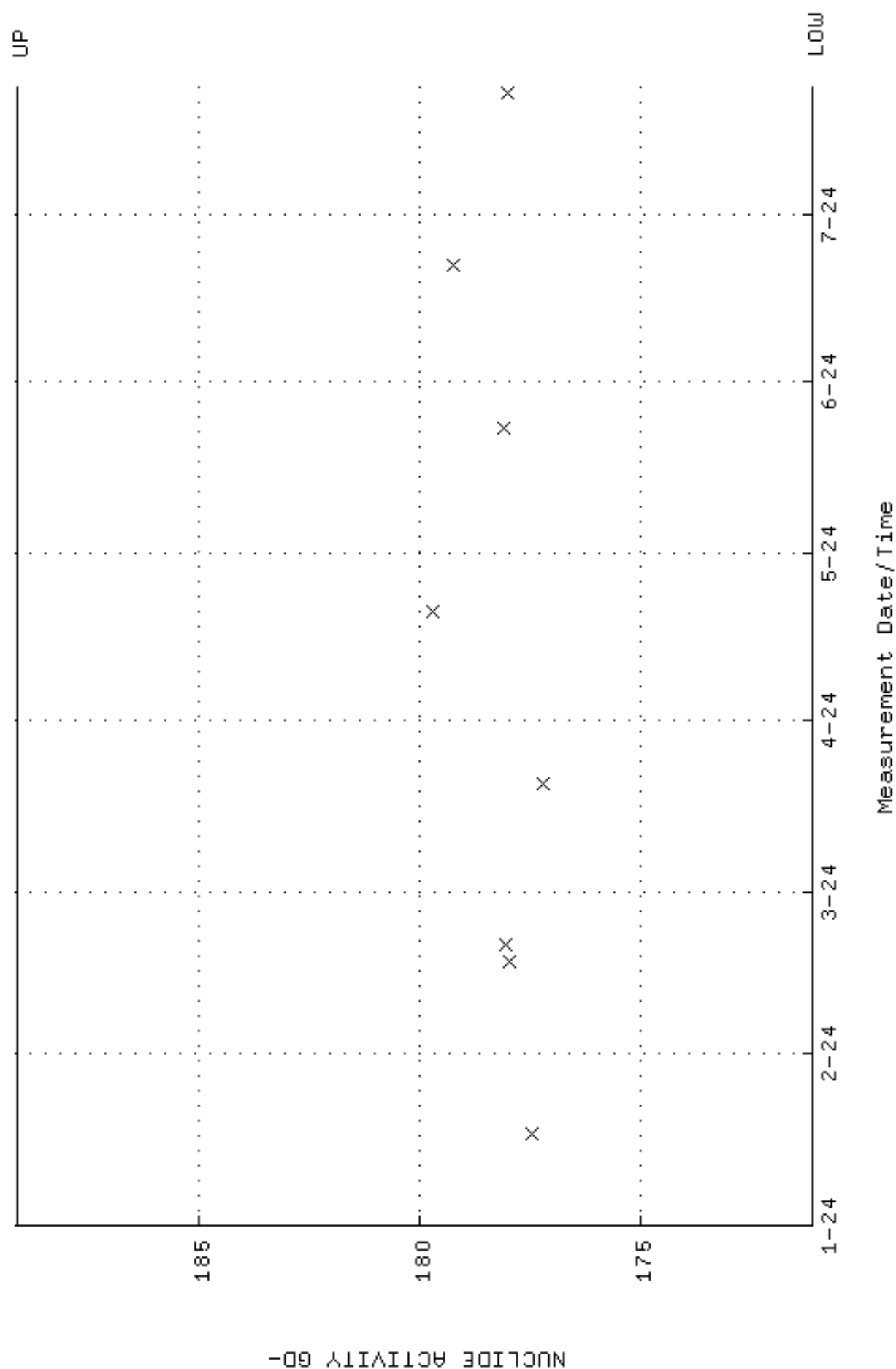
QA filename : DKA100:[ENV_ALPHA.QA.B]B203.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:56:04 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



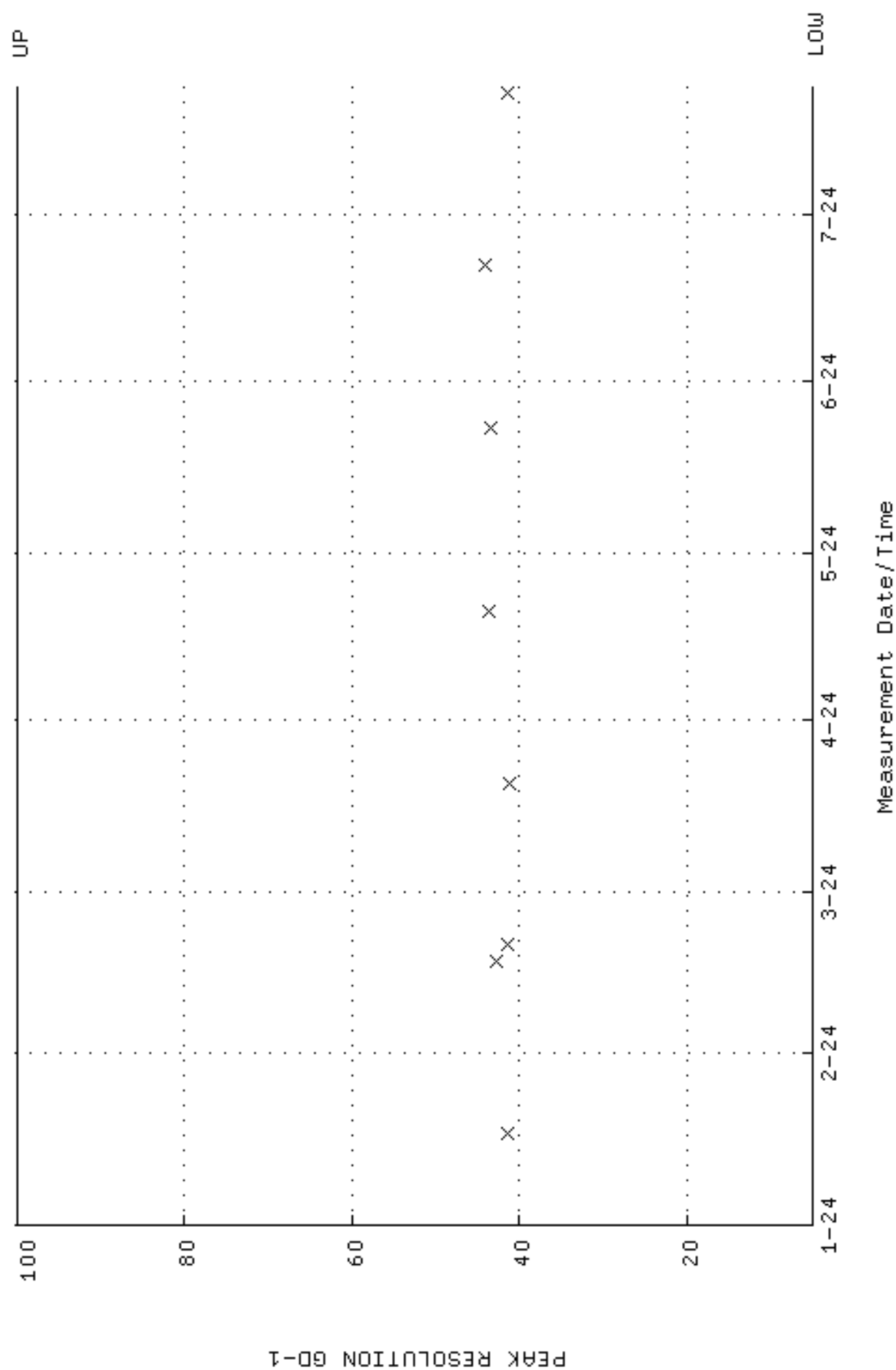
QA filename : DKA100:[ENV_ALPHA.QA.W]W205.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:03:17 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.258720 through 0.274720



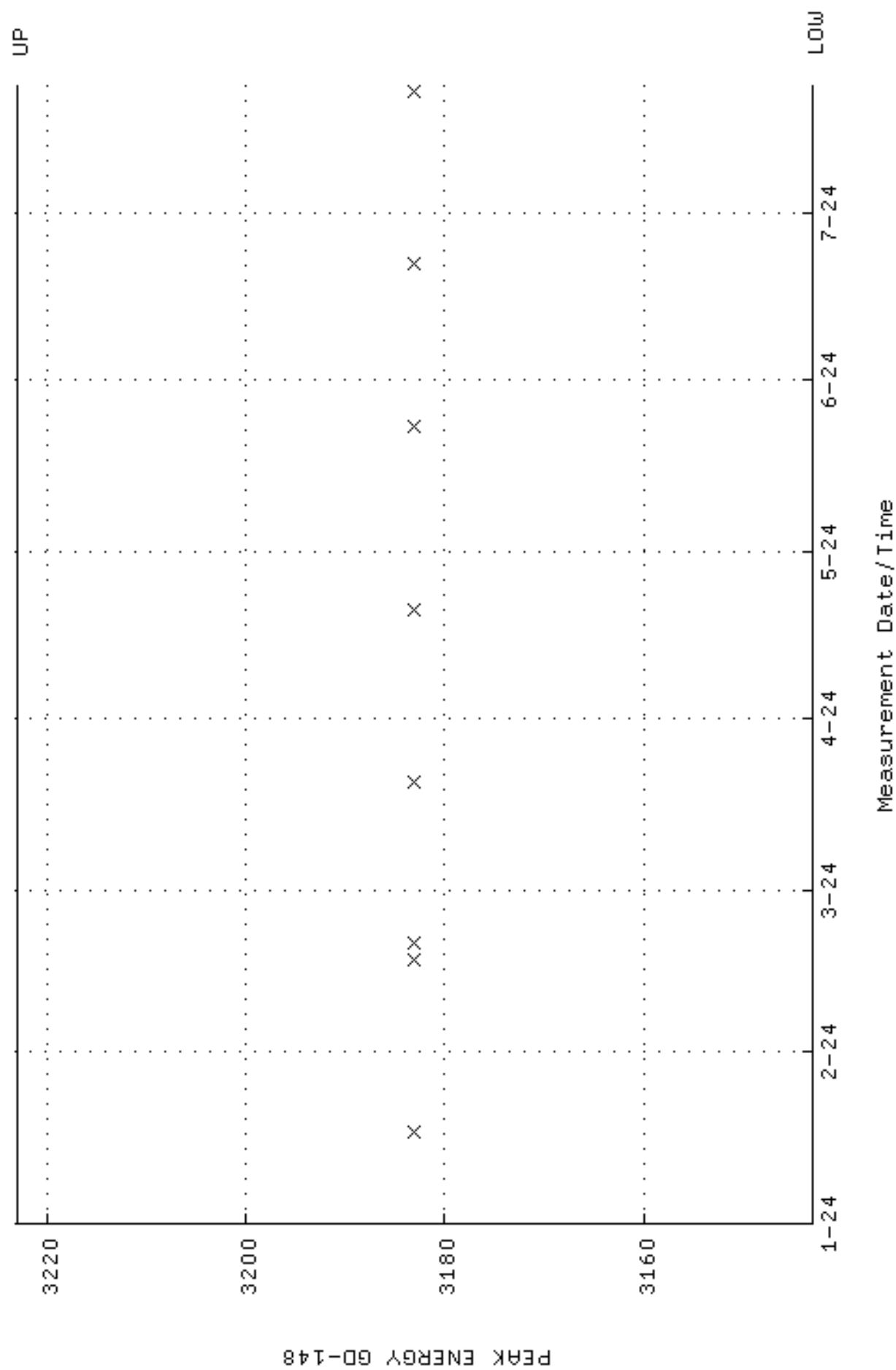
QA filename : DKA100:[ENV_ALPHA.QA.W]W205.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:03:17 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



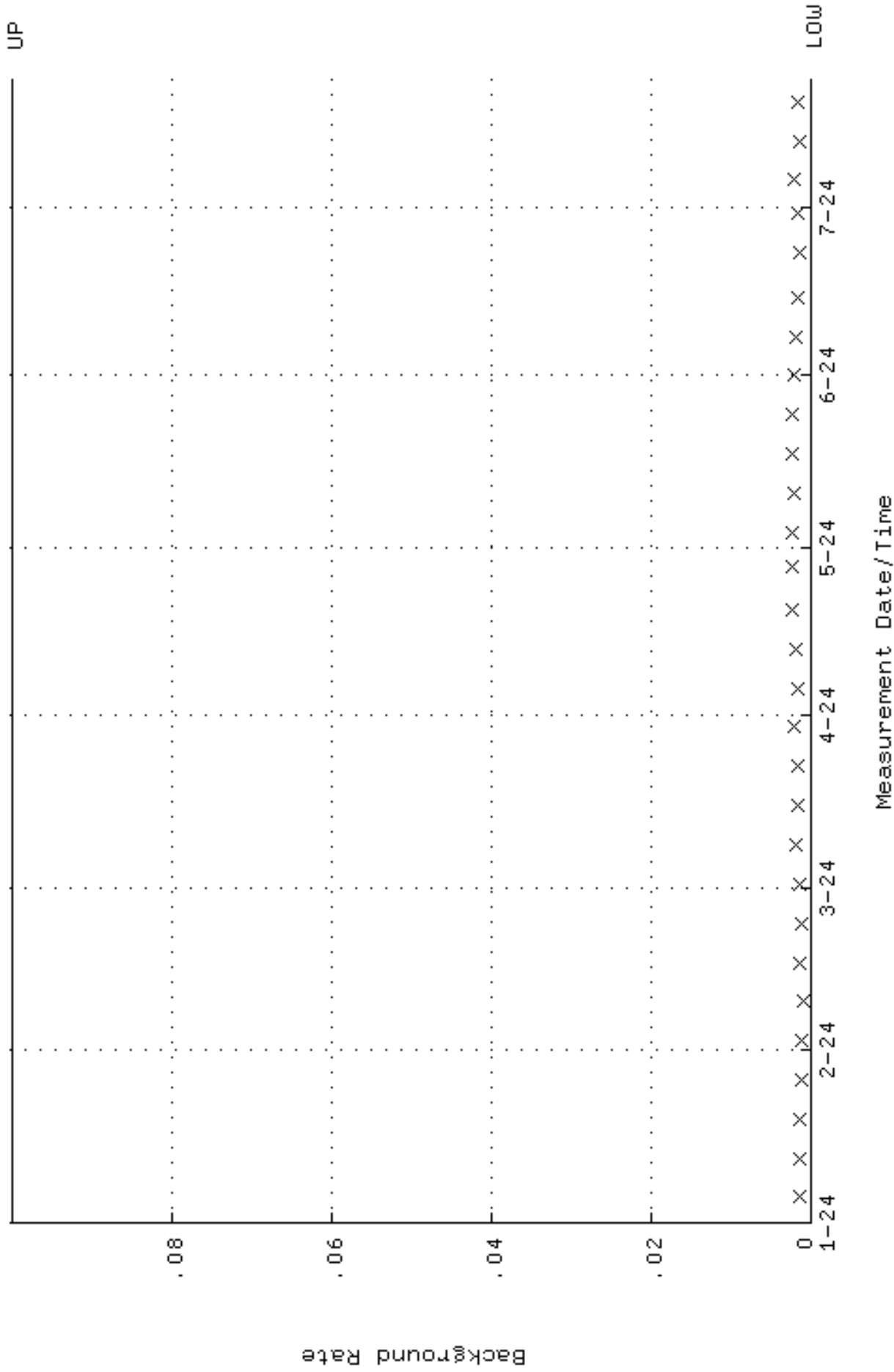
QA filename : DKA100:[ENV_ALPHA.QA.W]W205.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:03:17 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



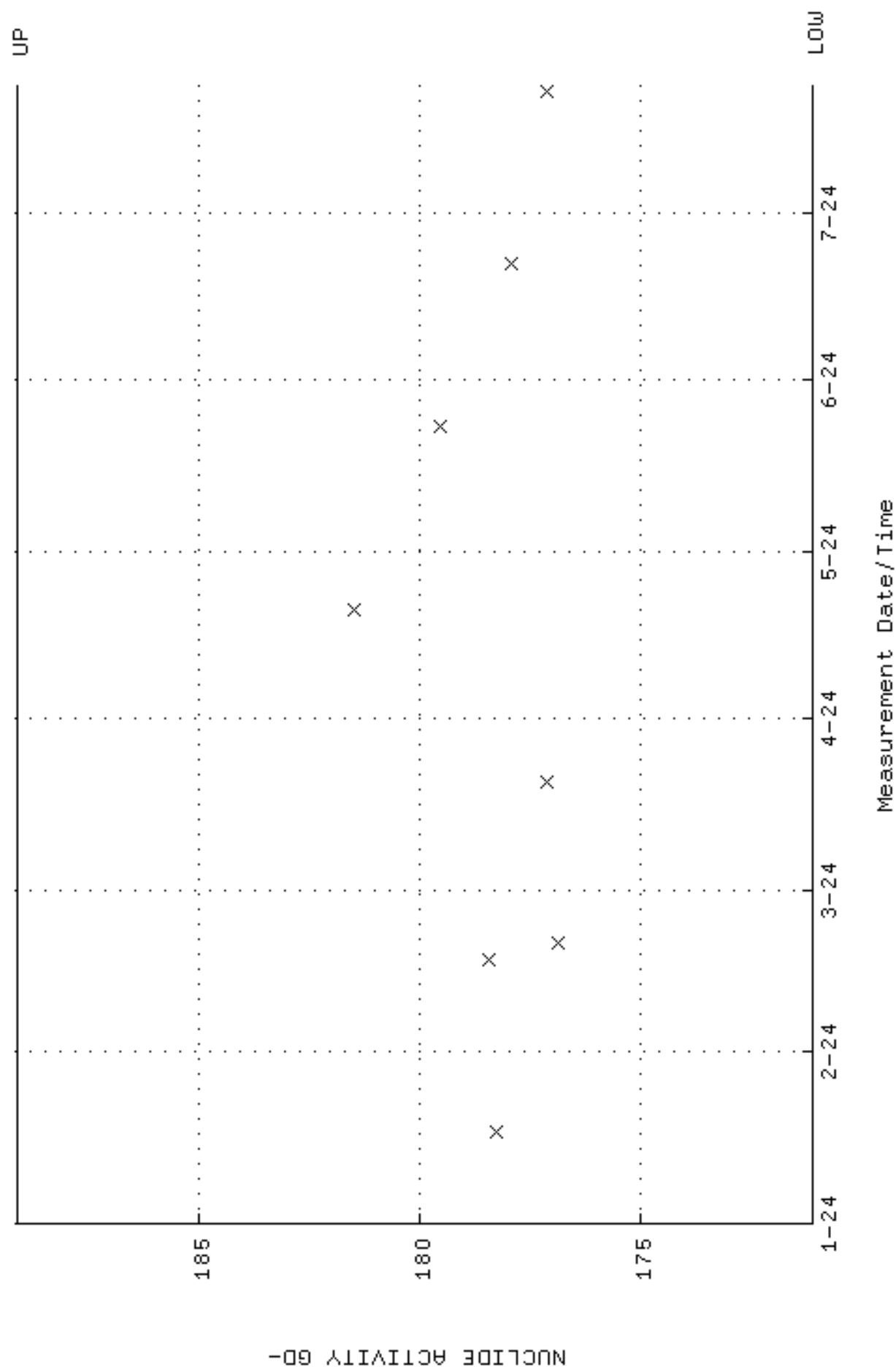
QA filename : DKA100:[ENV_ALPHA.QA.W]W205.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:03:17 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



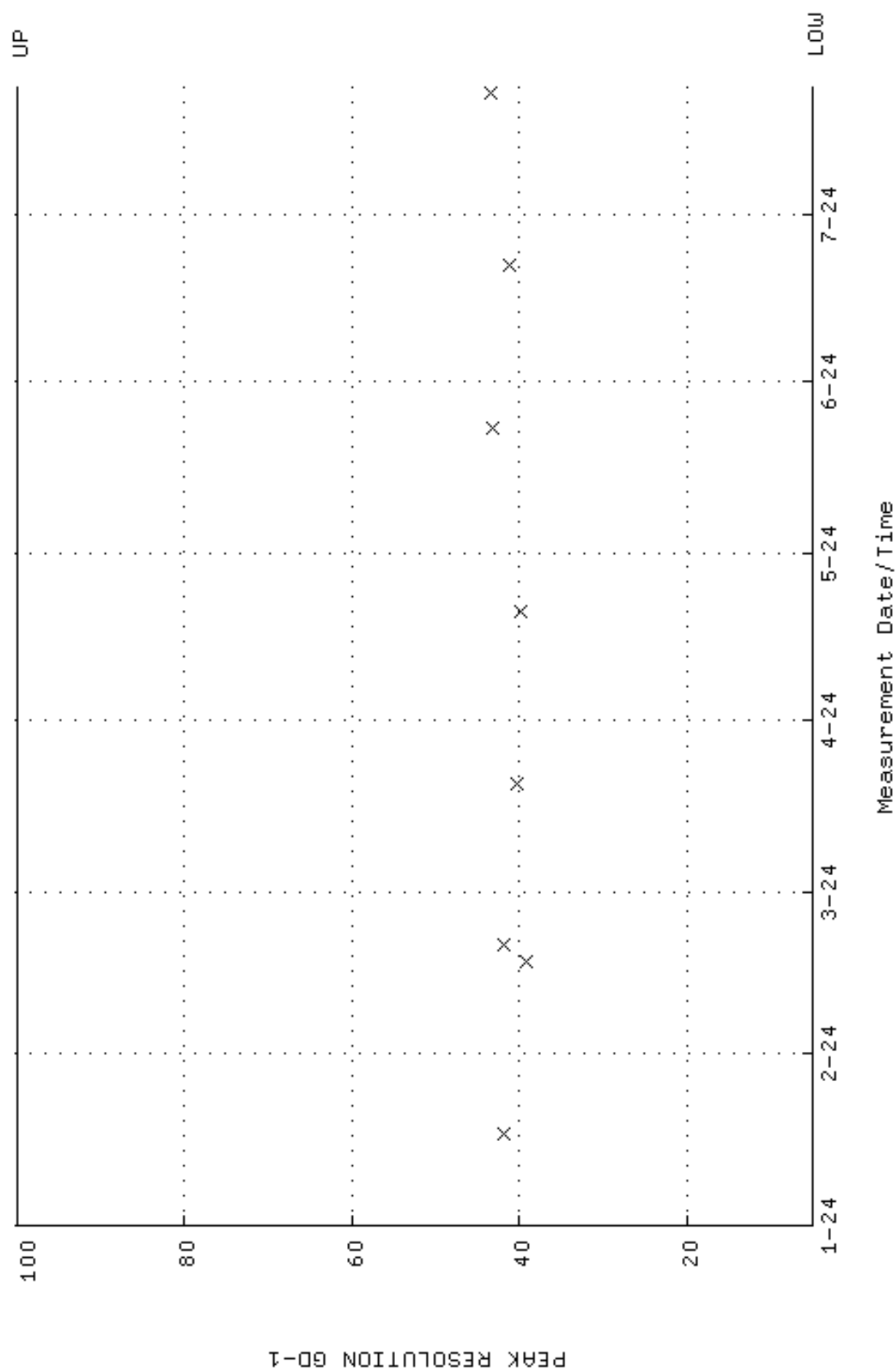
QA filename : DKA100:[ENV_ALPHA.QA.B]B205.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:56:13 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



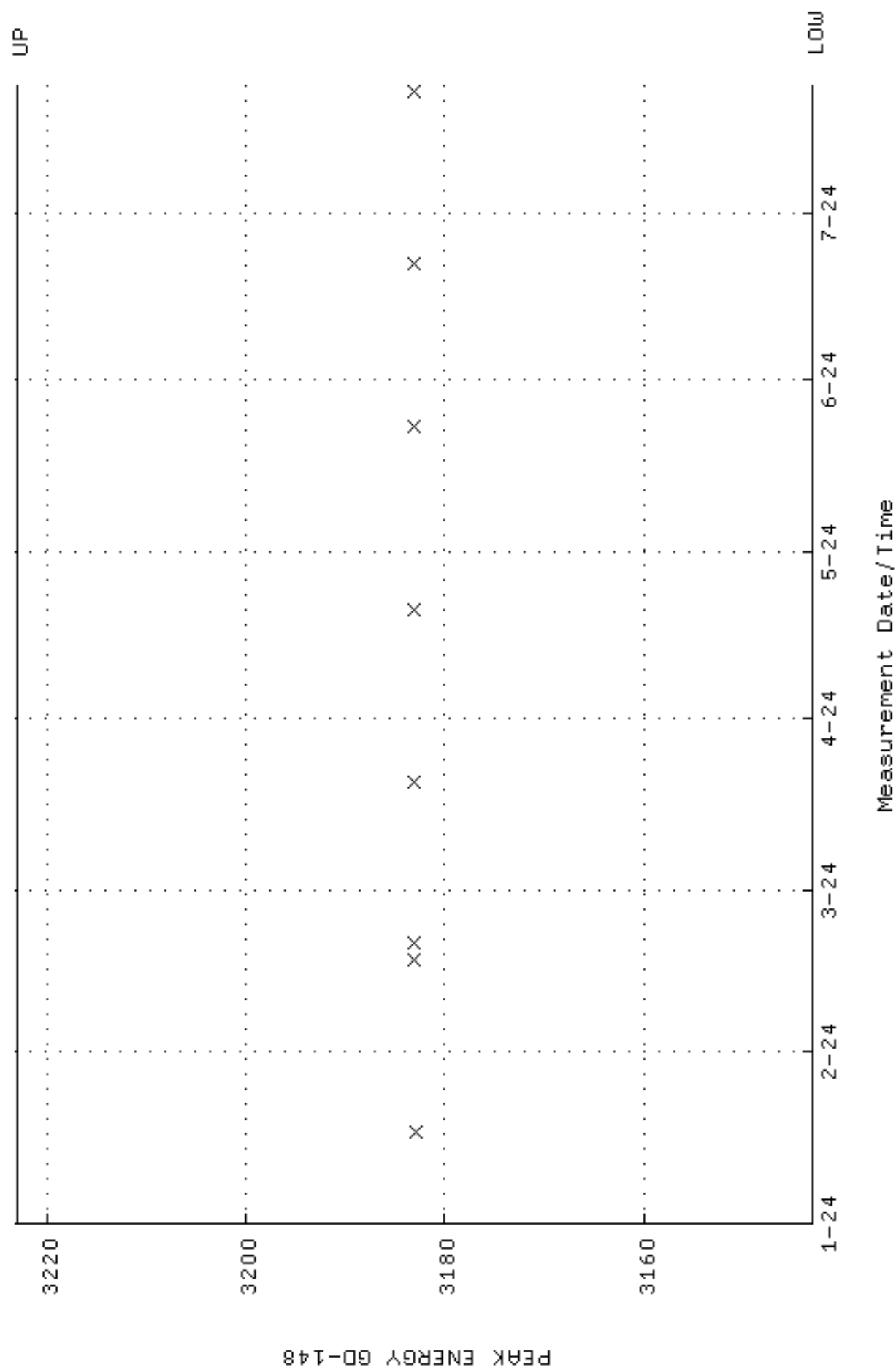
QA filename : DKA100:[ENV_ALPHA.QA.W]W206.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:10:14 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



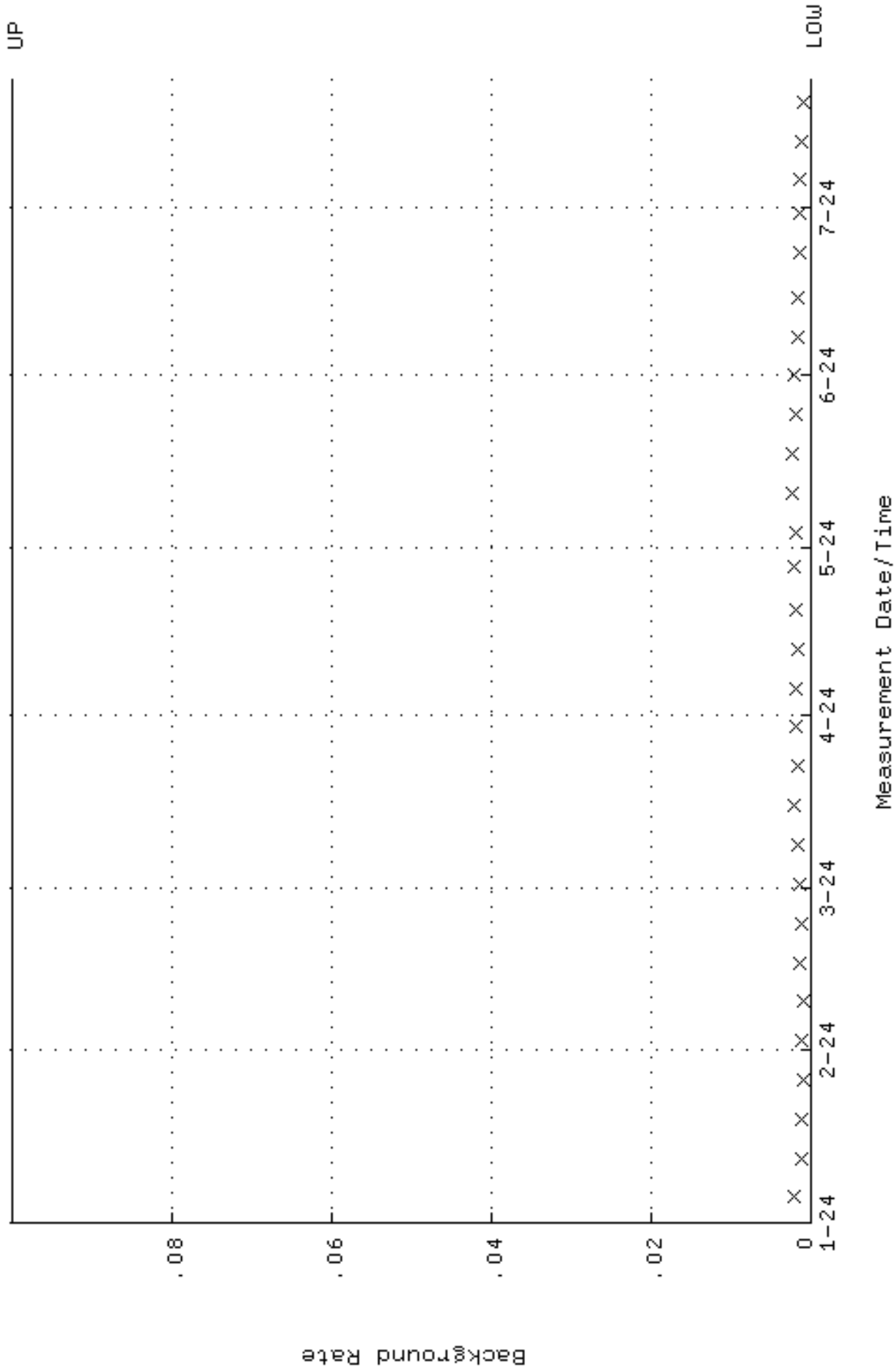
QA filename : DKA100:[ENV_ALPHA.QA.W]W206.QAF;4
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:10:14 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



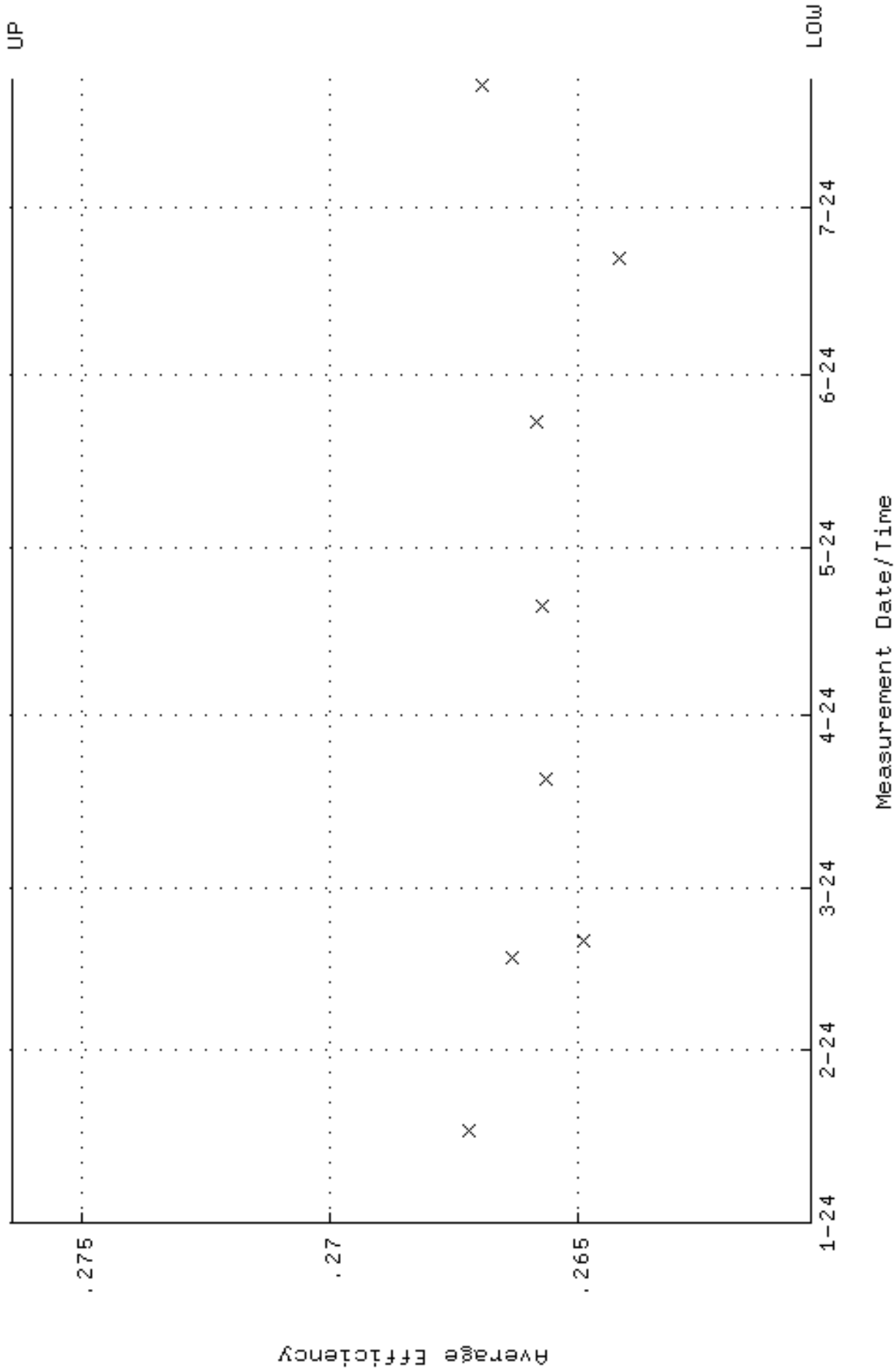
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 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:10:14 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



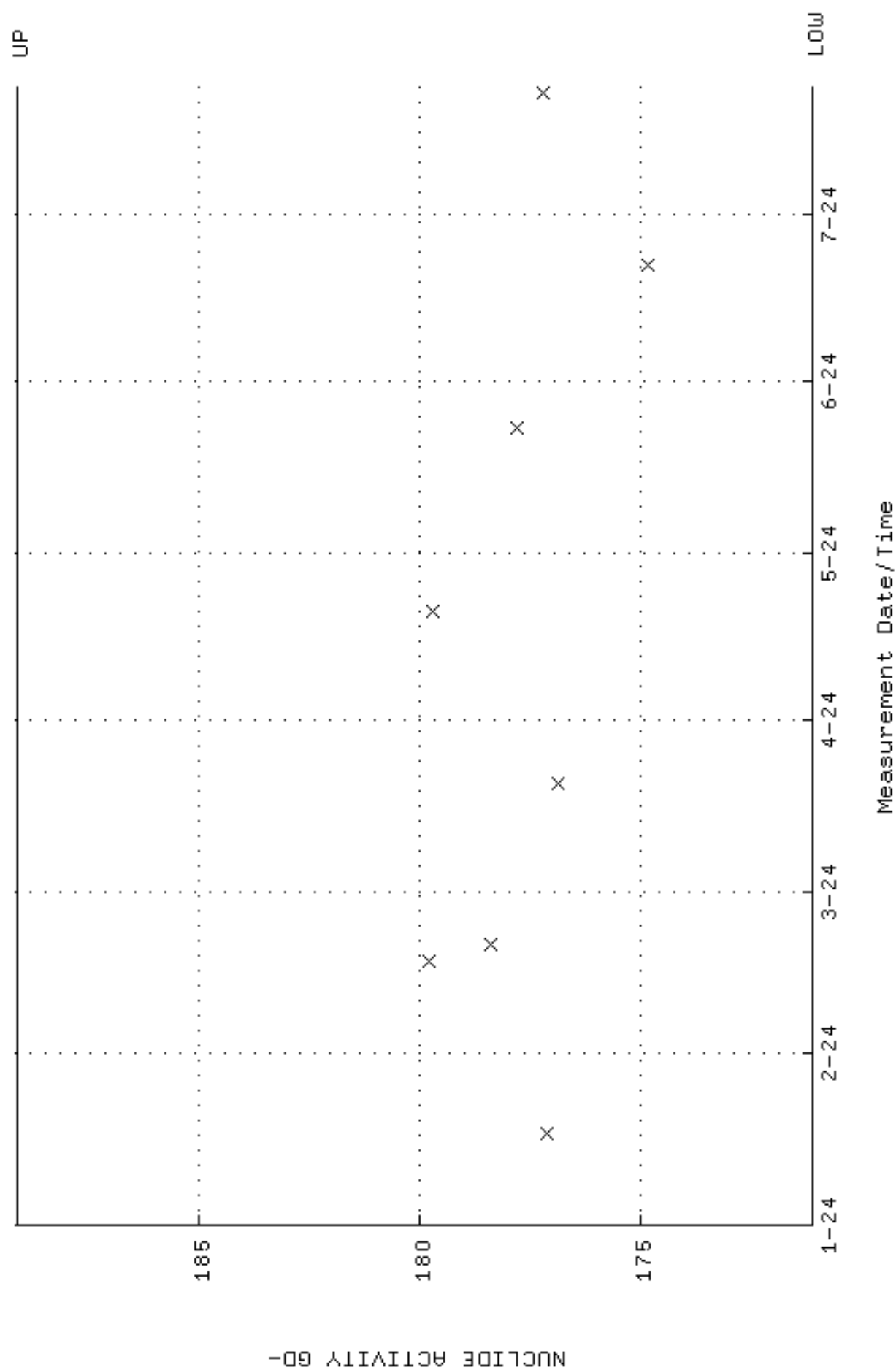
QA filename : DKA100:[ENV_ALPHA.QA.B]B206.QAF;4
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 5-JAN-2024 13:56:17 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



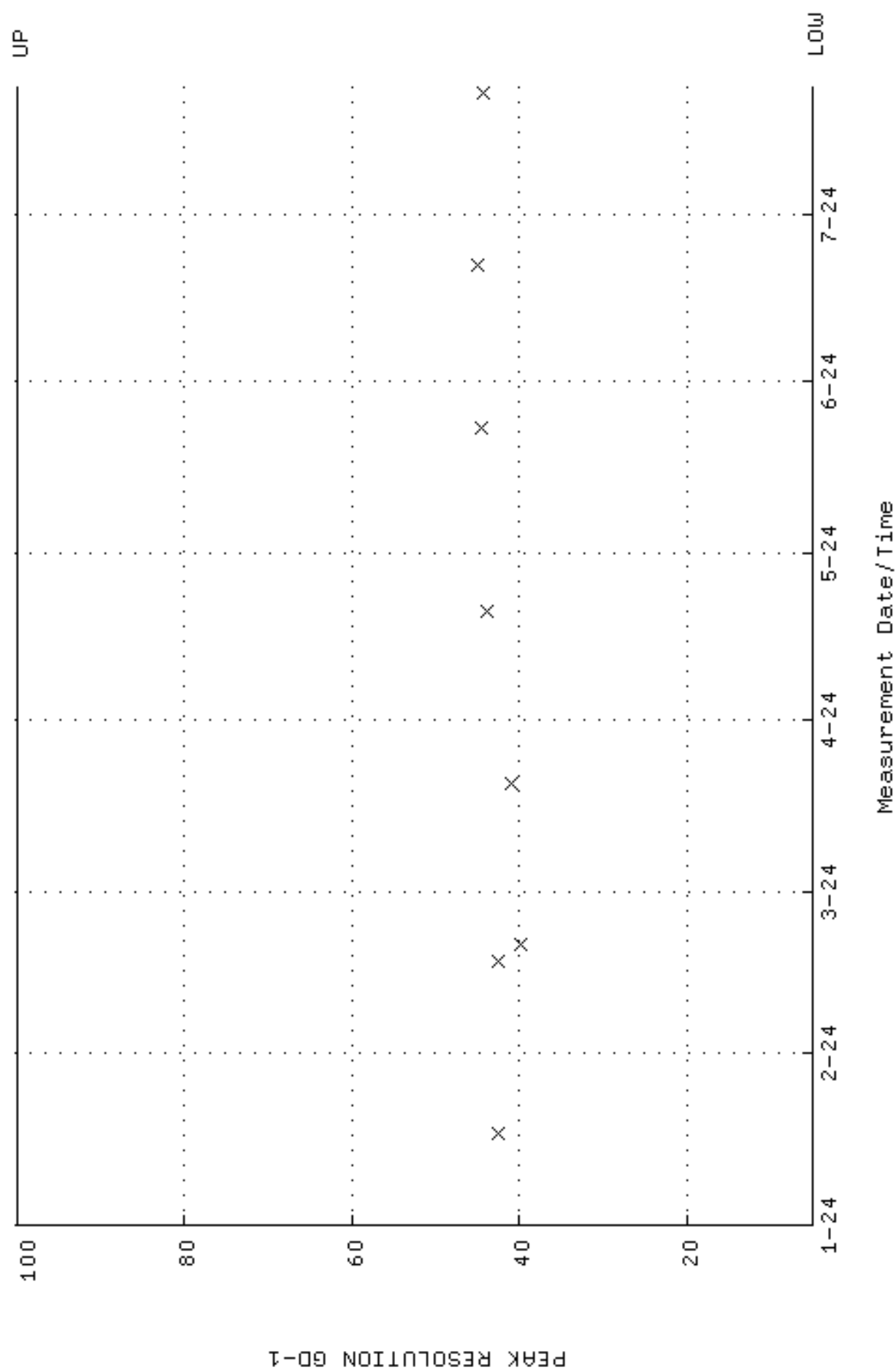
QA filename : DKA100:[ENV_ALPHA.QA.W]W207.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-JAN-2024 09:31:07 through 23-JUL-2024 12:00:00
Lower/Upper Lmts: 0.260310 through 0.276410



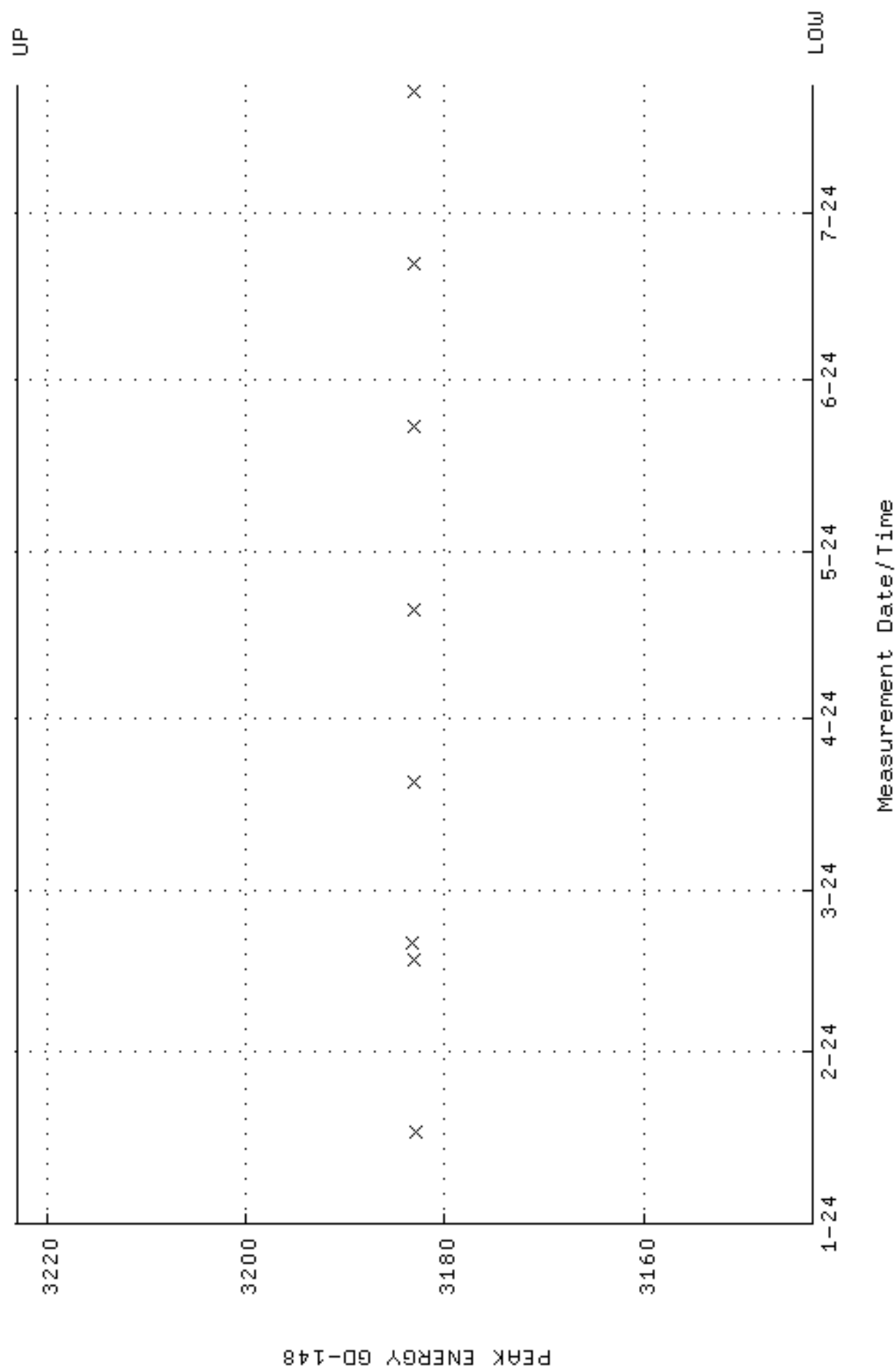
QA filename : DKA100:[ENV_ALPHA.QA.W]W207.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 17-JAN-2024 09:31:07 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 171.090 through 189.100



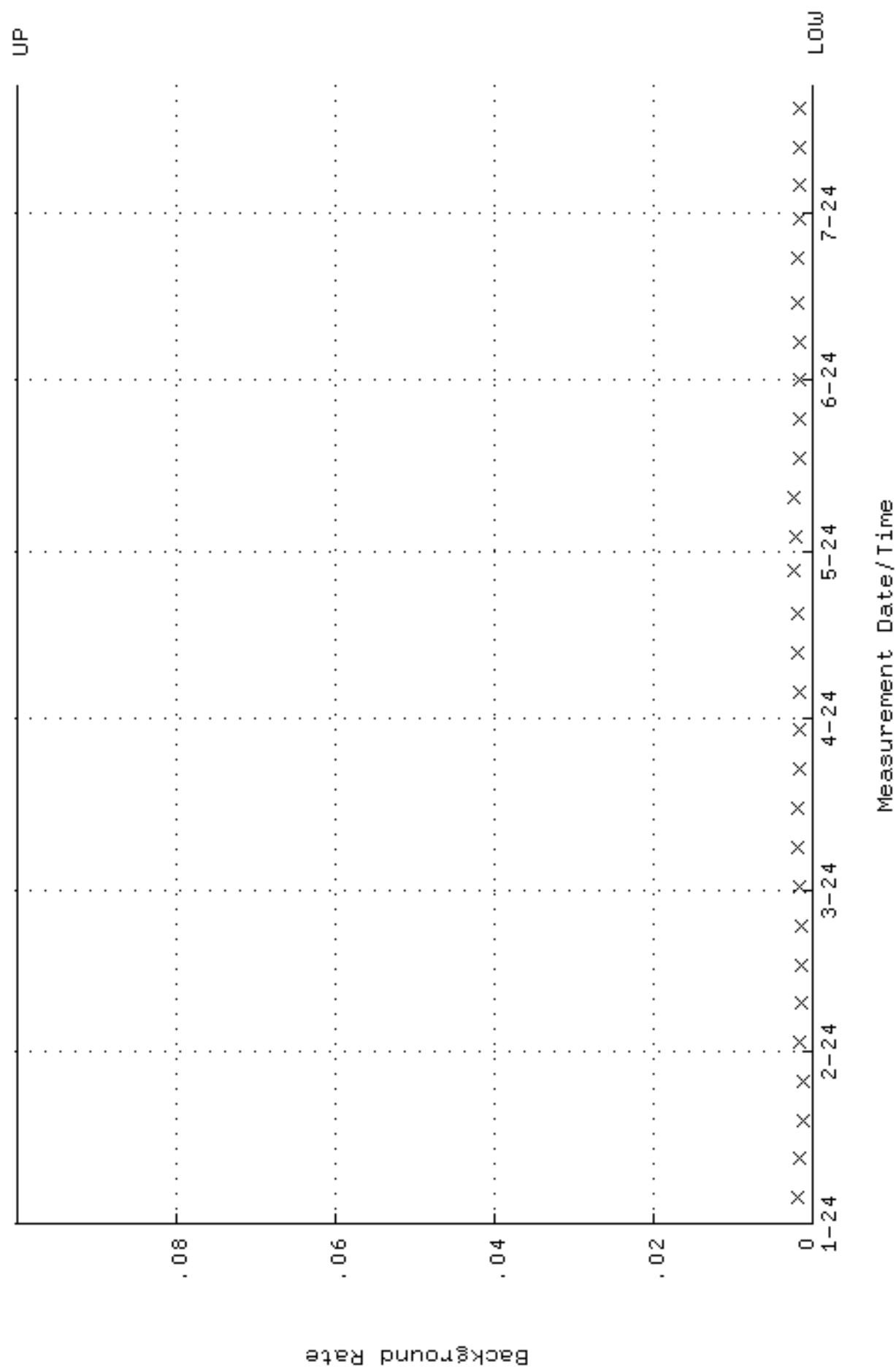
QA filename : DKA100:[ENV_ALPHA.QA.W]W207.QAF;3
 Parameter Name : PSFWM-GD148 (PEAK RESOLUTION GD-148)
 Start/End Dates : 17-JAN-2024 09:31:07 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 5.00000 through 100.000



QA filename : DKA100:[ENV_ALPHA.QA.W]W207.QAF;3
 Parameter Name : PSENERGY-GD148 (PEAK ENERGY GD-148)
 Start/End Dates : 17-JAN-2024 09:31:07 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 3143.00 through 3223.00



QA filename : DKA100:[ENV_ALPHA.QA.B]B207.QAF;4
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 5-JAN-2024 13:56:21 through 23-JUL-2024 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



RAD Standards Traceability



Eckert & Ziegler

Analytics

1845

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.ezag.com

CERTIFICATE OF CALIBRATION
Standard Reference Source

Received: 12-1-17 12:00

SRS Number: 108018

Source Description: 5 mL Liquid in Flame Sealed Ampoule

Product Code: 8229

Customer: GEL Laboratories LLC

P.O. Number: GEL1718798, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA). The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 29-November-2017 12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty			Calibration Method**
			u_A , %	u_B , %	U , %*	
Th-229	2.897E+06	1.999E+04	0.5	1.5	3.1	4π LS

Uncertainty:** U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." *Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

SRS Number: 108018

Comments:

5.21561 g of 0.5 M HNO₃ solution, carrier free.

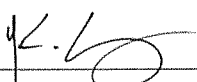
Impurities:

γ-impurities (other than decay products) < 0.1%

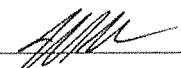
α-impurities: Th-228 6.6E+00 Bq, Th-230 1.2E+02 Bq, Th-232 8.0E+00 Bq

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by:


K. Hardley, Radiochemist

QC Approved by:


J. Lahr, Spectroscopist

Date: 27-Nov-17

Standard Logbook

Serial ID: 1845 **Open/Reference Date:** 29-NOV-17 **Aliquot :** 5.21561 g
Name: Thorium-229 **Received:** 01-DEC-17 **Density :** Hand Calculated
Type: Source Material **Expires:** 01-DEC-18 **Logbook Num :** GL-CED-297-138
Employee: Tim Chandler **Lot Number :** 108018
Supplier: Eckert & Ziegler **Solvent :** 0.5M HNO₃
 Uncertainty : 1.55 percent

Description: 1 ampoule
Comments: None

Analyte	Concentration	Analyte	Concentration
Thorium-229	19990 Bq		



Standard Traceability Log Rad

Source Material Info	
Parent Code:	1845
Prepared By:	Tim Chandler
Carrier Conc:	0.5M HNO3
Reference Date:	11/29/2017
Ampoule Mass (g):	5.21561 g
Uncertainty:	+/- 1.55 %
LogBook No:	GL-CED-297-138
Supplier:	Eckert & Ziegler

A Solution Material Info			
Isotope:	Thorium-229		
Prepared By:	Tim Chandler		
Prep Date:	06/08/2018		
Verification Date:	03/04/2024		
Expiration Date:	03/04/2025		
Primary Code:	1845-A		
Dilution(mL):	100 mL		
Mass of Parent(g):	5.1906 g		
Density(g/mL):	1.0291	Balance ID:	B733529066

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)} * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)} * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.1906 \text{ g}) * (19990 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.21561 \text{ g} * 100 \text{ mL}) = 11936.4861 \text{ dpm/mL}$
$(5.1906 \text{ g}) * (19990 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0291 \text{ g/mL}) / (5.21561 \text{ g} * 100 \text{ mL}) = 11598.7987 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
06/08/2018	Tim Chandler	2.0385	1000	1845-B	23.6442 dpm/mL	06/01/2020	06/01/2021
07/10/2019	Tim Chandler	4.0198	1000	1845-C	46.62485 dpm/mL	07/07/2020	07/07/2021
10/26/2020	Tim Chandler	4.0184	1000	1845-D	46.6086 dpm/mL	10/27/2020	10/27/2021
04/23/2021	Tim Chandler	4.2911	1000	1845-E	49.7716 dpm/mL	04/26/2021	04/26/2022
11/10/2021	Matelon DeFreese	4.211	1000	1845-F	48.8425 dpm/mL	11/10/2021	11/10/2022
05/11/2022	Matelon DeFreese	4.1951	1000	1845-G	48.6581 dpm/mL	05/12/2022	05/11/2023
01/11/2023	Matelon DeFreese	4.1664	1000	1845-H	48.3252 dpm/mL	01/11/2023	01/11/2024
06/27/2023	Matelon DeFreese	4.1464	1000	1845-I	48.093259 dpm/mL	06/27/2023	06/27/2024
03/04/2024	Matelon DeFreese	4.1756	1000	1845-J	48.4319439 dpm/mL	03/04/2024	03/04/2025
01/11/2023	Tim Chandler	4.1664	1000	2073-A	48.3252 dpm/mL	01/11/2023	01/11/2024
01/11/2023	Tim Chandler	4.1664	1000	2074-A	48.3252 dpm/mL	01/11/2023	01/11/2024

Verification for Th-229 Standard 1845-J

v1.2

Analyst	MXS2
Verification Prep Date	3/4/2024

Tracer Information	
Isotope	Th-232
Serial Number	1513-J
Amount of Std. (mL)	0.2
Expiration Date	4/25/2024

Standard Information	
Isotope	Th-229
Serial Number	1845-J
Isotope Halflife	7.3400E+03 Y
Reference Date	11/29/2017
Ref. Act. (dpm/mL)	48.4319439
Amount of Std. (mL)	0.2
Standard Prep Date	3/4/2024

Std #	Count Date	Activity pCi	Standard dpm/mL
1	3/4/2024	4.580	50.84
2	3/4/2024	4.470	49.62
3	3/4/2024	4.430	49.17

Mean Value = 4.493 49.876
Stdev = 0.077674535 0.862187335

	pCi	dpm/mL
Certificate Value* =	4.3607	48.4033
Two sigma =	0.1553	1.7244
10 % of Mean =	0.4493	4.9876
Rule A (Pass/Fail)	Pass	Pass
% Recovery	103.04%	103.04%
Rule B (Pass/Fail)	Pass	Pass
Expiration Date	3/4/2025	

Verification Rules

Rule A = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule B = The determined mean value shall be within 5% of the certificate value.

*** Certificate Value is decay corrected to Verification Prep Date.**

The analyst prepared three standard verification sources for Th-229 standard 1845-J using 0.2 mL for each source. Each standard was combined with 0.2 mL of Th-232 standard 1513-J and was diluted in a centrifuge tube containing 4 mL 2M HCl, diluted to 40 mL with DI water. 0.1 mL of neodymium carrier and 5 mL of 48% HF was added to precipitate neodymium (and Thorium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Th-229 were calculated by comparison to Th-232 certified values.

8/12/24

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	GEL LABORATORIES, LLC
Half-life:	(1.405 ± 0.006)E+10 years	P.O. No.:	7347RD
Catalog No.:	7232	Reference Date:	1-Nov-10 12:00 PST
Source No.:	1451-62	Contained Radioactivity:	50.26 nCi 1860 Bq
		(Th-232 only)	

Physical Description:

A. Mass of solution:	5.73256 g in 5 mL flame-sealed ampoule
B. Chemical form:	Th(NO ₃) ₄ in H ₂ O
C. Carrier content:	None
D. Density:	1.15 g/mL @ 20°C

Radioimpurities:

Not determined

Radionuclide Concentration: 8.767 nCi/g, 324.4 Bq/g

Method of Calibration:

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.0 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.0 %

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from NCRP Report No. 58, 1985.
- This solution has a working life of 5 years.


Quality Control

15-OCT-10
Date

EZIP Ref. No.: 1451-62

RC-S-060-058

ISO 9001 CERTIFIED

Standard Logbook

Serial ID: 1513 **Open/Reference Date:** 01-NOV-10 **Aliquot :** 5.73256 g
Name: Thorium-232 **Received:** 21-OCT-10 **Density :** Hand Calculated g/mL
Type: Source Material **Expires:** 30-NOV-11 **Logbook Num :** RC-S-060-058
Employee: Gregory Ramsay **Verified:** 28-APR-11 **Lot Number :** 1451-62
Supplier: Eckert & Ziegler **Solvent :** DI water
Uncertainty : 1.172 PERCENT

Description: in water
Comments: None

Analyte	Concentration	Analyte	Concentration
Thorium-232	324.4 Bq/g		



Standard Traceability Log Rad

Source Material Info	
Parent Code:	1513
Prepared By:	Gregory Ramsay
Carrier Conc:	DI water
Reference Date:	11/01/2010
Ampoule Mass (g):	5.73256 g
Uncertainty:	+/- 1.172 %
LogBook No:	RC-S-060-058
Supplier:	Eckert & Ziegler

A Solution Material Info			
Isotope:	Thorium-232		
Prepared By:	Christina Kimball		
Prep Date:	04/19/2011		
Verification Date:	06/14/2024		
Expiration Date:	06/14/2025		
Primary Code:	1513-A		
Dilution(mL):	250 mL		
Mass of Parent(g):	5.672 g		
Density(g/mL):	1.0020	Balance ID:	60108592

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.672 \text{ g}) * (324.4 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (250 \text{ mL}) = 441.5992 \text{ dpm/mL}$
$(5.672 \text{ g}) * (324.4 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0020 \text{ g/mL}) / (250 \text{ mL}) = 440.7354 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
04/19/2011	Christina Kimball	5.0665	100	1513-B	22.3299 dpm/mL	04/11/2013	04/11/2014
02/26/2014	Matelon DeFreese	100.0316	1000	1513-C	44.08747 dpm/mL	12/14/2022	12/14/2023
04/18/2014	Christina Kimball	5.0477	100	1513-D	22.247 dpm/mL	07/12/2024	07/12/2025
01/04/2016	Christina Kimball	.2487	100	1513-E	1.096117 dpm/mL	02/11/2020	02/11/2021
08/01/2016	Christina Kimball	2.053	250	1513-F	3.61932 dpm/mL	07/12/2024	07/12/2025
02/21/2020	Christina Kimball	.248	100	1513-G	1.093 dpm/mL	02/16/2023	02/16/2024
11/11/2022	Christina Kimball	.3	100	1513-H	1.3222 dpm/mL	11/14/2022	11/14/2023
12/13/2022	Christina Kimball	.23	100	1513-I	1.0137 dpm/mL	12/20/2023	12/20/2024
04/25/2023	Matelon DeFreese	25.022	250	1513-J	44.1123247 dpm/mL	04/20/2024	04/20/2025

06/16/2023	Christina Kimball	5.02	100	1513-K	22.1249 dpm/mL	06/21/2023	06/21/2024
06/10/2024	Matelon DeFreese	25.0217	250	1513-L	44.1117958 dpm/mL	06/14/2024	06/14/2025

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for Th-232 Standard 1513-J

v1.2

Analyst	MXS2
Verification Prep Date	4/20/2024

Tracer Information	
Isotope	Th-229
Serial Number	1845-J
Amount of Std. (mL)	0.1
Expiration Date	3/4/2025

Standard Information	
Isotope	Th-232
Serial Number	1513-J
Isotope Halflife	1.4050E+10 Y
Reference Date	11/1/2010
Ref. Act. (dpm/mL)	44.1123247
Amount of Std. (mL)	0.1
Standard Prep Date	4/25/2023

Std #	Count Date	Activity pCi	Standard dpm/mL
1	4/21/2024	1.990	44.18
2	4/21/2024	2.020	44.84
3	4/21/2024	2.010	44.62

Mean Value = 2.007 44.548
Stdev = 0.015275252 0.339110601

	pCi	dpm/mL
Certificate Value* =	1.9870	44.1123
Two sigma =	0.0306	0.6782
10 % of Mean =	0.2007	4.4548
Rule A (Pass/Fail)	Pass	Pass
% Recovery	100.99%	100.99%
Rule B (Pass/Fail)	Pass	Pass
Expiration Date	4/20/2025	

Verification Rules

Rule A = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule B = The determined mean value shall be within 5% of the certificate value.

*** Certificate Value is decay corrected to Verification Prep Date.**

The analyst prepared three standard verification sources for Th-232 standard 1513-J using 0.1 mL for each source. Each standard was combined with 0.1 mL of Th-229 standard 1845-J and was diluted in a centrifuge tube containing 4 mL 2M HCl, diluted to 40 mL with DI water. 0.1 mL of neodymium carrier and 5 mL of 48% HF was added to precipitate neodymium (and Thorium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Th-232 were calculated by comparison to Th-229 certified values.

Signature



Eckert & Ziegler

Analytics

1564

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION Standard Radionuclide Source

85621-278

5 mL Liquid in Flame Sealed Vial

Customer: General Engineering Labs/Charleston, SC
P.O. No.: 936814RD, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by the Department Des Applications Et De La Metrologie Des Rayonnements Ionisants (DAMRI), Paris, France. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, %			Reference Date (12:00 PM EST)
			u_A	u_B	U	
U-232	2.517E+04	3.393E+04	0.5	2.4	4.9	09/12/2011

***Uncertainty:** U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:

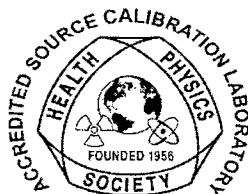
Impurities: γ -impurities (other than decay products) < 0.1 %, U-233 < 1.20E2 Bq, Am-241 < 5.8E1 Bq. 5.06048 grams 2M HNO3 solution.

Source Prepared by: M. I. Taskaeva
M. I. Taskaeva, Radiochemist

QA Approved: J. D. McCorvey
J. D. McCorvey, QA Manager Alternate

Date: 9/12/11

RECEIVED
9/14/11
AM



Standard Logbook

Serial ID: 1564 **Open/Reference Date:** 12-SEP-11 **Aliquot :** 5.06048 g
Name: Uranium-232 **Received:** 14-SEP-11 **Density :** Hand Calculated
Type: Source Material **Expires:** 26-SEP-14 **Logbook Num :** RC-S-060-109
Employee: Ashley Drochter **Lot Number :** 85621-278
Supplier: Eckert & Ziegler **Solvent :** 2M HNO3
 Uncertainty : 2.45 percent

Description: Ampoule
Comments: None

Analyte	Concentration	Analyte	Concentration
Uranium-232	33930 Bq		



Standard Traceability Log Rad

Source Material Info	
Parent Code:	1564
Prepared By:	Ashley Drochter
Carrier Conc:	2M HNO3
Reference Date:	09/12/2011
Ampoule Mass (g):	5.06048 g
Uncertainty:	+/- 2.45 %
LogBook No:	RC-S-060-109
Supplier:	Eckert & Ziegler

A Solution Material Info			
Isotope:	Uranium-232		
Prepared By:	Ashley Drochter		
Prep Date:	11/15/2012		
Verification Date:	10/10/2023		
Expiration Date:	10/10/2024		
Primary Code:	1564-A		
Dilution(mL):	100 mL		
Mass of Parent(g):	4.9067 g		
Density(g/mL):	1.0615	Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(4.9067 \text{ g}) * (33930 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.06048 \text{ g} * 100 \text{ mL}) = 19739.3525 \text{ dpm/mL}$
$(4.9067 \text{ g}) * (33930 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0615 \text{ g/mL}) / (5.06048 \text{ g} * 100 \text{ mL}) = 18595.7160 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
11/16/2012	Ashley Drochter	2.6179	1000	1564-B	48.6817 dpm/mL	11/13/2013	11/13/2014
07/26/2021	Christina Kimball	.635	500	1564-BB	23.6166 dpm/mL	07/21/2022	07/21/2023
07/26/2021	Christina Kimball	.635	500	1564-BB Spike	23.6166 dpm/mL	07/21/2022	07/21/2023
01/15/2013	Christina Kimball	.265	250	1564-C	19.7115 dpm/mL	01/13/2014	01/13/2015
12/14/2021	Tim Chandler	2.6412	1000	1564-CC	49.115 dpm/mL	12/15/2021	12/15/2022
02/18/2013	Christina Kimball	.116	500	1564-D	4.31421 dpm/mL	02/16/2015	02/13/2016
04/13/2022	Matelon DeFreese	2.7103	1000	1564-DD	50.4 dpm/mL	04/13/2022	04/13/2023
01/02/2014	Gregory Ramsay	2.6936	1000	1564-E	50.08942 dpm/mL	12/10/2014	12/10/2015
09/21/2022	Tim Chandler	2.6897	1000	1564-EE	50.0169 dpm/mL	09/21/2022	09/21/2023

03/17/2014	Christina Kimball	.266	250	1564-F	19.78584 dpm/mL	03/25/2015	03/25/2016
12/27/2022	Christina Kimball	.61	500	1564-FF	22.6868 dpm/mL	12/01/2023	12/01/2024
12/27/2022	Christina Kimball	.61	500	1564-FF Spike	22.6868 dpm/mL	12/01/2023	12/01/2024
12/10/2014	Tim Chandler	2.6312	1000	1564-G	48.929 dpm/mL	12/10/2014	12/10/2015
01/19/2023	Matelon DeFreese	2.689	1000	1564-GG	50.0039 dpm/mL	01/20/2023	01/20/2024
07/20/2015	Christina Kimball	.266	250	1564-H	19.78584 dpm/mL	07/25/2016	07/25/2017
05/19/2023	Matelon DeFreese	2.685	1000	1564-HH	49.9294975 dpm/mL	05/19/2023	05/19/2024
11/23/2015	Tim Chandler	2.6117	1000	1564-I	48.5664 dpm/mL	11/23/2015	11/23/2016
10/09/2023	Matelon DeFreese	2.6864	1000	1564-II	49.9555315 dpm/mL	10/10/2023	10/10/2024
01/05/2016	Christina Kimball	.119	500	1564-J	4.4258 dpm/mL	12/27/2017	12/27/2018
01/05/2016	Christina Kimball	.119	500	1564-J Spike	4.4258 dpm/mL	12/27/2017	12/27/2018
04/03/2024	Matelon DeFreese	2.6968	1000	1564-JJ	50.1489269 dpm/mL	04/03/2024	04/03/2025
09/20/2016	Tim Chandler	2.6389	1000	1564-K	49.0722 dpm/mL	09/18/2017	09/18/2018
12/20/2016	Christina Kimball	.276	250	1564-L	20.52974 dpm/mL	12/21/2017	12/21/2018
06/20/2017	Tim Chandler	2.6611	1000	1564-M	49.4851 dpm/mL	06/19/2018	06/19/2019
01/18/2018	Tim Chandler	2.6367	1000	1564-N	49.0313 dpm/mL	04/25/2018	04/25/2019
04/25/2018	Tim Chandler	2.6505	1000	1564-O	49.2879 dpm/mL	04/25/2018	04/25/2019
08/06/2018	Christina Kimball	.106	500	1564-P	3.9423 dpm/mL	12/19/2019	12/19/2020
08/06/2018	Christina Kimball	.106	500	1564-P Spike	3.9423 dpm/mL	12/19/2019	12/19/2020
12/13/2018	Tim Chandler	2.6502	1000	1564-Q	49.2824 dpm/mL	12/13/2018	12/13/2019
01/08/2019	Christina Kimball	.29	250	1564-R	21.571 dpm/mL	01/08/2019	01/08/2020
01/08/2019	Christina Kimball	.29	250	1564-R Spike	21.571 dpm/mL	01/08/2019	01/08/2020
10/01/2019	Tim Chandler	2.6957	1000	1564-S	50.1285 dpm/mL	10/01/2019	10/01/2020

12/18/2019	Christina Kimball	.307	250	1564-T	22.83554 dpm/mL	12/19/2019	12/19/2020
12/18/2019	Christina Kimball	.307	250	1564-T Spike	22.83554 dpm/mL	12/19/2019	12/19/2020
03/31/2020	Tim Chandler	2.6645	1000	1564-U	49.5483 dpm/mL	03/31/2020	03/31/2021
08/14/2020	Christina Kimball	.111	500	1564-V	4.1282 dpm/mL	08/14/2020	08/14/2021
08/14/2020	Christina Kimball	.111	500	1564-V Spike	4.1282 dpm/mL	08/14/2020	08/14/2021
10/13/2020	Tim Chandler	2.6983	1000	1564-W	50.1768 dpm/mL	10/13/2020	10/13/2021
11/04/2020	Christina Kimball	.315	250	1564-X	23.4306 dpm/mL	11/04/2020	11/04/2021
11/04/2020	Christina Kimball	.315	250	1564-X Spike	23.4306 dpm/mL	11/04/2020	11/04/2021
03/19/2021	Matelon DeFreese	2.7599	1000	1564-Y	51.32232 dpm/mL	03/19/2021	03/19/2022
03/19/2021	Matelon DeFreese	2.7599	1000	1564-Z	51.32232 dpm/mL	03/20/2021	03/20/2022

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for U-232 Standard 1564-JJ

v1.2

Analyst	MXS2
Verification Prep Date	4/3/2024

Tracer Information	
Isotope	U-238
Serial Number	1600-P
Amount of Std. (mL)	0.2
Expiration Date	5/8/2024

Standard Information	
Isotope	U-232
Serial Number	1564-JJ
Isotope Halflife	68.9000 Y
Reference Date	9/12/2011
Ref. Act. (dpm/mL)	50.1489269
Amount of Std. (mL)	0.2
Standard Prep Date	4/3/2024

Std #	Count Date	Activity pCi	Standard dpm/mL
1	4/3/2024	3.880	43.07
2	4/3/2024	3.950	43.85
3	4/3/2024	3.920	43.51

Mean Value = 3.917 43.475
Stdev = 0.035118846 0.389819189

	pCi	dpm/mL
Certificate Value* =	3.9817	44.1970
Two sigma =	0.0702	0.7796
10 % of Mean =	0.3917	4.3475
Rule A (Pass/Fail)	Pass	Pass
% Recovery	98.37%	98.37%
Rule B (Pass/Fail)	Pass	Pass
Expiration Date	4/3/2025	

Verification Rules

Rule A = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule B = The determined mean value shall be within 5% of the certificate value.

* Certificate Value is decay corrected to Verification Prep Date.

The analyst prepared three standard verification sources for U-232 standard 1564-JJ using 0.2 mL for each source. Each standard was combined with 0.2 mL of U-238 standard 1600-P and was diluted in a centrifuge tube containing 15 mL 0.1M HCl and 25 mL of DI water. 0.1 mL of neodymium carrier, 0.5 mL of titanium (III) chloride, and 5 mL of 48% HF was added to precipitate neodymium (and Uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-232 were calculated by comparison to U-238 certified values.

Handwritten signature
4/18/24

15 Apr 3/24/12
1600

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide:	U-238 (Nat)	Customer:	GENERAL ENGINEERING LABS.	
Half-life:	(4.468 ± 0.005)E+09 years	P.O. No.:	936823 RD	
Catalog No.:	7338	Reference Date:	15-Apr-12 12:00 PST	
Source No.:	1577-71-2	Contained Radioactivity:	1.023 µCi 37.85 kBq	
		(Total Uranium)		

Physical Description:

A. Mass of solution:	7.05210 g in 10 mL flame-sealed ampoule
B. Chemical form:	UO ₂ (NO ₃) ₂ in dilute HNO ₃
C. Carrier content:	None
D. Density:	Approximately 1.41 g/mL @ 20°C

Radioimpurities:

See Technical Data Sheet

Radionuclide Concentration: 0.1451 µCi/g, 5.369 kBq/g

Method of Calibration:

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.0 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.0 %

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from "Table of Radioactive Isotopes", edited by Virginia Shirley, 1986.
- This solution has a working life of 5 years.


Quality Control

21-Mar-12
Date

EZIP Ref. No.: 1577-71

RC-S-065-030a

ISO 9001 CERTIFIED

Medical Imaging Laboratory

24937 Avenue Tibbitts Valencia, California 91355

Industrial Gauging Laboratory

1800 North Keystone Street Burbank, California 91504

SDG: 674299

Page 409 of 1433

U-238 Natural Technical Data

The U-238 Natural used to prepare your order was taken from Eckert & Ziegler Isotope Products Lot #4550102. It had the following composition as of 9 Feb 10:

<u>Nuclide</u>	<u>Atom %</u>	<u>Activity %</u>
U-234	0.0055	49.086
U-235	0.7200	2.241
U-238	99.274	48.673

Isotopic composition provided by New Brunswick Laboratory.

If you have any question, please contact Eckert & Ziegler Isotope Products Technical Service: (661) 309-1010

Standard Logbook

Serial ID: 1600 **Open/Reference Date:** 15-APR-12 **Aliquot :** 7.0521 g
Name: Uranium-238 **Received:** 24-MAR-12 **Density :** Hand Calculated g/mL
Type: Source Material **Expires:** 26-MAR-15 **Logbook Num :** RC-S-065-030
Employee: Ashley Drochter **Lot Number :** 4550102
Supplier: Eckert & Ziegler **Solvent :** UO₂(NO₃)₂ in dilute HNO₃
Uncertainty : 1.17 percent
Description: Ampoule
Comments: None

Analyte	Concentration	Analyte	Concentration
Uranium-238	18.42 kbq		



Standard Traceability Log Rad

Source Material Info	
Parent Code:	1600
Prepared By:	Ashley Drochter
Carrier Conc:	UO ₂ (NO ₃) ₂ in dilute HNO ₃
Reference Date:	04/15/2012
Ampoule Mass (g):	7.0521 g
Uncertainty:	+/- 1.17 %
LogBook No:	RC-S-065-030
Supplier:	Eckert & Ziegler

A Solution Material Info			
Isotope:	Uranium-238		
Prepared By:	Ashley Drochter		
Prep Date:	09/04/2012		
Verification Date:	06/10/2024		
Expiration Date:	06/10/2025		
Primary Code:	1600-A		
Dilution(mL):	100 mL		
Mass of Parent(g):	6.8204 g		
Density(g/mL):	1.0789	Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (kbq)}) * (\text{conversion dpm to kbq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (kbq)}) * (\text{conversion dpm to kbq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(6.8204 \text{ g}) * (18.42 \text{ kbq}) * (60000 \text{ dpm/kbq}) / (7.0521 \text{ g} * 100 \text{ mL}) = 10688.8814 \text{ dpm/mL}$
$(6.8204 \text{ g}) * (18.42 \text{ kbq}) * (60000 \text{ dpm/kbq}) / (1.0789 \text{ g/mL}) / (7.0521 \text{ g} * 100 \text{ mL}) = 9907.0626 \text{ dpm/g}$

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
09/04/2012	Ashley Drochter	1.4579	500	1600-B	28.8913 dpm/mL	09/04/2012	09/04/2013
09/11/2012	Ashley Drochter	3.0288	500	1600-C	60.0219 dpm/mL	09/04/2013	09/04/2014
03/27/2014	Tim Chandler	3.0445	500	1600-D	60.3241 dpm/mL	03/18/2015	03/18/2016
07/24/2015	Tim Chandler	3.0177	500	1600-E	59.7931 dpm/mL	07/10/2017	07/10/2018
02/16/2017	Tim Chandler	3.0261	500	1600-F	59.9595 dpm/mL	02/06/2018	02/06/2019
10/10/2017	Christina Kimball	.539	250	1600-G	21.3596 dpm/mL	12/01/2023	12/01/2024
04/02/2018	Tim Chandler	3.0544	500	1600-H	60.5203 dpm/mL	03/29/2019	03/29/2020

06/21/2019	Tim Chandler	3.0536	500	1600-I	60.5044 dpm/mL	06/21/2019	06/21/2020
01/30/2020	Tim Chandler	3.0563	500	1600-J	60.5579 dpm/mL	01/26/2021	01/26/2022
03/13/2020	Christina Kimball	.01222	500	1600-K	.24207 dpm/mL	03/15/2022	03/15/2023
04/23/2021	Tim Chandler	3.0507	500	1600-L	60.4469 dpm/mL	04/26/2021	04/26/2022
01/21/2022	Matelon DeFreese	3.1075	500	1600-M	61.5723941 dpm/mL	01/21/2022	01/21/2023
05/19/2022	Christina Kimball	.01275	500	1600-N	.2527 dpm/mL	05/14/2024	05/14/2025
09/06/2022	Matelon DeFreese	3.1499	500	1600-O	62.412513 dpm/mL	09/06/2022	09/06/2023
05/08/2023	Matelon DeFreese	6.0105	1000	1600-P	59.5463998 dpm/mL	05/03/2024	05/03/2025
05/30/2024	Christina Kimball	.012077	500	1600-Q	.2393 dpm/mL	05/30/2024	05/30/2025
06/10/2024	Matelon DeFreese	6.011	1000	1600-R	59.5513533 dpm/mL	06/10/2024	06/10/2025

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for U-238 Standard 1600-R

v1.2

Analyst	MXS2
Verification Prep Date	6/10/2024

Tracer Information	
Isotope	U-232
Serial Number	1564-JJ
Amount of Std. (mL)	0.2
Expiration Date	4/3/2025

Standard Information	
Isotope	U-238
Serial Number	1600-R
Isotope Halflife	4.4680E+09 Y
Reference Date	4/15/2012
Ref. Act. (dpm/mL)	59.5513533
Amount of Std. (mL)	0.2
Standard Prep Date	6/10/2024

Std #	Count Date	Activity pCi	Standard dpm/mL
1	6/12/2024	5.580	61.94
2	6/11/2024	5.280	58.61
3	6/12/2024	5.130	56.94

Mean Value = 5.330 59.163
Stdev = 0.229128785 2.543329511

	pCi	dpm/mL
Certificate Value* =	5.3650	59.5514
Two sigma =	0.4583	5.0867
10 % of Mean =	0.5330	5.9163
Rule A (Pass/Fail)	Pass	Pass
% Recovery	99.35%	99.35%
Rule B (Pass/Fail)	Pass	Pass
Expiration Date	6/10/2025	

Verification Rules

Rule A = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule B = The determined mean value shall be within 5% of the certificate value.

* Certificate Value is decay corrected to Verification Prep Date.

The analyst prepared three standard verification sources for U-238 standard 1600-R using 0.2 mL for each source. Each standard was combined with 0.2 mL of U-232 standard 1564-JJ and was diluted in a centrifuge tube containing 20 mL of 0.1M HCL diluted to 40 mL with DI water. 0.1 mL of neodymium carrier, 0.5 mL of titanium (III) chloride, and 5 mL of 48% HF was added to precipitate neodymium (and Uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

6/14/24

Runlogs

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 2640430

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
674299011	SAMPLE	CM4	1160	JUL-18-24 08:40:30	DONE		16-JUL-24 12:18
1205789020	MB	CM4	1125	JUL-18-24 13:27:56	DONE		13-JUL-24 12:38
1205789021	DUP	CM4	1126	JUL-18-24 13:27:57	DONE		13-JUL-24 12:38
674299012	SAMPLE	CM4	1007	JUL-18-24 13:28:01	DONE		02-JUL-24 11:32
674299013	SAMPLE	CM4	1008	JUL-18-24 13:28:01	DONE		02-JUL-24 11:33
674299016	SAMPLE	CM4	1009	JUL-18-24 13:28:01	DONE		02-JUL-24 11:33
674299019	SAMPLE	CM4	1010	JUL-18-24 13:28:01	DONE		02-JUL-24 11:33
674299020	SAMPLE	CM4	1011	JUL-18-24 13:28:01	DONE		02-JUL-24 11:33
674299022	SAMPLE	CM4	1012	JUL-18-24 13:28:01	DONE		02-JUL-24 11:33
1205789022	LCS	CM4	1135	JUL-18-24 13:28:01	DONE		13-JUL-24 13:07
674299027	SAMPLE	CM4	1013	JUL-18-24 13:28:04	DONE		02-JUL-24 13:14
674299030	SAMPLE	CM4	1014	JUL-18-24 13:28:04	DONE		02-JUL-24 13:14
674299031	SAMPLE	CM4	1015	JUL-18-24 13:28:04	DONE		02-JUL-24 13:16
674299033	SAMPLE	CM4	1016	JUL-18-24 13:28:04	DONE		02-JUL-24 13:16
674299034	SAMPLE	CM4	1017	JUL-18-24 13:28:04	DONE		02-JUL-24 13:19
674299037	SAMPLE	CM4	1018	JUL-18-24 13:28:04	DONE		02-JUL-24 13:19

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 2640431

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
674299011	SAMPLE	CM4	1197	JUL-18-24 10:28:36	DONE		21-JUN-24 11:54
674299012	SAMPLE	CM4	1199	JUL-18-24 10:28:37	DONE		21-JUN-24 12:57
674299013	SAMPLE	CM4	1200	JUL-18-24 10:28:41	DONE		21-JUN-24 12:57
674299016	SAMPLE	CM4	1203	JUL-18-24 10:28:42	DONE		21-JUN-24 11:54
674299019	SAMPLE	CM4	1205	JUL-18-24 10:28:45	DONE		21-JUN-24 12:59
674299020	SAMPLE	CM4	1206	JUL-18-24 10:28:47	DONE		21-JUN-24 12:59
674299022	SAMPLE	CM4	1207	JUL-18-24 10:28:49	DONE		21-JUN-24 12:59
674299027	SAMPLE	CM4	1166	JUL-18-24 12:37:08	DONE		18-JUL-24 11:31
674299030	SAMPLE	CM4	1176	JUL-18-24 12:37:10	DONE		18-JUL-24 12:23
674299031	SAMPLE	CM4	1177	JUL-18-24 12:37:12	DONE		18-JUL-24 12:23
674299033	SAMPLE	CM4	1178	JUL-18-24 12:37:15	DONE		18-JUL-24 12:23
674299034	SAMPLE	CM4	1179	JUL-18-24 12:37:17	DONE		18-JUL-24 11:41
674299037	SAMPLE	CM4	1180	JUL-18-24 12:37:20	DONE		18-JUL-24 12:23
1205789023	MB	CM4	1181	JUL-18-24 12:37:22	DONE		18-JUL-24 12:24
1205789024	DUP	CM4	1182	JUL-18-24 12:37:24	DONE		18-JUL-24 12:24
1205789025	LCS	CM4	1195	JUL-18-24 12:37:26	DONE		21-JUN-24 11:54

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 2641120

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1205790381	MB	RM3	1113	JUL-19-24 08:21:10	DONE		13-JUL-24 13:06
1205790382	DUP	RM3	1117	JUL-19-24 08:21:12	DONE		13-JUL-24 12:38
1205790383	LCS	RM3	1125	JUL-19-24 08:21:15	DONE		13-JUL-24 12:38
674299006	SAMPLE	RM3	1017	JUL-19-24 08:21:26	DONE		02-JUL-24 13:19
674299010	SAMPLE	RM3	1018	JUL-19-24 08:21:26	DONE		02-JUL-24 13:19

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 2641153

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
674299006	SAMPLE	AG2	1207	JUL-19-24 10:08:56	DONE		21-JUN-24 12:59
674299010	SAMPLE	AG2	1031	JUL-19-24 10:43:02	DONE		03-JUL-24 12:49
1205790430	MB	AG2	1032	JUL-19-24 10:43:02	DONE		03-JUL-24 12:49
1205790431	DUP	AG2	1034	JUL-19-24 10:43:02	DONE		03-JUL-24 12:50
1205790432	LCS	AG2	1035	JUL-19-24 10:43:02	DONE		03-JUL-24 12:50

Gamma Spectroscopy Raw Data

Batch 2636543 Check-list

This check-list was completed on 01-AUG-24 by Michael Hilton

This batch was reviewed by Michael Hilton on 01-AUG-24 and Spencer Collins on 01-AUG-24.

Batch ID: 2636543

Product: GSCGAMMS

Description: Gamma Spec Solid RAD A-013

#	Criteria	Yes	No	Comments
Preparation Information				
1	Did any sample(s) require dilution?		No	
2	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
3	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
4	Are instrument source checks within limits?	Yes		
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were any additional radionuclides added that were not requested by the client?		No	
7	Were all the samples prepared/analyzed within the required holding time period?	Yes		
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
11	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
12	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Gamma Spectroscopy

Batch ID: 2636543
Analyst: Maggie Stamps (MXR1)
Method: DOE HASL 300, 4.5.2.3/Ga-01-R
Lab SOP: GL-RAD-A-013 REV# 29
Instrument: No instrument-manual method

Due Dates for Lab: 31-JUL-2024			Hold: 08-JUL-2024	Package: 01-AUG-2024	SDG: 02-AU
Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1205781348	84680-278	1556	1	mL

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)	Adjusted Aliquot (g)
1	674299021	09-JUL-2024	.1	Dry to Dry	106.54	106.54	106.54
2	674299022	09-JUL-2024	.1	Dry to Dry	93.82	93.82	93.82
3	674299023	09-JUL-2024	.1	Dry to Dry	109.51	109.51	109.51
4	674299024	09-JUL-2024	.1	Dry to Dry	113.77	113.77	113.77
5	674299025 - 2	09-JUL-2024	.1	Dry to Dry	112.3	112.3	112.3
6	674299026	09-JUL-2024	.1	Dry to Dry	140.02	140.02	140.02
7	674299027	09-JUL-2024	.1	Dry to Dry	134.49	134.49	134.49
8	674299028	09-JUL-2024	.1	Dry to Dry	112.91	112.91	112.91
9	674299029	09-JUL-2024	.1	Dry to Dry	117.95	117.95	117.95
10	674299030	09-JUL-2024	.1	Dry to Dry	114.63	114.63	114.63
11	674299031	09-JUL-2024	.1	Dry to Dry	108.01	108.01	108.01
12	674299032	09-JUL-2024	.1	Dry to Dry	116.02	116.02	116.02
13	674299033	09-JUL-2024	.1	Dry to Dry	127.15	127.15	127.15
14	674299034	09-JUL-2024	.1	Dry to Dry	102.38	102.38	102.38
15	674299035	09-JUL-2024	.1	Dry to Dry	94.18	94.18	94.18
16	674299036	09-JUL-2024	.1	Dry to Dry	92.61	92.61	92.61
17	674299037	09-JUL-2024	.1	Dry to Dry	97.32	97.32	97.32
18	1205781346 MB	09-JUL-2024	.1	Dry to Wet	140.02	140.02	140.02
19	1205781347 DUP (674299021)	09-JUL-2024	.1	Dry to Dry	106.54	106.54	106.54
20	1205781348 - 2 LCS	09-JUL-2024	.1	Dry to Wet	115	115	115

Reagent/Solvent Lot ID	Description	Amount	Comments:

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 15:34:40.19

```
*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299021.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM22.CNF;678
Background date    : 28-JUL-2024 11:28:18
Sample date       : 26-JUN-2024 10:50:00 Acquisition date : 31-JUL-2024 14:30:48
Sample ID        : G674299021 Sample quantity : 1.06540E+02 GRAM
Detector name    : GAM22 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:04.22 0.1%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
```

BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	57.13	53	245	0.72	114.77	112	6	1.46E-02	49.1	
2	0	63.24*	47	396	0.77	126.99	123	9	1.30E-02	79.5	
3	3	74.83	255	478	1.75	150.18	145	17	7.07E-02	19.2	1.32E+00
4	3	77.19	445	395	1.48	154.89	145	17	1.24E-01	9.8	
5	0	83.68	61	269	1.71	167.87	166	6	1.69E-02	44.5	
6	0	87.00	87	336	1.26	174.52	172	7	2.43E-02	36.4	
7	0	92.60*	257	538	1.28	185.72	179	14	7.15E-02	20.7	
8	0	98.57	45	180	0.82	197.65	195	7	1.24E-02	52.1	
9	0	143.96*	59	190	1.66	288.41	285	7	1.64E-02	42.0	
10	0	185.88*	482	296	1.74	372.25	365	13	1.34E-01	8.8	
11	0	190.61	34	182	0.95	381.70	379	8	9.36E-03	71.5	
12	2	238.66*	425	195	1.53	477.79	470	21	1.18E-01	7.8	1.59E+00
13	2	242.10	425	216	1.78	484.67	470	21	1.18E-01	8.8	
14	0	270.54	48	156	1.81	541.54	538	8	1.33E-02	47.3	
15	0	295.15*	930	189	1.65	590.75	583	14	2.58E-01	4.6	
16	0	301.14	116	154	4.03	602.73	597	14	3.21E-02	25.3	
17	0	312.30	20	112	1.56	625.05	618	10	5.69E-03	102.2	
18	0	339.03*	91	200	1.83	678.51	670	15	2.53E-02	35.9	
19	0	351.94*	1499	201	1.64	704.31	698	15	4.17E-01	3.3	
20	0	410.27	57	54	2.09	820.97	817	9	1.57E-02	27.2	
21	0	440.49*	49	84	3.73	881.42	875	14	1.37E-02	42.3	
22	0	511.12*	68	137	1.86	1022.67	1014	19	1.89E-02	47.1	
23	0	527.43	43	62	4.72	1055.29	1048	13	1.20E-02	40.3	
24	1	534.29	29	47	1.95	1069.00	1061	30	8.12E-03	51.1	2.41E+00
25	1	537.29	27	42	1.95	1075.00	1061	30	7.52E-03	55.3	
26	0	583.61*	88	127	1.91	1167.63	1161	14	2.44E-02	29.6	
27	0	609.32*	1056	85	1.72	1219.06	1212	13	2.93E-01	3.6	
28	0	666.38	56	42	1.78	1333.18	1327	15	1.56E-02	28.4	
29	0	727.46*	36	79	4.52	1455.34	1444	20	1.01E-02	63.3	
30	0	736.73	31	58	4.85	1473.88	1466	20	8.72E-03	60.8	
31	0	768.49*	113	62	1.92	1537.40	1530	13	3.15E-02	17.3	
32	0	786.08	43	24	1.31	1572.58	1567	11	1.19E-02	27.1	
33	0	799.06	21	63	4.52	1598.54	1582	18	5.75E-03	92.6	
34	0	911.49*	91	44	2.16	1823.40	1815	15	2.54E-02	19.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	934.32	75	21	2.05	1869.08	1864	11	2.07E-02	16.8	
36	0	953.33	14	18	0.92	1907.11	1900	12	3.89E-03	66.2	
37	0	969.13*	42	50	1.48	1938.71	1935	13	1.16E-02	38.5	
38	0	1017.68	13	19	2.26	2035.81	2030	10	3.50E-03	71.9	
39	0	1109.20	16	11	1.36	2218.86	2215	9	4.48E-03	44.8	
40	0	1120.19*	272	38	2.24	2240.85	2231	17	7.56E-02	8.1	
41	0	1156.93	11	41	1.11	2314.35	2306	12	3.17E-03	113.9	
42	0	1237.95	107	30	2.12	2476.42	2465	20	2.97E-02	15.8	
43	0	1295.24	10	26	2.46	2591.01	2579	14	2.78E-03	115.8	
44	0	1377.21	116	13	2.45	2754.99	2743	25	3.23E-02	12.4	
45	0	1407.13	31	58	6.71	2814.84	2795	29	8.61E-03	72.8	
46	1	1458.70	37	24	2.46	2918.00	2912	21	1.02E-02	35.5	3.46E+00
47	1	1461.20*	80	25	2.46	2923.00	2912	21	2.22E-02	18.3	
48	0	1509.76*	57	17	1.41	3020.16	3007	23	1.57E-02	23.4	
49	0	1534.74	7	16	3.54	3070.12	3059	14	1.93E-03	132.4	
50	0	1609.84	5	15	0.73	3220.36	3210	12	1.50E-03	149.3	
51	0	1662.25	17	13	2.80	3325.21	3316	15	4.74E-03	54.4	
52	0	1715.59	9	3	4.44	3431.93	3424	13	2.49E-03	53.0	
53	0	1730.20	46	11	3.05	3461.16	3453	14	1.28E-02	21.0	
54	0	1764.44*	226	5	2.91	3529.66	3519	19	6.26E-02	7.2	
55	0	1804.06	15	0	4.72	3608.93	3603	13	4.17E-03	25.8	
56	0	1847.88	45	0	2.45	3696.60	3691	14	1.25E-02	14.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299021.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 10:50:00 Acquisition date : 31-JUL-2024 14:30:48
Sample ID : G674299021 Sample quantity : 106.54 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:04.22 0.1%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.821E+00	2.727E+00	2.727E+00	36.70	OK
CD-109	88.03	3.70*	5.935E+00	2.843E+00	2.997E+00	72.72	OK
SN-126	64.28	9.60	2.474E+00	1.423E+00	1.423E+00	159.09	OK
	86.94	8.90	5.935E+00	1.182E+00	1.182E+00	72.72	OK
	87.57	37.00*	5.935E+00	2.843E-01	2.843E-01	72.72	OK
TL-208	277.37	6.60	5.729E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	3.729E+00	1.884E-01	1.884E-01	59.20	OK
	860.56	12.50	2.805E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	4.039E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	5.021E+00	1.591E+01	1.591E+01	6.66	OK
BI-212	727.33	6.67*	3.197E+00	1.150E+00	1.150E+00	126.65	OK
	1620.50	1.47	1.707E+00	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.342E+00	4.093E+00	4.093E+00	38.41	OK
	77.11	17.10	4.690E+00	3.978E+00	3.978E+00	19.59	OK
	238.63	43.60*	6.225E+00	1.089E+00	1.089E+00	15.68	OK
	300.09	3.30	5.474E+00	4.426E+00	4.426E+00	50.65	OK
BI-213	440.45	25.94*	4.426E+00	2.939E-01	2.939E-01	84.55	OK
BI-214	609.32	45.49*	3.624E+00	4.342E+00	4.342E+00	7.23	OK
	1120.29	14.92	2.248E+00	5.408E+00	5.408E+00	16.15	OK
	1764.49	15.30	1.641E+00	5.903E+00	5.904E+00	14.40	OK
PB-214	74.82	5.80	4.342E+00	7.254E+00	7.254E+00	38.41	OK
	77.11	9.70	4.690E+00	7.012E+00	7.012E+00	19.59	OK
	87.09	3.41	5.935E+00	3.084E+00	3.084E+00	72.72	OK
	242.00	7.25	6.176E+00	6.605E+00	6.605E+00	17.56	OK
	295.22	18.42	5.535E+00	6.310E+00	6.311E+00	9.15	OK
	351.93	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66	OK
RN-222	609.32	45.49*	3.624E+00	4.342E+00	4.342E+00	7.23	OK
	1120.29	14.92	2.248E+00	5.408E+00	5.408E+00	16.15	OK
	1764.49	15.30	1.641E+00	5.903E+00	5.904E+00	14.40	OK
RA-224	240.99	4.10*	6.176E+00	1.168E+01	1.168E+01	17.56	OK
RA-226	74.82	5.80	4.342E+00	7.254E+00	7.254E+00	38.41	OK
	77.11	9.70	4.690E+00	7.012E+00	7.012E+00	19.59	OK
	87.09	3.41	5.935E+00	3.084E+00	3.084E+00	72.72	OK
	242.00	7.25	6.176E+00	6.605E+00	6.605E+00	17.56	OK
	295.22	18.42	5.535E+00	6.310E+00	6.311E+00	9.15	OK
	351.93	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66	OK
AC-228	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	5.126E+00	1.086E+00	1.086E+00	71.75	OK
	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33	OK
	968.97	15.80	2.542E+00	6.935E-01	6.935E-01	77.04	OK
RA-228	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	5.126E+00	1.086E+00	1.086E+00	71.75	OK
	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33	OK
	968.97	15.80	2.542E+00	6.935E-01	6.935E-01	77.04	OK
TH-228	74.82	10.28	4.342E+00	4.093E+00	4.093E+00	38.41	OK
	77.11	17.10	4.690E+00	3.978E+00	3.978E+00	19.59	OK
	238.63	43.60*	6.225E+00	1.089E+00	1.089E+00	15.68	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-230	300.09	3.30	5.474E+00	4.426E+00	4.426E+00	50.65	OK
	74.82	5.80	4.342E+00	7.254E+00	7.254E+00	38.41	OK
	77.11	9.70	4.690E+00	7.012E+00	7.012E+00	19.59	OK
	87.09	3.41	5.935E+00	3.084E+00	3.084E+00	72.72	OK
	242.00	7.25	6.176E+00	6.605E+00	6.605E+00	17.56	OK
PA-231	295.22	18.42	5.535E+00	6.310E+00	6.310E+00	9.15	OK
	351.93	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66	OK
	283.69	1.70	5.658E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	5.474E+00	2.730E+00	2.730E+00	50.65	OK
	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
TH-232	338.32	11.27	5.126E+00	1.086E+00	1.086E+00	71.75	OK
	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33	OK
	968.97	15.80	2.542E+00	6.935E-01	6.935E-01	77.04	OK
	300.13	6.63	5.474E+00	2.203E+00	2.203E+00	50.65	OK
PA-233	311.90	38.50*	5.364E+00	6.846E-02	6.846E-02	204.46	OK
	340.48	4.45	5.126E+00	2.750E+00	2.750E+00	71.75	OK
	63.29	3.70*	2.474E+00	3.693E+00	3.693E+00	159.09	OK
	92.59	4.23	6.479E+00	6.702E+00	6.702E+00	41.43	OK
	74.82	5.80	4.342E+00	7.254E+00	7.254E+00	38.41	OK
U-234	77.11	9.70	4.690E+00	7.012E+00	7.012E+00	19.59	OK
	87.09	3.41	5.935E+00	3.084E+00	3.084E+00	72.72	OK
	242.00	7.25	6.176E+00	6.605E+00	6.605E+00	17.56	OK
	295.22	18.42	5.535E+00	6.310E+00	6.310E+00	9.15	OK
	351.93	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66	OK
U-235	89.96	3.47	6.237E+00	----- Line	Not Found	-----	Absent
	93.35	5.60	6.479E+00	5.062E+00	5.062E+00	41.43	OK
	143.76	10.96*	7.731E+00	4.924E-01	4.924E-01	84.04	OK
	163.33	5.08	7.469E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	7.080E+00	8.330E-01	8.330E-01	17.67	OK
NP-237	205.31	5.01	6.744E+00	----- Line	Not Found	-----	Absent
	94.65	10.56	6.649E+00	----- Line	Not Found	-----	Absent
	98.43	16.90	6.934E+00	2.708E-01	2.708E-01	104.10	OK
	300.13	6.63	5.474E+00	2.203E+00	2.203E+00	50.65	OK
	311.90	38.50*	5.364E+00	6.846E-02	6.846E-02	204.46	OK
U-238	340.48	4.45	5.126E+00	2.750E+00	2.750E+00	71.75	OK
	63.29	3.70*	2.474E+00	3.693E+00	3.693E+00	159.09	OK
	92.59	4.23	6.479E+00	6.702E+00	6.702E+00	41.43	OK
	43.53	5.90	2.160E-01	----- Line	Not Found	-----	Absent
	74.66	67.20*	4.342E+00	6.261E-01	6.261E-01	38.41	OK
ANH-511	511.00	100.00*	4.054E+00	1.141E-01	1.141E-01	94.20	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299021.CNF;1
Acquisition date : 31-JUL-2024 14:30:48 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:04.22 Half life ratio : *****
Sample date : 26-JUN-2024 10:50:00 Analyst initials: MXR1
Sample ID : G674299021 Sample Quantity : 1.0654E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.727E+00	9.807E-01	8.599E-01
CD-109	2.997E+00	2.136E+00	2.752E+00
SN-126	2.843E-01	2.026E-01	2.631E-01
TL-208	1.884E-01	1.093E-01	8.363E-02
BI-211	1.591E+01	1.038E+00	5.137E-01
BI-212	1.150E+00	1.427E+00	9.545E-01
PB-212	1.089E+00	1.674E-01	1.604E-01
BI-213	2.939E-01	2.435E-01	2.199E-01
BI-214	4.342E+00	3.075E-01	1.534E-01
PB-214	5.773E+00	3.768E-01	1.867E-01
RN-222	4.342E+00	3.075E-01	1.534E-01
RA-224	1.168E+01	2.010E+00	1.716E+00
RA-226	5.773E+00	3.768E-01	1.867E-01
AC-228	8.868E-01	3.418E-01	3.028E-01
RA-228	8.868E-01	3.418E-01	3.028E-01
TH-228	1.089E+00	1.674E-01	1.604E-01
TH-230	5.773E+00	3.768E-01	1.867E-01
PA-231	2.730E+00	1.355E+00	1.069E+00
TH-232	8.868E-01	3.418E-01	3.028E-01
PA-233	6.846E-02	1.372E-01	1.627E-01
TH-234	3.693E+00	5.758E+00	5.894E+00
U-234	5.773E+00	3.768E-01	1.867E-01
U-235	4.924E-01	4.056E-01	5.707E-01
NP-237	6.846E-02	1.372E-01	1.627E-01
U-238	3.693E+00	5.758E+00	5.894E+00
AM-243	6.261E-01	2.357E-01	1.965E-01
ANH-511	1.141E-01	1.053E-01	6.517E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-7.138E-01	5.889E-01	9.675E-01	NOT IDENT.
NA-22	1.400E-02	4.595E-02	9.055E-02	NOT IDENT.
NA-24	0.000E+00	4.591E+15	0.000E+00	SHORT HLIF

AL-26	-6.345E-03	4.017E-02	6.547E-02	NOT IDENT.
SC-46	1.872E-02	5.714E-02	1.066E-01	FAIL ABUN
V-48	-4.059E-02	1.930E-01	3.388E-01	NOT IDENT.
CR-51	2.786E-02	9.492E-01	1.733E+00	NOT IDENT.
MN-52	2.007E-01	3.303E+00	6.396E+00	FAIL ABUN
MN-54	9.352E-04	5.148E-02	9.186E-02	NOT IDENT.
CO-56	7.706E-02	5.736E-02	1.177E-01	FAIL ABUN
MN-56	0.000E+00	7.400E+40	0.000E+00	SHORT HLIF
CO-57	-1.088E-03	4.598E-02	8.023E-02	NOT IDENT.
CO-58	-1.388E-02	6.258E-02	1.096E-01	NOT IDENT.
FE-59	1.976E-02	1.302E-01	2.517E-01	NOT IDENT.
CO-60	-1.591E-02	4.896E-02	8.852E-02	NOT IDENT.
ZN-65	1.051E-01	1.166E-01	2.018E-01	NOT IDENT.
GE-68	2.496E-01	1.173E+00	2.346E+00	NOT IDENT.
AS-73	5.161E+00	4.550E+00	7.680E+00	NOT IDENT.
AS-74	1.654E-01	2.685E-01	5.093E-01	NOT IDENT.
SE-75	4.337E-02	7.744E-02	1.375E-01	NOT IDENT.
BR-77	0.000E+00	9.011E+03	0.000E+00	SHORT HLIF
SR-82	2.371E-02	7.449E-01	1.342E+00	NOT IDENT.
RB-83	6.209E-02	1.174E-01	2.082E-01	NOT IDENT.
RB-84	7.405E-02	1.425E-01	2.677E-01	NOT IDENT.
KR-85	1.645E+01	9.744E+00	1.959E+01	NOT IDENT.
SR-85	1.074E-01	6.374E-02	1.281E-01	NOT IDENT.
RB-86	6.234E-01	1.492E+00	3.055E+00	NOT IDENT.
Y-88	1.431E-03	5.027E-02	9.804E-02	NOT IDENT.
Y-91	4.238E+00	2.867E+01	5.472E+01	NOT IDENT.
NB-94	1.091E-02	4.548E-02	8.301E-02	NOT IDENT.
NB-95	1.444E-01	8.100E-02	1.513E-01	NOT IDENT.
NB-95M	2.165E-01	2.674E-01	4.309E-01	NOT IDENT.
ZR-95	2.997E-02	1.013E-01	1.898E-01	NOT IDENT.
NB-97	0.000E+00	1.378E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	9.789E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.563E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	7.848E+40	0.000E+00	SHORT HLIF
RH-101	-3.172E-02	5.369E-02	9.096E-02	NOT IDENT.
RH-102	-1.097E-02	6.020E-02	1.082E-01	NOT IDENT.
RU-103	1.805E-02	7.330E-02	1.362E-01	FAIL ABUN
RH-106	5.888E-02	3.796E-01	7.027E-01	NOT IDENT.
RU-106	5.888E-02	3.796E-01	7.027E-01	NOT IDENT.
AG-108M	-1.516E-02	4.508E-02	7.380E-02	NOT IDENT.
AG-110	-3.029E-01	9.567E-01	1.678E+00	NOT IDENT.
AG-110M	-1.886E-02	7.170E-02	1.243E-01	NOT IDENT.
SN-113	1.383E-02	7.030E-02	1.299E-01	NOT IDENT.
CD-115	0.000E+00	1.209E+04	0.000E+00	SHORT HLIF
SN-117M	-2.300E-01	2.651E-01	4.387E-01	NOT IDENT.
SB-122	0.000E+00	4.297E+02	0.000E+00	SHORT HLIF
TE-123M	-5.088E-02	5.720E-02	9.453E-02	NOT IDENT.
SB-124	-3.560E-02	1.168E-01	2.154E-01	NOT IDENT.
SB-125	-1.262E-01	1.360E-01	2.309E-01	NOT IDENT.
TE-125M	-6.701E+00	2.150E+01	3.712E+01	NOT IDENT.
I-126	0.000E+00	1.238E+00	1.760E+00	FAIL ABUN
SB-126	-1.411E-01	5.901E-01	9.022E-01	FAIL ABUN
SB-127	2.400E+01	5.365E+01	1.025E+02	NOT IDENT.
I-131	-2.914E-01	9.446E-01	1.690E+00	NOT IDENT.
I-132	0.000E+00	5.560E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	9.192E+01	0.000E+00	SHORT HLIF
BA-133	-8.685E-02	6.714E-02	9.485E-02	NOT IDENT.
I-133	0.000E+00	9.285E+10	0.000E+00	SHORT HLIF
CS-134	6.346E-02	4.972E-02	1.010E-01	NOT IDENT.
I-135	0.000E+00	6.274E+37	0.000E+00	SHORT HLIF
CS-136	1.696E-01	3.552E-01	7.039E-01	NOT IDENT.
BA-137M	3.263E-03	4.497E-02	7.261E-02	NOT IDENT.
CS-137	3.447E-03	4.751E-02	7.670E-02	NOT IDENT.
LA-138	-1.663E-03	6.139E-02	1.181E-01	NOT IDENT.
CE-139	-2.873E-02	5.614E-02	9.446E-02	NOT IDENT.
BA-140	1.299E+00	1.408E+00	1.858E+00	FAIL ABUN
LA-140	-1.479E-03	3.335E-01	6.321E-01	NOT IDENT.
CE-141	2.366E-01	1.949E-01	2.704E-01	FAIL ABUN
CE-143	0.000E+00	7.238E+06	0.000E+00	SHORT HLIF
CE-144	3.151E-01	3.444E-01	6.268E-01	NOT IDENT.
PM-144	-5.089E-02	4.285E-02	6.776E-02	NOT IDENT.
PR-144	-3.849E+00	3.240E+00	5.125E+00	NOT IDENT.
PM-146	1.901E-02	5.610E-02	1.049E-01	FAIL ABUN
ND-147	2.161E+00	3.371E+00	4.544E+00	FAIL ABUN
PM-147	-2.104E+02	1.267E+03	2.198E+03	NOT IDENT.
PM-149	0.000E+00	8.262E+04	0.000E+00	SHORT HLIF
EU-150	2.332E-02	4.370E-02	7.360E-02	FAIL ABUN
EU-152	-8.562E-02	1.611E-01	2.475E-01	FAIL ABUN

GD-153	1.746E-01	1.782E-01	2.632E-01	FAIL ABUN
EU-154	3.724E-02	1.286E-01	2.530E-01	NOT IDENT.
EU-155	1.198E-01	1.741E-01	3.166E-01	FAIL ABUN
TB-160	-3.463E-02	2.067E-01	3.636E-01	FAIL ABUN
HO-166M	6.712E-02	6.931E-02	1.380E-01	FAIL ABUN
TM-171	-3.449E+01	8.162E+01	1.430E+02	NOT IDENT.
HF-172	-2.148E-01	3.330E-01	5.579E-01	FAIL ABUN
LU-172	4.605E-02	6.446E-02	1.339E-01	FAIL ABUN
LU-176	-1.448E-02	5.579E-02	6.337E-02	FAIL ABUN
HF-181	2.910E-02	7.955E-02	1.491E-01	FAIL ABUN
TA-182	-3.983E-02	2.068E-01	3.827E-01	FAIL ABUN
RE-183	1.027E+00	9.870E-01	1.441E+00	FAIL ABUN
RE-184	1.462E-01	2.188E-01	4.147E-01	NOT IDENT.
W-188	-1.393E+01	1.615E+01	2.247E+01	FAIL ABUN
IR-192	-3.712E-02	6.585E-02	1.074E-01	FAIL ABUN
HG-203	-2.998E-02	8.449E-02	1.405E-01	NOT IDENT.
TL-204	3.813E+00	1.231E+01	1.982E+01	FAIL ABUN
BI-207	-1.054E-02	5.249E-02	9.813E-02	FAIL ABUN
BI-210	-1.263E+01	2.456E+01	4.293E+01	NOT IDENT.
PB-210	-1.263E+01	2.456E+01	4.293E+01	NOT IDENT.
PB-211	-1.167E-01	1.076E+00	1.802E+00	NOT IDENT.
RN-219	8.940E-02	5.552E-01	1.024E+00	FAIL ABUN
RA-223	5.079E-01	9.984E-01	1.868E+00	FAIL ABUN
AC-225	-1.547E+00	3.849E+00	6.450E+00	NOT IDENT.
AC-227	-1.923E-01	4.450E-01	7.384E-01	FAIL ABUN
TH-227	-1.923E-01	4.450E-01	7.384E-01	FAIL ABUN
TH-229	-6.760E-01	9.711E-01	1.412E+00	FAIL ABUN
TH-231	5.079E-01	9.984E-01	1.868E+00	FAIL ABUN
PA-234	2.920E-01	3.741E-01	6.938E-01	FAIL ABUN
PA-234M	2.304E+00	6.159E+00	1.147E+01	NOT IDENT.
NP-238	0.000E+00	1.551E+04	0.000E+00	SHORT HLIF
NP-239	-2.709E-01	4.384E-01	7.445E-01	FAIL ABUN
PU-239	4.950E+02	5.653E+02	1.027E+03	NOT IDENT.
AM-241	1.236E-01	6.240E-01	8.042E-01	NOT IDENT.
CM-243	-2.110E-01	1.865E-01	2.923E-01	FAIL ABUN
BK-247	-6.098E-03	1.268E-01	2.161E-01	FAIL ABUN
CM-247	1.025E-02	5.110E-02	9.445E-02	NOT IDENT.
CF-249	1.189E-02	5.868E-02	1.081E-01	NOT IDENT.
CF-251	-6.370E-03	2.303E-01	3.957E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	75	10.66*	1.821E+00	2.727E+00	2.727E+00	36.70
CD-109	88.03	89	3.70*	5.935E+00	2.843E+00	2.997E+00	72.72
SN-126	64.28	48	9.60	2.474E+00	1.423E+00	1.423E+00	159.09
	86.94	89	8.90	5.935E+00	1.182E+00	1.182E+00	72.72
	87.57	89	37.00*	5.935E+00	2.843E-01	2.843E-01	72.72
CE-141	145.44	59	48.29*	7.731E+00	1.118E-01	2.366E-01	84.04
TL-208	277.37	-----	6.60	5.729E+00	-----	Line Not Found	-----
	583.19	85	85.00*	3.729E+00	1.884E-01	1.884E-01	59.20
	860.56	-----	12.50	2.805E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.039E+00	-----	Line Not Found	-----
	351.06	1464	12.92*	5.021E+00	1.591E+01	1.591E+01	6.66
BI-212	727.33	35	6.67*	3.197E+00	1.150E+00	1.150E+00	126.65
	1620.50	-----	1.47	1.707E+00	-----	Line Not Found	-----
PB-212	74.82	259	10.28	4.342E+00	4.093E+00	4.093E+00	38.41
	77.11	453	17.10	4.690E+00	3.978E+00	3.978E+00	19.59
	238.63	419	43.60*	6.225E+00	1.089E+00	1.089E+00	15.68
	300.09	113	3.30	5.474E+00	4.426E+00	4.426E+00	50.65
BI-213	440.45	48	25.94*	4.426E+00	2.939E-01	2.939E-01	84.55
BI-214	609.32	1016	45.49*	3.624E+00	4.342E+00	4.342E+00	7.23
	1120.29	257	14.92	2.248E+00	5.408E+00	5.408E+00	16.15
	1764.49	210	15.30	1.641E+00	5.903E+00	5.904E+00	14.40
PB-214	74.82	259	5.80	4.342E+00	7.254E+00	7.254E+00	38.41
	77.11	453	9.70	4.690E+00	7.012E+00	7.012E+00	19.59
	87.09	89	3.41	5.935E+00	3.084E+00	3.084E+00	72.72
	242.00	420	7.25	6.176E+00	6.605E+00	6.605E+00	17.56
	295.22	913	18.42	5.535E+00	6.310E+00	6.311E+00	9.15
	351.93	1464	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66
RN-222	609.32	1016	45.49*	3.624E+00	4.342E+00	4.342E+00	7.23
	1120.29	257	14.92	2.248E+00	5.408E+00	5.408E+00	16.15
	1764.49	210	15.30	1.641E+00	5.903E+00	5.904E+00	14.40
RA-224	240.99	420	4.10*	6.176E+00	1.168E+01	1.168E+01	17.56
RA-226	74.82	259	5.80	4.342E+00	7.254E+00	7.254E+00	38.41
	77.11	453	9.70	4.690E+00	7.012E+00	7.012E+00	19.59
	87.09	89	3.41	5.935E+00	3.084E+00	3.084E+00	72.72
	242.00	420	7.25	6.176E+00	6.605E+00	6.605E+00	17.56
	295.22	913	18.42	5.535E+00	6.310E+00	6.311E+00	9.15
	351.93	1464	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66
AC-228	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	89	11.27	5.126E+00	1.086E+00	1.086E+00	71.75
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
	911.20	87	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33
	968.97	40	15.80	2.542E+00	6.935E-01	6.935E-01	77.04
RA-228	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	89	11.27	5.126E+00	1.086E+00	1.086E+00	71.75
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
	911.20	87	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33
	968.97	40	15.80	2.542E+00	6.935E-01	6.935E-01	77.04

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	259	10.28	4.342E+00	4.093E+00	4.093E+00	38.41
	77.11	453	17.10	4.690E+00	3.978E+00	3.978E+00	19.59
	238.63	419	43.60*	6.225E+00	1.089E+00	1.089E+00	15.68
	300.09	113	3.30	5.474E+00	4.426E+00	4.426E+00	50.65
TH-230	74.82	259	5.80	4.342E+00	7.254E+00	7.254E+00	38.41
	77.11	453	9.70	4.690E+00	7.012E+00	7.012E+00	19.59
	87.09	89	3.41	5.935E+00	3.084E+00	3.084E+00	72.72
	242.00	420	7.25	6.176E+00	6.605E+00	6.605E+00	17.56
	295.22	913	18.42	5.535E+00	6.310E+00	6.310E+00	9.15
	351.93	1464	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66
PA-231	283.69	-----	1.70	5.658E+00	-----	Line Not Found	-----
	301.36	113	5.35*	5.474E+00	2.730E+00	2.730E+00	50.65
TH-232	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	89	11.27	5.126E+00	1.086E+00	1.086E+00	71.75
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
PA-233	911.20	87	25.80*	2.676E+00	8.868E-01	8.868E-01	39.33
	968.97	40	15.80	2.542E+00	6.935E-01	6.935E-01	77.04
	300.13	113	6.63	5.474E+00	2.203E+00	2.203E+00	50.65
	311.90	20	38.50*	5.364E+00	6.846E-02	6.846E-02	204.46
	340.48	89	4.45	5.126E+00	2.750E+00	2.750E+00	71.75
TH-234	63.29	48	3.70*	2.474E+00	3.693E+00	3.693E+00	159.09
	92.59	261	4.23	6.479E+00	6.702E+00	6.702E+00	41.43
U-234	74.82	259	5.80	4.342E+00	7.254E+00	7.254E+00	38.41
	77.11	453	9.70	4.690E+00	7.012E+00	7.012E+00	19.59
	87.09	89	3.41	5.935E+00	3.084E+00	3.084E+00	72.72
	242.00	420	7.25	6.176E+00	6.605E+00	6.605E+00	17.56
	295.22	913	18.42	5.535E+00	6.310E+00	6.310E+00	9.15
U-235	351.93	1464	35.60*	5.021E+00	5.773E+00	5.773E+00	6.66
	89.96	-----	3.47	6.237E+00	-----	Line Not Found	-----
	93.35	261	5.60	6.479E+00	5.062E+00	5.062E+00	41.43
	143.76	59	10.96*	7.731E+00	4.924E-01	4.924E-01	84.04
	163.33	-----	5.08	7.469E+00	-----	Line Not Found	-----
NP-237	185.72	479	57.20	7.080E+00	8.330E-01	8.330E-01	17.67
	205.31	-----	5.01	6.744E+00	-----	Line Not Found	-----
	94.65	-----	10.56	6.649E+00	-----	Line Not Found	-----
	98.43	45	16.90	6.934E+00	2.708E-01	2.708E-01	104.10
	300.13	113	6.63	5.474E+00	2.203E+00	2.203E+00	50.65
	311.90	20	38.50*	5.364E+00	6.846E-02	6.846E-02	204.46
U-238	340.48	89	4.45	5.126E+00	2.750E+00	2.750E+00	71.75
	63.29	48	3.70*	2.474E+00	3.693E+00	3.693E+00	159.09
AM-243	92.59	261	4.23	6.479E+00	6.702E+00	6.702E+00	41.43
	43.53	-----	5.90	2.160E-01	-----	Line Not Found	-----
ANH-511	74.66	259	67.20*	4.342E+00	6.261E-01	6.261E-01	38.41
	511.00	66	100.00*	4.054E+00	1.141E-01	1.141E-01	94.20

Flag: "*" = Keyline

Total number of lines in spectrum 56
Number of unidentified lines 18
Number of lines tentatively identified by NID 38 67.86%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.727E+00	2.727E+00	1.001E+00	36.70	
CD-109	461.40D	1.05	2.843E+00	2.997E+00	2.179E+00	72.72	
SN-126	2.30E+05Y	1.00	2.843E-01	2.843E-01	2.067E-01	72.72	
CE-141	32.51D	2.12	1.118E-01	2.366E-01	1.988E-01	84.04	
TL-208	1.41E+10Y	1.00	1.884E-01	1.884E-01	1.115E-01	59.20	
BI-211	7.04E+08Y	1.00	1.591E+01	1.591E+01	0.106E+01	6.66	
BI-212	1.41E+10Y	1.00	1.150E+00	1.150E+00	1.456E+00	126.65	
PB-212	1.41E+10Y	1.00	1.089E+00	1.089E+00	0.171E+00	15.68	
BI-213	7340.00Y	1.00	2.939E-01	2.939E-01	2.485E-01	84.55	
BI-214	1600.00Y	1.00	4.342E+00	4.342E+00	0.314E+00	7.23	
PB-214	1600.00Y	1.00	5.773E+00	5.773E+00	0.385E+00	6.66	
RN-222	1600.00Y	1.00	4.342E+00	4.342E+00	0.314E+00	7.23	
RA-224	1.41E+10Y	1.00	1.168E+01	1.168E+01	0.205E+01	17.56	
RA-226	1600.00Y	1.00	5.773E+00	5.773E+00	0.385E+00	6.66	
AC-228	1.41E+10Y	1.00	8.868E-01	8.868E-01	3.488E-01	39.33	
RA-228	1.41E+10Y	1.00	8.868E-01	8.868E-01	3.488E-01	39.33	
TH-228	1.41E+10Y	1.00	1.089E+00	1.089E+00	0.171E+00	15.68	
TH-230	7.54E+04Y	1.00	5.773E+00	5.773E+00	0.384E+00	6.66	
PA-231	7.04E+08Y	1.00	2.730E+00	2.730E+00	1.383E+00	50.65	
TH-232	1.41E+10Y	1.00	8.868E-01	8.868E-01	3.488E-01	39.33	
PA-233	2.14E+06Y	1.00	6.846E-02	6.846E-02	14.00E-02	204.46	
TH-234	4.47E+09Y	1.00	3.693E+00	3.693E+00	5.876E+00	159.09	
U-234	2.45E+05Y	1.00	5.773E+00	5.773E+00	0.384E+00	6.66	
U-235	7.04E+08Y	1.00	4.924E-01	4.924E-01	4.138E-01	84.04	
NP-237	2.14E+06Y	1.00	6.846E-02	6.846E-02	14.00E-02	204.46	
U-238	4.47E+09Y	1.00	3.693E+00	3.693E+00	5.876E+00	159.09	
AM-243	7370.00Y	1.00	6.261E-01	6.261E-01	2.405E-01	38.41	
ANH-511	1.00E+09Y	1.00	1.141E-01	1.141E-01	1.075E-01	94.20	
Total Activity :			8.328E+01	8.356E+01			

Grand Total Activity : 8.328E+01 8.356E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	57.13	54	252	0.72	114.77	112	6	1.46E-02	98.1	1.53E+00	T
0	83.68	62	273	1.71	167.87	166	6	1.69E-02	89.1	5.55E+00	T
0	190.61	33	181	0.95	381.70	379	8	9.36E-03	****	7.00E+00	
0	270.54	47	153	1.81	541.54	538	8	1.33E-02	94.6	5.81E+00	T
0	410.27	55	53	2.09	820.97	817	9	1.57E-02	54.4	4.61E+00	T
0	527.43	42	60	4.72	1055.29	1048	13	1.20E-02	80.7	3.98E+00	T
1	534.29	28	46	1.95	1069.00	1061	30	8.12E-03	****	3.94E+00	
1	537.29	26	41	1.95	1075.00	1061	30	7.52E-03	****	3.93E+00	T
0	666.38	54	40	1.78	1333.18	1327	15	1.56E-02	56.7	3.41E+00	T
0	736.73	30	55	4.85	1473.88	1466	20	8.72E-03	****	3.17E+00	T
0	768.49	108	59	1.92	1537.40	1530	13	3.15E-02	34.5	3.07E+00	
0	786.08	41	23	1.31	1572.58	1567	11	1.19E-02	54.2	3.01E+00	
0	799.06	20	60	4.52	1598.54	1582	18	5.75E-03	****	2.98E+00	
0	934.32	71	20	2.05	1869.08	1864	11	2.07E-02	33.5	2.62E+00	T
0	953.33	13	17	0.92	1907.11	1900	12	3.89E-03	****	2.58E+00	T
0	1017.68	12	18	2.26	2035.81	2030	10	3.50E-03	****	2.44E+00	
0	1109.20	15	10	1.36	2218.86	2215	9	4.48E-03	89.7	2.27E+00	
0	1156.93	11	38	1.11	2314.35	2306	12	3.17E-03	****	2.19E+00	
0	1237.95	101	28	2.12	2476.42	2465	20	2.97E-02	31.7	2.07E+00	T
0	1295.24	9	24	2.46	2591.01	2579	14	2.78E-03	****	1.99E+00	
0	1377.21	109	12	2.45	2754.99	2743	25	3.23E-02	24.7	1.90E+00	
0	1407.13	29	54	6.71	2814.84	2795	29	8.61E-03	****	1.87E+00	T
1	1458.70	35	23	2.46	2918.00	2912	21	1.02E-02	70.9	1.82E+00	T
0	1509.76	53	16	1.41	3020.16	3007	23	1.57E-02	46.8	1.78E+00	
0	1534.74	6	15	3.54	3070.12	3059	14	1.93E-03	****	1.76E+00	
0	1609.84	5	14	0.73	3220.36	3210	12	1.50E-03	****	1.71E+00	
0	1662.25	16	12	2.80	3325.21	3316	15	4.74E-03	****	1.68E+00	
0	1715.59	8	3	4.44	3431.93	3424	13	2.49E-03	****	1.66E+00	
0	1730.20	43	10	3.05	3461.16	3453	14	1.28E-02	42.0	1.65E+00	
0	1804.06	14	0	4.72	3608.93	3603	13	4.17E-03	51.6	1.63E+00	
0	1847.88	42	0	2.45	3696.60	3691	14	1.25E-02	29.8	1.62E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299021.CNF;1 *
* Acquisition date : 31-JUL-2024 14:30:48 Sensitivity : 3.000 *
* Detector ID : GAM22 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:04.22 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:50:00 Nuclide Library : SOLID *
* Sample ID : G674299021 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.0654E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.813E-01
CD-109	1.332E+00
SN-126	1.273E-01
TL-208	3.883E-02
BI-211	2.423E-01
BI-212	4.329E-01
PB-212	7.670E-02
BI-213	1.017E-01
BI-214	7.095E-02
PB-214	8.808E-02
RN-222	7.095E-02
RA-224	8.206E-01
RA-226	8.808E-02
AC-228	1.377E-01
RA-228	1.377E-01
TH-228	7.670E-02
TH-230	8.807E-02
PA-231	5.023E-01
TH-232	1.377E-01
PA-233	7.675E-02
TH-234	2.844E+00
U-234	8.807E-02
U-235	2.742E-01
NP-237	7.675E-02
U-238	2.844E+00
AM-243	9.498E-02
ANH-511	3.025E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.498E-01	NOT IDENT.
NA-22	4.047E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.692E-02	NOT IDENT.

SC-46	4.865E-02	FAIL ABUN
V-48	1.521E-01	NOT IDENT.
CR-51	8.232E-01	NOT IDENT.
MN-52	2.797E+00	FAIL ABUN
MN-54	4.238E-02	NOT IDENT.
CO-56	5.429E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.855E-02	NOT IDENT.
CO-58	5.023E-02	NOT IDENT.
FE-59	1.132E-01	NOT IDENT.
CO-60	3.935E-02	NOT IDENT.
ZN-65	9.177E-02	NOT IDENT.
GE-68	1.035E+00	NOT IDENT.
AS-73	3.721E+00	NOT IDENT.
AS-74	2.375E-01	NOT IDENT.
SE-75	6.539E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.170E-01	NOT IDENT.
RB-83	9.712E-02	NOT IDENT.
RB-84	1.234E-01	NOT IDENT.
KR-85	9.250E+00	NOT IDENT.
SR-85	6.050E-02	NOT IDENT.
RB-86	1.353E+00	NOT IDENT.
Y-88	4.164E-02	NOT IDENT.
Y-91	2.475E+01	NOT IDENT.
NB-94	3.862E-02	NOT IDENT.
NB-95	7.114E-02	NOT IDENT.
NB-95M	2.066E-01	NOT IDENT.
ZR-95	8.670E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.366E-02	NOT IDENT.
RH-102	4.924E-02	NOT IDENT.
RU-103	6.343E-02	FAIL ABUN
RH-106	3.229E-01	NOT IDENT.
RU-106	3.229E-01	NOT IDENT.
AG-108M	3.456E-02	NOT IDENT.
AG-110	7.714E-01	NOT IDENT.
AG-110M	5.691E-02	NOT IDENT.
SN-113	6.112E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.106E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.543E-02	NOT IDENT.
SB-124	8.988E-02	NOT IDENT.
SB-125	1.082E-01	NOT IDENT.
TE-125M	1.784E+01	NOT IDENT.
I-126	8.245E-01	FAIL ABUN
SB-126	4.117E-01	FAIL ABUN
SB-127	4.693E+01	NOT IDENT.
I-131	7.958E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.434E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.669E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.203E-01	NOT IDENT.
BA-137M	3.322E-02	NOT IDENT.
CS-137	3.510E-02	NOT IDENT.
LA-138	5.120E-02	NOT IDENT.
CE-139	4.533E-02	NOT IDENT.
BA-140	8.621E-01	FAIL ABUN
LA-140	2.772E-01	NOT IDENT.
CE-141	1.298E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	3.015E-01	NOT IDENT.
PM-144	3.080E-02	NOT IDENT.
PR-144	2.329E+00	NOT IDENT.
PM-146	4.905E-02	FAIL ABUN
ND-147	2.104E+00	FAIL ABUN
PM-147	1.055E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.489E-02	FAIL ABUN
EU-152	1.167E-01	FAIL ABUN
GD-153	1.263E-01	FAIL ABUN

EU-154	1.130E-01	NOT IDENT.
EU-155	1.521E-01	FAIL ABUN
TB-160	1.658E-01	FAIL ABUN
HO-166M	6.360E-02	FAIL ABUN
TM-171	6.924E+01	NOT IDENT.
HF-172	2.678E-01	FAIL ABUN
LU-172	6.019E-02	FAIL ABUN
LU-176	2.981E-02	FAIL ABUN
HF-181	6.958E-02	FAIL ABUN
TA-182	1.706E-01	FAIL ABUN
RE-183	6.967E-01	FAIL ABUN
RE-184	1.890E-01	NOT IDENT.
W-188	1.064E+01	FAIL ABUN
IR-192	5.070E-02	FAIL ABUN
HG-203	6.684E-02	NOT IDENT.
TL-204	9.582E+00	FAIL ABUN
BI-207	4.366E-02	FAIL ABUN
BI-210	2.089E+01	NOT IDENT.
PB-210	2.089E+01	NOT IDENT.
PB-211	8.470E-01	NOT IDENT.
RN-219	4.810E-01	FAIL ABUN
RA-223	8.888E-01	FAIL ABUN
AC-225	3.079E+00	NOT IDENT.
AC-227	3.526E-01	FAIL ABUN
TH-227	3.526E-01	FAIL ABUN
TH-229	6.748E-01	FAIL ABUN
TH-231	8.888E-01	FAIL ABUN
PA-234	3.166E-01	FAIL ABUN
PA-234M	5.280E+00	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	3.567E-01	FAIL ABUN
PU-239	4.940E+02	NOT IDENT.
AM-241	3.881E-01	NOT IDENT.
CM-243	1.399E-01	FAIL ABUN
BK-247	1.027E-01	FAIL ABUN
CM-247	4.440E-02	NOT IDENT.
CF-249	5.103E-02	NOT IDENT.
CF-251	1.903E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299021.CNF;1
Acquisition date : 31-JUL-2024 14:30:48 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:04.22 Half life ratio : *****
Sample date : 26-JUN-2024 10:50:00 Nuclide Library : SOLID
Sample ID : G674299021 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.0654E+02 GRAM
Quantity Err(%) : 1.8772E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.727E+00	1.017E+00	1.017E+00
CD-109	2.997E+00	2.175E+00	2.175E+00
SN-126	2.843E-01	2.058E-01	2.058E-01
TL-208	1.884E-01	1.108E-01	1.108E-01
BI-211	1.591E+01	1.820E+00	1.820E+00
BI-212	1.150E+00	1.433E+00	1.433E+00
PB-212	1.089E+00	2.096E-01	2.096E-01
BI-213	2.939E-01	2.449E-01	2.449E-01
BI-214	4.342E+00	5.347E-01	5.347E-01
PB-214	5.773E+00	6.537E-01	6.537E-01
RN-222	4.342E+00	5.347E-01	5.347E-01
RA-224	1.168E+01	2.421E+00	2.421E+00
RA-226	5.773E+00	6.537E-01	6.537E-01
AC-228	8.868E-01	3.578E-01	3.578E-01
RA-228	8.868E-01	3.578E-01	3.578E-01
TH-228	1.089E+00	2.096E-01	2.096E-01
TH-230	5.773E+00	6.537E-01	6.537E-01
PA-231	2.730E+00	1.496E+00	1.496E+00
TH-232	8.868E-01	3.578E-01	3.578E-01
PA-233	6.846E-02	1.374E-01	1.374E-01
TH-234	3.693E+00	5.829E+00	5.829E+00
U-234	5.773E+00	6.537E-01	6.537E-01
U-235	4.924E-01	4.085E-01	4.085E-01
NP-237	6.846E-02	1.374E-01	1.374E-01
U-238	3.693E+00	5.829E+00	5.829E+00
AM-243	6.261E-01	2.475E-01	2.475E-01
ANH-511	1.141E-01	1.059E-01	1.059E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-7.138E-01	5.924E-01	6.742E-01	NOT IDENT.
NA-22	1.400E-02	4.596E-02	4.640E-02	NOT IDENT.
NA-24	7.072E+14	4.592E+15	4.603E+15	SHORT HLIF

AL-26	-6.345E-03	4.017E-02	4.027E-02	NOT IDENT.
SC-46	1.872E-02	5.718E-02	5.780E-02	FAIL ABUN
V-48	-4.059E-02	1.931E-01	1.939E-01	NOT IDENT.
CR-51	2.786E-02	9.492E-01	9.493E-01	NOT IDENT.
MN-52	2.007E-01	3.303E+00	3.304E+00	FAIL ABUN
MN-54	9.352E-04	5.148E-02	5.148E-02	NOT IDENT.
CO-56	7.706E-02	5.804E-02	6.764E-02	FAIL ABUN
MN-56	1.000E+41	7.488E+40	0.000E+00	SHORT HLIF
CO-57	-1.088E-03	4.598E-02	4.598E-02	NOT IDENT.
CO-58	-1.388E-02	6.260E-02	6.291E-02	NOT IDENT.
FE-59	1.976E-02	1.302E-01	1.305E-01	NOT IDENT.
CO-60	-1.591E-02	4.898E-02	4.950E-02	NOT IDENT.
ZN-65	1.051E-01	1.169E-01	1.262E-01	NOT IDENT.
GE-68	2.496E-01	1.174E+00	1.179E+00	NOT IDENT.
AS-73	5.161E+00	4.711E+00	5.254E+00	NOT IDENT.
AS-74	1.654E-01	2.692E-01	2.793E-01	NOT IDENT.
SE-75	4.337E-02	7.759E-02	8.001E-02	NOT IDENT.
BR-77	5.863E+04	6.056E+04	6.608E+04	SHORT HLIF
SR-82	2.371E-02	7.449E-01	7.450E-01	NOT IDENT.
RB-83	6.209E-02	1.178E-01	1.211E-01	NOT IDENT.
RB-84	7.405E-02	1.427E-01	1.466E-01	NOT IDENT.
KR-85	1.645E+01	9.862E+00	1.234E+01	NOT IDENT.
SR-85	1.074E-01	6.451E-02	8.066E-02	NOT IDENT.
RB-86	6.234E-01	1.493E+00	1.519E+00	NOT IDENT.
Y-88	1.431E-03	5.027E-02	5.027E-02	NOT IDENT.
Y-91	4.238E+00	2.867E+01	2.874E+01	NOT IDENT.
NB-94	1.091E-02	4.550E-02	4.576E-02	NOT IDENT.
NB-95	1.444E-01	8.255E-02	1.051E-01	NOT IDENT.
NB-95M	2.165E-01	2.689E-01	2.861E-01	NOT IDENT.
ZR-95	2.997E-02	1.013E-01	1.022E-01	NOT IDENT.
NB-97	-1.000E+41	1.382E+41	0.000E+00	SHORT HLIF
ZR-97	7.298E+14	9.812E+14	1.035E+15	SHORT HLIF
MO-99	-1.034E+02	2.563E+03	2.563E+03	SHORT HLIF
TC-99M	2.658E+40	7.855E+40	0.000E+00	SHORT HLIF
RH-101	-3.172E-02	5.403E-02	5.589E-02	NOT IDENT.
RH-102	-1.097E-02	6.021E-02	6.042E-02	NOT IDENT.
RU-103	1.805E-02	7.332E-02	7.377E-02	FAIL ABUN
RH-106	5.888E-02	3.797E-01	3.806E-01	NOT IDENT.
RU-106	5.888E-02	3.797E-01	3.806E-01	NOT IDENT.
AG-108M	-1.516E-02	4.510E-02	4.561E-02	NOT IDENT.
AG-110	-3.029E-01	9.572E-01	9.669E-01	NOT IDENT.
AG-110M	-1.886E-02	7.173E-02	7.223E-02	NOT IDENT.
SN-113	1.383E-02	7.031E-02	7.058E-02	NOT IDENT.
CD-115	1.530E+04	1.220E+04	1.401E+04	SHORT HLIF
SN-117M	-2.300E-01	2.664E-01	2.859E-01	NOT IDENT.
SB-122	-3.698E+02	4.312E+02	4.623E+02	SHORT HLIF
TE-123M	-5.088E-02	5.748E-02	6.189E-02	NOT IDENT.
SB-124	-3.560E-02	1.168E-01	1.179E-01	NOT IDENT.
SB-125	-1.262E-01	1.365E-01	1.478E-01	NOT IDENT.
TE-125M	-6.701E+00	2.150E+01	2.172E+01	NOT IDENT.
I-126	2.227E+00	1.264E+00	1.614E+00	FAIL ABUN
SB-126	-1.411E-01	5.904E-01	5.939E-01	FAIL ABUN
SB-127	2.400E+01	5.385E+01	5.493E+01	NOT IDENT.
I-131	-2.914E-01	9.449E-01	9.540E-01	NOT IDENT.
I-132	1.000E+41	2.241E+41	0.000E+00	SHORT HLIF
TE-132	-7.363E+00	9.193E+01	9.199E+01	SHORT HLIF
BA-133	-8.685E-02	6.761E-02	7.813E-02	NOT IDENT.
I-133	8.785E+10	9.517E+10	1.031E+11	SHORT HLIF
CS-134	6.346E-02	5.023E-02	5.780E-02	NOT IDENT.
I-135	2.753E+37	6.652E+37	0.000E+00	SHORT HLIF
CS-136	1.696E-01	3.558E-01	3.639E-01	NOT IDENT.
BA-137M	3.263E-03	4.497E-02	4.500E-02	NOT IDENT.
CS-137	3.447E-03	4.751E-02	4.754E-02	NOT IDENT.
LA-138	-1.663E-03	6.139E-02	6.140E-02	NOT IDENT.
CE-139	-2.873E-02	5.652E-02	5.799E-02	NOT IDENT.
BA-140	1.299E+00	1.414E+00	1.530E+00	FAIL ABUN
LA-140	-1.479E-03	3.335E-01	3.335E-01	NOT IDENT.
CE-141	2.366E-01	1.962E-01	2.233E-01	FAIL ABUN
CE-143	4.888E+07	8.901E+06	2.377E+07	SHORT HLIF
CE-144	3.151E-01	3.456E-01	3.737E-01	NOT IDENT.
PM-144	-5.089E-02	4.319E-02	4.891E-02	NOT IDENT.
PR-144	-3.849E+00	3.266E+00	3.699E+00	NOT IDENT.
PM-146	1.901E-02	5.613E-02	5.678E-02	FAIL ABUN
ND-147	2.161E+00	3.377E+00	3.515E+00	FAIL ABUN
PM-147	-2.104E+02	1.267E+03	1.270E+03	NOT IDENT.
PM-149	2.987E+04	8.277E+04	8.386E+04	SHORT HLIF
EU-150	2.332E-02	4.375E-02	4.500E-02	FAIL ABUN
EU-152	-8.562E-02	1.613E-01	1.659E-01	FAIL ABUN

GD-153	1.746E-01	1.791E-01	1.956E-01	FAIL ABUN
EU-154	3.724E-02	1.286E-01	1.297E-01	NOT IDENT.
EU-155	1.198E-01	1.746E-01	1.827E-01	FAIL ABUN
TB-160	-3.463E-02	2.068E-01	2.074E-01	FAIL ABUN
HO-166M	6.712E-02	6.972E-02	7.600E-02	FAIL ABUN
TM-171	-3.449E+01	8.178E+01	8.325E+01	NOT IDENT.
HF-172	-2.148E-01	3.351E-01	3.488E-01	FAIL ABUN
LU-172	4.605E-02	6.474E-02	6.799E-02	FAIL ABUN
LU-176	-1.448E-02	5.581E-02	5.619E-02	FAIL ABUN
HF-181	2.910E-02	7.960E-02	8.067E-02	FAIL ABUN
TA-182	-3.983E-02	2.068E-01	2.076E-01	FAIL ABUN
RE-183	1.027E+00	9.992E-01	1.101E+00	FAIL ABUN
RE-184	1.462E-01	2.197E-01	2.294E-01	NOT IDENT.
W-188	-1.393E+01	1.628E+01	1.745E+01	FAIL ABUN
IR-192	-3.712E-02	6.595E-02	6.804E-02	FAIL ABUN
HG-203	-2.998E-02	8.455E-02	8.562E-02	NOT IDENT.
TL-204	3.813E+00	1.232E+01	1.244E+01	FAIL ABUN
BI-207	-1.054E-02	5.250E-02	5.271E-02	FAIL ABUN
BI-210	-1.263E+01	2.461E+01	2.526E+01	NOT IDENT.
PB-210	-1.263E+01	2.461E+01	2.526E+01	NOT IDENT.
PB-211	-1.167E-01	1.076E+00	1.077E+00	NOT IDENT.
RN-219	8.940E-02	5.553E-01	5.568E-01	FAIL ABUN
RA-223	5.079E-01	9.999E-01	1.026E+00	FAIL ABUN
AC-225	-1.547E+00	3.855E+00	3.918E+00	NOT IDENT.
AC-227	-1.923E-01	4.462E-01	4.545E-01	FAIL ABUN
TH-227	-1.923E-01	4.462E-01	4.545E-01	FAIL ABUN
TH-229	-6.760E-01	9.744E-01	1.021E+00	FAIL ABUN
TH-231	5.079E-01	9.999E-01	1.026E+00	FAIL ABUN
PA-234	2.920E-01	5.024E-01	5.194E-01	FAIL ABUN
PA-234M	2.304E+00	6.164E+00	6.251E+00	NOT IDENT.
NP-238	2.383E+03	1.551E+04	1.555E+04	SHORT HLIF
NP-239	-2.709E-01	4.393E-01	4.560E-01	FAIL ABUN
PU-239	4.950E+02	5.667E+02	6.091E+02	NOT IDENT.
AM-241	1.236E-01	6.242E-01	6.267E-01	NOT IDENT.
CM-243	-2.110E-01	1.882E-01	2.109E-01	FAIL ABUN
BK-247	-6.098E-03	1.268E-01	1.268E-01	FAIL ABUN
CM-247	1.025E-02	5.114E-02	5.135E-02	NOT IDENT.
CF-249	1.189E-02	5.869E-02	5.894E-02	NOT IDENT.
CF-251	-6.370E-03	2.303E-01	2.303E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	459.5634	85.43	275.6283	131.20	225.1741
45.60	441.7194	86.55	276.0072	133.02	197.4953
46.54	460.1940	86.79	276.0881	133.52	174.7095
49.72	0.0000	86.94	276.1392	136.00	231.3990
51.35	355.7708	87.09	288.0679	136.47	245.0546
51.87	359.8465	87.57	291.2082	140.51	0.0000
52.39	327.1569	88.03	291.3712	143.76	198.3977
52.97	306.8963	88.34	291.4803	144.24	178.0040
53.44	260.6655	88.47	291.5252	145.44	197.1169
54.07	311.9842	89.96	292.0471	152.43	191.4490
57.36	0.0000	1093.63	186.9023	153.25	193.7022
57.53	250.9637	91.11	187.0065	323.87	205.5132
57.98	245.4312	92.59	187.3335	156.02	219.6237
59.27	240.2010	93.35	187.4999	158.56	227.5383
59.32	240.2195	94.56	155.8040	159.00	239.3234
59.54	240.3003	94.65	155.8207	162.33	199.4560
60.96	277.1327	94.67	155.8239	162.66	199.5112
61.17	277.2205	94.87	155.8604	163.33	219.9039
62.93	248.2373	97.43	156.3182	165.86	207.5242
63.29	248.3697	98.43	156.4959	176.31	222.2111
63.58	248.4754	98.44	156.4975	176.60	224.4203
64.28	259.2942	99.53	183.8089	177.52	209.4661
66.73	274.6703	100.11	168.8528	181.07	0.0000
67.24	279.2104	102.03	173.7459	181.52	206.3266
125.81	290.9648	103.18	206.9440	184.41	175.8477
67.75	290.9939	103.37	206.9868	143.76	176.0240
68.89	249.4100	105.21	169.8038	193.51	186.8904
69.67	272.9092	105.31	169.8218	197.03	179.7053
70.82	261.7108	106.12	178.0652	198.01	169.9649
70.83	261.7149	106.47	178.1323	201.83	174.8347
72.81	279.9199	109.28	215.2133	203.43	194.8505
72.87	279.9434	111.00	195.2637	205.31	175.2697
74.66	276.7212	111.76	0.0000	210.85	152.7175
74.82	276.7789	114.06	211.1904	215.65	139.9043
74.97	276.8353	116.30	0.0000	218.12	162.3861
77.11	277.6196	116.74	196.4258	222.11	151.6746
78.74	278.2090	119.76	191.8945	227.09	172.3257
79.69	256.9721	121.12	195.2378	227.38	152.2128
80.03	247.2704	121.22	195.2572	228.16	0.0000
80.12	247.2999	121.78	200.5076	228.18	160.1331
80.19	247.3229	122.06	201.5917	116.74	160.1331
80.57	297.5197	122.92	199.7043	235.69	145.1709
81.00	297.6831	123.07	184.2906	235.96	157.0155
81.07	247.5998	265.00	190.5818	238.63	160.1053
81.75	247.8138	125.81	212.6575	238.98	0.0000
82.47	248.0394	127.23	211.9151	240.99	160.3495
83.79	304.6465	127.91	206.8827	242.00	160.4535
84.00	281.0586	129.30	182.2985	244.70	139.2233

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	148.9981	344.28	107.7667	563.25	72.9205
252.80	138.7964	345.93	86.2852	564.24	0.0000
254.15	0.0000	351.06	91.9146	569.33	65.1802
256.23	164.1738	351.93	91.9550	946.00	65.1843
260.90	0.0000	355.39	0.0000	569.70	63.2129
264.66	108.8677	356.01	106.9549	583.19	56.5703
264.80	107.7294	364.49	95.2460	584.27	56.5912
265.00	122.6434	366.42	0.0000	595.83	50.8381
269.46	106.8823	372.51	82.8673	427.87	59.9084
270.03	117.2651	375.05	63.8220	602.52	0.0000
271.23	174.2996	377.52	88.5427	604.72	54.3950
273.65	164.1800	356.01	98.8802	607.14	56.0410
276.40	153.4809	388.16	89.9056	609.32	51.0747
277.37	150.1062	388.63	82.5842	610.33	51.2938
277.60	150.1247	391.69	80.8645	614.28	46.5473
278.00	135.1432	264.66	73.8171	618.01	42.1859
279.20	137.5502	401.81	77.5490	620.36	51.2661
279.54	136.4207	402.40	77.5695	621.93	40.2307
279.70	136.4351	404.85	85.0526	630.19	0.0000
280.46	129.5547	410.95	74.1626	631.29	37.3297
283.69	111.2539	413.71	66.8287	633.25	40.3833
284.31	122.8860	414.70	72.8014	634.78	41.4142
285.41	129.9261	423.72	83.9067	635.95	32.3350
285.90	0.0000	427.09	90.5675	636.99	33.3575
287.50	133.5654	427.87	98.0690	657.50	49.8643
290.67	136.1334	433.94	81.1601	657.76	53.9381
293.27	0.0000	439.40	50.6884	657.90	0.0000
351.93	111.9863	440.45	50.7107	661.66	37.4985
295.96	113.4336	453.88	62.3332	664.57	0.0000
879.38	115.7034	463.37	70.1654	666.33	40.8215
299.98	80.0018	468.07	76.9522	666.50	40.8228
300.09	80.0073	473.00	78.0587	667.71	0.0000
300.13	80.0087	475.06	53.3536	677.62	33.7986
301.36	80.0630	476.78	79.1322	685.70	31.8316
302.85	80.1298	477.60	86.7885	692.65	0.0000
256.23	81.6092	482.18	57.3294	695.00	38.1021
304.85	87.9578	487.02	56.4828	696.49	55.6348
306.78	95.0949	492.35	0.0000	696.51	55.6348
308.46	93.4196	497.08	55.7477	697.00	50.4909
311.90	93.2411	505.52	58.6319	697.30	44.3123
316.51	112.1206	507.63	0.0000	697.49	44.3149
319.41	114.3631	511.00	56.0508	702.65	54.7080
320.08	117.9498	514.00	56.1149	706.68	57.8765
321.04	113.5742	514.00	56.1167	711.68	30.0178
323.87	113.7441	520.40	53.0201	720.70	41.5173
325.23	136.0578	520.69	0.0000	721.93	0.0000
328.76	101.5643	522.65	0.0000	722.78	41.5442
333.37	110.0239	527.90	0.0000	722.91	41.5454
333.97	94.3352	528.26	35.0200	723.31	39.8883
334.37	104.3618	529.59	35.0376	724.19	31.8636
338.28	94.9028	529.87	0.0000	727.33	31.8945
338.32	94.9044	531.02	35.0563	733.00	29.1707
311.90	83.1782	537.26	46.8516	735.93	41.7078
340.48	83.1782	546.56	0.0000	333.97	41.7273
340.55	83.1810	552.55	43.1903	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	55.1912	949.00	28.2820	1384.29	24.2554
747.24	33.4785	667.71	0.0000	1408.01	18.5148
748.06	31.3943	962.31	48.7695	1434.09	15.6664
752.31	46.1014	964.08	30.1617	1435.80	14.6917
753.82	29.3510	966.17	40.8272	1457.56	0.0000
756.73	32.5231	911.20	63.9475	1460.82	20.6616
756.80	32.5241	983.53	28.9675	1489.16	17.7996
884.68	40.3711	984.45	0.0000	1505.03	14.8748
765.81	40.3934	1274.44	26.8213	1584.12	23.1202
766.42	42.0837	1001.03	32.4453	1596.21	17.1237
766.84	44.1931	1002.74	41.4127	1620.50	8.0910
772.60	0.0000	1004.73	44.7925	1621.92	15.1743
776.52	43.2610	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	11.2535
778.90	39.0675	1028.54	0.0000	1750.46	0.0000
783.70	27.0680	1037.84	19.8623	1764.49	7.2451
788.74	25.4121	1038.76	0.0000	1063.66	5.1794
792.07	19.7838	631.29	18.0938	1771.35	6.9072
795.86	27.5853	1048.07	27.1494	1791.20	0.0000
810.06	61.7825	1049.04	32.5863	1808.65	8.6837
810.29	56.4597	1050.41	32.5969	1810.72	0.0000
344.28	51.1348	1063.66	24.5215	1836.06	10.4639
810.76	44.7468	1077.00	15.4868		
815.77	28.8062	1077.34	16.3986		
1048.07	43.7765	1085.87	17.3431		
832.01	51.4395	1093.63	17.3728		
834.85	47.1904	1099.45	24.7206		
835.71	50.4194	1112.07	9.1812		
836.80	0.0000	1112.84	9.1826		
846.75	0.0000	1115.54	18.3760		
846.77	24.7470	1120.29	25.7537		
856.80	39.9177	1120.55	25.7551		
860.56	34.5586	1221.41	26.0658		
871.09	36.8212	1129.67	23.0420		
873.19	34.6738	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	39.0718	1173.23	23.2581		
880.51	41.2552	1177.95	27.9375		
881.60	36.9229	1189.05	25.2031		
883.24	34.7656	1204.77	28.0957		
884.68	44.5597	1221.41	25.3731		
889.28	31.5559	1231.02	25.1094		
894.76	32.6907	1235.36	18.8486		
898.04	39.2618	1238.28	18.8594		
900.72	25.1015	1260.41	0.0000		
903.28	24.9616	1271.87	20.8860		
911.20	33.9233	1274.44	19.9469		
912.08	33.9308	1274.54	19.9479		
923.98	0.0000	1291.59	19.0615		
926.50	20.8729	1298.22	0.0000		
929.11	31.6591	1312.11	14.3540		
935.54	24.6641	1332.49	25.9387		
937.49	14.1004	1362.66	0.0000		
944.13	26.4822	1365.19	21.2674		
946.00	23.5508	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 1-AUG-2024 08:30:20.30

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299022.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM01.CNF;859
Background date    : 28-JUL-2024 11:21:41
Sample date       : 26-JUN-2024 10:55:00 Acquisition date : 31-JUL-2024 15:04:33
Sample ID        : G674299022 Sample quantity : 9.38200E+01 GRAM
Detector name    : GAM01 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.29 0.0%
Energy tolerance : 2.00000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****

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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	35.38*	28	43	1.93	70.88	67	9	7.67E-03	51.2	
2	0	63.12*	16	85	0.85	126.34	123	8	4.46E-03	107.2	
3	3	74.94	103	93	1.12	149.97	146	16	2.87E-02	17.8	2.72E+00
4	3	77.31*	195	95	1.49	154.72	146	16	5.42E-02	12.5	
5	0	87.48	45	110	0.99	175.05	172	7	1.24E-02	41.9	
6	0	93.39*	59	143	1.19	186.88	182	10	1.64E-02	43.4	
7	0	144.45*	18	93	1.00	288.98	284	10	4.89E-03	107.8	
8	0	154.65	43	73	1.91	309.38	304	10	1.20E-02	40.4	
9	0	186.47*	60	59	1.24	373.00	369	11	1.67E-02	31.2	
10	3	238.87*	215	48	1.41	477.80	473	21	5.98E-02	9.0	7.49E-01
11	3	242.04	85	51	1.87	484.15	473	21	2.37E-02	22.6	
12	0	270.55	46	33	1.40	541.15	536	9	1.27E-02	25.5	
13	1	295.57*	152	43	1.59	591.19	585	32	4.22E-02	11.0	2.90E+00
14	1	300.48	21	29	1.45	601.00	585	32	5.81E-03	57.3	
15	1	306.12	22	27	1.60	612.29	585	32	6.23E-03	54.3	
16	0	338.89*	49	59	1.41	677.83	673	12	1.37E-02	35.0	
17	0	352.42*	198	53	1.23	704.88	699	13	5.50E-02	10.6	
18	0	402.17	3	27	0.60	804.37	798	8	8.80E-04	286.0	
19	0	441.33	13	26	4.33	882.69	876	13	3.61E-03	85.5	
20	0	511.75*	14	41	2.05	1023.53	1018	14	3.97E-03	114.3	
21	0	571.16	28	15	2.74	1142.36	1136	12	7.75E-03	33.6	
22	0	584.36*	73	17	1.29	1168.75	1163	11	2.03E-02	16.6	
23	0	610.35*	179	24	1.60	1220.74	1213	16	4.99E-02	9.8	
24	0	649.39	17	6	1.16	1298.82	1293	12	4.72E-03	37.7	
25	0	663.59	9	15	1.26	1327.22	1322	10	2.50E-03	87.1	
26	0	721.78	9	3	1.36	1443.61	1440	6	2.50E-03	45.1	
27	0	728.15*	13	24	0.99	1456.35	1447	16	3.48E-03	94.0	
28	0	807.27	14	11	2.82	1614.61	1609	9	3.93E-03	50.2	
29	0	825.31	13	3	1.08	1650.69	1647	10	3.59E-03	36.5	
30	0	843.98	8	11	5.39	1688.04	1679	13	2.30E-03	94.7	
31	0	883.05	7	4	0.48	1766.19	1761	7	2.02E-03	56.9	
32	0	912.65	50	11	1.84	1825.40	1819	14	1.39E-02	19.7	
33	0	968.95	51	16	5.68	1938.00	1926	21	1.42E-02	24.0	
34	0	1056.40	11	6	2.77	2112.94	2108	11	3.10E-03	50.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1122.20	27	16	1.52	2244.57	2239	15	7.42E-03	37.3	
36	0	1255.13	6	3	0.46	2510.50	2506	6	1.67E-03	61.2	
37	0	1276.48	6	2	1.19	2553.21	2550	6	1.53E-03	55.3	
38	0	1379.78	11	3	0.81	2759.88	2752	11	2.98E-03	43.3	
39	0	1462.75	100	3	1.71	2925.88	2920	12	2.78E-02	10.6	
40	0	1767.11	33	0	1.38	3534.85	3528	13	9.17E-03	17.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299022.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 10:55:00 Acquisition date : 31-JUL-2024 15:04:33
Sample ID : G674299022 Sample quantity : 93.820 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA1 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.29 0.0%
Energy tolerance : 2.00 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
NA-22	1274.54	99.94*	1.088E+00	3.767E-02	3.865E-02	110.60	OK
K-40	1460.82	10.66*	9.667E-01	7.220E+00	7.220E+00	21.18	OK
RB-84	881.60	68.90*	1.523E+00	5.171E-02	1.087E-01	113.80	OK
CD-109	88.03	3.70*	4.818E+00	1.892E+00	1.994E+00	83.80	OK
SN-126	64.28	9.60	2.388E+00	5.293E-01	5.293E-01	214.42	OK
	86.94	8.90	4.818E+00	7.864E-01	7.864E-01	83.80	OK
	87.57	37.00*	4.818E+00	1.892E-01	1.892E-01	83.80	OK
BA-137M	661.66	89.90*	1.969E+00	3.800E-02	3.808E-02	174.27	OK
CS-137	661.66	85.10*	1.969E+00	4.014E-02	4.023E-02	174.27	OK
CE-141	145.44	48.29*	5.915E+00	1.274E-02	2.698E-02	802.83	OK
TL-208	277.37	6.60	4.070E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.200E+00	2.917E-01	2.917E-01	33.24	OK
	860.56	12.50	1.559E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	3.515E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.364E+00	3.416E+00	3.416E+00	21.23	OK
BI-212	727.33	6.67*	1.813E+00	7.729E-01	7.729E-01	188.01	OK
	1620.50	1.47	8.896E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	3.732E+00	2.033E+00	2.033E+00	35.62	OK
	77.11	17.10	3.969E+00	2.168E+00	2.168E+00	24.91	OK
	238.63	43.60*	4.549E+00	8.154E-01	8.154E-01	17.95	OK
	300.09	3.30	3.824E+00	1.244E+00	1.244E+00	114.65	OK
BI-213	440.45	25.94*	2.794E+00	1.343E-01	1.343E-01	170.97	OK
BI-214	609.32	45.49*	2.118E+00	1.392E+00	1.392E+00	19.54	OK
	1120.29	14.92	1.223E+00	1.091E+00	1.091E+00	74.60	OK
	1764.49	15.30	8.350E-01	----- Line	Not Found	-----	Absent
PB-214	74.82	5.80	3.732E+00	3.603E+00	3.603E+00	35.62	OK
	77.11	9.70	3.969E+00	3.821E+00	3.822E+00	24.91	OK
	87.09	3.41	4.818E+00	2.052E+00	2.053E+00	83.80	OK
	242.00	7.25	4.506E+00	1.960E+00	1.961E+00	45.17	OK
	295.22	18.42	3.873E+00	1.598E+00	1.598E+00	21.94	OK
	351.93	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23	OK
RN-219	271.23	10.80	4.148E+00	7.634E-01	7.634E-01	50.92	OK
	401.81	6.60*	3.018E+00	1.190E-01	1.190E-01	571.92	OK
RN-222	609.32	45.49*	2.118E+00	1.392E+00	1.392E+00	19.54	OK
	1120.29	14.92	1.223E+00	1.091E+00	1.091E+00	74.60	OK
	1764.49	15.30	8.350E-01	----- Line	Not Found	-----	Absent
RA-224	240.99	4.10*	4.506E+00	3.467E+00	3.467E+00	45.17	OK
RA-226	74.82	5.80	3.732E+00	3.603E+00	3.603E+00	35.62	OK
	77.11	9.70	3.969E+00	3.821E+00	3.822E+00	24.91	OK
	87.09	3.41	4.818E+00	2.052E+00	2.053E+00	83.80	OK
	242.00	7.25	4.506E+00	1.960E+00	1.961E+00	45.17	OK
	295.22	18.42	3.873E+00	1.598E+00	1.598E+00	21.94	OK
	351.93	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23	OK
AC-228	105.21	1.10	5.682E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.473E+00	9.443E-01	9.443E-01	69.94	OK
	835.71	1.61	1.601E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41	OK
	968.97	15.80	1.399E+00	1.721E+00	1.721E+00	47.98	OK
RA-228	105.21	1.10	5.682E+00	----- Line	Not Found	-----	Absent

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
	338.32	11.27	3.473E+00	9.443E-01	9.443E-01	69.94	OK
	835.71	1.61	1.601E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41	OK
	968.97	15.80	1.399E+00	1.721E+00	1.721E+00	47.98	OK
TH-228	74.82	10.28	3.732E+00	2.033E+00	2.033E+00	35.62	OK
	77.11	17.10	3.969E+00	2.168E+00	2.168E+00	24.91	OK
	238.63	43.60*	4.549E+00	8.154E-01	8.154E-01	17.95	OK
	300.09	3.30	3.824E+00	1.244E+00	1.244E+00	114.65	OK
TH-230	74.82	5.80	3.732E+00	3.603E+00	3.603E+00	35.62	OK
	77.11	9.70	3.969E+00	3.821E+00	3.821E+00	24.91	OK
	87.09	3.41	4.818E+00	2.052E+00	2.052E+00	83.80	OK
	242.00	7.25	4.506E+00	1.960E+00	1.960E+00	45.17	OK
	295.22	18.42	3.873E+00	1.598E+00	1.598E+00	21.94	OK
	351.93	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23	OK
PA-231	283.69	1.70	3.999E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	3.824E+00	7.673E-01	7.673E-01	114.65	OK
TH-232	105.21	1.10	5.682E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.473E+00	9.443E-01	9.443E-01	69.94	OK
	835.71	1.61	1.601E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41	OK
	968.97	15.80	1.399E+00	1.721E+00	1.721E+00	47.98	OK
TH-234	63.29	3.70*	2.388E+00	1.373E+00	1.373E+00	214.42	OK
	92.59	4.23	5.187E+00	2.034E+00	2.034E+00	86.82	OK
U-234	74.82	5.80	3.732E+00	3.603E+00	3.603E+00	35.62	OK
	77.11	9.70	3.969E+00	3.821E+00	3.821E+00	24.91	OK
	87.09	3.41	4.818E+00	2.052E+00	2.052E+00	83.80	OK
	242.00	7.25	4.506E+00	1.960E+00	1.960E+00	45.17	OK
	295.22	18.42	3.873E+00	1.598E+00	1.598E+00	21.94	OK
	351.93	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23	OK
U-235	89.96	3.47	4.984E+00	----- Line	Not Found	-----	Absent
	93.35	5.60	5.187E+00	1.537E+00	1.537E+00	86.82	OK
	143.76	10.96*	5.921E+00	----- Line	Not Found	-----	<<INT Reject
	163.33	5.08	5.689E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.336E+00	1.484E-01	1.484E-01	62.46	OK
	205.31	5.01	5.040E+00	----- Line	Not Found	-----	Absent
U-238	63.29	3.70*	2.388E+00	1.373E+00	1.373E+00	214.42	OK
	92.59	4.23	5.187E+00	2.034E+00	2.034E+00	86.82	OK
AM-243	43.53	5.90	3.984E-01	----- Line	Not Found	-----	Absent
	74.66	67.20*	3.732E+00	3.110E-01	3.110E-01	35.62	OK
CM-247	278.00	3.40	4.062E+00	----- Line	Not Found	-----	Absent
	287.50	2.00	3.958E+00	----- Line	Not Found	-----	Absent
	402.40	72.00*	3.018E+00	1.091E-02	1.091E-02	571.92	OK
ANH-511	511.00	100.00*	2.465E+00	4.342E-02	4.342E-02	228.60	OK

Flag: "*" = Keyline

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299022.CNF;1 *
* Acquisition date : 31-JUL-2024 15:04:33 Sensitivity : 3.000 *
* Detector ID : GAM01 Energy tolerance: 2.000 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.29 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:55:00 Analyst initials: MXR1 *
* Sample ID : G674299022 Sample Quantity : 9.3820E+01 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 5-JUN-2024 05:42:50 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM01_CAN.CNF;19 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
NA-22	3.865E-02	4.189E-02	9.502E-02
K-40	7.220E+00	1.498E+00	1.219E+00
RB-84	1.087E-01	1.213E-01	2.267E-01
CD-109	1.994E+00	1.638E+00	2.343E+00
SN-126	1.892E-01	1.553E-01	2.118E-01
BA-137M	3.808E-02	6.504E-02	7.798E-02
CS-137	4.023E-02	6.871E-02	8.238E-02
CE-141	2.698E-02	2.122E-01	2.111E-01
TL-208	2.917E-01	9.502E-02	7.940E-02
BI-211	3.416E+00	7.107E-01	4.692E-01
BI-212	7.729E-01	1.424E+00	1.369E+00
PB-212	8.154E-01	1.434E-01	1.295E-01
BI-213	1.343E-01	2.250E-01	2.418E-01
BI-214	1.392E+00	2.666E-01	1.717E-01
PB-214	1.240E+00	2.579E-01	1.707E-01
RN-219	1.190E-01	6.672E-01	9.894E-01
RN-222	1.392E+00	2.666E-01	1.717E-01
RA-224	3.467E+00	1.535E+00	1.388E+00
RA-226	1.240E+00	2.579E-01	1.707E-01
AC-228	9.819E-01	3.792E-01	2.142E-01
RA-228	9.819E-01	3.792E-01	2.142E-01
TH-228	8.154E-01	1.434E-01	1.295E-01
TH-230	1.240E+00	2.579E-01	1.707E-01
PA-231	7.673E-01	8.620E-01	1.060E+00
TH-232	9.819E-01	3.792E-01	2.142E-01
TH-234	1.373E+00	2.886E+00	3.468E+00
U-234	1.240E+00	2.579E-01	1.707E-01
U-235	2.045E-01	4.321E-01	5.141E-01
U-238	1.373E+00	2.886E+00	3.468E+00
AM-243	3.110E-01	1.086E-01	1.339E-01
CM-247	1.091E-02	6.116E-02	9.604E-02
ANH-511	4.342E-02	9.728E-02	7.559E-02

---- Non-Identified Nuclides ----

Key-Line			
Activity	K.L.	Cnt	Uncert
			MDA

Nuclide	(pCi/GRAM)	(1.96-sigma)	(pCi/GRAM)	
BE-7	2.659E-01	5.593E-01	1.112E+00	NOT IDENT.
NA-24	0.000E+00	4.050E+15	0.000E+00	SHORT HLIF
AL-26	1.896E-02	3.890E-02	1.041E-01	NOT IDENT.
SC-46	2.654E-02	4.115E-02	1.015E-01	FAIL ABUN
V-48	-3.086E-02	2.248E-01	4.324E-01	NOT IDENT.
CR-51	2.179E-01	8.263E-01	1.566E+00	NOT IDENT.
MN-52	2.537E+00	3.954E+00	9.478E+00	NOT IDENT.
MN-54	-7.528E-03	4.333E-02	8.590E-02	NOT IDENT.
CO-56	-2.331E-02	6.148E-02	1.001E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	1.827E-02	3.452E-02	6.655E-02	NOT IDENT.
CO-58	2.754E-02	7.150E-02	1.317E-01	NOT IDENT.
FE-59	-1.463E-01	1.457E-01	2.289E-01	NOT IDENT.
CO-60	5.928E-03	4.429E-02	9.780E-02	NOT IDENT.
ZN-65	-6.046E-03	1.001E-01	1.985E-01	NOT IDENT.
GE-68	-2.123E+00	1.734E+00	2.560E+00	NOT IDENT.
AS-73	8.963E-01	1.711E+00	3.093E+00	NOT IDENT.
AS-74	-7.539E-02	2.789E-01	4.920E-01	NOT IDENT.
SE-75	-5.533E-03	6.500E-02	1.188E-01	FAIL ABUN
BR-77	0.000E+00	7.764E+03	0.000E+00	SHORT HLIF
SR-82	1.201E-01	7.766E-01	1.503E+00	NOT IDENT.
RB-83	-3.848E-03	1.121E-01	2.081E-01	NOT IDENT.
KR-85	1.495E+01	1.160E+01	2.398E+01	NOT IDENT.
SR-85	9.737E-02	7.584E-02	1.568E-01	NOT IDENT.
RB-86	-2.337E+00	2.030E+00	3.030E+00	NOT IDENT.
Y-88	-1.490E-02	5.684E-02	1.147E-01	NOT IDENT.
Y-91	3.359E+00	2.301E+01	5.133E+01	NOT IDENT.
NB-94	2.077E-02	5.371E-02	1.035E-01	NOT IDENT.
NB-95	-6.824E-02	6.897E-02	1.016E-01	NOT IDENT.
NB-95M	-6.310E-02	2.091E-01	3.316E-01	NOT IDENT.
ZR-95	1.631E-02	1.228E-01	2.353E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.761E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.506E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	5.950E+40	0.000E+00	SHORT HLIF
RH-101	-1.130E-02	4.137E-02	7.496E-02	NOT IDENT.
RH-102	-3.388E-02	7.892E-02	1.357E-01	NOT IDENT.
RU-103	-4.613E-04	6.983E-02	1.315E-01	FAIL ABUN
RH-106	2.484E-01	4.370E-01	8.944E-01	NOT IDENT.
RU-106	2.484E-01	4.370E-01	8.944E-01	NOT IDENT.
AG-108M	-5.277E-04	3.740E-02	6.984E-02	FAIL ABUN
AG-110	4.487E-01	9.822E-01	1.999E+00	NOT IDENT.
AG-110M	5.404E-02	6.027E-02	1.089E-01	FAIL ABUN
SN-113	5.327E-03	6.544E-02	1.228E-01	NOT IDENT.
CD-115	0.000E+00	6.842E+03	0.000E+00	SHORT HLIF
SN-117M	2.222E-01	2.008E-01	3.743E-01	FAIL ABUN
SB-122	0.000E+00	4.067E+02	0.000E+00	SHORT HLIF
TE-123M	2.382E-02	4.465E-02	7.827E-02	NOT IDENT.
SB-124	-4.870E-03	1.658E-01	3.481E-01	FAIL ABUN
SB-125	3.596E-02	1.377E-01	2.607E-01	NOT IDENT.
TE-125M	-4.702E+00	1.460E+01	2.659E+01	NOT IDENT.
I-126	1.058E+00	8.235E-01	1.814E+00	NOT IDENT.
SB-126	4.929E-01	4.361E-01	1.146E+00	FAIL ABUN
SB-127	-1.153E+01	7.337E+01	1.318E+02	NOT IDENT.
I-131	1.596E-01	8.172E-01	1.563E+00	NOT IDENT.
I-132	0.000E+00	1.561E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.891E+01	0.000E+00	SHORT HLIF
BA-133	-2.135E-02	4.985E-02	7.706E-02	NOT IDENT.
I-133	0.000E+00	6.126E+10	0.000E+00	SHORT HLIF
CS-134	4.419E-02	6.474E-02	1.321E-01	FAIL ABUN
I-135	0.000E+00	8.970E+37	0.000E+00	SHORT HLIF
CS-136	4.571E-02	3.277E-01	7.060E-01	FAIL ABUN
LA-138	5.658E-03	7.876E-02	1.669E-01	NOT IDENT.
CE-139	-1.567E-03	4.203E-02	7.720E-02	NOT IDENT.
BA-140	7.354E-01	1.009E+00	2.112E+00	FAIL ABUN
LA-140	-7.298E-02	4.163E-01	8.188E-01	NOT IDENT.
CE-143	0.000E+00	4.599E+06	0.000E+00	SHORT HLIF
CE-144	-2.016E-01	2.642E-01	4.596E-01	NOT IDENT.
PM-144	-8.958E-03	5.025E-02	9.020E-02	NOT IDENT.
PR-144	-6.500E-01	3.805E+00	6.838E+00	NOT IDENT.
PM-146	-2.219E-03	5.928E-02	1.091E-01	NOT IDENT.
ND-147	1.885E+00	2.017E+00	4.593E+00	NOT IDENT.
PM-147	-2.870E+02	9.764E+02	1.771E+03	NOT IDENT.
PM-149	0.000E+00	6.941E+04	0.000E+00	SHORT HLIF
EU-150	2.062E-02	4.016E-02	7.121E-02	FAIL ABUN
EU-152	-3.373E-02	1.517E-01	2.411E-01	NOT IDENT.

GD-153	-7.522E-02	1.254E-01	1.979E-01	NOT IDENT.
EU-154	4.443E-02	1.549E-01	3.095E-01	FAIL ABUN
EU-155	-3.474E-02	1.390E-01	2.518E-01	FAIL ABUN
TB-160	-6.688E-02	2.379E-01	3.946E-01	FAIL ABUN
HO-166M	6.217E-02	8.852E-02	1.821E-01	NOT IDENT.
TM-171	-2.756E+00	3.144E+01	5.355E+01	NOT IDENT.
HF-172	-1.251E-01	2.529E-01	4.505E-01	FAIL ABUN
LU-172	2.578E-02	8.607E-02	1.859E-01	FAIL ABUN
LU-176	4.772E-02	5.083E-02	6.671E-02	FAIL ABUN
HF-181	2.852E-02	9.172E-02	1.755E-01	NOT IDENT.
TA-182	-2.450E-02	2.060E-01	4.201E-01	FAIL ABUN
RE-183	2.630E-01	3.799E-01	6.969E-01	NOT IDENT.
RE-184	-1.624E-01	2.327E-01	4.098E-01	NOT IDENT.
W-188	4.480E+00	1.176E+01	2.069E+01	FAIL ABUN
IR-192	-3.148E-02	5.690E-02	9.826E-02	FAIL ABUN
HG-203	5.227E-02	6.916E-02	1.361E-01	NOT IDENT.
TL-204	-8.941E-01	8.224E+00	1.261E+01	NOT IDENT.
BI-207	1.321E-02	4.324E-02	1.029E-01	FAIL ABUN
BI-210	8.239E+00	6.946E+00	1.313E+01	NOT IDENT.
PB-210	8.239E+00	6.946E+00	1.313E+01	NOT IDENT.
PB-211	2.518E-01	1.012E+00	1.757E+00	NOT IDENT.
RA-223	-1.016E-01	7.895E-01	1.443E+00	FAIL ABUN
AC-225	2.529E+00	2.892E+00	5.757E+00	NOT IDENT.
AC-227	-1.868E-01	3.301E-01	5.731E-01	FAIL ABUN
TH-227	-1.868E-01	3.301E-01	5.731E-01	FAIL ABUN
TH-229	-5.242E-01	6.274E-01	1.070E+00	FAIL ABUN
TH-231	-1.016E-01	7.895E-01	1.443E+00	FAIL ABUN
PA-233	3.528E-02	7.640E-02	1.505E-01	FAIL ABUN
PA-234	1.817E-01	4.023E-01	8.689E-01	FAIL ABUN
PA-234M	-6.266E+00	6.547E+00	1.138E+01	NOT IDENT.
NP-237	3.528E-02	7.640E-02	1.505E-01	FAIL ABUN
NP-238	0.000E+00	2.112E+04	0.000E+00	SHORT HLIF
NP-239	1.391E-01	3.555E-01	6.770E-01	NOT IDENT.
PU-239	3.553E+02	4.590E+02	8.911E+02	NOT IDENT.
AM-241	-6.479E-02	2.667E-01	4.064E-01	NOT IDENT.
CM-243	-1.831E-02	1.366E-01	2.500E-01	NOT IDENT.
BK-247	1.525E-02	1.041E-01	1.873E-01	NOT IDENT.
CF-249	1.652E-02	4.628E-02	9.142E-02	NOT IDENT.
CF-251	-1.724E-02	1.653E-01	3.017E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NA-22	1274.54	5	99.94*	1.088E+00	3.767E-02	3.865E-02	110.60
K-40	1460.82	93	10.66*	9.667E-01	7.220E+00	7.220E+00	21.18
RB-84	881.60	7	68.90*	1.523E+00	5.171E-02	1.087E-01	113.80
CD-109	88.03	42	3.70*	4.818E+00	1.892E+00	1.994E+00	83.80
SN-126	64.28	15	9.60	2.388E+00	5.293E-01	5.293E-01	214.42
	86.94	42	8.90	4.818E+00	7.864E-01	7.864E-01	83.80
	87.57	42	37.00*	4.818E+00	1.892E-01	1.892E-01	83.80
BA-137M	661.66	8	89.90*	1.969E+00	3.800E-02	3.808E-02	174.27
CS-137	661.66	8	85.10*	1.969E+00	4.014E-02	4.023E-02	174.27
CE-141	145.44	17	48.29*	5.915E+00	4.642E-02	9.830E-02	215.61
TL-208	277.37	-----	6.60	4.070E+00	-----	Line Not Found	-----
	583.19	68	85.00*	2.200E+00	2.917E-01	2.917E-01	33.24
	860.56	-----	12.50	1.559E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.515E+00	-----	Line Not Found	-----
	351.06	186	12.92*	3.364E+00	3.416E+00	3.416E+00	21.23
BI-212	727.33	12	6.67*	1.813E+00	7.729E-01	7.729E-01	188.01
	1620.50	-----	1.47	8.896E-01	-----	Line Not Found	-----
PB-212	74.82	97	10.28	3.732E+00	2.033E+00	2.033E+00	35.62
	77.11	184	17.10	3.969E+00	2.168E+00	2.168E+00	24.91
	238.63	202	43.60*	4.549E+00	8.154E-01	8.154E-01	17.95
	300.09	20	3.30	3.824E+00	1.244E+00	1.244E+00	114.65
BI-213	440.45	12	25.94*	2.794E+00	1.343E-01	1.343E-01	170.97
BI-214	609.32	168	45.49*	2.118E+00	1.392E+00	1.392E+00	19.54
	1120.29	25	14.92	1.223E+00	1.091E+00	1.091E+00	74.60
	1764.49	-----	15.30	8.350E-01	-----	Line Not Found	-----
PB-214	74.82	97	5.80	3.732E+00	3.603E+00	3.603E+00	35.62
	77.11	184	9.70	3.969E+00	3.821E+00	3.822E+00	24.91
	87.09	42	3.41	4.818E+00	2.052E+00	2.053E+00	83.80
	242.00	80	7.25	4.506E+00	1.960E+00	1.961E+00	45.17
	295.22	143	18.42	3.873E+00	1.598E+00	1.598E+00	21.94
	351.93	186	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23
RN-219	271.23	43	10.80	4.148E+00	7.634E-01	7.634E-01	50.92
	401.81	3	6.60*	3.018E+00	1.190E-01	1.190E-01	571.92
RN-222	609.32	168	45.49*	2.118E+00	1.392E+00	1.392E+00	19.54
	1120.29	25	14.92	1.223E+00	1.091E+00	1.091E+00	74.60
	1764.49	-----	15.30	8.350E-01	-----	Line Not Found	-----
RA-224	240.99	80	4.10*	4.506E+00	3.467E+00	3.467E+00	45.17
RA-226	74.82	97	5.80	3.732E+00	3.603E+00	3.603E+00	35.62
	77.11	184	9.70	3.969E+00	3.821E+00	3.822E+00	24.91
	87.09	42	3.41	4.818E+00	2.052E+00	2.053E+00	83.80
	242.00	80	7.25	4.506E+00	1.960E+00	1.961E+00	45.17
	295.22	143	18.42	3.873E+00	1.598E+00	1.598E+00	21.94
	351.93	186	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23
AC-228	105.21	-----	1.10	5.682E+00	-----	Line Not Found	-----
	338.32	46	11.27	3.473E+00	9.443E-01	9.443E-01	69.94
	835.71	-----	1.61	1.601E+00	-----	Line Not Found	-----
	911.20	47	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	968.97	48	15.80	1.399E+00	1.721E+00	1.721E+00	47.98
	105.21	-----	1.10	5.682E+00	-----	Line Not Found	-----
	338.32	46	11.27	3.473E+00	9.443E-01	9.443E-01	69.94
	835.71	-----	1.61	1.601E+00	-----	Line Not Found	-----
TH-228	911.20	47	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41
	968.97	48	15.80	1.399E+00	1.721E+00	1.721E+00	47.98
	74.82	97	10.28	3.732E+00	2.033E+00	2.033E+00	35.62
	77.11	184	17.10	3.969E+00	2.168E+00	2.168E+00	24.91
TH-230	238.63	202	43.60*	4.549E+00	8.154E-01	8.154E-01	17.95
	300.09	20	3.30	3.824E+00	1.244E+00	1.244E+00	114.65
	74.82	97	5.80	3.732E+00	3.603E+00	3.603E+00	35.62
	77.11	184	9.70	3.969E+00	3.821E+00	3.821E+00	24.91
PA-231	87.09	42	3.41	4.818E+00	2.052E+00	2.052E+00	83.80
	242.00	80	7.25	4.506E+00	1.960E+00	1.960E+00	45.17
	295.22	143	18.42	3.873E+00	1.598E+00	1.598E+00	21.94
	351.93	186	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23
TH-232	283.69	-----	1.70	3.999E+00	-----	Line Not Found	-----
	301.36	20	5.35*	3.824E+00	7.673E-01	7.673E-01	114.65
	105.21	-----	1.10	5.682E+00	-----	Line Not Found	-----
	338.32	46	11.27	3.473E+00	9.443E-01	9.443E-01	69.94
TH-234	835.71	-----	1.61	1.601E+00	-----	Line Not Found	-----
	911.20	47	25.80*	1.478E+00	9.819E-01	9.819E-01	39.41
	968.97	48	15.80	1.399E+00	1.721E+00	1.721E+00	47.98
	63.29	15	3.70*	2.388E+00	1.373E+00	1.373E+00	214.42
U-234	92.59	56	4.23	5.187E+00	2.034E+00	2.034E+00	86.82
	74.82	97	5.80	3.732E+00	3.603E+00	3.603E+00	35.62
	77.11	184	9.70	3.969E+00	3.821E+00	3.821E+00	24.91
	87.09	42	3.41	4.818E+00	2.052E+00	2.052E+00	83.80
U-235	242.00	80	7.25	4.506E+00	1.960E+00	1.960E+00	45.17
	295.22	143	18.42	3.873E+00	1.598E+00	1.598E+00	21.94
	351.93	186	35.60*	3.364E+00	1.240E+00	1.240E+00	21.23
	89.96	-----	3.47	4.984E+00	-----	Line Not Found	-----
U-238	93.35	56	5.60	5.187E+00	1.537E+00	1.537E+00	86.82
	143.76	17	10.96*	5.915E+00	2.045E-01	2.045E-01	215.61
	163.33	-----	5.08	5.689E+00	-----	Line Not Found	-----
	185.72	57	57.20	5.336E+00	1.484E-01	1.484E-01	62.46
AM-243	205.31	-----	5.01	5.040E+00	-----	Line Not Found	-----
	63.29	15	3.70*	2.388E+00	1.373E+00	1.373E+00	214.42
	92.59	56	4.23	5.187E+00	2.034E+00	2.034E+00	86.82
	43.53	-----	5.90	3.984E-01	-----	Line Not Found	-----
CM-247	74.66	97	67.20*	3.732E+00	3.110E-01	3.110E-01	35.62
	278.00	-----	3.40	4.062E+00	-----	Line Not Found	-----
	287.50	-----	2.00	3.958E+00	-----	Line Not Found	-----
	402.40	3	72.00*	3.018E+00	1.091E-02	1.091E-02	571.92
ANH-511	511.00	13	100.00*	2.465E+00	4.342E-02	4.342E-02	228.60

Flag: "*" = Keyline

Total number of lines in spectrum 40
Number of unidentified lines 9
Number of lines tentatively identified by NID 31 77.50%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
NA-22	2.60Y	1.03	3.767E-02	3.865E-02	4.275E-02	110.60	
K-40	1.25E+09Y	1.00	7.220E+00	7.220E+00	1.529E+00	21.18	
RB-84	32.82D	2.10	5.171E-02	1.087E-01	1.238E-01	113.80	
CD-109	461.40D	1.05	1.892E+00	1.994E+00	1.671E+00	83.80	
SN-126	2.30E+05Y	1.00	1.892E-01	1.892E-01	1.585E-01	83.80	
BA-137M	30.08Y	1.00	3.800E-02	3.808E-02	6.637E-02	174.27	
CS-137	30.08Y	1.00	4.014E-02	4.023E-02	7.011E-02	174.27	
CE-141	32.51D	2.12	4.642E-02	9.830E-02	21.19E-02	215.61	
TL-208	1.41E+10Y	1.00	2.917E-01	2.917E-01	0.970E-01	33.24	
BI-211	7.04E+08Y	1.00	3.416E+00	3.416E+00	0.725E+00	21.23	
BI-212	1.41E+10Y	1.00	7.729E-01	7.729E-01	14.53E-01	188.01	
PB-212	1.41E+10Y	1.00	8.154E-01	8.154E-01	1.463E-01	17.95	
BI-213	7340.00Y	1.00	1.343E-01	1.343E-01	2.296E-01	170.97	
BI-214	1600.00Y	1.00	1.392E+00	1.392E+00	0.272E+00	19.54	
PB-214	1600.00Y	1.00	1.240E+00	1.240E+00	0.263E+00	21.23	
RN-219	7.04E+08Y	1.00	1.190E-01	1.190E-01	6.808E-01	571.92	
RN-222	1600.00Y	1.00	1.392E+00	1.392E+00	0.272E+00	19.54	
RA-224	1.41E+10Y	1.00	3.467E+00	3.467E+00	1.566E+00	45.17	
RA-226	1600.00Y	1.00	1.240E+00	1.240E+00	0.263E+00	21.23	
AC-228	1.41E+10Y	1.00	9.819E-01	9.819E-01	3.869E-01	39.41	
RA-228	1.41E+10Y	1.00	9.819E-01	9.819E-01	3.869E-01	39.41	
TH-228	1.41E+10Y	1.00	8.154E-01	8.154E-01	1.463E-01	17.95	
TH-230	7.54E+04Y	1.00	1.240E+00	1.240E+00	0.263E+00	21.23	
PA-231	7.04E+08Y	1.00	7.673E-01	7.673E-01	8.796E-01	114.65	
TH-232	1.41E+10Y	1.00	9.819E-01	9.819E-01	3.869E-01	39.41	
TH-234	4.47E+09Y	1.00	1.373E+00	1.373E+00	2.945E+00	214.42	
U-234	2.45E+05Y	1.00	1.240E+00	1.240E+00	0.263E+00	21.23	
U-235	7.04E+08Y	1.00	2.045E-01	2.045E-01	4.410E-01	215.61	
U-238	4.47E+09Y	1.00	1.373E+00	1.373E+00	2.945E+00	214.42	
AM-243	7370.00Y	1.00	3.110E-01	3.110E-01	1.108E-01	35.62	
CM-247	1.56E+07Y	1.00	1.091E-02	1.091E-02	6.241E-02	571.92	
ANH-511	1.00E+09Y	1.00	4.342E-02	4.342E-02	9.926E-02	228.60	

Total Activity : 3.412E+01 3.433E+01

Grand Total Activity : 3.412E+01 3.433E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	35.38	26	41	1.93	70.88	67	9	7.67E-03	****	7.48E-02	
0	154.65	41	68	1.91	309.38	304	10	1.20E-02	80.7	5.80E+00	T
1	306.12	21	25	1.60	612.29	585	32	6.23E-03	****	3.77E+00	T
0	571.16	26	14	2.74	1142.36	1136	12	7.75E-03	67.3	2.24E+00	T
0	649.39	16	6	1.16	1298.82	1293	12	4.72E-03	75.3	2.01E+00	
0	721.78	8	3	1.36	1443.61	1440	6	2.50E-03	90.3	1.83E+00	T
0	807.27	13	10	2.82	1614.61	1609	9	3.93E-03	****	1.65E+00	
0	825.31	12	3	1.08	1650.69	1647	10	3.59E-03	72.9	1.62E+00	
0	843.98	8	10	5.39	1688.04	1679	13	2.30E-03	****	1.59E+00	
0	1056.40	10	5	2.77	2112.94	2108	11	3.10E-03	****	1.29E+00	
0	1255.13	6	3	0.46	2510.50	2506	6	1.67E-03	****	1.10E+00	
0	1379.78	10	3	0.81	2759.88	2752	11	2.98E-03	86.7	1.02E+00	
0	1767.11	31	0	1.38	3534.85	3528	13	9.17E-03	34.8	8.34E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299022.CNF;1 *
* Acquisition date : 31-JUL-2024 15:04:33 Sensitivity : 3.000 *
* Detector ID : GAM01 Energy tolerance: 2.000 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.29 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:55:00 Nuclide Library : SOLID *
* Sample ID : G674299022 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 9.3820E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 5-JUN-2024 05:42:50 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM01_CAN.CNF;19 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
NA-22	3.743E-02
K-40	5.057E-01
RB-84	9.193E-02
CD-109	1.109E+00
SN-126	9.994E-02
BA-137M	3.295E-02
CS-137	3.481E-02
CE-141	9.763E-02
TL-208	3.400E-02
BI-211	2.102E-01
BI-212	5.961E-01
PB-212	5.941E-02
BI-213	1.062E-01
BI-214	7.477E-02
PB-214	7.644E-02
RN-219	4.412E-01
RN-222	7.477E-02
RA-224	6.367E-01
RA-226	7.644E-02
AC-228	7.906E-02
RA-228	7.906E-02
TH-228	5.941E-02
TH-230	7.644E-02
PA-231	4.776E-01
TH-232	7.906E-02
TH-234	1.614E+00
U-234	7.644E-02
U-235	2.407E-01
U-238	1.614E+00
AM-243	6.266E-02
CM-247	4.311E-02
ANH-511	3.347E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)

BE-7	4.939E-01	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.896E-02	NOT IDENT.
SC-46	4.127E-02	FAIL ABUN
V-48	1.805E-01	NOT IDENT.
CR-51	7.117E-01	NOT IDENT.
MN-52	3.884E+00	NOT IDENT.
MN-54	3.573E-02	NOT IDENT.
CO-56	4.075E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	3.100E-02	NOT IDENT.
CO-58	5.662E-02	NOT IDENT.
FE-59	8.812E-02	NOT IDENT.
CO-60	3.855E-02	NOT IDENT.
ZN-65	8.022E-02	NOT IDENT.
GE-68	9.933E-01	NOT IDENT.
AS-73	1.435E+00	NOT IDENT.
AS-74	2.130E-01	NOT IDENT.
SE-75	5.415E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	6.432E-01	NOT IDENT.
RB-83	9.108E-02	NOT IDENT.
KR-85	1.099E+01	NOT IDENT.
SR-85	7.181E-02	NOT IDENT.
RB-86	1.154E+00	NOT IDENT.
Y-88	4.063E-02	NOT IDENT.
Y-91	2.022E+01	NOT IDENT.
NB-94	4.601E-02	NOT IDENT.
NB-95	4.173E-02	NOT IDENT.
NB-95M	1.521E-01	NOT IDENT.
ZR-95	1.012E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.482E-02	NOT IDENT.
RH-102	5.841E-02	NOT IDENT.
RU-103	5.712E-02	FAIL ABUN
RH-106	3.921E-01	NOT IDENT.
RU-106	3.921E-01	NOT IDENT.
AG-108M	3.075E-02	FAIL ABUN
AG-110	8.676E-01	NOT IDENT.
AG-110M	4.379E-02	FAIL ABUN
SN-113	5.482E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.743E-01	FAIL ABUN
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.643E-02	NOT IDENT.
SB-124	1.349E-01	FAIL ABUN
SB-125	1.176E-01	NOT IDENT.
TE-125M	1.225E+01	NOT IDENT.
I-126	7.977E-01	NOT IDENT.
SB-126	4.946E-01	FAIL ABUN
SB-127	5.733E+01	NOT IDENT.
I-131	6.979E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.334E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.832E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.874E-01	FAIL ABUN
LA-138	6.683E-02	NOT IDENT.
CE-139	3.579E-02	NOT IDENT.
BA-140	9.308E-01	FAIL ABUN
LA-140	3.249E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.123E-01	NOT IDENT.
PM-144	3.901E-02	NOT IDENT.
PR-144	2.959E+00	NOT IDENT.
PM-146	4.847E-02	NOT IDENT.
ND-147	1.981E+00	NOT IDENT.
PM-147	8.211E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.244E-02	FAIL ABUN
EU-152	1.088E-01	NOT IDENT.
GD-153	9.143E-02	NOT IDENT.

EU-154	1.265E-01	FAIL ABUN
EU-155	1.169E-01	FAIL ABUN
TB-160	1.647E-01	FAIL ABUN
HO-166M	8.039E-02	NOT IDENT.
TM-171	2.473E+01	NOT IDENT.
HF-172	2.090E-01	FAIL ABUN
LU-172	7.891E-02	FAIL ABUN
LU-176	3.033E-02	FAIL ABUN
HF-181	7.865E-02	NOT IDENT.
TA-182	1.667E-01	FAIL ABUN
RE-183	3.237E-01	NOT IDENT.
RE-184	1.674E-01	NOT IDENT.
W-188	9.389E+00	FAIL ABUN
IR-192	4.424E-02	FAIL ABUN
HG-203	6.263E-02	NOT IDENT.
TL-204	5.888E+00	NOT IDENT.
BI-207	4.023E-02	FAIL ABUN
BI-210	6.154E+00	NOT IDENT.
PB-210	6.154E+00	NOT IDENT.
PB-211	7.845E-01	NOT IDENT.
RA-223	6.475E-01	FAIL ABUN
AC-225	2.657E+00	NOT IDENT.
AC-227	2.606E-01	FAIL ABUN
TH-227	2.606E-01	FAIL ABUN
TH-229	4.886E-01	FAIL ABUN
TH-231	6.475E-01	FAIL ABUN
PA-233	6.777E-02	FAIL ABUN
PA-234	3.722E-01	FAIL ABUN
PA-234M	4.753E+00	NOT IDENT.
NP-237	6.777E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.159E-01	NOT IDENT.
PU-239	4.175E+02	NOT IDENT.
AM-241	1.881E-01	NOT IDENT.
CM-243	1.159E-01	NOT IDENT.
BK-247	8.521E-02	NOT IDENT.
CF-249	4.051E-02	NOT IDENT.
CF-251	1.396E-01	NOT IDENT.

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299022.CNF;1 *
* Acquisition date : 31-JUL-2024 15:04:33 Sensitivity : 3.000 *
* Detector ID : GAM01 Energy tolerance: 2.000 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.29 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:55:00 Nuclide Library : SOLID *
* Sample ID : G674299022 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 9.3820E+01 GRAM *
* Quantity Err(%) : 1.0659E-03 % *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 5-JUN-2024 05:42:50 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM01_CAN.CNF;19 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
NA-22	3.865E-02	4.202E-02	4.202E-02
K-40	7.220E+00	1.632E+00	1.632E+00
RB-84	1.087E-01	1.218E-01	1.218E-01
CD-109	1.994E+00	1.650E+00	1.650E+00
SN-126	1.892E-01	1.562E-01	1.562E-01
BA-137M	3.808E-02	6.513E-02	6.513E-02
CS-137	4.023E-02	6.880E-02	6.880E-02
CE-141	2.698E-02	2.124E-01	2.124E-01
TL-208	2.917E-01	9.860E-02	9.860E-02
BI-211	3.416E+00	7.633E-01	7.633E-01
BI-212	7.729E-01	1.426E+00	1.426E+00
PB-212	8.154E-01	1.573E-01	1.573E-01
BI-213	1.343E-01	2.253E-01	2.253E-01
BI-214	1.392E+00	2.948E-01	2.948E-01
PB-214	1.240E+00	2.763E-01	2.763E-01
RN-219	1.190E-01	6.674E-01	6.674E-01
RN-222	1.392E+00	2.948E-01	2.948E-01
RA-224	3.467E+00	1.559E+00	1.559E+00
RA-226	1.240E+00	2.763E-01	2.763E-01
AC-228	9.819E-01	3.930E-01	3.930E-01
RA-228	9.819E-01	3.930E-01	3.930E-01
TH-228	8.154E-01	1.573E-01	1.573E-01
TH-230	1.240E+00	2.763E-01	2.763E-01
PA-231	7.673E-01	8.787E-01	8.787E-01
TH-232	9.819E-01	3.930E-01	3.930E-01
TH-234	1.373E+00	2.902E+00	2.902E+00
U-234	1.240E+00	2.763E-01	2.763E-01
U-235	2.045E-01	4.324E-01	4.324E-01
U-238	1.373E+00	2.902E+00	2.902E+00
AM-243	3.110E-01	1.113E-01	1.113E-01
CM-247	1.091E-02	6.119E-02	6.119E-02
ANH-511	4.342E-02	9.735E-02	9.735E-02

---- Non-Identified Nuclides ----

Key-Line		
Activity	K.L Act error	TPU

Nuclide	(pCi/GRAM)	(1.96-sigma)	(1.96-sigma)	
BE-7	2.659E-01	5.597E-01	5.724E-01	NOT IDENT.
NA-24	-7.375E+14	4.050E+15	4.064E+15	SHORT HLIF
AL-26	1.896E-02	3.893E-02	3.985E-02	NOT IDENT.
SC-46	2.654E-02	4.124E-02	4.294E-02	FAIL ABUN
V-48	-3.086E-02	2.248E-01	2.253E-01	NOT IDENT.
CR-51	2.179E-01	8.265E-01	8.323E-01	NOT IDENT.
MN-52	2.537E+00	3.960E+00	4.122E+00	NOT IDENT.
MN-54	-7.528E-03	4.334E-02	4.347E-02	NOT IDENT.
CO-56	-2.331E-02	6.153E-02	6.242E-02	NOT IDENT.
MN-56	-1.000E+41	2.673E+41	0.000E+00	SHORT HLIF
CO-57	1.827E-02	3.455E-02	3.552E-02	NOT IDENT.
CO-58	2.754E-02	7.155E-02	7.262E-02	NOT IDENT.
FE-59	-1.463E-01	1.467E-01	1.608E-01	NOT IDENT.
CO-60	5.928E-03	4.429E-02	4.437E-02	NOT IDENT.
ZN-65	-6.046E-03	1.001E-01	1.002E-01	NOT IDENT.
GE-68	-2.123E+00	1.746E+00	1.991E+00	NOT IDENT.
AS-73	8.963E-01	1.721E+00	1.768E+00	NOT IDENT.
AS-74	-7.539E-02	2.791E-01	2.811E-01	NOT IDENT.
SE-75	-5.533E-03	6.500E-02	6.505E-02	FAIL ABUN
BR-77	4.415E+04	4.564E+04	4.979E+04	SHORT HLIF
SR-82	1.201E-01	7.767E-01	7.786E-01	NOT IDENT.
RB-83	-3.848E-03	1.121E-01	1.122E-01	NOT IDENT.
KR-85	1.495E+01	1.167E+01	1.348E+01	NOT IDENT.
SR-85	9.737E-02	7.632E-02	8.805E-02	NOT IDENT.
RB-86	-2.337E+00	2.042E+00	2.298E+00	NOT IDENT.
Y-88	-1.490E-02	5.685E-02	5.725E-02	NOT IDENT.
Y-91	3.359E+00	2.301E+01	2.306E+01	NOT IDENT.
NB-94	2.077E-02	5.374E-02	5.455E-02	NOT IDENT.
NB-95	-6.824E-02	6.928E-02	7.581E-02	NOT IDENT.
NB-95M	-6.310E-02	2.092E-01	2.111E-01	NOT IDENT.
ZR-95	1.631E-02	1.228E-01	1.230E-01	NOT IDENT.
NB-97	1.000E+41	2.646E+41	0.000E+00	SHORT HLIF
ZR-97	3.795E+14	7.768E+14	7.954E+14	SHORT HLIF
MO-99	-9.476E+02	2.508E+03	2.544E+03	SHORT HLIF
TC-99M	-3.000E+40	5.959E+40	0.000E+00	SHORT HLIF
RH-101	-1.130E-02	4.142E-02	4.173E-02	NOT IDENT.
RH-102	-3.388E-02	7.901E-02	8.047E-02	NOT IDENT.
RU-103	-4.613E-04	6.983E-02	6.983E-02	FAIL ABUN
RH-106	2.484E-01	4.378E-01	4.519E-01	NOT IDENT.
RU-106	2.484E-01	4.378E-01	4.519E-01	NOT IDENT.
AG-108M	-5.277E-04	3.740E-02	3.740E-02	FAIL ABUN
AG-110	4.487E-01	9.831E-01	1.004E+00	NOT IDENT.
AG-110M	5.404E-02	6.053E-02	6.525E-02	FAIL ABUN
SN-113	5.327E-03	6.544E-02	6.549E-02	NOT IDENT.
CD-115	5.435E+03	6.864E+03	7.288E+03	SHORT HLIF
SN-117M	2.222E-01	2.015E-01	2.250E-01	FAIL ABUN
SB-122	1.286E+02	4.069E+02	4.110E+02	SHORT HLIF
TE-123M	2.382E-02	4.468E-02	4.595E-02	NOT IDENT.
SB-124	-4.870E-03	1.658E-01	1.658E-01	FAIL ABUN
SB-125	3.596E-02	1.378E-01	1.387E-01	NOT IDENT.
TE-125M	-4.702E+00	1.460E+01	1.475E+01	NOT IDENT.
I-126	1.058E+00	8.303E-01	9.575E-01	NOT IDENT.
SB-126	4.929E-01	4.407E-01	4.935E-01	FAIL ABUN
SB-127	-1.153E+01	7.340E+01	7.359E+01	NOT IDENT.
I-131	1.596E-01	8.173E-01	8.205E-01	NOT IDENT.
I-132	1.000E+41	2.674E+41	0.000E+00	SHORT HLIF
TE-132	2.793E+01	7.898E+01	7.997E+01	SHORT HLIF
BA-133	-2.135E-02	4.988E-02	5.080E-02	NOT IDENT.
I-133	2.369E+10	6.152E+10	6.244E+10	SHORT HLIF
CS-134	4.419E-02	6.488E-02	6.787E-02	FAIL ABUN
I-135	-6.522E+37	1.038E+38	0.000E+00	SHORT HLIF
CS-136	4.571E-02	3.277E-01	3.284E-01	FAIL ABUN
LA-138	5.658E-03	7.876E-02	7.880E-02	NOT IDENT.
CE-139	-1.567E-03	4.204E-02	4.204E-02	NOT IDENT.
BA-140	7.354E-01	1.011E+00	1.064E+00	FAIL ABUN
LA-140	-7.298E-02	4.163E-01	4.176E-01	NOT IDENT.
CE-143	-3.213E+06	4.606E+06	4.829E+06	SHORT HLIF
CE-144	-2.016E-01	2.647E-01	2.799E-01	NOT IDENT.
PM-144	-8.958E-03	5.026E-02	5.042E-02	NOT IDENT.
PR-144	-6.500E-01	3.806E+00	3.817E+00	NOT IDENT.
PM-146	-2.219E-03	5.928E-02	5.928E-02	NOT IDENT.
ND-147	1.885E+00	2.024E+00	2.195E+00	NOT IDENT.
PM-147	-2.870E+02	9.766E+02	9.852E+02	NOT IDENT.
PM-149	6.480E+04	7.007E+04	7.592E+04	SHORT HLIF
EU-150	2.062E-02	4.019E-02	4.125E-02	FAIL ABUN
EU-152	-3.373E-02	1.518E-01	1.525E-01	NOT IDENT.

GD-153	-7.522E-02	1.255E-01	1.300E-01	NOT IDENT.
EU-154	4.443E-02	1.549E-01	1.562E-01	FAIL ABUN
EU-155	-3.474E-02	1.390E-01	1.399E-01	FAIL ABUN
TB-160	-6.688E-02	2.380E-01	2.399E-01	FAIL ABUN
HO-166M	6.217E-02	8.873E-02	9.305E-02	NOT IDENT.
TM-171	-2.756E+00	3.144E+01	3.147E+01	NOT IDENT.
HF-172	-1.251E-01	2.538E-01	2.600E-01	FAIL ABUN
LU-172	2.578E-02	8.614E-02	8.692E-02	FAIL ABUN
LU-176	4.772E-02	5.096E-02	5.531E-02	FAIL ABUN
HF-181	2.852E-02	9.175E-02	9.265E-02	NOT IDENT.
TA-182	-2.450E-02	2.060E-01	2.063E-01	FAIL ABUN
RE-183	2.630E-01	3.810E-01	3.990E-01	NOT IDENT.
RE-184	-1.624E-01	2.335E-01	2.447E-01	NOT IDENT.
W-188	4.480E+00	1.178E+01	1.195E+01	FAIL ABUN
IR-192	-3.148E-02	5.695E-02	5.870E-02	FAIL ABUN
HG-203	5.227E-02	6.926E-02	7.316E-02	NOT IDENT.
TL-204	-8.941E-01	8.225E+00	8.235E+00	NOT IDENT.
BI-207	1.321E-02	4.326E-02	4.367E-02	FAIL ABUN
BI-210	8.239E+00	6.992E+00	7.917E+00	NOT IDENT.
PB-210	8.239E+00	6.992E+00	7.917E+00	NOT IDENT.
PB-211	2.518E-01	1.012E+00	1.018E+00	NOT IDENT.
RA-223	-1.016E-01	7.895E-01	7.909E-01	FAIL ABUN
AC-225	2.529E+00	2.904E+00	3.120E+00	NOT IDENT.
AC-227	-1.868E-01	3.312E-01	3.417E-01	FAIL ABUN
TH-227	-1.868E-01	3.312E-01	3.417E-01	FAIL ABUN
TH-229	-5.242E-01	6.287E-01	6.717E-01	FAIL ABUN
TH-231	-1.016E-01	7.895E-01	7.909E-01	FAIL ABUN
PA-233	3.528E-02	7.646E-02	7.809E-02	FAIL ABUN
PA-234	1.817E-01	4.531E-01	4.605E-01	FAIL ABUN
PA-234M	-6.266E+00	6.577E+00	7.158E+00	NOT IDENT.
NP-237	3.528E-02	7.646E-02	7.809E-02	FAIL ABUN
NP-238	-1.198E+03	2.112E+04	2.113E+04	SHORT HLIF
NP-239	1.391E-01	3.558E-01	3.613E-01	NOT IDENT.
PU-239	3.553E+02	4.596E+02	4.867E+02	NOT IDENT.
AM-241	-6.479E-02	2.667E-01	2.683E-01	NOT IDENT.
CM-243	-1.831E-02	1.366E-01	1.368E-01	NOT IDENT.
BK-247	1.525E-02	1.042E-01	1.044E-01	NOT IDENT.
CF-249	1.652E-02	4.632E-02	4.691E-02	NOT IDENT.
CF-251	-1.724E-02	1.653E-01	1.655E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	50.0204	82.47	81.9626	125.81	65.1737
45.60	65.3742	323.87	91.9417	127.23	62.6830
46.54	47.9388	84.00	68.9738	127.91	65.2997
49.72	0.0000	85.43	80.6045	129.30	56.7792
51.35	54.2065	86.55	98.8281	131.20	65.4950
51.87	62.5065	879.38	98.8550	482.18	62.1489
52.39	50.7540	87.57	93.9290	133.52	64.7675
52.97	42.5300	87.09	93.9453	264.66	61.4475
53.44	44.9254	87.57	93.9975	122.06	59.7419
125.81	43.7856	88.03	105.5964	140.51	0.0000
57.36	0.0000	88.34	105.6341	143.76	54.0198
57.53	39.2557	193.51	101.5228	144.24	54.0419
57.98	42.8527	89.96	101.6955	145.44	51.0429
1093.63	50.8841	90.64	94.3268	152.43	36.8598
57.98	50.8879	91.11	101.8275	153.25	48.3012
59.54	57.2672	63.29	84.5818	154.21	48.3393
60.96	46.2261	143.76	84.6534	156.02	58.0924
61.17	46.2400	94.56	49.8627	158.56	38.3665
62.93	61.1406	94.65	49.8676	159.00	48.9673
63.29	61.1714	94.67	49.8688	162.33	45.1163
63.58	61.1962	94.87	49.8796	162.66	46.0126
64.28	59.2540	97.43	62.5233	163.33	46.0369
66.73	62.6664	311.90	46.0668	165.86	54.9986
67.24	53.0620	946.00	46.0674	176.31	60.8039
67.68	62.7466	99.53	56.8157	1048.07	54.5565
67.75	62.7525	1221.41	53.5065	177.52	53.6987
68.89	64.0568	265.00	50.2643	739.50	0.0000
69.67	71.3823	103.18	52.8409	181.52	50.6265
70.82	69.4704	103.37	52.8515	711.68	44.5265
70.83	69.4713	116.74	52.8515	185.72	42.3179
72.81	61.5509	105.21	57.1547	193.51	52.5135
279.20	61.5560	105.31	57.1606	197.03	39.0287
72.87	61.5560	106.12	47.9540	127.23	49.9545
74.66	71.8441	106.47	43.7631	306.78	47.3546
74.82	71.8585	109.28	52.3283	203.43	47.4064
1063.66	71.8720	111.00	51.5730	205.31	41.9903
351.93	72.0651	228.16	0.0000	210.85	54.9744
238.63	72.0651	114.06	62.7533	215.65	36.7664
351.93	72.0651	116.30	0.0000	218.12	33.1436
78.74	72.2101	116.74	56.9657	222.11	41.5370
79.69	75.1534	119.76	63.9526	290.67	45.3737
80.03	57.2050	121.12	60.6198	177.52	42.6032
80.12	57.2118	121.22	60.6256	228.16	0.0000
80.19	57.2164	121.78	58.9491	228.18	50.0383
80.57	55.6073	122.06	51.2735	235.69	47.4815
81.00	63.8181	122.92	46.1835	256.23	47.4898
81.07	63.8233	123.07	53.0331	238.63	41.0392
81.75	63.8757	123.68	61.6216	238.98	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
240.99	41.0987	340.48	34.5129	546.56	0.0000
242.00	41.1242	340.55	34.5137	552.55	13.9860
344.28	41.1918	344.28	32.6005	563.25	11.8786
252.40	33.8584	345.93	36.5815	564.24	0.0000
252.80	35.7479	351.06	24.7782	795.86	9.7394
254.15	0.0000	351.93	24.7884	569.50	14.0685
256.23	43.3618	507.63	0.0000	569.70	14.0696
260.90	0.0000	356.01	19.3727	583.19	11.9601
264.66	36.9442	364.49	20.9462	584.27	11.9646
264.80	36.9473	366.42	0.0000	595.83	15.2863
265.00	31.8350	372.51	20.0228	600.60	25.1534
269.46	37.0457	129.30	24.0557	602.52	0.0000
270.03	37.0576	377.52	17.0585	604.72	14.7843
271.23	39.9355	383.85	29.1835	607.14	26.3037
273.65	21.4233	388.16	16.1325	609.32	15.3547
356.01	43.8671	388.63	16.1357	497.08	15.3598
277.37	36.2574	391.69	22.2171	433.94	18.1261
277.60	36.2620	400.66	19.2632	696.49	14.2986
278.00	31.4981	401.81	22.8232	620.36	22.0150
279.20	31.5189	402.40	25.8730	621.93	11.0128
279.54	35.3462	404.85	19.8067	667.71	0.0000
279.70	39.1707	410.95	21.3862	631.29	17.6738
280.46	42.0548	413.71	31.6080	453.88	8.8424
283.69	40.2150	414.70	24.4810	595.83	6.6350
364.49	39.2708	423.72	28.6705	635.95	14.3811
285.41	32.5854	404.85	31.7877	636.99	14.3859
285.90	0.0000	427.87	24.6177	657.50	10.0239
402.40	40.2987	433.94	18.5101	884.68	10.6934
290.67	25.9514	333.97	17.5212	657.90	0.0000
293.27	0.0000	440.45	17.5288	661.66	10.0371
295.22	27.9421	453.88	21.7716	664.57	0.0000
295.96	27.9527	463.37	19.7727	666.33	5.0257
298.58	27.9923	468.07	16.6816	720.70	5.0261
299.98	28.0129	685.70	17.7588	667.71	0.0000
300.09	28.0147	475.06	16.7275	677.62	6.7241
300.13	28.0153	476.78	16.7386	685.70	16.8518
301.36	28.0336	477.60	15.6976	564.24	0.0000
302.85	28.0554	482.18	20.9672	695.00	11.2659
304.50	28.0802	1596.21	16.8050	696.49	15.7791
537.26	28.0849	527.90	0.0000	696.51	15.7796
306.78	18.9041	497.08	14.7608	697.00	18.0365
316.51	24.7420	505.52	13.7501	697.30	16.9104
311.90	21.3846	507.63	0.0000	697.49	15.7842
316.51	36.0500	511.00	20.1372	702.65	16.9373
531.02	25.3700	514.00	20.1597	706.68	14.6964
320.08	29.2828	514.00	20.1597	711.68	11.3216
427.87	34.1804	520.40	17.0163	720.70	8.5138
323.87	27.3836	238.98	0.0000	721.93	0.0000
325.23	31.3171	522.65	0.0000	722.78	6.8152
328.76	27.4508	527.90	0.0000	722.91	6.8154
388.16	27.1205	528.26	8.5326	1274.44	6.8162
333.97	26.5391	520.40	19.2078	724.19	6.8179
334.37	30.9681	529.87	0.0000	727.33	15.3545
338.28	34.4752	531.02	5.3381	733.00	5.1266
911.20	34.4759	537.26	10.7003	735.93	12.5420

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
737.46	6.8440	937.49	10.8197	1362.66	0.0000
739.50	0.0000	944.13	9.9338	1365.19	7.8877
744.23	8.0003	946.00	8.1313	1368.63	0.0000
747.24	13.7266	949.00	4.5207	1384.29	6.5959
748.06	14.8736	954.55	0.0000	1408.01	5.9619
752.31	13.7461	962.31	8.7073	1434.09	2.9947
753.82	12.6060	964.08	10.1626	1435.80	4.9927
756.73	11.4693	966.17	9.0784	1457.56	0.0000
756.80	11.4697	968.97	9.0842	1460.82	8.0234
763.94	5.7463	983.53	9.1153	696.51	4.0313
765.81	17.2479	984.45	0.0000	1505.03	6.0634
766.42	16.1009	996.26	10.9706	1584.12	4.0959
766.84	16.1026	1001.03	12.8131	1596.21	6.1560
772.60	0.0000	1002.74	7.3247	727.33	4.1201
776.52	10.3795	1004.73	6.4121	1621.92	2.0605
777.92	0.0000	1021.30	0.0000	1678.03	0.0000
778.90	10.3865	1025.87	0.0000	1690.97	4.1663
783.70	13.8667	1028.54	0.0000	1750.46	0.0000
788.74	10.4147	846.77	5.5375	1764.49	1.6854
792.07	10.4242	1038.76	0.0000	1770.23	1.6868
795.86	11.5942	1046.59	9.2474	1771.35	0.0000
801.95	13.9360	1048.07	5.5503	1791.20	0.0000
810.06	15.7121	1049.04	3.7009	1808.65	1.0603
810.29	15.7132	621.93	3.7019	846.75	0.0000
810.45	15.7137	1063.66	2.7847	1836.06	3.1937
810.76	8.7308	1077.00	12.1018		
815.77	15.1534	1077.34	13.9655		
818.51	9.3320	1085.87	8.3947		
832.01	8.7802	1093.63	6.5403		
834.85	9.6653	1099.45	11.2258		
835.71	10.0439	1112.07	6.5659		
1260.41	0.0000	1112.84	4.6909		
846.75	0.0000	1115.54	6.4365		
846.77	9.8718	609.32	7.5171		
856.80	9.7207	889.28	7.5176		
860.56	12.3837	1121.30	8.4584		
702.65	10.6432	1129.67	8.7876		
873.19	13.3109	1131.51	0.0000		
529.87	0.0000	1147.95	0.0000		
879.38	11.3766	1173.23	7.6006		
880.51	15.6471	1177.95	3.8040		
881.60	6.2250	1189.05	5.7188		
883.24	1.4234	1204.77	3.8245		
884.68	0.0000	1221.41	5.7561		
889.28	2.6731	1231.02	12.4954		
903.28	6.2457	1235.36	14.4296		
898.04	8.9297	1238.28	9.6252		
900.72	8.0420	1260.41	0.0000		
903.28	12.5179	1271.87	1.5502		
911.20	2.6876	1274.44	4.6526		
912.08	2.6882	1274.54	4.6529		
923.98	0.0000	1099.45	2.9176		
926.50	8.9923	1298.22	0.0000		
929.11	7.1985	1312.11	8.7869		
1434.09	8.1109	1332.49	3.9202		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 16:05:40.77

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299023.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM02.CNF;642
Background date  : 28-JUL-2024 11:21:47
Sample date     : 26-JUN-2024 11:15:00 Acquisition date : 31-JUL-2024 15:04:59
Sample ID      : G674299023 Sample quantity : 1.09510E+02 GRAM
Detector name   : GAM02 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.02 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636543 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.40*	33	130	1.08	127.45	124	8	9.05E-03	67.7	
2	3	74.91*	121	143	1.15	150.47	144	15	3.37E-02	19.5	2.82E+00
3	3	77.23	191	128	0.96	155.11	144	15	5.30E-02	11.8	
4	2	84.57*	27	95	1.22	169.80	167	12	7.52E-03	60.1	9.59E-01
5	2	87.45*	65	126	1.13	175.58	167	12	1.80E-02	31.8	
6	0	93.20*	53	247	1.32	187.07	182	12	1.46E-02	66.6	
7	0	143.99*	37	117	1.32	288.69	284	10	1.02E-02	59.0	
8	0	185.76*	29	141	1.01	372.25	368	10	7.98E-03	86.7	
9	0	209.31	51	54	1.85	419.36	416	7	1.42E-02	27.7	
10	5	238.75*	394	46	1.11	478.25	471	18	1.09E-01	5.9	1.22E+00
11	5	241.60	95	53	1.70	483.94	471	18	2.63E-02	22.9	
12	0	270.48	21	77	0.69	541.72	537	9	5.82E-03	78.4	
13	0	295.45*	105	71	1.07	591.65	586	11	2.91E-02	18.8	
14	0	300.63*	18	73	0.60	602.03	598	10	4.89E-03	94.8	
15	0	338.62*	66	67	0.95	678.01	673	11	1.82E-02	27.6	
16	0	352.38*	181	98	1.18	705.53	700	13	5.03E-02	13.8	
17	0	464.45	39	35	1.97	929.68	924	12	1.08E-02	35.5	
18	0	511.59*	57	39	1.73	1023.96	1016	18	1.58E-02	34.4	
19	0	526.52	25	28	3.00	1053.81	1048	12	7.05E-03	47.1	
20	0	583.42*	97	52	1.31	1167.59	1162	14	2.70E-02	18.8	
21	0	609.49*	170	26	1.15	1219.72	1213	13	4.73E-02	10.0	
22	0	641.61	15	32	2.98	1283.95	1275	12	4.07E-03	82.5	
23	0	727.99	26	28	2.03	1456.67	1450	11	7.28E-03	44.7	
24	0	755.62	23	2	1.33	1511.92	1507	10	6.29E-03	24.7	
25	0	769.12	41	37	1.97	1538.90	1530	19	1.15E-02	39.0	
26	0	838.20	14	29	4.66	1677.03	1669	16	3.92E-03	88.1	
27	0	891.49	10	15	4.44	1783.57	1775	12	2.83E-03	82.2	
28	0	911.16*	53	30	2.58	1822.89	1817	13	1.46E-02	26.0	
29	0	935.10	14	14	2.08	1870.73	1863	11	3.75E-03	59.6	
30	0	937.87	8	3	1.43	1876.29	1873	6	2.30E-03	47.6	
31	1	965.05*	17	11	2.12	1930.61	1927	20	4.60E-03	40.4	2.46E+00
32	1	969.13*	35	23	2.12	1938.78	1927	20	9.66E-03	34.4	
33	0	1120.64*	24	25	0.99	2241.61	2237	12	6.64E-03	48.5	
34	0	1145.77	14	10	1.72	2291.85	2284	13	4.01E-03	51.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1155.62	9	10	0.83	2311.52	2302	13	2.61E-03	75.8	
36	0	1161.92	7	7	0.56	2324.13	2316	10	1.87E-03	85.2	
37	0	1204.32	20	21	4.04	2408.86	2399	15	5.50E-03	56.6	
38	0	1231.98	25	5	3.87	2464.13	2459	11	7.02E-03	26.6	
39	0	1286.84	13	8	1.92	2573.78	2567	11	3.67E-03	50.0	
40	0	1306.88	14	3	3.40	2613.84	2606	14	3.77E-03	39.9	
41	0	1328.76	10	4	2.05	2657.55	2654	8	2.78E-03	46.9	
42	0	1376.82	14	8	0.77	2753.59	2750	10	3.91E-03	45.4	
43	0	1460.80*	343	8	2.22	2921.40	2914	15	9.53E-02	5.8	
44	0	1765.01*	29	3	2.00	3529.15	3522	14	8.01E-03	25.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299023.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 11:15:00 Acquisition date : 31-JUL-2024 15:04:59
Sample ID : G674299023 Sample quantity : 109.51 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA2 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.02 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.737E-01	2.131E+01	2.131E+01	11.52	OK
Y-91	1204.77	0.26*	1.145E+00	4.313E+01	6.543E+01	113.14	OK
CD-109	88.03	3.70*	4.711E+00	2.629E+00	2.772E+00	63.52	OK
SN-126	64.28	9.60	2.241E+00	1.082E+00	1.082E+00	135.41	OK
	86.94	8.90	4.711E+00	1.093E+00	1.093E+00	63.52	OK
	87.57	37.00*	4.711E+00	2.629E-01	2.629E-01	63.52	OK
CE-141	145.44	48.29*	5.492E+00	8.004E-02	1.695E-01	146.44	OK
TL-208	277.37	6.60	3.664E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.130E+00	3.566E-01	3.566E-01	37.56	OK
	860.56	12.50	1.547E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	3.389E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.084E+00	3.074E+00	3.074E+00	27.62	OK
BI-212	727.33	6.67*	1.784E+00	1.453E+00	1.453E+00	89.37	OK
	1620.50	1.47	9.038E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	3.611E+00	2.321E+00	2.321E+00	39.00	OK
	77.11	17.10	3.851E+00	2.056E+00	2.056E+00	23.62	OK
	238.63	43.60*	4.080E+00	1.516E+00	1.516E+00	11.84	OK
	300.09	3.30	3.457E+00	1.048E+00	1.048E+00	189.61	OK
BI-214	609.32	45.49*	2.059E+00	1.208E+00	1.208E+00	20.07	OK
	1120.29	14.92	1.221E+00	8.533E-01	8.533E-01	97.10	OK
	1764.49	15.30	8.595E-01	1.404E+00	1.405E+00	51.30	OK
PB-214	74.82	5.80	3.611E+00	4.113E+00	4.114E+00	39.00	OK
	77.11	9.70	3.851E+00	3.624E+00	3.624E+00	23.62	OK
	87.09	3.41	4.711E+00	2.852E+00	2.853E+00	63.52	OK
	242.00	7.25	4.046E+00	2.211E+00	2.211E+00	45.82	OK
	295.22	18.42	3.501E+00	1.104E+00	1.104E+00	37.51	OK
	351.93	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62	OK
RN-222	609.32	45.49*	2.059E+00	1.208E+00	1.208E+00	20.07	OK
	1120.29	14.92	1.221E+00	8.533E-01	8.533E-01	97.10	OK
	1764.49	15.30	8.595E-01	1.404E+00	1.405E+00	51.30	OK
RA-224	240.99	4.10*	4.046E+00	3.910E+00	3.910E+00	45.82	OK
RA-226	74.82	5.80	3.611E+00	4.113E+00	4.114E+00	39.00	OK
	77.11	9.70	3.851E+00	3.624E+00	3.624E+00	23.62	OK
	87.09	3.41	4.711E+00	2.852E+00	2.853E+00	63.52	OK
	242.00	7.25	4.046E+00	2.211E+00	2.211E+00	45.82	OK
	295.22	18.42	3.501E+00	1.104E+00	1.104E+00	37.51	OK
	351.93	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62	OK
AC-228	105.21	1.10	5.492E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.241E+00	1.241E+00	55.21	OK
	835.71	1.61	1.587E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05	OK
	968.97	15.80	1.392E+00	1.034E+00	1.034E+00	68.70	OK
RA-228	105.21	1.10	5.492E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.241E+00	1.241E+00	55.21	OK
	835.71	1.61	1.587E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05	OK
	968.97	15.80	1.392E+00	1.034E+00	1.034E+00	68.70	OK
TH-228	74.82	10.28	3.611E+00	2.321E+00	2.321E+00	39.00	OK
	77.11	17.10	3.851E+00	2.056E+00	2.056E+00	23.62	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-229	238.63	43.60*	4.080E+00	1.516E+00	1.516E+00	11.84	OK
	300.09	3.30	3.457E+00	1.048E+00	1.048E+00	189.61	OK
	85.43	14.70	4.502E+00	2.893E-01	2.893E-01	120.14	OK
	88.47	24.00	4.711E+00	4.053E-01	4.053E-01	63.52	OK
TH-230	193.51	4.41*	4.710E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	4.449E+00	----- Line	Not Found	-----	Absent
	74.82	5.80	3.611E+00	4.113E+00	4.113E+00	39.00	OK
	77.11	9.70	3.851E+00	3.624E+00	3.624E+00	23.62	OK
PA-231	87.09	3.41	4.711E+00	2.852E+00	2.852E+00	63.52	OK
	242.00	7.25	4.046E+00	2.211E+00	2.211E+00	45.82	OK
	295.22	18.42	3.501E+00	1.104E+00	1.104E+00	37.51	OK
	351.93	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62	OK
TH-232	283.69	1.70	3.605E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	3.457E+00	6.466E-01	6.466E-01	189.61	OK
	105.21	1.10	5.492E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.241E+00	1.241E+00	55.21	OK
TH-234	835.71	1.61	1.587E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05	OK
	968.97	15.80	1.392E+00	1.034E+00	1.034E+00	68.70	OK
	63.29	3.70*	2.241E+00	2.806E+00	2.806E+00	135.41	OK
U-234	92.59	4.23	5.053E+00	1.740E+00	1.740E+00	133.25	OK
	74.82	5.80	3.611E+00	4.113E+00	4.113E+00	39.00	OK
	77.11	9.70	3.851E+00	3.624E+00	3.624E+00	23.62	OK
	87.09	3.41	4.711E+00	2.852E+00	2.852E+00	63.52	OK
U-235	242.00	7.25	4.046E+00	2.211E+00	2.211E+00	45.82	OK
	295.22	18.42	3.501E+00	1.104E+00	1.104E+00	37.51	OK
	351.93	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62	OK
	89.96	3.47	4.872E+00	----- Line	Not Found	-----	Absent
U-238	93.35	5.60	5.053E+00	1.314E+00	1.314E+00	133.25	OK
	143.76	10.96*	5.495E+00	----- Line	Not Found	-----	<<INT Reject
	163.33	5.08	5.200E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	4.833E+00	7.175E-02	7.175E-02	173.50	OK
AM-243	205.31	5.01	4.530E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.241E+00	2.806E+00	2.806E+00	135.41	OK
	92.59	4.23	5.053E+00	1.740E+00	1.740E+00	133.25	OK
	43.53	5.90	2.631E-01	----- Line	Not Found	-----	Absent
ANH-511	74.66	67.20*	3.611E+00	3.550E-01	3.550E-01	39.00	OK
	511.00	100.00*	2.353E+00	1.609E-01	1.609E-01	68.83	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299023.CNF;1
Acquisition date : 31-JUL-2024 15:04:59 Sensitivity : 3.000
Detector ID : GAM02 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.02 Half life ratio : *****
Sample date : 26-JUN-2024 11:15:00 Analyst initials: MXR1
Sample ID : G674299023 Sample Quantity : 1.0951E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 13-SEP-2023 09:49:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM02_CAN.CNF;19

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.131E+01	2.404E+00	1.031E+00
Y-91	6.543E+01	7.255E+01	6.060E+01
CD-109	2.772E+00	1.725E+00	2.203E+00
SN-126	2.629E-01	1.637E-01	1.835E-01
CE-141	1.695E-01	2.432E-01	2.150E-01
TL-208	3.566E-01	1.313E-01	9.047E-02
BI-211	3.074E+00	8.321E-01	5.190E-01
BI-212	1.453E+00	1.273E+00	1.434E+00
PB-212	1.516E+00	1.759E-01	1.358E-01
BI-214	1.208E+00	2.375E-01	1.585E-01
PB-214	1.116E+00	3.020E-01	1.888E-01
RN-222	1.208E+00	2.375E-01	1.585E-01
RA-224	3.910E+00	1.756E+00	1.456E+00
RA-226	1.116E+00	3.020E-01	1.888E-01
AC-228	9.078E-01	4.630E-01	3.539E-01
RA-228	9.078E-01	4.630E-01	3.539E-01
TH-228	1.516E+00	1.759E-01	1.358E-01
TH-229	1.834E-01	7.605E-01	1.345E+00
TH-230	1.116E+00	3.020E-01	1.888E-01
PA-231	6.466E-01	1.201E+00	1.311E+00
TH-232	9.078E-01	4.630E-01	3.539E-01
TH-234	2.806E+00	3.724E+00	3.573E+00
U-234	1.116E+00	3.020E-01	1.888E-01
U-235	4.244E-01	4.912E-01	5.338E-01
U-238	2.806E+00	3.724E+00	3.573E+00
AM-243	3.550E-01	1.357E-01	1.361E-01
ANH-511	1.609E-01	1.085E-01	6.166E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-5.970E-01	5.961E-01	9.451E-01	NOT IDENT.
NA-22	-2.427E-03	4.526E-02	9.066E-02	NOT IDENT.
NA-24	0.000E+00	3.209E+15	0.000E+00	SHORT HLIF

AL-26	1.106E-02	3.604E-02	8.962E-02	NOT IDENT.
SC-46	1.040E-02	6.024E-02	1.221E-01	FAIL ABUN
V-48	1.813E-01	2.342E-01	5.092E-01	NOT IDENT.
CR-51	-3.806E-01	8.355E-01	1.506E+00	NOT IDENT.
MN-52	-1.443E+00	3.598E+00	6.502E+00	FAIL ABUN
MN-54	1.125E-02	6.205E-02	1.097E-01	NOT IDENT.
CO-56	-3.665E-02	6.925E-02	1.244E-01	NOT IDENT.
MN-56	0.000E+00	1.876E+41	0.000E+00	SHORT HLIF
CO-57	-6.647E-03	3.559E-02	6.242E-02	NOT IDENT.
CO-58	-2.775E-02	6.954E-02	1.280E-01	NOT IDENT.
FE-59	-5.410E-02	1.791E-01	3.272E-01	NOT IDENT.
CO-60	-9.031E-03	6.731E-02	1.097E-01	NOT IDENT.
ZN-65	8.712E-03	1.722E-01	2.871E-01	NOT IDENT.
GE-68	-1.517E-01	1.814E+00	3.478E+00	NOT IDENT.
AS-73	5.540E-01	1.734E+00	3.338E+00	NOT IDENT.
AS-74	-1.156E-01	2.961E-01	5.141E-01	NOT IDENT.
SE-75	1.215E-02	6.582E-02	1.272E-01	NOT IDENT.
BR-77	0.000E+00	9.485E+03	0.000E+00	SHORT HLIF
SR-82	-2.611E-01	9.277E-01	1.514E+00	NOT IDENT.
RB-83	-2.928E-02	1.218E-01	2.078E-01	NOT IDENT.
RB-84	5.293E-02	1.463E-01	3.011E-01	NOT IDENT.
KR-85	1.522E+01	9.829E+00	2.136E+01	NOT IDENT.
SR-85	9.944E-02	6.430E-02	1.397E-01	NOT IDENT.
RB-86	2.567E-01	2.456E+00	4.808E+00	NOT IDENT.
Y-88	-2.091E-03	4.751E-02	1.060E-01	NOT IDENT.
NB-94	-1.213E-02	5.008E-02	8.765E-02	NOT IDENT.
NB-95	2.164E-02	8.864E-02	1.566E-01	NOT IDENT.
NB-95M	3.279E-02	2.091E-01	3.647E-01	NOT IDENT.
ZR-95	2.323E-01	1.123E-01	2.407E-01	FAIL ABUN
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.060E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.789E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	5.659E+40	0.000E+00	SHORT HLIF
RH-101	-3.171E-02	4.494E-02	7.493E-02	NOT IDENT.
RH-102	-3.371E-02	8.545E-02	1.473E-01	NOT IDENT.
RU-103	-8.315E-02	7.674E-02	1.205E-01	FAIL ABUN
RH-106	-9.561E-02	4.752E-01	8.484E-01	NOT IDENT.
RU-106	-9.561E-02	4.752E-01	8.484E-01	NOT IDENT.
AG-108M	-1.141E-02	3.787E-02	6.867E-02	NOT IDENT.
AG-110	-1.379E-01	1.130E+00	2.033E+00	NOT IDENT.
AG-110M	-2.410E-02	8.289E-02	1.338E-01	FAIL ABUN
SN-113	0.000E+00	7.412E-02	1.382E-01	NOT IDENT.
CD-115	0.000E+00	1.402E+04	0.000E+00	SHORT HLIF
SN-117M	-3.616E-02	2.088E-01	3.603E-01	NOT IDENT.
SB-122	0.000E+00	5.106E+02	0.000E+00	SHORT HLIF
TE-123M	1.078E-02	4.468E-02	7.987E-02	NOT IDENT.
SB-124	1.455E-02	1.186E-01	2.757E-01	NOT IDENT.
SB-125	3.545E-02	1.261E-01	2.441E-01	FAIL ABUN
TE-125M	2.758E-01	1.664E+01	2.982E+01	NOT IDENT.
I-126	-2.901E-01	9.374E-01	1.634E+00	NOT IDENT.
SB-126	-9.701E-02	6.173E-01	1.147E+00	NOT IDENT.
SB-127	-4.160E+00	7.044E+01	1.280E+02	NOT IDENT.
I-131	1.396E-01	8.109E-01	1.573E+00	NOT IDENT.
I-132	0.000E+00	1.182E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.884E+01	0.000E+00	SHORT HLIF
BA-133	5.373E-02	5.930E-02	1.136E-01	NOT IDENT.
I-133	0.000E+00	8.167E+10	0.000E+00	SHORT HLIF
CS-134	2.863E-02	6.972E-02	1.392E-01	NOT IDENT.
I-135	0.000E+00	8.160E+37	0.000E+00	SHORT HLIF
CS-136	-3.762E-01	4.105E-01	6.644E-01	NOT IDENT.
BA-137M	-3.353E-02	5.454E-02	9.223E-02	NOT IDENT.
CS-137	-3.542E-02	5.761E-02	9.744E-02	NOT IDENT.
LA-138	1.101E-02	5.899E-02	1.310E-01	NOT IDENT.
CE-139	-1.685E-02	4.421E-02	7.467E-02	NOT IDENT.
BA-140	7.462E-01	1.006E+00	2.090E+00	NOT IDENT.
LA-140	-2.374E-01	2.945E-01	4.917E-01	NOT IDENT.
CE-143	0.000E+00	4.323E+06	0.000E+00	SHORT HLIF
CE-144	-9.956E-03	2.700E-01	4.779E-01	NOT IDENT.
PM-144	-2.085E-02	5.207E-02	8.898E-02	NOT IDENT.
PR-144	-1.577E+00	3.938E+00	6.730E+00	NOT IDENT.
PM-146	6.226E-02	6.503E-02	1.326E-01	NOT IDENT.
ND-147	9.839E-01	2.797E+00	5.023E+00	NOT IDENT.
PM-147	-7.464E+02	1.059E+03	1.773E+03	NOT IDENT.
PM-149	0.000E+00	6.314E+04	0.000E+00	SHORT HLIF
EU-150	2.303E-02	3.912E-02	7.160E-02	FAIL ABUN
EU-152	9.155E-02	1.326E-01	2.666E-01	FAIL ABUN
GD-153	-1.146E-01	1.279E-01	1.945E-01	NOT IDENT.
EU-154	-6.801E-03	1.269E-01	2.543E-01	FAIL ABUN

EU-155	7.916E-02	1.444E-01	2.697E-01	FAIL ABUN
TB-160	1.282E-01	2.243E-01	4.737E-01	FAIL ABUN
HO-166M	-5.802E-02	8.848E-02	1.440E-01	FAIL ABUN
TM-171	-3.634E+01	3.406E+01	5.821E+01	NOT IDENT.
HF-172	1.587E-01	2.574E-01	4.809E-01	FAIL ABUN
LU-172	-3.535E-02	1.009E-01	1.822E-01	FAIL ABUN
LU-176	1.719E-03	3.809E-02	7.198E-02	FAIL ABUN
HF-181	4.659E-02	7.922E-02	1.604E-01	NOT IDENT.
TA-182	-1.571E-02	2.845E-01	5.396E-01	FAIL ABUN
RE-183	5.867E-02	3.872E-01	7.294E-01	NOT IDENT.
RE-184	2.308E-01	2.332E-01	5.292E-01	NOT IDENT.
W-188	2.919E+00	1.325E+01	2.313E+01	FAIL ABUN
IR-192	3.918E-02	5.977E-02	1.191E-01	FAIL ABUN
HG-203	-3.044E-02	7.497E-02	1.363E-01	NOT IDENT.
TL-204	-3.274E-01	7.500E+00	1.265E+01	NOT IDENT.
BI-207	-3.912E-02	8.739E-02	1.549E-01	FAIL ABUN
BI-210	-1.637E+00	8.250E+00	1.506E+01	NOT IDENT.
PB-210	-1.637E+00	8.250E+00	1.506E+01	NOT IDENT.
PB-211	-4.514E-02	1.077E+00	1.951E+00	NOT IDENT.
BI-213	1.329E-01	1.545E-01	3.138E-01	NOT IDENT.
RN-219	-9.000E-02	5.763E-01	1.058E+00	FAIL ABUN
RA-223	-1.815E-01	8.874E-01	1.592E+00	FAIL ABUN
AC-225	-1.434E+00	3.430E+00	5.610E+00	NOT IDENT.
AC-227	-4.348E-02	3.411E-01	6.408E-01	FAIL ABUN
TH-227	-4.348E-02	3.411E-01	6.408E-01	FAIL ABUN
TH-231	-1.815E-01	8.874E-01	1.592E+00	FAIL ABUN
PA-233	9.700E-04	8.425E-02	1.600E-01	FAIL ABUN
PA-234	2.987E-01	4.309E-01	9.192E-01	FAIL ABUN
PA-234M	-1.979E+00	7.120E+00	1.393E+01	NOT IDENT.
NP-237	9.700E-04	8.425E-02	1.600E-01	FAIL ABUN
NP-238	0.000E+00	1.997E+04	0.000E+00	SHORT HLIF
NP-239	-8.154E-02	3.418E-01	5.994E-01	NOT IDENT.
PU-239	5.169E+02	4.422E+02	8.604E+02	NOT IDENT.
AM-241	5.278E-03	2.614E-01	4.506E-01	NOT IDENT.
CM-243	-8.118E-02	1.455E-01	2.495E-01	NOT IDENT.
BK-247	2.392E-02	1.123E-01	2.162E-01	FAIL ABUN
CM-247	-4.963E-02	5.533E-02	9.024E-02	NOT IDENT.
CF-249	-2.720E-03	5.654E-02	1.053E-01	NOT IDENT.
CF-251	1.439E-01	1.859E-01	3.452E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	323	10.66*	9.737E-01	2.131E+01	2.131E+01	11.52
Y-91	1204.77	19	0.26*	1.145E+00	4.313E+01	6.543E+01	113.14
CD-109	88.03	67	3.70*	4.711E+00	2.629E+00	2.772E+00	63.52
SN-126	64.28	34	9.60	2.241E+00	1.082E+00	1.082E+00	135.41
	86.94	67	8.90	4.711E+00	1.093E+00	1.093E+00	63.52
	87.57	67	37.00*	4.711E+00	2.629E-01	2.629E-01	63.52
CE-141	145.44	37	48.29*	5.492E+00	9.633E-02	2.039E-01	118.10
TL-208	277.37	-----	6.60	3.664E+00	-----	Line Not Found	-----
	583.19	94	85.00*	2.130E+00	3.566E-01	3.566E-01	37.56
	860.56	-----	12.50	1.547E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.389E+00	-----	Line Not Found	-----
	351.06	179	12.92*	3.084E+00	3.074E+00	3.074E+00	27.62
BI-212	727.33	25	6.67*	1.784E+00	1.453E+00	1.453E+00	89.37
	1620.50	-----	1.47	9.038E-01	-----	Line Not Found	-----
PB-212	74.82	126	10.28	3.611E+00	2.321E+00	2.321E+00	39.00
	77.11	197	17.10	3.851E+00	2.056E+00	2.056E+00	23.62
	238.63	393	43.60*	4.080E+00	1.516E+00	1.516E+00	11.84
	300.09	17	3.30	3.457E+00	1.048E+00	1.048E+00	189.61
BI-214	609.32	165	45.49*	2.059E+00	1.208E+00	1.208E+00	20.07
	1120.29	23	14.92	1.221E+00	8.533E-01	8.533E-01	97.10
	1764.49	27	15.30	8.595E-01	1.404E+00	1.405E+00	51.30
PB-214	74.82	126	5.80	3.611E+00	4.113E+00	4.114E+00	39.00
	77.11	197	9.70	3.851E+00	3.624E+00	3.624E+00	23.62
	87.09	67	3.41	4.711E+00	2.852E+00	2.853E+00	63.52
	242.00	95	7.25	4.046E+00	2.211E+00	2.211E+00	45.82
	295.22	104	18.42	3.501E+00	1.104E+00	1.104E+00	37.51
	351.93	179	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62
RN-222	609.32	165	45.49*	2.059E+00	1.208E+00	1.208E+00	20.07
	1120.29	23	14.92	1.221E+00	8.533E-01	8.533E-01	97.10
	1764.49	27	15.30	8.595E-01	1.404E+00	1.405E+00	51.30
RA-224	240.99	95	4.10*	4.046E+00	3.910E+00	3.910E+00	45.82
RA-226	74.82	126	5.80	3.611E+00	4.113E+00	4.114E+00	39.00
	77.11	197	9.70	3.851E+00	3.624E+00	3.624E+00	23.62
	87.09	67	3.41	4.711E+00	2.852E+00	2.853E+00	63.52
	242.00	95	7.25	4.046E+00	2.211E+00	2.211E+00	45.82
	295.22	104	18.42	3.501E+00	1.104E+00	1.104E+00	37.51
	351.93	179	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62
AC-228	105.21	-----	1.10	5.492E+00	-----	Line Not Found	-----
	338.32	65	11.27	3.173E+00	1.241E+00	1.241E+00	55.21
	835.71	-----	1.61	1.587E+00	-----	Line Not Found	-----
	911.20	50	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05
	968.97	33	15.80	1.392E+00	1.034E+00	1.034E+00	68.70
RA-228	105.21	-----	1.10	5.492E+00	-----	Line Not Found	-----
	338.32	65	11.27	3.173E+00	1.241E+00	1.241E+00	55.21
	835.71	-----	1.61	1.587E+00	-----	Line Not Found	-----
	911.20	50	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05
	968.97	33	15.80	1.392E+00	1.034E+00	1.034E+00	68.70

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	126	10.28	3.611E+00	2.321E+00	2.321E+00	39.00
	77.11	197	17.10	3.851E+00	2.056E+00	2.056E+00	23.62
	238.63	393	43.60*	4.080E+00	1.516E+00	1.516E+00	11.84
	300.09	17	3.30	3.457E+00	1.048E+00	1.048E+00	189.61
TH-229	85.43	28	14.70	4.502E+00	2.893E-01	2.893E-01	120.14
	88.47	67	24.00	4.711E+00	4.053E-01	4.053E-01	63.52
	193.51	-----	4.41*	4.710E+00	-----	Line Not Found	-----
	210.85	-----	2.80	4.449E+00	-----	Line Not Found	-----
TH-230	74.82	126	5.80	3.611E+00	4.113E+00	4.113E+00	39.00
	77.11	197	9.70	3.851E+00	3.624E+00	3.624E+00	23.62
	87.09	67	3.41	4.711E+00	2.852E+00	2.852E+00	63.52
	242.00	95	7.25	4.046E+00	2.211E+00	2.211E+00	45.82
	295.22	104	18.42	3.501E+00	1.104E+00	1.104E+00	37.51
	351.93	179	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62
PA-231	283.69	-----	1.70	3.605E+00	-----	Line Not Found	-----
	301.36	17	5.35*	3.457E+00	6.466E-01	6.466E-01	189.61
TH-232	105.21	-----	1.10	5.492E+00	-----	Line Not Found	-----
	338.32	65	11.27	3.173E+00	1.241E+00	1.241E+00	55.21
	835.71	-----	1.61	1.587E+00	-----	Line Not Found	-----
	911.20	50	25.80*	1.471E+00	9.078E-01	9.078E-01	52.05
TH-234	968.97	33	15.80	1.392E+00	1.034E+00	1.034E+00	68.70
	63.29	34	3.70*	2.241E+00	2.806E+00	2.806E+00	135.41
	92.59	54	4.23	5.053E+00	1.740E+00	1.740E+00	133.25
U-234	74.82	126	5.80	3.611E+00	4.113E+00	4.113E+00	39.00
	77.11	197	9.70	3.851E+00	3.624E+00	3.624E+00	23.62
	87.09	67	3.41	4.711E+00	2.852E+00	2.852E+00	63.52
	242.00	95	7.25	4.046E+00	2.211E+00	2.211E+00	45.82
	295.22	104	18.42	3.501E+00	1.104E+00	1.104E+00	37.51
U-235	351.93	179	35.60*	3.084E+00	1.116E+00	1.116E+00	27.62
	89.96	-----	3.47	4.872E+00	-----	Line Not Found	-----
	93.35	54	5.60	5.053E+00	1.314E+00	1.314E+00	133.25
	143.76	37	10.96*	5.492E+00	4.244E-01	4.244E-01	118.10
	163.33	-----	5.08	5.200E+00	-----	Line Not Found	-----
	185.72	29	57.20	4.833E+00	7.175E-02	7.175E-02	173.50
U-238	205.31	-----	5.01	4.530E+00	-----	Line Not Found	-----
	63.29	34	3.70*	2.241E+00	2.806E+00	2.806E+00	135.41
	92.59	54	4.23	5.053E+00	1.740E+00	1.740E+00	133.25
AM-243	43.53	-----	5.90	2.631E-01	-----	Line Not Found	-----
ANH-511	74.66	126	67.20*	3.611E+00	3.550E-01	3.550E-01	39.00
	511.00	55	100.00*	2.353E+00	1.609E-01	1.609E-01	68.83

Flag: "*" = Keyline

Total number of lines in spectrum 44
Number of unidentified lines 11
Number of lines tentatively identified by NID 33 75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.131E+01	2.131E+01	0.245E+01	11.52	
Y-91	58.51D	1.52	4.313E+01	6.543E+01	7.403E+01	113.14	
CD-109	461.40D	1.05	2.629E+00	2.772E+00	1.761E+00	63.52	
SN-126	2.30E+05Y	1.00	2.629E-01	2.629E-01	1.670E-01	63.52	
CE-141	32.51D	2.12	9.633E-02	2.039E-01	2.409E-01	118.10	
TL-208	1.41E+10Y	1.00	3.566E-01	3.566E-01	1.339E-01	37.56	
BI-211	7.04E+08Y	1.00	3.074E+00	3.074E+00	0.849E+00	27.62	
BI-212	1.41E+10Y	1.00	1.453E+00	1.453E+00	1.299E+00	89.37	
PB-212	1.41E+10Y	1.00	1.516E+00	1.516E+00	0.179E+00	11.84	
BI-214	1600.00Y	1.00	1.208E+00	1.208E+00	0.242E+00	20.07	
PB-214	1600.00Y	1.00	1.116E+00	1.116E+00	0.308E+00	27.62	
RN-222	1600.00Y	1.00	1.208E+00	1.208E+00	0.242E+00	20.07	
RA-224	1.41E+10Y	1.00	3.910E+00	3.910E+00	1.792E+00	45.82	
RA-226	1600.00Y	1.00	1.116E+00	1.116E+00	0.308E+00	27.62	
AC-228	1.41E+10Y	1.00	9.078E-01	9.078E-01	4.725E-01	52.05	
RA-228	1.41E+10Y	1.00	9.078E-01	9.078E-01	4.725E-01	52.05	
TH-228	1.41E+10Y	1.00	1.516E+00	1.516E+00	0.179E+00	11.84	
TH-229	7340.00Y	1.00	4.053E-01	4.053E-01	2.575E-01	63.52	K
TH-230	7.54E+04Y	1.00	1.116E+00	1.116E+00	0.308E+00	27.62	
PA-231	7.04E+08Y	1.00	6.466E-01	6.466E-01	12.26E-01	189.61	
TH-232	1.41E+10Y	1.00	9.078E-01	9.078E-01	4.725E-01	52.05	
TH-234	4.47E+09Y	1.00	2.806E+00	2.806E+00	3.800E+00	135.41	
U-234	2.45E+05Y	1.00	1.116E+00	1.116E+00	0.308E+00	27.62	
U-235	7.04E+08Y	1.00	4.244E-01	4.244E-01	5.012E-01	118.10	
U-238	4.47E+09Y	1.00	2.806E+00	2.806E+00	3.800E+00	135.41	
AM-243	7370.00Y	1.00	3.550E-01	3.550E-01	1.385E-01	39.00	
ANH-511	1.00E+09Y	1.00	1.609E-01	1.609E-01	1.108E-01	68.83	
Total Activity :			9.646E+01	1.190E+02			

Grand Total Activity : 9.646E+01 1.190E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.31	51	54	1.85	419.36	416	7	1.42E-02	55.5	4.47E+00	
0	270.48	21	77	0.69	541.72	537	9	5.82E-03	****	3.73E+00	T
0	464.45	38	34	1.97	929.68	924	12	1.08E-02	71.0	2.53E+00	T
0	526.52	25	27	3.00	1053.81	1048	12	7.05E-03	94.2	2.30E+00	T
0	641.61	14	31	2.98	1283.95	1275	12	4.07E-03	****	1.98E+00	
0	755.62	22	2	1.33	1511.92	1507	10	6.29E-03	49.3	1.73E+00	T
0	769.12	40	35	1.97	1538.90	1530	19	1.15E-02	78.0	1.70E+00	
0	838.20	14	28	4.66	1677.03	1669	16	3.92E-03	****	1.58E+00	T
0	891.49	10	14	4.44	1783.57	1775	12	2.83E-03	****	1.50E+00	
0	935.10	13	13	2.08	1870.73	1863	11	3.75E-03	****	1.44E+00	T
0	937.87	8	3	1.43	1876.29	1873	6	2.30E-03	95.2	1.43E+00	T
1	965.05	16	10	2.12	1930.61	1927	20	4.60E-03	80.7	1.40E+00	T
0	1145.77	14	9	1.72	2291.85	2284	13	4.01E-03	****	1.20E+00	
0	1155.62	9	9	0.83	2311.52	2302	13	2.61E-03	****	1.19E+00	
0	1161.92	6	7	0.56	2324.13	2316	10	1.87E-03	****	1.18E+00	
0	1231.98	24	4	3.87	2464.13	2459	11	7.02E-03	53.2	1.12E+00	T
0	1286.84	12	7	1.92	2573.78	2567	11	3.67E-03	****	1.08E+00	
0	1306.88	13	3	3.40	2613.84	2606	14	3.77E-03	79.8	1.07E+00	
0	1328.76	9	4	2.05	2657.55	2654	8	2.78E-03	93.8	1.05E+00	
0	1376.82	13	7	0.77	2753.59	2750	10	3.91E-03	90.8	1.02E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299023.CNF;1  *
* Acquisition date   : 31-JUL-2024 15:04:59 Sensitivity      : 3.000          *
* Detector ID        : GAM02 Energy tolerance: 1.500        *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:01.02 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 11:15:00 Nuclide Library : SOLID      *
* Sample ID          : G674299023 Analyst initials: MXR1         *
* Batch Number       : 2636543 Sample Quantity : 1.0951E+02 GRAM    *
* Wet wt corr        : 1.00000 Wet Weight : 0.00000          *
*                                     Dry Weight : 0.00000          *
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date     : 13-SEP-2023 09:49:44 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM02_CAN.CNF;19          *
*****
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.270E-01
Y-91	2.560E+01
CD-109	1.045E+00
SN-126	8.639E-02
CE-141	1.000E-01
TL-208	4.012E-02
BI-211	2.363E-01
BI-212	6.393E-01
PB-212	6.267E-02
BI-214	6.938E-02
PB-214	8.594E-02
RN-222	6.938E-02
RA-224	6.720E-01
RA-226	8.594E-02
AC-228	1.526E-01
RA-228	1.526E-01
TH-228	6.267E-02
TH-229	6.279E-01
TH-230	8.594E-02
PA-231	6.054E-01
TH-232	1.526E-01
TH-234	1.673E+00
U-234	8.594E-02
U-235	2.514E-01
U-238	1.673E+00
AM-243	6.419E-02
ANH-511	2.689E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.158E-01	NOT IDENT.
NA-22	3.664E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.394E-02	NOT IDENT.

SC-46	5.284E-02	FAIL ABUN
V-48	2.237E-01	NOT IDENT.
CR-51	6.845E-01	NOT IDENT.
MN-52	2.519E+00	FAIL ABUN
MN-54	4.855E-02	NOT IDENT.
CO-56	5.414E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.911E-02	NOT IDENT.
CO-58	5.595E-02	NOT IDENT.
FE-59	1.409E-01	NOT IDENT.
CO-60	4.597E-02	NOT IDENT.
ZN-65	1.272E-01	NOT IDENT.
GE-68	1.491E+00	NOT IDENT.
AS-73	1.552E+00	NOT IDENT.
AS-74	2.275E-01	NOT IDENT.
SE-75	5.851E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.620E-01	NOT IDENT.
RB-83	9.215E-02	NOT IDENT.
RB-84	1.320E-01	NOT IDENT.
KR-85	9.764E+00	NOT IDENT.
SR-85	6.386E-02	NOT IDENT.
RB-86	2.092E+00	NOT IDENT.
Y-88	3.915E-02	NOT IDENT.
NB-94	3.878E-02	NOT IDENT.
NB-95	7.037E-02	NOT IDENT.
NB-95M	1.691E-01	NOT IDENT.
ZR-95	1.060E-01	FAIL ABUN
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.499E-02	NOT IDENT.
RH-102	6.525E-02	NOT IDENT.
RU-103	5.236E-02	FAIL ABUN
RH-106	3.751E-01	NOT IDENT.
RU-106	3.751E-01	NOT IDENT.
AG-108M	3.047E-02	NOT IDENT.
AG-110	8.998E-01	NOT IDENT.
AG-110M	5.762E-02	FAIL ABUN
SN-113	6.293E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.679E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.736E-02	NOT IDENT.
SB-124	1.049E-01	NOT IDENT.
SB-125	1.102E-01	FAIL ABUN
TE-125M	1.396E+01	NOT IDENT.
I-126	7.204E-01	NOT IDENT.
SB-126	5.046E-01	NOT IDENT.
SB-127	5.643E+01	NOT IDENT.
I-131	7.077E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.191E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	6.287E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.755E-01	NOT IDENT.
BA-137M	4.077E-02	NOT IDENT.
CS-137	4.307E-02	NOT IDENT.
LA-138	5.126E-02	NOT IDENT.
CE-139	3.464E-02	NOT IDENT.
BA-140	9.317E-01	NOT IDENT.
LA-140	1.742E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.226E-01	NOT IDENT.
PM-144	3.912E-02	NOT IDENT.
PR-144	2.959E+00	NOT IDENT.
PM-146	6.071E-02	NOT IDENT.
ND-147	2.227E+00	NOT IDENT.
PM-147	8.270E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.278E-02	FAIL ABUN
EU-152	1.221E-01	FAIL ABUN
GD-153	9.044E-02	NOT IDENT.
EU-154	1.028E-01	FAIL ABUN
EU-155	1.267E-01	FAIL ABUN

TB-160	2.085E-01	FAIL ABUN
HO-166M	6.260E-02	FAIL ABUN
TM-171	2.691E+01	NOT IDENT.
HF-172	2.253E-01	FAIL ABUN
LU-172	7.897E-02	FAIL ABUN
LU-176	3.308E-02	FAIL ABUN
HF-181	7.188E-02	NOT IDENT.
TA-182	2.324E-01	FAIL ABUN
RE-183	3.400E-01	NOT IDENT.
RE-184	2.320E-01	NOT IDENT.
W-188	1.064E+01	FAIL ABUN
IR-192	5.489E-02	FAIL ABUN
HG-203	6.289E-02	NOT IDENT.
TL-204	5.943E+00	NOT IDENT.
BI-207	6.778E-02	FAIL ABUN
BI-210	7.028E+00	NOT IDENT.
PB-210	7.028E+00	NOT IDENT.
PB-211	8.876E-01	NOT IDENT.
BI-213	1.433E-01	NOT IDENT.
RN-219	4.791E-01	FAIL ABUN
RA-223	7.253E-01	FAIL ABUN
AC-225	2.590E+00	NOT IDENT.
AC-227	2.952E-01	FAIL ABUN
TH-227	2.952E-01	FAIL ABUN
TH-231	7.253E-01	FAIL ABUN
PA-233	7.286E-02	FAIL ABUN
PA-234	4.056E-01	FAIL ABUN
PA-234M	6.154E+00	NOT IDENT.
NP-237	7.286E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.789E-01	NOT IDENT.
PU-239	4.040E+02	NOT IDENT.
AM-241	2.105E-01	NOT IDENT.
CM-243	1.165E-01	NOT IDENT.
BK-247	9.995E-02	FAIL ABUN
CM-247	4.053E-02	NOT IDENT.
CF-249	4.777E-02	NOT IDENT.
CF-251	1.618E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299023.CNF;1
Acquisition date : 31-JUL-2024 15:04:59 Sensitivity : 3.000
Detector ID : GAM02 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.02 Half life ratio : *****
Sample date : 26-JUN-2024 11:15:00 Nuclide Library : SOLID
Sample ID : G674299023 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.0951E+02 GRAM
Quantity Err(%) : 1.8263E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 13-SEP-2023 09:49:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM02_CAN.CNF;19

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.131E+01	3.377E+00	3.377E+00
Y-91	6.543E+01	7.276E+01	7.276E+01
CD-109	2.772E+00	1.757E+00	1.757E+00
SN-126	2.629E-01	1.661E-01	1.661E-01
CE-141	1.695E-01	2.436E-01	2.436E-01
TL-208	3.566E-01	1.348E-01	1.348E-01
BI-211	3.074E+00	8.695E-01	8.695E-01
BI-212	1.453E+00	1.280E+00	1.280E+00
PB-212	1.516E+00	2.174E-01	2.174E-01
BI-214	1.208E+00	2.588E-01	2.588E-01
PB-214	1.116E+00	3.151E-01	3.151E-01
RN-222	1.208E+00	2.588E-01	2.588E-01
RA-224	3.910E+00	1.786E+00	1.786E+00
RA-226	1.116E+00	3.151E-01	3.151E-01
AC-228	9.078E-01	4.735E-01	4.735E-01
RA-228	9.078E-01	4.735E-01	4.735E-01
TH-228	1.516E+00	2.174E-01	2.174E-01
TH-229	1.834E-01	7.607E-01	7.607E-01
TH-230	1.116E+00	3.150E-01	3.150E-01
PA-231	6.466E-01	1.210E+00	1.210E+00
TH-232	9.078E-01	4.735E-01	4.735E-01
TH-234	2.806E+00	3.785E+00	3.785E+00
U-234	1.116E+00	3.150E-01	3.150E-01
U-235	4.244E-01	4.924E-01	4.924E-01
U-238	2.806E+00	3.785E+00	3.785E+00
AM-243	3.550E-01	1.407E-01	1.407E-01
ANH-511	1.609E-01	1.094E-01	1.094E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-5.970E-01	5.982E-01	6.560E-01	NOT IDENT.
NA-22	-2.427E-03	4.526E-02	4.527E-02	NOT IDENT.
NA-24	-2.146E+15	3.219E+15	3.361E+15	SHORT HLIF

AL-26	1.106E-02	3.605E-02	3.639E-02	NOT IDENT.
SC-46	1.040E-02	6.025E-02	6.043E-02	FAIL ABUN
V-48	1.813E-01	2.349E-01	2.487E-01	NOT IDENT.
CR-51	-3.806E-01	8.360E-01	8.535E-01	NOT IDENT.
MN-52	-1.443E+00	3.602E+00	3.660E+00	FAIL ABUN
MN-54	1.125E-02	6.206E-02	6.226E-02	NOT IDENT.
CO-56	-3.665E-02	6.935E-02	7.129E-02	NOT IDENT.
MN-56	-1.000E+41	1.879E+41	0.000E+00	SHORT HLIF
CO-57	-6.647E-03	3.559E-02	3.572E-02	NOT IDENT.
CO-58	-2.775E-02	6.960E-02	7.071E-02	NOT IDENT.
FE-59	-5.410E-02	1.791E-01	1.808E-01	NOT IDENT.
CO-60	-9.031E-03	6.731E-02	6.744E-02	NOT IDENT.
ZN-65	8.712E-03	1.722E-01	1.723E-01	NOT IDENT.
GE-68	-1.517E-01	1.814E+00	1.815E+00	NOT IDENT.
AS-73	5.540E-01	1.739E+00	1.757E+00	NOT IDENT.
AS-74	-1.156E-01	2.964E-01	3.009E-01	NOT IDENT.
SE-75	1.215E-02	6.582E-02	6.605E-02	NOT IDENT.
BR-77	8.174E+04	8.380E+04	9.154E+04	SHORT HLIF
SR-82	-2.611E-01	9.280E-01	9.354E-01	NOT IDENT.
RB-83	-2.928E-02	1.219E-01	1.226E-01	NOT IDENT.
RB-84	5.293E-02	1.464E-01	1.483E-01	NOT IDENT.
KR-85	1.522E+01	9.915E+00	1.206E+01	NOT IDENT.
SR-85	9.944E-02	6.485E-02	7.884E-02	NOT IDENT.
RB-86	2.567E-01	2.456E+00	2.459E+00	NOT IDENT.
Y-88	-2.091E-03	4.751E-02	4.752E-02	NOT IDENT.
NB-94	-1.213E-02	5.009E-02	5.039E-02	NOT IDENT.
NB-95	2.164E-02	8.866E-02	8.920E-02	NOT IDENT.
NB-95M	3.279E-02	2.091E-01	2.097E-01	NOT IDENT.
ZR-95	2.323E-01	1.144E-01	1.551E-01	FAIL ABUN
NB-97	-1.000E+41	1.599E+42	0.000E+00	SHORT HLIF
ZR-97	-9.027E+14	1.063E+15	1.138E+15	SHORT HLIF
MO-99	-1.864E+03	2.795E+03	2.919E+03	SHORT HLIF
TC-99M	3.508E+40	5.674E+40	0.000E+00	SHORT HLIF
RH-101	-3.171E-02	4.534E-02	4.754E-02	NOT IDENT.
RH-102	-3.371E-02	8.553E-02	8.687E-02	NOT IDENT.
RU-103	-8.315E-02	7.709E-02	8.572E-02	FAIL ABUN
RH-106	-9.561E-02	4.753E-01	4.772E-01	NOT IDENT.
RU-106	-9.561E-02	4.753E-01	4.772E-01	NOT IDENT.
AG-108M	-1.141E-02	3.788E-02	3.823E-02	NOT IDENT.
AG-110	-1.379E-01	1.131E+00	1.132E+00	NOT IDENT.
AG-110M	-2.410E-02	8.293E-02	8.364E-02	FAIL ABUN
SN-113	0.000E+00	7.412E-02	0.000E+00	NOT IDENT.
CD-115	1.518E+04	1.410E+04	1.567E+04	SHORT HLIF
SN-117M	-3.616E-02	2.088E-01	2.094E-01	NOT IDENT.
SB-122	-7.503E+01	5.106E+02	5.118E+02	SHORT HLIF
TE-123M	1.078E-02	4.469E-02	4.495E-02	NOT IDENT.
SB-124	1.455E-02	1.186E-01	1.188E-01	NOT IDENT.
SB-125	3.545E-02	1.261E-01	1.271E-01	FAIL ABUN
TE-125M	2.758E-01	1.664E+01	1.664E+01	NOT IDENT.
I-126	-2.901E-01	9.378E-01	9.469E-01	NOT IDENT.
SB-126	-9.701E-02	6.175E-01	6.190E-01	NOT IDENT.
SB-127	-4.160E+00	7.045E+01	7.047E+01	NOT IDENT.
I-131	1.396E-01	8.109E-01	8.134E-01	NOT IDENT.
I-132	-1.000E+41	2.471E+41	0.000E+00	SHORT HLIF
TE-132	1.215E+01	7.886E+01	7.905E+01	SHORT HLIF
BA-133	5.373E-02	5.946E-02	6.420E-02	NOT IDENT.
I-133	-2.382E+10	8.186E+10	8.256E+10	SHORT HLIF
CS-134	2.863E-02	6.977E-02	7.096E-02	NOT IDENT.
I-135	-5.249E+37	9.184E+37	0.000E+00	SHORT HLIF
CS-136	-3.762E-01	4.129E-01	4.464E-01	NOT IDENT.
BA-137M	-3.353E-02	5.461E-02	5.666E-02	NOT IDENT.
CS-137	-3.542E-02	5.769E-02	5.986E-02	NOT IDENT.
LA-138	1.101E-02	5.901E-02	5.921E-02	NOT IDENT.
CE-139	-1.685E-02	4.435E-02	4.500E-02	NOT IDENT.
BA-140	7.462E-01	1.008E+00	1.063E+00	NOT IDENT.
LA-140	-2.374E-01	2.954E-01	3.142E-01	NOT IDENT.
CE-143	1.991E+06	4.326E+06	4.418E+06	SHORT HLIF
CE-144	-9.956E-03	2.700E-01	2.701E-01	NOT IDENT.
PM-144	-2.085E-02	5.210E-02	5.294E-02	NOT IDENT.
PR-144	-1.577E+00	3.940E+00	4.004E+00	NOT IDENT.
PM-146	6.226E-02	6.535E-02	7.112E-02	NOT IDENT.
ND-147	9.839E-01	2.798E+00	2.833E+00	NOT IDENT.
PM-147	-7.464E+02	1.061E+03	1.113E+03	NOT IDENT.
PM-149	-1.802E+04	6.320E+04	6.372E+04	SHORT HLIF
EU-150	2.303E-02	3.916E-02	4.052E-02	FAIL ABUN
EU-152	9.155E-02	1.328E-01	1.391E-01	FAIL ABUN
GD-153	-1.146E-01	1.283E-01	1.384E-01	NOT IDENT.
EU-154	-6.801E-03	1.269E-01	1.270E-01	FAIL ABUN

EU-155	7.916E-02	1.446E-01	1.489E-01	FAIL ABUN
TB-160	1.282E-01	2.247E-01	2.320E-01	FAIL ABUN
HO-166M	-5.802E-02	8.865E-02	9.243E-02	FAIL ABUN
TM-171	-3.634E+01	3.445E+01	3.815E+01	NOT IDENT.
HF-172	1.587E-01	2.588E-01	2.685E-01	FAIL ABUN
LU-172	-3.535E-02	1.010E-01	1.023E-01	FAIL ABUN
LU-176	1.719E-03	3.809E-02	3.810E-02	FAIL ABUN
HF-181	4.659E-02	7.932E-02	8.206E-02	NOT IDENT.
TA-182	-1.571E-02	2.845E-01	2.846E-01	FAIL ABUN
RE-183	5.867E-02	3.873E-01	3.882E-01	NOT IDENT.
RE-184	2.308E-01	2.350E-01	2.570E-01	NOT IDENT.
W-188	2.919E+00	1.325E+01	1.332E+01	FAIL ABUN
IR-192	3.918E-02	5.984E-02	6.240E-02	FAIL ABUN
HG-203	-3.044E-02	7.500E-02	7.625E-02	NOT IDENT.
TL-204	-3.274E-01	7.500E+00	7.502E+00	NOT IDENT.
BI-207	-3.912E-02	8.746E-02	8.922E-02	FAIL ABUN
BI-210	-1.637E+00	8.253E+00	8.286E+00	NOT IDENT.
PB-210	-1.637E+00	8.253E+00	8.286E+00	NOT IDENT.
PB-211	-4.514E-02	1.077E+00	1.078E+00	NOT IDENT.
BI-213	1.329E-01	1.549E-01	1.661E-01	NOT IDENT.
RN-219	-9.000E-02	5.764E-01	5.779E-01	FAIL ABUN
RA-223	-1.815E-01	8.875E-01	8.913E-01	FAIL ABUN
AC-225	-1.434E+00	3.434E+00	3.494E+00	NOT IDENT.
AC-227	-4.348E-02	3.411E-01	3.417E-01	FAIL ABUN
TH-227	-4.348E-02	3.411E-01	3.417E-01	FAIL ABUN
TH-231	-1.815E-01	8.875E-01	8.913E-01	FAIL ABUN
PA-233	9.700E-04	8.425E-02	8.425E-02	FAIL ABUN
PA-234	2.987E-01	5.506E-01	5.668E-01	FAIL ABUN
PA-234M	-1.979E+00	7.123E+00	7.178E+00	NOT IDENT.
NP-237	9.700E-04	8.425E-02	8.425E-02	FAIL ABUN
NP-238	3.057E+02	1.997E+04	1.997E+04	SHORT HLIF
NP-239	-8.154E-02	3.419E-01	3.439E-01	NOT IDENT.
PU-239	5.169E+02	4.440E+02	5.014E+02	NOT IDENT.
AM-241	5.278E-03	2.614E-01	2.614E-01	NOT IDENT.
CM-243	-8.118E-02	1.458E-01	1.504E-01	NOT IDENT.
BK-247	2.392E-02	1.124E-01	1.129E-01	FAIL ABUN
CM-247	-4.963E-02	5.606E-02	6.036E-02	NOT IDENT.
CF-249	-2.720E-03	5.654E-02	5.655E-02	NOT IDENT.
CF-251	1.439E-01	1.869E-01	1.978E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	53.6797	85.43	86.5597	131.20	73.7004
45.60	58.5792	86.55	86.7795	133.02	58.4782
46.54	66.0028	86.79	86.8254	133.52	62.9439
49.72	0.0000	86.94	86.8556	136.00	82.0508
51.35	54.2025	87.09	86.8845	136.47	64.3597
51.87	65.3353	87.57	86.9776	140.51	0.0000
52.39	72.8173	88.03	116.0896	143.76	60.6239
52.97	55.4057	88.34	116.1696	144.24	60.6693
53.44	51.7882	88.47	115.5273	145.44	60.0334
54.07	65.7892	89.96	109.8070	152.43	68.2635
57.36	0.0000	1093.63	116.0804	153.25	63.7913
57.53	60.8663	91.11	116.8783	323.87	69.5865
57.98	60.0098	92.59	98.1650	156.02	61.7676
59.27	64.0027	93.35	98.3254	158.56	66.5917
59.32	64.0120	94.56	98.5789	159.00	64.3364
59.54	66.5649	94.65	98.5972	162.33	63.4930
60.96	63.0549	94.67	98.6016	162.66	61.2133
61.17	63.0928	94.87	98.6433	163.33	56.6473
62.93	72.2849	97.43	75.7570	165.86	63.8136
63.29	72.3575	98.43	70.3927	176.31	81.2226
63.58	72.4160	98.44	70.3943	176.60	77.7214
64.28	72.5568	99.53	64.3268	177.52	56.5950
66.73	66.6361	100.11	63.3642	181.07	0.0000
67.24	69.2935	102.03	76.1239	181.52	56.8975
125.81	66.4847	103.18	76.2988	184.41	61.8738
67.75	66.4968	103.37	80.5101	143.76	65.5559
68.89	77.3309	105.21	67.1616	193.51	60.1944
69.67	71.0327	105.31	67.1748	197.03	64.0883
70.82	81.6076	106.12	74.6401	198.01	65.3766
70.83	81.6102	106.47	75.7430	201.83	55.9544
72.81	90.8132	109.28	71.9242	203.43	47.5318
72.87	90.8274	111.00	77.4656	205.31	50.4910
74.66	91.2368	111.76	0.0000	210.85	45.9079
74.82	91.2730	114.06	67.2379	215.65	48.2281
74.97	91.3071	116.30	0.0000	218.12	54.5676
77.11	91.7902	116.74	65.4254	222.11	56.0632
78.74	97.7679	119.76	71.1754	227.09	60.9737
79.69	94.0181	121.12	82.1590	227.38	61.8285
80.03	63.6123	121.22	82.1735	228.16	0.0000
80.12	63.6265	121.78	80.0906	228.18	60.2117
80.19	63.6372	122.06	68.2189	116.74	60.2117
80.57	88.9067	122.92	61.8154	235.69	50.5933
81.00	99.6239	123.07	61.8319	235.96	50.6079
81.07	99.6407	265.00	72.7573	238.63	48.2173
81.75	83.8315	125.81	59.9477	238.98	0.0000
82.47	87.9718	127.23	84.1318	240.99	48.3396
83.79	76.2082	127.91	70.0098	242.00	48.3918
84.00	86.2769	129.30	52.6311	244.70	35.7596

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	53.2144	344.28	28.9383	563.25	24.8278
252.80	53.2365	345.93	33.6511	564.24	0.0000
254.15	0.0000	351.06	34.7289	569.33	30.3254
256.23	48.2546	351.93	34.7530	946.00	27.0793
260.90	0.0000	355.39	0.0000	569.70	27.0823
264.66	40.8448	356.01	22.6162	583.19	20.7325
264.80	46.0655	364.49	24.6643	584.27	20.7449
265.00	46.0752	366.42	0.0000	595.83	25.2667
269.46	47.1522	372.51	20.9996	427.87	20.9243
270.03	47.1786	375.05	24.8659	602.52	0.0000
271.23	47.2335	377.52	22.0379	604.72	24.8318
273.65	49.9759	356.01	25.0315	607.14	13.2603
276.40	50.1093	388.16	32.8386	609.32	16.5942
277.37	48.3958	388.63	33.8158	610.33	16.6028
277.60	44.8865	391.69	34.8604	614.28	14.9733
278.00	40.5008	264.66	30.2160	618.01	25.5587
279.20	55.5326	401.81	33.1672	620.36	17.8008
279.54	55.5505	402.40	37.0854	621.93	22.2689
279.70	52.9138	404.85	31.2845	630.19	0.0000
280.46	51.1866	410.95	38.2938	631.29	25.7309
283.69	37.1807	413.71	25.5795	633.25	23.5165
284.31	38.9736	414.70	29.5349	634.78	20.1724
285.41	37.2405	423.72	18.8237	635.95	25.2301
285.90	0.0000	427.09	26.8116	636.99	21.8772
287.50	44.4214	427.87	24.8388	657.50	21.5319
290.67	40.0974	433.94	24.9415	657.76	20.4016
293.27	0.0000	439.40	28.0376	657.90	0.0000
351.93	36.2392	440.45	24.0493	661.66	21.5752
295.96	36.2639	453.88	24.2642	664.57	0.0000
879.38	48.4673	463.37	24.4141	666.33	22.7620
299.98	48.5288	468.07	26.0183	666.50	22.7637
300.09	48.5343	473.00	31.7291	667.71	0.0000
300.13	48.5354	475.06	20.4972	677.62	22.8849
301.36	48.5903	476.78	21.5456	685.70	19.5262
302.85	47.3036	477.60	30.7953	692.65	0.0000
256.23	54.1418	482.18	17.5005	695.00	20.7649
304.85	43.3262	487.02	20.6510	696.49	23.0876
306.78	42.4972	492.35	0.0000	696.51	23.0884
308.46	40.7492	497.08	29.0903	697.00	24.2479
311.90	34.5156	505.52	21.9293	697.30	23.0965
316.51	34.6547	507.63	0.0000	697.49	23.0990
319.41	43.8838	511.00	15.7153	702.65	23.1535
320.08	41.1649	514.00	15.7434	706.68	18.5573
321.04	36.6211	514.00	15.7434	711.68	23.2495
323.87	36.7106	520.40	24.0200	720.70	20.0091
325.23	49.6165	520.69	0.0000	721.93	0.0000
328.76	38.7059	522.65	0.0000	722.78	22.4312
333.37	33.3054	527.90	0.0000	722.91	22.4328
333.97	29.1563	528.26	20.6378	723.31	25.2413
334.37	37.4999	529.59	20.6537	724.19	21.0425
338.28	29.7253	529.87	0.0000	727.33	22.8286
338.32	29.7266	531.02	15.9009	733.00	22.2996
311.90	37.6894	537.26	13.8300	735.93	18.5089
340.48	37.6894	546.56	0.0000	333.97	21.1677
340.55	37.6919	552.55	22.5347	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	24.7692	949.00	19.1827	1384.29	6.5665
747.24	23.0301	667.71	0.0000	1408.01	4.4045
748.06	20.3798	962.31	10.7933	1434.09	6.6508
752.31	17.0443	964.08	13.8858	1435.80	3.3268
753.82	17.0555	966.17	18.3349	1457.56	0.0000
756.73	19.9233	911.20	18.3529	1460.82	7.8113
756.80	19.9240	983.53	9.7089	1489.16	5.6186
884.68	19.9849	984.45	0.0000	1505.03	7.2195
765.81	22.8586	1274.44	13.6522	1584.12	12.8721
766.42	19.6488	1001.03	15.6279	1596.21	6.4542
766.84	19.6528	1002.74	13.6826	1620.50	2.7814
772.60	0.0000	1004.73	15.6479	1621.92	2.7823
776.52	20.0922	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	2.8254
778.90	12.5704	1028.54	0.0000	1750.46	0.0000
783.70	19.7932	1037.84	14.8343	1764.49	6.6972
788.74	27.0483	1038.76	0.0000	1063.66	1.5965
792.07	18.9601	631.29	16.8610	1771.35	5.7486
795.86	23.5109	1048.07	16.8693	1791.20	0.0000
810.06	18.1915	1049.04	15.8818	1808.65	1.9312
810.29	18.1934	1050.41	11.9165	1810.72	0.0000
344.28	18.1946	1063.66	21.9423	1836.06	2.9130
810.76	20.9259	1077.00	14.0231		
815.77	17.3220	1077.34	13.0230		
1048.07	15.5157	1085.87	7.0316		
832.01	11.7461	1093.63	18.1263		
834.85	17.6391	1099.45	16.1416		
835.71	19.1160	1112.07	19.2447		
836.80	0.0000	1112.84	18.2362		
846.75	0.0000	1115.54	19.4684		
846.77	21.2305	1120.29	18.2791		
856.80	23.1674	1120.55	18.2802		
860.56	18.5608	1221.41	18.2845		
871.09	17.7047	1129.67	8.1475		
873.19	13.9888	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	12.1522	1173.23	14.4478		
880.51	14.0277	1177.95	20.6689		
881.60	13.0981	1189.05	12.4424		
883.24	17.1183	1204.77	10.0002		
884.68	16.4855	1221.41	13.6070		
889.28	12.1978	1231.02	16.7939		
894.76	12.0352	1235.36	31.9475		
898.04	10.3555	1238.28	13.2229		
900.72	16.9623	1260.41	0.0000		
903.28	7.5459	1271.87	10.6183		
911.20	13.2446	1274.44	6.3754		
912.08	13.2489	1274.54	6.3757		
923.98	0.0000	1291.59	8.5410		
926.50	14.2703	1298.22	0.0000		
929.11	15.2363	1312.11	8.5894		
935.54	0.0000	1332.49	10.3641		
937.49	7.6414	1362.66	0.0000		
944.13	11.4895	1365.19	5.4449		
946.00	11.4972	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:09:34.07

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299024.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM04.CNF;776
Background date    : 28-JUL-2024 11:21:52
Sample date       : 26-JUN-2024 11:20:00 Acquisition date : 31-JUL-2024 16:09:00
Sample ID        : G674299024 Sample quantity : 1.13770E+02 GRAM
Detector name    : GAM04 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.91 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID         : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****

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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.09*	78	275	1.09	127.15	123	9	2.17E-02	40.2	
2	0	67.97	52	204	1.48	136.92	134	6	1.43E-02	46.0	
3	3	74.88*	307	294	1.01	150.74	147	14	8.53E-02	10.5	6.97E-01
4	3	77.07	444	236	0.88	155.12	147	14	1.23E-01	7.2	
5	0	81.17	52	226	1.09	163.30	161	6	1.45E-02	48.2	
6	0	83.96*	81	207	1.36	168.87	167	6	2.26E-02	30.3	
7	0	87.24	181	293	1.05	175.44	172	7	5.04E-02	17.3	
8	2	90.04	76	135	0.89	181.04	179	12	2.10E-02	22.2	1.38E+00
9	2	92.71*	139	287	1.12	186.37	179	12	3.85E-02	22.7	
10	0	144.35*	26	308	0.97	289.61	285	9	7.12E-03	125.6	
11	0	186.18*	394	351	1.32	373.23	368	11	1.09E-01	10.7	
12	0	209.53	38	186	1.28	419.90	416	8	1.04E-02	65.3	
13	3	238.77*	300	145	0.94	478.36	474	16	8.34E-02	8.5	1.71E+00
14	3	242.08	454	131	1.11	484.97	474	16	1.26E-01	6.4	
15	0	256.24	40	98	0.76	513.27	510	7	1.10E-02	44.4	
16	0	270.08	69	216	1.93	540.95	536	11	1.91E-02	43.0	
17	0	277.20	19	118	0.94	555.18	552	7	5.14E-03	100.4	
18	0	295.31*	912	188	1.14	591.39	584	13	2.53E-01	4.5	
19	0	338.33	67	108	1.00	677.39	673	9	1.86E-02	30.5	
20	0	352.00*	1594	144	1.15	704.72	698	14	4.43E-01	3.0	
21	0	409.60	22	54	1.24	819.88	815	7	5.97E-03	60.6	
22	0	436.38	15	68	1.25	873.42	866	9	4.15E-03	104.8	
23	0	476.65	16	46	0.77	953.93	949	7	4.53E-03	73.1	
24	2	480.31	32	35	1.67	961.25	958	25	9.00E-03	32.1	1.86E+00
25	2	488.58	24	47	1.68	977.77	958	25	6.69E-03	59.9	
26	0	511.34*	26	59	1.77	1023.29	1018	12	7.24E-03	72.1	
27	0	583.55*	88	59	1.26	1167.66	1163	11	2.45E-02	20.4	
28	0	609.49*	1056	45	1.29	1219.52	1215	12	2.93E-01	3.3	
29	0	630.81	12	51	4.34	1262.16	1254	14	3.31E-03	135.2	
30	1	662.09*	47	33	1.68	1324.69	1316	25	1.31E-02	27.2	1.74E+00
31	1	665.59	34	26	1.68	1331.69	1316	25	9.38E-03	35.3	
32	0	706.57	16	75	4.87	1413.63	1402	17	4.50E-03	125.9	
33	0	713.47	18	55	3.25	1427.44	1419	19	4.91E-03	104.8	
34	0	720.27	16	33	2.05	1441.04	1437	9	4.49E-03	67.8	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	727.79	35	18	2.19	1456.06	1451	10	9.75E-03	28.9	
36	0	746.57	16	50	4.91	1493.62	1481	16	4.47E-03	102.9	
37	0	768.60	116	42	0.96	1537.66	1530	14	3.22E-02	15.1	
38	0	786.36	34	19	2.59	1573.18	1567	11	9.40E-03	30.4	
39	0	807.02	56	29	1.86	1614.49	1608	16	1.54E-02	26.2	
40	0	840.79	13	53	1.98	1682.03	1674	13	3.74E-03	116.3	
41	0	891.99	25	28	4.00	1784.40	1778	14	6.94E-03	49.2	
42	0	911.49*	94	33	1.56	1823.40	1818	13	2.62E-02	16.4	
43	0	934.63	63	48	1.48	1869.67	1862	16	1.75E-02	27.6	
44	0	958.91	11	22	1.72	1918.24	1910	13	2.93E-03	98.1	
45	3	964.85	29	20	2.29	1930.11	1925	19	8.18E-03	35.1	8.72E-01
46	3	969.36	56	20	2.00	1939.13	1925	19	1.55E-02	20.4	
47	0	1120.40	236	30	1.78	2241.18	2232	16	6.56E-02	8.6	
48	0	1155.13	30	11	1.90	2310.65	2304	11	8.28E-03	28.3	
49	0	1238.54	99	31	2.02	2477.46	2470	14	2.74E-02	15.7	
50	0	1281.54	21	9	1.10	2563.47	2560	8	5.92E-03	31.8	
51	0	1298.43	7	4	0.98	2597.25	2593	6	1.84E-03	63.5	
52	0	1325.34	11	9	4.22	2651.07	2644	11	2.97E-03	66.2	
53	0	1377.93	90	6	1.27	2756.24	2750	13	2.50E-02	12.0	
54	0	1400.96	35	0	4.21	2802.31	2796	12	9.72E-03	16.9	
55	0	1408.23	38	5	2.46	2816.87	2811	12	1.04E-02	20.8	
56	0	1460.93*	66	18	1.43	2922.28	2916	14	1.82E-02	18.9	
57	4	1505.90	10	0	1.47	3012.22	3010	19	2.66E-03	33.9	7.53E-01
58	4	1509.25	31	4	2.95	3018.92	3010	19	8.62E-03	28.2	
59	0	1600.07	11	7	0.61	3200.60	3195	9	3.14E-03	51.0	
60	0	1632.77	10	5	3.05	3266.01	3259	12	2.69E-03	59.4	
61	0	1729.56	55	3	2.34	3459.63	3453	13	1.52E-02	15.1	
62	0	1764.78*	177	4	2.08	3530.08	3523	14	4.91E-02	7.9	
63	0	1806.51	9	0	1.50	3613.56	3607	11	2.50E-03	33.3	
64	0	1847.39	34	0	3.71	3695.35	3688	14	9.44E-03	17.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299024.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 11:20:00 Acquisition date : 31-JUL-2024 16:09:00
Sample ID : G674299024 Sample quantity : 113.77 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA4 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.91 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	TH-231	144.24
U-235	143.76	RA-223	144.24
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
BE-7	477.60	10.44*	2.263E+00	4.492E-01	7.106E-01	146.11	OK
K-40	1460.82	10.66*	8.675E-01	4.417E+00	4.417E+00	37.79	OK
CD-109	88.03	3.70*	3.853E+00	8.858E+00	9.339E+00	34.57	OK
SN-126	64.28	9.60	1.435E+00	4.005E+00	4.005E+00	80.46	OK
	86.94	8.90	3.853E+00	3.683E+00	3.683E+00	34.57	OK
	87.57	37.00*	3.853E+00	8.858E-01	8.858E-01	34.57	OK
BA-137M	661.66	89.90*	1.775E+00	1.894E-01	1.898E-01	54.45	OK
CS-137	661.66	85.10*	1.775E+00	2.001E-01	2.005E-01	54.45	OK
TL-208	277.37	6.60	3.271E+00	5.707E-01	5.707E-01	200.80	OK
	583.19	85.00*	1.957E+00	3.422E-01	3.422E-01	40.90	OK
	860.56	12.50	1.416E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	2.515E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	2.778E+00	2.930E+01	2.930E+01	5.95	OK
BI-212	727.33	6.67*	1.641E+00	2.053E+00	2.053E+00	57.84	OK
	1620.50	1.47	8.062E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	2.730E+00	7.667E+00	7.667E+00	20.94	OK
	77.11	17.10	2.956E+00	6.151E+00	6.151E+00	14.38	OK
	238.63	43.60*	3.632E+00	1.270E+00	1.270E+00	16.93	OK
	300.09	3.30	3.096E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	1.894E+00	7.907E+00	7.908E+00	6.66	OK
	1120.29	14.92	1.101E+00	9.036E+00	9.037E+00	17.15	OK
	1764.49	15.30	7.710E-01	9.253E+00	9.253E+00	15.86	OK
PB-214	74.82	5.80	2.730E+00	1.359E+01	1.359E+01	20.94	OK
	77.11	9.70	2.956E+00	1.084E+01	1.084E+01	14.38	OK
	87.09	3.41	3.853E+00	9.611E+00	9.612E+00	34.57	OK
	242.00	7.25	3.597E+00	1.165E+01	1.165E+01	12.82	OK
	295.22	18.42	3.131E+00	1.051E+01	1.051E+01	9.06	OK
	351.93	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95	OK
RN-222	609.32	45.49*	1.894E+00	7.907E+00	7.908E+00	6.66	OK
	1120.29	14.92	1.101E+00	9.036E+00	9.037E+00	17.15	OK
	1764.49	15.30	7.710E-01	9.253E+00	9.253E+00	15.86	OK
RA-224	240.99	4.10*	3.597E+00	2.059E+01	2.059E+01	12.82	OK
RA-226	74.82	5.80	2.730E+00	1.359E+01	1.359E+01	20.94	OK
	77.11	9.70	2.956E+00	1.084E+01	1.084E+01	14.38	OK
	87.09	3.41	3.853E+00	9.611E+00	9.612E+00	34.57	OK
	242.00	7.25	3.597E+00	1.165E+01	1.165E+01	12.82	OK
	295.22	18.42	3.131E+00	1.051E+01	1.051E+01	9.06	OK
	351.93	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95	OK
AC-228	105.21	1.10	4.756E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	2.853E+00	1.376E+00	1.376E+00	61.03	OK
	835.71	1.61	1.454E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77	OK
	968.97	15.80	1.266E+00	1.760E+00	1.760E+00	40.82	OK
RA-228	105.21	1.10	4.756E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	2.853E+00	1.376E+00	1.376E+00	61.03	OK
	835.71	1.61	1.454E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77	OK
	968.97	15.80	1.266E+00	1.760E+00	1.760E+00	40.82	OK
TH-228	74.82	10.28	2.730E+00	7.667E+00	7.667E+00	20.94	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
	77.11	17.10	2.956E+00	6.151E+00	6.151E+00	14.38	OK
	238.63	43.60*	3.632E+00	1.270E+00	1.270E+00	16.93	OK
	300.09	3.30	3.096E+00	----- Line	Not Found	-----	Absent
TH-229	85.43	14.70	3.593E+00	1.076E+00	1.076E+00	60.66	OK
	88.47	24.00	3.853E+00	1.366E+00	1.366E+00	34.57	OK
	193.51	4.41*	4.193E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	3.976E+00	2.269E+00	2.269E+00	130.55	OK
TH-230	74.82	5.80	2.730E+00	1.359E+01	1.359E+01	20.94	OK
	77.11	9.70	2.956E+00	1.084E+01	1.084E+01	14.38	OK
	87.09	3.41	3.853E+00	9.611E+00	9.611E+00	34.57	OK
	242.00	7.25	3.597E+00	1.165E+01	1.165E+01	12.82	OK
	295.22	18.42	3.131E+00	1.051E+01	1.051E+01	9.06	OK
	351.93	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95	OK
TH-231	81.07	15.00	3.350E+00	7.236E-01	7.236E-01	96.33	OK
	83.79	24.70	3.593E+00	6.404E-01	6.404E-01	60.66	OK
	94.87	5.69	4.338E+00	----- Line	Not Found	-----	Absent
	144.24	3.27	4.887E+00	----- Line	Not Found	-----	<<INT Reject
	154.21	5.70	4.763E+00	----- Line	Not Found	-----	Absent
	269.46	13.90	3.331E+00	9.907E-01	9.907E-01	85.95	OK
	323.87	3.99*	2.939E+00	----- Line	Not Found	-----	Absent
	338.28	2.84	2.853E+00	5.462E+00	5.462E+00	61.03	OK
TH-232	105.21	1.10	4.756E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	2.853E+00	1.376E+00	1.376E+00	61.03	OK
	835.71	1.61	1.454E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77	OK
	968.97	15.80	1.266E+00	1.760E+00	1.760E+00	40.82	OK
TH-234	63.29	3.70*	1.435E+00	1.039E+01	1.039E+01	80.46	OK
	92.59	4.23	4.217E+00	5.399E+00	5.399E+00	45.45	OK
U-234	74.82	5.80	2.730E+00	1.359E+01	1.359E+01	20.94	OK
	77.11	9.70	2.956E+00	1.084E+01	1.084E+01	14.38	OK
	87.09	3.41	3.853E+00	9.611E+00	9.611E+00	34.57	OK
	242.00	7.25	3.597E+00	1.165E+01	1.165E+01	12.82	OK
	295.22	18.42	3.131E+00	1.051E+01	1.051E+01	9.06	OK
	351.93	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95	OK
U-235	89.96	3.47	4.050E+00	3.743E+00	3.743E+00	44.34	OK
	93.35	5.60	4.217E+00	4.078E+00	4.078E+00	45.45	OK
	143.76	10.96*	4.885E+00	3.269E-01	3.269E-01	251.26	OK
	163.33	5.08	4.634E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	4.298E+00	1.084E+00	1.084E+00	21.31	OK
	205.31	5.01	4.031E+00	----- Line	Not Found	-----	Absent
U-238	63.29	3.70*	1.435E+00	1.039E+01	1.039E+01	80.46	OK
	92.59	4.23	4.217E+00	5.399E+00	5.399E+00	45.45	OK
AM-243	43.53	5.90	8.958E-02	----- Line	Not Found	-----	Absent
	74.66	67.20*	2.730E+00	1.173E+00	1.173E+00	20.94	OK
ANH-511	511.00	100.00*	2.155E+00	7.855E-02	7.855E-02	144.11	OK

Flag: "*" = Keyline

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299024.CNF;1 *
* Acquisition date : 31-JUL-2024 16:09:00 Sensitivity : 3.000 *
* Detector ID : GAM04 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.91 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:20:00 Analyst initials: MXR1 *
* Sample ID : G674299024 Sample Quantity : 1.1377E+02 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 13-DEC-2023 04:08:51 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM04_CAN.CNF;19 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
BE-7	7.106E-01	1.018E+00	1.580E+00
K-40	4.417E+00	1.636E+00	1.285E+00
CD-109	9.339E+00	3.164E+00	3.099E+00
SN-126	8.858E-01	3.001E-01	2.805E-01
BA-137M	1.898E-01	1.013E-01	1.047E-01
CS-137	2.005E-01	1.070E-01	1.106E-01
TL-208	3.422E-01	1.371E-01	1.206E-01
BI-211	2.930E+01	1.708E+00	6.875E-01
BI-212	2.053E+00	1.163E+00	1.348E+00
PB-212	1.270E+00	2.106E-01	2.113E-01
BI-214	7.908E+00	5.161E-01	2.541E-01
PB-214	1.063E+01	6.200E-01	2.500E-01
RN-222	7.908E+00	5.161E-01	2.541E-01
RA-224	2.059E+01	2.587E+00	2.265E+00
RA-226	1.063E+01	6.200E-01	2.500E-01
AC-228	1.728E+00	5.550E-01	5.403E-01
RA-228	1.728E+00	5.550E-01	5.403E-01
TH-228	1.270E+00	2.106E-01	2.113E-01
TH-229	1.552E-01	1.138E+00	2.011E+00
TH-230	1.063E+01	6.200E-01	2.500E-01
TH-231	1.083E+00	1.348E+00	2.477E+00
TH-232	1.728E+00	5.550E-01	5.403E-01
TH-234	1.039E+01	8.194E+00	6.909E+00
U-234	1.063E+01	6.200E-01	2.500E-01
U-235	3.269E-01	8.049E-01	7.046E-01
U-238	1.039E+01	8.194E+00	6.909E+00
AM-243	1.173E+00	2.407E-01	2.300E-01
ANH-511	7.855E-02	1.109E-01	1.014E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
NA-22	-2.710E-02	6.893E-02	1.268E-01	NOT IDENT.
NA-24	0.000E+00	6.222E+15	0.000E+00	SHORT HLIF

AL-26	9.196E-04	5.675E-02	1.128E-01	NOT IDENT.
SC-46	-1.068E-02	1.022E-01	1.624E-01	FAIL ABUN
V-48	-1.072E-01	2.745E-01	4.736E-01	NOT IDENT.
CR-51	2.839E-01	1.247E+00	2.193E+00	NOT IDENT.
MN-52	-6.048E-01	5.960E+00	1.139E+01	FAIL ABUN
MN-54	-6.302E-02	9.187E-02	1.309E-01	NOT IDENT.
CO-56	7.812E-02	8.049E-02	1.687E-01	FAIL ABUN
MN-56	0.000E+00	1.048E+41	0.000E+00	SHORT HLIF
CO-57	1.114E-02	5.234E-02	9.565E-02	NOT IDENT.
CO-58	-1.126E-02	7.861E-02	1.280E-01	NOT IDENT.
FE-59	-4.048E-02	1.710E-01	3.295E-01	NOT IDENT.
CO-60	4.106E-02	6.671E-02	1.448E-01	NOT IDENT.
ZN-65	-6.732E-03	1.854E-01	3.138E-01	NOT IDENT.
GE-68	-1.121E+00	2.040E+00	3.706E+00	NOT IDENT.
AS-73	-2.553E+00	4.215E+00	7.715E+00	NOT IDENT.
AS-74	-1.568E-02	4.004E-01	7.365E-01	NOT IDENT.
SE-75	7.812E-03	1.047E-01	1.827E-01	NOT IDENT.
BR-77	0.000E+00	1.150E+04	0.000E+00	SHORT HLIF
SR-82	-1.981E-01	9.819E-01	1.771E+00	NOT IDENT.
RB-83	-9.364E-02	1.525E-01	2.677E-01	NOT IDENT.
RB-84	-2.707E-02	2.111E-01	3.773E-01	NOT IDENT.
KR-85	4.079E-01	1.240E+01	2.109E+01	NOT IDENT.
SR-85	2.451E-03	8.118E-02	1.380E-01	NOT IDENT.
RB-86	-6.350E-01	2.562E+00	4.893E+00	NOT IDENT.
Y-88	-3.447E-02	7.661E-02	1.367E-01	NOT IDENT.
Y-91	-2.069E+01	3.926E+01	7.070E+01	NOT IDENT.
NB-94	6.073E-02	6.641E-02	1.242E-01	NOT IDENT.
NB-95	5.003E-02	9.512E-02	1.709E-01	NOT IDENT.
NB-95M	7.610E-03	3.581E-01	5.719E-01	NOT IDENT.
ZR-95	1.316E-01	1.634E-01	3.297E-01	NOT IDENT.
NB-97	0.000E+00	1.802E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.212E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	3.760E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.055E+41	0.000E+00	SHORT HLIF
RH-101	-3.061E-02	6.102E-02	1.067E-01	NOT IDENT.
RH-102	7.560E-02	2.003E-01	1.654E-01	FAIL ABUN
RU-103	-3.964E-02	1.014E-01	1.833E-01	FAIL ABUN
RH-106	-8.017E-01	5.095E-01	7.398E-01	NOT IDENT.
RU-106	-8.017E-01	5.095E-01	7.398E-01	NOT IDENT.
AG-108M	5.736E-03	5.570E-02	1.058E-01	NOT IDENT.
AG-110	-1.347E-02	1.390E+00	2.325E+00	NOT IDENT.
AG-110M	1.619E-02	1.047E-01	1.943E-01	FAIL ABUN
SN-113	-9.692E-02	9.226E-02	1.589E-01	NOT IDENT.
CD-115	0.000E+00	1.043E+04	0.000E+00	SHORT HLIF
SN-117M	4.484E-02	3.250E-01	5.801E-01	NOT IDENT.
SB-122	0.000E+00	5.718E+02	0.000E+00	SHORT HLIF
TE-123M	-1.069E-02	6.836E-02	1.200E-01	NOT IDENT.
SB-124	-1.290E-01	1.819E-01	3.004E-01	NOT IDENT.
SB-125	1.793E-01	1.812E-01	3.663E-01	NOT IDENT.
TE-125M	-2.977E+00	2.300E+01	4.155E+01	NOT IDENT.
I-126	2.467E+00	1.706E+00	2.650E+00	FAIL ABUN
SB-126	8.386E-01	1.114E+00	1.713E+00	FAIL ABUN
SB-127	-4.432E+01	8.415E+01	1.459E+02	NOT IDENT.
I-131	-8.140E-02	1.221E+00	2.305E+00	FAIL ABUN
I-132	0.000E+00	1.746E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	1.234E+02	0.000E+00	SHORT HLIF
BA-133	-1.097E-02	8.572E-02	1.448E-01	FAIL ABUN
I-133	0.000E+00	9.716E+10	0.000E+00	SHORT HLIF
CS-134	3.806E-02	6.929E-02	1.379E-01	NOT IDENT.
I-135	0.000E+00	1.042E+38	0.000E+00	SHORT HLIF
CS-136	2.164E-01	5.787E-01	1.168E+00	NOT IDENT.
LA-138	-5.572E-02	1.280E-01	2.288E-01	NOT IDENT.
CE-139	3.399E-02	7.022E-02	1.276E-01	NOT IDENT.
BA-140	-7.736E-02	1.407E+00	2.625E+00	NOT IDENT.
LA-140	-4.477E-01	7.527E-01	1.078E+00	NOT IDENT.
CE-141	1.572E-01	3.871E-01	3.573E-01	FAIL ABUN
CE-143	0.000E+00	7.277E+06	0.000E+00	SHORT HLIF
CE-144	-1.219E-01	4.000E-01	7.057E-01	FAIL ABUN
PM-144	-1.167E-02	5.634E-02	1.024E-01	FAIL ABUN
PR-144	-8.825E-01	4.261E+00	7.743E+00	NOT IDENT.
PM-146	2.293E-02	8.318E-02	1.594E-01	FAIL ABUN
ND-147	-1.159E+00	3.658E+00	6.626E+00	FAIL ABUN
PM-147	1.691E+03	1.445E+03	2.785E+03	NOT IDENT.
PM-149	0.000E+00	1.087E+05	0.000E+00	SHORT HLIF
EU-150	-5.506E-03	6.658E-02	1.033E-01	FAIL ABUN
EU-152	8.754E-02	1.978E-01	3.841E-01	FAIL ABUN
GD-153	-1.045E-01	1.734E-01	3.063E-01	NOT IDENT.
EU-154	-1.056E-01	1.946E-01	3.479E-01	NOT IDENT.

EU-155	7.013E-02	2.025E-01	3.763E-01	FAIL ABUN
TB-160	-2.688E-02	3.296E-01	5.916E-01	FAIL ABUN
HO-166M	4.216E-02	1.490E-01	2.083E-01	FAIL ABUN
TM-171	1.219E+01	8.321E+01	1.591E+02	FAIL ABUN
HF-172	-1.217E-01	3.747E-01	6.625E-01	FAIL ABUN
LU-172	-3.002E-02	9.606E-02	1.819E-01	FAIL ABUN
LU-176	-2.780E-02	5.301E-02	8.686E-02	FAIL ABUN
HF-181	3.097E-02	1.200E-01	2.206E-01	NOT IDENT.
TA-182	-1.878E-01	3.191E-01	5.671E-01	FAIL ABUN
RE-183	-9.173E-01	8.439E-01	1.493E+00	FAIL ABUN
RE-184	2.418E-01	3.452E-01	6.906E-01	NOT IDENT.
W-188	-2.122E+00	2.145E+01	3.358E+01	FAIL ABUN
IR-192	4.187E-03	8.047E-02	1.400E-01	FAIL ABUN
HG-203	-3.822E-02	1.188E-01	1.823E-01	NOT IDENT.
TL-204	-5.958E-01	1.320E+01	2.269E+01	FAIL ABUN
BI-207	2.040E-02	9.043E-02	1.815E-01	FAIL ABUN
BI-210	5.622E+00	2.512E+01	4.834E+01	NOT IDENT.
PB-210	5.622E+00	2.512E+01	4.834E+01	NOT IDENT.
PB-211	-4.050E-02	1.599E+00	2.693E+00	NOT IDENT.
BI-213	1.650E-01	2.096E-01	4.165E-01	NOT IDENT.
RN-219	7.135E-01	8.152E-01	1.628E+00	FAIL ABUN
RA-223	1.083E+00	1.348E+00	2.477E+00	FAIL ABUN
AC-225	1.936E+00	5.073E+00	9.078E+00	NOT IDENT.
AC-227	8.057E-01	7.014E-01	1.003E+00	FAIL ABUN
TH-227	8.057E-01	7.014E-01	1.003E+00	FAIL ABUN
PA-231	5.654E-01	1.121E+00	1.989E+00	NOT IDENT.
PA-233	1.332E-01	1.420E-01	2.629E-01	NOT IDENT.
PA-234	-4.964E-01	5.700E-01	8.964E-01	NOT IDENT.
PA-234M	1.481E+01	8.717E+00	1.926E+01	NOT IDENT.
NP-237	1.332E-01	1.420E-01	2.629E-01	NOT IDENT.
NP-238	0.000E+00	2.478E+04	0.000E+00	SHORT HLIF
NP-239	1.478E-01	4.916E-01	9.083E-01	FAIL ABUN
PU-239	3.098E+02	6.850E+02	1.260E+03	NOT IDENT.
AM-241	4.880E-01	5.356E-01	9.925E-01	NOT IDENT.
CM-243	1.178E-01	2.078E-01	3.907E-01	FAIL ABUN
BK-247	-1.765E-02	1.694E-01	2.909E-01	FAIL ABUN
CM-247	2.853E-02	7.579E-02	1.460E-01	FAIL ABUN
CF-249	6.633E-02	8.060E-02	1.604E-01	NOT IDENT.
CF-251	4.154E-02	2.901E-01	5.140E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BE-7	477.60	16	10.44*	2.263E+00	4.492E-01	7.106E-01	146.11
K-40	1460.82	62	10.66*	8.675E-01	4.417E+00	4.417E+00	37.79
CD-109	88.03	191	3.70*	3.853E+00	8.858E+00	9.339E+00	34.57
SN-126	64.28	84	9.60	1.435E+00	4.005E+00	4.005E+00	80.46
	86.94	191	8.90	3.853E+00	3.683E+00	3.683E+00	34.57
	87.57	191	37.00*	3.853E+00	8.858E-01	8.858E-01	34.57
BA-137M	661.66	46	89.90*	1.775E+00	1.894E-01	1.898E-01	54.45
CS-137	661.66	46	85.10*	1.775E+00	2.001E-01	2.005E-01	54.45
CE-141	145.44	27	48.29*	4.885E+00	7.419E-02	1.572E-01	251.26
TL-208	277.37	19	6.60	3.271E+00	5.707E-01	5.707E-01	200.80
	583.19	86	85.00*	1.957E+00	3.422E-01	3.422E-01	40.90
	860.56	-----	12.50	1.416E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	2.515E+00	-----	Line Not Found	-----
	351.06	1594	12.92*	2.778E+00	2.930E+01	2.930E+01	5.95
BI-212	727.33	34	6.67*	1.641E+00	2.053E+00	2.053E+00	57.84
	1620.50	-----	1.47	8.062E-01	-----	Line Not Found	-----
PB-212	74.82	326	10.28	2.730E+00	7.667E+00	7.667E+00	20.94
	77.11	471	17.10	2.956E+00	6.151E+00	6.151E+00	14.38
	238.63	305	43.60*	3.632E+00	1.270E+00	1.270E+00	16.93
	300.09	-----	3.30	3.096E+00	-----	Line Not Found	-----
BI-214	609.32	1032	45.49*	1.894E+00	7.907E+00	7.908E+00	6.66
	1120.29	225	14.92	1.101E+00	9.036E+00	9.037E+00	17.15
	1764.49	165	15.30	7.710E-01	9.253E+00	9.253E+00	15.86
PB-214	74.82	326	5.80	2.730E+00	1.359E+01	1.359E+01	20.94
	77.11	471	9.70	2.956E+00	1.084E+01	1.084E+01	14.38
	87.09	191	3.41	3.853E+00	9.611E+00	9.612E+00	34.57
	242.00	460	7.25	3.597E+00	1.165E+01	1.165E+01	12.82
	295.22	918	18.42	3.131E+00	1.051E+01	1.051E+01	9.06
	351.93	1594	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95
RN-222	609.32	1032	45.49*	1.894E+00	7.907E+00	7.908E+00	6.66
	1120.29	225	14.92	1.101E+00	9.036E+00	9.037E+00	17.15
	1764.49	165	15.30	7.710E-01	9.253E+00	9.253E+00	15.86
RA-223	81.07	55	15.00	3.350E+00	7.236E-01	7.236E-01	96.33
	83.79	86	24.70	3.593E+00	6.404E-01	6.404E-01	60.66
	94.56	-----	8.67	4.321E+00	-----	Line Not Found	-----
	144.24	27	3.27	4.885E+00	1.096E+00	1.096E+00	251.26
	154.21	-----	5.70	4.763E+00	-----	Line Not Found	-----
	269.46	70	13.90	3.331E+00	9.907E-01	9.907E-01	85.95
	323.87	-----	3.99*	2.939E+00	-----	Line Not Found	-----
	338.28	67	2.84	2.853E+00	5.462E+00	5.462E+00	61.03
RA-224	240.99	460	4.10*	3.597E+00	2.059E+01	2.059E+01	12.82
RA-226	74.82	326	5.80	2.730E+00	1.359E+01	1.359E+01	20.94
	77.11	471	9.70	2.956E+00	1.084E+01	1.084E+01	14.38
	87.09	191	3.41	3.853E+00	9.611E+00	9.612E+00	34.57
	242.00	460	7.25	3.597E+00	1.165E+01	1.165E+01	12.82
	295.22	918	18.42	3.131E+00	1.051E+01	1.051E+01	9.06
	351.93	1594	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AC-228	105.21	-----	1.10	4.756E+00	-----	Line Not Found	-----
	338.32	67	11.27	2.853E+00	1.376E+00	1.376E+00	61.03
	835.71	-----	1.61	1.454E+00	-----	Line Not Found	-----
	911.20	91	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77
	968.97	53	15.80	1.266E+00	1.760E+00	1.760E+00	40.82
RA-228	105.21	-----	1.10	4.756E+00	-----	Line Not Found	-----
	338.32	67	11.27	2.853E+00	1.376E+00	1.376E+00	61.03
	835.71	-----	1.61	1.454E+00	-----	Line Not Found	-----
	911.20	91	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77
	968.97	53	15.80	1.266E+00	1.760E+00	1.760E+00	40.82
TH-228	74.82	326	10.28	2.730E+00	7.667E+00	7.667E+00	20.94
	77.11	471	17.10	2.956E+00	6.151E+00	6.151E+00	14.38
	238.63	305	43.60*	3.632E+00	1.270E+00	1.270E+00	16.93
	300.09	-----	3.30	3.096E+00	-----	Line Not Found	-----
TH-229	85.43	86	14.70	3.593E+00	1.076E+00	1.076E+00	60.66
	88.47	191	24.00	3.853E+00	1.366E+00	1.366E+00	34.57
	193.51	-----	4.41*	4.193E+00	-----	Line Not Found	-----
	210.85	38	2.80	3.976E+00	2.269E+00	2.269E+00	130.55
TH-230	74.82	326	5.80	2.730E+00	1.359E+01	1.359E+01	20.94
	77.11	471	9.70	2.956E+00	1.084E+01	1.084E+01	14.38
	87.09	191	3.41	3.853E+00	9.611E+00	9.611E+00	34.57
	242.00	460	7.25	3.597E+00	1.165E+01	1.165E+01	12.82
	295.22	918	18.42	3.131E+00	1.051E+01	1.051E+01	9.06
	351.93	1594	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95
TH-231	81.07	55	15.00	3.350E+00	7.236E-01	7.236E-01	96.33
	83.79	86	24.70	3.593E+00	6.404E-01	6.404E-01	60.66
	94.87	-----	5.69	4.338E+00	-----	Line Not Found	-----
	144.24	27	3.27	4.885E+00	1.096E+00	1.096E+00	251.26
	154.21	-----	5.70	4.763E+00	-----	Line Not Found	-----
	269.46	70	13.90	3.331E+00	9.907E-01	9.907E-01	85.95
	323.87	-----	3.99*	2.939E+00	-----	Line Not Found	-----
	338.28	67	2.84	2.853E+00	5.462E+00	5.462E+00	61.03
TH-232	105.21	-----	1.10	4.756E+00	-----	Line Not Found	-----
	338.32	67	11.27	2.853E+00	1.376E+00	1.376E+00	61.03
	835.71	-----	1.61	1.454E+00	-----	Line Not Found	-----
	911.20	91	25.80*	1.342E+00	1.728E+00	1.728E+00	32.77
	968.97	53	15.80	1.266E+00	1.760E+00	1.760E+00	40.82
TH-234	63.29	84	3.70*	1.435E+00	1.039E+01	1.039E+01	80.46
	92.59	146	4.23	4.217E+00	5.399E+00	5.399E+00	45.45
U-234	74.82	326	5.80	2.730E+00	1.359E+01	1.359E+01	20.94
	77.11	471	9.70	2.956E+00	1.084E+01	1.084E+01	14.38
	87.09	191	3.41	3.853E+00	9.611E+00	9.611E+00	34.57
	242.00	460	7.25	3.597E+00	1.165E+01	1.165E+01	12.82
	295.22	918	18.42	3.131E+00	1.051E+01	1.051E+01	9.06
U-235	351.93	1594	35.60*	2.778E+00	1.063E+01	1.063E+01	5.95
	89.96	80	3.47	4.050E+00	3.743E+00	3.743E+00	44.34
	93.35	146	5.60	4.217E+00	4.078E+00	4.078E+00	45.45
	143.76	27	10.96*	4.885E+00	3.269E-01	3.269E-01	251.26
	163.33	-----	5.08	4.634E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.72	404	57.20	4.298E+00	1.084E+00	1.084E+00	21.31
	205.31	-----	5.01	4.031E+00	-----	Line Not Found	-----
U-238	63.29	84	3.70*	1.435E+00	1.039E+01	1.039E+01	80.46
	92.59	146	4.23	4.217E+00	5.399E+00	5.399E+00	45.45
AM-243	43.53	-----	5.90	8.958E-02	-----	Line Not Found	-----
	74.66	326	67.20*	2.730E+00	1.173E+00	1.173E+00	20.94
ANH-511	511.00	26	100.00*	2.155E+00	7.855E-02	7.855E-02	144.11

Flag: "*" = Keyline

Total number of lines in spectrum 64
Number of unidentified lines 21
Number of lines tentatively identified by NID 43 67.19%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BE-7	53.22D	1.58	4.492E-01	7.106E-01	10.38E-01	146.11	
K-40	1.25E+09Y	1.00	4.417E+00	4.417E+00	1.669E+00	37.79	
CD-109	461.40D	1.05	8.858E+00	9.339E+00	3.229E+00	34.57	
SN-126	2.30E+05Y	1.00	8.858E-01	8.858E-01	3.062E-01	34.57	
BA-137M	30.08Y	1.00	1.894E-01	1.898E-01	1.033E-01	54.45	
CS-137	30.08Y	1.00	2.001E-01	2.005E-01	1.092E-01	54.45	
CE-141	32.51D	2.12	7.419E-02	1.572E-01	3.950E-01	251.26	
TL-208	1.41E+10Y	1.00	3.422E-01	3.422E-01	1.399E-01	40.90	
BI-211	7.04E+08Y	1.00	2.930E+01	2.930E+01	0.174E+01	5.95	
BI-212	1.41E+10Y	1.00	2.053E+00	2.053E+00	1.187E+00	57.84	
PB-212	1.41E+10Y	1.00	1.270E+00	1.270E+00	0.215E+00	16.93	
BI-214	1600.00Y	1.00	7.907E+00	7.908E+00	0.527E+00	6.66	
PB-214	1600.00Y	1.00	1.063E+01	1.063E+01	0.063E+01	5.95	
RN-222	1600.00Y	1.00	7.907E+00	7.908E+00	0.527E+00	6.66	
RA-223	7.04E+08Y	1.00	6.404E-01	6.404E-01	3.885E-01	60.66	K
RA-224	1.41E+10Y	1.00	2.059E+01	2.059E+01	0.264E+01	12.82	
RA-226	1600.00Y	1.00	1.063E+01	1.063E+01	0.063E+01	5.95	
AC-228	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.566E+00	32.77	
RA-228	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.566E+00	32.77	
TH-228	1.41E+10Y	1.00	1.270E+00	1.270E+00	0.215E+00	16.93	
TH-229	7340.00Y	1.00	1.366E+00	1.366E+00	0.472E+00	34.57	K
TH-230	7.54E+04Y	1.00	1.063E+01	1.063E+01	0.063E+01	5.95	
TH-231	7.04E+08Y	1.00	6.404E-01	6.404E-01	3.885E-01	60.66	K
TH-232	1.41E+10Y	1.00	1.728E+00	1.728E+00	0.566E+00	32.77	
TH-234	4.47E+09Y	1.00	1.039E+01	1.039E+01	0.836E+01	80.46	
U-234	2.45E+05Y	1.00	1.063E+01	1.063E+01	0.063E+01	5.95	
U-235	7.04E+08Y	1.00	3.269E-01	3.269E-01	8.214E-01	251.26	
U-238	4.47E+09Y	1.00	1.039E+01	1.039E+01	0.836E+01	80.46	
AM-243	7370.00Y	1.00	1.173E+00	1.173E+00	0.246E+00	20.94	
ANH-511	1.00E+09Y	1.00	7.855E-02	7.855E-02	11.32E-02	144.11	
Total Activity :			1.584E+02	1.593E+02			

Grand Total Activity : 1.584E+02 1.593E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	67.97	55	218	1.48	136.92	134	6	1.43E-02	92.0	1.97E+00	T
0	256.24	40	100	0.76	513.27	510	7	1.10E-02	88.8	3.46E+00	T
0	409.60	21	53	1.24	819.88	815	7	5.97E-03	****	2.51E+00	T
0	436.38	15	67	1.25	873.42	866	9	4.15E-03	****	2.40E+00	
2	480.31	32	34	1.67	961.25	958	25	9.00E-03	64.2	2.25E+00	
2	488.58	24	47	1.68	977.77	958	25	6.69E-03	****	2.22E+00	
0	630.81	12	50	4.34	1262.16	1254	14	3.31E-03	****	1.84E+00	T
1	665.59	33	25	1.68	1331.69	1316	25	9.38E-03	70.6	1.77E+00	T
0	706.57	16	73	4.87	1413.63	1402	17	4.50E-03	****	1.68E+00	T
0	713.47	17	54	3.25	1427.44	1419	19	4.91E-03	****	1.67E+00	
0	720.27	16	32	2.05	1441.04	1437	9	4.49E-03	****	1.66E+00	T
0	746.57	16	48	4.91	1493.62	1481	16	4.47E-03	****	1.61E+00	T
0	768.60	112	41	0.96	1537.66	1530	14	3.22E-02	30.1	1.57E+00	
0	786.36	33	19	2.59	1573.18	1567	11	9.40E-03	60.8	1.54E+00	
0	807.02	54	28	1.86	1614.49	1608	16	1.54E-02	52.5	1.50E+00	
0	840.79	13	51	1.98	1682.03	1674	13	3.74E-03	****	1.45E+00	
0	891.99	24	27	4.00	1784.40	1778	14	6.94E-03	98.3	1.37E+00	
0	934.63	61	46	1.48	1869.67	1862	16	1.75E-02	55.3	1.31E+00	T
0	958.91	10	22	1.72	1918.24	1910	13	2.93E-03	****	1.28E+00	
3	964.85	28	19	2.29	1930.11	1925	19	8.18E-03	70.3	1.27E+00	T
0	1155.13	28	11	1.90	2310.65	2304	11	8.28E-03	56.7	1.07E+00	
0	1238.54	94	30	2.02	2477.46	2470	14	2.74E-02	31.5	1.00E+00	T
0	1281.54	20	8	1.10	2563.47	2560	8	5.92E-03	63.7	9.71E-01	
0	1298.43	6	4	0.98	2597.25	2593	6	1.84E-03	****	9.59E-01	T
0	1325.34	10	9	4.22	2651.07	2644	11	2.97E-03	****	9.42E-01	
0	1377.93	85	6	1.27	2756.24	2750	13	2.50E-02	24.1	9.10E-01	
0	1400.96	33	0	4.21	2802.31	2796	12	9.72E-03	33.8	8.98E-01	
0	1408.23	35	5	2.46	2816.87	2811	12	1.04E-02	41.6	8.94E-01	T
4	1505.90	9	0	1.47	3012.22	3010	19	2.66E-03	67.8	8.48E-01	T
4	1509.25	29	4	2.95	3018.92	3010	19	8.62E-03	56.3	8.46E-01	
0	1600.07	11	6	0.61	3200.60	3195	9	3.14E-03	****	8.13E-01	
0	1632.77	9	5	3.05	3266.01	3259	12	2.69E-03	****	8.03E-01	
0	1729.56	51	3	2.34	3459.63	3453	13	1.52E-02	30.2	7.78E-01	
0	1806.51	8	0	1.50	3613.56	3607	11	2.50E-03	66.7	7.64E-01	
0	1847.39	32	0	3.71	3695.35	3688	14	9.44E-03	34.3	7.58E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299024.CNF;1 *
* Acquisition date : 31-JUL-2024 16:09:00 Sensitivity : 3.000 *
* Detector ID : GAM04 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.91 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:20:00 Nuclide Library : SOLID *
* Sample ID : G674299024 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1377E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 13-DEC-2023 04:08:51 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM04_CAN.CNF;19 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
BE-7	7.300E-01
K-40	5.467E-01
CD-109	1.484E+00
SN-126	1.340E-01
BA-137M	4.674E-02
CS-137	4.938E-02
TL-208	5.493E-02
BI-211	3.188E-01
BI-212	5.925E-01
PB-212	1.000E-01
BI-214	1.167E-01
PB-214	1.159E-01
RN-222	1.167E-01
RA-224	1.072E+00
RA-226	1.159E-01
AC-228	2.445E-01
RA-228	2.445E-01
TH-228	1.000E-01
TH-229	9.569E-01
TH-230	1.159E-01
TH-231	1.162E+00
TH-232	2.445E-01
TH-234	3.287E+00
U-234	1.159E-01
U-235	3.355E-01
U-238	3.287E+00
AM-243	1.100E-01
ANH-511	4.654E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
NA-22	5.406E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	4.477E-02	NOT IDENT.

SC-46	7.254E-02	FAIL ABUN
V-48	2.039E-01	NOT IDENT.
CR-51	1.023E+00	NOT IDENT.
MN-52	4.899E+00	FAIL ABUN
MN-54	5.886E-02	NOT IDENT.
CO-56	7.582E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	4.552E-02	NOT IDENT.
CO-58	5.552E-02	NOT IDENT.
FE-59	1.405E-01	NOT IDENT.
CO-60	6.279E-02	NOT IDENT.
ZN-65	1.393E-01	NOT IDENT.
GE-68	1.589E+00	NOT IDENT.
AS-73	3.639E+00	NOT IDENT.
AS-74	3.373E-01	NOT IDENT.
SE-75	8.582E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	7.855E-01	NOT IDENT.
RB-83	1.215E-01	NOT IDENT.
RB-84	1.690E-01	NOT IDENT.
KR-85	9.579E+00	NOT IDENT.
SR-85	6.266E-02	NOT IDENT.
RB-86	2.113E+00	NOT IDENT.
Y-88	5.357E-02	NOT IDENT.
Y-91	3.030E+01	NOT IDENT.
NB-94	5.683E-02	NOT IDENT.
NB-95	7.715E-02	NOT IDENT.
NB-95M	2.715E-01	NOT IDENT.
ZR-95	1.497E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	5.063E-02	NOT IDENT.
RH-102	7.387E-02	FAIL ABUN
RU-103	8.331E-02	FAIL ABUN
RH-106	3.184E-01	NOT IDENT.
RU-106	3.184E-01	NOT IDENT.
AG-108M	4.881E-02	NOT IDENT.
AG-110	1.040E+00	NOT IDENT.
AG-110M	8.735E-02	FAIL ABUN
SN-113	7.286E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.768E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	5.719E-02	NOT IDENT.
SB-124	1.146E-01	NOT IDENT.
SB-125	1.706E-01	NOT IDENT.
TE-125M	1.972E+01	NOT IDENT.
I-126	1.224E+00	FAIL ABUN
SB-126	7.845E-01	FAIL ABUN
SB-127	6.498E+01	NOT IDENT.
I-131	1.068E+00	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	6.713E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	6.184E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	5.235E-01	NOT IDENT.
LA-138	9.899E-02	NOT IDENT.
CE-139	6.087E-02	NOT IDENT.
BA-140	1.193E+00	NOT IDENT.
LA-140	4.614E-01	NOT IDENT.
CE-141	1.706E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	3.351E-01	FAIL ABUN
PM-144	4.556E-02	FAIL ABUN
PR-144	3.446E+00	NOT IDENT.
PM-146	7.374E-02	FAIL ABUN
ND-147	3.013E+00	FAIL ABUN
PM-147	1.328E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	4.839E-02	FAIL ABUN
EU-152	1.801E-01	FAIL ABUN
GD-153	1.454E-01	NOT IDENT.
EU-154	1.477E-01	NOT IDENT.
EU-155	1.791E-01	FAIL ABUN

TB-160	2.659E-01	FAIL ABUN
HO-166M	9.428E-02	FAIL ABUN
TM-171	7.536E+01	FAIL ABUN
HF-172	3.148E-01	FAIL ABUN
LU-172	7.800E-02	FAIL ABUN
LU-176	4.029E-02	FAIL ABUN
HF-181	1.015E-01	NOT IDENT.
TA-182	2.434E-01	FAIL ABUN
RE-183	7.056E-01	FAIL ABUN
RE-184	3.109E-01	NOT IDENT.
W-188	1.579E+01	FAIL ABUN
IR-192	6.493E-02	FAIL ABUN
HG-203	8.546E-02	NOT IDENT.
TL-204	1.084E+01	FAIL ABUN
BI-207	8.045E-02	FAIL ABUN
BI-210	2.295E+01	NOT IDENT.
PB-210	2.295E+01	NOT IDENT.
PB-211	1.253E+00	NOT IDENT.
BI-213	1.939E-01	NOT IDENT.
RN-219	7.605E-01	FAIL ABUN
RA-223	1.162E+00	FAIL ABUN
AC-225	4.306E+00	NOT IDENT.
AC-227	4.743E-01	FAIL ABUN
TH-227	4.743E-01	FAIL ABUN
PA-231	9.402E-01	NOT IDENT.
PA-233	1.237E-01	NOT IDENT.
PA-234	3.910E-01	NOT IDENT.
PA-234M	8.771E+00	NOT IDENT.
NP-237	1.237E-01	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	4.313E-01	FAIL ABUN
PU-239	6.015E+02	NOT IDENT.
AM-241	4.727E-01	NOT IDENT.
CM-243	1.862E-01	FAIL ABUN
BK-247	1.366E-01	FAIL ABUN
CM-247	6.812E-02	FAIL ABUN
CF-249	7.502E-02	NOT IDENT.
CF-251	2.453E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299024.CNF;1
Acquisition date : 31-JUL-2024 16:09:00 Sensitivity : 3.000
Detector ID : GAM04 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.91 Half life ratio : *****
Sample date : 26-JUN-2024 11:20:00 Nuclide Library : SOLID
Sample ID : G674299024 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1377E+02 GRAM
Quantity Err(%) : 1.7579E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 13-DEC-2023 04:08:51 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM04_CAN.CNF;19

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
BE-7	7.106E-01	1.019E+00	1.019E+00
K-40	4.417E+00	1.709E+00	1.709E+00
CD-109	9.339E+00	3.522E+00	3.522E+00
SN-126	8.858E-01	3.307E-01	3.307E-01
BA-137M	1.898E-01	1.024E-01	1.024E-01
CS-137	2.005E-01	1.082E-01	1.082E-01
TL-208	3.422E-01	1.401E-01	1.401E-01
BI-211	2.930E+01	2.981E+00	2.981E+00
BI-212	2.053E+00	1.178E+00	1.178E+00
PB-212	1.270E+00	2.486E-01	2.486E-01
BI-214	7.908E+00	8.335E-01	8.335E-01
PB-214	1.063E+01	1.068E+00	1.068E+00
RN-222	7.908E+00	8.335E-01	8.335E-01
RA-224	2.059E+01	3.343E+00	3.343E+00
RA-226	1.063E+01	1.068E+00	1.068E+00
AC-228	1.728E+00	5.845E-01	5.845E-01
RA-228	1.728E+00	5.845E-01	5.845E-01
TH-228	1.270E+00	2.486E-01	2.486E-01
TH-229	1.552E-01	1.138E+00	1.138E+00
TH-230	1.063E+01	1.068E+00	1.068E+00
TH-231	1.083E+00	1.352E+00	1.352E+00
TH-232	1.728E+00	5.845E-01	5.845E-01
TH-234	1.039E+01	8.671E+00	8.671E+00
U-234	1.063E+01	1.068E+00	1.068E+00
U-235	3.269E-01	8.057E-01	8.057E-01
U-238	1.039E+01	8.671E+00	8.671E+00
AM-243	1.173E+00	3.012E-01	3.012E-01
ANH-511	7.855E-02	1.111E-01	1.111E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
NA-22	-2.710E-02	6.899E-02	7.006E-02	NOT IDENT.
NA-24	1.181E+15	6.224E+15	6.247E+15	SHORT HLIF

AL-26	9.196E-04	5.675E-02	5.675E-02	NOT IDENT.
SC-46	-1.068E-02	1.022E-01	1.023E-01	FAIL ABUN
V-48	-1.072E-01	2.747E-01	2.789E-01	NOT IDENT.
CR-51	2.839E-01	1.247E+00	1.254E+00	NOT IDENT.
MN-52	-6.048E-01	5.960E+00	5.966E+00	FAIL ABUN
MN-54	-6.302E-02	9.207E-02	9.635E-02	NOT IDENT.
CO-56	7.812E-02	8.085E-02	8.819E-02	FAIL ABUN
MN-56	1.000E+41	1.052E+41	0.000E+00	SHORT HLIF
CO-57	1.114E-02	5.235E-02	5.259E-02	NOT IDENT.
CO-58	-1.126E-02	7.862E-02	7.878E-02	NOT IDENT.
FE-59	-4.048E-02	1.710E-01	1.720E-01	NOT IDENT.
CO-60	4.106E-02	6.686E-02	6.938E-02	NOT IDENT.
ZN-65	-6.732E-03	1.854E-01	1.854E-01	NOT IDENT.
GE-68	-1.121E+00	2.042E+00	2.104E+00	NOT IDENT.
AS-73	-2.553E+00	4.277E+00	4.429E+00	NOT IDENT.
AS-74	-1.568E-02	4.004E-01	4.005E-01	NOT IDENT.
SE-75	7.812E-03	1.047E-01	1.048E-01	NOT IDENT.
BR-77	6.930E+04	7.172E+04	7.823E+04	SHORT HLIF
SR-82	-1.981E-01	9.821E-01	9.862E-01	NOT IDENT.
RB-83	-9.364E-02	1.532E-01	1.589E-01	NOT IDENT.
RB-84	-2.707E-02	2.111E-01	2.114E-01	NOT IDENT.
KR-85	4.079E-01	1.240E+01	1.241E+01	NOT IDENT.
SR-85	2.451E-03	8.118E-02	8.119E-02	NOT IDENT.
RB-86	-6.350E-01	2.562E+00	2.578E+00	NOT IDENT.
Y-88	-3.447E-02	7.665E-02	7.821E-02	NOT IDENT.
Y-91	-2.069E+01	3.930E+01	4.039E+01	NOT IDENT.
NB-94	6.073E-02	6.661E-02	7.202E-02	NOT IDENT.
NB-95	5.003E-02	9.523E-02	9.787E-02	NOT IDENT.
NB-95M	7.610E-03	3.581E-01	3.581E-01	NOT IDENT.
ZR-95	1.316E-01	1.638E-01	1.742E-01	NOT IDENT.
NB-97	-1.000E+41	1.804E+41	0.000E+00	SHORT HLIF
ZR-97	9.481E+14	1.214E+15	1.287E+15	SHORT HLIF
MO-99	-2.656E+03	3.769E+03	3.954E+03	SHORT HLIF
TC-99M	-7.309E+40	1.059E+41	0.000E+00	SHORT HLIF
RH-101	-3.061E-02	6.131E-02	6.285E-02	NOT IDENT.
RH-102	7.560E-02	2.005E-01	2.033E-01	FAIL ABUN
RU-103	-3.964E-02	1.015E-01	1.030E-01	FAIL ABUN
RH-106	-8.017E-01	5.150E-01	6.292E-01	NOT IDENT.
RU-106	-8.017E-01	5.150E-01	6.292E-01	NOT IDENT.
AG-108M	5.736E-03	5.571E-02	5.577E-02	NOT IDENT.
AG-110	-1.347E-02	1.390E+00	1.390E+00	NOT IDENT.
AG-110M	1.619E-02	1.047E-01	1.049E-01	FAIL ABUN
SN-113	-9.692E-02	9.260E-02	1.024E-01	NOT IDENT.
CD-115	-3.892E+02	1.043E+04	1.043E+04	SHORT HLIF
SN-117M	4.484E-02	3.250E-01	3.256E-01	NOT IDENT.
SB-122	-6.942E+01	5.718E+02	5.727E+02	SHORT HLIF
TE-123M	-1.069E-02	6.837E-02	6.854E-02	NOT IDENT.
SB-124	-1.290E-01	1.823E-01	1.913E-01	NOT IDENT.
SB-125	1.793E-01	1.818E-01	1.989E-01	NOT IDENT.
TE-125M	-2.977E+00	2.300E+01	2.304E+01	NOT IDENT.
I-126	2.467E+00	1.721E+00	2.049E+00	FAIL ABUN
SB-126	8.386E-01	1.119E+00	1.181E+00	FAIL ABUN
SB-127	-4.432E+01	8.453E+01	8.686E+01	NOT IDENT.
I-131	-8.140E-02	1.221E+00	1.222E+00	FAIL ABUN
I-132	1.000E+41	2.787E+41	0.000E+00	SHORT HLIF
TE-132	1.166E+01	1.234E+02	1.235E+02	SHORT HLIF
BA-133	-1.097E-02	8.573E-02	8.587E-02	FAIL ABUN
I-133	-3.808E+10	9.757E+10	9.907E+10	SHORT HLIF
CS-134	3.806E-02	6.938E-02	7.147E-02	NOT IDENT.
I-135	-2.435E+37	1.061E+38	0.000E+00	SHORT HLIF
CS-136	2.164E-01	5.792E-01	5.874E-01	NOT IDENT.
LA-138	-5.572E-02	1.281E-01	1.305E-01	NOT IDENT.
CE-139	3.399E-02	7.066E-02	7.230E-02	NOT IDENT.
BA-140	-7.736E-02	1.407E+00	1.408E+00	NOT IDENT.
LA-140	-4.477E-01	7.540E-01	7.805E-01	NOT IDENT.
CE-141	1.572E-01	3.875E-01	3.939E-01	FAIL ABUN
CE-143	1.656E+07	7.406E+06	1.052E+07	SHORT HLIF
CE-144	-1.219E-01	4.002E-01	4.040E-01	FAIL ABUN
PM-144	-1.167E-02	5.635E-02	5.660E-02	FAIL ABUN
PR-144	-8.825E-01	4.262E+00	4.280E+00	NOT IDENT.
PM-146	2.293E-02	8.321E-02	8.385E-02	FAIL ABUN
ND-147	-1.159E+00	3.660E+00	3.697E+00	FAIL ABUN
PM-147	1.691E+03	1.452E+03	1.640E+03	NOT IDENT.
PM-149	-6.227E+04	1.091E+05	1.126E+05	SHORT HLIF
EU-150	-5.506E-03	6.658E-02	6.663E-02	FAIL ABUN
EU-152	8.754E-02	1.979E-01	2.018E-01	FAIL ABUN
GD-153	-1.045E-01	1.739E-01	1.801E-01	NOT IDENT.
EU-154	-1.056E-01	1.948E-01	2.006E-01	NOT IDENT.

EU-155	7.013E-02	2.027E-01	2.051E-01	FAIL	ABUN
TB-160	-2.688E-02	3.296E-01	3.298E-01	FAIL	ABUN
HO-166M	4.216E-02	1.491E-01	1.503E-01	FAIL	ABUN
TM-171	1.219E+01	8.325E+01	8.343E+01	FAIL	ABUN
HF-172	-1.217E-01	3.754E-01	3.793E-01	FAIL	ABUN
LU-172	-3.002E-02	9.613E-02	9.708E-02	FAIL	ABUN
LU-176	-2.780E-02	5.306E-02	5.452E-02	FAIL	ABUN
HF-181	3.097E-02	1.200E-01	1.208E-01	NOT IDENT.	
TA-182	-1.878E-01	3.196E-01	3.306E-01	FAIL	ABUN
RE-183	-9.173E-01	8.643E-01	9.581E-01	FAIL	ABUN
RE-184	2.418E-01	3.464E-01	3.632E-01	NOT IDENT.	
W-188	-2.122E+00	2.145E+01	2.147E+01	FAIL	ABUN
IR-192	4.187E-03	8.047E-02	8.049E-02	FAIL	ABUN
HG-203	-3.822E-02	1.188E-01	1.200E-01	NOT IDENT.	
TL-204	-5.958E-01	1.320E+01	1.320E+01	FAIL	ABUN
BI-207	2.040E-02	9.045E-02	9.092E-02	FAIL	ABUN
BI-210	5.622E+00	2.513E+01	2.526E+01	NOT IDENT.	
PB-210	5.622E+00	2.513E+01	2.526E+01	NOT IDENT.	
PB-211	-4.050E-02	1.599E+00	1.599E+00	NOT IDENT.	
BI-213	1.650E-01	2.101E-01	2.229E-01	NOT IDENT.	
RN-219	7.135E-01	8.217E-01	8.824E-01	FAIL	ABUN
RA-223	1.083E+00	1.352E+00	1.437E+00	FAIL	ABUN
AC-225	1.936E+00	5.079E+00	5.154E+00	NOT IDENT.	
AC-227	8.057E-01	7.124E-01	7.997E-01	FAIL	ABUN
TH-227	8.057E-01	7.124E-01	7.997E-01	FAIL	ABUN
PA-231	5.654E-01	1.128E+00	1.157E+00	NOT IDENT.	
PA-233	1.332E-01	1.424E-01	1.546E-01	NOT IDENT.	
PA-234	-4.964E-01	8.059E-01	8.364E-01	NOT IDENT.	
PA-234M	1.481E+01	8.837E+00	1.108E+01	NOT IDENT.	
NP-237	1.332E-01	1.424E-01	1.546E-01	NOT IDENT.	
NP-238	-1.871E+04	2.484E+04	2.623E+04	SHORT HLIF	
NP-239	1.478E-01	4.919E-01	4.964E-01	FAIL	ABUN
PU-239	3.098E+02	6.856E+02	6.997E+02	NOT IDENT.	
AM-241	4.880E-01	5.429E-01	5.858E-01	NOT IDENT.	
CM-243	1.178E-01	2.084E-01	2.151E-01	FAIL	ABUN
BK-247	-1.765E-02	1.694E-01	1.696E-01	FAIL	ABUN
CM-247	2.853E-02	7.597E-02	7.705E-02	FAIL	ABUN
CF-249	6.633E-02	8.092E-02	8.627E-02	NOT IDENT.	
CF-251	4.154E-02	2.902E-01	2.908E-01	NOT IDENT.	

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
74.66	114.7701	81.75	161.0572	123.68	130.6215
879.38	120.5013	82.47	119.6310	125.81	131.0934
46.54	111.8338	83.79	110.8957	127.23	132.3919
228.16	0.0000	265.00	110.9478	127.91	136.4992
52.39	99.3758	193.51	127.7209	129.30	132.8468
1093.63	101.2089	105.31	144.4978	131.20	132.2674
52.39	102.2087	86.79	150.0627	133.02	128.6693
125.81	111.6216	86.94	150.1127	133.52	127.7754
53.44	108.4191	87.09	150.1615	136.00	120.2655
54.07	111.1514	87.57	150.3179	136.47	147.4352
293.27	0.0000	88.03	168.8178	739.50	0.0000
482.18	119.9445	306.78	168.9301	140.51	0.0000
57.98	131.1718	88.47	168.9778	143.76	132.8890
59.27	109.4268	143.76	157.2331	144.24	132.9849
59.32	109.4424	90.64	157.4596	145.44	141.0259
59.54	104.9473	531.02	157.6159	152.43	165.4515
60.96	124.8337	92.59	158.1068	1048.07	161.5349
61.17	131.7819	93.35	158.3568	154.21	176.1846
62.93	126.9494	94.56	130.2267	158.56	167.3517
63.29	127.0728	311.90	130.2502	159.00	144.2049
290.67	127.1726	946.00	130.2556	162.33	137.5873
87.57	127.4115	94.87	126.5859	537.26	139.7353
66.73	123.8773	97.43	136.6021	163.33	133.6035
67.24	130.1556	98.43	116.2509	165.86	128.8351
67.68	130.3045	98.44	116.2538	427.87	129.6008
1221.41	130.3273	103.37	110.8690	176.60	130.7119
70.82	127.4938	116.74	110.8690	177.52	140.4474
97.43	155.8756	100.11	113.8178	181.07	0.0000
70.82	151.6246	102.03	125.5784	181.52	139.7525
279.20	151.6285	103.18	123.9659	184.41	141.7022
1063.66	181.9053	103.37	118.3319	185.72	141.9399
72.87	181.9319	911.20	124.4506	193.51	124.8688
351.06	181.9319	105.31	117.8223	197.03	139.5840
74.66	162.5565	106.12	122.7622	198.01	112.4551
351.93	162.6192	106.47	132.3667	201.83	131.6180
238.63	162.6192	109.28	120.6205	203.43	124.1765
351.93	162.6192	111.00	101.7971	205.31	127.7565
238.63	162.6192	111.76	0.0000	210.85	119.7169
74.97	162.6777	114.06	106.2285	215.65	118.1469
77.11	163.5111	116.30	0.0000	218.12	101.7113
78.74	164.1383	116.74	109.6498	222.11	105.5349
256.23	162.0992	119.76	132.6693	227.09	99.3424
80.03	162.2255	264.66	103.6483	227.38	101.6318
133.52	162.2598	121.22	103.6660	228.16	0.0000
364.49	162.2859	344.28	119.4292	228.18	108.5024
711.68	162.4287	122.06	123.4045	235.69	116.9773
356.01	160.7815	122.92	151.0498	235.96	117.0117
323.87	160.8073	1274.44	151.0885	238.63	104.0079

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
238.98	0.0000	338.28	66.7952	531.02	38.9580
240.99	104.2648	338.32	66.7969	537.26	34.3271
242.00	104.3759	340.48	71.5127	1260.41	0.0000
244.70	92.0154	340.55	71.5179	552.55	34.6201
685.70	77.2847	344.28	65.4396	795.86	27.0840
388.16	86.5942	345.93	65.5253	564.24	0.0000
507.63	0.0000	351.06	54.8252	569.33	26.2024
256.23	87.2801	351.93	54.8623	569.50	32.0278
527.90	0.0000	355.39	0.0000	569.70	31.0599
264.66	78.6219	356.01	57.1536	583.19	35.1943
264.80	82.1530	364.49	54.5443	584.27	35.2134
265.00	82.1680	366.42	0.0000	595.83	40.3460
269.46	99.0271	372.51	58.3061	600.60	50.3090
270.03	99.0835	375.05	53.2623	602.52	0.0000
401.81	99.1963	377.52	41.3105	604.72	41.5198
273.65	106.5262	383.85	61.3912	607.14	32.6616
276.40	88.6074	388.16	52.0435	609.32	42.6063
583.19	91.4610	666.33	55.5313	610.33	42.6291
277.60	91.4798	391.69	60.8726	614.28	28.3098
402.40	79.2338	400.66	67.3891	618.01	21.8944
279.20	84.0827	401.81	49.9260	884.68	18.9312
279.54	84.1086	402.40	56.9570	621.93	33.9032
279.70	92.0575	404.85	60.5659	630.19	0.0000
280.46	85.7703	410.95	52.8906	631.29	37.0662
301.36	84.8325	413.71	66.2399	633.25	21.0581
284.31	92.0532	720.70	60.0990	634.78	21.0735
285.41	78.9833	423.72	59.5805	635.95	30.1221
285.90	0.0000	427.09	40.9987	636.99	32.1471
287.50	64.7463	427.87	41.9120	657.50	24.3496
290.67	83.3701	433.94	45.6636	657.76	28.9198
293.27	0.0000	439.40	46.3688	657.90	0.0000
295.22	72.4438	440.45	44.9615	661.66	23.3818
316.51	72.4933	453.88	46.2623	664.57	0.0000
298.58	103.3411	463.37	48.3677	666.33	23.4333
299.98	85.6851	468.07	39.3572	666.50	23.4352
300.09	83.6726	473.00	41.3150	667.71	0.0000
300.13	83.6768	631.29	27.5781	677.62	22.5335
311.90	83.6768	696.49	38.6504	685.70	29.8142
301.36	86.1954	477.60	49.7186	692.65	0.0000
302.85	93.6017	482.18	39.8874	695.00	28.9092
304.50	70.6078	487.02	40.0052	696.49	24.7959
304.85	81.5888	492.35	0.0000	696.51	24.7959
306.78	67.0883	497.08	40.0614	697.00	29.9688
308.46	58.6362	505.52	42.1344	697.30	26.8717
311.90	62.4862	507.63	0.0000	697.49	28.5276
316.51	54.1218	511.00	42.2699	702.65	23.3112
319.41	59.1870	514.00	32.4631	706.68	23.3533
320.08	59.2207	514.00	32.4645	711.68	24.9658
321.04	53.0939	520.40	42.5006	720.70	26.6331
323.87	58.1705	520.69	0.0000	721.93	0.0000
325.23	79.3008	667.71	0.0000	1690.97	31.3611
1596.21	79.5332	527.90	0.0000	722.91	31.3635
333.37	69.8564	528.26	37.0005	723.31	28.2316
333.97	76.5469	529.59	36.0780	756.73	28.2426
334.37	61.5899	529.87	0.0000	727.33	17.8073

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
733.00	21.4218	929.11	18.7196	1312.11	12.4485
735.93	13.6686	935.54	18.1940	1332.49	8.6655
737.46	31.5637	937.49	13.6548	1362.66	0.0000
739.50	0.0000	983.53	17.1088	1365.19	13.5950
1434.09	18.9939	946.00	27.3926	1368.63	0.0000
747.24	26.9423	949.00	21.7090	1384.29	10.4095
748.06	26.9516	954.55	0.0000	1408.01	10.0980
752.31	28.5886	962.31	13.7749	1434.09	13.8351
753.82	32.8454	964.08	23.4314	1435.80	18.7843
756.73	21.2166	966.17	23.4480	1457.56	0.0000
756.80	21.2174	968.97	23.4713	1460.82	10.9423
763.94	11.1729	983.53	17.3450	1489.16	9.0143
765.81	20.7664	984.45	0.0000	1505.03	17.6945
1001.03	19.1733	996.26	12.7747	1584.12	17.4099
766.84	19.1770	1001.03	11.6321	1596.21	19.7168
772.60	0.0000	1002.74	16.2940	1620.50	7.2277
776.52	23.5334	1004.73	26.7875	1621.92	5.1645
777.92	0.0000	1021.30	0.0000	1678.03	0.0000
778.90	20.3444	1025.87	0.0000	1690.97	8.3892
783.70	19.3118	1028.54	0.0000	1750.46	0.0000
1435.80	25.8027	1037.84	23.8442	1764.49	6.3904
903.28	21.5316	1038.76	0.0000	1770.23	5.1185
795.86	18.3302	1046.59	15.9412	1771.35	2.8442
801.95	17.8354	1048.07	20.3791	1791.20	0.0000
810.06	19.5205	1049.04	21.2725	1808.65	3.4393
810.29	19.5220	1050.41	16.8477	1810.72	0.0000
810.45	16.2695	1063.66	17.8101	1836.06	7.5652
810.76	16.2714	1077.00	16.0972		
815.77	22.8260	1077.34	17.8882		
818.51	23.9390	1085.87	13.4518		
832.01	21.8791	1093.63	15.2828		
834.85	39.4263	1099.45	13.5095		
835.71	27.9363	1112.07	18.6002		
836.80	0.0000	1112.84	13.0228		
846.75	0.0000	1115.54	21.7236		
846.77	14.3034	1120.29	29.0059		
856.80	26.5088	1120.55	29.0078		
860.56	17.6979	1121.30	29.0156		
871.09	16.6583	1808.65	23.6355		
873.19	24.4519	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	27.8503	1332.49	18.4192		
880.51	34.5496	1177.95	19.3671		
881.60	26.7588	1189.05	22.2056		
883.24	17.8503	1204.77	17.6606		
884.68	24.5575	1221.41	18.6780		
889.28	25.1587	1231.02	9.6322		
894.76	18.4866	1235.36	25.5033		
1836.06	21.8748	1238.28	15.0146		
900.72	24.7035	1260.41	0.0000		
903.28	17.9831	1271.87	8.5248		
911.20	30.4343	1274.44	16.1139		
912.08	30.4442	1274.54	15.1660		
984.45	0.0000	1291.59	17.1420		
926.50	14.7350	1298.22	0.0000		

VAX/VMS Nuclide Identification Report Generated 1-AUG-2024 11:05:28.51

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299025.CNF;2
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM06.CNF;954
Background date    : 28-JUL-2024 11:21:57
Sample date       : 26-JUN-2024 11:25:00 Acquisition date : 1-AUG-2024 10:04:51.
Sample ID        : G674299025 Sample quantity : 1.12300E+02 GRAM
Detector name    : GAM06 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.63 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	57.32	36	111	2.19	113.45	110	8	9.91E-03	53.7	
2	2	74.92	127	104	1.08	148.67	144	15	3.53E-02	16.8	3.07E+00
3	2	77.28	165	96	1.06	153.38	144	15	4.58E-02	12.5	
4	0	87.21	57	215	1.18	173.26	167	10	1.59E-02	49.8	
5	5	90.04	43	79	0.95	178.92	177	18	1.20E-02	31.2	1.48E+00
6	5	93.01*	70	152	1.51	184.87	177	18	1.95E-02	35.0	
7	0	185.76*	68	98	1.04	370.46	366	10	1.88E-02	31.0	
8	0	209.37	39	92	1.42	417.70	413	10	1.08E-02	50.0	
9	5	238.74*	273	54	1.09	476.47	473	17	7.59E-02	7.7	7.70E-01
10	5	241.82	105	69	1.95	482.64	473	17	2.93E-02	23.1	
11	0	270.19*	47	86	2.22	539.41	532	16	1.29E-02	48.4	
12	0	295.47*	113	80	1.34	590.01	583	11	3.14E-02	18.1	
13	0	300.13	23	47	1.82	599.33	595	9	6.43E-03	57.4	
14	0	324.54	17	54	1.45	648.18	641	11	4.65E-03	90.6	
15	0	328.20	21	29	0.76	655.51	652	7	5.69E-03	48.3	
16	0	338.50	64	59	0.80	676.13	671	10	1.77E-02	25.9	
17	0	352.03*	276	36	1.25	703.20	698	11	7.66E-02	7.4	
18	0	369.27	15	64	3.26	737.70	728	13	4.22E-03	112.3	
19	0	410.44*	12	36	1.01	820.09	814	10	3.45E-03	94.7	
20	0	503.66	10	20	0.81	1006.67	1000	10	2.65E-03	93.8	
21	0	511.22*	25	31	1.30	1021.81	1016	11	6.90E-03	60.5	
22	0	570.75	16	35	5.10	1140.97	1131	14	4.44E-03	82.3	
23	0	583.53*	98	33	1.19	1166.54	1161	13	2.72E-02	16.6	
24	0	609.17*	150	47	1.23	1217.88	1212	13	4.16E-02	12.5	
25	0	626.27	18	7	0.92	1252.11	1247	9	5.08E-03	34.6	
26	1	727.28	24	21	1.90	1454.31	1450	21	6.74E-03	38.1	1.13E+00
27	1	733.14	18	14	1.91	1466.04	1450	21	4.86E-03	52.8	
28	0	768.55	17	24	1.75	1536.92	1529	11	4.58E-03	63.0	
29	0	878.18	15	6	0.94	1756.41	1751	9	4.05E-03	41.3	
30	0	884.33	26	6	3.12	1768.73	1761	14	7.14E-03	29.3	
31	0	910.99*	57	21	1.28	1822.10	1815	14	1.59E-02	22.2	
32	0	951.16	8	6	2.27	1902.55	1898	8	2.29E-03	61.8	
33	0	969.15	45	29	1.85	1938.56	1929	14	1.26E-02	29.0	
34	0	1027.75	15	6	3.35	2055.90	2049	12	4.25E-03	40.9	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1038.32	10	1	1.35	2077.08	2074	6	2.66E-03	38.0	
36	0	1120.14	45	6	2.93	2240.91	2235	12	1.26E-02	18.3	
37	0	1135.91	10	16	0.56	2272.50	2263	16	2.78E-03	94.9	
38	0	1145.88	8	9	1.35	2292.46	2286	10	2.11E-03	85.4	
39	0	1207.87	13	10	0.64	2416.60	2410	13	3.57E-03	57.5	
40	0	1214.85	7	14	2.89	2430.59	2422	11	2.03E-03	104.9	
41	0	1236.94	30	7	0.88	2474.83	2467	14	8.33E-03	26.1	
42	0	1278.15	7	4	1.35	2557.36	2553	8	1.94E-03	62.3	
43	0	1303.04	15	4	1.39	2607.22	2599	13	4.28E-03	35.3	
44	0	1308.04	7	5	1.24	2617.23	2612	11	1.90E-03	76.2	
45	0	1333.07	12	3	1.48	2667.36	2660	14	3.25E-03	44.6	
46	0	1460.25	303	16	2.24	2922.10	2914	16	8.42E-02	6.5	
47	0	1763.95	25	4	1.88	3530.50	3522	13	6.97E-03	25.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299025.CNF;2		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 11:25:00	Acquisition date	: 1-AUG-2024 10:04:51
Sample ID	: G674299025	Sample quantity	: 112.30 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA6	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.63 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	286	10.66*	9.865E-01	1.815E+01	1.815E+01	12.91
CD-109	88.03	60	3.70*	5.253E+00	2.059E+00	2.173E+00	99.55
SN-126	64.28	-----	9.60	2.778E+00	-----	Line Not Found	-----
	86.94	60	8.90	5.253E+00	8.558E-01	8.558E-01	99.55
	87.57	60	37.00*	5.253E+00	2.059E-01	2.059E-01	99.55
TL-208	277.37	-----	6.60	3.940E+00	-----	Line Not Found	-----
	583.19	95	85.00*	2.227E+00	3.370E-01	3.370E-01	33.20
	860.56	-----	12.50	1.593E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.892E+00	-----	Line Not Found	-----
	351.06	274	12.92*	3.293E+00	4.308E+00	4.308E+00	14.85
BI-212	727.33	23	6.67*	1.851E+00	1.272E+00	1.272E+00	76.22
	1620.50	-----	1.47	9.117E-01	-----	Line Not Found	-----
PB-212	74.82	134	10.28	4.130E+00	2.107E+00	2.107E+00	33.63
	77.11	173	17.10	4.385E+00	1.546E+00	1.546E+00	24.91
	238.63	276	43.60*	4.404E+00	9.598E-01	9.598E-01	15.32
	300.09	23	3.30	3.714E+00	1.263E+00	1.263E+00	114.75
BI-214	609.32	146	45.49*	2.150E+00	9.973E-01	9.974E-01	24.99
	1120.29	43	14.92	1.248E+00	1.552E+00	1.553E+00	36.57
	1764.49	23	15.30	8.636E-01	1.187E+00	1.187E+00	50.11
PB-214	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.564E+00	14.85
RN-222	609.32	146	45.49*	2.150E+00	9.973E-01	9.974E-01	24.99
	1120.29	43	14.92	1.248E+00	1.552E+00	1.553E+00	36.57
	1764.49	23	15.30	8.636E-01	1.187E+00	1.187E+00	50.11
RA-224	240.99	106	4.10*	4.363E+00	3.974E+00	3.974E+00	46.16
RA-226	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.564E+00	14.85
AC-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
RA-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
TH-228	74.82	134	10.28	4.130E+00	2.107E+00	2.107E+00	33.63
	77.11	173	17.10	4.385E+00	1.546E+00	1.546E+00	24.91
	238.63	276	43.60*	4.404E+00	9.598E-01	9.598E-01	15.32
	300.09	23	3.30	3.714E+00	1.263E+00	1.263E+00	114.75

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.563E+00	14.85
PA-231	283.69	-----	1.70	3.874E+00	-----	Line Not Found	-----
	301.36	23	5.35*	3.714E+00	7.793E-01	7.793E-01	114.75
TH-232	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
U-234	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
U-235	351.93	274	35.60*	3.293E+00	1.563E+00	1.563E+00	14.85
	89.96	45	3.47	5.438E+00	1.604E+00	1.604E+00	62.49
	93.35	73	5.60	5.607E+00	1.564E+00	1.564E+00	69.94
	143.76	-----	10.96*	5.983E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.649E+00	-----	Line Not Found	-----
	185.72	69	57.20	5.240E+00	1.536E-01	1.536E-01	62.04
AM-243	205.31	-----	5.01	4.904E+00	-----	Line Not Found	-----
	43.53	-----	5.90	3.651E-01	-----	Line Not Found	-----
ANH-511	74.66	134	67.20*	4.130E+00	3.223E-01	3.223E-01	33.63
	511.00	24	100.00*	2.475E+00	6.583E-02	6.583E-02	120.98

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299025.CNF;2
Acquisition date : 1-AUG-2024 10:04:51 Sensitivity : 3.000
Detector ID : GAM06 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.63 Half life ratio : *****
Sample date : 26-JUN-2024 11:25:00 Analyst initials: MXR1
Sample ID : G674299025 Sample Quantity : 1.1230E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.815E+01	2.296E+00	9.958E-01
CD-109	2.173E+00	2.120E+00	1.601E+00
SN-126	2.059E-01	2.008E-01	1.603E-01
TL-208	3.370E-01	1.096E-01	8.374E-02
BI-211	4.308E+00	6.269E-01	4.185E-01
BI-212	1.272E+00	9.498E-01	1.160E+00
PB-212	9.598E-01	1.441E-01	1.172E-01
BI-214	9.974E-01	2.443E-01	1.594E-01
PB-214	1.564E+00	2.275E-01	1.522E-01
RN-222	9.974E-01	2.443E-01	1.594E-01
RA-224	3.974E+00	1.798E+00	1.257E+00
RA-226	1.564E+00	2.275E-01	1.522E-01
AC-228	9.403E-01	4.089E-01	3.451E-01
RA-228	9.403E-01	4.089E-01	3.451E-01
TH-228	9.598E-01	1.441E-01	1.172E-01
TH-230	1.563E+00	2.275E-01	1.522E-01
PA-231	7.793E-01	8.764E-01	9.548E-01
TH-232	9.403E-01	4.089E-01	3.451E-01
U-234	1.563E+00	2.275E-01	1.522E-01
U-235	-8.501E-03	2.318E-01	4.118E-01
AM-243	3.223E-01	1.062E-01	9.710E-02
ANH-511	6.583E-02	7.805E-02	6.708E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-3.878E-01	5.426E-01	9.261E-01	NOT IDENT.
NA-22	-1.814E-02	7.529E-02	1.177E-01	NOT IDENT.
NA-24	0.000E+00	9.104E+15	0.000E+00	SHORT HLIF
AL-26	1.179E-02	3.567E-02	8.868E-02	NOT IDENT.
SC-46	6.064E-02	5.294E-02	1.201E-01	FAIL ABUN
V-48	-9.524E-02	2.424E-01	4.420E-01	NOT IDENT.
CR-51	3.172E-01	7.896E-01	1.441E+00	NOT IDENT.
MN-52	-1.129E-01	3.434E+00	7.069E+00	NOT IDENT.

MN-54	4.539E-02	4.965E-02	1.086E-01	NOT IDENT.
CO-56	5.299E-02	6.159E-02	1.350E-01	FAIL ABUN
MN-56	0.000E+00	1.158E+41	0.000E+00	SHORT HLIF
CO-57	-8.218E-03	2.901E-02	5.190E-02	NOT IDENT.
CO-58	-3.146E-02	5.200E-02	9.405E-02	NOT IDENT.
FE-59	1.475E-02	1.898E-01	3.653E-01	NOT IDENT.
CO-60	7.030E-02	6.147E-02	1.150E-01	FAIL ABUN
ZN-65	-1.231E-01	1.599E-01	2.202E-01	NOT IDENT.
GE-68	-8.739E-01	1.855E+00	3.303E+00	NOT IDENT.
AS-73	6.374E-01	1.376E+00	2.739E+00	NOT IDENT.
AS-74	9.226E-02	2.384E-01	4.778E-01	NOT IDENT.
SE-75	-6.680E-03	6.686E-02	1.060E-01	NOT IDENT.
BR-77	0.000E+00	9.770E+03	0.000E+00	SHORT HLIF
SR-82	1.639E-01	6.060E-01	1.284E+00	NOT IDENT.
RB-83	2.393E-03	1.031E-01	1.953E-01	NOT IDENT.
RB-84	1.258E-01	8.019E-02	2.262E-01	NOT IDENT.
KR-85	5.826E+00	8.201E+00	1.582E+01	NOT IDENT.
SR-85	3.821E-02	5.407E-02	1.042E-01	NOT IDENT.
RB-86	-1.131E+00	2.401E+00	4.276E+00	NOT IDENT.
Y-88	4.716E-03	4.956E-02	1.130E-01	NOT IDENT.
Y-91	1.705E+00	3.718E+01	6.368E+01	NOT IDENT.
NB-94	4.953E-03	4.242E-02	7.988E-02	NOT IDENT.
NB-95	1.514E-02	7.765E-02	1.383E-01	NOT IDENT.
NB-95M	1.986E-01	1.905E-01	3.475E-01	NOT IDENT.
ZR-95	-2.186E-02	1.011E-01	1.962E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.200E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.932E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.065E+41	0.000E+00	SHORT HLIF
RH-101	-3.192E-02	3.391E-02	5.673E-02	FAIL ABUN
RH-102	3.333E-02	7.031E-02	1.405E-01	NOT IDENT.
RU-103	1.966E-02	7.536E-02	1.408E-01	FAIL ABUN
RH-106	4.015E-02	4.446E-01	7.577E-01	NOT IDENT.
RU-106	4.015E-02	4.446E-01	7.577E-01	NOT IDENT.
AG-108M	5.452E-03	3.263E-02	6.403E-02	NOT IDENT.
AG-110	-3.266E-01	8.915E-01	1.571E+00	NOT IDENT.
AG-110M	1.613E-01	9.252E-02	1.662E-01	FAIL ABUN
SN-113	3.513E-02	6.037E-02	1.224E-01	NOT IDENT.
CD-115	0.000E+00	9.324E+03	0.000E+00	SHORT HLIF
SN-117M	4.716E-02	1.789E-01	3.294E-01	NOT IDENT.
SB-122	0.000E+00	5.724E+02	0.000E+00	SHORT HLIF
TE-123M	2.418E-02	3.522E-02	6.742E-02	NOT IDENT.
SB-124	4.920E-02	9.291E-02	2.568E-01	NOT IDENT.
SB-125	-5.235E-02	1.059E-01	1.892E-01	NOT IDENT.
TE-125M	-2.642E+00	1.282E+01	2.329E+01	NOT IDENT.
I-126	4.535E-01	7.236E-01	1.517E+00	NOT IDENT.
SB-126	6.305E-02	6.083E-01	1.140E+00	NOT IDENT.
SB-127	-1.780E+00	7.331E+01	1.353E+02	NOT IDENT.
I-131	2.972E-02	9.266E-01	1.601E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	8.180E+01	0.000E+00	SHORT HLIF
BA-133	1.389E-02	5.255E-02	9.428E-02	NOT IDENT.
I-133	0.000E+00	1.383E+11	0.000E+00	SHORT HLIF
CS-134	6.166E-02	5.352E-02	1.200E-01	FAIL ABUN
I-135	0.000E+00	6.106E+38	0.000E+00	SHORT HLIF
CS-136	1.740E-01	4.001E-01	8.408E-01	NOT IDENT.
BA-137M	1.699E-02	4.321E-02	8.565E-02	NOT IDENT.
CS-137	1.795E-02	4.565E-02	9.048E-02	NOT IDENT.
LA-138	-1.770E-02	6.335E-02	1.200E-01	NOT IDENT.
CE-139	9.333E-03	3.744E-02	6.873E-02	NOT IDENT.
BA-140	1.626E-01	8.346E-01	1.665E+00	NOT IDENT.
LA-140	2.558E-03	3.159E-01	6.828E-01	FAIL ABUN
CE-141	3.646E-02	1.099E-01	2.041E-01	NOT IDENT.
CE-143	0.000E+00	5.681E+06	0.000E+00	SHORT HLIF
CE-144	-1.621E-01	2.167E-01	3.683E-01	NOT IDENT.
PM-144	-7.161E-03	4.604E-02	8.292E-02	NOT IDENT.
PR-144	-5.304E-01	3.485E+00	6.280E+00	NOT IDENT.
PM-146	1.791E-02	5.682E-02	1.105E-01	NOT IDENT.
ND-147	1.248E+00	2.541E+00	5.125E+00	FAIL ABUN
PM-147	2.939E+01	7.955E+02	1.467E+03	NOT IDENT.
PM-149	0.000E+00	7.113E+04	0.000E+00	SHORT HLIF
EU-150	-1.832E-02	3.665E-02	5.867E-02	FAIL ABUN
EU-152	1.634E-02	1.146E-01	2.225E-01	NOT IDENT.
GD-153	-1.616E-03	9.795E-02	1.689E-01	NOT IDENT.
EU-154	-4.040E-02	2.127E-01	3.369E-01	NOT IDENT.
EU-155	6.087E-02	1.194E-01	2.285E-01	FAIL ABUN
TB-160	2.806E-01	2.271E-01	4.008E-01	FAIL ABUN
HO-166M	1.047E-02	8.210E-02	1.539E-01	FAIL ABUN

TM-171	-5.638E+00	2.433E+01	4.625E+01	NOT IDENT.
HF-172	9.904E-02	1.980E-01	3.798E-01	NOT IDENT.
LU-172	-2.025E-02	9.235E-02	1.715E-01	FAIL ABUN
LU-176	-1.678E-02	3.030E-02	5.514E-02	FAIL ABUN
HF-181	2.044E-02	8.436E-02	1.623E-01	FAIL ABUN
TA-182	1.119E-02	2.988E-01	5.694E-01	FAIL ABUN
RE-183	5.806E-01	6.108E-01	6.175E-01	FAIL ABUN
RE-184	-9.314E-02	2.279E-01	4.212E-01	NOT IDENT.
W-188	-4.269E+00	1.194E+01	1.975E+01	NOT IDENT.
IR-192	8.119E-03	4.683E-02	9.207E-02	FAIL ABUN
HG-203	3.183E-03	5.814E-02	1.129E-01	NOT IDENT.
TL-204	-1.378E+00	5.605E+00	9.627E+00	NOT IDENT.
BI-207	-1.163E-02	6.025E-02	1.152E-01	FAIL ABUN
BI-210	-4.039E-01	5.362E+00	1.036E+01	NOT IDENT.
PB-210	-4.039E-01	5.362E+00	1.036E+01	NOT IDENT.
PB-211	-2.694E-01	9.362E-01	1.526E+00	NOT IDENT.
BI-213	6.905E-02	1.204E-01	2.459E-01	NOT IDENT.
RN-219	-1.113E-01	5.118E-01	9.457E-01	FAIL ABUN
RA-223	7.986E-01	1.419E+00	1.588E+00	FAIL ABUN
AC-225	1.297E-01	3.000E+00	5.319E+00	NOT IDENT.
AC-227	4.151E-02	2.781E-01	5.016E-01	FAIL ABUN
TH-227	4.151E-02	2.781E-01	5.016E-01	FAIL ABUN
TH-229	3.490E-01	5.719E-01	1.084E+00	FAIL ABUN
TH-231	7.986E-01	1.419E+00	1.588E+00	FAIL ABUN
PA-233	-2.878E-02	7.051E-02	1.306E-01	FAIL ABUN
PA-234	-2.436E-01	3.967E-01	5.823E-01	FAIL ABUN
PA-234M	2.806E+00	5.942E+00	1.240E+01	NOT IDENT.
TH-234	1.120E+00	1.556E+00	3.121E+00	FAIL ABUN
NP-237	-2.878E-02	7.051E-02	1.306E-01	FAIL ABUN
NP-238	0.000E+00	2.604E+04	0.000E+00	SHORT HLIF
U-238	1.120E+00	1.556E+00	3.121E+00	FAIL ABUN
NP-239	-1.011E-01	2.684E-01	4.789E-01	NOT IDENT.
PU-239	2.822E+02	3.838E+02	7.388E+02	NOT IDENT.
AM-241	-2.268E-02	1.926E-01	3.425E-01	NOT IDENT.
CM-243	-5.223E-02	1.178E-01	2.083E-01	NOT IDENT.
BK-247	1.054E-02	1.041E-01	1.704E-01	NOT IDENT.
CM-247	2.453E-02	4.244E-02	8.656E-02	NOT IDENT.
CF-249	-1.089E-02	4.542E-02	8.456E-02	NOT IDENT.
CF-251	5.880E-03	1.493E-01	2.678E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	286	10.66*	9.865E-01	1.815E+01	1.815E+01	12.91
CD-109	88.03	60	3.70*	5.253E+00	2.059E+00	2.173E+00	99.55
SN-126	64.28	-----	9.60	2.778E+00	-----	Line Not Found	-----
	86.94	60	8.90	5.253E+00	8.558E-01	8.558E-01	99.55
	87.57	60	37.00*	5.253E+00	2.059E-01	2.059E-01	99.55
TL-208	277.37	-----	6.60	3.940E+00	-----	Line Not Found	-----
	583.19	95	85.00*	2.227E+00	3.370E-01	3.370E-01	33.20
	860.56	-----	12.50	1.593E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.892E+00	-----	Line Not Found	-----
	351.06	274	12.92*	3.293E+00	4.308E+00	4.308E+00	14.85
BI-212	727.33	23	6.67*	1.851E+00	1.272E+00	1.272E+00	76.22
	1620.50	-----	1.47	9.117E-01	-----	Line Not Found	-----
PB-212	74.82	134	10.28	4.130E+00	2.107E+00	2.107E+00	33.63
	77.11	173	17.10	4.385E+00	1.546E+00	1.546E+00	24.91
	238.63	276	43.60*	4.404E+00	9.598E-01	9.598E-01	15.32
	300.09	23	3.30	3.714E+00	1.263E+00	1.263E+00	114.75
BI-214	609.32	146	45.49*	2.150E+00	9.973E-01	9.974E-01	24.99
	1120.29	43	14.92	1.248E+00	1.552E+00	1.553E+00	36.57
	1764.49	23	15.30	8.636E-01	1.187E+00	1.187E+00	50.11
PB-214	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.564E+00	14.85
RN-222	609.32	146	45.49*	2.150E+00	9.973E-01	9.974E-01	24.99
	1120.29	43	14.92	1.248E+00	1.552E+00	1.553E+00	36.57
	1764.49	23	15.30	8.636E-01	1.187E+00	1.187E+00	50.11
RA-224	240.99	106	4.10*	4.363E+00	3.974E+00	3.974E+00	46.16
RA-226	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.564E+00	14.85
AC-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
RA-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
TH-228	74.82	134	10.28	4.130E+00	2.107E+00	2.107E+00	33.63
	77.11	173	17.10	4.385E+00	1.546E+00	1.546E+00	24.91

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	238.63	276	43.60*	4.404E+00	9.598E-01	9.598E-01	15.32
	300.09	23	3.30	3.714E+00	1.263E+00	1.263E+00	114.75
	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
PA-231	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
	351.93	274	35.60*	3.293E+00	1.563E+00	1.563E+00	14.85
	283.69	-----	1.70	3.874E+00	-----	Line Not Found	-----
	301.36	23	5.35*	3.714E+00	7.793E-01	7.793E-01	114.75
TH-232	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.392E+00	1.111E+00	1.111E+00	51.82
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	55	25.80*	1.512E+00	9.403E-01	9.403E-01	44.38
U-234	968.97	43	15.80	1.428E+00	1.284E+00	1.284E+00	57.94
	74.82	134	5.80	4.130E+00	3.735E+00	3.735E+00	33.63
	77.11	173	9.70	4.385E+00	2.725E+00	2.725E+00	24.91
	87.09	60	3.41	5.253E+00	2.234E+00	2.234E+00	99.55
	242.00	106	7.25	4.363E+00	2.248E+00	2.248E+00	46.16
	295.22	113	18.42	3.758E+00	1.093E+00	1.093E+00	36.27
U-235	351.93	274	35.60*	3.293E+00	1.563E+00	1.563E+00	14.85
	89.96	45	3.47	5.438E+00	1.604E+00	1.604E+00	62.49
	93.35	73	5.60	5.607E+00	1.564E+00	1.564E+00	69.94
	143.76	-----	10.96*	5.983E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.649E+00	-----	Line Not Found	-----
	185.72	69	57.20	5.240E+00	1.536E-01	1.536E-01	62.04
AM-243	205.31	-----	5.01	4.904E+00	-----	Line Not Found	-----
	43.53	-----	5.90	3.651E-01	-----	Line Not Found	-----
	74.66	134	67.20*	4.130E+00	3.223E-01	3.223E-01	33.63
ANH-511	511.00	24	100.00*	2.475E+00	6.583E-02	6.583E-02	120.98

Flag: "*" = Keyline

Total number of lines in spectrum 47
Number of unidentified lines 12
Number of lines tentatively identified by NID 35 74.47%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.815E+01	1.815E+01	0.234E+01	12.91	
CD-109	461.40D	1.06	2.059E+00	2.173E+00	2.163E+00	99.55	
SN-126	2.30E+05Y	1.00	2.059E-01	2.059E-01	2.049E-01	99.55	
TL-208	1.41E+10Y	1.00	3.370E-01	3.370E-01	1.119E-01	33.20	
BI-211	7.04E+08Y	1.00	4.308E+00	4.308E+00	0.640E+00	14.85	
BI-212	1.41E+10Y	1.00	1.272E+00	1.272E+00	0.969E+00	76.22	
PB-212	1.41E+10Y	1.00	9.598E-01	9.598E-01	1.470E-01	15.32	
BI-214	1600.00Y	1.00	9.973E-01	9.974E-01	2.493E-01	24.99	
PB-214	1600.00Y	1.00	1.563E+00	1.564E+00	0.232E+00	14.85	
RN-222	1600.00Y	1.00	9.973E-01	9.974E-01	2.493E-01	24.99	
RA-224	1.41E+10Y	1.00	3.974E+00	3.974E+00	1.835E+00	46.16	
RA-226	1600.00Y	1.00	1.563E+00	1.564E+00	0.232E+00	14.85	
AC-228	1.41E+10Y	1.00	9.403E-01	9.403E-01	4.173E-01	44.38	
RA-228	1.41E+10Y	1.00	9.403E-01	9.403E-01	4.173E-01	44.38	
TH-228	1.41E+10Y	1.00	9.598E-01	9.598E-01	1.470E-01	15.32	
TH-230	7.54E+04Y	1.00	1.563E+00	1.563E+00	0.232E+00	14.85	
PA-231	7.04E+08Y	1.00	7.793E-01	7.793E-01	8.942E-01	114.75	
TH-232	1.41E+10Y	1.00	9.403E-01	9.403E-01	4.173E-01	44.38	
U-234	2.45E+05Y	1.00	1.563E+00	1.563E+00	0.232E+00	14.85	
U-235	7.04E+08Y	1.00	1.536E-01	1.536E-01	0.953E-01	62.04	K
AM-243	7370.00Y	1.00	3.223E-01	3.223E-01	1.084E-01	33.63	
ANH-511	1.00E+09Y	1.00	6.583E-02	6.583E-02	7.964E-02	120.98	
Total Activity :			4.462E+01	4.473E+01			

Grand Total Activity : 4.462E+01 4.473E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	57.32	38	118	2.19	113.45	110	8	9.91E-03	****	1.82E+00	T
0	209.37	39	94	1.42	417.70	413	10	1.08E-02	99.9	4.84E+00	T
0	270.19	47	86	2.22	539.41	532	16	1.29E-02	96.8	4.02E+00	T
0	324.54	17	54	1.45	648.18	641	11	4.65E-03	****	3.50E+00	T
0	328.20	20	28	0.76	655.51	652	7	5.69E-03	96.6	3.47E+00	T
0	369.27	15	63	3.26	737.70	728	13	4.22E-03	****	3.18E+00	
0	410.44	12	35	1.01	820.09	814	10	3.45E-03	****	2.93E+00	T
0	503.66	9	20	0.81	1006.67	1000	10	2.65E-03	****	2.50E+00	
0	570.75	16	34	5.10	1140.97	1131	14	4.44E-03	****	2.27E+00	T
0	626.27	18	7	0.92	1252.11	1247	9	5.08E-03	69.3	2.10E+00	
1	733.14	17	14	1.91	1466.04	1450	21	4.86E-03	****	1.84E+00	T
0	768.55	16	23	1.75	1536.92	1529	11	4.58E-03	****	1.76E+00	
0	878.18	14	6	0.94	1756.41	1751	9	4.05E-03	82.6	1.56E+00	T
0	884.33	25	6	3.12	1768.73	1761	14	7.14E-03	58.5	1.55E+00	T
0	951.16	8	6	2.27	1902.55	1898	8	2.29E-03	****	1.45E+00	
0	1027.75	15	5	3.35	2055.90	2049	12	4.25E-03	81.7	1.35E+00	T
0	1038.32	9	1	1.35	2077.08	2074	6	2.66E-03	75.9	1.34E+00	T
0	1135.91	10	15	0.56	2272.50	2263	16	2.78E-03	****	1.23E+00	
0	1145.88	7	9	1.35	2292.46	2286	10	2.11E-03	****	1.22E+00	
0	1207.87	12	10	0.64	2416.60	2410	13	3.57E-03	****	1.16E+00	
0	1214.85	7	13	2.89	2430.59	2422	11	2.03E-03	****	1.16E+00	
0	1236.94	28	7	0.88	2474.83	2467	14	8.33E-03	52.3	1.14E+00	T
0	1278.15	7	4	1.35	2557.36	2553	8	1.94E-03	****	1.11E+00	
0	1303.04	15	3	1.39	2607.22	2599	13	4.28E-03	70.6	1.09E+00	
0	1308.04	6	5	1.24	2617.23	2612	11	1.90E-03	****	1.08E+00	
0	1333.07	11	3	1.48	2667.36	2660	14	3.25E-03	89.2	1.07E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299025.CNF;2 *
* Acquisition date : 1-AUG-2024 10:04:51 Sensitivity : 3.000 *
* Detector ID : GAM06 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.63 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:25:00 Nuclide Library : SOLID *
* Sample ID : G674299025 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1230E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.124E-01
CD-109	7.516E-01
SN-126	7.546E-02
TL-208	3.709E-02
BI-211	1.880E-01
BI-212	5.068E-01
PB-212	5.387E-02
BI-214	7.043E-02
PB-214	6.838E-02
RN-222	7.043E-02
RA-224	5.778E-01
RA-226	6.838E-02
AC-228	1.494E-01
RA-228	1.494E-01
TH-228	5.387E-02
TH-230	6.837E-02
PA-231	4.315E-01
TH-232	1.494E-01
U-234	6.837E-02
U-235	1.920E-01
AM-243	4.522E-02
ANH-511	2.988E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.100E-01	NOT IDENT.
NA-22	5.054E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.377E-02	NOT IDENT.
SC-46	5.222E-02	FAIL ABUN
V-48	1.905E-01	NOT IDENT.
CR-51	6.571E-01	NOT IDENT.
MN-52	2.758E+00	NOT IDENT.
MN-54	4.834E-02	NOT IDENT.

CO-56	5.978E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.406E-02	NOT IDENT.
CO-58	3.935E-02	NOT IDENT.
FE-59	1.607E-01	NOT IDENT.
CO-60	4.893E-02	FAIL ABUN
ZN-65	9.435E-02	NOT IDENT.
GE-68	1.415E+00	NOT IDENT.
AS-73	1.277E+00	NOT IDENT.
AS-74	2.104E-01	NOT IDENT.
SE-75	4.835E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.504E-01	NOT IDENT.
RB-83	8.664E-02	NOT IDENT.
RB-84	9.512E-02	NOT IDENT.
KR-85	7.056E+00	NOT IDENT.
SR-85	4.650E-02	NOT IDENT.
RB-86	1.831E+00	NOT IDENT.
Y-88	4.299E-02	NOT IDENT.
Y-91	2.730E+01	NOT IDENT.
NB-94	3.519E-02	NOT IDENT.
NB-95	6.163E-02	NOT IDENT.
NB-95M	1.616E-01	NOT IDENT.
ZR-95	8.441E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.614E-02	FAIL ABUN
RH-102	6.235E-02	NOT IDENT.
RU-103	6.299E-02	FAIL ABUN
RH-106	3.328E-01	NOT IDENT.
RU-106	3.328E-01	NOT IDENT.
AG-108M	2.845E-02	NOT IDENT.
AG-110	6.752E-01	NOT IDENT.
AG-110M	7.428E-02	FAIL ABUN
SN-113	5.548E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.532E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.138E-02	NOT IDENT.
SB-124	9.611E-02	NOT IDENT.
SB-125	8.364E-02	NOT IDENT.
TE-125M	1.079E+01	NOT IDENT.
I-126	6.637E-01	NOT IDENT.
SB-126	5.023E-01	NOT IDENT.
SB-127	5.947E+01	NOT IDENT.
I-131	7.229E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.263E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.364E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.640E-01	NOT IDENT.
BA-137M	3.780E-02	NOT IDENT.
CS-137	3.994E-02	NOT IDENT.
LA-138	4.626E-02	NOT IDENT.
CE-139	3.193E-02	NOT IDENT.
BA-140	7.223E-01	NOT IDENT.
LA-140	2.692E-01	FAIL ABUN
CE-141	9.522E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.694E-01	NOT IDENT.
PM-144	3.640E-02	NOT IDENT.
PR-144	2.757E+00	NOT IDENT.
PM-146	5.005E-02	NOT IDENT.
ND-147	2.284E+00	FAIL ABUN
PM-147	6.802E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.657E-02	FAIL ABUN
EU-152	1.010E-01	NOT IDENT.
GD-153	7.844E-02	NOT IDENT.
EU-154	1.451E-01	NOT IDENT.
EU-155	1.070E-01	FAIL ABUN
TB-160	1.733E-01	FAIL ABUN
HO-166M	6.810E-02	FAIL ABUN
TM-171	2.142E+01	NOT IDENT.

HF-172	1.763E-01	NOT IDENT.
LU-172	7.414E-02	FAIL ABUN
LU-176	2.491E-02	FAIL ABUN
HF-181	7.333E-02	FAIL ABUN
TA-182	2.488E-01	FAIL ABUN
RE-183	2.887E-01	FAIL ABUN
RE-184	1.792E-01	NOT IDENT.
W-188	9.024E+00	NOT IDENT.
IR-192	4.172E-02	FAIL ABUN
HG-203	5.159E-02	NOT IDENT.
TL-204	4.489E+00	NOT IDENT.
BI-207	4.838E-02	FAIL ABUN
BI-210	4.812E+00	NOT IDENT.
PB-210	4.812E+00	NOT IDENT.
PB-211	6.821E-01	NOT IDENT.
BI-213	1.104E-01	NOT IDENT.
RN-219	4.268E-01	FAIL ABUN
RA-223	7.291E-01	FAIL ABUN
AC-225	2.454E+00	NOT IDENT.
AC-227	2.279E-01	FAIL ABUN
TH-227	2.279E-01	FAIL ABUN
TH-229	5.017E-01	FAIL ABUN
TH-231	7.291E-01	FAIL ABUN
PA-233	5.875E-02	FAIL ABUN
PA-234	2.396E-01	FAIL ABUN
PA-234M	5.425E+00	NOT IDENT.
TH-234	1.467E+00	FAIL ABUN
NP-237	5.875E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	1.467E+00	FAIL ABUN
NP-239	2.208E-01	NOT IDENT.
PU-239	3.459E+02	NOT IDENT.
AM-241	1.592E-01	NOT IDENT.
CM-243	9.687E-02	NOT IDENT.
BK-247	7.778E-02	NOT IDENT.
CM-247	3.905E-02	NOT IDENT.
CF-249	3.778E-02	NOT IDENT.
CF-251	1.241E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299025.CNF;2
Acquisition date : 1-AUG-2024 10:04:51 Sensitivity : 3.000
Detector ID : GAM06 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.63 Half life ratio : *****
Sample date : 26-JUN-2024 11:25:00 Nuclide Library : SOLID
Sample ID : G674299025 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1230E+02 GRAM
Quantity Err(%) : 1.7809E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.815E+01	2.861E+00	2.861E+00
CD-109	2.173E+00	2.133E+00	2.133E+00
SN-126	2.059E-01	2.017E-01	2.017E-01
TL-208	3.370E-01	1.135E-01	1.135E-01
BI-211	4.308E+00	7.176E-01	7.176E-01
BI-212	1.272E+00	9.572E-01	9.572E-01
PB-212	9.598E-01	1.639E-01	1.639E-01
BI-214	9.974E-01	2.594E-01	2.594E-01
PB-214	1.564E+00	2.592E-01	2.592E-01
RN-222	9.974E-01	2.594E-01	2.594E-01
RA-224	3.974E+00	1.827E+00	1.827E+00
RA-226	1.564E+00	2.592E-01	2.592E-01
AC-228	9.403E-01	4.192E-01	4.192E-01
RA-228	9.403E-01	4.192E-01	4.192E-01
TH-228	9.598E-01	1.639E-01	1.639E-01
TH-230	1.563E+00	2.592E-01	2.592E-01
PA-231	7.793E-01	8.933E-01	8.933E-01
TH-232	9.403E-01	4.192E-01	4.192E-01
U-234	1.563E+00	2.592E-01	2.592E-01
U-235	-8.501E-03	2.318E-01	2.318E-01
AM-243	3.223E-01	1.099E-01	1.099E-01
ANH-511	6.583E-02	7.825E-02	7.825E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-3.878E-01	5.436E-01	5.710E-01	NOT IDENT.
NA-22	-1.814E-02	7.531E-02	7.575E-02	NOT IDENT.
NA-24	-5.615E+15	9.122E+15	9.467E+15	SHORT HLIF
AL-26	1.179E-02	3.569E-02	3.608E-02	NOT IDENT.
SC-46	6.064E-02	5.325E-02	5.985E-02	FAIL ABUN
V-48	-9.524E-02	2.426E-01	2.463E-01	NOT IDENT.
CR-51	3.172E-01	7.900E-01	8.028E-01	NOT IDENT.
MN-52	-1.129E-01	3.434E+00	3.434E+00	NOT IDENT.

MN-54	4.539E-02	4.983E-02	5.387E-02	NOT IDENT.
CO-56	5.299E-02	6.179E-02	6.624E-02	FAIL ABUN
MN-56	1.000E+41	1.162E+41	0.000E+00	SHORT HLIF
CO-57	-8.218E-03	2.902E-02	2.926E-02	NOT IDENT.
CO-58	-3.146E-02	5.208E-02	5.397E-02	NOT IDENT.
FE-59	1.475E-02	1.898E-01	1.899E-01	NOT IDENT.
CO-60	7.030E-02	6.179E-02	6.945E-02	FAIL ABUN
ZN-65	-1.231E-01	1.602E-01	1.696E-01	NOT IDENT.
GE-68	-8.739E-01	1.857E+00	1.898E+00	NOT IDENT.
AS-73	6.374E-01	1.383E+00	1.412E+00	NOT IDENT.
AS-74	9.226E-02	2.386E-01	2.422E-01	NOT IDENT.
SE-75	-6.680E-03	6.686E-02	6.693E-02	NOT IDENT.
BR-77	6.508E+04	6.845E+04	7.447E+04	SHORT HLIF
SR-82	1.639E-01	6.062E-01	6.107E-01	NOT IDENT.
RB-83	2.393E-03	1.031E-01	1.032E-01	NOT IDENT.
RB-84	1.258E-01	8.104E-02	9.891E-02	NOT IDENT.
KR-85	5.826E+00	8.216E+00	8.626E+00	NOT IDENT.
SR-85	3.821E-02	5.417E-02	5.685E-02	NOT IDENT.
RB-86	-1.131E+00	2.403E+00	2.456E+00	NOT IDENT.
Y-88	4.716E-03	4.956E-02	4.960E-02	NOT IDENT.
Y-91	1.705E+00	3.718E+01	3.719E+01	NOT IDENT.
NB-94	4.953E-03	4.242E-02	4.248E-02	NOT IDENT.
NB-95	1.514E-02	7.766E-02	7.796E-02	NOT IDENT.
NB-95M	1.986E-01	1.915E-01	2.114E-01	NOT IDENT.
ZR-95	-2.186E-02	1.011E-01	1.016E-01	NOT IDENT.
NB-97	-1.000E+41	2.041E+41	0.000E+00	SHORT HLIF
ZR-97	-6.701E+14	2.200E+15	2.221E+15	SHORT HLIF
MO-99	-2.067E+03	2.939E+03	3.083E+03	SHORT HLIF
TC-99M	1.000E+41	1.071E+41	0.000E+00	SHORT HLIF
RH-101	-3.192E-02	3.444E-02	3.732E-02	FAIL ABUN
RH-102	3.333E-02	7.041E-02	7.199E-02	NOT IDENT.
RU-103	1.966E-02	7.538E-02	7.590E-02	FAIL ABUN
RH-106	4.015E-02	4.447E-01	4.450E-01	NOT IDENT.
RU-106	4.015E-02	4.447E-01	4.450E-01	NOT IDENT.
AG-108M	5.452E-03	3.263E-02	3.272E-02	NOT IDENT.
AG-110	-3.266E-01	8.919E-01	9.040E-01	NOT IDENT.
AG-110M	1.613E-01	9.386E-02	1.187E-01	FAIL ABUN
SN-113	3.513E-02	6.044E-02	6.248E-02	NOT IDENT.
CD-115	6.478E+03	9.346E+03	9.792E+03	SHORT HLIF
SN-117M	4.716E-02	1.789E-01	1.802E-01	NOT IDENT.
SB-122	-1.037E+02	5.725E+02	5.744E+02	SHORT HLIF
TE-123M	2.418E-02	3.527E-02	3.691E-02	NOT IDENT.
SB-124	4.920E-02	9.300E-02	9.561E-02	NOT IDENT.
SB-125	-5.235E-02	1.059E-01	1.085E-01	NOT IDENT.
TE-125M	-2.642E+00	1.282E+01	1.287E+01	NOT IDENT.
I-126	4.535E-01	7.249E-01	7.532E-01	NOT IDENT.
SB-126	6.305E-02	6.084E-01	6.091E-01	NOT IDENT.
SB-127	-1.780E+00	7.331E+01	7.332E+01	NOT IDENT.
I-131	2.972E-02	9.266E-01	9.267E-01	NOT IDENT.
I-132	-1.000E+41	7.968E+41	0.000E+00	SHORT HLIF
TE-132	7.475E+01	8.224E+01	8.888E+01	SHORT HLIF
BA-133	1.389E-02	5.257E-02	5.294E-02	NOT IDENT.
I-133	-1.228E+11	1.414E+11	1.519E+11	SHORT HLIF
CS-134	6.166E-02	5.381E-02	6.057E-02	FAIL ABUN
I-135	1.148E+38	6.178E+38	0.000E+00	SHORT HLIF
CS-136	1.740E-01	4.006E-01	4.082E-01	NOT IDENT.
BA-137M	1.699E-02	4.324E-02	4.391E-02	NOT IDENT.
CS-137	1.795E-02	4.568E-02	4.639E-02	NOT IDENT.
LA-138	-1.770E-02	6.337E-02	6.387E-02	NOT IDENT.
CE-139	9.333E-03	3.749E-02	3.772E-02	NOT IDENT.
BA-140	1.626E-01	8.348E-01	8.380E-01	NOT IDENT.
LA-140	2.558E-03	3.159E-01	3.159E-01	FAIL ABUN
CE-141	3.646E-02	1.100E-01	1.112E-01	NOT IDENT.
CE-143	1.269E+06	5.682E+06	5.711E+06	SHORT HLIF
CE-144	-1.621E-01	2.171E-01	2.291E-01	NOT IDENT.
PM-144	-7.161E-03	4.604E-02	4.616E-02	NOT IDENT.
PR-144	-5.304E-01	3.485E+00	3.494E+00	NOT IDENT.
PM-146	1.791E-02	5.686E-02	5.743E-02	NOT IDENT.
ND-147	1.248E+00	2.543E+00	2.605E+00	FAIL ABUN
PM-147	2.939E+01	7.955E+02	7.956E+02	NOT IDENT.
PM-149	-3.106E+04	7.128E+04	7.264E+04	SHORT HLIF
EU-150	-1.832E-02	3.667E-02	3.759E-02	FAIL ABUN
EU-152	1.634E-02	1.146E-01	1.148E-01	NOT IDENT.
GD-153	-1.616E-03	9.795E-02	9.796E-02	NOT IDENT.
EU-154	-4.040E-02	2.127E-01	2.135E-01	NOT IDENT.
EU-155	6.087E-02	1.195E-01	1.226E-01	FAIL ABUN
TB-160	2.806E-01	2.289E-01	2.615E-01	FAIL ABUN
HO-166M	1.047E-02	8.210E-02	8.224E-02	FAIL ABUN

TM-171	-5.638E+00	2.434E+01	2.447E+01	NOT IDENT.
HF-172	9.904E-02	1.988E-01	2.037E-01	NOT IDENT.
LU-172	-2.025E-02	9.238E-02	9.283E-02	FAIL ABUN
LU-176	-1.678E-02	3.032E-02	3.125E-02	FAIL ABUN
HF-181	2.044E-02	8.437E-02	8.488E-02	FAIL ABUN
TA-182	1.119E-02	2.988E-01	2.989E-01	FAIL ABUN
RE-183	5.806E-01	6.151E-01	6.685E-01	FAIL ABUN
RE-184	-9.314E-02	2.282E-01	2.320E-01	NOT IDENT.
W-188	-4.269E+00	1.195E+01	1.210E+01	NOT IDENT.
IR-192	8.119E-03	4.683E-02	4.698E-02	FAIL ABUN
HG-203	3.183E-03	5.814E-02	5.816E-02	NOT IDENT.
TL-204	-1.378E+00	5.606E+00	5.641E+00	NOT IDENT.
BI-207	-1.163E-02	6.026E-02	6.048E-02	FAIL ABUN
BI-210	-4.039E-01	5.362E+00	5.365E+00	NOT IDENT.
PB-210	-4.039E-01	5.362E+00	5.365E+00	NOT IDENT.
PB-211	-2.694E-01	9.365E-01	9.443E-01	NOT IDENT.
BI-213	6.905E-02	1.205E-01	1.245E-01	NOT IDENT.
RN-219	-1.113E-01	5.120E-01	5.145E-01	FAIL ABUN
RA-223	7.986E-01	1.421E+00	1.465E+00	FAIL ABUN
AC-225	1.297E-01	3.000E+00	3.001E+00	NOT IDENT.
AC-227	4.151E-02	2.782E-01	2.788E-01	FAIL ABUN
TH-227	4.151E-02	2.782E-01	2.788E-01	FAIL ABUN
TH-229	3.490E-01	5.726E-01	5.938E-01	FAIL ABUN
TH-231	7.986E-01	1.421E+00	1.465E+00	FAIL ABUN
PA-233	-2.878E-02	7.055E-02	7.173E-02	FAIL ABUN
PA-234	-2.436E-01	4.853E-01	4.975E-01	FAIL ABUN
PA-234M	2.806E+00	5.948E+00	6.081E+00	NOT IDENT.
TH-234	1.120E+00	1.578E+00	1.657E+00	FAIL ABUN
NP-237	-2.878E-02	7.055E-02	7.173E-02	FAIL ABUN
NP-238	-9.191E+03	2.605E+04	2.638E+04	SHORT HLIF
U-238	1.120E+00	1.578E+00	1.657E+00	FAIL ABUN
NP-239	-1.011E-01	2.686E-01	2.724E-01	NOT IDENT.
PU-239	2.822E+02	3.844E+02	4.049E+02	NOT IDENT.
AM-241	-2.268E-02	1.926E-01	1.929E-01	NOT IDENT.
CM-243	-5.223E-02	1.180E-01	1.203E-01	NOT IDENT.
BK-247	1.054E-02	1.041E-01	1.042E-01	NOT IDENT.
CM-247	2.453E-02	4.268E-02	4.409E-02	NOT IDENT.
CF-249	-1.089E-02	4.543E-02	4.570E-02	NOT IDENT.
CF-251	5.880E-03	1.493E-01	1.494E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	56.0889	85.43	86.0331	131.20	62.3748
45.60	46.0751	86.55	86.2902	133.02	60.5422
46.54	58.4272	86.79	86.3443	133.52	59.5735
49.72	0.0000	86.94	86.3792	136.00	52.6319
51.35	62.8639	87.09	86.4134	136.47	58.8761
51.87	62.9891	87.57	86.5223	140.51	0.0000
52.39	57.3008	88.03	77.9643	143.76	61.7701
52.97	59.9233	88.34	78.0271	144.24	55.5361
53.44	54.1927	88.47	78.0534	145.44	57.7569
54.07	46.7988	89.96	65.9184	152.43	60.6008
57.36	0.0000	1093.63	66.0333	153.25	59.6222
57.53	63.4689	91.11	66.1125	323.87	56.5220
57.98	63.5696	92.59	66.3611	156.02	59.9067
59.27	52.2212	93.35	66.4883	158.56	53.7193
59.32	52.2303	94.56	66.6894	159.00	46.2321
59.54	55.6790	94.65	66.7040	162.33	56.2204
60.96	59.3768	94.67	66.7072	162.66	51.9236
61.17	68.5608	94.87	66.7406	163.33	60.6450
62.93	68.9679	97.43	57.0232	165.86	52.1968
63.29	53.5142	98.43	69.8639	176.31	47.5424
63.58	50.9737	98.44	69.8656	176.60	50.8824
64.28	77.9362	99.53	63.6805	177.52	53.1702
66.73	67.2093	100.11	62.1743	181.07	0.0000
67.24	76.0613	102.03	68.2228	181.52	47.5527
125.81	75.2920	103.18	70.3328	184.41	49.2523
67.75	77.0598	103.37	64.5806	143.76	49.3489
68.89	71.1852	105.21	57.1117	193.51	39.7061
69.67	74.0012	105.31	60.9981	197.03	49.0285
70.82	69.5475	106.12	61.1110	198.01	54.8057
70.83	69.5505	106.47	62.1304	201.83	49.3612
72.81	71.1548	109.28	57.6401	203.43	51.7724
72.87	71.1676	111.00	62.7637	205.31	59.9822
74.66	61.7100	111.76	0.0000	210.85	46.4899
74.82	61.7390	114.06	63.1846	215.65	53.8080
74.97	61.7663	116.30	0.0000	218.12	46.9421
77.11	62.1517	116.74	54.6119	222.11	44.8281
78.74	62.4423	119.76	58.9568	227.09	51.0520
79.69	68.9614	121.12	54.1129	227.38	51.0704
80.03	62.9714	121.22	54.1240	228.16	0.0000
80.12	62.9883	121.78	60.2074	228.18	40.4225
80.19	63.0005	122.06	60.2417	116.74	40.4225
80.57	61.8548	122.92	51.2957	235.69	36.8041
81.00	70.4291	123.07	51.3117	235.96	43.2191
81.07	70.4426	265.00	51.3755	238.63	43.3614
81.75	76.6595	125.81	46.5384	238.98	0.0000
82.47	69.4966	127.23	65.9472	240.99	43.4861
83.79	73.4180	127.91	64.0048	242.00	43.5394
84.00	73.4595	129.30	56.0306	244.70	30.7389

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	30.6126	344.28	30.5102	563.25	20.5656
252.80	28.1765	345.93	30.5559	564.24	0.0000
254.15	0.0000	351.06	26.1839	569.33	20.1117
256.23	30.7493	351.93	26.2040	946.00	20.1141
260.90	0.0000	355.39	0.0000	569.70	20.1164
264.66	38.0844	356.01	25.8461	583.19	20.2787
264.80	38.0900	364.49	28.7808	584.27	20.2911
265.00	34.7855	366.42	0.0000	595.83	13.9775
269.46	43.6998	372.51	34.5001	427.87	17.2507
270.03	43.7276	375.05	21.2064	602.52	0.0000
271.23	41.7002	377.52	31.4143	604.72	17.8314
273.65	36.3766	356.01	25.0796	607.14	12.9863
276.40	49.0666	388.16	27.0335	609.32	19.5037
277.37	41.1424	388.63	27.9767	610.33	19.5146
277.60	31.9141	391.69	23.3729	614.28	21.1885
278.00	29.4073	264.66	30.1361	618.01	17.4219
279.20	37.0176	401.81	32.0493	620.36	18.3169
279.54	43.7639	402.40	20.7476	621.93	16.3690
279.70	43.7713	404.85	28.3478	630.19	0.0000
280.46	49.7044	410.95	15.6671	631.29	15.3569
283.69	36.3512	413.71	28.5474	633.25	14.2754
284.31	35.5289	414.70	30.8549	634.78	21.9808
285.41	38.9585	423.72	15.3441	635.95	10.9973
285.90	0.0000	427.09	19.2297	636.99	14.3050
287.50	37.3470	427.87	25.9755	657.50	16.6895
290.67	44.7102	433.94	19.3302	657.76	16.6919
293.27	0.0000	439.40	20.3801	657.90	0.0000
351.93	38.5052	440.45	18.4534	661.66	14.4959
295.96	28.2587	453.88	26.4836	664.57	0.0000
879.38	33.4863	463.37	22.7150	666.33	10.0605
299.98	30.9551	468.07	24.7732	666.50	10.0613
300.09	30.9580	473.00	25.8535	667.71	0.0000
300.13	30.9595	475.06	15.9329	677.62	22.4886
301.36	29.7067	476.78	24.9252	685.70	18.0664
302.85	38.8065	477.60	29.9274	692.65	0.0000
256.23	31.0972	482.18	26.0196	695.00	17.0178
304.85	27.9973	487.02	18.0736	696.49	19.3014
306.78	38.0945	492.35	0.0000	696.51	19.3014
308.46	26.8841	497.08	20.6237	697.00	17.0349
311.90	33.0675	505.52	32.5345	697.30	18.1738
316.51	28.8468	507.63	0.0000	697.49	18.1751
319.41	31.5586	511.00	22.4485	702.65	17.0837
320.08	28.9475	514.00	13.8027	706.68	14.8361
321.04	30.2914	514.00	13.8027	711.68	18.3053
323.87	34.3353	520.40	20.5339	720.70	17.2382
325.23	18.5126	520.69	0.0000	721.93	0.0000
328.76	37.1499	522.65	0.0000	722.78	17.2552
333.37	35.9789	527.90	0.0000	722.91	17.2565
333.97	39.9985	528.26	16.5104	723.31	24.1642
334.37	40.0140	529.59	28.9172	724.19	18.9942
338.28	27.6655	529.87	0.0000	727.33	16.1414
338.32	27.6661	531.02	16.5391	733.00	16.1858
311.90	32.1929	537.26	12.4536	735.93	13.8931
340.48	32.1929	546.56	0.0000	333.97	5.2137
340.55	32.1951	552.55	22.0032	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	18.5983	949.00	6.0936	1384.29	5.4895
747.24	16.2969	667.71	0.0000	1408.01	4.4207
748.06	15.1386	962.31	19.9056	1434.09	4.4521
752.31	19.2534	964.08	18.3873	1435.80	5.5676
753.82	15.7643	966.17	23.0024	1457.56	0.0000
756.73	14.9087	911.20	23.0266	1460.82	7.8472
756.80	14.9092	983.53	17.3655	1489.16	6.3246
884.68	18.3035	984.45	0.0000	1505.03	11.7946
765.81	19.7285	1274.44	19.3872	1584.12	11.1076
766.42	20.2626	1001.03	11.6532	1596.21	4.6418
766.84	20.2668	1002.74	13.6039	1620.50	1.8678
772.60	0.0000	1004.73	16.5310	1621.92	2.8027
776.52	9.7365	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	0.9497
778.90	10.6333	1028.54	0.0000	1750.46	0.0000
783.70	19.5374	1037.84	15.7471	1764.49	1.6096
788.74	24.0329	1038.76	0.0000	1063.66	0.9670
792.07	23.1777	631.29	13.8223	1771.35	0.9673
795.86	10.7161	1048.07	9.8785	1791.20	0.0000
810.06	13.4807	1049.04	9.8816	1808.65	1.9506
810.29	14.3809	1050.41	10.8751	1810.72	0.0000
344.28	14.3818	1063.66	10.9261	1836.06	2.9435
810.76	14.3838	1077.00	16.9647		
815.77	14.4155	1077.34	16.9668		
1048.07	9.0207	1085.87	13.0127		
832.01	10.8893	1093.63	16.0586		
834.85	11.8110	1099.45	17.0965		
835.71	15.4509	1112.07	11.1101		
836.80	0.0000	1112.84	11.1128		
846.75	0.0000	1115.54	22.6502		
846.77	10.9589	1120.29	12.1538		
856.80	22.0115	1120.55	12.1545		
860.56	14.6978	1221.41	12.9688		
871.09	11.0720	1129.67	11.3791		
873.19	10.3431	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	0.0000	1173.23	15.4596		
880.51	0.0000	1177.95	12.3860		
881.60	0.0000	1189.05	15.5383		
883.24	13.3541	1204.77	11.6594		
884.68	13.3620	1221.41	15.6976		
889.28	4.4624	1231.02	20.1527		
894.76	9.3176	1235.36	14.7144		
898.04	14.9282	1238.28	10.0986		
900.72	12.1423	1260.41	0.0000		
903.28	14.9600	1271.87	13.3602		
911.20	14.0698	1274.44	15.3158		
912.08	14.0749	1274.54	15.3158		
923.98	0.0000	1291.59	9.6213		
926.50	13.2122	1298.22	0.0000		
929.11	9.4470	1312.11	6.8832		
935.54	14.2067	1332.49	7.5734		
937.49	15.1655	1362.66	0.0000		
944.13	7.6023	1365.19	3.2761		
946.00	13.6942	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:11:03.78

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299026.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM06.CNF;954
Background date    : 28-JUL-2024 11:21:57
Sample date       : 26-JUN-2024 11:30:00 Acquisition date : 31-JUL-2024 16:09:56
Sample ID        : G674299026 Sample quantity : 1.40020E+02 GRAM
Detector name     : GAM06 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:01.63 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.56*	86	648	0.89	125.94	122	8	2.40E-02	52.4	
2	2	74.93	488	628	1.08	148.69	144	13	1.35E-01	9.6	1.61E+00
3	2	77.23	898	499	0.95	153.30	144	13	2.50E-01	5.3	
4	3	84.28	175	477	1.21	167.39	164	18	4.86E-02	22.1	2.06E+00
5	3	87.38	355	484	1.22	173.59	164	18	9.85E-02	11.5	
6	3	90.00	162	490	1.24	178.84	164	18	4.50E-02	24.0	
7	0	92.97*	477	694	1.15	184.78	181	10	1.33E-01	11.4	
8	0	144.05*	54	473	0.91	287.00	284	8	1.49E-02	71.7	
9	0	155.03	30	451	1.15	308.96	303	8	8.40E-03	123.2	
10	0	186.12*	651	524	1.16	371.18	366	12	1.81E-01	8.1	
11	0	208.87	57	351	0.96	416.70	413	9	1.58E-02	60.7	
12	3	238.75*	416	268	0.98	476.49	472	19	1.16E-01	7.8	1.01E+00
13	3	242.07	672	248	1.12	483.14	472	19	1.87E-01	5.6	
14	0	255.51	22	183	0.77	510.03	508	7	5.99E-03	106.5	
15	7	258.87	82	101	1.50	516.76	514	13	2.26E-02	21.2	1.18E+00
16	7	261.80	77	203	1.74	522.61	514	13	2.13E-02	37.6	
17	2	269.60*	72	175	1.34	538.24	535	11	1.99E-02	31.5	1.30E+00
18	2	270.98*	57	222	1.25	541.00	535	11	1.58E-02	49.8	
19	0	295.26*	1475	262	1.21	589.58	585	12	4.10E-01	3.4	
20	0	302.91	50	112	1.75	604.90	602	7	1.39E-02	38.2	
21	0	338.59	105	187	1.20	676.29	672	9	2.91E-02	25.5	
22	0	351.91*	2551	266	1.26	702.95	696	14	7.09E-01	2.4	
23	0	357.42	29	116	1.84	713.99	712	8	7.97E-03	67.3	
24	0	379.50	20	93	1.04	758.17	755	7	5.45E-03	84.5	
25	0	462.84	56	80	2.32	924.97	920	10	1.57E-02	32.5	
26	0	480.27	63	83	1.97	959.85	955	12	1.76E-02	31.1	
27	0	486.72	37	96	0.74	972.77	967	11	1.03E-02	53.9	
28	0	510.80*	73	151	2.06	1020.98	1014	17	2.03E-02	41.8	
29	0	519.59	21	55	0.95	1038.56	1033	8	5.82E-03	66.8	
30	0	583.48*	128	104	1.40	1166.45	1160	11	3.56E-02	18.0	
31	0	609.20*	1804	48	1.42	1217.93	1212	12	5.01E-01	2.5	
32	0	661.52	39	54	0.62	1322.66	1318	9	1.08E-02	37.8	
33	0	665.44	49	63	0.88	1330.51	1326	9	1.36E-02	32.5	
34	0	677.20	21	32	1.20	1354.05	1350	7	5.80E-03	51.2	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	703.85*	27	76	1.92	1407.40	1401	13	7.58E-03	68.9	
36	0	722.91	20	94	3.24	1445.56	1432	15	5.63E-03	106.4	
37	0	726.61	41	51	4.25	1452.97	1447	11	1.14E-02	37.5	
38	0	742.95	40	53	2.67	1485.68	1476	14	1.11E-02	41.6	
39	0	768.22	148	114	1.31	1536.26	1530	14	4.12E-02	17.2	
40	0	785.96	57	57	1.40	1571.79	1567	13	1.59E-02	29.9	
41	0	806.36	43	44	1.22	1612.63	1607	10	1.21E-02	32.5	
42	0	838.65	39	48	3.33	1677.27	1671	12	1.08E-02	39.2	
43	0	860.54	27	70	0.59	1721.10	1711	15	7.57E-03	70.0	
44	0	911.57*	119	76	1.94	1823.28	1816	18	3.32E-02	20.0	
45	0	934.51	38	75	1.32	1869.21	1863	10	1.04E-02	46.1	
46	1	963.93	28	53	2.11	1928.12	1921	28	7.75E-03	54.4	1.39E+00
47	1	968.73	72	42	2.11	1937.73	1921	28	2.00E-02	22.9	
48	0	996.56	18	22	3.55	1993.44	1987	11	5.00E-03	55.7	
49	0	1001.41	63	18	1.88	2003.16	1998	13	1.75E-02	19.1	
50	0	1044.47	24	26	3.96	2089.39	2083	13	6.57E-03	49.1	
51	0	1083.85	22	23	2.79	2168.24	2164	8	6.07E-03	44.1	
52	0	1089.27	21	22	0.81	2179.10	2174	11	5.83E-03	48.4	
53	0	1119.79	387	27	1.71	2240.22	2232	15	1.08E-01	5.8	
54	0	1155.19	55	34	2.89	2311.09	2303	15	1.53E-02	26.6	
55	0	1191.09	17	30	1.62	2383.00	2376	12	4.72E-03	68.9	
56	0	1237.74	139	28	1.97	2476.43	2467	15	3.86E-02	11.7	
57	0	1280.10	51	35	2.71	2561.26	2550	20	1.42E-02	31.6	
58	0	1319.63	11	37	4.75	2640.45	2628	20	3.03E-03	136.8	
59	0	1350.56	21	14	2.02	2702.38	2696	13	5.95E-03	41.0	
60	0	1377.23	110	39	2.14	2755.81	2750	15	3.07E-02	15.8	
61	0	1384.74	18	14	2.84	2770.84	2766	10	4.97E-03	46.6	
62	2	1400.98	34	25	2.67	2803.38	2796	27	9.40E-03	34.9	7.61E-01
63	2	1407.58	68	15	2.67	2816.59	2796	27	1.89E-02	16.6	
64	0	1424.59	19	6	1.06	2850.68	2847	8	5.21E-03	34.1	
65	0	1460.28	175	50	1.71	2922.16	2914	18	4.86E-02	12.1	
66	0	1509.52	55	23	4.86	3020.80	3013	17	1.54E-02	24.6	
67	0	1542.04	44	24	7.45	3085.94	3071	24	1.22E-02	33.0	
68	3	1582.42	19	11	3.08	3166.82	3160	32	5.36E-03	50.9	1.01E+00
69	3	1588.34	17	24	3.08	3178.68	3160	32	4.81E-03	70.8	
70	0	1599.48	28	14	2.92	3201.01	3192	14	7.69E-03	34.5	
71	0	1612.66	5	6	1.12	3227.40	3218	12	1.39E-03	107.7	
72	0	1660.09	26	8	1.58	3322.43	3314	15	7.08E-03	30.7	
73	0	1675.43	11	4	5.32	3353.16	3346	14	3.11E-03	46.6	
74	0	1692.31	9	10	3.53	3386.97	3378	13	2.60E-03	76.2	
75	0	1728.95	70	11	1.93	3460.38	3454	14	1.94E-02	15.5	
76	0	1763.86	307	11	2.34	3530.34	3519	21	8.52E-02	6.3	
77	0	1815.93	9	7	0.57	3634.67	3626	14	2.50E-03	70.7	
78	0	1846.58	68	9	3.50	3696.07	3685	18	1.89E-02	15.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299026.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 11:30:00 Acquisition date : 31-JUL-2024 16:09:56
Sample ID : G674299026 Sample quantity : 140.02 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA6 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.63 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.865E-01	8.558E+00	8.558E+00	24.17	OK
CD-109	88.03	3.70*	5.264E+00	1.176E+01	1.239E+01	22.95	OK
SB-124	722.78	10.76	1.860E+00	5.537E-01	8.306E-01	212.87	OK
	1690.97	47.57*	8.856E-01	1.124E-01	1.687E-01	152.42	OK
SN-126	64.28	9.60	2.679E+00	2.214E+00	2.214E+00	104.86	OK
	86.94	8.90	5.264E+00	4.887E+00	4.887E+00	22.95	OK
	87.57	37.00*	5.264E+00	1.176E+00	1.176E+00	22.95	OK
BA-137M	661.66	89.90*	2.007E+00	1.184E-01	1.187E-01	75.51	OK
CS-137	661.66	85.10*	2.007E+00	1.251E-01	1.254E-01	75.51	OK
TL-208	277.37	6.60	3.940E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.227E+00	3.767E-01	3.767E-01	36.03	OK
	860.56	12.50	1.593E+00	7.372E-01	7.372E-01	140.02	OK
BI-211	72.87	1.23	3.892E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.294E+00	3.479E+01	3.479E+01	4.81	OK
BI-212	727.33	6.67*	1.852E+00	1.813E+00	1.813E+00	74.94	OK
	1620.50	1.47	9.117E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.131E+00	7.493E+00	7.493E+00	19.20	OK
	77.11	17.10	4.381E+00	7.808E+00	7.808E+00	10.61	OK
	238.63	43.60*	4.404E+00	1.297E+00	1.297E+00	15.62	OK
	300.09	3.30	3.714E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	2.150E+00	1.023E+01	1.023E+01	4.96	OK
	1120.29	14.92	1.248E+00	1.095E+01	1.095E+01	11.69	OK
	1764.49	15.30	8.636E-01	1.173E+01	1.173E+01	12.59	OK
PB-214	74.82	5.80	4.131E+00	1.328E+01	1.328E+01	19.20	OK
	77.11	9.70	4.381E+00	1.376E+01	1.376E+01	10.61	OK
	87.09	3.41	5.264E+00	1.275E+01	1.276E+01	22.95	OK
	242.00	7.25	4.359E+00	1.270E+01	1.270E+01	11.17	OK
	295.22	18.42	3.760E+00	1.253E+01	1.253E+01	6.80	OK
	351.93	35.60*	3.294E+00	1.262E+01	1.263E+01	4.81	OK
RN-222	609.32	45.49*	2.150E+00	1.023E+01	1.023E+01	4.96	OK
	1120.29	14.92	1.248E+00	1.095E+01	1.095E+01	11.69	OK
	1764.49	15.30	8.636E-01	1.173E+01	1.173E+01	12.59	OK
RA-224	240.99	4.10*	4.359E+00	2.246E+01	2.246E+01	11.17	OK
RA-226	74.82	5.80	4.131E+00	1.328E+01	1.328E+01	19.20	OK
	77.11	9.70	4.381E+00	1.376E+01	1.376E+01	10.61	OK
	87.09	3.41	5.264E+00	1.275E+01	1.276E+01	22.95	OK
	242.00	7.25	4.359E+00	1.270E+01	1.270E+01	11.17	OK
	295.22	18.42	3.760E+00	1.253E+01	1.253E+01	6.80	OK
	351.93	35.60*	3.294E+00	1.262E+01	1.263E+01	4.81	OK
AC-228	105.21	1.10	6.049E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.391E+00	1.595E+00	1.595E+00	50.97	OK
	835.71	1.61	1.636E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97	OK
	968.97	15.80	1.428E+00	1.702E+00	1.702E+00	45.77	OK
RA-228	105.21	1.10	6.049E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.391E+00	1.595E+00	1.595E+00	50.97	OK
	835.71	1.61	1.636E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97	OK
	968.97	15.80	1.428E+00	1.702E+00	1.702E+00	45.77	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-228	74.82	10.28	4.131E+00	7.493E+00	7.493E+00	19.20	OK
	77.11	17.10	4.381E+00	7.808E+00	7.808E+00	10.61	OK
	238.63	43.60*	4.404E+00	1.297E+00	1.297E+00	15.62	OK
	300.09	3.30	3.714E+00	----- Line	Not Found	-----	Absent
TH-229	85.43	14.70	5.032E+00	1.530E+00	1.530E+00	44.29	OK
	88.47	24.00	5.264E+00	1.812E+00	1.812E+00	22.95	OK
	193.51	4.41*	5.103E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	4.814E+00	----- Line	Not Found	-----	Absent
TH-230	74.82	5.80	4.131E+00	1.328E+01	1.328E+01	19.20	OK
	77.11	9.70	4.381E+00	1.376E+01	1.376E+01	10.61	OK
	87.09	3.41	5.264E+00	1.275E+01	1.275E+01	22.95	OK
	242.00	7.25	4.359E+00	1.270E+01	1.270E+01	11.17	OK
	295.22	18.42	3.760E+00	1.253E+01	1.253E+01	6.80	OK
	351.93	35.60*	3.294E+00	1.262E+01	1.262E+01	4.81	OK
TH-232	105.21	1.10	6.049E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.391E+00	1.595E+00	1.595E+00	50.97	OK
	835.71	1.61	1.636E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97	OK
TH-234	968.97	15.80	1.428E+00	1.702E+00	1.702E+00	45.77	OK
	63.29	3.70*	2.679E+00	5.744E+00	5.744E+00	104.86	OK
	92.59	4.23	5.604E+00	1.293E+01	1.293E+01	22.85	OK
U-234	74.82	5.80	4.131E+00	1.328E+01	1.328E+01	19.20	OK
	77.11	9.70	4.381E+00	1.376E+01	1.376E+01	10.61	OK
	87.09	3.41	5.264E+00	1.275E+01	1.275E+01	22.95	OK
	242.00	7.25	4.359E+00	1.270E+01	1.270E+01	11.17	OK
	295.22	18.42	3.760E+00	1.253E+01	1.253E+01	6.80	OK
U-235	351.93	35.60*	3.294E+00	1.262E+01	1.262E+01	4.81	OK
	89.96	3.47	5.436E+00	5.529E+00	5.529E+00	48.04	OK
	93.35	5.60	5.604E+00	9.766E+00	9.766E+00	22.85	OK
	143.76	10.96*	5.978E+00	5.082E-01	5.082E-01	143.50	OK
	163.33	5.08	5.649E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.234E+00	1.327E+00	1.327E+00	16.14	OK
U-238	205.31	5.01	4.904E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.679E+00	5.744E+00	5.744E+00	104.86	OK
	92.59	4.23	5.604E+00	1.293E+01	1.293E+01	22.85	OK
AM-243	43.53	5.90	3.651E-01	----- Line	Not Found	-----	Absent
ANH-511	74.66	67.20*	4.131E+00	1.146E+00	1.146E+00	19.20	OK
	511.00	100.00*	2.476E+00	1.664E-01	1.664E-01	83.55	OK

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29407                           *
*****
*
*                                     DETECTOR AND SAMPLE DATA                       *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299026.CNF;1      *
* Acquisition date   : 31-JUL-2024 16:09:56 Sensitivity      : 3.000                *
* Detector ID        : GAM06 Energy tolerance: 1.500        *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:01.63 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 11:30:00 Analyst initials: MXR1      *
* Sample ID          : G674299026 Sample Quantity : 1.4002E+02 GRAM  *
* Batch Number       : 2636543 Wet Weight      : 0.00000      *
* Wet wt corr        : 1.00000 Dry Weight       : 0.00000      *
* Nuclide Library    : SOLID.NLB;17
*****
*
*                                     CALIBRATION INFORMATION                       *
*
* Eff. Cal. date     : 25-SEP-2023 07:18:20 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22      *
*****

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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	8.558E+00	2.027E+00	1.178E+00
CD-109	1.239E+01	2.787E+00	2.553E+00
SB-124	1.687E-01	2.519E-01	3.387E-01
SN-126	1.176E+00	2.644E-01	2.435E-01
BA-137M	1.187E-01	8.784E-02	9.592E-02
CS-137	1.254E-01	9.279E-02	1.013E-01
TL-208	3.767E-01	1.330E-01	1.111E-01
BI-211	3.479E+01	1.638E+00	6.289E-01
BI-212	1.813E+00	1.331E+00	1.330E+00
PB-212	1.297E+00	1.985E-01	2.025E-01
BI-214	1.023E+01	4.975E-01	1.825E-01
PB-214	1.263E+01	5.946E-01	2.287E-01
RN-222	1.023E+01	4.975E-01	1.825E-01
RA-224	2.246E+01	2.459E+00	2.172E+00
RA-226	1.263E+01	5.946E-01	2.287E-01
AC-228	1.641E+00	6.427E-01	4.144E-01
RA-228	1.641E+00	6.427E-01	4.144E-01
TH-228	1.297E+00	1.985E-01	2.025E-01
TH-229	-3.518E-01	1.022E+00	1.773E+00
TH-230	1.262E+01	5.946E-01	2.287E-01
TH-232	1.641E+00	6.427E-01	4.144E-01
TH-234	5.744E+00	5.903E+00	4.525E+00
U-234	1.262E+01	5.946E-01	2.287E-01
U-235	5.082E-01	7.146E-01	6.414E-01
U-238	5.744E+00	5.903E+00	4.525E+00
AM-243	1.146E+00	2.157E-01	1.836E-01
ANH-511	1.664E-01	1.363E-01	9.158E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.414E-02	6.762E-01	1.127E+00	NOT IDENT.
NA-22	9.557E-03	8.456E-02	1.391E-01	NOT IDENT.
NA-24	0.000E+00	4.642E+15	0.000E+00	SHORT HLIF

AL-26	5.980E-03	5.250E-02	9.711E-02	NOT IDENT.
SC-46	-9.742E-03	8.250E-02	1.540E-01	FAIL ABUN
V-48	-1.445E-02	2.865E-01	5.362E-01	NOT IDENT.
CR-51	1.083E+00	1.078E+00	2.146E+00	NOT IDENT.
MN-52	-7.264E-01	6.247E+00	1.121E+01	FAIL ABUN
MN-54	-2.920E-02	7.022E-02	1.112E-01	NOT IDENT.
CO-56	1.848E-02	8.613E-02	1.655E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-2.148E-02	4.728E-02	8.507E-02	NOT IDENT.
CO-58	3.689E-02	8.360E-02	1.498E-01	NOT IDENT.
FE-59	-9.112E-02	1.709E-01	3.009E-01	NOT IDENT.
CO-60	-2.350E-02	6.172E-02	1.091E-01	NOT IDENT.
ZN-65	8.611E-02	1.469E-01	2.670E-01	NOT IDENT.
GE-68	3.652E-01	2.037E+00	3.920E+00	NOT IDENT.
AS-73	4.549E-02	2.065E+00	4.038E+00	NOT IDENT.
AS-74	-2.609E-01	3.286E-01	5.517E-01	NOT IDENT.
SE-75	4.523E-04	1.006E-01	1.600E-01	NOT IDENT.
BR-77	0.000E+00	1.081E+04	0.000E+00	SHORT HLIF
SR-82	4.086E-01	8.704E-01	1.750E+00	NOT IDENT.
RB-83	1.421E-01	1.862E-01	2.418E-01	FAIL ABUN
RB-84	6.847E-02	1.818E-01	3.561E-01	NOT IDENT.
KR-85	4.455E+00	1.258E+01	2.259E+01	NOT IDENT.
SR-85	2.900E-02	8.233E-02	1.479E-01	NOT IDENT.
RB-86	7.025E-01	2.601E+00	5.050E+00	NOT IDENT.
Y-88	1.980E-02	5.362E-02	1.193E-01	NOT IDENT.
Y-91	-1.594E+01	4.350E+01	7.676E+01	NOT IDENT.
NB-94	7.869E-02	1.062E-01	1.122E-01	FAIL ABUN
NB-95	0.000E+00	1.015E-01	2.075E-01	NOT IDENT.
NB-95M	9.340E-02	3.248E-01	5.276E-01	NOT IDENT.
ZR-95	-1.230E-01	1.343E-01	2.359E-01	FAIL ABUN
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.078E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	3.565E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	8.398E+40	0.000E+00	SHORT HLIF
RH-101	-1.104E-04	5.430E-02	9.944E-02	NOT IDENT.
RH-102	-3.513E-02	9.180E-02	1.601E-01	FAIL ABUN
RU-103	6.152E-02	8.905E-02	1.747E-01	FAIL ABUN
RH-106	-5.779E-02	4.716E-01	8.543E-01	NOT IDENT.
RU-106	-5.779E-02	4.716E-01	8.543E-01	NOT IDENT.
AG-108M	-1.403E-02	4.716E-02	8.597E-02	FAIL ABUN
AG-110	1.216E-01	1.436E+00	2.335E+00	NOT IDENT.
AG-110M	2.534E-02	9.279E-02	1.796E-01	FAIL ABUN
SN-113	-4.613E-02	8.697E-02	1.567E-01	NOT IDENT.
CD-115	0.000E+00	9.869E+03	0.000E+00	SHORT HLIF
SN-117M	2.490E-01	2.769E-01	5.180E-01	FAIL ABUN
SB-122	0.000E+00	5.243E+02	0.000E+00	SHORT HLIF
TE-123M	-3.528E-03	5.950E-02	1.065E-01	NOT IDENT.
SB-125	1.016E-01	1.614E-01	3.125E-01	FAIL ABUN
TE-125M	-9.762E+00	2.102E+01	3.815E+01	NOT IDENT.
I-126	0.000E+00	1.728E+00	2.589E+00	FAIL ABUN
SB-126	7.764E-01	9.306E-01	1.617E+00	FAIL ABUN
SB-127	-5.154E+01	8.250E+01	1.386E+02	NOT IDENT.
I-131	4.160E-01	1.108E+00	2.133E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	1.042E+02	0.000E+00	SHORT HLIF
BA-133	8.282E-02	1.093E-01	1.322E-01	FAIL ABUN
I-133	0.000E+00	9.062E+10	0.000E+00	SHORT HLIF
CS-134	5.267E-02	7.113E-02	1.433E-01	NOT IDENT.
I-135	0.000E+00	1.027E+38	0.000E+00	SHORT HLIF
CS-136	-9.447E-02	5.310E-01	8.546E-01	NOT IDENT.
LA-138	-3.212E-02	1.163E-01	2.047E-01	NOT IDENT.
CE-139	1.052E-02	6.013E-02	1.086E-01	NOT IDENT.
BA-140	-9.119E-01	1.290E+00	2.215E+00	NOT IDENT.
LA-140	1.218E-01	8.415E-01	1.006E+00	FAIL ABUN
CE-141	2.444E-01	3.436E-01	3.249E-01	FAIL ABUN
CE-143	0.000E+00	6.282E+06	0.000E+00	SHORT HLIF
CE-144	6.724E-02	3.610E-01	6.640E-01	NOT IDENT.
PM-144	2.169E-02	5.416E-02	1.022E-01	NOT IDENT.
PR-144	1.677E+00	4.100E+00	7.741E+00	NOT IDENT.
PM-146	3.981E-02	7.640E-02	1.462E-01	NOT IDENT.
ND-147	-4.867E-01	3.363E+00	6.095E+00	FAIL ABUN
PM-147	1.045E+02	1.302E+03	2.402E+03	NOT IDENT.
PM-149	0.000E+00	8.652E+04	0.000E+00	SHORT HLIF
EU-150	2.796E-02	5.033E-02	8.913E-02	FAIL ABUN
EU-152	-5.206E-02	1.797E-01	3.316E-01	FAIL ABUN
GD-153	3.966E-02	1.557E-01	2.738E-01	NOT IDENT.
EU-154	2.960E-02	2.375E-01	3.912E-01	FAIL ABUN
EU-155	-2.037E-02	1.809E-01	3.345E-01	FAIL ABUN

TB-160	3.200E-02	2.715E-01	5.207E-01	FAIL ABUN
HO-166M	3.528E-02	9.510E-02	1.785E-01	NOT IDENT.
TM-171	-1.019E+01	3.835E+01	7.422E+01	NOT IDENT.
HF-172	-1.840E-01	3.349E-01	5.985E-01	FAIL ABUN
LU-172	-1.156E-02	1.095E-01	1.781E-01	FAIL ABUN
LU-176	2.385E-02	4.693E-02	8.369E-02	FAIL ABUN
HF-181	7.482E-02	1.367E-01	1.960E-01	NOT IDENT.
TA-182	1.551E-01	3.374E-01	6.541E-01	NOT IDENT.
RE-183	-1.774E-01	4.587E-01	8.772E-01	NOT IDENT.
RE-184	7.843E-02	3.082E-01	5.979E-01	NOT IDENT.
W-188	-1.295E+01	1.647E+01	2.665E+01	FAIL ABUN
IR-192	-6.801E-02	7.166E-02	1.283E-01	FAIL ABUN
HG-203	-4.830E-02	9.111E-02	1.689E-01	NOT IDENT.
TL-204	7.242E-01	9.756E+00	1.733E+01	NOT IDENT.
BI-207	5.465E-02	7.588E-02	1.562E-01	FAIL ABUN
BI-210	4.031E+00	8.733E+00	1.747E+01	NOT IDENT.
PB-210	4.031E+00	8.733E+00	1.747E+01	NOT IDENT.
PB-211	3.515E-01	1.334E+00	2.513E+00	NOT IDENT.
BI-213	3.896E-02	1.802E-01	3.393E-01	NOT IDENT.
RN-219	1.446E-01	7.407E-01	1.393E+00	FAIL ABUN
RA-223	2.918E-01	1.138E+00	2.175E+00	FAIL ABUN
AC-225	-9.601E-01	4.401E+00	7.621E+00	NOT IDENT.
AC-227	3.224E-01	6.728E-01	8.552E-01	FAIL ABUN
TH-227	3.224E-01	6.728E-01	8.552E-01	FAIL ABUN
PA-231	2.975E-01	9.905E-01	1.593E+00	NOT IDENT.
TH-231	2.918E-01	1.138E+00	2.175E+00	FAIL ABUN
PA-233	-3.891E-02	1.078E-01	2.005E-01	NOT IDENT.
PA-234	2.347E-02	5.128E-01	9.708E-01	NOT IDENT.
PA-234M	0.000E+00	1.076E+01	1.878E+01	FAIL ABUN
NP-237	-3.891E-02	1.078E-01	2.005E-01	NOT IDENT.
NP-238	0.000E+00	2.561E+04	0.000E+00	SHORT HLIF
NP-239	7.789E-02	4.416E-01	8.217E-01	NOT IDENT.
PU-239	3.886E+02	5.815E+02	1.094E+03	NOT IDENT.
AM-241	-2.011E-01	3.146E-01	5.505E-01	NOT IDENT.
CM-243	6.999E-02	1.704E-01	3.229E-01	NOT IDENT.
BK-247	-1.411E-03	1.632E-01	2.591E-01	FAIL ABUN
CM-247	2.201E-02	6.764E-02	1.282E-01	NOT IDENT.
CF-249	6.633E-02	7.391E-02	1.449E-01	NOT IDENT.
CF-251	1.590E-01	2.342E-01	4.313E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	168	10.66*	9.865E-01	8.558E+00	8.558E+00	24.17
CD-109	88.03	427	3.70*	5.264E+00	1.176E+01	1.239E+01	22.95
SB-124	722.78	21	10.76	1.860E+00	5.537E-01	8.306E-01	212.87
	1690.97	9	47.57*	8.856E-01	1.124E-01	1.687E-01	152.42
SN-126	64.28	106	9.60	2.679E+00	2.214E+00	2.214E+00	104.86
	86.94	427	8.90	5.264E+00	4.887E+00	4.887E+00	22.95
	87.57	427	37.00*	5.264E+00	1.176E+00	1.176E+00	22.95
BA-137M	661.66	40	89.90*	2.007E+00	1.184E-01	1.187E-01	75.51
CS-137	661.66	40	85.10*	2.007E+00	1.251E-01	1.254E-01	75.51
CE-141	145.44	62	48.29*	5.978E+00	1.153E-01	2.444E-01	143.50
TL-208	277.37	-----	6.60	3.940E+00	-----	Line Not Found	-----
	583.19	133	85.00*	2.227E+00	3.767E-01	3.767E-01	36.03
	860.56	27	12.50	1.593E+00	7.372E-01	7.372E-01	140.02
BI-211	72.87	-----	1.23	3.892E+00	-----	Line Not Found	-----
	351.06	2761	12.92*	3.294E+00	3.479E+01	3.479E+01	4.81
BI-212	727.33	42	6.67*	1.852E+00	1.813E+00	1.813E+00	74.94
	1620.50	-----	1.47	9.117E-01	-----	Line Not Found	-----
PB-212	74.82	593	10.28	4.131E+00	7.493E+00	7.493E+00	19.20
	77.11	1091	17.10	4.381E+00	7.808E+00	7.808E+00	10.61
	238.63	465	43.60*	4.404E+00	1.297E+00	1.297E+00	15.62
	300.09	-----	3.30	3.714E+00	-----	Line Not Found	-----
BI-214	609.32	1867	45.49*	2.150E+00	1.023E+01	1.023E+01	4.96
	1120.29	380	14.92	1.248E+00	1.095E+01	1.095E+01	11.69
	1764.49	289	15.30	8.636E-01	1.173E+01	1.173E+01	12.59
PB-214	74.82	593	5.80	4.131E+00	1.328E+01	1.328E+01	19.20
	77.11	1091	9.70	4.381E+00	1.376E+01	1.376E+01	10.61
	87.09	427	3.41	5.264E+00	1.275E+01	1.276E+01	22.95
	242.00	749	7.25	4.359E+00	1.270E+01	1.270E+01	11.17
	295.22	1619	18.42	3.760E+00	1.253E+01	1.253E+01	6.80
	351.93	2761	35.60*	3.294E+00	1.262E+01	1.263E+01	4.81
RN-222	609.32	1867	45.49*	2.150E+00	1.023E+01	1.023E+01	4.96
	1120.29	380	14.92	1.248E+00	1.095E+01	1.095E+01	11.69
	1764.49	289	15.30	8.636E-01	1.173E+01	1.173E+01	12.59
RA-224	240.99	749	4.10*	4.359E+00	2.246E+01	2.246E+01	11.17
RA-226	74.82	593	5.80	4.131E+00	1.328E+01	1.328E+01	19.20
	77.11	1091	9.70	4.381E+00	1.376E+01	1.376E+01	10.61
	87.09	427	3.41	5.264E+00	1.275E+01	1.276E+01	22.95
	242.00	749	7.25	4.359E+00	1.270E+01	1.270E+01	11.17
	295.22	1619	18.42	3.760E+00	1.253E+01	1.253E+01	6.80
	351.93	2761	35.60*	3.294E+00	1.262E+01	1.263E+01	4.81
AC-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	114	11.27	3.391E+00	1.595E+00	1.595E+00	50.97
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	119	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97
	968.97	72	15.80	1.428E+00	1.702E+00	1.702E+00	45.77
RA-228	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	114	11.27	3.391E+00	1.595E+00	1.595E+00	50.97

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	119	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97
	968.97	72	15.80	1.428E+00	1.702E+00	1.702E+00	45.77
TH-228	74.82	593	10.28	4.131E+00	7.493E+00	7.493E+00	19.20
	77.11	1091	17.10	4.381E+00	7.808E+00	7.808E+00	10.61
	238.63	465	43.60*	4.404E+00	1.297E+00	1.297E+00	15.62
	300.09	-----	3.30	3.714E+00	-----	Line Not Found	-----
TH-229	85.43	211	14.70	5.032E+00	1.530E+00	1.530E+00	44.29
	88.47	427	24.00	5.264E+00	1.812E+00	1.812E+00	22.95
	193.51	-----	4.41*	5.103E+00	-----	Line Not Found	-----
	210.85	-----	2.80	4.814E+00	-----	Line Not Found	-----
TH-230	74.82	593	5.80	4.131E+00	1.328E+01	1.328E+01	19.20
	77.11	1091	9.70	4.381E+00	1.376E+01	1.376E+01	10.61
	87.09	427	3.41	5.264E+00	1.275E+01	1.275E+01	22.95
	242.00	749	7.25	4.359E+00	1.270E+01	1.270E+01	11.17
	295.22	1619	18.42	3.760E+00	1.253E+01	1.253E+01	6.80
	351.93	2761	35.60*	3.294E+00	1.262E+01	1.262E+01	4.81
TH-232	105.21	-----	1.10	6.049E+00	-----	Line Not Found	-----
	338.32	114	11.27	3.391E+00	1.595E+00	1.595E+00	50.97
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	119	25.80*	1.511E+00	1.641E+00	1.641E+00	39.97
	968.97	72	15.80	1.428E+00	1.702E+00	1.702E+00	45.77
TH-234	63.29	106	3.70*	2.679E+00	5.744E+00	5.744E+00	104.86
	92.59	572	4.23	5.604E+00	1.293E+01	1.293E+01	22.85
U-234	74.82	593	5.80	4.131E+00	1.328E+01	1.328E+01	19.20
	77.11	1091	9.70	4.381E+00	1.376E+01	1.376E+01	10.61
	87.09	427	3.41	5.264E+00	1.275E+01	1.275E+01	22.95
	242.00	749	7.25	4.359E+00	1.270E+01	1.270E+01	11.17
	295.22	1619	18.42	3.760E+00	1.253E+01	1.253E+01	6.80
	351.93	2761	35.60*	3.294E+00	1.262E+01	1.262E+01	4.81
U-235	89.96	195	3.47	5.436E+00	5.529E+00	5.529E+00	48.04
	93.35	572	5.60	5.604E+00	9.766E+00	9.766E+00	22.85
	143.76	62	10.96*	5.978E+00	5.082E-01	5.082E-01	143.50
	163.33	-----	5.08	5.649E+00	-----	Line Not Found	-----
	185.72	741	57.20	5.234E+00	1.327E+00	1.327E+00	16.14
	205.31	-----	5.01	4.904E+00	-----	Line Not Found	-----
U-238	63.29	106	3.70*	2.679E+00	5.744E+00	5.744E+00	104.86
	92.59	572	4.23	5.604E+00	1.293E+01	1.293E+01	22.85
AM-243	43.53	-----	5.90	3.651E-01	-----	Line Not Found	-----
	74.66	593	67.20*	4.131E+00	1.146E+00	1.146E+00	19.20
ANH-511	511.00	77	100.00*	2.476E+00	1.664E-01	1.664E-01	83.55

Flag: "*" = Keyline

Total number of lines in spectrum 78
Number of unidentified lines 29
Number of lines tentatively identified by NID 49 62.82%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	8.558E+00	8.558E+00	2.068E+00	24.17	
CD-109	461.40D	1.05	1.176E+01	1.239E+01	0.284E+01	22.95	
SB-124	60.20D	1.50	1.124E-01	1.687E-01	2.571E-01	152.42	
SN-126	2.30E+05Y	1.00	1.176E+00	1.176E+00	0.270E+00	22.95	
BA-137M	30.08Y	1.00	1.184E-01	1.187E-01	0.896E-01	75.51	
CS-137	30.08Y	1.00	1.251E-01	1.254E-01	0.947E-01	75.51	
CE-141	32.51D	2.12	1.153E-01	2.444E-01	3.507E-01	143.50	
TL-208	1.41E+10Y	1.00	3.767E-01	3.767E-01	1.357E-01	36.03	
BI-211	7.04E+08Y	1.00	3.479E+01	3.479E+01	0.167E+01	4.81	
BI-212	1.41E+10Y	1.00	1.813E+00	1.813E+00	1.358E+00	74.94	
PB-212	1.41E+10Y	1.00	1.297E+00	1.297E+00	0.203E+00	15.62	
BI-214	1600.00Y	1.00	1.023E+01	1.023E+01	0.051E+01	4.96	
PB-214	1600.00Y	1.00	1.262E+01	1.263E+01	0.061E+01	4.81	
RN-222	1600.00Y	1.00	1.023E+01	1.023E+01	0.051E+01	4.96	
RA-224	1.41E+10Y	1.00	2.246E+01	2.246E+01	0.251E+01	11.17	
RA-226	1600.00Y	1.00	1.262E+01	1.263E+01	0.061E+01	4.81	
AC-228	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.656E+00	39.97	
RA-228	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.656E+00	39.97	
TH-228	1.41E+10Y	1.00	1.297E+00	1.297E+00	0.203E+00	15.62	
TH-229	7340.00Y	1.00	1.812E+00	1.812E+00	0.416E+00	22.95	K
TH-230	7.54E+04Y	1.00	1.262E+01	1.262E+01	0.061E+01	4.81	
TH-232	1.41E+10Y	1.00	1.641E+00	1.641E+00	0.656E+00	39.97	
TH-234	4.47E+09Y	1.00	5.744E+00	5.744E+00	6.024E+00	104.86	
U-234	2.45E+05Y	1.00	1.262E+01	1.262E+01	0.061E+01	4.81	
U-235	7.04E+08Y	1.00	5.082E-01	5.082E-01	7.292E-01	143.50	
U-238	4.47E+09Y	1.00	5.744E+00	5.744E+00	6.024E+00	104.86	
AM-243	7370.00Y	1.00	1.146E+00	1.146E+00	0.220E+00	19.20	
ANH-511	1.00E+09Y	1.00	1.664E-01	1.664E-01	1.390E-01	83.55	
Total Activity :			1.750E+02	1.758E+02			

Grand Total Activity : 1.750E+02 1.758E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	155.03	35	520	1.15	308.96	303	8	8.40E-03	****	5.80E+00	T
0	208.87	64	396	0.96	416.70	413	9	1.58E-02	****	4.85E+00	
0	255.51	24	204	0.77	510.03	508	7	5.99E-03	****	4.19E+00	T
7	258.87	90	112	1.50	516.76	514	13	2.26E-02	42.3	4.15E+00	
7	261.80	85	225	1.74	522.61	514	13	2.13E-02	75.3	4.11E+00	T
2	269.60	79	193	1.34	538.24	535	11	1.99E-02	62.9	4.02E+00	T
2	270.98	63	245	1.25	541.00	535	11	1.58E-02	99.6	4.01E+00	T
0	302.91	55	122	1.75	604.90	602	7	1.39E-02	76.3	3.69E+00	T
0	357.42	31	126	1.84	713.99	712	8	7.97E-03	****	3.26E+00	T
0	379.50	21	100	1.04	758.17	755	7	5.45E-03	****	3.11E+00	
0	462.84	60	84	2.32	924.97	920	10	1.57E-02	64.9	2.67E+00	T
0	480.27	67	87	1.97	959.85	955	12	1.76E-02	62.3	2.60E+00	
0	486.72	39	101	0.74	972.77	967	11	1.03E-02	****	2.57E+00	T
0	519.59	22	58	0.95	1038.56	1033	8	5.82E-03	****	2.44E+00	T
0	665.44	50	65	0.88	1330.51	1326	9	1.36E-02	65.0	2.00E+00	T
0	677.20	21	33	1.20	1354.05	1350	7	5.80E-03	****	1.97E+00	T
0	703.85	28	78	1.92	1407.40	1401	13	7.58E-03	****	1.90E+00	T
0	742.95	41	54	2.67	1485.68	1476	14	1.11E-02	83.2	1.82E+00	T
0	768.22	150	115	1.31	1536.26	1530	14	4.12E-02	34.5	1.76E+00	T
0	785.96	58	57	1.40	1571.79	1567	13	1.59E-02	59.9	1.73E+00	
0	806.36	44	44	1.22	1612.63	1607	10	1.21E-02	65.0	1.69E+00	
0	838.65	39	49	3.33	1677.27	1671	12	1.08E-02	78.3	1.63E+00	
0	934.51	37	75	1.32	1869.21	1863	10	1.04E-02	92.3	1.48E+00	T
1	963.93	28	53	2.11	1928.12	1921	28	7.75E-03	****	1.44E+00	T
0	996.56	18	22	3.55	1993.44	1987	11	5.00E-03	****	1.39E+00	T
0	1001.41	62	18	1.88	2003.16	1998	13	1.75E-02	38.2	1.38E+00	T
0	1044.47	23	26	3.96	2089.39	2083	13	6.57E-03	98.1	1.33E+00	
0	1083.85	22	23	2.79	2168.24	2164	8	6.07E-03	88.3	1.29E+00	
0	1089.27	21	22	0.81	2179.10	2174	11	5.83E-03	96.9	1.28E+00	
0	1155.19	54	33	2.89	2311.09	2303	15	1.53E-02	53.2	1.21E+00	
0	1191.09	17	29	1.62	2383.00	2376	12	4.72E-03	****	1.18E+00	
0	1237.74	135	27	1.97	2476.43	2467	15	3.86E-02	23.4	1.14E+00	T
0	1280.10	50	34	2.71	2561.26	2550	20	1.42E-02	63.3	1.10E+00	
0	1319.63	11	36	4.75	2640.45	2628	20	3.03E-03	****	1.07E+00	
0	1350.56	21	13	2.02	2702.38	2696	13	5.95E-03	82.1	1.05E+00	
0	1377.23	106	37	2.14	2755.81	2750	15	3.07E-02	31.6	1.04E+00	
0	1384.74	17	14	2.84	2770.84	2766	10	4.97E-03	93.1	1.03E+00	T
2	1400.98	33	24	2.67	2803.38	2796	27	9.40E-03	69.8	1.02E+00	
2	1407.58	65	14	2.67	2816.59	2796	27	1.89E-02	33.2	1.02E+00	T
0	1424.59	18	6	1.06	2850.68	2847	8	5.21E-03	68.3	1.01E+00	
0	1509.52	53	22	4.86	3020.80	3013	17	1.54E-02	49.3	9.61E-01	
0	1542.04	42	23	7.45	3085.94	3071	24	1.22E-02	66.1	9.45E-01	
3	1582.42	18	11	3.08	3166.82	3160	32	5.36E-03	****	9.27E-01	
3	1588.34	16	23	3.08	3178.68	3160	32	4.81E-03	****	9.25E-01	
0	1599.48	26	14	2.92	3201.01	3192	14	7.69E-03	69.0	9.20E-01	
0	1612.66	5	6	1.12	3227.40	3218	12	1.39E-03	****	9.15E-01	
0	1660.09	24	7	1.58	3322.43	3314	15	7.08E-03	61.3	8.97E-01	
0	1675.43	11	4	5.32	3353.16	3346	14	3.11E-03	93.2	8.91E-01	
0	1728.95	66	11	1.93	3460.38	3454	14	1.94E-02	31.1	8.74E-01	
0	1815.93	8	7	0.57	3634.67	3626	14	2.50E-03	****	8.50E-01	
0	1846.58	64	8	3.50	3696.07	3685	18	1.89E-02	31.9	8.43E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299026.CNF;1 *
* Acquisition date : 31-JUL-2024 16:09:56 Sensitivity : 3.000 *
* Detector ID : GAM06 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.63 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:30:00 Nuclide Library : SOLID *
* Sample ID : G674299026 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.4002E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	5.199E-01
CD-109	1.236E+00
SB-124	1.436E-01
SN-126	1.178E-01
BA-137M	4.387E-02
CS-137	4.634E-02
TL-208	5.164E-02
BI-211	2.970E-01
BI-212	6.054E-01
PB-212	9.738E-02
BI-214	8.369E-02
PB-214	1.080E-01
RN-222	8.369E-02
RA-224	1.044E+00
RA-226	1.080E-01
AC-228	1.884E-01
RA-228	1.884E-01
TH-228	9.738E-02
TH-229	8.535E-01
TH-230	1.080E-01
TH-232	1.884E-01
TH-234	2.184E+00
U-234	1.080E-01
U-235	3.092E-01
U-238	2.184E+00
AM-243	8.905E-02
ANH-511	4.281E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.204E-01	NOT IDENT.
NA-22	6.279E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	4.003E-02	NOT IDENT.

SC-46	7.065E-02	FAIL ABUN
V-48	2.441E-01	NOT IDENT.
CR-51	1.022E+00	NOT IDENT.
MN-52	5.035E+00	FAIL ABUN
MN-54	5.078E-02	NOT IDENT.
CO-56	7.652E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	4.097E-02	NOT IDENT.
CO-58	6.871E-02	NOT IDENT.
FE-59	1.329E-01	NOT IDENT.
CO-60	4.761E-02	NOT IDENT.
ZN-65	1.208E-01	NOT IDENT.
GE-68	1.768E+00	NOT IDENT.
AS-73	1.942E+00	NOT IDENT.
AS-74	2.533E-01	NOT IDENT.
SE-75	7.618E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	8.019E-01	NOT IDENT.
RB-83	1.120E-01	FAIL ABUN
RB-84	1.637E-01	NOT IDENT.
KR-85	1.060E+01	NOT IDENT.
SR-85	6.938E-02	NOT IDENT.
RB-86	2.283E+00	NOT IDENT.
Y-88	4.880E-02	NOT IDENT.
Y-91	3.474E+01	NOT IDENT.
NB-94	5.223E-02	FAIL ABUN
NB-95	9.766E-02	NOT IDENT.
NB-95M	2.539E-01	NOT IDENT.
ZR-95	1.069E-01	FAIL ABUN
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.789E-02	NOT IDENT.
RH-102	7.365E-02	FAIL ABUN
RU-103	8.136E-02	FAIL ABUN
RH-106	3.896E-01	NOT IDENT.
RU-106	3.896E-01	NOT IDENT.
AG-108M	4.007E-02	FAIL ABUN
AG-110	1.078E+00	NOT IDENT.
AG-110M	8.265E-02	FAIL ABUN
SN-113	7.368E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.499E-01	FAIL ABUN
SB-122	0.000E+00	SHORT HLIF
TE-123M	5.134E-02	NOT IDENT.
SB-125	1.473E-01	FAIL ABUN
TE-125M	1.838E+01	NOT IDENT.
I-126	1.221E+00	FAIL ABUN
SB-126	7.559E-01	FAIL ABUN
SB-127	6.349E+01	NOT IDENT.
I-131	1.007E+00	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	6.238E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	6.648E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.833E-01	NOT IDENT.
LA-138	9.129E-02	NOT IDENT.
CE-139	5.228E-02	NOT IDENT.
BA-140	1.021E+00	NOT IDENT.
LA-140	4.472E-01	FAIL ABUN
CE-141	1.569E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	3.199E-01	NOT IDENT.
PM-144	4.697E-02	NOT IDENT.
PR-144	3.559E+00	NOT IDENT.
PM-146	6.883E-02	NOT IDENT.
ND-147	2.831E+00	FAIL ABUN
PM-147	1.157E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	4.230E-02	FAIL ABUN
EU-152	1.574E-01	FAIL ABUN
GD-153	1.319E-01	NOT IDENT.
EU-154	1.767E-01	FAIL ABUN
EU-155	1.612E-01	FAIL ABUN
TB-160	2.385E-01	FAIL ABUN

HO-166M	8.202E-02	NOT IDENT.
TM-171	3.569E+01	NOT IDENT.
HF-172	2.881E-01	FAIL ABUN
LU-172	7.962E-02	FAIL ABUN
LU-176	3.967E-02	FAIL ABUN
HF-181	9.169E-02	NOT IDENT.
TA-182	2.981E-01	NOT IDENT.
RE-183	4.220E-01	NOT IDENT.
RE-184	2.738E-01	NOT IDENT.
W-188	1.263E+01	FAIL ABUN
IR-192	6.063E-02	FAIL ABUN
HG-203	8.053E-02	NOT IDENT.
TL-204	8.395E+00	NOT IDENT.
BI-207	7.060E-02	FAIL ABUN
BI-210	8.425E+00	NOT IDENT.
PB-210	8.425E+00	NOT IDENT.
PB-211	1.191E+00	NOT IDENT.
BI-213	1.594E-01	NOT IDENT.
RN-219	6.587E-01	FAIL ABUN
RA-223	1.035E+00	FAIL ABUN
AC-225	3.650E+00	NOT IDENT.
AC-227	4.088E-01	FAIL ABUN
TH-227	4.088E-01	FAIL ABUN
PA-231	7.587E-01	NOT IDENT.
TH-231	1.035E+00	FAIL ABUN
PA-233	9.487E-02	NOT IDENT.
PA-234	4.437E-01	NOT IDENT.
PA-234M	8.765E+00	FAIL ABUN
NP-237	9.487E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	3.955E-01	NOT IDENT.
PU-239	5.278E+02	NOT IDENT.
AM-241	2.652E-01	NOT IDENT.
CM-243	1.554E-01	NOT IDENT.
BK-247	1.234E-01	FAIL ABUN
CM-247	6.066E-02	NOT IDENT.
CF-249	6.877E-02	NOT IDENT.
CF-251	2.076E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299026.CNF;1
Acquisition date : 31-JUL-2024 16:09:56 Sensitivity : 3.000
Detector ID : GAM06 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.63 Half life ratio : *****
Sample date : 26-JUN-2024 11:30:00 Nuclide Library : SOLID
Sample ID : G674299026 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.4002E+02 GRAM
Quantity Err(%) : 1.4284E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	8.558E+00	2.181E+00	2.181E+00
CD-109	1.239E+01	3.087E+00	3.087E+00
SB-124	1.687E-01	2.523E-01	2.523E-01
SN-126	1.176E+00	2.861E-01	2.861E-01
BA-137M	1.187E-01	8.843E-02	8.843E-02
CS-137	1.254E-01	9.342E-02	9.342E-02
TL-208	3.767E-01	1.371E-01	1.371E-01
BI-211	3.479E+01	3.261E+00	3.261E+00
BI-212	1.813E+00	1.342E+00	1.342E+00
PB-212	1.297E+00	2.248E-01	2.248E-01
BI-214	1.023E+01	1.025E+00	1.025E+00
PB-214	1.263E+01	1.166E+00	1.166E+00
RN-222	1.023E+01	1.025E+00	1.025E+00
RA-224	2.246E+01	3.066E+00	3.066E+00
RA-226	1.263E+01	1.166E+00	1.166E+00
AC-228	1.641E+00	6.625E-01	6.625E-01
RA-228	1.641E+00	6.625E-01	6.625E-01
TH-228	1.297E+00	2.248E-01	2.248E-01
TH-229	-3.518E-01	1.023E+00	1.023E+00
TH-230	1.262E+01	1.166E+00	1.166E+00
TH-232	1.641E+00	6.625E-01	6.625E-01
TH-234	5.744E+00	6.051E+00	6.051E+00
U-234	1.262E+01	1.166E+00	1.166E+00
U-235	5.082E-01	7.157E-01	7.157E-01
U-238	5.744E+00	6.051E+00	6.051E+00
AM-243	1.146E+00	2.380E-01	2.380E-01
ANH-511	1.664E-01	1.370E-01	1.370E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.414E-02	6.762E-01	6.762E-01	NOT IDENT.
NA-22	9.557E-03	8.456E-02	8.467E-02	NOT IDENT.
NA-24	4.365E+15	4.663E+15	5.061E+15	SHORT HLIF

AL-26	5.980E-03	5.250E-02	5.257E-02	NOT IDENT.
SC-46	-9.742E-03	8.250E-02	8.262E-02	FAIL ABUN
V-48	-1.445E-02	2.865E-01	2.866E-01	NOT IDENT.
CR-51	1.083E+00	1.081E+00	1.186E+00	NOT IDENT.
MN-52	-7.264E-01	6.247E+00	6.256E+00	FAIL ABUN
MN-54	-2.920E-02	7.027E-02	7.149E-02	NOT IDENT.
CO-56	1.848E-02	8.614E-02	8.655E-02	FAIL ABUN
MN-56	1.000E+41	4.405E+41	0.000E+00	SHORT HLIF
CO-57	-2.148E-02	4.730E-02	4.828E-02	NOT IDENT.
CO-58	3.689E-02	8.367E-02	8.530E-02	NOT IDENT.
FE-59	-9.112E-02	1.711E-01	1.760E-01	NOT IDENT.
CO-60	-2.350E-02	6.176E-02	6.266E-02	NOT IDENT.
ZN-65	8.611E-02	1.471E-01	1.521E-01	NOT IDENT.
GE-68	3.652E-01	2.037E+00	2.044E+00	NOT IDENT.
AS-73	4.549E-02	2.065E+00	2.065E+00	NOT IDENT.
AS-74	-2.609E-01	3.299E-01	3.502E-01	NOT IDENT.
SE-75	4.523E-04	1.006E-01	1.006E-01	NOT IDENT.
BR-77	7.067E+04	7.285E+04	7.951E+04	SHORT HLIF
SR-82	4.086E-01	8.712E-01	8.904E-01	NOT IDENT.
RB-83	1.421E-01	1.875E-01	1.982E-01	FAIL ABUN
RB-84	6.847E-02	1.819E-01	1.845E-01	NOT IDENT.
KR-85	4.455E+00	1.259E+01	1.274E+01	NOT IDENT.
SR-85	2.900E-02	8.237E-02	8.340E-02	NOT IDENT.
RB-86	7.025E-01	2.601E+00	2.621E+00	NOT IDENT.
Y-88	1.980E-02	5.364E-02	5.438E-02	NOT IDENT.
Y-91	-1.594E+01	4.352E+01	4.411E+01	NOT IDENT.
NB-94	7.869E-02	1.064E-01	1.122E-01	FAIL ABUN
NB-95	2.261E-01	1.036E-01	1.453E-01	NOT IDENT.
NB-95M	9.340E-02	3.249E-01	3.276E-01	NOT IDENT.
ZR-95	-1.230E-01	1.348E-01	1.457E-01	FAIL ABUN
NB-97	-1.000E+41	2.492E+42	0.000E+00	SHORT HLIF
ZR-97	1.610E+14	1.078E+15	1.080E+15	SHORT HLIF
MO-99	-1.929E+03	3.570E+03	3.674E+03	SHORT HLIF
TC-99M	-5.292E+39	8.398E+40	0.000E+00	SHORT HLIF
RH-101	-1.104E-04	5.430E-02	5.430E-02	NOT IDENT.
RH-102	-3.513E-02	9.188E-02	9.324E-02	FAIL ABUN
RU-103	6.152E-02	8.922E-02	9.343E-02	FAIL ABUN
RH-106	-5.779E-02	4.716E-01	4.723E-01	NOT IDENT.
RU-106	-5.779E-02	4.716E-01	4.723E-01	NOT IDENT.
AG-108M	-1.403E-02	4.718E-02	4.760E-02	FAIL ABUN
AG-110	1.216E-01	1.436E+00	1.437E+00	NOT IDENT.
AG-110M	2.534E-02	9.282E-02	9.352E-02	FAIL ABUN
SN-113	-4.613E-02	8.705E-02	8.950E-02	NOT IDENT.
CD-115	-3.709E+03	9.876E+03	1.002E+04	SHORT HLIF
SN-117M	2.490E-01	2.776E-01	2.994E-01	FAIL ABUN
SB-122	3.489E+02	5.252E+02	5.483E+02	SHORT HLIF
TE-123M	-3.528E-03	5.950E-02	5.953E-02	NOT IDENT.
SB-125	1.016E-01	1.616E-01	1.680E-01	FAIL ABUN
TE-125M	-9.762E+00	2.103E+01	2.148E+01	NOT IDENT.
I-126	2.712E+00	1.748E+00	2.133E+00	FAIL ABUN
SB-126	7.764E-01	9.358E-01	9.991E-01	FAIL ABUN
SB-127	-5.154E+01	8.304E+01	8.623E+01	NOT IDENT.
I-131	4.160E-01	1.109E+00	1.125E+00	NOT IDENT.
I-132	1.000E+41	4.802E+41	0.000E+00	SHORT HLIF
TE-132	-3.273E+01	1.042E+02	1.053E+02	SHORT HLIF
BA-133	8.282E-02	1.095E-01	1.157E-01	FAIL ABUN
I-133	7.669E+10	9.240E+10	9.865E+10	SHORT HLIF
CS-134	5.267E-02	7.130E-02	7.515E-02	NOT IDENT.
I-135	-8.251E+37	1.222E+38	0.000E+00	SHORT HLIF
CS-136	-9.447E-02	5.311E-01	5.328E-01	NOT IDENT.
LA-138	-3.212E-02	1.163E-01	1.172E-01	NOT IDENT.
CE-139	1.052E-02	6.017E-02	6.036E-02	NOT IDENT.
BA-140	-9.119E-01	1.292E+00	1.356E+00	NOT IDENT.
LA-140	1.218E-01	8.416E-01	8.434E-01	FAIL ABUN
CE-141	2.444E-01	3.441E-01	3.613E-01	FAIL ABUN
CE-143	2.242E+07	6.519E+06	1.203E+07	SHORT HLIF
CE-144	6.724E-02	3.610E-01	3.623E-01	NOT IDENT.
PM-144	2.169E-02	5.420E-02	5.507E-02	NOT IDENT.
PR-144	1.677E+00	4.103E+00	4.172E+00	NOT IDENT.
PM-146	3.981E-02	7.651E-02	7.858E-02	NOT IDENT.
ND-147	-4.867E-01	3.363E+00	3.370E+00	FAIL ABUN
PM-147	1.045E+02	1.302E+03	1.303E+03	NOT IDENT.
PM-149	-6.535E+04	8.706E+04	9.191E+04	SHORT HLIF
EU-150	2.796E-02	5.038E-02	5.193E-02	FAIL ABUN
EU-152	-5.206E-02	1.798E-01	1.813E-01	FAIL ABUN
GD-153	3.966E-02	1.557E-01	1.567E-01	NOT IDENT.
EU-154	2.960E-02	2.375E-01	2.379E-01	FAIL ABUN
EU-155	-2.037E-02	1.809E-01	1.812E-01	FAIL ABUN

TB-160	3.200E-02	2.716E-01	2.719E-01	FAIL ABUN
HO-166M	3.528E-02	9.516E-02	9.648E-02	NOT IDENT.
TM-171	-1.019E+01	3.836E+01	3.864E+01	NOT IDENT.
HF-172	-1.840E-01	3.364E-01	3.465E-01	FAIL ABUN
LU-172	-1.156E-02	1.095E-01	1.096E-01	FAIL ABUN
LU-176	2.385E-02	4.696E-02	4.818E-02	FAIL ABUN
HF-181	7.482E-02	1.369E-01	1.410E-01	NOT IDENT.
TA-182	1.551E-01	3.376E-01	3.448E-01	NOT IDENT.
RE-183	-1.774E-01	4.593E-01	4.662E-01	NOT IDENT.
RE-184	7.843E-02	3.083E-01	3.104E-01	NOT IDENT.
W-188	-1.295E+01	1.655E+01	1.755E+01	FAIL ABUN
IR-192	-6.801E-02	7.185E-02	7.811E-02	FAIL ABUN
HG-203	-4.830E-02	9.117E-02	9.374E-02	NOT IDENT.
TL-204	7.242E-01	9.757E+00	9.762E+00	NOT IDENT.
BI-207	5.465E-02	7.603E-02	7.992E-02	FAIL ABUN
BI-210	4.031E+00	8.743E+00	8.930E+00	NOT IDENT.
PB-210	4.031E+00	8.743E+00	8.930E+00	NOT IDENT.
PB-211	3.515E-01	1.335E+00	1.344E+00	NOT IDENT.
BI-213	3.896E-02	1.802E-01	1.811E-01	NOT IDENT.
RN-219	1.446E-01	7.410E-01	7.438E-01	FAIL ABUN
RA-223	2.918E-01	1.138E+00	1.146E+00	FAIL ABUN
AC-225	-9.601E-01	4.402E+00	4.424E+00	NOT IDENT.
AC-227	3.224E-01	6.744E-01	6.899E-01	FAIL ABUN
TH-227	3.224E-01	6.744E-01	6.899E-01	FAIL ABUN
PA-231	2.975E-01	9.927E-01	1.002E+00	NOT IDENT.
TH-231	2.918E-01	1.138E+00	1.146E+00	FAIL ABUN
PA-233	-3.891E-02	1.079E-01	1.093E-01	NOT IDENT.
PA-234	2.347E-02	5.136E-01	5.137E-01	NOT IDENT.
PA-234M	2.871E+01	1.108E+01	1.704E+01	FAIL ABUN
NP-237	-3.891E-02	1.079E-01	1.093E-01	NOT IDENT.
NP-238	7.969E+02	2.561E+04	2.561E+04	SHORT HLIF
NP-239	7.789E-02	4.417E-01	4.430E-01	NOT IDENT.
PU-239	3.886E+02	5.821E+02	6.079E+02	NOT IDENT.
AM-241	-2.011E-01	3.152E-01	3.280E-01	NOT IDENT.
CM-243	6.999E-02	1.706E-01	1.735E-01	NOT IDENT.
BK-247	-1.411E-03	1.632E-01	1.632E-01	FAIL ABUN
CM-247	2.201E-02	6.776E-02	6.848E-02	NOT IDENT.
CF-249	6.633E-02	7.425E-02	8.005E-02	NOT IDENT.
CF-251	1.590E-01	2.351E-01	2.458E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	209.9326	85.43	299.8869	131.20	245.4089
45.60	214.2086	86.55	300.7829	133.02	227.8027
46.54	227.2169	86.79	300.9716	133.52	221.8601
49.72	0.0000	86.94	301.0932	136.00	230.1355
51.35	207.6162	87.09	301.2123	136.47	233.4384
51.87	195.5977	87.57	301.5921	140.51	0.0000
52.39	217.5769	88.03	301.9570	143.76	238.7049
52.97	217.2219	88.34	302.2002	144.24	238.9102
53.44	210.1011	88.47	302.3020	145.44	256.2305
54.07	208.9233	89.96	303.4735	152.43	243.8206
57.36	0.0000	1093.63	209.3130	153.25	254.4590
57.53	218.3331	91.11	209.5642	323.87	254.8820
57.98	228.0031	92.59	286.7299	156.02	245.3324
59.27	231.5897	93.35	287.2797	158.56	208.4310
59.32	231.6302	94.56	288.1486	159.00	238.6866
59.54	252.2601	94.65	288.2115	162.33	204.3395
60.96	254.6350	94.67	288.2254	162.66	230.4109
61.17	254.8176	94.87	288.3699	163.33	237.1653
62.93	256.0433	97.43	219.2224	165.86	217.4866
63.29	256.3503	98.43	226.7402	176.31	216.7048
63.58	256.5962	98.44	226.7457	176.60	225.6526
64.28	257.1893	99.53	209.1905	177.52	191.6341
66.73	294.4409	100.11	215.2187	181.07	0.0000
67.24	279.7656	102.03	226.7686	181.52	205.0712
125.81	290.6621	103.18	211.9618	184.41	223.8739
67.75	287.2227	103.37	196.6336	143.76	224.3134
68.89	325.1671	105.21	231.3507	193.51	231.4299
69.67	325.9575	105.31	241.0877	197.03	202.9552
70.82	313.5533	106.12	235.7140	198.01	232.9241
70.83	313.5669	106.47	222.3102	201.83	211.2198
72.81	324.9402	109.28	246.1918	203.43	230.0995
72.87	324.9987	111.00	246.1513	205.31	192.2506
74.66	340.7466	111.76	0.0000	210.85	168.9132
74.82	340.9065	114.06	232.0058	215.65	152.0660
74.97	341.0577	116.30	0.0000	218.12	179.5537
77.11	343.1855	116.74	210.5039	222.11	165.1563
78.74	306.4800	119.76	223.8359	227.09	166.2158
79.69	355.6956	121.12	225.4704	227.38	166.2756
80.03	262.7845	121.22	225.5167	228.16	0.0000
80.12	262.8551	121.78	243.8398	228.18	175.9566
80.19	262.9059	122.06	246.9910	116.74	175.9566
80.57	289.2623	122.92	229.3220	235.69	203.2227
81.00	341.2167	123.07	229.3933	235.96	200.0885
81.07	341.2825	265.00	216.5829	238.63	207.1711
81.75	261.6157	125.81	240.7854	238.98	0.0000
82.47	279.2056	127.23	224.2204	240.99	207.7668
83.79	298.5664	127.91	236.7162	242.00	208.0214
84.00	298.7352	129.30	214.9537	244.70	174.7266

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	153.4710	344.28	125.6303	563.25	53.7870
252.80	145.3746	345.93	102.4520	564.24	0.0000
254.15	0.0000	351.06	96.4290	569.33	44.4575
256.23	127.9172	351.93	96.5029	946.00	46.5799
260.90	0.0000	355.39	0.0000	569.70	49.7616
264.66	132.4674	356.01	81.6193	583.19	58.7016
264.80	132.4870	364.49	85.8855	584.27	46.4559
265.00	135.8292	366.42	0.0000	595.83	58.0605
269.46	146.0822	372.51	82.8003	427.87	48.5175
270.03	146.1750	375.05	82.9816	602.52	0.0000
271.23	146.7848	377.52	60.9807	604.72	32.4207
273.65	131.7082	356.01	98.0891	607.14	30.8425
276.40	145.9417	388.16	91.3546	609.32	41.1744
277.37	141.0596	388.63	90.4579	610.33	41.1976
277.60	130.1758	391.69	97.2313	614.28	45.6367
278.00	125.1913	264.66	102.6510	618.01	37.0215
279.20	155.6421	401.81	96.1479	620.36	34.8893
279.54	159.0650	402.40	93.3644	621.93	38.1944
279.70	159.0919	404.85	100.1621	630.19	0.0000
280.46	171.8594	410.95	94.9524	631.29	51.5554
283.69	135.2604	413.71	103.7221	633.25	42.8260
284.31	131.9646	414.70	104.7542	634.78	53.8529
285.41	137.2017	423.72	104.5315	635.95	59.3855
285.90	0.0000	427.09	78.8419	636.99	37.4130
287.50	121.3778	427.87	74.0783	657.50	46.7305
290.67	136.6856	433.94	69.5889	657.76	46.7373
293.27	0.0000	439.40	76.6679	657.90	0.0000
351.93	137.7632	440.45	74.7849	661.66	38.4700
295.96	137.8680	453.88	74.5466	664.57	0.0000
879.38	139.0968	463.37	60.2442	666.33	50.3027
299.98	121.2407	468.07	68.9685	666.50	50.3064
300.09	90.2942	473.00	65.6281	667.71	0.0000
300.13	90.2985	475.06	60.9435	677.62	35.4196
301.36	123.9932	476.78	61.3161	685.70	51.9409
302.85	119.8688	477.60	49.3802	692.65	0.0000
256.23	107.5444	482.18	54.0406	695.00	53.3225
304.85	107.5824	487.02	61.7515	696.49	36.3320
306.78	94.8033	492.35	0.0000	696.51	36.3320
308.46	105.8018	497.08	47.5154	697.00	35.2055
311.90	113.9960	505.52	61.0022	697.30	31.3499
316.51	125.8770	507.63	0.0000	697.49	31.3521
319.41	90.2926	511.00	68.5699	702.65	42.1399
320.08	102.6321	514.00	68.7066	706.68	44.5082
321.04	130.8237	514.00	68.7066	711.68	36.6107
323.87	117.9725	520.40	55.4414	720.70	48.2668
325.23	124.2987	520.69	0.0000	721.93	0.0000
328.76	112.3342	522.65	0.0000	722.78	58.6678
333.37	114.0663	527.90	0.0000	722.91	41.4155
333.97	98.6629	528.26	58.8184	723.31	41.4243
334.37	98.7013	529.59	49.5723	724.19	41.4419
338.28	118.6939	529.87	0.0000	727.33	34.5886
338.32	118.6967	531.02	59.9541	733.00	39.3083
311.90	104.6268	537.26	61.2303	735.93	32.9960
340.48	104.6268	546.56	0.0000	333.97	45.1858
340.55	104.6340	552.55	53.4363	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	41.8462	949.00	30.4678	1384.29	33.3762
747.24	43.6523	667.71	0.0000	1408.01	18.7878
748.06	43.3198	962.31	28.7100	1434.09	27.8259
752.31	39.3819	964.08	28.7302	1435.80	26.7246
753.82	35.0317	966.17	28.7531	1457.56	0.0000
756.73	46.4801	911.20	28.7833	1460.82	19.0576
756.80	46.4818	983.53	35.6958	1489.16	23.4914
884.68	42.2388	984.45	0.0000	1505.03	25.7061
765.81	35.2295	1274.44	21.7137	1584.12	15.4272
766.42	38.0584	1001.03	20.1989	1596.21	18.5674
766.84	39.6524	1002.74	20.2116	1620.50	16.8100
772.60	0.0000	1004.73	32.6730	1621.92	15.8819
776.52	32.7499	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	10.4462
778.90	42.5332	1028.54	0.0000	1750.46	0.0000
783.70	36.9434	1037.84	31.4941	1764.49	11.5893
788.74	25.6351	1038.76	0.0000	1063.66	3.2235
792.07	47.0685	631.29	26.8547	1771.35	1.6121
795.86	41.0782	1048.07	28.4502	1791.20	0.0000
810.06	35.9485	1049.04	33.2021	1808.65	6.5020
810.29	33.0760	1050.41	28.4730	1810.72	0.0000
344.28	33.0782	1063.66	19.8657	1836.06	4.3607
810.76	33.0827	1077.00	25.9460		
815.77	36.0388	1077.34	25.9492		
1048.07	40.5931	1085.87	24.0234		
832.01	38.7174	1093.63	25.6938		
834.85	45.0635	1099.45	26.1476		
835.71	47.9886	1112.07	26.9336		
836.80	0.0000	1112.84	25.8625		
846.75	0.0000	1115.54	21.0323		
846.77	46.5752	1120.29	25.3204		
856.80	32.2835	1120.55	25.3220		
860.56	31.2327	1221.41	22.6953		
871.09	42.4427	1129.67	32.5117		
873.19	33.2457	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	37.9608	1173.23	32.9805		
880.51	43.5361	1177.95	39.2223		
881.60	37.0691	1189.05	16.5742		
883.24	44.5137	1204.77	36.4355		
884.68	39.9005	1221.41	28.2557		
889.28	43.6939	1231.02	30.2291		
894.76	47.5199	1235.36	27.3267		
898.04	37.3206	1238.28	25.2466		
900.72	49.5031	1260.41	0.0000		
903.28	35.5299	1271.87	18.7043		
911.20	33.7676	1274.44	27.2281		
912.08	33.7797	1274.54	27.2281		
923.98	0.0000	1291.59	21.3806		
926.50	40.5802	1298.22	0.0000		
929.11	28.7189	1312.11	20.6496		
935.54	43.9460	1332.49	20.5563		
937.49	36.3973	1362.66	0.0000		
944.13	32.3098	1365.19	17.4727		
946.00	37.0886	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:11:49.13

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299027.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM08.CNF;726
Background date  : 29-JUL-2024 05:38:49
Sample date     : 26-JUN-2024 11:35:00 Acquisition date : 31-JUL-2024 16:10:20
Sample ID      : G674299027 Sample quantity : 1.34490E+02 GRAM
Detector name   : GAM08 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.04 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636543 Detector SN# :
Matrix Spike ID : LCS ID :
*****

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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.90*	66	298	1.28	94.00	91	8	1.82E-02	47.4	
2	0	63.01*	56	501	1.07	126.22	121	11	1.56E-02	78.8	
3	2	75.02	322	405	1.20	150.25	145	14	8.94E-02	11.9	8.11E-01
4	2	77.22*	514	342	0.95	154.65	145	14	1.43E-01	7.4	
5	0	83.89	59	383	1.25	168.00	166	7	1.64E-02	56.3	
6	1	87.50	220	236	1.25	175.23	172	22	6.12E-02	12.1	2.45E+00
7	1	89.94	112	344	1.25	180.10	172	22	3.10E-02	31.3	
8	1	92.88*	232	267	1.11	185.99	172	22	6.45E-02	14.4	
9	0	186.27*	423	343	1.42	372.82	368	11	1.18E-01	9.9	
10	0	209.72	56	189	1.19	419.74	416	8	1.55E-02	44.9	
11	3	238.78*	373	185	1.16	477.87	473	18	1.04E-01	7.9	1.23E+00
12	3	242.08	511	181	1.49	484.49	473	18	1.42E-01	6.7	
13	0	259.34	44	159	1.36	519.01	515	8	1.22E-02	52.5	
14	0	270.27	88	269	2.82	540.88	536	13	2.43E-02	40.1	
15	1	295.36*	935	153	1.45	591.06	585	23	2.60E-01	4.0	1.87E+00
16	1	300.32	35	166	1.61	601.00	585	23	9.72E-03	72.2	
17	0	338.56*	63	122	1.05	677.49	673	7	1.76E-02	31.9	
18	0	352.01*	1569	183	1.34	704.39	699	13	4.36E-01	3.1	
19	0	387.44	16	92	1.12	775.26	772	8	4.35E-03	109.8	
20	0	439.34	24	83	1.86	879.09	872	10	6.73E-03	73.7	
21	0	475.06	20	44	0.74	950.54	946	9	5.44E-03	65.7	
22	0	511.41*	40	95	1.75	1023.26	1016	15	1.11E-02	61.1	
23	0	583.24*	114	97	1.47	1166.94	1161	14	3.17E-02	21.0	
24	0	609.33*	1065	90	1.69	1219.14	1213	15	2.96E-01	3.7	
25	2	661.67	34	44	2.18	1323.83	1319	17	9.36E-03	39.6	1.68E+00
26	2	665.48	29	51	1.82	1331.45	1319	17	8.11E-03	45.5	
27	0	703.67	25	26	2.40	1407.83	1403	9	6.91E-03	42.5	
28	0	727.45	30	45	2.14	1455.39	1448	11	8.36E-03	42.8	
29	0	768.42	98	50	1.80	1537.34	1531	11	2.73E-02	17.1	
30	4	782.15	11	6	1.52	1564.80	1563	15	2.93E-03	39.2	2.11E+00
31	4	786.09	50	23	2.29	1572.68	1563	15	1.38E-02	23.0	
32	0	882.16	32	12	1.88	1764.84	1758	12	8.89E-03	28.0	
33	0	911.50*	77	34	1.27	1823.51	1817	13	2.15E-02	19.8	
34	0	934.09	60	29	1.68	1868.70	1862	14	1.68E-02	22.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1001.26*	23	13	2.22	2003.04	1998	9	6.49E-03	36.5	
36	0	1120.15	268	30	1.32	2240.80	2233	15	7.45E-02	7.6	
37	0	1156.78	46	20	8.28	2314.05	2304	22	1.27E-02	29.9	
38	0	1238.30	84	35	1.73	2477.07	2473	14	2.33E-02	18.5	
39	0	1266.97	10	17	0.73	2534.40	2525	13	2.71E-03	97.4	
40	0	1280.02	28	24	4.29	2560.50	2551	16	7.89E-03	42.8	
41	0	1377.64	67	18	3.41	2755.70	2746	18	1.86E-02	19.2	
42	0	1401.48	21	16	5.70	2803.38	2794	16	5.83E-03	47.9	
43	0	1408.20*	25	22	1.69	2816.81	2811	13	7.07E-03	43.7	
44	0	1436.21	18	9	4.21	2872.83	2861	18	5.00E-03	45.6	
45	0	1460.48*	125	14	1.89	2921.35	2915	16	3.49E-02	11.1	
46	0	1478.02	13	12	1.29	2956.43	2950	13	3.67E-03	62.0	
47	0	1491.83	20	22	5.94	2984.05	2972	22	5.56E-03	63.8	
48	0	1509.06	38	17	1.37	3018.50	3010	17	1.06E-02	29.7	
49	0	1583.03	13	16	6.32	3166.39	3156	16	3.60E-03	80.5	
50	0	1663.09	4	9	0.50	3326.46	3321	8	1.03E-03	155.6	
51	0	1729.32	52	4	2.81	3458.89	3452	16	1.43E-02	16.5	
52	0	1764.35*	189	5	2.77	3528.92	3521	17	5.25E-02	7.7	
53	0	1848.50	30	16	0.92	3697.17	3687	16	8.33E-03	35.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299027.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 11:35:00	Acquisition date	: 31-JUL-2024 16:10:20
Sample ID	: G674299027	Sample quantity	: 134.49 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA8	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:01.04 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	120	10.66*	9.540E-01	6.577E+00	6.577E+00	22.17
RB-84	881.60	32	68.90*	1.484E+00	1.737E-01	3.654E-01	55.90
CD-109	88.03	258	3.70*	4.606E+00	8.461E+00	8.921E+00	24.16
I-126	388.63	17	35.60	2.874E+00	9.039E-02	5.969E-01	219.63
	666.33	30	32.90*	1.890E+00	2.662E-01	1.758E+00	90.96
	753.82	-----	4.15	1.702E+00	-----	Line Not Found	-----
SN-126	64.28	67	9.60	2.106E+00	1.855E+00	1.855E+00	157.63
	86.94	258	8.90	4.606E+00	3.517E+00	3.517E+00	24.16
	87.57	258	37.00*	4.606E+00	8.461E-01	8.461E-01	24.16
BA-137M	661.66	34	89.90*	1.899E+00	1.120E-01	1.123E-01	79.22
CS-137	661.66	34	85.10*	1.899E+00	1.183E-01	1.186E-01	79.22
TL-208	277.37	-----	6.60	3.683E+00	-----	Line Not Found	-----
	583.19	117	85.00*	2.103E+00	3.651E-01	3.651E-01	42.08
	860.56	-----	12.50	1.517E+00	-----	Line Not Found	-----
BI-210	46.54	80	4.25*	4.463E-01	2.354E+01	2.361E+01	94.81
PB-210	46.54	80	4.25*	4.463E-01	2.354E+01	2.361E+01	94.81
BI-211	72.87	-----	1.23	3.277E+00	-----	Line Not Found	-----
	351.06	1671	12.92*	3.086E+00	2.339E+01	2.339E+01	6.20
BI-212	727.33	30	6.67*	1.754E+00	1.449E+00	1.449E+00	85.53
	1620.50	-----	1.47	8.851E-01	-----	Line Not Found	-----
PB-212	74.82	381	10.28	3.510E+00	5.893E+00	5.893E+00	23.70
	77.11	608	17.10	3.736E+00	5.313E+00	5.313E+00	14.72
	238.63	409	43.60*	4.108E+00	1.274E+00	1.274E+00	15.79
	300.09	38	3.30	3.473E+00	1.836E+00	1.836E+00	144.45
BI-213	440.45	25	25.94*	2.616E+00	2.090E-01	2.090E-01	147.46
BI-214	609.32	1089	45.49*	2.030E+00	6.584E+00	6.584E+00	7.34
	1120.29	262	14.92	1.196E+00	8.182E+00	8.183E+00	15.11
	1764.49	178	15.30	8.412E-01	7.716E+00	7.717E+00	15.49
PB-214	74.82	381	5.80	3.510E+00	1.044E+01	1.045E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.181E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.696E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
RN-222	609.32	1089	45.49*	2.030E+00	6.584E+00	6.584E+00	7.34
	1120.29	262	14.92	1.196E+00	8.182E+00	8.183E+00	15.11
	1764.49	178	15.30	8.412E-01	7.716E+00	7.717E+00	15.49
RA-224	240.99	559	4.10*	4.068E+00	1.870E+01	1.870E+01	13.35
RA-226	74.82	381	5.80	3.510E+00	1.044E+01	1.045E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.181E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.696E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
TH-228	74.82	381	10.28	3.510E+00	5.893E+00	5.893E+00	23.70
	77.11	608	17.10	3.736E+00	5.313E+00	5.313E+00	14.72
	238.63	409	43.60*	4.108E+00	1.274E+00	1.274E+00	15.79
	300.09	38	3.30	3.473E+00	1.836E+00	1.836E+00	144.45
TH-230	74.82	381	5.80	3.510E+00	1.044E+01	1.044E+01	23.70

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.180E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.695E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
PA-231	283.69	-----	1.70	3.622E+00	-----	Line Not Found	-----
	301.36	38	5.35*	3.473E+00	1.133E+00	1.133E+00	144.45
TH-234	63.29	67	3.70*	2.106E+00	4.813E+00	4.813E+00	157.63
	92.59	271	4.23	4.938E+00	7.241E+00	7.241E+00	28.85
U-234	74.82	381	5.80	3.510E+00	1.044E+01	1.044E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.180E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.695E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
U-235	89.96	131	3.47	4.767E+00	4.406E+00	4.406E+00	62.51
	93.35	271	5.60	4.938E+00	5.469E+00	5.469E+00	28.85
	143.76	-----	10.96*	5.499E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.223E+00	-----	Line Not Found	-----
	185.72	472	57.20	4.857E+00	9.479E-01	9.479E-01	19.83
	205.31	-----	5.01	4.563E+00	-----	Line Not Found	-----
U-238	63.29	67	3.70*	2.106E+00	4.813E+00	4.813E+00	157.63
	92.59	271	4.23	4.938E+00	7.241E+00	7.241E+00	28.85
AM-243	43.53	-----	5.90	2.524E-01	-----	Line Not Found	-----
	74.66	381	67.20*	3.510E+00	9.015E-01	9.015E-01	23.70
CF-249	252.80	-----	2.50	3.942E+00	-----	Line Not Found	-----
	333.37	-----	14.60	3.214E+00	-----	Line Not Found	-----
	388.16	17	66.00*	2.874E+00	4.876E-02	4.877E-02	219.63
ANH-511	511.00	41	100.00*	2.330E+00	9.873E-02	9.873E-02	122.12

Flag: "*" = Keyline

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299027.CNF;1 *
* Acquisition date : 31-JUL-2024 16:10:20 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.04 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:35:00 Analyst initials: MXR1 *
* Sample ID : G674299027 Sample Quantity : 1.3449E+02 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	6.577E+00	1.429E+00	1.037E+00
RB-84	3.654E-01	2.002E-01	2.587E-01
CD-109	8.921E+00	2.112E+00	2.443E+00
I-126	1.758E+00	1.567E+00	1.710E+00
SN-126	8.461E-01	2.004E-01	2.332E-01
BA-137M	1.123E-01	8.716E-02	1.021E-01
CS-137	1.186E-01	9.208E-02	1.079E-01
TL-208	3.651E-01	1.506E-01	1.082E-01
BI-210	2.361E+01	2.193E+01	2.086E+01
PB-210	2.361E+01	2.193E+01	2.086E+01
BI-211	2.339E+01	1.421E+00	6.513E-01
BI-212	1.449E+00	1.214E+00	1.583E+00
PB-212	1.274E+00	1.971E-01	1.926E-01
BI-213	2.090E-01	3.020E-01	2.865E-01
BI-214	6.584E+00	4.736E-01	2.159E-01
PB-214	8.488E+00	5.156E-01	2.369E-01
RN-222	6.584E+00	4.736E-01	2.159E-01
RA-224	1.870E+01	2.447E+00	2.065E+00
RA-226	8.488E+00	5.156E-01	2.369E-01
TH-228	1.274E+00	1.971E-01	1.926E-01
TH-230	8.488E+00	5.156E-01	2.369E-01
PA-231	1.133E+00	1.603E+00	1.600E+00
TH-234	4.813E+00	7.435E+00	5.115E+00
U-234	8.488E+00	5.156E-01	2.369E-01
U-235	5.568E-01	4.132E-01	7.580E-01
U-238	4.813E+00	7.435E+00	5.115E+00
AM-243	9.015E-01	2.094E-01	1.970E-01
CF-249	4.877E-02	1.050E-01	1.150E-01
ANH-511	9.873E-02	1.182E-01	8.906E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-5.889E-01	8.223E-01	1.200E+00	NOT IDENT.

NA-22	1.242E-02	6.372E-02	1.108E-01	NOT IDENT.
NA-24	0.000E+00	5.605E+15	0.000E+00	SHORT HLIF
AL-26	-6.796E-03	4.368E-02	8.795E-02	NOT IDENT.
SC-46	-2.020E-02	7.090E-02	1.299E-01	FAIL ABUN
V-48	-2.482E-03	2.573E-01	4.856E-01	NOT IDENT.
CR-51	-1.950E-01	1.068E+00	1.940E+00	NOT IDENT.
MN-52	9.120E-01	4.607E+00	9.407E+00	FAIL ABUN
MN-54	-2.246E-02	6.623E-02	1.198E-01	NOT IDENT.
CO-56	-5.046E-02	7.842E-02	1.372E-01	FAIL ABUN
MN-56	0.000E+00	1.547E+41	0.000E+00	SHORT HLIF
CO-57	-9.617E-03	4.867E-02	8.414E-02	NOT IDENT.
CO-58	-5.650E-03	7.338E-02	1.384E-01	NOT IDENT.
FE-59	-2.418E-01	1.904E-01	2.884E-01	NOT IDENT.
CO-60	1.060E-02	5.961E-02	1.158E-01	NOT IDENT.
ZN-65	5.127E-03	1.540E-01	2.535E-01	NOT IDENT.
GE-68	1.062E+00	2.025E+00	4.062E+00	NOT IDENT.
AS-73	-2.047E+00	2.642E+00	4.658E+00	NOT IDENT.
AS-74	1.264E-01	3.312E-01	6.546E-01	NOT IDENT.
SE-75	-6.085E-02	8.741E-02	1.539E-01	NOT IDENT.
BR-77	0.000E+00	1.073E+04	0.000E+00	SHORT HLIF
SR-82	-1.648E-01	8.718E-01	1.629E+00	NOT IDENT.
RB-83	7.858E-03	1.327E-01	2.420E-01	NOT IDENT.
KR-85	2.126E+00	1.329E+01	2.164E+01	NOT IDENT.
SR-85	1.379E-02	8.696E-02	1.416E-01	NOT IDENT.
RB-86	1.089E+00	2.577E+00	5.100E+00	NOT IDENT.
Y-88	5.101E-03	4.325E-02	9.873E-02	NOT IDENT.
Y-91	-1.876E+00	4.176E+01	7.646E+01	NOT IDENT.
NB-94	7.801E-02	6.496E-02	1.083E-01	FAIL ABUN
NB-95	1.759E-01	8.214E-02	1.778E-01	NOT IDENT.
NB-95M	2.404E-01	2.866E-01	5.063E-01	NOT IDENT.
ZR-95	-6.382E-02	1.387E-01	2.510E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.124E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	3.006E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	8.407E+40	0.000E+00	SHORT HLIF
RH-101	-2.350E-02	6.061E-02	1.032E-01	NOT IDENT.
RH-102	5.662E-02	7.902E-02	1.636E-01	FAIL ABUN
RU-103	2.757E-02	9.257E-02	1.729E-01	FAIL ABUN
RH-106	-6.086E-02	4.619E-01	8.833E-01	NOT IDENT.
RU-106	-6.086E-02	4.619E-01	8.833E-01	NOT IDENT.
AG-108M	1.190E-02	5.632E-02	9.361E-02	NOT IDENT.
AG-110	1.671E-01	1.434E+00	2.448E+00	NOT IDENT.
AG-110M	1.940E-02	8.700E-02	1.514E-01	NOT IDENT.
SN-113	-2.672E-02	8.912E-02	1.408E-01	NOT IDENT.
CD-115	0.000E+00	1.008E+04	0.000E+00	SHORT HLIF
SN-117M	1.523E-01	2.664E-01	5.185E-01	NOT IDENT.
SB-122	0.000E+00	5.409E+02	0.000E+00	SHORT HLIF
TE-123M	3.463E-02	5.548E-02	1.082E-01	NOT IDENT.
SB-124	2.411E-02	1.532E-01	3.238E-01	NOT IDENT.
SB-125	-2.194E-02	1.628E-01	2.920E-01	NOT IDENT.
TE-125M	1.531E+01	2.275E+01	4.147E+01	NOT IDENT.
SB-126	3.458E-01	7.151E-01	1.296E+00	FAIL ABUN
SB-127	5.698E+00	7.405E+01	1.431E+02	NOT IDENT.
I-131	2.238E-01	1.058E+00	1.980E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	9.629E+01	0.000E+00	SHORT HLIF
BA-133	-5.843E-02	8.419E-02	1.280E-01	NOT IDENT.
I-133	0.000E+00	1.003E+11	0.000E+00	SHORT HLIF
CS-134	3.892E-02	6.760E-02	1.350E-01	NOT IDENT.
I-135	0.000E+00	1.022E+38	0.000E+00	SHORT HLIF
CS-136	-3.681E-01	4.907E-01	8.248E-01	NOT IDENT.
LA-138	1.518E-01	1.358E-01	2.004E-01	FAIL ABUN
CE-139	-1.301E-02	6.115E-02	1.146E-01	NOT IDENT.
BA-140	-4.982E-01	1.266E+00	2.189E+00	NOT IDENT.
LA-140	-5.356E-01	4.209E-01	6.294E-01	NOT IDENT.
CE-141	-1.439E-01	2.013E-01	3.328E-01	NOT IDENT.
CE-143	0.000E+00	7.324E+06	0.000E+00	SHORT HLIF
CE-144	1.368E-01	3.801E-01	6.742E-01	NOT IDENT.
PM-144	4.136E-02	5.003E-02	1.042E-01	NOT IDENT.
PR-144	3.138E+00	3.785E+00	7.883E+00	NOT IDENT.
PM-146	1.440E-02	7.490E-02	1.378E-01	NOT IDENT.
ND-147	-1.799E+00	3.611E+00	6.155E+00	FAIL ABUN
PM-147	-2.384E+02	1.352E+03	2.343E+03	NOT IDENT.
PM-149	0.000E+00	8.859E+04	0.000E+00	SHORT HLIF
EU-150	-2.459E-02	5.524E-02	8.674E-02	FAIL ABUN
EU-152	-1.353E-02	1.806E-01	3.282E-01	FAIL ABUN
GD-153	-8.048E-02	1.781E-01	2.816E-01	NOT IDENT.
EU-154	3.482E-02	1.787E-01	3.108E-01	NOT IDENT.

EU-155	-1.432E-02	1.774E-01	3.127E-01	FAIL ABUN
TB-160	-8.661E-02	2.556E-01	4.026E-01	FAIL ABUN
HO-166M	-2.051E-03	9.012E-02	1.721E-01	NOT IDENT.
TM-171	-1.533E+01	4.859E+01	8.805E+01	NOT IDENT.
HF-172	-7.960E-02	3.515E-01	6.053E-01	FAIL ABUN
LU-172	5.060E-02	1.063E-01	2.095E-01	FAIL ABUN
LU-176	5.771E-03	4.703E-02	8.735E-02	FAIL ABUN
HF-181	-1.908E-02	1.031E-01	1.826E-01	NOT IDENT.
TA-182	1.822E-01	2.858E-01	5.828E-01	FAIL ABUN
RE-183	1.152E-01	5.799E-01	1.072E+00	NOT IDENT.
RE-184	7.693E-02	2.650E-01	5.241E-01	NOT IDENT.
W-188	2.292E+00	1.796E+01	2.995E+01	FAIL ABUN
IR-192	2.871E-03	7.175E-02	1.327E-01	FAIL ABUN
HG-203	-2.034E-02	9.320E-02	1.699E-01	NOT IDENT.
TL-204	3.456E-01	1.102E+01	1.834E+01	FAIL ABUN
BI-207	-3.560E-02	7.502E-02	1.319E-01	FAIL ABUN
PB-211	-2.569E-01	1.329E+00	2.371E+00	NOT IDENT.
RN-219	-5.335E-02	7.627E-01	1.374E+00	FAIL ABUN
RA-223	4.292E-01	1.138E+00	2.143E+00	FAIL ABUN
AC-225	-1.101E+00	4.000E+00	7.386E+00	NOT IDENT.
AC-227	-8.420E-02	5.128E-01	8.429E-01	FAIL ABUN
TH-227	-8.420E-02	5.128E-01	8.429E-01	FAIL ABUN
AC-228	0.000E+00	4.466E-01	7.602E-01	FAIL ABUN
RA-228	0.000E+00	4.466E-01	7.602E-01	FAIL ABUN
TH-229	3.752E-01	9.383E-01	1.795E+00	FAIL ABUN
TH-231	4.292E-01	1.138E+00	2.143E+00	FAIL ABUN
TH-232	0.000E+00	4.466E-01	7.602E-01	FAIL ABUN
PA-233	-8.259E-03	1.133E-01	2.077E-01	FAIL ABUN
PA-234	-1.992E-01	4.740E-01	8.464E-01	FAIL ABUN
PA-234M	1.154E+01	8.253E+00	1.574E+01	FAIL ABUN
NP-237	-8.259E-03	1.133E-01	2.077E-01	FAIL ABUN
NP-238	0.000E+00	2.084E+04	0.000E+00	SHORT HLIF
NP-239	1.082E-01	4.706E-01	8.373E-01	NOT IDENT.
PU-239	3.964E+02	6.309E+02	1.135E+03	NOT IDENT.
AM-241	-2.045E-01	3.819E-01	6.220E-01	NOT IDENT.
CM-243	4.127E-02	1.759E-01	3.165E-01	NOT IDENT.
BK-247	-1.283E-01	1.480E-01	2.442E-01	FAIL ABUN
CM-247	6.328E-03	6.996E-02	1.276E-01	NOT IDENT.
CF-251	-3.349E-02	2.270E-01	4.260E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	120	10.66*	9.540E-01	6.577E+00	6.577E+00	22.17
RB-84	881.60	32	68.90*	1.484E+00	1.737E-01	3.654E-01	55.90
CD-109	88.03	258	3.70*	4.606E+00	8.461E+00	8.921E+00	24.16
I-126	388.63	17	35.60	2.874E+00	9.039E-02	5.969E-01	219.63
	666.33	30	32.90*	1.890E+00	2.662E-01	1.758E+00	90.96
	753.82	-----	4.15	1.702E+00	-----	Line Not Found	-----
SN-126	64.28	67	9.60	2.106E+00	1.855E+00	1.855E+00	157.63
	86.94	258	8.90	4.606E+00	3.517E+00	3.517E+00	24.16
	87.57	258	37.00*	4.606E+00	8.461E-01	8.461E-01	24.16
BA-137M	661.66	34	89.90*	1.899E+00	1.120E-01	1.123E-01	79.22
CS-137	661.66	34	85.10*	1.899E+00	1.183E-01	1.186E-01	79.22
TL-208	277.37	-----	6.60	3.683E+00	-----	Line Not Found	-----
	583.19	117	85.00*	2.103E+00	3.651E-01	3.651E-01	42.08
	860.56	-----	12.50	1.517E+00	-----	Line Not Found	-----
BI-210	46.54	80	4.25*	4.463E-01	2.354E+01	2.361E+01	94.81
PB-210	46.54	80	4.25*	4.463E-01	2.354E+01	2.361E+01	94.81
BI-211	72.87	-----	1.23	3.277E+00	-----	Line Not Found	-----
	351.06	1671	12.92*	3.086E+00	2.339E+01	2.339E+01	6.20
BI-212	727.33	30	6.67*	1.754E+00	1.449E+00	1.449E+00	85.53
	1620.50	-----	1.47	8.851E-01	-----	Line Not Found	-----
PB-212	74.82	381	10.28	3.510E+00	5.893E+00	5.893E+00	23.70
	77.11	608	17.10	3.736E+00	5.313E+00	5.313E+00	14.72
	238.63	409	43.60*	4.108E+00	1.274E+00	1.274E+00	15.79
	300.09	38	3.30	3.473E+00	1.836E+00	1.836E+00	144.45
BI-213	440.45	25	25.94*	2.616E+00	2.090E-01	2.090E-01	147.46
BI-214	609.32	1089	45.49*	2.030E+00	6.584E+00	6.584E+00	7.34
	1120.29	262	14.92	1.196E+00	8.182E+00	8.183E+00	15.11
	1764.49	178	15.30	8.412E-01	7.716E+00	7.717E+00	15.49
PB-214	74.82	381	5.80	3.510E+00	1.044E+01	1.045E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.181E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.696E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
RN-222	609.32	1089	45.49*	2.030E+00	6.584E+00	6.584E+00	7.34
	1120.29	262	14.92	1.196E+00	8.182E+00	8.183E+00	15.11
	1764.49	178	15.30	8.412E-01	7.716E+00	7.717E+00	15.49
RA-224	240.99	559	4.10*	4.068E+00	1.870E+01	1.870E+01	13.35
RA-226	74.82	381	5.80	3.510E+00	1.044E+01	1.045E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.181E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
	295.22	1009	18.42	3.516E+00	8.695E+00	8.696E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
TH-228	74.82	381	10.28	3.510E+00	5.893E+00	5.893E+00	23.70
	77.11	608	17.10	3.736E+00	5.313E+00	5.313E+00	14.72
	238.63	409	43.60*	4.108E+00	1.274E+00	1.274E+00	15.79

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	300.09	38	3.30	3.473E+00	1.836E+00	1.836E+00	144.45
	74.82	381	5.80	3.510E+00	1.044E+01	1.044E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.180E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
PA-231	295.22	1009	18.42	3.516E+00	8.695E+00	8.695E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
	283.69	-----	1.70	3.622E+00	-----	Line Not Found	-----
	301.36	38	5.35*	3.473E+00	1.133E+00	1.133E+00	144.45
	63.29	67	3.70*	2.106E+00	4.813E+00	4.813E+00	157.63
TH-234	92.59	271	4.23	4.938E+00	7.241E+00	7.241E+00	28.85
	74.82	381	5.80	3.510E+00	1.044E+01	1.044E+01	23.70
	77.11	608	9.70	3.736E+00	9.366E+00	9.366E+00	14.72
	87.09	258	3.41	4.606E+00	9.180E+00	9.180E+00	24.16
	242.00	559	7.25	4.068E+00	1.058E+01	1.058E+01	13.35
U-234	295.22	1009	18.42	3.516E+00	8.695E+00	8.695E+00	8.10
	351.93	1671	35.60*	3.086E+00	8.488E+00	8.488E+00	6.20
	89.96	131	3.47	4.767E+00	4.406E+00	4.406E+00	62.51
	93.35	271	5.60	4.938E+00	5.469E+00	5.469E+00	28.85
	143.76	-----	10.96*	5.499E+00	-----	Line Not Found	-----
U-235	163.33	-----	5.08	5.223E+00	-----	Line Not Found	-----
	185.72	472	57.20	4.857E+00	9.479E-01	9.479E-01	19.83
	205.31	-----	5.01	4.563E+00	-----	Line Not Found	-----
	63.29	67	3.70*	2.106E+00	4.813E+00	4.813E+00	157.63
	92.59	271	4.23	4.938E+00	7.241E+00	7.241E+00	28.85
AM-243	43.53	-----	5.90	2.524E-01	-----	Line Not Found	-----
	74.66	381	67.20*	3.510E+00	9.015E-01	9.015E-01	23.70
CF-249	252.80	-----	2.50	3.942E+00	-----	Line Not Found	-----
	333.37	-----	14.60	3.214E+00	-----	Line Not Found	-----
ANH-511	388.16	17	66.00*	2.874E+00	4.876E-02	4.877E-02	219.63
	511.00	41	100.00*	2.330E+00	9.873E-02	9.873E-02	122.12

Flag: "*" = Keyline

Total number of lines in spectrum 53
Number of unidentified lines 15
Number of lines tentatively identified by NID 38 71.70%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	6.577E+00	6.577E+00	1.458E+00	22.17	
RB-84	32.82D	2.10	1.737E-01	3.654E-01	2.043E-01	55.90	
CD-109	461.40D	1.05	8.461E+00	8.921E+00	2.156E+00	24.16	
I-126	12.93D	6.60	2.662E-01	1.758E+00	1.599E+00	90.96	
SN-126	2.30E+05Y	1.00	8.461E-01	8.461E-01	2.045E-01	24.16	
BA-137M	30.08Y	1.00	1.120E-01	1.123E-01	0.889E-01	79.22	
CS-137	30.08Y	1.00	1.183E-01	1.186E-01	0.940E-01	79.22	
TL-208	1.41E+10Y	1.00	3.651E-01	3.651E-01	1.536E-01	42.08	
BI-210	22.20Y	1.00	2.354E+01	2.361E+01	2.238E+01	94.81	
PB-210	22.20Y	1.00	2.354E+01	2.361E+01	2.238E+01	94.81	
BI-211	7.04E+08Y	1.00	2.339E+01	2.339E+01	0.145E+01	6.20	
BI-212	1.41E+10Y	1.00	1.449E+00	1.449E+00	1.239E+00	85.53	
PB-212	1.41E+10Y	1.00	1.274E+00	1.274E+00	0.201E+00	15.79	
BI-213	7340.00Y	1.00	2.090E-01	2.090E-01	3.082E-01	147.46	
BI-214	1600.00Y	1.00	6.584E+00	6.584E+00	0.483E+00	7.34	
PB-214	1600.00Y	1.00	8.488E+00	8.488E+00	0.526E+00	6.20	
RN-222	1600.00Y	1.00	6.584E+00	6.584E+00	0.483E+00	7.34	
RA-224	1.41E+10Y	1.00	1.870E+01	1.870E+01	0.250E+01	13.35	
RA-226	1600.00Y	1.00	8.488E+00	8.488E+00	0.526E+00	6.20	
TH-228	1.41E+10Y	1.00	1.274E+00	1.274E+00	0.201E+00	15.79	
TH-230	7.54E+04Y	1.00	8.488E+00	8.488E+00	0.526E+00	6.20	
PA-231	7.04E+08Y	1.00	1.133E+00	1.133E+00	1.636E+00	144.45	
TH-234	4.47E+09Y	1.00	4.813E+00	4.813E+00	7.587E+00	157.63	
U-234	2.45E+05Y	1.00	8.488E+00	8.488E+00	0.526E+00	6.20	
U-235	7.04E+08Y	1.00	9.479E-01	9.479E-01	1.880E-01	19.83	K
U-238	4.47E+09Y	1.00	4.813E+00	4.813E+00	7.587E+00	157.63	
AM-243	7370.00Y	1.00	9.015E-01	9.015E-01	2.137E-01	23.70	
CF-249	351.00Y	1.00	4.876E-02	4.877E-02	10.71E-02	219.63	
ANH-511	1.00E+09Y	1.00	9.873E-02	9.873E-02	12.06E-02	122.12	
Total Activity :			1.702E+02	1.724E+02			

Grand Total Activity : 1.702E+02 1.724E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.89	69	450	1.25	168.00	166	7	1.64E-02	****	4.34E+00	T
0	209.72	62	209	1.19	419.74	416	8	1.55E-02	89.7	4.50E+00	T
0	259.34	48	173	1.36	519.01	515	8	1.22E-02	****	3.87E+00	
0	270.27	95	292	2.82	540.88	536	13	2.43E-02	80.1	3.75E+00	T
0	338.56	68	130	1.05	677.49	673	7	1.76E-02	63.8	3.18E+00	T
0	475.06	20	46	0.74	950.54	946	9	5.44E-03	****	2.47E+00	T
0	703.67	25	26	2.40	1407.83	1403	9	6.91E-03	85.0	1.80E+00	T
0	768.42	99	50	1.80	1537.34	1531	11	2.73E-02	34.3	1.67E+00	
4	782.15	11	6	1.52	1564.80	1563	15	2.93E-03	78.3	1.65E+00	
4	786.09	50	23	2.29	1572.68	1563	15	1.38E-02	46.0	1.64E+00	
0	911.50	77	34	1.27	1823.51	1817	13	2.15E-02	39.6	1.44E+00	T
0	934.09	60	28	1.68	1868.70	1862	14	1.68E-02	45.3	1.41E+00	T
0	1001.26	23	13	2.22	2003.04	1998	9	6.49E-03	73.0	1.32E+00	T
0	1156.78	44	20	8.28	2314.05	2304	22	1.27E-02	59.9	1.16E+00	
0	1238.30	81	34	1.73	2477.07	2473	14	2.33E-02	37.0	1.09E+00	T
0	1266.97	9	17	0.73	2534.40	2525	13	2.71E-03	****	1.07E+00	
0	1280.02	27	23	4.29	2560.50	2551	16	7.89E-03	85.7	1.06E+00	
0	1377.64	64	17	3.41	2755.70	2746	18	1.86E-02	38.5	1.00E+00	
0	1401.48	20	15	5.70	2803.38	2794	16	5.83E-03	95.7	9.86E-01	
0	1408.20	24	21	1.69	2816.81	2811	13	7.07E-03	87.4	9.82E-01	T
0	1436.21	17	9	4.21	2872.83	2861	18	5.00E-03	91.3	9.67E-01	T
0	1478.02	13	11	1.29	2956.43	2950	13	3.67E-03	****	9.45E-01	
0	1491.83	19	21	5.94	2984.05	2972	22	5.56E-03	****	9.39E-01	
0	1509.06	36	16	1.37	3018.50	3010	17	1.06E-02	59.4	9.31E-01	
0	1583.03	12	15	6.32	3166.39	3156	16	3.60E-03	****	8.99E-01	T
0	1663.09	3	9	0.50	3326.46	3321	8	1.03E-03	****	8.70E-01	
0	1729.32	49	4	2.81	3458.89	3452	16	1.43E-02	32.9	8.50E-01	
0	1848.50	28	15	0.92	3697.17	3687	16	8.33E-03	69.9	8.22E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299027.CNF;1 *
* Acquisition date : 31-JUL-2024 16:10:20 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.04 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:35:00 Nuclide Library : SOLID *
* Sample ID : G674299027 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.3449E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.442E-01
RB-84	1.137E-01
CD-109	1.173E+00
I-126	7.737E-01
SN-126	1.120E-01
BA-137M	4.657E-02
CS-137	4.920E-02
TL-208	4.980E-02
BI-210	9.985E+00
PB-210	9.985E+00
BI-211	3.064E-01
BI-212	7.261E-01
PB-212	9.200E-02
BI-213	1.319E-01
BI-214	9.966E-02
PB-214	1.114E-01
RN-222	9.966E-02
RA-224	9.862E-01
RA-226	1.114E-01
TH-228	9.200E-02
TH-230	1.114E-01
PA-231	7.583E-01
TH-234	2.458E+00
U-234	1.114E-01
U-235	3.661E-01
U-238	2.458E+00
AM-243	9.513E-02
CF-249	5.345E-02
ANH-511	4.124E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.525E-01	NOT IDENT.
NA-22	4.813E-02	NOT IDENT.

NA-24	0.000E+00	SHORT HLIF
AL-26	3.489E-02	NOT IDENT.
SC-46	5.801E-02	FAIL ABUN
V-48	2.168E-01	NOT IDENT.
CR-51	9.134E-01	NOT IDENT.
MN-52	4.089E+00	FAIL ABUN
MN-54	5.462E-02	NOT IDENT.
CO-56	6.178E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	4.030E-02	NOT IDENT.
CO-58	6.244E-02	NOT IDENT.
FE-59	1.251E-01	NOT IDENT.
CO-60	5.043E-02	NOT IDENT.
ZN-65	1.129E-01	NOT IDENT.
GE-68	1.823E+00	NOT IDENT.
AS-73	2.225E+00	NOT IDENT.
AS-74	3.025E-01	NOT IDENT.
SE-75	7.273E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	7.345E-01	NOT IDENT.
RB-83	1.111E-01	NOT IDENT.
KR-85	1.005E+01	NOT IDENT.
SR-85	6.578E-02	NOT IDENT.
RB-86	2.288E+00	NOT IDENT.
Y-88	3.779E-02	NOT IDENT.
Y-91	3.429E+01	NOT IDENT.
NB-94	4.994E-02	FAIL ABUN
NB-95	8.227E-02	NOT IDENT.
NB-95M	2.421E-01	NOT IDENT.
ZR-95	1.134E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.951E-02	NOT IDENT.
RH-102	7.477E-02	FAIL ABUN
RU-103	7.983E-02	FAIL ABUN
RH-106	4.004E-01	NOT IDENT.
RU-106	4.004E-01	NOT IDENT.
AG-108M	4.358E-02	NOT IDENT.
AG-110	1.126E+00	NOT IDENT.
AG-110M	6.791E-02	NOT IDENT.
SN-113	6.525E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.490E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	5.197E-02	NOT IDENT.
SB-124	1.343E-01	NOT IDENT.
SB-125	1.361E-01	NOT IDENT.
TE-125M	1.993E+01	NOT IDENT.
SB-126	5.901E-01	FAIL ABUN
SB-127	6.515E+01	NOT IDENT.
I-131	9.244E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.989E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	6.183E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.647E-01	NOT IDENT.
LA-138	8.830E-02	FAIL ABUN
CE-139	5.508E-02	NOT IDENT.
BA-140	9.996E-01	NOT IDENT.
LA-140	2.547E-01	NOT IDENT.
CE-141	1.602E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	3.234E-01	NOT IDENT.
PM-144	4.758E-02	NOT IDENT.
PR-144	3.600E+00	NOT IDENT.
PM-146	6.422E-02	NOT IDENT.
ND-147	2.839E+00	FAIL ABUN
PM-147	1.122E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	4.086E-02	FAIL ABUN
EU-152	1.548E-01	FAIL ABUN
GD-153	1.350E-01	NOT IDENT.
EU-154	1.350E-01	NOT IDENT.
EU-155	1.494E-01	FAIL ABUN

TB-160	1.775E-01	FAIL ABUN
HO-166M	7.815E-02	NOT IDENT.
TM-171	4.208E+01	NOT IDENT.
HF-172	2.899E-01	FAIL ABUN
LU-172	9.456E-02	FAIL ABUN
LU-176	4.126E-02	FAIL ABUN
HF-181	8.432E-02	NOT IDENT.
TA-182	2.601E-01	FAIL ABUN
RE-183	5.141E-01	NOT IDENT.
RE-184	2.347E-01	NOT IDENT.
W-188	1.421E+01	FAIL ABUN
IR-192	6.245E-02	FAIL ABUN
HG-203	8.056E-02	NOT IDENT.
TL-204	8.835E+00	FAIL ABUN
BI-207	5.784E-02	FAIL ABUN
PB-211	1.112E+00	NOT IDENT.
RN-219	6.455E-01	FAIL ABUN
RA-223	1.012E+00	FAIL ABUN
AC-225	3.515E+00	NOT IDENT.
AC-227	4.006E-01	FAIL ABUN
TH-227	4.006E-01	FAIL ABUN
AC-228	3.598E-01	FAIL ABUN
RA-228	3.598E-01	FAIL ABUN
TH-229	8.604E-01	FAIL ABUN
TH-231	1.012E+00	FAIL ABUN
TH-232	3.598E-01	FAIL ABUN
PA-233	9.791E-02	FAIL ABUN
PA-234	3.777E-01	FAIL ABUN
PA-234M	7.190E+00	FAIL ABUN
NP-237	9.791E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	4.011E-01	NOT IDENT.
PU-239	5.455E+02	NOT IDENT.
AM-241	2.979E-01	NOT IDENT.
CM-243	1.512E-01	NOT IDENT.
BK-247	1.153E-01	FAIL ABUN
CM-247	5.996E-02	NOT IDENT.
CF-251	2.040E-01	NOT IDENT.

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299027.CNF;1 *
* Acquisition date : 31-JUL-2024 16:10:20 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.04 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:35:00 Nuclide Library : SOLID *
* Sample ID : G674299027 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.3449E+02 GRAM *
* Quantity Err(%) : 1.4871E-03 % *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	6.577E+00	1.559E+00	1.559E+00
RB-84	3.654E-01	2.030E-01	2.030E-01
CD-109	8.921E+00	2.389E+00	2.389E+00
I-126	1.758E+00	1.576E+00	1.576E+00
SN-126	8.461E-01	2.222E-01	2.222E-01
BA-137M	1.123E-01	8.766E-02	8.766E-02
CS-137	1.186E-01	9.261E-02	9.261E-02
TL-208	3.651E-01	1.539E-01	1.539E-01
BI-210	2.361E+01	2.210E+01	2.210E+01
PB-210	2.361E+01	2.210E+01	2.210E+01
BI-211	2.339E+01	2.696E+00	2.696E+00
BI-212	1.449E+00	1.221E+00	1.221E+00
PB-212	1.274E+00	2.370E-01	2.370E-01
BI-213	2.090E-01	3.026E-01	3.026E-01
BI-214	6.584E+00	7.411E-01	7.411E-01
PB-214	8.488E+00	9.686E-01	9.686E-01
RN-222	6.584E+00	7.411E-01	7.411E-01
RA-224	1.870E+01	3.127E+00	3.127E+00
RA-226	8.488E+00	9.686E-01	9.686E-01
TH-228	1.274E+00	2.370E-01	2.370E-01
TH-230	8.488E+00	9.685E-01	9.685E-01
PA-231	1.133E+00	1.625E+00	1.625E+00
TH-234	4.813E+00	7.527E+00	7.527E+00
U-234	8.488E+00	9.685E-01	9.685E-01
U-235	5.568E-01	4.159E-01	4.159E-01
U-238	4.813E+00	7.527E+00	7.527E+00
AM-243	9.015E-01	2.315E-01	2.315E-01
CF-249	4.877E-02	1.051E-01	1.051E-01
ANH-511	9.873E-02	1.185E-01	1.185E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)
BE-7	-5.889E-01	8.240E-01	8.657E-01 NOT IDENT.

NA-22	1.242E-02	6.373E-02	6.397E-02	NOT IDENT.
NA-24	-4.658E+15	5.626E+15	6.005E+15	SHORT HLIF
AL-26	-6.796E-03	4.368E-02	4.379E-02	NOT IDENT.
SC-46	-2.020E-02	7.092E-02	7.150E-02	FAIL ABUN
V-48	-2.482E-03	2.573E-01	2.573E-01	NOT IDENT.
CR-51	-1.950E-01	1.068E+00	1.071E+00	NOT IDENT.
MN-52	9.120E-01	4.607E+00	4.626E+00	FAIL ABUN
MN-54	-2.246E-02	6.626E-02	6.703E-02	NOT IDENT.
CO-56	-5.046E-02	7.856E-02	8.178E-02	FAIL ABUN
MN-56	-1.000E+41	1.550E+41	0.000E+00	SHORT HLIF
CO-57	-9.617E-03	4.868E-02	4.887E-02	NOT IDENT.
CO-58	-5.650E-03	7.338E-02	7.342E-02	NOT IDENT.
FE-59	-2.418E-01	1.921E-01	2.209E-01	NOT IDENT.
CO-60	1.060E-02	5.961E-02	5.980E-02	NOT IDENT.
ZN-65	5.127E-03	1.540E-01	1.540E-01	NOT IDENT.
GE-68	1.062E+00	2.027E+00	2.083E+00	NOT IDENT.
AS-73	-2.047E+00	2.685E+00	2.839E+00	NOT IDENT.
AS-74	1.264E-01	3.315E-01	3.364E-01	NOT IDENT.
SE-75	-6.085E-02	8.764E-02	9.184E-02	NOT IDENT.
BR-77	6.936E+04	7.164E+04	7.817E+04	SHORT HLIF
SR-82	-1.648E-01	8.719E-01	8.750E-01	NOT IDENT.
RB-83	7.858E-03	1.327E-01	1.327E-01	NOT IDENT.
KR-85	2.126E+00	1.329E+01	1.332E+01	NOT IDENT.
SR-85	1.379E-02	8.696E-02	8.719E-02	NOT IDENT.
RB-86	1.089E+00	2.579E+00	2.626E+00	NOT IDENT.
Y-88	5.101E-03	4.325E-02	4.331E-02	NOT IDENT.
Y-91	-1.876E+00	4.176E+01	4.177E+01	NOT IDENT.
NB-94	7.801E-02	6.530E-02	7.417E-02	FAIL ABUN
NB-95	1.759E-01	8.358E-02	1.152E-01	NOT IDENT.
NB-95M	2.404E-01	2.880E-01	3.077E-01	NOT IDENT.
ZR-95	-6.382E-02	1.388E-01	1.417E-01	NOT IDENT.
NB-97	-1.000E+41	3.630E+41	0.000E+00	SHORT HLIF
ZR-97	5.676E+14	1.125E+15	1.154E+15	SHORT HLIF
MO-99	-1.216E+03	3.008E+03	3.057E+03	SHORT HLIF
TC-99M	-2.238E+40	8.412E+40	0.000E+00	SHORT HLIF
RH-101	-2.350E-02	6.077E-02	6.169E-02	NOT IDENT.
RH-102	5.662E-02	7.927E-02	8.328E-02	FAIL ABUN
RU-103	2.757E-02	9.261E-02	9.344E-02	FAIL ABUN
RH-106	-6.086E-02	4.619E-01	4.628E-01	NOT IDENT.
RU-106	-6.086E-02	4.619E-01	4.628E-01	NOT IDENT.
AG-108M	1.190E-02	5.633E-02	5.659E-02	NOT IDENT.
AG-110	1.671E-01	1.435E+00	1.437E+00	NOT IDENT.
AG-110M	1.940E-02	8.702E-02	8.746E-02	NOT IDENT.
SN-113	-2.672E-02	8.915E-02	8.996E-02	NOT IDENT.
CD-115	3.345E+01	1.008E+04	1.008E+04	SHORT HLIF
SN-117M	1.523E-01	2.667E-01	2.754E-01	NOT IDENT.
SB-122	2.142E+02	5.412E+02	5.497E+02	SHORT HLIF
TE-123M	3.463E-02	5.556E-02	5.771E-02	NOT IDENT.
SB-124	2.411E-02	1.532E-01	1.536E-01	NOT IDENT.
SB-125	-2.194E-02	1.628E-01	1.631E-01	NOT IDENT.
TE-125M	1.531E+01	2.279E+01	2.381E+01	NOT IDENT.
SB-126	3.458E-01	7.164E-01	7.332E-01	FAIL ABUN
SB-127	5.698E+00	7.406E+01	7.411E+01	NOT IDENT.
I-131	2.238E-01	1.058E+00	1.063E+00	NOT IDENT.
I-132	1.000E+41	5.122E+41	0.000E+00	SHORT HLIF
TE-132	-6.416E+00	9.630E+01	9.634E+01	SHORT HLIF
BA-133	-5.843E-02	8.437E-02	8.839E-02	NOT IDENT.
I-133	-2.266E+10	1.004E+11	1.010E+11	SHORT HLIF
CS-134	3.892E-02	6.768E-02	6.992E-02	NOT IDENT.
I-135	4.380E+36	1.022E+38	0.000E+00	SHORT HLIF
CS-136	-3.681E-01	4.926E-01	5.198E-01	NOT IDENT.
LA-138	1.518E-01	1.365E-01	1.527E-01	FAIL ABUN
CE-139	-1.301E-02	6.121E-02	6.149E-02	NOT IDENT.
BA-140	-4.982E-01	1.267E+00	1.286E+00	NOT IDENT.
LA-140	-5.356E-01	4.234E-01	4.874E-01	NOT IDENT.
CE-141	-1.439E-01	2.016E-01	2.118E-01	NOT IDENT.
CE-143	2.360E+07	7.750E+06	1.316E+07	SHORT HLIF
CE-144	1.368E-01	3.803E-01	3.853E-01	NOT IDENT.
PM-144	4.136E-02	5.015E-02	5.351E-02	NOT IDENT.
PR-144	3.138E+00	3.794E+00	4.049E+00	NOT IDENT.
PM-146	1.440E-02	7.491E-02	7.519E-02	NOT IDENT.
ND-147	-1.799E+00	3.615E+00	3.705E+00	FAIL ABUN
PM-147	-2.384E+02	1.353E+03	1.357E+03	NOT IDENT.
PM-149	8.833E+03	8.860E+04	8.869E+04	SHORT HLIF
EU-150	-2.459E-02	5.530E-02	5.640E-02	FAIL ABUN
EU-152	-1.353E-02	1.806E-01	1.807E-01	FAIL ABUN
GD-153	-8.048E-02	1.782E-01	1.819E-01	NOT IDENT.
EU-154	3.482E-02	1.787E-01	1.794E-01	NOT IDENT.

EU-155	-1.432E-02	1.774E-01	1.775E-01	FAIL	ABUN
TB-160	-8.661E-02	2.557E-01	2.587E-01	FAIL	ABUN
HO-166M	-2.051E-03	9.012E-02	9.012E-02	NOT	IDENT.
TM-171	-1.533E+01	4.864E+01	4.913E+01	NOT	IDENT.
HF-172	-7.960E-02	3.518E-01	3.536E-01	FAIL	ABUN
LU-172	5.060E-02	1.065E-01	1.089E-01	FAIL	ABUN
LU-176	5.771E-03	4.703E-02	4.710E-02	FAIL	ABUN
HF-181	-1.908E-02	1.031E-01	1.034E-01	NOT	IDENT.
TA-182	1.822E-01	2.862E-01	2.978E-01	FAIL	ABUN
RE-183	1.152E-01	5.802E-01	5.825E-01	NOT	IDENT.
RE-184	7.693E-02	2.652E-01	2.674E-01	NOT	IDENT.
W-188	2.292E+00	1.796E+01	1.799E+01	FAIL	ABUN
IR-192	2.871E-03	7.175E-02	7.176E-02	FAIL	ABUN
HG-203	-2.034E-02	9.323E-02	9.368E-02	NOT	IDENT.
TL-204	3.456E-01	1.102E+01	1.102E+01	FAIL	ABUN
BI-207	-3.560E-02	7.509E-02	7.678E-02	FAIL	ABUN
PB-211	-2.569E-01	1.329E+00	1.334E+00	NOT	IDENT.
RN-219	-5.335E-02	7.627E-01	7.631E-01	FAIL	ABUN
RA-223	4.292E-01	1.139E+00	1.156E+00	FAIL	ABUN
AC-225	-1.101E+00	4.003E+00	4.033E+00	NOT	IDENT.
AC-227	-8.420E-02	5.130E-01	5.144E-01	FAIL	ABUN
TH-227	-8.420E-02	5.130E-01	5.144E-01	FAIL	ABUN
AC-228	1.151E+00	4.602E-01	6.934E-01	FAIL	ABUN
RA-228	1.151E+00	4.602E-01	6.934E-01	FAIL	ABUN
TH-229	3.752E-01	9.389E-01	9.541E-01	FAIL	ABUN
TH-231	4.292E-01	1.139E+00	1.156E+00	FAIL	ABUN
TH-232	1.151E+00	4.602E-01	6.934E-01	FAIL	ABUN
PA-233	-8.259E-03	1.133E-01	1.133E-01	FAIL	ABUN
PA-234	-1.992E-01	5.262E-01	5.338E-01	FAIL	ABUN
PA-234M	1.154E+01	8.320E+00	9.812E+00	FAIL	ABUN
NP-237	-8.259E-03	1.133E-01	1.133E-01	FAIL	ABUN
NP-238	8.558E+02	2.084E+04	2.084E+04	SHORT	HLIF
NP-239	1.082E-01	4.708E-01	4.733E-01	NOT	IDENT.
PU-239	3.964E+02	6.316E+02	6.564E+02	NOT	IDENT.
AM-241	-2.045E-01	3.829E-01	3.938E-01	NOT	IDENT.
CM-243	4.127E-02	1.760E-01	1.769E-01	NOT	IDENT.
BK-247	-1.283E-01	1.507E-01	1.615E-01	FAIL	ABUN
CM-247	6.328E-03	6.997E-02	7.003E-02	NOT	IDENT.
CF-251	-3.349E-02	2.271E-01	2.276E-01	NOT	IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	163.1952	85.43	198.6056	131.20	203.5950
45.60	172.4233	86.55	199.0406	133.02	160.1300
46.54	166.7257	86.79	217.2363	133.52	170.0319
49.72	0.0000	86.94	217.3008	136.00	195.1957
51.35	154.4040	87.09	217.3638	136.47	180.5851
51.87	166.1159	87.57	194.9028	140.51	0.0000
52.39	166.3506	88.03	195.0760	143.76	197.3331
52.97	168.7072	88.34	195.1928	144.24	204.9156
53.44	179.4116	88.47	195.2414	145.44	242.5717
54.07	170.2544	89.96	195.7978	152.43	220.1673
57.36	0.0000	1093.63	196.0497	153.25	189.3978
57.53	179.2169	91.11	196.2242	323.87	182.9240
57.98	176.2363	92.59	196.7688	156.02	216.1588
59.27	193.1419	93.35	197.0470	158.56	174.6794
59.32	193.1657	94.56	197.4866	159.00	170.5546
59.54	193.2719	94.65	197.5194	162.33	185.6946
60.96	173.9863	94.67	197.5273	162.66	182.3795
61.17	174.0762	94.87	197.5995	163.33	188.4778
62.93	199.8983	97.43	193.9026	165.86	207.8135
63.29	200.0708	98.43	172.6678	176.31	163.0333
63.58	200.2098	98.44	172.6712	176.60	169.1313
64.28	200.5437	99.53	157.5592	177.52	175.3617
66.73	218.3251	100.11	191.3528	181.07	0.0000
67.24	227.2686	102.03	146.6171	181.52	184.8713
125.81	244.8870	103.18	134.0848	184.41	176.3491
67.75	241.3017	103.37	145.7930	143.76	167.4570
68.89	233.2119	105.21	174.3354	193.51	163.6620
69.67	256.5508	105.31	155.6412	197.03	169.6035
70.82	229.1164	106.12	139.4504	198.01	166.2480
70.83	229.1228	106.47	173.5369	201.83	161.6161
72.81	252.1123	109.28	175.5359	203.43	174.3492
72.87	252.1456	111.00	185.4888	205.31	163.1128
74.66	261.5875	111.76	0.0000	210.85	134.4864
74.82	261.6779	114.06	191.1666	215.65	131.5565
74.97	261.7610	116.30	0.0000	218.12	137.3109
77.11	262.9544	116.74	163.3700	222.11	133.3354
78.74	253.8316	119.76	147.3763	227.09	143.1181
79.69	272.1786	121.12	172.9039	227.38	140.4241
80.03	272.3666	121.22	172.9303	228.16	0.0000
80.12	251.5780	121.78	186.3023	228.18	135.0599
80.19	251.6141	122.06	177.9654	116.74	135.0599
80.57	227.9701	122.92	162.5486	235.69	129.6229
81.00	270.6732	123.07	163.7900	235.96	129.6573
81.07	255.0510	265.00	144.6561	238.63	150.2739
81.75	264.3639	125.81	180.1967	238.98	0.0000
82.47	239.3229	127.23	202.3960	240.99	150.6122
83.79	259.4507	127.91	189.2585	242.00	150.7581
84.00	259.5581	129.30	177.4919	244.70	104.3163

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	121.4121	344.28	94.6445	563.25	33.3047
252.80	117.7187	345.93	102.8239	564.24	0.0000
254.15	0.0000	351.06	83.9828	569.33	33.4050
256.23	127.9299	351.93	84.0351	946.00	33.4085
260.90	0.0000	355.39	0.0000	569.70	33.4121
264.66	117.1002	356.01	91.3898	583.19	45.2318
264.80	121.2710	364.49	61.2927	584.27	45.2556
265.00	121.2919	366.42	0.0000	595.83	42.8840
269.46	111.9070	372.51	78.0704	427.87	45.6143
270.03	111.9646	375.05	72.0337	602.52	0.0000
271.23	112.0822	377.52	83.4933	604.72	47.8125
273.65	112.7934	356.01	69.8772	607.14	43.6437
276.40	124.5129	388.16	57.6217	609.32	48.4456
277.37	107.9054	388.63	60.7554	610.33	48.4691
277.60	100.2853	391.69	60.8792	614.28	46.6157
278.00	108.9183	264.66	75.3721	618.01	37.1461
279.20	119.5526	401.81	81.7134	620.36	38.9579
279.54	117.6723	402.40	79.6491	621.93	33.6698
279.70	114.8193	404.85	81.8752	630.19	0.0000
280.46	119.6798	410.95	66.3902	631.29	26.6959
283.69	121.9280	413.71	64.3955	633.25	30.2823
284.31	103.7417	414.70	73.9435	634.78	35.6519
285.41	105.7613	423.72	61.6167	635.95	32.9949
285.90	0.0000	427.09	75.5848	636.99	36.5794
287.50	116.5418	427.87	66.0365	657.50	41.7810
290.67	110.0896	433.94	56.1273	657.76	41.7866
293.27	0.0000	439.40	41.8342	657.90	0.0000
351.93	109.5354	440.45	45.0804	661.66	36.0852
295.96	109.6021	453.88	58.4297	664.57	0.0000
879.38	109.8366	463.37	53.3166	666.33	30.3731
299.98	109.9607	468.07	48.0068	666.50	30.3762
300.09	109.9699	473.00	50.8792	667.71	0.0000
300.13	109.9745	475.06	42.7237	677.62	37.2463
301.36	110.0849	476.78	59.2130	685.70	33.7300
302.85	96.5609	477.60	62.5328	692.65	0.0000
256.23	95.2248	482.18	51.6960	695.00	32.0338
304.85	106.9737	487.02	35.2936	696.49	24.7275
306.78	93.9297	492.35	0.0000	696.51	24.7275
308.46	93.0769	497.08	43.2561	697.00	25.6484
311.90	92.3477	505.52	43.4568	697.30	25.1283
316.51	84.7945	507.63	0.0000	697.49	26.1771
319.41	92.8908	511.00	52.5269	702.65	27.9137
320.08	90.9612	514.00	53.7324	706.68	29.4326
321.04	91.0286	514.00	53.7324	711.68	33.1809
323.87	88.2522	520.40	41.5603	720.70	26.6440
325.23	101.2488	520.69	0.0000	721.93	0.0000
328.76	87.5864	522.65	0.0000	722.78	34.0744
333.37	92.2853	527.90	0.0000	722.91	31.1134
333.97	101.9191	528.26	46.2451	723.31	31.1186
334.37	83.9590	529.59	44.0210	724.19	25.2003
338.28	106.7578	529.87	0.0000	727.33	41.5598
338.32	106.7622	531.02	57.6095	733.00	35.3328
311.90	85.8462	537.26	44.1971	735.93	21.4116
340.48	85.8462	546.56	0.0000	333.97	25.1510
340.55	85.8514	552.55	33.1241	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	30.8237	949.00	25.1587	1384.29	4.5503
747.24	33.6665	667.71	0.0000	1408.01	16.7802
748.06	34.6130	962.31	33.3545	1434.09	12.8933
752.31	36.5458	964.08	43.4882	1435.80	12.8980
753.82	30.0049	966.17	59.7094	1457.56	0.0000
756.73	36.6113	911.20	38.4917	1460.82	12.0472
756.80	36.6113	983.53	23.4078	1489.16	8.3949
884.68	19.5812	984.45	0.0000	1505.03	17.1624
765.81	15.0737	1274.44	21.2551	1584.12	26.9914
766.42	27.1389	1001.03	23.5391	1596.21	18.1474
766.84	27.1441	1002.74	19.6605	1620.50	7.6805
772.60	0.0000	1004.73	18.0334	1621.92	5.7621
776.52	31.2205	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	6.8199
778.90	21.2112	1028.54	0.0000	1750.46	0.0000
783.70	32.2558	1037.84	20.7043	1764.49	4.9438
788.74	31.9378	1038.76	0.0000	1063.66	4.9495
792.07	38.0701	631.29	28.0267	1771.35	1.6502
795.86	30.5000	1048.07	30.1169	1791.20	0.0000
810.06	38.3313	1049.04	24.9316	1808.65	5.9842
810.29	38.3337	1050.41	18.7064	1810.72	0.0000
344.28	34.5026	1063.66	22.9547	1836.06	3.0079
810.76	29.7143	1077.00	19.9045		
815.77	31.6908	1077.34	18.8580		
1048.07	28.8391	1085.87	14.7050		
832.01	29.9499	1093.63	22.1074		
834.85	41.5867	1099.45	31.6370		
835.71	49.3393	1112.07	16.9355		
836.80	0.0000	1112.84	15.5278		
846.75	0.0000	1115.54	22.0378		
846.77	37.8824	1120.29	14.8536		
856.80	48.7442	1120.55	14.8545		
860.56	29.2859	1221.41	14.8579		
871.09	17.6375	1129.67	28.7238		
873.19	30.3983	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	23.5854	1173.23	24.7716		
880.51	17.6962	1177.95	18.3333		
881.60	17.7028	1189.05	19.4711		
883.24	20.4687	1204.77	26.0728		
884.68	22.0541	1221.41	15.2783		
889.28	27.6121	1231.02	16.4117		
894.76	30.6292	1235.36	10.5152		
898.04	32.6415	1238.28	18.6353		
900.72	27.7214	1260.41	0.0000		
903.28	20.8097	1271.87	20.6445		
911.20	23.8469	1274.44	12.3949		
912.08	23.8542	1274.54	12.3949		
923.98	0.0000	1291.59	8.8926		
926.50	20.5469	1298.22	0.0000		
929.11	22.3932	1312.11	21.2312		
935.54	22.4410	1332.49	13.4780		
937.49	25.6641	1362.66	0.0000		
944.13	24.1135	1365.19	11.7755		
946.00	29.1549	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:12:32.63

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299028.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM10.CNF;712
Background date    : 29-JUL-2024 05:36:52
Sample date       : 26-JUN-2024 11:40:00 Acquisition date : 31-JUL-2024 16:10:48
Sample ID        : G674299028 Sample quantity : 1.12910E+02 GRAM
Detector name    : GAM10 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.61 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.48*	9	164	0.53	126.53	123	8	2.44E-03	258.8	
2	0	65.95	13	127	0.59	131.45	130	6	3.59E-03	140.0	
3	2	74.98	126	159	1.39	149.51	144	17	3.50E-02	19.3	1.65E+00
4	2	77.55	233	146	1.40	154.67	144	17	6.48E-02	11.7	
5	2	87.68	59	224	1.31	174.93	170	20	1.64E-02	44.3	2.34E+00
6	2	90.37	59	181	1.12	180.31	170	20	1.63E-02	40.0	
7	2	93.21*	95	188	1.29	185.98	170	20	2.65E-02	28.4	
8	0	128.97	29	121	1.87	257.53	256	7	7.93E-03	66.0	
9	0	154.32	47	118	1.59	308.21	304	9	1.31E-02	44.2	
10	0	186.30*	88	153	1.63	372.18	366	13	2.44E-02	31.6	
11	0	209.20	56	82	1.07	418.00	414	8	1.56E-02	30.9	
12	3	238.86*	514	67	1.25	477.32	469	21	1.43E-01	5.2	1.10E+00
13	3	241.84	114	105	1.81	483.28	469	21	3.16E-02	24.0	
14	2	270.42	39	95	1.68	540.46	534	25	1.09E-02	47.3	2.34E+00
15	2	277.48	40	66	1.69	554.59	534	25	1.10E-02	38.6	
16	0	295.41	178	91	1.18	590.46	585	11	4.93E-02	12.9	
17	0	300.11	47	64	0.84	599.84	596	9	1.31E-02	33.6	
18	0	329.49	37	94	2.05	658.62	648	14	1.01E-02	58.8	
19	0	338.28*	64	84	1.01	676.20	673	8	1.77E-02	28.1	
20	0	351.95*	372	75	1.46	703.56	697	15	1.03E-01	7.3	
21	0	360.98	18	52	0.54	721.62	715	11	4.99E-03	81.3	
22	0	409.60	21	33	1.26	818.88	816	9	5.83E-03	53.3	
23	0	463.98	83	56	2.58	927.65	918	24	2.32E-02	25.8	
24	0	480.43	12	37	2.76	960.57	954	12	3.44E-03	101.3	
25	0	510.66*	50	40	2.05	1021.04	1014	16	1.40E-02	36.4	
26	0	557.74*	23	29	4.30	1115.23	1107	15	6.51E-03	55.9	
27	0	583.37*	170	44	1.80	1166.49	1161	15	4.73E-02	12.2	
28	0	591.88	10	29	1.37	1183.53	1176	14	2.84E-03	114.4	
29	0	597.96	6	22	0.90	1195.69	1190	8	1.80E-03	131.3	
30	0	609.23*	206	19	1.68	1218.22	1213	12	5.73E-02	8.4	
31	0	647.79	22	21	0.72	1295.37	1288	11	6.15E-03	45.9	
32	0	677.05	14	21	0.71	1353.91	1349	10	4.02E-03	68.3	
33	0	727.61	48	47	3.03	1455.06	1449	19	1.35E-02	35.6	
34	0	768.15	30	24	0.69	1536.17	1526	16	8.29E-03	41.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	839.73	29	8	1.20	1679.38	1675	11	8.16E-03	26.3	
36	0	861.86*	20	29	2.67	1723.67	1713	19	5.68E-03	67.0	
37	0	910.50*	130	9	1.55	1820.98	1812	18	3.61E-02	10.5	
38	0	933.07	20	16	3.85	1866.13	1858	13	5.43E-03	48.2	
39	0	967.62	91	40	4.95	1935.25	1921	27	2.53E-02	22.1	
40	0	1119.86*	38	15	1.73	2239.87	2234	12	1.06E-02	26.5	
41	0	1127.07	7	4	1.31	2254.30	2251	6	2.03E-03	57.6	
42	3	1233.02	13	2	2.38	2466.29	2464	16	3.58E-03	25.8	1.22E+00
43	3	1237.49	30	5	2.25	2475.24	2464	16	8.29E-03	22.7	
44	0	1245.65	15	10	1.43	2491.56	2487	9	4.18E-03	47.2	
45	0	1254.65	21	0	4.62	2509.57	2503	14	5.83E-03	21.8	
46	0	1339.36	11	0	3.49	2679.09	2674	10	3.06E-03	30.2	
47	0	1361.94	14	2	1.19	2724.27	2718	11	3.78E-03	35.7	
48	0	1365.67	5	8	0.83	2731.73	2728	10	1.41E-03	111.0	
49	0	1377.77	12	9	0.96	2755.94	2747	12	3.41E-03	56.4	
50	0	1406.69	14	6	2.36	2813.82	2807	12	3.96E-03	43.3	
51	0	1459.63*	312	17	2.33	2919.76	2910	17	8.67E-02	6.4	
52	0	1637.75	6	3	1.43	3276.20	3269	10	1.76E-03	61.7	
53	0	1728.09	15	0	0.73	3457.00	3450	13	4.17E-03	25.8	
54	0	1763.07*	45	3	1.35	3527.01	3520	12	1.24E-02	17.5	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299028.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 11:40:00	Acquisition date	: 31-JUL-2024 16:10:48
Sample ID	: G674299028	Sample quantity	: 112.91 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA10	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.61 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	294	10.66*	1.032E+00	1.778E+01	1.778E+01	12.90
CD-109	88.03	62	3.70*	4.506E+00	2.466E+00	2.600E+00	88.60
SN-126	64.28	9	9.60	1.658E+00	3.896E-01	3.896E-01	517.66
	86.94	62	8.90	4.506E+00	1.025E+00	1.025E+00	88.60
	87.57	62	37.00*	4.506E+00	2.466E-01	2.466E-01	88.60
TL-208	277.37	40	6.60	4.211E+00	9.539E-01	9.539E-01	77.18
	583.19	166	85.00*	2.441E+00	5.336E-01	5.336E-01	24.47
	860.56	20	12.50	1.714E+00	6.106E-01	6.106E-01	134.01
BI-211	72.87	-----	1.23	2.854E+00	-----	Line Not Found	-----
	351.06	371	12.92*	3.566E+00	5.351E+00	5.351E+00	14.63
BI-212	727.33	47	6.67*	2.014E+00	2.325E+00	2.325E+00	71.24
	1620.50	-----	1.47	9.584E-01	-----	Line Not Found	-----
PB-212	74.82	133	10.28	3.118E+00	2.764E+00	2.764E+00	38.54
	77.11	246	17.10	3.432E+00	2.788E+00	2.788E+00	23.48
	238.63	520	43.60*	4.665E+00	1.700E+00	1.700E+00	10.47
	300.09	47	3.30	3.988E+00	2.396E+00	2.396E+00	67.25
BI-214	609.32	201	45.49*	2.354E+00	1.249E+00	1.249E+00	16.72
	1120.29	36	14.92	1.318E+00	1.226E+00	1.226E+00	53.07
	1764.49	42	15.30	9.181E-01	1.979E+00	1.979E+00	34.94
PB-214	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.676E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
RN-222	609.32	201	45.49*	2.354E+00	1.249E+00	1.249E+00	16.72
	1120.29	36	14.92	1.318E+00	1.226E+00	1.226E+00	53.07
	1764.49	42	15.30	9.181E-01	1.979E+00	1.979E+00	34.94
RA-224	240.99	115	4.10*	4.626E+00	4.037E+00	4.037E+00	47.95
RA-226	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.676E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
AC-228	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
RA-228	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
TH-228	74.82	133	10.28	3.118E+00	2.764E+00	2.764E+00	38.54
	77.11	246	17.10	3.432E+00	2.788E+00	2.788E+00	23.48
	238.63	520	43.60*	4.665E+00	1.700E+00	1.700E+00	10.47
	300.09	47	3.30	3.988E+00	2.396E+00	2.396E+00	67.25

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.915E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.675E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
PA-231	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
	283.69	-----	1.70	4.147E+00	-----	Line Not Found	-----
	301.36	47	5.35*	3.988E+00	1.478E+00	1.478E+00	67.25
TH-232	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
TH-234	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
	63.29	9	3.70*	1.658E+00	1.011E+00	1.011E+00	517.66
	92.59	100	4.23	4.964E+00	3.161E+00	3.161E+00	56.80
U-234	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.675E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
U-235	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
	89.96	62	3.47	4.740E+00	2.492E+00	2.492E+00	79.93
	93.35	100	5.60	4.964E+00	2.388E+00	2.388E+00	56.80
	143.76	-----	10.96*	6.053E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.812E+00	-----	Line Not Found	-----
	185.72	90	57.20	5.449E+00	1.914E-01	1.914E-01	63.26
U-238	205.31	-----	5.01	5.146E+00	-----	Line Not Found	-----
	63.29	9	3.70*	1.658E+00	1.011E+00	1.011E+00	517.66
	92.59	100	4.23	4.964E+00	3.161E+00	3.161E+00	56.80
AM-243	43.53	-----	5.90	1.019E-01	-----	Line Not Found	-----
ANH-511	74.66	133	67.20*	3.118E+00	4.229E-01	4.229E-01	38.54
	511.00	49	100.00*	2.715E+00	1.211E-01	1.211E-01	72.72

Flag: "*" = Keyline


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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299028.CNF;1  *
* Acquisition date   : 31-JUL-2024 16:10:48 Sensitivity      : 3.000          *
* Detector ID        : GAM10 Energy tolerance: 1.500         *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 01:00:00.61 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 11:40:00 Analyst initials: MXR1      *
* Sample ID          : G674299028 Sample Quantity : 1.1291E+02 GRAM    *
* Batch Number       : 2636543 Wet Weight : 0.00000         *
* Wet wt corr        : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library    : SOLID.NLB;17                                         *
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date     : 14-JUN-2024 04:03:20 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.778E+01	2.248E+00	9.626E-01
CD-109	2.600E+00	2.257E+00	2.358E+00
SN-126	2.466E-01	2.141E-01	2.257E-01
TL-208	5.336E-01	1.280E-01	8.236E-02
BI-211	5.351E+00	7.673E-01	4.548E-01
BI-212	2.325E+00	1.623E+00	1.146E+00
PB-212	1.700E+00	1.744E-01	1.277E-01
BI-214	1.249E+00	2.046E-01	1.587E-01
PB-214	1.942E+00	2.785E-01	1.654E-01
RN-222	1.249E+00	2.046E-01	1.587E-01
RA-224	4.037E+00	1.897E+00	1.368E+00
RA-226	1.942E+00	2.785E-01	1.654E-01
AC-228	1.980E+00	4.081E-01	3.318E-01
RA-228	1.980E+00	4.081E-01	3.318E-01
TH-228	1.700E+00	1.744E-01	1.277E-01
TH-230	1.942E+00	2.785E-01	1.654E-01
PA-231	1.478E+00	9.739E-01	1.057E+00
TH-232	1.980E+00	4.081E-01	3.318E-01
TH-234	1.011E+00	5.128E+00	5.285E+00
U-234	1.942E+00	2.785E-01	1.654E-01
U-235	1.418E-01	2.648E-01	5.082E-01
U-238	1.011E+00	5.128E+00	5.285E+00
AM-243	4.229E-01	1.597E-01	1.627E-01
ANH-511	1.211E-01	8.631E-02	6.287E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.661E-02	5.958E-01	9.786E-01	NOT IDENT.
NA-22	-1.610E-02	5.700E-02	1.062E-01	NOT IDENT.
NA-24	0.000E+00	5.338E+15	0.000E+00	SHORT HLIF
AL-26	1.283E-02	4.192E-02	9.542E-02	NOT IDENT.
SC-46	-2.213E-02	5.722E-02	1.068E-01	FAIL ABUN
V-48	4.933E-02	2.010E-01	4.141E-01	NOT IDENT.

CR-51	5.919E-02	7.605E-01	1.428E+00	NOT IDENT.
MN-52	2.334E+00	3.780E+00	8.573E+00	NOT IDENT.
MN-54	5.524E-02	5.366E-02	1.106E-01	NOT IDENT.
CO-56	2.810E-03	5.962E-02	1.180E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	3.145E-02	3.749E-02	6.877E-02	NOT IDENT.
CO-58	2.187E-02	6.592E-02	1.265E-01	NOT IDENT.
FE-59	6.042E-02	1.516E-01	3.165E-01	NOT IDENT.
CO-60	1.196E-02	4.081E-02	9.007E-02	NOT IDENT.
ZN-65	-4.283E-03	1.449E-01	2.446E-01	NOT IDENT.
GE-68	-1.733E-02	1.686E+00	3.307E+00	NOT IDENT.
AS-73	-2.072E+00	3.689E+00	6.272E+00	NOT IDENT.
AS-74	1.359E-01	3.456E-01	4.988E-01	NOT IDENT.
SE-75	-3.895E-02	6.912E-02	1.083E-01	NOT IDENT.
BR-77	0.000E+00	9.483E+03	0.000E+00	SHORT HLIF
SR-82	-5.500E-01	7.373E-01	1.183E+00	NOT IDENT.
RB-83	-1.298E-01	1.093E-01	1.697E-01	NOT IDENT.
RB-84	-2.441E-02	1.146E-01	2.226E-01	NOT IDENT.
KR-85	6.080E-01	9.357E+00	1.562E+01	NOT IDENT.
SR-85	3.820E-03	6.123E-02	1.022E-01	NOT IDENT.
RB-86	1.126E-01	2.005E+00	4.008E+00	NOT IDENT.
Y-88	6.851E-03	5.012E-02	1.110E-01	NOT IDENT.
Y-91	2.537E+00	3.672E+01	7.118E+01	NOT IDENT.
NB-94	9.194E-03	3.661E-02	7.115E-02	NOT IDENT.
NB-95	3.248E-03	6.592E-02	1.212E-01	NOT IDENT.
NB-95M	7.676E-03	2.030E-01	3.413E-01	NOT IDENT.
ZR-95	-3.408E-02	1.041E-01	1.826E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	9.190E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.308E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	5.407E+40	0.000E+00	SHORT HLIF
RH-101	1.097E-02	4.753E-02	7.671E-02	NOT IDENT.
RH-102	-5.812E-02	7.589E-02	1.241E-01	FAIL ABUN
RU-103	1.778E-02	6.686E-02	1.292E-01	FAIL ABUN
RH-106	-1.740E-02	3.523E-01	6.578E-01	NOT IDENT.
RU-106	-1.740E-02	3.523E-01	6.578E-01	NOT IDENT.
AG-108M	3.493E-04	3.602E-02	6.758E-02	NOT IDENT.
AG-110	5.741E-01	8.945E-01	1.822E+00	NOT IDENT.
AG-110M	-3.099E-03	6.094E-02	1.205E-01	FAIL ABUN
SN-113	-4.167E-02	6.632E-02	1.146E-01	NOT IDENT.
CD-115	0.000E+00	8.046E+03	0.000E+00	SHORT HLIF
SN-117M	-8.847E-03	2.044E-01	3.466E-01	NOT IDENT.
SB-122	0.000E+00	4.246E+02	0.000E+00	SHORT HLIF
TE-123M	-3.974E-03	3.995E-02	7.166E-02	NOT IDENT.
SB-124	-7.557E-02	1.372E-01	2.397E-01	NOT IDENT.
SB-125	4.475E-02	1.050E-01	2.068E-01	FAIL ABUN
TE-125M	8.002E+00	1.833E+01	3.261E+01	NOT IDENT.
I-126	1.876E-01	8.080E-01	1.537E+00	NOT IDENT.
SB-126	-1.162E-01	5.813E-01	1.033E+00	NOT IDENT.
SB-127	-3.384E+01	6.506E+01	1.101E+02	NOT IDENT.
I-131	7.941E-01	7.187E-01	1.439E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.993E+01	0.000E+00	SHORT HLIF
BA-133	1.580E-02	5.880E-02	8.465E-02	FAIL ABUN
I-133	0.000E+00	7.049E+10	0.000E+00	SHORT HLIF
CS-134	-1.606E-02	6.389E-02	1.110E-01	FAIL ABUN
I-135	0.000E+00	8.125E+37	0.000E+00	SHORT HLIF
CS-136	-3.914E-01	4.347E-01	7.308E-01	FAIL ABUN
BA-137M	-6.142E-03	4.329E-02	7.834E-02	NOT IDENT.
CS-137	-6.489E-03	4.573E-02	8.276E-02	NOT IDENT.
LA-138	-1.090E-03	7.666E-02	1.533E-01	NOT IDENT.
CE-139	1.799E-02	4.147E-02	8.011E-02	NOT IDENT.
BA-140	-3.094E-01	9.402E-01	1.673E+00	NOT IDENT.
LA-140	-6.760E-02	2.147E-01	4.306E-01	FAIL ABUN
CE-141	5.858E-02	1.260E-01	2.409E-01	NOT IDENT.
CE-143	0.000E+00	4.857E+06	0.000E+00	SHORT HLIF
CE-144	-1.454E-01	3.227E-01	4.835E-01	NOT IDENT.
PM-144	-2.786E-02	3.662E-02	5.902E-02	NOT IDENT.
PR-144	-2.118E+00	2.768E+00	4.456E+00	NOT IDENT.
PM-146	7.043E-03	4.912E-02	9.354E-02	NOT IDENT.
ND-147	-2.775E-01	2.482E+00	4.539E+00	FAIL ABUN
PM-147	-6.489E+02	1.122E+03	1.835E+03	NOT IDENT.
PM-149	0.000E+00	5.551E+04	0.000E+00	SHORT HLIF
EU-150	2.122E-02	3.599E-02	6.763E-02	FAIL ABUN
EU-152	-9.006E-02	1.128E-01	1.928E-01	FAIL ABUN
GD-153	-4.623E-02	1.450E-01	2.454E-01	NOT IDENT.
EU-154	-4.514E-02	1.599E-01	2.979E-01	NOT IDENT.
EU-155	1.763E-01	1.670E-01	3.089E-01	FAIL ABUN

TB-160	-1.575E-02	1.590E-01	3.186E-01	FAIL ABUN
HO-166M	-9.724E-02	7.973E-02	1.171E-01	FAIL ABUN
TM-171	4.775E+01	7.015E+01	1.314E+02	FAIL ABUN
HF-172	3.691E-01	2.786E-01	4.987E-01	FAIL ABUN
LU-172	6.921E-02	9.286E-02	1.973E-01	FAIL ABUN
LU-176	-2.635E-03	3.201E-02	5.938E-02	FAIL ABUN
HF-181	9.469E-03	7.946E-02	1.354E-01	NOT IDENT.
TA-182	-3.902E-03	2.638E-01	5.114E-01	FAIL ABUN
RE-183	3.942E-01	6.670E-01	1.240E+00	FAIL ABUN
RE-184	2.426E-01	2.371E-01	4.997E-01	NOT IDENT.
W-188	-5.107E+00	1.199E+01	1.903E+01	FAIL ABUN
IR-192	-3.959E-02	5.085E-02	8.762E-02	FAIL ABUN
HG-203	2.375E-02	7.078E-02	1.230E-01	NOT IDENT.
TL-204	-2.381E+00	1.047E+01	1.652E+01	NOT IDENT.
BI-207	1.628E-02	6.660E-02	1.355E-01	FAIL ABUN
BI-210	-7.797E+00	2.156E+01	3.733E+01	NOT IDENT.
PB-210	-7.797E+00	2.156E+01	3.733E+01	NOT IDENT.
PB-211	-1.722E+00	8.693E-01	1.211E+00	NOT IDENT.
BI-213	2.394E-02	1.240E-01	2.366E-01	NOT IDENT.
RN-219	6.377E-01	4.957E-01	1.043E+00	FAIL ABUN
RA-223	-4.642E-01	9.131E-01	1.422E+00	FAIL ABUN
AC-225	-1.602E-01	3.007E+00	5.596E+00	NOT IDENT.
AC-227	1.994E-01	2.868E-01	5.720E-01	FAIL ABUN
TH-227	1.994E-01	2.868E-01	5.720E-01	FAIL ABUN
TH-229	1.254E-03	6.661E-01	1.247E+00	FAIL ABUN
TH-231	-4.642E-01	9.131E-01	1.422E+00	FAIL ABUN
PA-233	-1.109E-02	8.784E-02	1.584E-01	FAIL ABUN
PA-234	-2.766E-01	3.716E-01	6.491E-01	FAIL ABUN
PA-234M	3.634E+00	4.988E+00	1.115E+01	NOT IDENT.
NP-237	-1.109E-02	8.784E-02	1.584E-01	FAIL ABUN
NP-238	0.000E+00	1.758E+04	0.000E+00	SHORT HLIF
NP-239	1.919E-01	3.609E-01	6.506E-01	FAIL ABUN
PU-239	5.098E+02	6.596E+02	9.393E+02	FAIL ABUN
AM-241	-8.108E-05	4.403E-01	7.181E-01	NOT IDENT.
CM-243	4.827E-03	1.752E-01	3.017E-01	FAIL ABUN
BK-247	-6.790E-02	1.103E-01	1.717E-01	NOT IDENT.
CM-247	7.103E-02	4.563E-02	9.809E-02	FAIL ABUN
CF-249	2.649E-02	4.599E-02	9.156E-02	NOT IDENT.
CF-251	-5.698E-02	1.546E-01	2.838E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	294	10.66*	1.032E+00	1.778E+01	1.778E+01	12.90
CD-109	88.03	62	3.70*	4.506E+00	2.466E+00	2.600E+00	88.60
SN-126	64.28	9	9.60	1.658E+00	3.896E-01	3.896E-01	517.66
	86.94	62	8.90	4.506E+00	1.025E+00	1.025E+00	88.60
	87.57	62	37.00*	4.506E+00	2.466E-01	2.466E-01	88.60
TL-208	277.37	40	6.60	4.211E+00	9.539E-01	9.539E-01	77.18
	583.19	166	85.00*	2.441E+00	5.336E-01	5.336E-01	24.47
	860.56	20	12.50	1.714E+00	6.106E-01	6.106E-01	134.01
BI-211	72.87	-----	1.23	2.854E+00	-----	Line Not Found	-----
	351.06	371	12.92*	3.566E+00	5.351E+00	5.351E+00	14.63
BI-212	727.33	47	6.67*	2.014E+00	2.325E+00	2.325E+00	71.24
	1620.50	-----	1.47	9.584E-01	-----	Line Not Found	-----
PB-212	74.82	133	10.28	3.118E+00	2.764E+00	2.764E+00	38.54
	77.11	246	17.10	3.432E+00	2.788E+00	2.788E+00	23.48
	238.63	520	43.60*	4.665E+00	1.700E+00	1.700E+00	10.47
	300.09	47	3.30	3.988E+00	2.396E+00	2.396E+00	67.25
BI-214	609.32	201	45.49*	2.354E+00	1.249E+00	1.249E+00	16.72
	1120.29	36	14.92	1.318E+00	1.226E+00	1.226E+00	53.07
	1764.49	42	15.30	9.181E-01	1.979E+00	1.979E+00	34.94
PB-214	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.676E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
RN-222	609.32	201	45.49*	2.354E+00	1.249E+00	1.249E+00	16.72
	1120.29	36	14.92	1.318E+00	1.226E+00	1.226E+00	53.07
	1764.49	42	15.30	9.181E-01	1.979E+00	1.979E+00	34.94
RA-224	240.99	115	4.10*	4.626E+00	4.037E+00	4.037E+00	47.95
RA-226	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.676E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
AC-228	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
RA-228	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
TH-228	74.82	133	10.28	3.118E+00	2.764E+00	2.764E+00	38.54
	77.11	246	17.10	3.432E+00	2.788E+00	2.788E+00	23.48

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	238.63	520	43.60*	4.665E+00	1.700E+00	1.700E+00	10.47
	300.09	47	3.30	3.988E+00	2.396E+00	2.396E+00	67.25
	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
	77.11	246	9.70	3.432E+00	4.915E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.675E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
PA-231	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
	283.69	-----	1.70	4.147E+00	-----	Line Not Found	-----
	301.36	47	5.35*	3.988E+00	1.478E+00	1.478E+00	67.25
	105.21	-----	1.10	5.653E+00	-----	Line Not Found	-----
	338.32	64	11.27	3.667E+00	1.023E+00	1.023E+00	56.12
TH-232	835.71	-----	1.61	1.766E+00	-----	Line Not Found	-----
	911.20	125	25.80*	1.623E+00	1.980E+00	1.980E+00	21.03
	968.97	87	15.80	1.527E+00	2.401E+00	2.401E+00	44.22
	63.29	9	3.70*	1.658E+00	1.011E+00	1.011E+00	517.66
	92.59	100	4.23	4.964E+00	3.161E+00	3.161E+00	56.80
	74.82	133	5.80	3.118E+00	4.899E+00	4.899E+00	38.54
U-234	77.11	246	9.70	3.432E+00	4.916E+00	4.916E+00	23.48
	87.09	62	3.41	4.506E+00	2.675E+00	2.675E+00	88.60
	242.00	115	7.25	4.626E+00	2.283E+00	2.283E+00	47.95
	295.22	178	18.42	4.032E+00	1.596E+00	1.596E+00	25.83
	351.93	371	35.60*	3.566E+00	1.942E+00	1.942E+00	14.63
	89.96	62	3.47	4.740E+00	2.492E+00	2.492E+00	79.93
U-235	93.35	100	5.60	4.964E+00	2.388E+00	2.388E+00	56.80
	143.76	-----	10.96*	6.053E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.812E+00	-----	Line Not Found	-----
	185.72	90	57.20	5.449E+00	1.914E-01	1.914E-01	63.26
	205.31	-----	5.01	5.146E+00	-----	Line Not Found	-----
	63.29	9	3.70*	1.658E+00	1.011E+00	1.011E+00	517.66
U-238	92.59	100	4.23	4.964E+00	3.161E+00	3.161E+00	56.80
	43.53	-----	5.90	1.019E-01	-----	Line Not Found	-----
AM-243	74.66	133	67.20*	3.118E+00	4.229E-01	4.229E-01	38.54
ANH-511	511.00	49	100.00*	2.715E+00	1.211E-01	1.211E-01	72.72

Flag: "*" = Keyline

Total number of lines in spectrum 54
Number of unidentified lines 17
Number of lines tentatively identified by NID 37 68.52%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.778E+01	1.778E+01	0.229E+01	12.90	
CD-109	461.40D	1.05	2.466E+00	2.600E+00	2.303E+00	88.60	
SN-126	2.30E+05Y	1.00	2.466E-01	2.466E-01	2.185E-01	88.60	
TL-208	1.41E+10Y	1.00	5.336E-01	5.336E-01	1.306E-01	24.47	
BI-211	7.04E+08Y	1.00	5.351E+00	5.351E+00	0.783E+00	14.63	
BI-212	1.41E+10Y	1.00	2.325E+00	2.325E+00	1.656E+00	71.24	
PB-212	1.41E+10Y	1.00	1.700E+00	1.700E+00	0.178E+00	10.47	
BI-214	1600.00Y	1.00	1.249E+00	1.249E+00	0.209E+00	16.72	
PB-214	1600.00Y	1.00	1.942E+00	1.942E+00	0.284E+00	14.63	
RN-222	1600.00Y	1.00	1.249E+00	1.249E+00	0.209E+00	16.72	
RA-224	1.41E+10Y	1.00	4.037E+00	4.037E+00	1.935E+00	47.95	
RA-226	1600.00Y	1.00	1.942E+00	1.942E+00	0.284E+00	14.63	
AC-228	1.41E+10Y	1.00	1.980E+00	1.980E+00	0.416E+00	21.03	
RA-228	1.41E+10Y	1.00	1.980E+00	1.980E+00	0.416E+00	21.03	
TH-228	1.41E+10Y	1.00	1.700E+00	1.700E+00	0.178E+00	10.47	
TH-230	7.54E+04Y	1.00	1.942E+00	1.942E+00	0.284E+00	14.63	
PA-231	7.04E+08Y	1.00	1.478E+00	1.478E+00	0.994E+00	67.25	
TH-232	1.41E+10Y	1.00	1.980E+00	1.980E+00	0.416E+00	21.03	
TH-234	4.47E+09Y	1.00	1.011E+00	1.011E+00	5.233E+00	517.66	
U-234	2.45E+05Y	1.00	1.942E+00	1.942E+00	0.284E+00	14.63	
U-235	7.04E+08Y	1.00	1.914E-01	1.914E-01	1.211E-01	63.26	K
U-238	4.47E+09Y	1.00	1.011E+00	1.011E+00	5.233E+00	517.66	
AM-243	7370.00Y	1.00	4.229E-01	4.229E-01	1.630E-01	38.54	
ANH-511	1.00E+09Y	1.00	1.211E-01	1.211E-01	0.881E-01	72.72	
Total Activity :			5.658E+01	5.672E+01			

Grand Total Activity : 5.658E+01 5.672E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	65.95	14	135	0.59	131.45	130	6	3.59E-03	****	1.97E+00	T
0	128.97	30	126	1.87	257.53	256	7	7.93E-03	****	6.11E+00	T
0	154.32	48	121	1.59	308.21	304	9	1.31E-02	88.4	5.94E+00	T
0	209.20	57	83	1.07	418.00	414	8	1.56E-02	61.9	5.09E+00	
2	270.42	39	96	1.68	540.46	534	25	1.09E-02	94.6	4.29E+00	T
0	329.49	37	94	2.05	658.62	648	14	1.01E-02	****	3.74E+00	T
0	360.98	18	52	0.54	721.62	715	11	4.99E-03	****	3.50E+00	
0	409.60	21	33	1.26	818.88	816	9	5.83E-03	****	3.20E+00	T
0	463.98	82	55	2.58	927.65	918	24	2.32E-02	51.6	2.92E+00	T
0	480.43	12	36	2.76	960.57	954	12	3.44E-03	****	2.84E+00	
0	557.74	23	29	4.30	1115.23	1107	15	6.51E-03	****	2.53E+00	
0	591.88	10	28	1.37	1183.53	1176	14	2.84E-03	****	2.41E+00	
0	597.96	6	21	0.90	1195.69	1190	8	1.80E-03	****	2.39E+00	
0	647.79	22	20	0.72	1295.37	1288	11	6.15E-03	91.9	2.23E+00	
0	677.05	14	20	0.71	1353.91	1349	10	4.02E-03	****	2.15E+00	T
0	768.15	29	23	0.69	1536.17	1526	16	8.29E-03	82.1	1.91E+00	T
0	839.73	28	7	1.20	1679.38	1675	11	8.16E-03	52.6	1.76E+00	
0	933.07	19	16	3.85	1866.13	1858	13	5.43E-03	96.4	1.58E+00	
0	1127.07	7	4	1.31	2254.30	2251	6	2.03E-03	****	1.31E+00	
3	1233.02	12	2	2.38	2466.29	2464	16	3.58E-03	51.5	1.20E+00	
3	1237.49	28	4	2.25	2475.24	2464	16	8.29E-03	45.5	1.19E+00	T
0	1245.65	14	9	1.43	2491.56	2487	9	4.18E-03	94.3	1.19E+00	
0	1254.65	20	0	4.62	2509.57	2503	14	5.83E-03	43.6	1.18E+00	
0	1339.36	10	0	3.49	2679.09	2674	10	3.06E-03	60.3	1.11E+00	
0	1361.94	13	2	1.19	2724.27	2718	11	3.78E-03	71.4	1.09E+00	T
0	1365.67	5	7	0.83	2731.73	2728	10	1.41E-03	****	1.09E+00	T
0	1377.77	12	8	0.96	2755.94	2747	12	3.41E-03	****	1.08E+00	
0	1406.69	13	5	2.36	2813.82	2807	12	3.96E-03	86.5	1.06E+00	T
0	1637.75	6	3	1.43	3276.20	3269	10	1.76E-03	****	9.52E-01	
0	1728.09	14	0	0.73	3457.00	3450	13	4.17E-03	51.6	9.26E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299028.CNF;1 *
* Acquisition date : 31-JUL-2024 16:10:48 Sensitivity : 3.000 *
* Detector ID : GAM10 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.61 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:40:00 Nuclide Library : SOLID *
* Sample ID : G674299028 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1291E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.999E-01
CD-109	1.122E+00
SN-126	1.074E-01
TL-208	3.685E-02
BI-211	2.078E-01
BI-212	5.064E-01
PB-212	5.941E-02
BI-214	7.093E-02
PB-214	7.558E-02
RN-222	7.093E-02
RA-224	6.364E-01
RA-226	7.558E-02
AC-228	1.445E-01
RA-228	1.445E-01
TH-228	5.941E-02
TH-230	7.558E-02
PA-231	4.860E-01
TH-232	1.445E-01
TH-234	2.492E+00
U-234	7.558E-02
U-235	2.404E-01
U-238	2.492E+00
AM-243	7.697E-02
ANH-511	2.812E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.416E-01	NOT IDENT.
NA-22	4.519E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.787E-02	NOT IDENT.
SC-46	4.617E-02	FAIL ABUN
V-48	1.796E-01	NOT IDENT.
CR-51	6.564E-01	NOT IDENT.

MN-52	3.614E+00	NOT IDENT.
MN-54	4.983E-02	NOT IDENT.
CO-56	5.194E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.248E-02	NOT IDENT.
CO-58	5.623E-02	NOT IDENT.
FE-59	1.378E-01	NOT IDENT.
CO-60	3.690E-02	NOT IDENT.
ZN-65	1.075E-01	NOT IDENT.
GE-68	1.432E+00	NOT IDENT.
AS-73	2.939E+00	NOT IDENT.
AS-74	2.243E-01	NOT IDENT.
SE-75	4.984E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.090E-01	NOT IDENT.
RB-83	7.490E-02	NOT IDENT.
RB-84	9.495E-02	NOT IDENT.
KR-85	7.036E+00	NOT IDENT.
SR-85	4.602E-02	NOT IDENT.
RB-86	1.724E+00	NOT IDENT.
Y-88	4.301E-02	NOT IDENT.
Y-91	3.133E+01	NOT IDENT.
NB-94	3.124E-02	NOT IDENT.
NB-95	5.373E-02	NOT IDENT.
NB-95M	1.593E-01	NOT IDENT.
ZR-95	7.884E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.612E-02	NOT IDENT.
RH-102	5.488E-02	FAIL ABUN
RU-103	5.794E-02	FAIL ABUN
RH-106	2.871E-01	NOT IDENT.
RU-106	2.871E-01	NOT IDENT.
AG-108M	3.055E-02	NOT IDENT.
AG-110	8.113E-01	NOT IDENT.
AG-110M	5.211E-02	FAIL ABUN
SN-113	5.212E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.626E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.358E-02	NOT IDENT.
SB-124	8.974E-02	NOT IDENT.
SB-125	9.340E-02	FAIL ABUN
TE-125M	1.542E+01	NOT IDENT.
I-126	6.857E-01	NOT IDENT.
SB-126	4.574E-01	NOT IDENT.
SB-127	4.855E+01	NOT IDENT.
I-131	6.530E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.819E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	4.963E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.146E-01	FAIL ABUN
BA-137M	3.460E-02	NOT IDENT.
CS-137	3.655E-02	NOT IDENT.
LA-138	6.360E-02	NOT IDENT.
CE-139	3.772E-02	NOT IDENT.
BA-140	7.403E-01	NOT IDENT.
LA-140	1.496E-01	FAIL ABUN
CE-141	1.139E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.271E-01	NOT IDENT.
PM-144	2.490E-02	NOT IDENT.
PR-144	1.879E+00	NOT IDENT.
PM-146	4.204E-02	NOT IDENT.
ND-147	2.028E+00	FAIL ABUN
PM-147	8.634E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.127E-02	FAIL ABUN
EU-152	8.700E-02	FAIL ABUN
GD-153	1.161E-01	NOT IDENT.
EU-154	1.267E-01	NOT IDENT.
EU-155	1.467E-01	FAIL ABUN
TB-160	1.344E-01	FAIL ABUN

HO-166M	5.044E-02	FAIL ABUN
TM-171	6.191E+01	FAIL ABUN
HF-172	2.357E-01	FAIL ABUN
LU-172	8.772E-02	FAIL ABUN
LU-176	2.724E-02	FAIL ABUN
HF-181	6.068E-02	NOT IDENT.
TA-182	2.218E-01	FAIL ABUN
RE-183	5.833E-01	FAIL ABUN
RE-184	2.212E-01	NOT IDENT.
W-188	8.732E+00	FAIL ABUN
IR-192	3.985E-02	FAIL ABUN
HG-203	5.703E-02	NOT IDENT.
TL-204	7.806E+00	NOT IDENT.
BI-207	5.908E-02	FAIL ABUN
BI-210	1.758E+01	NOT IDENT.
PB-210	1.758E+01	NOT IDENT.
PB-211	5.315E-01	NOT IDENT.
BI-213	1.069E-01	NOT IDENT.
RN-219	4.794E-01	FAIL ABUN
RA-223	6.513E-01	FAIL ABUN
AC-225	2.614E+00	NOT IDENT.
AC-227	2.646E-01	FAIL ABUN
TH-227	2.646E-01	FAIL ABUN
TH-229	5.848E-01	FAIL ABUN
TH-231	6.513E-01	FAIL ABUN
PA-233	7.315E-02	FAIL ABUN
PA-234	2.767E-01	FAIL ABUN
PA-234M	4.852E+00	NOT IDENT.
NP-237	7.315E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.062E-01	FAIL ABUN
PU-239	4.462E+02	FAIL ABUN
AM-241	3.378E-01	NOT IDENT.
CM-243	1.430E-01	FAIL ABUN
BK-247	7.894E-02	NOT IDENT.
CM-247	4.519E-02	FAIL ABUN
CF-249	4.167E-02	NOT IDENT.
CF-251	1.325E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299028.CNF;1
Acquisition date : 31-JUL-2024 16:10:48 Sensitivity : 3.000
Detector ID : GAM10 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.61 Half life ratio : *****
Sample date : 26-JUN-2024 11:40:00 Nuclide Library : SOLID
Sample ID : G674299028 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1291E+02 GRAM
Quantity Err(%) : 1.7713E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.778E+01	3.178E+00	3.178E+00
CD-109	2.600E+00	2.272E+00	2.272E+00
SN-126	2.466E-01	2.151E-01	2.151E-01
TL-208	5.336E-01	1.356E-01	1.356E-01
BI-211	5.351E+00	9.160E-01	9.160E-01
BI-212	2.325E+00	1.639E+00	1.639E+00
PB-212	1.700E+00	2.384E-01	2.384E-01
BI-214	1.249E+00	2.296E-01	2.296E-01
PB-214	1.942E+00	3.310E-01	3.310E-01
RN-222	1.249E+00	2.296E-01	2.296E-01
RA-224	4.037E+00	1.937E+00	1.937E+00
RA-226	1.942E+00	3.310E-01	3.310E-01
AC-228	1.980E+00	4.887E-01	4.887E-01
RA-228	1.980E+00	4.887E-01	4.887E-01
TH-228	1.700E+00	2.384E-01	2.384E-01
TH-230	1.942E+00	3.310E-01	3.310E-01
PA-231	1.478E+00	1.033E+00	1.033E+00
TH-232	1.980E+00	4.887E-01	4.887E-01
TH-234	1.011E+00	5.134E+00	5.134E+00
U-234	1.942E+00	3.310E-01	3.310E-01
U-235	1.418E-01	2.651E-01	2.651E-01
U-238	1.011E+00	5.134E+00	5.134E+00
AM-243	4.229E-01	1.642E-01	1.642E-01
ANH-511	1.211E-01	8.690E-02	8.690E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.661E-02	5.958E-01	5.959E-01	NOT IDENT.
NA-22	-1.610E-02	5.703E-02	5.749E-02	NOT IDENT.
NA-24	-2.803E+15	5.352E+15	5.499E+15	SHORT HLIF
AL-26	1.283E-02	4.194E-02	4.233E-02	NOT IDENT.
SC-46	-2.213E-02	5.729E-02	5.815E-02	FAIL ABUN
V-48	4.933E-02	2.011E-01	2.024E-01	NOT IDENT.

CR-51	5.919E-02	7.606E-01	7.610E-01	NOT IDENT.
MN-52	2.334E+00	3.791E+00	3.935E+00	NOT IDENT.
MN-54	5.524E-02	5.405E-02	5.951E-02	NOT IDENT.
CO-56	2.810E-03	5.962E-02	5.964E-02	FAIL ABUN
MN-56	1.000E+41	1.848E+42	0.000E+00	SHORT HLIF
CO-57	3.145E-02	3.760E-02	4.018E-02	NOT IDENT.
CO-58	2.187E-02	6.597E-02	6.670E-02	NOT IDENT.
FE-59	6.042E-02	1.518E-01	1.542E-01	NOT IDENT.
CO-60	1.196E-02	4.084E-02	4.120E-02	NOT IDENT.
ZN-65	-4.283E-03	1.449E-01	1.449E-01	NOT IDENT.
GE-68	-1.733E-02	1.686E+00	1.686E+00	NOT IDENT.
AS-73	-2.072E+00	3.724E+00	3.840E+00	NOT IDENT.
AS-74	1.359E-01	3.459E-01	3.512E-01	NOT IDENT.
SE-75	-3.895E-02	6.923E-02	7.142E-02	NOT IDENT.
BR-77	9.246E+04	9.482E+04	1.036E+05	SHORT HLIF
SR-82	-5.500E-01	7.395E-01	7.800E-01	NOT IDENT.
RB-83	-1.298E-01	1.112E-01	1.256E-01	NOT IDENT.
RB-84	-2.441E-02	1.146E-01	1.151E-01	NOT IDENT.
KR-85	6.080E-01	9.357E+00	9.361E+00	NOT IDENT.
SR-85	3.820E-03	6.123E-02	6.125E-02	NOT IDENT.
RB-86	1.126E-01	2.005E+00	2.006E+00	NOT IDENT.
Y-88	6.851E-03	5.013E-02	5.022E-02	NOT IDENT.
Y-91	2.537E+00	3.672E+01	3.674E+01	NOT IDENT.
NB-94	9.194E-03	3.662E-02	3.686E-02	NOT IDENT.
NB-95	3.248E-03	6.592E-02	6.593E-02	NOT IDENT.
NB-95M	7.676E-03	2.030E-01	2.030E-01	NOT IDENT.
ZR-95	-3.408E-02	1.041E-01	1.052E-01	NOT IDENT.
NB-97	1.000E+41	2.128E+41	0.000E+00	SHORT HLIF
ZR-97	4.792E+14	9.199E+14	9.449E+14	SHORT HLIF
MO-99	-7.999E+02	2.309E+03	2.337E+03	SHORT HLIF
TC-99M	1.037E+40	5.409E+40	0.000E+00	SHORT HLIF
RH-101	1.097E-02	4.757E-02	4.783E-02	NOT IDENT.
RH-102	-5.812E-02	7.615E-02	8.053E-02	FAIL ABUN
RU-103	1.778E-02	6.688E-02	6.736E-02	FAIL ABUN
RH-106	-1.740E-02	3.523E-01	3.524E-01	NOT IDENT.
RU-106	-1.740E-02	3.523E-01	3.524E-01	NOT IDENT.
AG-108M	3.493E-04	3.602E-02	3.602E-02	NOT IDENT.
AG-110	5.741E-01	8.957E-01	9.324E-01	NOT IDENT.
AG-110M	-3.099E-03	6.094E-02	6.096E-02	FAIL ABUN
SN-113	-4.167E-02	6.641E-02	6.901E-02	NOT IDENT.
CD-115	1.484E+03	8.047E+03	8.075E+03	SHORT HLIF
SN-117M	-8.847E-03	2.044E-01	2.044E-01	NOT IDENT.
SB-122	1.344E+01	4.246E+02	4.247E+02	SHORT HLIF
TE-123M	-3.974E-03	3.995E-02	3.999E-02	NOT IDENT.
SB-124	-7.557E-02	1.375E-01	1.416E-01	NOT IDENT.
SB-125	4.475E-02	1.050E-01	1.069E-01	FAIL ABUN
TE-125M	8.002E+00	1.834E+01	1.869E+01	NOT IDENT.
I-126	1.876E-01	8.081E-01	8.126E-01	NOT IDENT.
SB-126	-1.162E-01	5.814E-01	5.838E-01	NOT IDENT.
SB-127	-3.384E+01	6.535E+01	6.711E+01	NOT IDENT.
I-131	7.941E-01	7.223E-01	8.062E-01	NOT IDENT.
I-132	1.000E+41	1.150E+42	0.000E+00	SHORT HLIF
TE-132	-1.224E+01	6.995E+01	7.017E+01	SHORT HLIF
BA-133	1.580E-02	5.881E-02	5.924E-02	FAIL ABUN
I-133	6.873E+09	7.051E+10	7.058E+10	SHORT HLIF
CS-134	-1.606E-02	6.391E-02	6.432E-02	FAIL ABUN
I-135	1.055E+37	8.169E+37	0.000E+00	SHORT HLIF
CS-136	-3.914E-01	4.380E-01	4.722E-01	FAIL ABUN
BA-137M	-6.142E-03	4.329E-02	4.338E-02	NOT IDENT.
CS-137	-6.489E-03	4.573E-02	4.582E-02	NOT IDENT.
LA-138	-1.090E-03	7.666E-02	7.666E-02	NOT IDENT.
CE-139	1.799E-02	4.164E-02	4.242E-02	NOT IDENT.
BA-140	-3.094E-01	9.405E-01	9.508E-01	NOT IDENT.
LA-140	-6.760E-02	2.148E-01	2.169E-01	FAIL ABUN
CE-141	5.858E-02	1.261E-01	1.288E-01	NOT IDENT.
CE-143	4.065E+06	4.876E+06	5.209E+06	SHORT HLIF
CE-144	-1.454E-01	3.230E-01	3.296E-01	NOT IDENT.
PM-144	-2.786E-02	3.670E-02	3.879E-02	NOT IDENT.
PR-144	-2.118E+00	2.774E+00	2.934E+00	NOT IDENT.
PM-146	7.043E-03	4.913E-02	4.923E-02	NOT IDENT.
ND-147	-2.775E-01	2.482E+00	2.485E+00	FAIL ABUN
PM-147	-6.489E+02	1.124E+03	1.161E+03	NOT IDENT.
PM-149	-1.345E+04	5.556E+04	5.589E+04	SHORT HLIF
EU-150	2.122E-02	3.605E-02	3.729E-02	FAIL ABUN
EU-152	-9.006E-02	1.132E-01	1.202E-01	FAIL ABUN
GD-153	-4.623E-02	1.451E-01	1.465E-01	NOT IDENT.
EU-154	-4.514E-02	1.599E-01	1.612E-01	NOT IDENT.
EU-155	1.763E-01	1.679E-01	1.857E-01	FAIL ABUN

TB-160	-1.575E-02	1.590E-01	1.591E-01	FAIL ABUN
HO-166M	-9.724E-02	8.028E-02	9.147E-02	FAIL ABUN
TM-171	4.775E+01	7.060E+01	7.380E+01	FAIL ABUN
HF-172	3.691E-01	2.863E-01	3.312E-01	FAIL ABUN
LU-172	6.921E-02	9.338E-02	9.846E-02	FAIL ABUN
LU-176	-2.635E-03	3.201E-02	3.203E-02	FAIL ABUN
HF-181	9.469E-03	7.946E-02	7.958E-02	NOT IDENT.
TA-182	-3.902E-03	2.638E-01	2.638E-01	FAIL ABUN
RE-183	3.942E-01	6.698E-01	6.930E-01	FAIL ABUN
RE-184	2.426E-01	2.398E-01	2.636E-01	NOT IDENT.
W-188	-5.107E+00	1.201E+01	1.223E+01	FAIL ABUN
IR-192	-3.959E-02	5.100E-02	5.403E-02	FAIL ABUN
HG-203	2.375E-02	7.082E-02	7.162E-02	NOT IDENT.
TL-204	-2.381E+00	1.047E+01	1.053E+01	NOT IDENT.
BI-207	1.628E-02	6.663E-02	6.703E-02	FAIL ABUN
BI-210	-7.797E+00	2.159E+01	2.187E+01	NOT IDENT.
PB-210	-7.797E+00	2.159E+01	2.187E+01	NOT IDENT.
PB-211	-1.722E+00	8.821E-01	1.175E+00	NOT IDENT.
BI-213	2.394E-02	1.240E-01	1.244E-01	NOT IDENT.
RN-219	6.377E-01	5.041E-01	5.803E-01	FAIL ABUN
RA-223	-4.642E-01	9.145E-01	9.381E-01	FAIL ABUN
AC-225	-1.602E-01	3.007E+00	3.008E+00	NOT IDENT.
AC-227	1.994E-01	2.885E-01	3.022E-01	FAIL ABUN
TH-227	1.994E-01	2.885E-01	3.022E-01	FAIL ABUN
TH-229	1.254E-03	6.661E-01	6.661E-01	FAIL ABUN
TH-231	-4.642E-01	9.145E-01	9.381E-01	FAIL ABUN
PA-233	-1.109E-02	8.785E-02	8.799E-02	FAIL ABUN
PA-234	-2.766E-01	4.892E-01	5.049E-01	FAIL ABUN
PA-234M	3.634E+00	5.008E+00	5.269E+00	NOT IDENT.
NP-237	-1.109E-02	8.785E-02	8.799E-02	FAIL ABUN
NP-238	-6.708E+03	1.760E+04	1.786E+04	SHORT HLIF
NP-239	1.919E-01	3.615E-01	3.717E-01	FAIL ABUN
PU-239	5.098E+02	6.611E+02	6.999E+02	FAIL ABUN
AM-241	-8.108E-05	4.403E-01	4.403E-01	NOT IDENT.
CM-243	4.827E-03	1.752E-01	1.752E-01	FAIL ABUN
BK-247	-6.790E-02	1.113E-01	1.155E-01	NOT IDENT.
CM-247	7.103E-02	4.743E-02	5.723E-02	FAIL ABUN
CF-249	2.649E-02	4.608E-02	4.760E-02	NOT IDENT.
CF-251	-5.698E-02	1.548E-01	1.569E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	82.0928	85.43	117.3470	131.20	105.7656
45.60	80.2411	86.55	128.1053	133.02	72.8526
46.54	96.9110	86.79	128.1464	133.52	94.4260
49.72	0.0000	86.94	128.1726	136.00	67.2643
51.35	83.3639	87.09	128.1992	136.47	89.7286
51.87	80.1071	87.57	128.2824	140.51	0.0000
52.39	71.2749	88.03	128.3622	143.76	84.5314
52.97	66.8919	88.34	128.4163	144.24	72.8487
53.44	83.6869	88.47	128.4388	145.44	82.9955
54.07	94.9540	89.96	128.6949	152.43	73.4310
57.36	0.0000	1093.63	128.8113	153.25	81.9355
57.53	79.8054	91.11	128.8911	323.87	82.0095
57.98	69.7436	92.59	129.1423	156.02	81.3027
59.27	80.0462	93.35	129.2704	158.56	77.6760
59.32	80.0529	94.56	117.1990	159.00	76.4337
59.54	84.2190	94.65	117.2133	162.33	74.1134
60.96	104.0208	94.67	117.2163	162.66	74.1355
61.17	84.4526	94.87	104.5712	163.33	85.2661
62.93	90.7516	97.43	108.4902	165.86	76.0616
63.29	90.8058	98.43	112.2088	176.31	61.2424
63.58	90.8490	98.44	112.2102	176.60	61.2576
64.28	90.9535	99.53	100.4101	177.52	75.1218
66.73	97.0219	100.11	98.0901	181.07	0.0000
67.24	115.7596	102.03	105.5185	181.52	66.2823
125.81	117.3650	103.18	105.6669	184.41	74.6962
67.75	117.3775	103.37	110.4959	143.76	74.7785
68.89	99.2635	105.21	104.7243	193.51	77.0125
69.67	102.4431	105.31	89.0866	197.03	62.3135
70.82	105.6885	106.12	87.9688	198.01	56.2142
70.83	108.7541	106.47	110.9114	201.83	62.5533
72.81	92.1838	109.28	88.3004	203.43	53.8112
72.87	92.1918	111.00	87.2666	205.31	70.2345
74.66	101.6849	111.76	0.0000	210.85	66.5459
74.82	101.7090	114.06	93.6581	215.65	74.8057
74.97	101.7319	116.30	0.0000	218.12	68.7003
77.11	102.0541	116.74	71.9837	222.11	59.9575
78.74	102.2965	119.76	86.9186	227.09	54.7898
79.69	102.4362	121.12	100.5362	227.38	58.3945
80.03	83.8518	121.22	101.7737	228.16	0.0000
80.12	83.8630	121.78	73.6166	228.18	66.5190
80.19	83.8718	122.06	73.6395	116.74	66.5190
80.57	93.2410	122.92	81.0800	235.69	65.0742
81.00	91.7434	123.07	81.0931	235.96	59.6628
81.07	91.7524	265.00	88.5240	238.63	59.7769
81.75	94.9538	125.81	62.4388	238.98	0.0000
82.47	119.9819	127.23	80.6361	240.99	59.8770
83.79	104.5928	127.91	97.1633	242.00	59.9193
84.00	101.5003	129.30	94.0085	244.70	60.0327

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	38.4069	344.28	41.6029	563.25	24.0857
252.80	43.9053	345.93	38.3480	564.24	0.0000
254.15	0.0000	351.06	37.8733	569.33	35.4089
256.23	38.5070	351.93	37.8915	946.00	35.4116
260.90	0.0000	355.39	0.0000	569.70	35.4143
264.66	56.7053	356.01	23.3696	583.19	24.2725
264.80	56.7103	364.49	16.1398	584.27	24.2816
265.00	56.7178	366.42	0.0000	595.83	19.5110
269.46	49.0222	372.51	40.2751	427.87	17.9166
270.03	49.0405	375.05	35.4111	602.52	0.0000
271.23	49.0793	377.52	34.4716	604.72	16.3129
273.65	49.1559	356.01	23.7148	607.14	27.7568
276.40	49.2432	388.16	25.7482	609.32	23.9667
277.37	49.2745	388.63	29.7162	610.33	23.9757
277.60	49.2821	391.69	44.6439	614.28	22.9192
278.00	49.2939	264.66	40.8590	618.01	19.6721
279.20	47.4711	401.81	22.9340	620.36	19.6890
279.54	47.4815	402.40	20.9462	621.93	16.4166
279.70	44.6924	404.85	48.9332	630.19	0.0000
280.46	47.5085	410.95	25.5420	631.29	30.7492
283.69	43.8722	413.71	24.0718	633.25	19.7813
284.31	38.2865	414.70	27.0939	634.78	17.5928
285.41	45.7890	423.72	31.2434	635.95	20.9003
285.90	0.0000	427.09	27.2560	636.99	26.4102
287.50	31.8141	427.87	23.2269	657.50	14.4097
290.67	50.6283	433.94	27.3450	657.76	16.6278
293.27	0.0000	439.40	28.4301	657.90	0.0000
351.93	56.4124	440.45	26.4126	661.66	21.0913
295.96	56.4380	453.88	24.5322	664.57	0.0000
879.38	36.7434	463.37	18.4786	666.33	20.0134
299.98	33.9456	468.07	18.5175	666.50	20.0142
300.09	33.9485	473.00	27.8372	667.71	0.0000
300.13	33.9492	475.06	18.5753	677.62	18.9749
301.36	43.8832	476.78	21.6874	685.70	25.7430
302.85	42.5061	477.60	29.4434	692.65	0.0000
256.23	41.1308	482.18	23.2919	695.00	19.0870
304.85	41.1388	487.02	25.9343	696.49	17.9733
306.78	42.6068	492.35	0.0000	696.51	17.9733
308.46	46.4409	497.08	21.8797	697.00	17.9766
311.90	50.3355	505.52	29.8006	697.30	16.8549
316.51	47.6156	507.63	0.0000	697.49	16.8555
319.41	48.6498	511.00	24.1050	702.65	14.6335
320.08	41.9885	514.00	26.7586	706.68	11.2716
321.04	44.6862	514.00	26.7586	711.68	29.3547
323.87	50.2110	520.40	36.8258	720.70	22.6473
325.23	40.2004	520.69	0.0000	721.93	0.0000
328.76	38.3634	522.65	0.0000	722.78	22.0962
333.37	54.8117	527.90	0.0000	722.91	22.0978
333.97	39.2469	528.26	28.5007	723.31	25.5002
334.37	43.2971	529.59	27.4600	724.19	18.7055
338.28	62.6778	529.87	0.0000	727.33	19.2924
338.32	62.6791	531.02	25.3623	733.00	23.8754
311.90	44.8936	537.26	24.3673	735.93	11.9488
340.48	44.8936	546.56	0.0000	333.97	14.8011
340.55	44.8955	552.55	12.7915	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	18.2565	949.00	9.9919	1384.29	5.0189
747.24	27.4111	667.71	0.0000	1408.01	11.2957
748.06	22.8483	962.31	15.4965	1434.09	5.0687
752.31	14.8715	964.08	15.5038	1435.80	8.1123
753.82	20.6008	966.17	15.5121	1457.56	0.0000
756.73	17.1832	911.20	15.5235	1460.82	8.1514
756.80	17.1838	983.53	11.9161	1489.16	2.0490
884.68	17.2223	984.45	0.0000	1505.03	6.1652
765.81	18.3815	1274.44	16.5536	1584.12	14.5956
766.42	18.3848	1001.03	6.4454	1596.21	3.1344
766.84	18.3874	1002.74	12.8964	1620.50	12.5918
772.60	0.0000	1004.73	10.1383	1621.92	7.3469
776.52	21.9007	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	6.3732
778.90	23.0705	1028.54	0.0000	1750.46	0.0000
783.70	26.5704	1037.84	9.2938	1764.49	5.1618
788.74	19.6694	1038.76	0.0000	1063.66	3.2292
792.07	22.0059	631.29	12.1082	1771.35	4.3064
795.86	27.8291	1048.07	23.2941	1791.20	0.0000
810.06	16.3031	1049.04	21.4348	1808.65	3.2496
810.29	16.3043	1050.41	15.8483	1810.72	0.0000
344.28	16.3048	1063.66	13.0942	1836.06	3.2639
810.76	17.4713	1077.00	12.1986		
815.77	15.1646	1077.34	14.0762		
1048.07	11.3825	1085.87	13.1652		
832.01	16.7027	1093.63	13.1899		
834.85	11.2617	1099.45	11.3210		
835.71	19.7135	1112.07	13.2480		
836.80	0.0000	1112.84	18.3874		
846.75	0.0000	1115.54	18.1828		
846.77	17.6581	1120.29	19.9105		
856.80	15.5842	1120.55	19.9118		
860.56	16.8419	1221.41	15.1729		
871.09	12.4474	1129.67	10.6422		
873.19	12.4547	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	10.6941	1173.23	15.3564		
880.51	9.8059	1177.95	14.4113		
881.60	13.3759	1189.05	17.3375		
883.24	14.2744	1204.77	17.3979		
884.68	14.2803	1221.41	14.5523		
889.28	17.8729	1231.02	9.3328		
894.76	17.9004	1235.36	12.6501		
898.04	17.0210	1238.28	17.1381		
900.72	18.8268	1260.41	0.0000		
903.28	8.6127	1271.87	12.7501		
911.20	15.2849	1274.44	13.7385		
912.08	15.2885	1274.54	13.7394		
923.98	0.0000	1291.59	13.7889		
926.50	7.2229	1298.22	0.0000		
929.11	7.2280	1312.11	7.9131		
935.54	15.9296	1332.49	4.9667		
937.49	15.9376	1362.66	0.0000		
944.13	12.7003	1365.19	0.0000		
946.00	19.0601	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:13:17.18

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299029.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM12.CNF;1051
Background date    : 29-JUL-2024 06:18:59
Sample date       : 26-JUN-2024 11:45:00 Acquisition date : 31-JUL-2024 16:11:11
Sample ID        : G674299029 Sample quantity : 1.17950E+02 GRAM
Detector name     : GAM12 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.53 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	37.28*	62	23	2.40	74.52	69	24	1.71E-02	28.1	1.79E+00
2	4	40.02	46	81	2.41	79.99	69	24	1.28E-02	52.5	
3	4	43.37*	33	121	2.00	86.69	69	24	9.18E-03	65.4	
4	1	74.72	110	163	1.87	149.34	140	21	3.04E-02	26.0	1.05E+00
5	1	77.38	177	153	1.88	154.66	140	21	4.92E-02	16.5	
6	0	86.37	28	170	2.90	172.62	171	8	7.65E-03	85.1	
7	0	93.28*	41	183	1.27	186.43	181	11	1.15E-02	69.9	
8	0	153.80	11	149	0.66	307.39	300	11	3.08E-03	214.8	
9	0	185.65*	5	154	1.14	371.04	366	12	1.48E-03	484.7	
10	1	238.47*	357	84	1.81	476.63	469	21	9.93E-02	7.6	9.04E-01
11	1	241.48	90	87	2.06	482.63	469	21	2.49E-02	30.6	
12	5	294.97	127	93	2.10	589.56	583	24	3.54E-02	17.5	3.91E+00
13	5	300.64	27	64	3.09	600.89	583	24	7.62E-03	63.1	
14	0	328.98	29	68	0.70	657.54	652	14	8.15E-03	61.9	
15	1	337.91*	72	77	2.14	675.39	669	23	2.00E-02	27.4	2.17E+00
16	1	343.72	36	44	1.95	687.00	669	23	9.98E-03	40.6	
17	0	351.69*	127	123	1.44	702.93	696	15	3.52E-02	21.0	
18	0	409.49	21	47	1.64	818.48	813	10	5.92E-03	64.1	
19	0	510.69*	47	55	2.25	1020.81	1013	19	1.32E-02	44.3	
20	0	523.34	31	30	3.34	1046.10	1034	20	8.62E-03	49.5	
21	0	582.99*	76	42	1.90	1165.36	1158	13	2.11E-02	21.5	
22	0	608.96	149	32	1.35	1217.29	1211	14	4.13E-02	11.5	
23	0	635.17	20	18	1.03	1269.70	1264	10	5.55E-03	47.0	
24	1	851.05	20	10	2.43	1701.44	1691	35	5.61E-03	43.5	7.65E-01
25	1	860.61	28	10	2.43	1720.56	1691	35	7.80E-03	27.7	
26	0	912.85*	22	68	2.40	1825.05	1815	20	6.06E-03	99.9	
27	0	970.49	25	46	1.05	1940.35	1931	14	7.07E-03	61.2	
28	0	1023.66	18	30	3.76	2046.70	2034	24	4.88E-03	85.9	
29	0	1063.89	33	18	3.66	2127.18	2120	18	9.17E-03	34.8	
30	0	1119.75	39	13	2.58	2238.93	2232	13	1.09E-02	24.8	
31	0	1310.39	5	5	1.35	2620.38	2615	8	1.44E-03	90.2	
32	0	1460.21*	392	4	2.23	2920.19	2912	17	1.09E-01	5.2	
33	0	1763.44	38	0	1.17	3527.16	3521	12	1.06E-02	16.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299029.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 11:45:00	Acquisition date	: 31-JUL-2024 16:11:11
Sample ID	: G674299029	Sample quantity	: 117.95 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA12	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.53 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	370	10.66*	1.082E+00	2.044E+01	2.044E+01	10.43
SN-126	64.28	-----	9.60	2.090E+00	-----	Line Not Found	-----
	86.94	30	8.90	4.265E+00	4.986E-01	4.986E-01	170.28
	87.57	30	37.00*	4.265E+00	1.199E-01	1.199E-01	170.28
TL-208	277.37	-----	6.60	4.130E+00	-----	Line Not Found	-----
	583.19	75	85.00*	2.288E+00	2.461E-01	2.461E-01	42.91
	860.56	27	12.50	1.669E+00	8.314E-01	8.314E-01	55.49
BI-211	72.87	-----	1.23	3.022E+00	-----	Line Not Found	-----
	351.06	128	12.92*	3.434E+00	1.839E+00	1.839E+00	42.08
PB-212	74.82	119	10.28	3.213E+00	2.294E+00	2.294E+00	51.91
	77.11	192	17.10	3.477E+00	2.055E+00	2.055E+00	33.05
	238.63	368	43.60*	4.607E+00	1.168E+00	1.168E+00	15.25
	300.09	28	3.30	3.884E+00	1.389E+00	1.389E+00	126.17
BI-214	609.32	147	45.49*	2.209E+00	9.296E-01	9.297E-01	22.94
	1120.29	38	14.92	1.344E+00	1.191E+00	1.192E+00	49.54
	1764.49	36	15.30	9.363E-01	1.581E+00	1.581E+00	32.44
PB-214	74.82	119	5.80	3.213E+00	4.065E+00	4.066E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
RN-222	609.32	147	45.49*	2.209E+00	9.296E-01	9.297E-01	22.94
	1120.29	38	14.92	1.344E+00	1.191E+00	1.192E+00	49.54
	1764.49	36	15.30	9.363E-01	1.581E+00	1.581E+00	32.44
RA-224	240.99	92	4.10*	4.567E+00	3.141E+00	3.141E+00	61.21
RA-226	74.82	119	5.80	3.213E+00	4.065E+00	4.066E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
TH-228	74.82	119	10.28	3.213E+00	2.294E+00	2.294E+00	51.91
	77.11	192	17.10	3.477E+00	2.055E+00	2.055E+00	33.05
	238.63	368	43.60*	4.607E+00	1.168E+00	1.168E+00	15.25
	300.09	28	3.30	3.884E+00	1.389E+00	1.389E+00	126.17
TH-230	74.82	119	5.80	3.213E+00	4.065E+00	4.065E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
PA-231	283.69	-----	1.70	4.060E+00	-----	Line Not Found	-----
	301.36	28	5.35*	3.884E+00	8.568E-01	8.568E-01	126.17
U-234	74.82	119	5.80	3.213E+00	4.065E+00	4.065E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
	43.53	37	5.90	2.774E-01	1.430E+01	1.430E+01	130.77
	74.66	119	67.20*	3.213E+00	3.509E-01	3.509E-01	51.91
ANH-511	511.00	47	100.00*	2.545E+00	1.178E-01	1.178E-01	88.57

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299029.CNF;1
Acquisition date : 31-JUL-2024 16:11:11 Sensitivity : 3.000
Detector ID : GAM12 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.53 Half life ratio : *****
Sample date : 26-JUN-2024 11:45:00 Analyst initials: MXR1
Sample ID : G674299029 Sample Quantity : 1.1795E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 11-OCT-2023 07:18:34 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.044E+01	2.088E+00	9.854E-01
SN-126	1.199E-01	2.001E-01	2.644E-01
TL-208	2.461E-01	1.035E-01	9.173E-02
BI-211	1.839E+00	7.583E-01	5.056E-01
PB-212	1.168E+00	1.745E-01	1.384E-01
BI-214	9.297E-01	2.090E-01	1.808E-01
PB-214	6.674E-01	2.752E-01	1.839E-01
RN-222	9.297E-01	2.090E-01	1.808E-01
RA-224	3.141E+00	1.884E+00	1.482E+00
RA-226	6.674E-01	2.752E-01	1.839E-01
TH-228	1.168E+00	1.745E-01	1.384E-01
TH-230	6.674E-01	2.752E-01	1.839E-01
PA-231	8.568E-01	1.059E+00	1.086E+00
U-234	6.674E-01	2.752E-01	1.839E-01
AM-243	3.509E-01	1.785E-01	1.641E-01
ANH-511	1.178E-01	1.023E-01	6.164E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.929E-03	6.116E-01	1.131E+00	NOT IDENT.
NA-22	2.741E-02	6.232E-02	1.275E-01	NOT IDENT.
NA-24	0.000E+00	4.442E+15	0.000E+00	SHORT HLIF
AL-26	4.921E-03	4.496E-02	9.587E-02	NOT IDENT.
SC-46	-1.016E-02	7.580E-02	1.358E-01	FAIL ABUN
V-48	-1.079E-01	2.130E-01	3.888E-01	NOT IDENT.
CR-51	-3.847E-01	8.009E-01	1.423E+00	NOT IDENT.
MN-52	2.073E+00	3.118E+00	7.368E+00	NOT IDENT.
MN-54	2.795E-04	5.627E-02	1.034E-01	NOT IDENT.
CO-56	2.495E-04	6.712E-02	1.102E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-6.240E-03	3.433E-02	6.397E-02	NOT IDENT.
CO-58	-6.808E-02	7.217E-02	1.145E-01	NOT IDENT.
FE-59	-9.025E-02	1.805E-01	3.251E-01	NOT IDENT.

CO-60	7.098E-02	5.903E-02	1.338E-01	NOT IDENT.
ZN-65	3.723E-02	1.052E-01	1.999E-01	NOT IDENT.
GE-68	4.067E-01	1.544E+00	3.189E+00	NOT IDENT.
AS-73	-9.021E-01	2.348E+00	4.078E+00	NOT IDENT.
AS-74	2.486E-01	2.611E-01	5.447E-01	FAIL ABUN
SE-75	-2.319E-02	6.960E-02	1.241E-01	NOT IDENT.
BR-77	0.000E+00	9.483E+03	0.000E+00	SHORT HLIF
SR-82	8.226E-02	7.757E-01	1.466E+00	NOT IDENT.
RB-83	2.343E-02	1.180E-01	2.099E-01	NOT IDENT.
RB-84	-9.284E-02	1.410E-01	2.340E-01	NOT IDENT.
KR-85	-1.483E-01	1.475E+01	1.717E+01	NOT IDENT.
SR-85	-1.199E-03	9.650E-02	1.123E-01	NOT IDENT.
RB-86	-1.006E-01	2.028E+00	3.977E+00	NOT IDENT.
Y-88	3.676E-02	3.539E-02	1.074E-01	NOT IDENT.
Y-91	1.435E+01	3.441E+01	7.018E+01	NOT IDENT.
NB-94	1.414E-02	4.119E-02	8.077E-02	NOT IDENT.
NB-95	-3.215E-02	8.105E-02	1.404E-01	NOT IDENT.
NB-95M	2.548E-01	2.495E-01	4.381E-01	NOT IDENT.
ZR-95	6.780E-02	1.313E-01	2.577E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	9.855E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.198E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	5.997E+40	0.000E+00	SHORT HLIF
RH-101	1.512E-02	4.156E-02	7.989E-02	NOT IDENT.
RH-102	-1.618E-02	8.517E-02	1.338E-01	NOT IDENT.
RU-103	-3.491E-02	7.912E-02	1.395E-01	FAIL ABUN
RH-106	-3.243E-03	4.622E-01	8.556E-01	NOT IDENT.
RU-106	-3.243E-03	4.622E-01	8.556E-01	NOT IDENT.
AG-108M	-1.074E-02	3.909E-02	7.066E-02	NOT IDENT.
CD-109	-3.949E-01	2.247E+00	2.658E+00	NOT IDENT.
AG-110	6.899E-02	9.588E-01	1.817E+00	NOT IDENT.
AG-110M	3.816E-02	7.047E-02	1.421E-01	NOT IDENT.
SN-113	-4.723E-03	6.459E-02	1.195E-01	NOT IDENT.
CD-115	0.000E+00	7.903E+03	0.000E+00	SHORT HLIF
SN-117M	-1.883E-02	2.228E-01	3.830E-01	NOT IDENT.
SB-122	0.000E+00	5.597E+02	0.000E+00	SHORT HLIF
TE-123M	-1.906E-02	4.418E-02	7.726E-02	NOT IDENT.
SB-124	-1.247E-01	1.411E-01	2.226E-01	NOT IDENT.
SB-125	8.861E-02	1.167E-01	2.360E-01	FAIL ABUN
TE-125M	7.004E-01	1.961E+01	3.433E+01	NOT IDENT.
I-126	-7.770E-01	9.248E-01	1.517E+00	NOT IDENT.
SB-126	9.965E-02	6.734E-01	1.257E+00	NOT IDENT.
SB-127	-1.870E+01	6.228E+01	1.115E+02	NOT IDENT.
I-131	-3.927E-01	9.227E-01	1.641E+00	NOT IDENT.
I-132	0.000E+00	1.112E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.620E+01	0.000E+00	SHORT HLIF
BA-133	5.224E-02	6.446E-02	1.155E-01	NOT IDENT.
I-133	0.000E+00	8.747E+10	0.000E+00	SHORT HLIF
CS-134	1.469E-02	5.462E-02	1.030E-01	NOT IDENT.
I-135	0.000E+00	8.235E+37	0.000E+00	SHORT HLIF
CS-136	-1.841E-01	3.835E-01	7.011E-01	FAIL ABUN
BA-137M	3.759E-02	4.775E-02	9.740E-02	NOT IDENT.
CS-137	3.972E-02	5.045E-02	1.029E-01	NOT IDENT.
LA-138	8.019E-03	6.554E-02	1.378E-01	NOT IDENT.
CE-139	9.371E-04	4.128E-02	7.725E-02	NOT IDENT.
BA-140	-3.233E-01	1.043E+00	1.873E+00	NOT IDENT.
LA-140	4.380E-02	3.591E-01	7.397E-01	FAIL ABUN
CE-141	-2.991E-02	1.345E-01	2.470E-01	NOT IDENT.
CE-143	0.000E+00	5.187E+06	0.000E+00	SHORT HLIF
CE-144	4.154E-02	2.779E-01	5.256E-01	NOT IDENT.
PM-144	1.905E-02	4.557E-02	8.970E-02	NOT IDENT.
PR-144	1.461E+00	3.449E+00	6.794E+00	NOT IDENT.
PM-146	-4.863E-02	5.422E-02	9.033E-02	NOT IDENT.
ND-147	9.907E-01	2.680E+00	5.082E+00	NOT IDENT.
PM-147	2.398E+02	9.593E+02	1.840E+03	NOT IDENT.
PM-149	0.000E+00	6.344E+04	0.000E+00	SHORT HLIF
EU-150	6.976E-03	5.529E-02	6.713E-02	FAIL ABUN
EU-152	2.504E-01	1.992E-01	2.521E-01	FAIL ABUN
GD-153	-8.934E-03	1.605E-01	2.487E-01	NOT IDENT.
EU-154	7.079E-02	1.738E-01	3.545E-01	NOT IDENT.
EU-155	2.906E-02	1.707E-01	3.021E-01	FAIL ABUN
TB-160	-9.274E-02	2.155E-01	3.738E-01	FAIL ABUN
HO-166M	-4.687E-02	7.597E-02	1.288E-01	FAIL ABUN
TM-171	-2.870E+01	4.309E+01	7.320E+01	NOT IDENT.
HF-172	-8.676E-02	2.509E-01	4.615E-01	NOT IDENT.
LU-172	3.263E-03	8.963E-02	1.750E-01	FAIL ABUN
LU-176	2.145E-03	3.443E-02	6.018E-02	NOT IDENT.
HF-181	7.251E-02	8.059E-02	1.652E-01	NOT IDENT.

TA-182	-1.626E-01	2.970E-01	5.277E-01	FAIL ABUN
RE-183	7.016E-02	5.280E-01	9.492E-01	NOT IDENT.
RE-184	-2.011E-01	2.785E-01	4.558E-01	NOT IDENT.
W-188	-1.025E+01	1.289E+01	1.897E+01	NOT IDENT.
IR-192	-2.197E-03	5.665E-02	1.048E-01	FAIL ABUN
HG-203	4.404E-02	7.025E-02	1.361E-01	NOT IDENT.
TL-204	-1.179E+00	1.031E+01	1.591E+01	NOT IDENT.
BI-207	0.000E+00	1.319E-01	1.825E-01	FAIL ABUN
BI-210	-4.510E-01	1.059E+01	1.682E+01	NOT IDENT.
PB-210	-4.510E-01	1.059E+01	1.682E+01	NOT IDENT.
PB-211	-2.031E-01	1.135E+00	1.797E+00	NOT IDENT.
BI-212	1.215E+00	8.382E-01	1.751E+00	NOT IDENT.
BI-213	4.644E-02	1.400E-01	2.696E-01	NOT IDENT.
RN-219	2.133E-01	5.266E-01	1.021E+00	NOT IDENT.
RA-223	2.473E-01	9.640E-01	1.621E+00	FAIL ABUN
AC-225	-1.549E+00	3.039E+00	5.438E+00	NOT IDENT.
AC-227	-1.746E-01	3.314E-01	5.896E-01	FAIL ABUN
TH-227	-1.746E-01	3.314E-01	5.896E-01	FAIL ABUN
AC-228	0.000E+00	2.939E-01	6.461E-01	FAIL ABUN
RA-228	0.000E+00	2.939E-01	6.461E-01	FAIL ABUN
TH-229	-1.373E-01	6.594E-01	1.210E+00	FAIL ABUN
TH-231	2.473E-01	9.640E-01	1.621E+00	FAIL ABUN
TH-232	0.000E+00	2.939E-01	6.461E-01	FAIL ABUN
PA-233	-2.289E-02	8.766E-02	1.589E-01	FAIL ABUN
PA-234	-8.138E-02	4.411E-01	7.902E-01	FAIL ABUN
PA-234M	-3.421E-01	6.570E+00	1.276E+01	NOT IDENT.
TH-234	-5.822E-01	2.905E+00	5.026E+00	FAIL ABUN
U-235	6.855E-03	2.809E-01	5.222E-01	FAIL ABUN
NP-237	-2.289E-02	8.766E-02	1.589E-01	FAIL ABUN
NP-238	0.000E+00	1.942E+04	0.000E+00	SHORT HLIF
U-238	-5.822E-01	2.905E+00	5.026E+00	FAIL ABUN
NP-239	-1.704E-02	3.744E-01	7.014E-01	NOT IDENT.
PU-239	1.315E+02	4.514E+02	8.616E+02	NOT IDENT.
AM-241	-1.153E-01	3.357E-01	5.817E-01	NOT IDENT.
CM-243	1.560E-02	1.717E-01	3.025E-01	NOT IDENT.
BK-247	-4.344E-02	1.126E-01	1.999E-01	NOT IDENT.
CM-247	-4.676E-03	5.005E-02	9.206E-02	NOT IDENT.
CF-249	6.930E-03	5.154E-02	9.738E-02	NOT IDENT.
CF-251	1.129E-02	1.637E-01	3.068E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	370	10.66*	1.082E+00	2.044E+01	2.044E+01	10.43
SN-126	64.28	-----	9.60	2.090E+00	-----	Line Not Found	-----
	86.94	30	8.90	4.265E+00	4.986E-01	4.986E-01	170.28
	87.57	30	37.00*	4.265E+00	1.199E-01	1.199E-01	170.28
TL-208	277.37	-----	6.60	4.130E+00	-----	Line Not Found	-----
	583.19	75	85.00*	2.288E+00	2.461E-01	2.461E-01	42.91
	860.56	27	12.50	1.669E+00	8.314E-01	8.314E-01	55.49
BI-211	72.87	-----	1.23	3.022E+00	-----	Line Not Found	-----
	351.06	128	12.92*	3.434E+00	1.839E+00	1.839E+00	42.08
PB-212	74.82	119	10.28	3.213E+00	2.294E+00	2.294E+00	51.91
	77.11	192	17.10	3.477E+00	2.055E+00	2.055E+00	33.05
	238.63	368	43.60*	4.607E+00	1.168E+00	1.168E+00	15.25
	300.09	28	3.30	3.884E+00	1.389E+00	1.389E+00	126.17
BI-214	609.32	147	45.49*	2.209E+00	9.296E-01	9.297E-01	22.94
	1120.29	38	14.92	1.344E+00	1.191E+00	1.192E+00	49.54
	1764.49	36	15.30	9.363E-01	1.581E+00	1.581E+00	32.44
PB-214	74.82	119	5.80	3.213E+00	4.065E+00	4.066E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
RN-222	609.32	147	45.49*	2.209E+00	9.296E-01	9.297E-01	22.94
	1120.29	38	14.92	1.344E+00	1.191E+00	1.192E+00	49.54
	1764.49	36	15.30	9.363E-01	1.581E+00	1.581E+00	32.44
RA-224	240.99	92	4.10*	4.567E+00	3.141E+00	3.141E+00	61.21
RA-226	74.82	119	5.80	3.213E+00	4.065E+00	4.066E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
TH-228	74.82	119	10.28	3.213E+00	2.294E+00	2.294E+00	51.91
	77.11	192	17.10	3.477E+00	2.055E+00	2.055E+00	33.05
	238.63	368	43.60*	4.607E+00	1.168E+00	1.168E+00	15.25
	300.09	28	3.30	3.884E+00	1.389E+00	1.389E+00	126.17
TH-230	74.82	119	5.80	3.213E+00	4.065E+00	4.065E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
PA-231	283.69	-----	1.70	4.060E+00	-----	Line Not Found	-----
	301.36	28	5.35*	3.884E+00	8.568E-01	8.568E-01	126.17
U-234	74.82	119	5.80	3.213E+00	4.065E+00	4.065E+00	51.91
	77.11	192	9.70	3.477E+00	3.623E+00	3.623E+00	33.05
	87.09	30	3.41	4.265E+00	1.301E+00	1.301E+00	170.28

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	242.00	92	7.25	4.567E+00	1.776E+00	1.776E+00	61.21
	295.22	130	18.42	3.941E+00	1.139E+00	1.139E+00	34.97
	351.93	128	35.60*	3.434E+00	6.674E-01	6.674E-01	42.08
AM-243	43.53	37	5.90	2.774E-01	1.430E+01	1.430E+01	130.77
	74.66	119	67.20*	3.213E+00	3.509E-01	3.509E-01	51.91
ANH-511	511.00	47	100.00*	2.545E+00	1.178E-01	1.178E-01	88.57

Flag: "*" = Keyline

Total number of lines in spectrum 33
Number of unidentified lines 6
Number of lines tentatively identified by NID 27 81.82%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.044E+01	2.044E+01	0.213E+01	10.43	
SN-126	2.30E+05Y	1.00	1.199E-01	1.199E-01	2.042E-01	170.28	
TL-208	1.41E+10Y	1.00	2.461E-01	2.461E-01	1.056E-01	42.91	
BI-211	7.04E+08Y	1.00	1.839E+00	1.839E+00	0.774E+00	42.08	
PB-212	1.41E+10Y	1.00	1.168E+00	1.168E+00	0.178E+00	15.25	
BI-214	1600.00Y	1.00	9.296E-01	9.297E-01	2.133E-01	22.94	
PB-214	1600.00Y	1.00	6.674E-01	6.674E-01	2.808E-01	42.08	
RN-222	1600.00Y	1.00	9.296E-01	9.297E-01	2.133E-01	22.94	
RA-224	1.41E+10Y	1.00	3.141E+00	3.141E+00	1.923E+00	61.21	
RA-226	1600.00Y	1.00	6.674E-01	6.674E-01	2.808E-01	42.08	
TH-228	1.41E+10Y	1.00	1.168E+00	1.168E+00	0.178E+00	15.25	
TH-230	7.54E+04Y	1.00	6.674E-01	6.674E-01	2.808E-01	42.08	
PA-231	7.04E+08Y	1.00	8.568E-01	8.568E-01	10.81E-01	126.17	
U-234	2.45E+05Y	1.00	6.674E-01	6.674E-01	2.808E-01	42.08	
AM-243	7370.00Y	1.00	3.509E-01	3.509E-01	1.821E-01	51.91	
ANH-511	1.00E+09Y	1.00	1.178E-01	1.178E-01	1.043E-01	88.57	
Total Activity :			3.397E+01	3.397E+01			

Grand Total Activity : 3.397E+01 3.397E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	37.28	69	25	2.40	74.52	69	24	1.71E-02	56.2	8.08E-02	
4	40.02	52	90	2.41	79.99	69	24	1.28E-02	****	1.49E-01	
0	93.28	44	197	1.27	186.43	181	11	1.15E-02	****	4.75E+00	T
0	153.80	12	157	0.66	307.39	300	11	3.08E-03	****	5.75E+00	T
0	185.65	6	161	1.14	371.04	366	12	1.48E-03	****	5.36E+00	T
0	328.98	30	69	0.70	657.54	652	14	8.15E-03	****	3.62E+00	T
1	337.91	73	78	2.14	675.39	669	23	2.00E-02	54.7	3.54E+00	T
1	343.72	36	45	1.95	687.00	669	23	9.98E-03	81.2	3.50E+00	T
0	409.49	21	47	1.64	818.48	813	10	5.92E-03	****	3.04E+00	T
0	523.34	31	30	3.34	1046.10	1034	20	8.62E-03	99.0	2.50E+00	T
0	635.17	20	18	1.03	1269.70	1264	10	5.55E-03	93.9	2.14E+00	T
1	851.05	20	9	2.43	1701.44	1691	35	5.61E-03	86.9	1.68E+00	
0	912.85	21	66	2.40	1825.05	1815	20	6.06E-03	****	1.59E+00	T
0	970.49	25	44	1.05	1940.35	1931	14	7.07E-03	****	1.51E+00	
0	1023.66	17	29	3.76	2046.70	2034	24	4.88E-03	****	1.45E+00	
0	1063.89	32	17	3.66	2127.18	2120	18	9.17E-03	69.6	1.40E+00	T
0	1310.39	5	5	1.35	2620.38	2615	8	1.44E-03	****	1.18E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299029.CNF;1 *
* Acquisition date : 31-JUL-2024 16:11:11 Sensitivity : 3.000 *
* Detector ID : GAM12 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.53 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:45:00 Nuclide Library : SOLID *
* Sample ID : G674299029 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1795E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 11-OCT-2023 07:18:34 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.184E-01
SN-126	1.268E-01
TL-208	4.142E-02
BI-211	2.333E-01
PB-212	6.486E-02
BI-214	8.183E-02
PB-214	8.485E-02
RN-222	8.183E-02
RA-224	6.947E-01
RA-226	8.485E-02
TH-228	6.486E-02
TH-230	8.485E-02
PA-231	5.013E-01
U-234	8.485E-02
AM-243	7.795E-02
ANH-511	2.742E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.165E-01	NOT IDENT.
NA-22	5.649E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.861E-02	NOT IDENT.
SC-46	6.082E-02	FAIL ABUN
V-48	1.679E-01	NOT IDENT.
CR-51	6.546E-01	NOT IDENT.
MN-52	3.070E+00	NOT IDENT.
MN-54	4.627E-02	NOT IDENT.
CO-56	4.811E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	3.004E-02	NOT IDENT.
CO-58	5.028E-02	NOT IDENT.
FE-59	1.433E-01	NOT IDENT.
CO-60	5.946E-02	NOT IDENT.

ZN-65	8.600E-02	NOT IDENT.
GE-68	1.384E+00	NOT IDENT.
AS-73	1.920E+00	NOT IDENT.
AS-74	2.466E-01	FAIL ABUN
SE-75	5.783E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.507E-01	NOT IDENT.
RB-83	9.476E-02	NOT IDENT.
RB-84	1.009E-01	NOT IDENT.
KR-85	7.795E+00	NOT IDENT.
SR-85	5.097E-02	NOT IDENT.
RB-86	1.723E+00	NOT IDENT.
Y-88	4.177E-02	NOT IDENT.
Y-91	3.114E+01	NOT IDENT.
NB-94	3.599E-02	NOT IDENT.
NB-95	6.333E-02	NOT IDENT.
NB-95M	2.080E-01	NOT IDENT.
ZR-95	1.163E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.768E-02	NOT IDENT.
RH-102	5.959E-02	NOT IDENT.
RU-103	6.293E-02	FAIL ABUN
RH-106	3.851E-01	NOT IDENT.
RU-106	3.851E-01	NOT IDENT.
AG-108M	3.203E-02	NOT IDENT.
CD-109	1.272E+00	NOT IDENT.
AG-110	8.065E-01	NOT IDENT.
AG-110M	6.307E-02	NOT IDENT.
SN-113	5.453E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.809E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.639E-02	NOT IDENT.
SB-124	8.333E-02	NOT IDENT.
SB-125	1.078E-01	FAIL ABUN
TE-125M	1.626E+01	NOT IDENT.
I-126	6.743E-01	NOT IDENT.
SB-126	5.686E-01	NOT IDENT.
SB-127	4.914E+01	NOT IDENT.
I-131	7.537E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.364E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.565E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.022E-01	FAIL ABUN
BA-137M	4.405E-02	NOT IDENT.
CS-137	4.653E-02	NOT IDENT.
LA-138	5.696E-02	NOT IDENT.
CE-139	3.631E-02	NOT IDENT.
BA-140	8.382E-01	NOT IDENT.
LA-140	3.096E-01	FAIL ABUN
CE-141	1.169E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.481E-01	NOT IDENT.
PM-144	4.017E-02	NOT IDENT.
PR-144	3.043E+00	NOT IDENT.
PM-146	4.034E-02	NOT IDENT.
ND-147	2.294E+00	NOT IDENT.
PM-147	8.652E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.104E-02	FAIL ABUN
EU-152	1.167E-01	FAIL ABUN
GD-153	1.176E-01	NOT IDENT.
EU-154	1.568E-01	NOT IDENT.
EU-155	1.432E-01	FAIL ABUN
TB-160	1.624E-01	FAIL ABUN
HO-166M	5.622E-02	FAIL ABUN
TM-171	3.439E+01	NOT IDENT.
HF-172	2.169E-01	NOT IDENT.
LU-172	7.719E-02	FAIL ABUN
LU-176	2.766E-02	NOT IDENT.
HF-181	7.541E-02	NOT IDENT.
TA-182	2.324E-01	FAIL ABUN

RE-183	4.489E-01	NOT IDENT.
RE-184	1.998E-01	NOT IDENT.
W-188	8.714E+00	NOT IDENT.
IR-192	4.847E-02	FAIL ABUN
HG-203	6.370E-02	NOT IDENT.
TL-204	7.550E+00	NOT IDENT.
BI-207	8.303E-02	FAIL ABUN
BI-210	7.943E+00	NOT IDENT.
PB-210	7.943E+00	NOT IDENT.
PB-211	8.240E-01	NOT IDENT.
BI-212	8.080E-01	NOT IDENT.
BI-213	1.232E-01	NOT IDENT.
RN-219	4.679E-01	NOT IDENT.
RA-223	7.514E-01	FAIL ABUN
AC-225	2.540E+00	NOT IDENT.
AC-227	2.739E-01	FAIL ABUN
TH-227	2.739E-01	FAIL ABUN
AC-228	3.022E-01	FAIL ABUN
RA-228	3.022E-01	FAIL ABUN
TH-229	5.673E-01	FAIL ABUN
TH-231	7.514E-01	FAIL ABUN
TH-232	3.022E-01	FAIL ABUN
PA-233	7.347E-02	FAIL ABUN
PA-234	3.487E-01	FAIL ABUN
PA-234M	5.684E+00	NOT IDENT.
TH-234	2.393E+00	FAIL ABUN
U-235	2.474E-01	FAIL ABUN
NP-237	7.347E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	2.393E+00	FAIL ABUN
NP-239	3.313E-01	NOT IDENT.
PU-239	4.069E+02	NOT IDENT.
AM-241	2.753E-01	NOT IDENT.
CM-243	1.432E-01	NOT IDENT.
BK-247	9.318E-02	NOT IDENT.
CM-247	4.213E-02	NOT IDENT.
CF-249	4.455E-02	NOT IDENT.
CF-251	1.442E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299029.CNF;1
Acquisition date : 31-JUL-2024 16:11:11 Sensitivity : 3.000
Detector ID : GAM12 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.53 Half life ratio : *****
Sample date : 26-JUN-2024 11:45:00 Nuclide Library : SOLID
Sample ID : G674299029 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1795E+02 GRAM
Quantity Err(%) : 1.6956E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 11-OCT-2023 07:18:34 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.044E+01	2.706E+00	2.706E+00
SN-126	1.199E-01	2.004E-01	2.004E-01
TL-208	2.461E-01	1.067E-01	1.067E-01
BI-211	1.839E+00	7.740E-01	7.740E-01
PB-212	1.168E+00	1.976E-01	1.976E-01
BI-214	9.297E-01	2.316E-01	2.316E-01
PB-214	6.674E-01	2.807E-01	2.807E-01
RN-222	9.297E-01	2.316E-01	2.316E-01
RA-224	3.141E+00	1.901E+00	1.901E+00
RA-226	6.674E-01	2.807E-01	2.807E-01
TH-228	1.168E+00	1.976E-01	1.976E-01
TH-230	6.674E-01	2.807E-01	2.807E-01
PA-231	8.568E-01	1.077E+00	1.077E+00
U-234	6.674E-01	2.807E-01	2.807E-01
AM-243	3.509E-01	1.806E-01	1.806E-01
ANH-511	1.178E-01	1.029E-01	1.029E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.929E-03	6.116E-01	6.116E-01	NOT IDENT.
NA-22	2.741E-02	6.236E-02	6.357E-02	NOT IDENT.
NA-24	4.466E+15	4.461E+15	4.895E+15	SHORT HLIF
AL-26	4.921E-03	4.496E-02	4.501E-02	NOT IDENT.
SC-46	-1.016E-02	7.580E-02	7.594E-02	FAIL ABUN
V-48	-1.079E-01	2.131E-01	2.186E-01	NOT IDENT.
CR-51	-3.847E-01	8.015E-01	8.200E-01	NOT IDENT.
MN-52	2.073E+00	3.122E+00	3.259E+00	NOT IDENT.
MN-54	2.795E-04	5.627E-02	5.627E-02	NOT IDENT.
CO-56	2.495E-04	6.712E-02	6.712E-02	NOT IDENT.
MN-56	1.000E+41	7.725E+42	0.000E+00	SHORT HLIF
CO-57	-6.240E-03	3.433E-02	3.445E-02	NOT IDENT.
CO-58	-6.808E-02	7.245E-02	7.868E-02	NOT IDENT.
FE-59	-9.025E-02	1.807E-01	1.852E-01	NOT IDENT.

CO-60	7.098E-02	5.928E-02	6.737E-02	NOT IDENT.
ZN-65	3.723E-02	1.052E-01	1.066E-01	NOT IDENT.
GE-68	4.067E-01	1.544E+00	1.555E+00	NOT IDENT.
AS-73	-9.021E-01	2.355E+00	2.390E+00	NOT IDENT.
AS-74	2.486E-01	2.630E-01	2.859E-01	FAIL ABUN
SE-75	-2.319E-02	6.962E-02	7.040E-02	NOT IDENT.
BR-77	6.344E+04	6.533E+04	7.132E+04	SHORT HLIF
SR-82	8.226E-02	7.757E-01	7.766E-01	NOT IDENT.
RB-83	2.343E-02	1.180E-01	1.185E-01	NOT IDENT.
RB-84	-9.284E-02	1.412E-01	1.473E-01	NOT IDENT.
KR-85	-1.483E-01	1.475E+01	1.475E+01	NOT IDENT.
SR-85	-1.199E-03	9.650E-02	9.650E-02	NOT IDENT.
RB-86	-1.006E-01	2.028E+00	2.028E+00	NOT IDENT.
Y-88	3.676E-02	3.550E-02	3.918E-02	NOT IDENT.
Y-91	1.435E+01	3.442E+01	3.503E+01	NOT IDENT.
NB-94	1.414E-02	4.122E-02	4.171E-02	NOT IDENT.
NB-95	-3.215E-02	8.112E-02	8.240E-02	NOT IDENT.
NB-95M	2.548E-01	2.508E-01	2.758E-01	NOT IDENT.
ZR-95	6.780E-02	1.314E-01	1.350E-01	NOT IDENT.
NB-97	1.000E+41	8.208E+41	0.000E+00	SHORT HLIF
ZR-97	1.161E+15	9.921E+14	1.122E+15	SHORT HLIF
MO-99	8.950E+02	2.200E+03	2.237E+03	SHORT HLIF
TC-99M	-1.351E+40	5.999E+40	0.000E+00	SHORT HLIF
RH-101	1.512E-02	4.166E-02	4.221E-02	NOT IDENT.
RH-102	-1.618E-02	8.519E-02	8.550E-02	NOT IDENT.
RU-103	-3.491E-02	7.920E-02	8.075E-02	FAIL ABUN
RH-106	-3.243E-03	4.622E-01	4.622E-01	NOT IDENT.
RU-106	-3.243E-03	4.622E-01	4.622E-01	NOT IDENT.
AG-108M	-1.074E-02	3.910E-02	3.940E-02	NOT IDENT.
CD-109	-3.949E-01	2.247E+00	2.254E+00	NOT IDENT.
AG-110	6.899E-02	9.588E-01	9.593E-01	NOT IDENT.
AG-110M	3.816E-02	7.055E-02	7.262E-02	NOT IDENT.
SN-113	-4.723E-03	6.459E-02	6.463E-02	NOT IDENT.
CD-115	2.014E+02	7.903E+03	7.903E+03	SHORT HLIF
SN-117M	-1.883E-02	2.228E-01	2.230E-01	NOT IDENT.
SB-122	-2.974E+02	5.606E+02	5.764E+02	SHORT HLIF
TE-123M	-1.906E-02	4.420E-02	4.503E-02	NOT IDENT.
SB-124	-1.247E-01	1.414E-01	1.522E-01	NOT IDENT.
SB-125	8.861E-02	1.170E-01	1.236E-01	FAIL ABUN
TE-125M	7.004E-01	1.961E+01	1.961E+01	NOT IDENT.
I-126	-7.770E-01	9.294E-01	9.933E-01	NOT IDENT.
SB-126	9.965E-02	6.736E-01	6.751E-01	NOT IDENT.
SB-127	-1.870E+01	6.239E+01	6.296E+01	NOT IDENT.
I-131	-3.927E-01	9.233E-01	9.402E-01	NOT IDENT.
I-132	-1.000E+41	2.441E+41	0.000E+00	SHORT HLIF
TE-132	2.900E+01	7.627E+01	7.738E+01	SHORT HLIF
BA-133	5.224E-02	6.460E-02	6.876E-02	NOT IDENT.
I-133	5.386E+09	8.748E+10	8.752E+10	SHORT HLIF
CS-134	1.469E-02	5.464E-02	5.504E-02	NOT IDENT.
I-135	4.860E+37	9.109E+37	0.000E+00	SHORT HLIF
CS-136	-1.841E-01	3.840E-01	3.929E-01	FAIL ABUN
BA-137M	3.759E-02	4.793E-02	5.084E-02	NOT IDENT.
CS-137	3.972E-02	5.064E-02	5.371E-02	NOT IDENT.
LA-138	8.019E-03	6.554E-02	6.564E-02	NOT IDENT.
CE-139	9.371E-04	4.128E-02	4.128E-02	NOT IDENT.
BA-140	-3.233E-01	1.044E+00	1.054E+00	NOT IDENT.
LA-140	4.380E-02	3.591E-01	3.596E-01	FAIL ABUN
CE-141	-2.991E-02	1.345E-01	1.352E-01	NOT IDENT.
CE-143	1.560E+07	5.337E+06	8.827E+06	SHORT HLIF
CE-144	4.154E-02	2.779E-01	2.786E-01	NOT IDENT.
PM-144	1.905E-02	4.561E-02	4.641E-02	NOT IDENT.
PR-144	1.461E+00	3.453E+00	3.515E+00	NOT IDENT.
PM-146	-4.863E-02	5.449E-02	5.873E-02	NOT IDENT.
ND-147	9.907E-01	2.682E+00	2.719E+00	NOT IDENT.
PM-147	2.398E+02	9.594E+02	9.655E+02	NOT IDENT.
PM-149	-1.328E+04	6.347E+04	6.375E+04	SHORT HLIF
EU-150	6.976E-03	5.529E-02	5.538E-02	FAIL ABUN
EU-152	2.504E-01	2.005E-01	2.300E-01	FAIL ABUN
GD-153	-8.934E-03	1.605E-01	1.605E-01	NOT IDENT.
EU-154	7.079E-02	1.739E-01	1.768E-01	NOT IDENT.
EU-155	2.906E-02	1.707E-01	1.712E-01	FAIL ABUN
TB-160	-9.274E-02	2.157E-01	2.197E-01	FAIL ABUN
HO-166M	-4.687E-02	7.615E-02	7.903E-02	FAIL ABUN
TM-171	-2.870E+01	4.318E+01	4.508E+01	NOT IDENT.
HF-172	-8.676E-02	2.514E-01	2.544E-01	NOT IDENT.
LU-172	3.263E-03	8.963E-02	8.965E-02	FAIL ABUN
LU-176	2.145E-03	3.443E-02	3.445E-02	NOT IDENT.
HF-181	7.251E-02	8.089E-02	8.725E-02	NOT IDENT.

TA-182	-1.626E-01	2.973E-01	3.062E-01	FAIL ABUN
RE-183	7.016E-02	5.281E-01	5.290E-01	NOT IDENT.
RE-184	-2.011E-01	2.792E-01	2.936E-01	NOT IDENT.
W-188	-1.025E+01	1.296E+01	1.376E+01	NOT IDENT.
IR-192	-2.197E-03	5.665E-02	5.666E-02	FAIL ABUN
HG-203	4.404E-02	7.033E-02	7.308E-02	NOT IDENT.
TL-204	-1.179E+00	1.031E+01	1.033E+01	NOT IDENT.
BI-207	1.932E-01	1.327E-01	1.588E-01	FAIL ABUN
BI-210	-4.510E-01	1.059E+01	1.059E+01	NOT IDENT.
PB-210	-4.510E-01	1.059E+01	1.059E+01	NOT IDENT.
PB-211	-2.031E-01	1.135E+00	1.139E+00	NOT IDENT.
BI-212	1.215E+00	8.484E-01	1.010E+00	NOT IDENT.
BI-213	4.644E-02	1.401E-01	1.417E-01	NOT IDENT.
RN-219	2.133E-01	5.275E-01	5.362E-01	NOT IDENT.
RA-223	2.473E-01	9.643E-01	9.707E-01	FAIL ABUN
AC-225	-1.549E+00	3.043E+00	3.122E+00	NOT IDENT.
AC-227	-1.746E-01	3.324E-01	3.415E-01	FAIL ABUN
TH-227	-1.746E-01	3.324E-01	3.415E-01	FAIL ABUN
AC-228	7.558E-01	3.006E-01	4.544E-01	FAIL ABUN
RA-228	7.558E-01	3.006E-01	4.544E-01	FAIL ABUN
TH-229	-1.373E-01	6.595E-01	6.624E-01	FAIL ABUN
TH-231	2.473E-01	9.643E-01	9.707E-01	FAIL ABUN
TH-232	7.558E-01	3.006E-01	4.544E-01	FAIL ABUN
PA-233	-2.289E-02	8.768E-02	8.828E-02	FAIL ABUN
PA-234	-8.138E-02	4.509E-01	4.524E-01	FAIL ABUN
PA-234M	-3.421E-01	6.570E+00	6.571E+00	NOT IDENT.
TH-234	-5.822E-01	2.908E+00	2.919E+00	FAIL ABUN
U-235	6.855E-03	2.809E-01	2.809E-01	FAIL ABUN
NP-237	-2.289E-02	8.768E-02	8.828E-02	FAIL ABUN
NP-238	5.866E+03	1.942E+04	1.960E+04	SHORT HLIF
U-238	-5.822E-01	2.908E+00	2.919E+00	FAIL ABUN
NP-239	-1.704E-02	3.744E-01	3.744E-01	NOT IDENT.
PU-239	1.315E+02	4.515E+02	4.554E+02	NOT IDENT.
AM-241	-1.153E-01	3.359E-01	3.399E-01	NOT IDENT.
CM-243	1.560E-02	1.717E-01	1.719E-01	NOT IDENT.
BK-247	-4.344E-02	1.130E-01	1.147E-01	NOT IDENT.
CM-247	-4.676E-03	5.006E-02	5.010E-02	NOT IDENT.
CF-249	6.930E-03	5.155E-02	5.164E-02	NOT IDENT.
CF-251	1.129E-02	1.638E-01	1.638E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	49.5734	85.43	142.5454	131.20	98.3309
45.60	96.0627	86.55	171.8895	133.02	94.0051
46.54	97.8194	86.79	171.9215	133.52	90.4850
49.72	0.0000	86.94	171.9414	136.00	102.1674
51.35	98.8731	87.09	180.2154	136.47	96.8644
51.87	97.8143	87.57	180.2809	140.51	0.0000
52.39	98.9784	88.03	175.5257	143.76	102.6316
52.97	102.3748	88.34	172.1252	144.24	107.1231
53.44	96.8570	88.47	172.1420	145.44	110.7696
54.07	90.2341	89.96	175.7825	152.43	113.8961
57.36	0.0000	1093.63	175.8720	153.25	113.9475
57.53	99.4840	91.11	127.6380	323.87	100.5430
57.98	97.2902	92.59	131.2321	156.02	94.8919
59.27	105.2480	93.35	131.3057	158.56	98.3827
59.32	105.2530	94.56	103.7544	159.00	99.7775
59.54	114.2346	94.65	107.2200	162.33	82.0515
60.96	126.7233	94.67	107.2214	162.66	82.0661
61.17	121.1396	94.87	107.2370	163.33	80.2909
62.93	116.8432	97.43	103.9700	165.86	81.3023
63.29	130.3681	98.43	95.3743	176.31	87.1934
63.58	141.6444	98.44	95.3751	176.60	83.5729
64.28	116.9873	99.53	102.9692	177.52	79.9763
66.73	146.1052	100.11	113.4281	181.07	0.0000
67.24	130.2688	102.03	110.1047	181.52	99.0798
125.81	99.8551	103.18	104.3930	184.41	93.3859
67.75	99.8614	103.37	104.4072	143.76	97.6439
68.89	149.0948	105.21	104.5399	193.51	80.6107
69.67	125.4605	105.31	104.5468	197.03	77.9943
70.82	117.0992	106.12	111.5786	198.01	83.5386
70.83	117.1003	106.47	111.6055	201.83	96.5654
72.81	121.2648	109.28	105.9940	203.43	76.3896
72.87	121.2714	111.00	107.2823	205.31	97.6435
74.66	121.4537	111.76	0.0000	210.85	98.8170
74.82	121.4700	114.06	99.0280	215.65	64.7881
74.97	121.4852	116.30	0.0000	218.12	78.7589
77.11	121.7002	116.74	97.4455	222.11	67.7603
78.74	114.4590	119.76	86.2001	227.09	75.3517
79.69	135.0628	121.12	76.5910	227.38	77.2217
80.03	135.0990	121.22	76.5956	228.16	0.0000
80.12	136.8195	121.78	83.6686	228.18	75.3875
80.19	136.8274	122.06	83.6835	116.74	75.3875
80.57	136.8689	122.92	85.4915	235.69	86.6510
81.00	145.4731	123.07	85.4996	235.96	88.1550
81.07	145.4816	265.00	81.1233	238.63	74.7925
81.75	162.6848	125.81	90.0605	238.98	0.0000
82.47	143.9302	127.23	83.0695	240.99	74.8676
83.79	114.9201	127.91	84.8727	242.00	74.8993
84.00	114.9390	129.30	89.3690	244.70	61.4875

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	58.2991	344.28	35.0305	563.25	46.6493
252.80	55.4872	345.93	46.7336	564.24	0.0000
254.15	0.0000	351.06	47.7895	569.33	43.6060
256.23	68.7497	351.93	47.8037	946.00	42.5690
260.90	0.0000	355.39	0.0000	569.70	45.6865
264.66	67.0944	356.01	39.0765	583.19	29.1698
264.80	67.0977	364.49	50.9423	584.27	18.3401
265.00	68.9933	366.42	0.0000	595.83	17.7647
269.46	56.8076	372.51	40.2712	427.87	33.4775
270.03	61.5554	375.05	48.1686	602.52	0.0000
271.23	62.5316	377.52	40.3362	604.72	26.8086
273.65	79.6613	356.01	39.4324	607.14	25.1470
276.40	64.5573	388.16	36.5246	609.32	30.4019
277.37	64.5811	388.63	38.5049	610.33	30.4089
277.60	56.9888	391.69	37.5535	614.28	31.9066
278.00	55.0981	264.66	32.7034	618.01	27.3132
279.20	57.0245	401.81	33.7064	620.36	31.5326
279.54	60.8340	402.40	40.6534	621.93	27.3378
279.70	60.8379	404.85	44.4548	630.19	0.0000
280.46	59.9046	410.95	33.4036	631.29	25.2905
283.69	61.8827	413.71	39.7998	633.25	21.9280
284.31	57.1362	414.70	37.1573	634.78	23.2018
285.41	50.4914	423.72	32.9335	635.95	21.9419
285.90	0.0000	427.09	36.9627	636.99	16.8823
287.50	49.5784	427.87	25.9798	657.50	20.1417
290.67	61.0928	433.94	36.0368	657.76	19.0827
293.27	0.0000	439.40	40.1050	657.90	0.0000
351.93	47.8104	440.45	32.0938	661.66	19.0997
295.96	47.8233	453.88	37.2529	664.57	0.0000
879.38	47.8699	463.37	29.2770	666.33	33.9902
299.98	47.8951	468.07	15.1634	666.50	38.2412
300.09	47.8973	473.00	42.5159	667.71	0.0000
300.13	47.8981	475.06	22.2830	677.62	24.4922
301.36	47.9195	476.78	36.4807	685.70	22.4022
302.85	38.3569	477.60	37.5025	692.65	0.0000
256.23	46.0562	482.18	23.3418	695.00	19.2415
304.85	50.6682	487.02	30.4866	696.49	19.2475
306.78	42.2531	492.35	0.0000	696.51	19.2475
308.46	42.2792	497.08	35.6649	697.00	18.1803
311.90	55.8008	505.52	29.4139	697.30	20.3203
316.51	52.0389	507.63	0.0000	697.49	19.2519
319.41	49.1985	511.00	21.8200	702.65	18.2026
320.08	53.0698	514.00	32.7559	706.68	25.7197
321.04	52.1230	514.00	32.7559	711.68	23.6019
323.87	47.9236	520.40	25.9758	720.70	27.9471
325.23	47.9471	520.69	0.0000	721.93	0.0000
328.76	56.4127	522.65	0.0000	722.78	48.3920
333.37	46.5322	527.90	0.0000	722.91	48.3920
333.97	46.5425	528.26	21.3713	723.31	40.8679
334.37	46.5483	529.59	29.6007	724.19	39.8003
338.28	43.2819	529.87	0.0000	727.33	23.6812
338.32	43.2826	531.02	23.5017	733.00	23.7094
311.90	43.3146	537.26	28.8357	735.93	15.0970
340.48	43.3146	546.56	0.0000	333.97	14.0232
340.55	43.3160	552.55	27.9146	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	21.6046	949.00	20.2236	1384.29	12.5023
747.24	15.1326	667.71	0.0000	1408.01	7.7184
748.06	17.2974	962.31	16.7315	1434.09	3.8729
752.31	28.1328	964.08	24.0326	1435.80	6.7792
753.82	28.1415	966.17	30.0513	1457.56	0.0000
756.73	21.6608	911.20	25.2554	1460.82	10.6885
756.80	23.8268	983.53	18.9897	1489.16	5.8518
884.68	34.7080	984.45	0.0000	1505.03	3.9092
765.81	34.7217	1274.44	19.0313	1584.12	5.9232
766.42	29.2997	1001.03	19.9542	1596.21	7.9094
766.84	29.3022	1002.74	26.3110	1620.50	5.9499
772.60	0.0000	1004.73	17.2438	1621.92	5.9511
776.52	19.5738	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	9.0013
778.90	19.5831	1028.54	0.0000	1750.46	0.0000
783.70	19.6018	1037.84	15.5150	1764.49	1.6814
788.74	19.6216	1038.76	0.0000	1063.66	4.0381
792.07	19.6348	631.29	20.1083	1771.35	2.0193
795.86	16.3747	1048.07	18.2842	1791.20	0.0000
810.06	33.9365	1049.04	12.8010	1808.65	5.0698
810.29	33.9384	1050.41	9.1460	1810.72	0.0000
344.28	30.6549	1063.66	13.7490	1836.06	0.0000
810.76	30.6566	1077.00	14.6977		
815.77	19.7271	1077.34	11.9425		
1048.07	25.2208	1085.87	12.8789		
832.01	19.7897	1093.63	18.4209		
834.85	24.2008	1099.45	24.8919		
835.71	25.3051	1112.07	10.3925		
836.80	0.0000	1112.84	10.7791		
846.75	0.0000	1115.54	9.2432		
846.77	15.8770	1120.29	13.8750		
856.80	18.7795	1120.55	13.8757		
860.56	18.7930	1221.41	12.3353		
871.09	27.6917	1129.67	15.7482		
873.19	21.0538	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	19.9688	1173.23	14.9227		
880.51	18.8635	1177.95	25.2004		
881.60	21.0868	1189.05	13.0895		
883.24	18.8729	1204.77	15.9317		
884.68	14.4362	1221.41	25.3666		
889.28	26.6741	1231.02	21.6400		
894.76	24.4761	1235.36	34.8338		
898.04	25.6041	1238.28	20.7217		
900.72	15.5928	1260.41	0.0000		
903.28	26.7429	1271.87	11.3584		
911.20	21.2022	1274.44	15.1500		
912.08	21.2057	1274.54	15.1508		
923.98	0.0000	1291.59	13.2897		
926.50	15.6663	1298.22	0.0000		
929.11	27.9884	1312.11	7.9338		
935.54	25.7788	1332.49	8.5931		
937.49	31.3940	1362.66	0.0000		
944.13	24.6963	1365.19	14.3877		
946.00	21.3356	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:14:03.37

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299030.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM16.CNF;887
Background date    : 28-JUL-2024 11:23:57
Sample date       : 26-JUN-2024 11:50:00 Acquisition date : 31-JUL-2024 16:11:34
Sample ID        : G674299030 Sample quantity : 1.14630E+02 GRAM
Detector name     : GAM16 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.71 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.25*	73	218	1.21	127.06	124	7	2.02E-02	36.3	
2	3	75.00*	233	284	0.94	150.55	144	15	6.48E-02	13.1	1.76E+00
3	3	77.28	395	274	0.92	155.11	144	15	1.10E-01	8.4	
4	0	84.24*	135	212	1.35	169.03	166	7	3.76E-02	19.9	
5	0	87.08	100	301	1.45	174.69	173	7	2.77E-02	30.3	
6	4	90.15	74	154	0.96	180.84	179	15	2.07E-02	25.4	2.30E+00
7	4	92.82*	220	221	1.11	186.17	179	15	6.12E-02	13.6	
8	4	94.78	31	162	1.06	190.09	179	15	8.53E-03	79.4	
9	0	154.23	66	265	0.73	308.91	304	10	1.83E-02	48.0	
10	0	186.11*	306	238	1.08	372.62	367	10	8.49E-02	11.3	
11	0	209.19	53	160	0.65	418.75	415	8	1.49E-02	43.2	
12	2	238.87*	460	127	1.37	478.08	471	20	1.28E-01	6.4	1.99E+00
13	2	242.15	331	146	1.45	484.63	471	20	9.19E-02	8.8	
14	0	255.93	17	91	1.38	512.17	511	6	4.70E-03	91.7	
15	0	269.80	78	161	2.28	539.91	534	12	2.17E-02	34.5	
16	5	277.39	38	52	1.11	555.08	553	11	1.06E-02	33.0	1.78E+00
17	5	279.64*	29	89	1.96	559.56	553	11	8.15E-03	60.0	
18	0	295.51*	596	149	1.25	591.29	584	12	1.66E-01	5.8	
19	0	327.80	26	98	1.33	655.84	651	8	7.22E-03	68.8	
20	0	338.88*	79	82	1.58	677.98	673	9	2.20E-02	24.0	
21	0	352.20*	1002	130	1.23	704.60	699	12	2.78E-01	3.9	
22	0	455.13	18	52	1.08	910.36	907	8	5.00E-03	73.3	
23	0	463.36	31	62	0.94	926.81	921	10	8.53E-03	51.4	
24	0	511.21*	18	108	1.65	1022.48	1014	16	5.10E-03	139.0	
25	0	583.51*	138	78	1.39	1167.00	1160	15	3.84E-02	16.6	
26	0	609.61*	701	100	1.43	1219.18	1213	14	1.95E-01	4.9	
27	0	703.22	21	90	5.93	1406.32	1396	22	5.94E-03	114.0	
28	0	727.77*	28	33	0.77	1455.39	1450	11	7.71E-03	45.6	
29	0	768.63	45	35	1.08	1537.09	1531	11	1.25E-02	29.7	
30	0	809.63	48	33	6.96	1619.06	1610	22	1.33E-02	33.8	
31	0	911.66*	79	44	1.87	1823.04	1817	11	2.20E-02	20.3	
32	0	936.54	23	48	3.54	1872.79	1863	14	6.48E-03	68.5	
33	2	964.73*	21	23	2.36	1929.16	1923	26	5.73E-03	51.9	6.50E-01
34	2	969.60*	39	23	2.36	1938.90	1923	26	1.07E-02	33.4	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1120.76*	140	29	1.76	2241.15	2235	15	3.88E-02	12.2	
36	0	1238.69	77	48	2.04	2476.95	2466	19	2.14E-02	24.3	
37	0	1267.02	37	6	7.81	2533.61	2525	21	1.03E-02	22.7	
38	0	1377.84	70	7	1.90	2755.23	2749	14	1.93E-02	14.5	
39	0	1461.14*	288	21	2.69	2921.80	2910	18	8.00E-02	7.2	
40	0	1510.89*	32	9	3.51	3021.30	3013	18	8.97E-03	28.6	
41	0	1582.26	18	8	0.80	3164.03	3155	15	4.86E-03	41.6	
42	0	1729.75	28	11	2.12	3459.03	3452	15	7.84E-03	31.9	
43	0	1764.92*	125	8	2.41	3529.36	3521	16	3.46E-02	10.6	
44	0	1848.01*	25	0	1.48	3695.57	3689	12	6.87E-03	21.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299030.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 11:50:00	Acquisition date	: 31-JUL-2024 16:11:34
Sample ID	: G674299030	Sample quantity	: 114.63 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA16	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.71 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	272	10.66*	1.208E+00	1.382E+01	1.382E+01	14.30
CO-58	810.76	46	99.45*	2.032E+00	1.505E-01	2.124E-01	67.51
CD-109	88.03	106	3.70*	5.813E+00	3.216E+00	3.391E+00	60.54
SN-126	64.28	78	9.60	2.917E+00	1.827E+00	1.827E+00	72.61
	86.94	106	8.90	5.813E+00	1.337E+00	1.337E+00	60.54
	87.57	106	37.00*	5.813E+00	3.216E-01	3.216E-01	60.54
HG-203	70.83	-----	3.69	4.027E+00	-----	Line Not Found	-----
	72.87	-----	6.19	4.302E+00	-----	Line Not Found	-----
	279.20	30	81.56*	4.612E+00	5.170E-02	8.729E-02	120.04
TL-208	277.37	38	6.60	4.638E+00	8.235E-01	8.235E-01	65.93
	583.19	136	85.00*	2.674E+00	3.911E-01	3.911E-01	33.21
	860.56	-----	12.50	1.925E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.302E+00	-----	Line Not Found	-----
	351.06	1005	12.92*	3.909E+00	1.303E+01	1.303E+01	7.87
BI-212	727.33	27	6.67*	2.228E+00	1.189E+00	1.189E+00	91.22
	1620.50	-----	1.47	1.122E+00	-----	Line Not Found	-----
PB-212	74.82	249	10.28	4.574E+00	3.462E+00	3.462E+00	26.20
	77.11	421	17.10	4.850E+00	3.326E+00	3.326E+00	16.76
	238.63	468	43.60*	5.148E+00	1.366E+00	1.366E+00	12.82
	300.09	-----	3.30	4.386E+00	-----	Line Not Found	-----
BI-214	609.32	686	45.49*	2.582E+00	3.828E+00	3.828E+00	9.70
	1120.29	133	14.92	1.515E+00	3.864E+00	3.864E+00	24.33
	1764.49	117	15.30	1.067E+00	4.675E+00	4.675E+00	21.17
PB-214	74.82	249	5.80	4.574E+00	6.136E+00	6.137E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
RN-222	609.32	686	45.49*	2.582E+00	3.828E+00	3.828E+00	9.70
	1120.29	133	14.92	1.515E+00	3.864E+00	3.864E+00	24.33
	1764.49	117	15.30	1.067E+00	4.675E+00	4.675E+00	21.17
RA-224	240.99	337	4.10*	5.100E+00	1.055E+01	1.055E+01	17.56
RA-226	74.82	249	5.80	4.574E+00	6.136E+00	6.137E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
AC-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----
	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74
RA-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----
	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	249	10.28	4.574E+00	3.462E+00	3.462E+00	26.20
	77.11	421	17.10	4.850E+00	3.326E+00	3.326E+00	16.76
	238.63	468	43.60*	5.148E+00	1.366E+00	1.366E+00	12.82
	300.09	-----	3.30	4.386E+00	-----	Line Not Found	-----
TH-229	85.43	144	14.70	5.571E+00	1.148E+00	1.148E+00	39.90
	88.47	106	24.00	5.813E+00	4.958E-01	4.958E-01	60.54
	193.51	-----	4.41*	5.903E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.595E+00	-----	Line Not Found	-----
TH-230	74.82	249	5.80	4.574E+00	6.136E+00	6.136E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	77.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
TH-232	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----
	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74
TH-234	63.29	78	3.70*	2.917E+00	4.741E+00	4.741E+00	72.61
	92.59	233	4.23	6.219E+00	5.799E+00	5.799E+00	27.30
U-234	74.82	249	5.80	4.574E+00	6.136E+00	6.136E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
U-235	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
	89.96	79	3.47	6.044E+00	2.459E+00	2.459E+00	50.80
	93.35	233	5.60	6.219E+00	4.380E+00	4.380E+00	27.30
	143.76	-----	10.96*	6.802E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.472E+00	-----	Line Not Found	-----
	185.72	314	57.20	6.041E+00	5.959E-01	5.959E-01	22.53
U-238	205.31	-----	5.01	5.691E+00	-----	Line Not Found	-----
	63.29	78	3.70*	2.917E+00	4.741E+00	4.741E+00	72.61
	92.59	233	4.23	6.219E+00	5.799E+00	5.799E+00	27.30
AM-243	43.53	-----	5.90	4.169E-01	-----	Line Not Found	-----
ANH-511	74.66	249	67.20*	4.574E+00	5.296E-01	5.296E-01	26.20
	511.00	18	100.00*	2.965E+00	4.003E-02	4.003E-02	278.07

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299030.CNF;1
Acquisition date : 31-JUL-2024 16:11:34 Sensitivity : 3.000
Detector ID : GAM16 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.71 Half life ratio : *****
Sample date : 26-JUN-2024 11:50:00 Analyst initials: MXR1
Sample ID : G674299030 Sample Quantity : 1.1463E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.382E+01	1.937E+00	8.133E-01
CO-58	2.124E-01	1.405E-01	1.079E-01
CD-109	3.391E+00	2.012E+00	2.060E+00
SN-126	3.216E-01	1.908E-01	1.965E-01
HG-203	8.729E-02	1.027E-01	1.292E-01
TL-208	3.911E-01	1.273E-01	9.385E-02
BI-211	1.303E+01	1.004E+00	5.380E-01
BI-212	1.189E+00	1.063E+00	1.159E+00
PB-212	1.366E+00	1.716E-01	1.362E-01
BI-214	3.828E+00	3.640E-01	1.738E-01
PB-214	4.728E+00	3.644E-01	1.957E-01
RN-222	3.828E+00	3.640E-01	1.738E-01
RA-224	1.055E+01	1.815E+00	1.461E+00
RA-226	4.728E+00	3.644E-01	1.957E-01
AC-228	1.060E+00	4.227E-01	3.770E-01
RA-228	1.060E+00	4.227E-01	3.770E-01
TH-228	1.366E+00	1.716E-01	1.362E-01
TH-229	3.123E-01	7.337E-01	1.320E+00
TH-230	4.728E+00	3.644E-01	1.957E-01
TH-232	1.060E+00	4.227E-01	3.770E-01
TH-234	4.741E+00	3.374E+00	3.320E+00
U-234	4.728E+00	3.644E-01	1.957E-01
U-235	8.259E-04	2.893E-01	5.142E-01
U-238	4.741E+00	3.374E+00	3.320E+00
AM-243	5.296E-01	1.360E-01	1.370E-01
ANH-511	4.003E-02	1.091E-01	7.049E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.583E-01	5.881E-01	1.107E+00	NOT IDENT.
NA-22	2.738E-02	6.428E-02	1.150E-01	NOT IDENT.
NA-24	0.000E+00	3.236E+15	0.000E+00	SHORT HLIF
AL-26	5.192E-02	5.225E-02	1.219E-01	NOT IDENT.

SC-46	2.652E-02	6.937E-02	1.363E-01	FAIL ABUN
V-48	-3.219E-02	2.370E-01	4.397E-01	NOT IDENT.
CR-51	-6.540E-02	8.229E-01	1.528E+00	NOT IDENT.
MN-52	-1.108E+00	3.834E+00	7.318E+00	FAIL ABUN
MN-54	3.941E-03	5.081E-02	9.765E-02	NOT IDENT.
CO-56	-1.218E-02	5.715E-02	1.073E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	1.781E-02	3.259E-02	6.137E-02	NOT IDENT.
FE-59	1.232E-02	1.700E-01	3.214E-01	NOT IDENT.
CO-60	-1.567E-02	5.202E-02	9.310E-02	NOT IDENT.
ZN-65	9.230E-03	1.345E-01	2.242E-01	NOT IDENT.
GE-68	-8.762E-01	1.637E+00	2.858E+00	NOT IDENT.
AS-73	1.182E-01	1.597E+00	3.074E+00	NOT IDENT.
AS-74	-9.019E-03	2.893E-01	5.212E-01	NOT IDENT.
SE-75	4.577E-02	8.517E-02	1.405E-01	FAIL ABUN
BR-77	0.000E+00	9.315E+03	0.000E+00	SHORT HLIF
SR-82	3.256E-01	6.546E-01	1.354E+00	NOT IDENT.
RB-83	-4.204E-02	1.109E-01	1.950E-01	NOT IDENT.
RB-84	7.777E-02	1.513E-01	3.030E-01	NOT IDENT.
KR-85	5.975E+00	1.055E+01	1.844E+01	NOT IDENT.
SR-85	3.896E-02	6.905E-02	1.206E-01	NOT IDENT.
RB-86	-1.104E+00	2.064E+00	3.602E+00	NOT IDENT.
Y-88	-2.393E-04	5.398E-02	1.111E-01	NOT IDENT.
Y-91	-1.822E+01	3.733E+01	6.425E+01	NOT IDENT.
NB-94	5.957E-02	1.331E-01	8.619E-02	FAIL ABUN
NB-95	-8.914E-04	8.302E-02	1.391E-01	NOT IDENT.
NB-95M	1.695E-02	2.317E-01	3.693E-01	NOT IDENT.
ZR-95	4.522E-03	1.085E-01	2.110E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.814E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.453E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	6.017E+40	0.000E+00	SHORT HLIF
RH-101	1.078E-02	4.365E-02	7.976E-02	NOT IDENT.
RH-102	5.210E-02	8.364E-02	1.601E-01	NOT IDENT.
RU-103	-3.586E-02	7.389E-02	1.289E-01	FAIL ABUN
RH-106	-3.737E-01	4.307E-01	6.940E-01	NOT IDENT.
RU-106	-3.737E-01	4.307E-01	6.940E-01	NOT IDENT.
AG-108M	-6.213E-03	4.689E-02	8.485E-02	NOT IDENT.
AG-110	-1.160E-01	1.045E+00	1.861E+00	NOT IDENT.
AG-110M	-2.050E-02	8.157E-02	1.492E-01	FAIL ABUN
SN-113	-5.505E-02	7.279E-02	1.263E-01	NOT IDENT.
CD-115	0.000E+00	8.074E+03	0.000E+00	SHORT HLIF
SN-117M	9.233E-02	2.158E-01	3.668E-01	NOT IDENT.
SB-122	0.000E+00	4.279E+02	0.000E+00	SHORT HLIF
TE-123M	2.120E-02	4.152E-02	7.635E-02	NOT IDENT.
SB-124	5.115E-02	1.396E-01	3.063E-01	NOT IDENT.
SB-125	4.081E-02	1.331E-01	2.515E-01	FAIL ABUN
TE-125M	-2.976E+00	1.658E+01	2.990E+01	NOT IDENT.
I-126	3.963E-01	9.699E-01	1.808E+00	NOT IDENT.
SB-126	2.944E-01	6.306E-01	1.190E+00	NOT IDENT.
SB-127	-2.323E+01	6.278E+01	1.080E+02	NOT IDENT.
I-131	-1.673E-01	8.439E-01	1.554E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.747E+01	0.000E+00	SHORT HLIF
BA-133	7.991E-02	5.272E-02	1.051E-01	FAIL ABUN
I-133	0.000E+00	7.657E+10	0.000E+00	SHORT HLIF
CS-134	4.364E-02	5.636E-02	1.160E-01	NOT IDENT.
I-135	0.000E+00	8.460E+37	0.000E+00	SHORT HLIF
CS-136	-3.356E-01	3.597E-01	5.827E-01	FAIL ABUN
BA-137M	-2.944E-02	5.099E-02	8.507E-02	NOT IDENT.
CS-137	-3.110E-02	5.387E-02	8.987E-02	NOT IDENT.
LA-138	-1.125E-02	7.665E-02	1.495E-01	NOT IDENT.
CE-139	1.891E-02	4.732E-02	8.556E-02	NOT IDENT.
BA-140	9.603E-01	1.184E+00	2.316E+00	NOT IDENT.
LA-140	-1.734E-01	3.413E-01	6.195E-01	FAIL ABUN
CE-141	-2.140E-02	1.376E-01	2.422E-01	NOT IDENT.
CE-143	0.000E+00	4.366E+06	0.000E+00	SHORT HLIF
CE-144	-2.514E-01	2.819E-01	4.783E-01	NOT IDENT.
PM-144	2.419E-04	5.166E-02	8.286E-02	NOT IDENT.
PR-144	9.077E-03	3.906E+00	6.263E+00	NOT IDENT.
PM-146	5.621E-02	8.073E-02	1.232E-01	FAIL ABUN
ND-147	-1.034E+00	2.817E+00	4.942E+00	FAIL ABUN
PM-147	-5.592E+02	9.746E+02	1.704E+03	NOT IDENT.
PM-149	0.000E+00	6.446E+04	0.000E+00	SHORT HLIF
EU-150	-1.117E-02	4.221E-02	6.904E-02	FAIL ABUN
EU-152	-7.513E-03	1.275E-01	2.378E-01	FAIL ABUN
GD-153	-7.925E-02	1.190E-01	1.935E-01	NOT IDENT.
EU-154	8.237E-02	1.811E-01	3.254E-01	NOT IDENT.

EU-155	2.586E-02	1.383E-01	2.557E-01	FAIL ABUN
TB-160	-1.363E-01	2.109E-01	3.696E-01	FAIL ABUN
HO-166M	-6.282E-02	7.942E-02	1.180E-01	FAIL ABUN
TM-171	-8.083E+00	2.983E+01	5.639E+01	NOT IDENT.
HF-172	-2.960E-02	2.467E-01	4.431E-01	FAIL ABUN
LU-172	-9.863E-03	8.381E-02	1.558E-01	FAIL ABUN
LU-176	1.624E-02	3.301E-02	6.471E-02	FAIL ABUN
HF-181	-9.733E-03	8.410E-02	1.528E-01	NOT IDENT.
TA-182	-5.122E-02	2.635E-01	4.775E-01	FAIL ABUN
RE-183	-4.370E-02	3.268E-01	6.208E-01	NOT IDENT.
RE-184	5.389E-02	2.404E-01	4.719E-01	NOT IDENT.
W-188	1.324E+00	1.316E+01	2.257E+01	FAIL ABUN
IR-192	-7.511E-02	5.594E-02	9.429E-02	FAIL ABUN
TL-204	-3.366E+00	7.620E+00	1.290E+01	NOT IDENT.
BI-207	2.830E-02	6.092E-02	1.249E-01	FAIL ABUN
BI-210	5.148E+00	6.200E+00	1.249E+01	NOT IDENT.
PB-210	5.148E+00	6.200E+00	1.249E+01	NOT IDENT.
PB-211	8.073E-01	9.845E-01	1.943E+00	NOT IDENT.
BI-213	4.834E-02	1.538E-01	2.898E-01	NOT IDENT.
RN-219	-5.589E-02	5.975E-01	1.093E+00	FAIL ABUN
RA-223	3.210E-01	9.043E-01	1.587E+00	FAIL ABUN
AC-225	-2.264E+00	3.598E+00	5.934E+00	NOT IDENT.
AC-227	2.413E-01	4.337E-01	6.804E-01	FAIL ABUN
TH-227	2.413E-01	4.337E-01	6.804E-01	FAIL ABUN
PA-231	7.372E-01	6.291E-01	1.275E+00	NOT IDENT.
TH-231	3.210E-01	9.043E-01	1.587E+00	FAIL ABUN
PA-233	1.246E-03	8.792E-02	1.653E-01	NOT IDENT.
PA-234	-1.822E-01	4.403E-01	7.876E-01	FAIL ABUN
PA-234M	4.943E+00	7.030E+00	1.408E+01	NOT IDENT.
NP-237	1.246E-03	8.792E-02	1.653E-01	FAIL ABUN
NP-238	0.000E+00	2.161E+04	0.000E+00	SHORT HLIF
NP-239	-7.124E-03	3.443E-01	6.253E-01	FAIL ABUN
PU-239	-3.136E+01	4.885E+02	8.733E+02	NOT IDENT.
AM-241	6.568E-02	2.077E-01	4.030E-01	NOT IDENT.
CM-243	9.202E-03	1.313E-01	2.423E-01	FAIL ABUN
BK-247	8.569E-02	1.348E-01	2.246E-01	FAIL ABUN
CM-247	-2.440E-02	5.481E-02	9.741E-02	FAIL ABUN
CF-249	4.178E-02	5.623E-02	1.103E-01	NOT IDENT.
CF-251	-3.334E-03	1.868E-01	3.276E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	272	10.66*	1.208E+00	1.382E+01	1.382E+01	14.30
CO-58	810.76	46	99.45*	2.032E+00	1.505E-01	2.124E-01	67.51
CD-109	88.03	106	3.70*	5.813E+00	3.216E+00	3.391E+00	60.54
SN-126	64.28	78	9.60	2.917E+00	1.827E+00	1.827E+00	72.61
	86.94	106	8.90	5.813E+00	1.337E+00	1.337E+00	60.54
	87.57	106	37.00*	5.813E+00	3.216E-01	3.216E-01	60.54
HG-203	70.83	-----	3.69	4.027E+00	-----	Line Not Found	-----
	72.87	-----	6.19	4.302E+00	-----	Line Not Found	-----
	279.20	30	81.56*	4.612E+00	5.170E-02	8.729E-02	120.04
TL-208	277.37	38	6.60	4.638E+00	8.235E-01	8.235E-01	65.93
	583.19	136	85.00*	2.674E+00	3.911E-01	3.911E-01	33.21
	860.56	-----	12.50	1.925E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.302E+00	-----	Line Not Found	-----
	351.06	1005	12.92*	3.909E+00	1.303E+01	1.303E+01	7.87
BI-212	727.33	27	6.67*	2.228E+00	1.189E+00	1.189E+00	91.22
	1620.50	-----	1.47	1.122E+00	-----	Line Not Found	-----
PB-212	74.82	249	10.28	4.574E+00	3.462E+00	3.462E+00	26.20
	77.11	421	17.10	4.850E+00	3.326E+00	3.326E+00	16.76
	238.63	468	43.60*	5.148E+00	1.366E+00	1.366E+00	12.82
	300.09	-----	3.30	4.386E+00	-----	Line Not Found	-----
BI-214	609.32	686	45.49*	2.582E+00	3.828E+00	3.828E+00	9.70
	1120.29	133	14.92	1.515E+00	3.864E+00	3.864E+00	24.33
	1764.49	117	15.30	1.067E+00	4.675E+00	4.675E+00	21.17
PB-214	74.82	249	5.80	4.574E+00	6.136E+00	6.137E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
RN-222	609.32	686	45.49*	2.582E+00	3.828E+00	3.828E+00	9.70
	1120.29	133	14.92	1.515E+00	3.864E+00	3.864E+00	24.33
	1764.49	117	15.30	1.067E+00	4.675E+00	4.675E+00	21.17
RA-224	240.99	337	4.10*	5.100E+00	1.055E+01	1.055E+01	17.56
RA-226	74.82	249	5.80	4.574E+00	6.136E+00	6.137E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
AC-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----
	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74
RA-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74
	74.82	249	10.28	4.574E+00	3.462E+00	3.462E+00	26.20
	77.11	421	17.10	4.850E+00	3.326E+00	3.326E+00	16.76
	238.63	468	43.60*	5.148E+00	1.366E+00	1.366E+00	12.82
TH-229	300.09	-----	3.30	4.386E+00	-----	Line Not Found	-----
	85.43	144	14.70	5.571E+00	1.148E+00	1.148E+00	39.90
	88.47	106	24.00	5.813E+00	4.958E-01	4.958E-01	60.54
	193.51	-----	4.41*	5.903E+00	-----	Line Not Found	-----
TH-230	210.85	-----	2.80	5.595E+00	-----	Line Not Found	-----
	74.82	249	5.80	4.574E+00	6.136E+00	6.136E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
TH-232	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.019E+00	1.147E+00	1.147E+00	47.95
	835.71	-----	1.61	1.975E+00	-----	Line Not Found	-----
TH-234	911.20	76	25.80*	1.827E+00	1.060E+00	1.060E+00	40.67
	968.97	37	15.80	1.728E+00	8.906E-01	8.906E-01	66.74
	63.29	78	3.70*	2.917E+00	4.741E+00	4.741E+00	72.61
	92.59	233	4.23	6.219E+00	5.799E+00	5.799E+00	27.30
U-234	74.82	249	5.80	4.574E+00	6.136E+00	6.136E+00	26.20
	77.11	421	9.70	4.850E+00	5.863E+00	5.863E+00	16.76
	87.09	106	3.41	5.813E+00	3.490E+00	3.490E+00	60.54
	242.00	337	7.25	5.100E+00	5.964E+00	5.964E+00	17.56
U-235	295.22	602	18.42	4.434E+00	4.828E+00	4.828E+00	11.57
	351.93	1005	35.60*	3.909E+00	4.728E+00	4.728E+00	7.87
	89.96	79	3.47	6.044E+00	2.459E+00	2.459E+00	50.80
	93.35	233	5.60	6.219E+00	4.380E+00	4.380E+00	27.30
	143.76	-----	10.96*	6.802E+00	-----	Line Not Found	-----
U-238	163.33	-----	5.08	6.472E+00	-----	Line Not Found	-----
	185.72	314	57.20	6.041E+00	5.959E-01	5.959E-01	22.53
	205.31	-----	5.01	5.691E+00	-----	Line Not Found	-----
	63.29	78	3.70*	2.917E+00	4.741E+00	4.741E+00	72.61
AM-243	92.59	233	4.23	6.219E+00	5.799E+00	5.799E+00	27.30
	43.53	-----	5.90	4.169E-01	-----	Line Not Found	-----
ANH-511	74.66	249	67.20*	4.574E+00	5.296E-01	5.296E-01	26.20
	511.00	18	100.00*	2.965E+00	4.003E-02	4.003E-02	278.07

Flag: "*" = Keyline

Total number of lines in spectrum 44
Number of unidentified lines 8
Number of lines tentatively identified by NID 36 81.82%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.382E+01	1.382E+01	0.198E+01	14.30	
CO-58	70.86D	1.41	1.505E-01	2.124E-01	1.434E-01	67.51	
CD-109	461.40D	1.05	3.216E+00	3.391E+00	2.053E+00	60.54	
SN-126	2.30E+05Y	1.00	3.216E-01	3.216E-01	1.947E-01	60.54	
HG-203	46.59D	1.69	5.170E-02	8.729E-02	10.48E-02	120.04	
TL-208	1.41E+10Y	1.00	3.911E-01	3.911E-01	1.299E-01	33.21	
BI-211	7.04E+08Y	1.00	1.303E+01	1.303E+01	0.102E+01	7.87	
BI-212	1.41E+10Y	1.00	1.189E+00	1.189E+00	1.084E+00	91.22	
PB-212	1.41E+10Y	1.00	1.366E+00	1.366E+00	0.175E+00	12.82	
BI-214	1600.00Y	1.00	3.828E+00	3.828E+00	0.371E+00	9.70	
PB-214	1600.00Y	1.00	4.728E+00	4.728E+00	0.372E+00	7.87	
RN-222	1600.00Y	1.00	3.828E+00	3.828E+00	0.371E+00	9.70	
RA-224	1.41E+10Y	1.00	1.055E+01	1.055E+01	0.185E+01	17.56	
RA-226	1600.00Y	1.00	4.728E+00	4.728E+00	0.372E+00	7.87	
AC-228	1.41E+10Y	1.00	1.060E+00	1.060E+00	0.431E+00	40.67	
RA-228	1.41E+10Y	1.00	1.060E+00	1.060E+00	0.431E+00	40.67	
TH-228	1.41E+10Y	1.00	1.366E+00	1.366E+00	0.175E+00	12.82	
TH-229	7340.00Y	1.00	4.958E-01	4.958E-01	3.002E-01	60.54	K
TH-230	7.54E+04Y	1.00	4.728E+00	4.728E+00	0.372E+00	7.87	
TH-232	1.41E+10Y	1.00	1.060E+00	1.060E+00	0.431E+00	40.67	
TH-234	4.47E+09Y	1.00	4.741E+00	4.741E+00	3.443E+00	72.61	
U-234	2.45E+05Y	1.00	4.728E+00	4.728E+00	0.372E+00	7.87	
U-235	7.04E+08Y	1.00	5.959E-01	5.959E-01	1.342E-01	22.53	K
U-238	4.47E+09Y	1.00	4.741E+00	4.741E+00	3.443E+00	72.61	
AM-243	7370.00Y	1.00	5.296E-01	5.296E-01	1.388E-01	26.20	
ANH-511	1.00E+09Y	1.00	4.003E-02	4.003E-02	11.13E-02	278.07	
Total Activity :			8.633E+01	8.661E+01			

Grand Total Activity : 8.633E+01 8.661E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	94.78	32	172	1.06	190.09	179	15	8.53E-03	****	6.33E+00	T
0	154.23	68	275	0.73	308.91	304	10	1.83E-02	95.9	6.64E+00	T
0	209.19	55	163	0.65	418.75	415	8	1.49E-02	86.4	5.62E+00	
0	255.93	17	92	1.38	512.17	511	6	4.70E-03	****	4.91E+00	T
0	269.80	79	163	2.28	539.91	534	12	2.17E-02	69.1	4.73E+00	T
0	327.80	26	99	1.33	655.84	651	8	7.22E-03	****	4.12E+00	T
0	455.13	18	52	1.08	910.36	907	8	5.00E-03	****	3.24E+00	T
0	463.36	30	62	0.94	926.81	921	10	8.53E-03	****	3.19E+00	T
0	703.22	21	87	5.93	1406.32	1396	22	5.94E-03	****	2.29E+00	T
0	768.63	44	34	1.08	1537.09	1531	11	1.25E-02	59.5	2.13E+00	
0	936.54	22	46	3.54	1872.79	1863	14	6.48E-03	****	1.78E+00	T
2	964.73	20	22	2.36	1929.16	1923	26	5.73E-03	****	1.74E+00	T
0	1238.69	73	45	2.04	2476.95	2466	19	2.14E-02	48.6	1.39E+00	T
0	1267.02	35	6	7.81	2533.61	2525	21	1.03E-02	45.4	1.36E+00	
0	1377.84	66	7	1.90	2755.23	2749	14	1.93E-02	29.0	1.27E+00	
0	1510.89	30	8	3.51	3021.30	3013	18	8.97E-03	57.2	1.18E+00	
0	1582.26	16	7	0.80	3164.03	3155	15	4.86E-03	83.3	1.14E+00	
0	1729.75	26	10	2.12	3459.03	3452	15	7.84E-03	63.8	1.08E+00	
0	1848.01	23	0	1.48	3695.57	3689	12	6.87E-03	43.3	1.04E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299030.CNF;1 *
* Acquisition date : 31-JUL-2024 16:11:34 Sensitivity : 3.000 *
* Detector ID : GAM16 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.71 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:50:00 Nuclide Library : SOLID *
* Sample ID : G674299030 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1463E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.382E-01
CO-58	4.775E-02
CD-109	9.869E-01
SN-126	9.412E-02
HG-203	6.062E-02
TL-208	4.303E-02
BI-211	2.515E-01
BI-212	5.201E-01
PB-212	6.416E-02
BI-214	7.937E-02
PB-214	9.147E-02
RN-222	7.937E-02
RA-224	6.878E-01
RA-226	9.147E-02
AC-228	1.698E-01
RA-228	1.698E-01
TH-228	6.416E-02
TH-229	6.258E-01
TH-230	9.146E-02
TH-232	1.698E-01
TH-234	1.577E+00
U-234	9.146E-02
U-235	2.451E-01
U-238	1.577E+00
AM-243	6.555E-02
ANH-511	3.226E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.103E-01	NOT IDENT.
NA-22	5.081E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	5.258E-02	NOT IDENT.
SC-46	6.181E-02	FAIL ABUN

V-48	1.960E-01	NOT IDENT.
CR-51	7.125E-01	NOT IDENT.
MN-52	3.094E+00	FAIL ABUN
MN-54	4.399E-02	NOT IDENT.
CO-56	4.742E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.905E-02	NOT IDENT.
FE-59	1.432E-01	NOT IDENT.
CO-60	3.969E-02	NOT IDENT.
ZN-65	9.946E-02	NOT IDENT.
GE-68	1.238E+00	NOT IDENT.
AS-73	1.456E+00	NOT IDENT.
AS-74	2.381E-01	NOT IDENT.
SE-75	6.638E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	6.039E-01	NOT IDENT.
RB-83	8.857E-02	NOT IDENT.
RB-84	1.372E-01	NOT IDENT.
KR-85	8.523E+00	NOT IDENT.
SR-85	5.576E-02	NOT IDENT.
RB-86	1.560E+00	NOT IDENT.
Y-88	4.490E-02	NOT IDENT.
Y-91	2.850E+01	NOT IDENT.
NB-94	3.923E-02	FAIL ABUN
NB-95	6.347E-02	NOT IDENT.
NB-95M	1.745E-01	NOT IDENT.
ZR-95	9.442E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.796E-02	NOT IDENT.
RH-102	7.364E-02	NOT IDENT.
RU-103	5.848E-02	FAIL ABUN
RH-106	3.095E-01	NOT IDENT.
RU-106	3.095E-01	NOT IDENT.
AG-108M	3.950E-02	NOT IDENT.
AG-110	8.411E-01	NOT IDENT.
AG-110M	6.746E-02	FAIL ABUN
SN-113	5.846E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.739E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.618E-02	NOT IDENT.
SB-124	1.278E-01	NOT IDENT.
SB-125	1.168E-01	FAIL ABUN
TE-125M	1.421E+01	NOT IDENT.
I-126	8.303E-01	NOT IDENT.
SB-126	5.423E-01	NOT IDENT.
SB-127	4.817E+01	NOT IDENT.
I-131	7.173E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.885E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	5.282E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.475E-01	FAIL ABUN
BA-137M	3.845E-02	NOT IDENT.
CS-137	4.062E-02	NOT IDENT.
LA-138	6.376E-02	NOT IDENT.
CE-139	4.071E-02	NOT IDENT.
BA-140	1.072E+00	NOT IDENT.
LA-140	2.545E-01	FAIL ABUN
CE-141	1.153E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.265E-01	NOT IDENT.
PM-144	3.732E-02	NOT IDENT.
PR-144	2.820E+00	NOT IDENT.
PM-146	5.733E-02	FAIL ABUN
ND-147	2.254E+00	FAIL ABUN
PM-147	8.059E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.224E-02	FAIL ABUN
EU-152	1.104E-01	FAIL ABUN
GD-153	9.146E-02	NOT IDENT.
EU-154	1.440E-01	NOT IDENT.
EU-155	1.215E-01	FAIL ABUN

TB-160	1.630E-01	FAIL ABUN
HO-166M	5.180E-02	FAIL ABUN
TM-171	2.670E+01	NOT IDENT.
HF-172	2.098E-01	FAIL ABUN
LU-172	6.853E-02	FAIL ABUN
LU-176	3.015E-02	FAIL ABUN
HF-181	7.006E-02	NOT IDENT.
TA-182	2.099E-01	FAIL ABUN
RE-183	2.928E-01	NOT IDENT.
RE-184	2.109E-01	NOT IDENT.
W-188	1.058E+01	FAIL ABUN
IR-192	4.360E-02	FAIL ABUN
TL-204	6.160E+00	NOT IDENT.
BI-207	5.497E-02	FAIL ABUN
BI-210	5.923E+00	NOT IDENT.
PB-210	5.923E+00	NOT IDENT.
PB-211	9.049E-01	NOT IDENT.
BI-213	1.346E-01	NOT IDENT.
RN-219	5.088E-01	FAIL ABUN
RA-223	7.397E-01	FAIL ABUN
AC-225	2.803E+00	NOT IDENT.
AC-227	3.211E-01	FAIL ABUN
TH-227	3.211E-01	FAIL ABUN
PA-231	5.995E-01	NOT IDENT.
TH-231	7.397E-01	FAIL ABUN
PA-233	7.726E-02	NOT IDENT.
PA-234	3.522E-01	FAIL ABUN
PA-234M	6.417E+00	NOT IDENT.
NP-237	7.726E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.965E-01	FAIL ABUN
PU-239	4.163E+02	NOT IDENT.
AM-241	1.908E-01	NOT IDENT.
CM-243	1.147E-01	FAIL ABUN
BK-247	1.061E-01	FAIL ABUN
CM-247	4.523E-02	FAIL ABUN
CF-249	5.144E-02	NOT IDENT.
CF-251	1.555E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299030.CNF;1
Acquisition date : 31-JUL-2024 16:11:34 Sensitivity : 3.000
Detector ID : GAM16 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.71 Half life ratio : *****
Sample date : 26-JUN-2024 11:50:00 Nuclide Library : SOLID
Sample ID : G674299030 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1463E+02 GRAM
Quantity Err(%) : 1.7447E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.382E+01	2.303E+00	2.303E+00
CO-58	2.124E-01	1.421E-01	1.421E-01
CD-109	3.391E+00	2.058E+00	2.058E+00
SN-126	3.216E-01	1.945E-01	1.945E-01
HG-203	8.729E-02	1.029E-01	1.029E-01
TL-208	3.911E-01	1.328E-01	1.328E-01
BI-211	1.303E+01	1.494E+00	1.494E+00
BI-212	1.189E+00	1.070E+00	1.070E+00
PB-212	1.366E+00	2.088E-01	2.088E-01
BI-214	3.828E+00	5.222E-01	5.222E-01
PB-214	4.728E+00	5.366E-01	5.366E-01
RN-222	3.828E+00	5.222E-01	5.222E-01
RA-224	1.055E+01	2.033E+00	2.033E+00
RA-226	4.728E+00	5.366E-01	5.366E-01
AC-228	1.060E+00	4.358E-01	4.358E-01
RA-228	1.060E+00	4.358E-01	4.358E-01
TH-228	1.366E+00	2.088E-01	2.088E-01
TH-229	3.123E-01	7.342E-01	7.342E-01
TH-230	4.728E+00	5.366E-01	5.366E-01
TH-232	1.060E+00	4.358E-01	4.358E-01
TH-234	4.741E+00	3.559E+00	3.559E+00
U-234	4.728E+00	5.366E-01	5.366E-01
U-235	8.259E-04	2.893E-01	2.893E-01
U-238	4.741E+00	3.559E+00	3.559E+00
AM-243	5.296E-01	1.478E-01	1.478E-01
ANH-511	4.003E-02	1.092E-01	1.092E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.583E-01	5.883E-01	5.926E-01	NOT IDENT.
NA-22	2.738E-02	6.432E-02	6.549E-02	NOT IDENT.
NA-24	2.588E+15	3.246E+15	3.450E+15	SHORT HLIF
AL-26	5.192E-02	5.240E-02	5.739E-02	NOT IDENT.

SC-46	2.652E-02	6.942E-02	7.044E-02	FAIL ABUN
V-48	-3.219E-02	2.370E-01	2.375E-01	NOT IDENT.
CR-51	-6.540E-02	8.230E-01	8.235E-01	NOT IDENT.
MN-52	-1.108E+00	3.835E+00	3.867E+00	FAIL ABUN
MN-54	3.941E-03	5.082E-02	5.085E-02	NOT IDENT.
CO-56	-1.218E-02	5.717E-02	5.743E-02	FAIL ABUN
MN-56	-1.000E+41	4.354E+41	0.000E+00	SHORT HLIF
CO-57	1.781E-02	3.261E-02	3.359E-02	NOT IDENT.
FE-59	1.232E-02	1.700E-01	1.701E-01	NOT IDENT.
CO-60	-1.567E-02	5.204E-02	5.251E-02	NOT IDENT.
ZN-65	9.230E-03	1.345E-01	1.346E-01	NOT IDENT.
GE-68	-8.762E-01	1.639E+00	1.686E+00	NOT IDENT.
AS-73	1.182E-01	1.597E+00	1.598E+00	NOT IDENT.
AS-74	-9.019E-03	2.893E-01	2.894E-01	NOT IDENT.
SE-75	4.577E-02	8.525E-02	8.771E-02	FAIL ABUN
BR-77	7.413E+04	7.615E+04	8.316E+04	SHORT HLIF
SR-82	3.256E-01	6.554E-01	6.716E-01	NOT IDENT.
RB-83	-4.204E-02	1.111E-01	1.127E-01	NOT IDENT.
RB-84	7.777E-02	1.515E-01	1.555E-01	NOT IDENT.
KR-85	5.975E+00	1.057E+01	1.090E+01	NOT IDENT.
SR-85	3.896E-02	6.915E-02	7.134E-02	NOT IDENT.
RB-86	-1.104E+00	2.066E+00	2.125E+00	NOT IDENT.
Y-88	-2.393E-04	5.398E-02	5.398E-02	NOT IDENT.
Y-91	-1.822E+01	3.735E+01	3.825E+01	NOT IDENT.
NB-94	5.957E-02	1.332E-01	1.359E-01	FAIL ABUN
NB-95	-8.914E-04	8.302E-02	8.302E-02	NOT IDENT.
NB-95M	1.695E-02	2.317E-01	2.319E-01	NOT IDENT.
ZR-95	4.522E-03	1.085E-01	1.085E-01	NOT IDENT.
NB-97	1.000E+41	5.564E+41	0.000E+00	SHORT HLIF
ZR-97	3.874E+14	8.822E+14	8.993E+14	SHORT HLIF
MO-99	6.819E+02	2.454E+03	2.473E+03	SHORT HLIF
TC-99M	6.621E+40	6.067E+40	0.000E+00	SHORT HLIF
RH-101	1.078E-02	4.370E-02	4.397E-02	NOT IDENT.
RH-102	5.210E-02	8.388E-02	8.710E-02	NOT IDENT.
RU-103	-3.586E-02	7.397E-02	7.571E-02	FAIL ABUN
RH-106	-3.737E-01	4.325E-01	4.642E-01	NOT IDENT.
RU-106	-3.737E-01	4.325E-01	4.642E-01	NOT IDENT.
AG-108M	-6.213E-03	4.690E-02	4.698E-02	NOT IDENT.
AG-110	-1.160E-01	1.045E+00	1.046E+00	NOT IDENT.
AG-110M	-2.050E-02	8.160E-02	8.212E-02	FAIL ABUN
SN-113	-5.505E-02	7.295E-02	7.706E-02	NOT IDENT.
CD-115	3.185E+03	8.081E+03	8.207E+03	SHORT HLIF
SN-117M	9.233E-02	2.159E-01	2.199E-01	NOT IDENT.
SB-122	3.396E+02	4.291E+02	4.556E+02	SHORT HLIF
TE-123M	2.120E-02	4.156E-02	4.265E-02	NOT IDENT.
SB-124	5.115E-02	1.397E-01	1.416E-01	NOT IDENT.
SB-125	4.081E-02	1.332E-01	1.344E-01	FAIL ABUN
TE-125M	-2.976E+00	1.658E+01	1.664E+01	NOT IDENT.
I-126	3.963E-01	9.708E-01	9.871E-01	NOT IDENT.
SB-126	2.944E-01	6.318E-01	6.456E-01	NOT IDENT.
SB-127	-2.323E+01	6.293E+01	6.380E+01	NOT IDENT.
I-131	-1.673E-01	8.440E-01	8.473E-01	NOT IDENT.
I-132	-1.000E+41	7.548E+41	0.000E+00	SHORT HLIF
TE-132	3.602E+01	7.759E+01	7.927E+01	SHORT HLIF
BA-133	7.991E-02	5.314E-02	6.420E-02	FAIL ABUN
I-133	3.853E+10	7.711E+10	7.905E+10	SHORT HLIF
CS-134	4.364E-02	5.652E-02	5.985E-02	NOT IDENT.
I-135	1.454E+36	8.461E+37	0.000E+00	SHORT HLIF
CS-136	-3.356E-01	3.618E-01	3.921E-01	FAIL ABUN
BA-137M	-2.944E-02	5.108E-02	5.277E-02	NOT IDENT.
CS-137	-3.110E-02	5.396E-02	5.575E-02	NOT IDENT.
LA-138	-1.125E-02	7.666E-02	7.682E-02	NOT IDENT.
CE-139	1.891E-02	4.750E-02	4.826E-02	NOT IDENT.
BA-140	9.603E-01	1.188E+00	1.264E+00	NOT IDENT.
LA-140	-1.734E-01	3.416E-01	3.504E-01	FAIL ABUN
CE-141	-2.140E-02	1.376E-01	1.379E-01	NOT IDENT.
CE-143	5.877E+06	4.391E+06	5.128E+06	SHORT HLIF
CE-144	-2.514E-01	2.827E-01	3.045E-01	NOT IDENT.
PM-144	2.419E-04	5.166E-02	5.166E-02	NOT IDENT.
PR-144	9.077E-03	3.906E+00	3.906E+00	NOT IDENT.
PM-146	5.621E-02	8.097E-02	8.484E-02	FAIL ABUN
ND-147	-1.034E+00	2.819E+00	2.858E+00	FAIL ABUN
PM-147	-5.592E+02	9.754E+02	1.007E+03	NOT IDENT.
PM-149	1.352E+04	6.449E+04	6.478E+04	SHORT HLIF
EU-150	-1.117E-02	4.222E-02	4.252E-02	FAIL ABUN
EU-152	-7.513E-03	1.275E-01	1.276E-01	FAIL ABUN
GD-153	-7.925E-02	1.193E-01	1.245E-01	NOT IDENT.
EU-154	8.237E-02	1.812E-01	1.850E-01	NOT IDENT.

EU-155	2.586E-02	1.383E-01	1.388E-01	FAIL ABUN
TB-160	-1.363E-01	2.113E-01	2.201E-01	FAIL ABUN
HO-166M	-6.282E-02	7.969E-02	8.457E-02	FAIL ABUN
TM-171	-8.083E+00	2.985E+01	3.007E+01	NOT IDENT.
HF-172	-2.960E-02	2.467E-01	2.471E-01	FAIL ABUN
LU-172	-9.863E-03	8.382E-02	8.394E-02	FAIL ABUN
LU-176	1.624E-02	3.303E-02	3.384E-02	FAIL ABUN
HF-181	-9.733E-03	8.410E-02	8.422E-02	NOT IDENT.
TA-182	-5.122E-02	2.636E-01	2.646E-01	FAIL ABUN
RE-183	-4.370E-02	3.268E-01	3.274E-01	NOT IDENT.
RE-184	5.389E-02	2.405E-01	2.417E-01	NOT IDENT.
W-188	1.324E+00	1.317E+01	1.318E+01	FAIL ABUN
IR-192	-7.511E-02	5.626E-02	6.567E-02	FAIL ABUN
TL-204	-3.366E+00	7.631E+00	7.780E+00	NOT IDENT.
BI-207	2.830E-02	6.098E-02	6.230E-02	FAIL ABUN
BI-210	5.148E+00	6.223E+00	6.641E+00	NOT IDENT.
PB-210	5.148E+00	6.223E+00	6.641E+00	NOT IDENT.
PB-211	8.073E-01	9.873E-01	1.052E+00	NOT IDENT.
BI-213	4.834E-02	1.538E-01	1.553E-01	NOT IDENT.
RN-219	-5.589E-02	5.976E-01	5.981E-01	FAIL ABUN
RA-223	3.210E-01	9.048E-01	9.163E-01	FAIL ABUN
AC-225	-2.264E+00	3.607E+00	3.748E+00	NOT IDENT.
AC-227	2.413E-01	4.352E-01	4.486E-01	FAIL ABUN
TH-227	2.413E-01	4.352E-01	4.486E-01	FAIL ABUN
PA-231	7.372E-01	6.502E-01	7.302E-01	NOT IDENT.
TH-231	3.210E-01	9.048E-01	9.163E-01	FAIL ABUN
PA-233	1.246E-03	8.792E-02	8.792E-02	NOT IDENT.
PA-234	-1.822E-01	4.874E-01	4.943E-01	FAIL ABUN
PA-234M	4.943E+00	7.046E+00	7.390E+00	NOT IDENT.
NP-237	1.246E-03	8.792E-02	8.792E-02	FAIL ABUN
NP-238	-1.447E+04	2.166E+04	2.262E+04	SHORT HLIF
NP-239	-7.124E-03	3.443E-01	3.443E-01	FAIL ABUN
PU-239	-3.136E+01	4.885E+02	4.887E+02	NOT IDENT.
AM-241	6.568E-02	2.079E-01	2.100E-01	NOT IDENT.
CM-243	9.202E-03	1.313E-01	1.314E-01	FAIL ABUN
BK-247	8.569E-02	1.360E-01	1.414E-01	FAIL ABUN
CM-247	-2.440E-02	5.500E-02	5.609E-02	FAIL ABUN
CF-249	4.178E-02	5.643E-02	5.949E-02	NOT IDENT.
CF-251	-3.334E-03	1.868E-01	1.868E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	93.7288	85.43	118.2111	131.20	124.2403
45.60	98.5172	86.55	118.5948	133.02	127.7306
46.54	83.3595	86.79	118.6763	133.52	132.8963
49.72	0.0000	86.94	170.8959	136.00	106.2529
51.35	101.8374	87.09	170.9698	136.47	114.4587
51.87	118.8049	87.57	171.2047	140.51	0.0000
52.39	113.4693	88.03	171.4294	143.76	127.4379
52.97	96.9213	88.34	171.5801	144.24	122.4137
53.44	105.9368	88.47	171.6425	145.44	125.7920
54.07	107.0143	89.96	131.8436	152.43	123.9902
57.36	0.0000	1093.63	110.2796	153.25	110.9251
57.53	104.4185	91.11	110.4240	323.87	111.1224
57.98	95.6110	92.59	110.8748	156.02	122.0110
59.27	97.7280	93.35	111.1044	158.56	98.6255
59.32	97.7466	94.56	111.4691	159.00	95.1773
59.54	97.8283	94.65	111.4959	162.33	115.9605
60.96	102.4841	94.67	111.5024	162.66	118.1560
61.17	102.5645	94.87	111.5616	163.33	121.4938
62.93	119.0484	97.43	119.7304	165.86	115.6119
63.29	119.2044	98.43	114.1658	176.31	119.8677
63.58	119.3296	98.44	114.1686	176.60	126.4661
64.28	128.2756	99.53	99.5998	177.52	116.8321
66.73	140.6441	100.11	110.9361	181.07	0.0000
67.24	145.4019	102.03	114.2931	181.52	115.7693
125.81	149.0103	103.18	104.2912	184.41	124.7766
67.75	149.0465	103.37	104.3411	143.76	125.0387
68.89	124.1254	105.21	115.2099	193.51	98.5730
69.67	152.3012	105.31	115.2388	197.03	96.8537
70.82	167.7212	106.12	115.4705	198.01	80.0798
70.83	173.4338	106.47	126.9377	201.83	85.0788
72.81	162.8011	109.28	127.8097	203.43	114.8456
72.87	162.8328	111.00	130.2538	205.31	94.2601
74.66	163.7802	111.76	0.0000	210.85	85.8286
74.82	163.8638	114.06	132.1617	215.65	111.1099
74.97	163.9431	116.30	0.0000	218.12	116.1438
77.11	165.0592	116.74	111.6291	222.11	112.1191
78.74	165.0207	119.76	112.3977	227.09	79.9604
79.69	154.9399	121.12	117.6416	227.38	85.8744
80.03	135.1236	121.22	117.6682	228.16	0.0000
80.12	105.7800	121.78	107.0150	228.18	81.2563
80.19	105.8020	122.06	89.3983	116.74	81.2563
80.57	125.9327	122.92	98.4268	235.69	96.7459
81.00	146.1311	123.07	106.3364	235.96	93.6075
81.07	146.1614	265.00	95.6339	238.63	87.1687
81.75	125.2011	125.81	108.9552	238.98	0.0000
82.47	156.2478	127.23	121.2107	240.99	87.4360
83.79	96.2551	127.91	118.4040	242.00	87.5508
84.00	96.3144	129.30	140.7074	244.70	86.6514

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	78.9906	344.28	58.2226	563.25	37.1633
252.80	79.0293	345.93	67.2867	564.24	0.0000
254.15	0.0000	351.06	68.5194	569.33	37.3071
256.23	71.6325	351.93	68.5750	946.00	36.2454
260.90	0.0000	355.39	0.0000	569.70	36.2495
264.66	82.2388	356.01	28.5321	583.19	40.8574
264.80	82.2530	364.49	52.0378	584.27	40.8837
265.00	78.9805	366.42	0.0000	595.83	37.9238
269.46	74.4397	372.51	55.1794	427.87	34.7734
270.03	74.4891	375.05	58.0704	602.52	0.0000
271.23	74.5935	377.52	48.9618	604.72	34.3147
273.65	71.4812	356.01	53.8818	607.14	31.0919
276.40	70.0427	388.16	49.4233	609.32	37.1405
277.37	76.7996	388.63	63.4373	610.33	37.1626
277.60	76.8201	391.69	68.2830	614.28	32.8674
278.00	76.8538	264.66	51.8434	618.01	32.9395
279.20	76.9605	401.81	62.2738	620.36	27.4872
279.54	76.9905	402.40	66.0807	621.93	36.3167
279.70	77.0054	404.85	45.4063	630.19	0.0000
280.46	66.5994	410.95	54.1959	631.29	33.1946
283.69	76.9351	413.71	40.0253	633.25	33.2324
284.31	72.6979	414.70	46.7350	634.78	36.5879
285.41	68.2383	423.72	59.5718	635.95	41.0499
285.90	0.0000	427.09	54.9172	636.99	36.6349
287.50	72.6220	427.87	50.1317	657.50	31.4453
290.67	73.7266	433.94	63.9375	657.76	28.0802
293.27	0.0000	439.40	61.2953	657.90	0.0000
351.93	73.2449	440.45	50.6342	661.66	39.3978
295.96	73.3044	453.88	39.8491	664.57	0.0000
879.38	85.9092	463.37	37.6598	666.33	34.9860
299.98	57.5313	468.07	60.8651	666.50	31.6025
300.09	57.5381	473.00	50.9066	667.71	0.0000
300.13	57.5408	475.06	49.9847	677.62	29.5240
301.36	56.5885	476.78	41.0392	685.70	28.5126
302.85	73.8538	477.60	42.0658	692.65	0.0000
256.23	60.2203	482.18	43.2117	695.00	28.8842
304.85	60.2431	487.02	41.3462	696.49	27.5303
306.78	52.6056	492.35	0.0000	696.51	27.5303
308.46	67.3851	497.08	37.5811	697.00	29.2592
311.90	67.6295	505.52	32.1857	697.30	36.1489
316.51	79.2806	507.63	0.0000	697.49	36.1527
319.41	60.2936	511.00	38.9753	702.65	26.4693
320.08	60.3357	514.00	38.5422	706.68	26.5254
321.04	70.0228	514.00	38.5422	711.68	29.1385
323.87	55.3019	520.40	39.2277	720.70	27.8809
325.23	67.2457	520.69	0.0000	721.93	0.0000
328.76	88.6572	522.65	0.0000	722.78	33.1433
333.37	78.6973	527.90	0.0000	722.91	33.1456
333.97	73.1560	528.26	37.3608	723.31	34.8975
334.37	67.8636	529.59	35.3171	724.19	34.9133
338.28	56.1030	529.87	0.0000	727.33	25.6443
338.32	56.1055	531.02	42.6283	733.00	25.2501
311.90	60.2394	537.26	36.5424	735.93	23.7074
340.48	60.2394	546.56	0.0000	333.97	29.8766
340.55	60.2435	552.55	43.2372	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	29.9783	949.00	27.0626	1384.29	5.3783
747.24	23.8425	667.71	0.0000	1408.01	19.8559
748.06	24.7358	962.31	18.6568	1434.09	12.7285
752.31	19.4763	964.08	19.4482	1435.80	12.7347
753.82	24.8059	966.17	19.4641	1457.56	0.0000
756.73	23.9546	911.20	19.4861	1460.82	8.2433
756.80	23.9554	983.53	24.4972	1489.16	9.2305
884.68	22.7930	984.45	0.0000	1505.03	21.6300
765.81	35.6470	1274.44	29.5432	1584.12	20.5040
766.42	34.2316	1001.03	24.6643	1596.21	11.3912
766.84	35.6641	1002.74	24.6803	1620.50	9.5508
772.60	0.0000	1004.73	26.6754	1621.92	10.5096
776.52	17.0204	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	5.8307
778.90	20.6269	1028.54	0.0000	1750.46	0.0000
783.70	27.8658	1037.84	17.0073	1764.49	4.9438
788.74	28.8340	1038.76	0.0000	1063.66	1.6501
792.07	37.9048	631.29	16.0596	1771.35	3.3011
795.86	23.5070	1048.07	21.0897	1791.20	0.0000
810.06	20.0228	1049.04	18.0835	1808.65	4.9941
810.29	20.0248	1050.41	17.0872	1810.72	0.0000
344.28	20.0268	1063.66	13.1301	1836.06	6.0302
810.76	20.0295	1077.00	20.2991		
815.77	11.6805	1077.34	20.3015		
1048.07	27.7764	1085.87	14.2546		
832.01	25.7416	1093.63	19.3989		
834.85	26.6954	1099.45	21.4858		
835.71	29.4688	1112.07	13.3602		
836.80	0.0000	1112.84	22.6150		
846.75	0.0000	1115.54	19.7555		
846.77	22.2114	1120.29	18.5515		
856.80	40.9022	1120.55	18.5537		
860.56	27.0034	1221.41	18.5581		
871.09	17.7737	1129.67	22.7479		
873.19	20.5988	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	27.2264	1173.23	22.0382		
880.51	20.6646	1177.95	17.8685		
881.60	23.4932	1189.05	20.0449		
883.24	21.6292	1204.77	27.5710		
884.68	33.8752	1221.41	20.2582		
889.28	26.3995	1231.02	29.0909		
894.76	23.6259	1235.36	25.7036		
898.04	16.0880	1238.28	25.7271		
900.72	23.6862	1260.41	0.0000		
903.28	20.8660	1271.87	24.2676		
911.20	27.5973	1274.44	13.8789		
912.08	25.8935	1274.54	13.8789		
923.98	0.0000	1291.59	14.1703		
926.50	13.4078	1298.22	0.0000		
929.11	30.6787	1312.11	16.4529		
935.54	24.0311	1332.49	14.3465		
937.49	20.0104	1362.66	0.0000		
944.13	23.1511	1365.19	14.4861		
946.00	29.9262	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 1-AUG-2024 08:30:47.55

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299031.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM18.CNF;895
Background date    : 30-JUL-2024 08:46:21
Sample date       : 26-JUN-2024 11:55:00 Acquisition date : 31-JUL-2024 16:12:14
Sample ID        : G674299031 Sample quantity : 1.08010E+02 GRAM
Detector name    : GAM18 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.84 0.0%
Energy tolerance : 2.00000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	49.94*	21	87	1.39	99.69	97	6	5.78E-03	76.4	
2	0	63.19*	49	177	1.93	126.16	122	10	1.37E-02	53.0	
3	0	76.63*	334	556	3.17	153.05	144	22	9.29E-02	19.2	
4	0	86.74	69	197	0.96	173.26	170	8	1.93E-02	36.9	
5	0	93.14*	55	250	1.18	186.05	181	11	1.54E-02	59.9	
6	0	167.22	39	54	1.44	334.15	331	7	1.07E-02	35.6	
7	0	186.40*	212	151	1.62	372.50	366	15	5.88E-02	14.9	
8	2	238.57*	390	99	1.20	476.80	472	20	1.08E-01	6.6	1.12E+00
9	2	241.87	148	95	1.78	483.42	472	20	4.10E-02	18.4	
10	0	270.32*	94	112	2.31	540.31	532	15	2.61E-02	26.9	
11	0	278.44	17	120	1.25	556.54	550	12	4.78E-03	130.6	
12	0	294.94	252	205	1.42	589.53	582	16	7.00E-02	14.1	
13	0	300.48	23	88	1.43	600.60	597	9	6.45E-03	77.4	
14	0	327.58	54	61	2.18	654.80	649	12	1.51E-02	31.6	
15	0	334.07	7	50	0.83	667.77	662	7	1.87E-03	181.1	
16	0	338.08*	118	80	1.10	675.79	670	11	3.29E-02	17.5	
17	0	351.68*	548	91	1.45	702.99	696	15	1.52E-01	5.8	
18	0	462.47	49	42	0.76	924.53	918	14	1.35E-02	31.8	
19	0	510.71*	25	49	2.69	1021.01	1014	13	6.98E-03	78.1	
20	0	582.81*	102	69	1.41	1165.21	1157	16	2.83E-02	21.3	
21	0	608.84*	371	72	1.77	1217.27	1209	18	1.03E-01	7.6	
22	2	719.53	25	26	2.69	1438.65	1434	25	6.92E-03	42.6	1.19E+00
23	2	726.73	37	34	2.70	1453.06	1434	25	1.04E-02	35.1	
24	0	767.66	29	45	5.08	1534.92	1525	17	8.16E-03	56.2	
25	0	787.40	47	80	7.58	1574.41	1553	32	1.30E-02	59.2	
26	0	795.04	23	28	1.51	1589.69	1584	11	6.25E-03	49.8	
27	0	865.66	15	62	5.54	1730.97	1711	22	4.14E-03	140.8	
28	0	874.35	10	15	0.60	1748.34	1741	11	2.82E-03	86.9	
29	0	896.47	7	21	0.50	1792.59	1784	10	1.87E-03	136.3	
30	0	910.27*	102	19	1.87	1820.21	1812	15	2.84E-02	14.1	
31	0	966.95*	81	36	2.31	1933.59	1921	21	2.25E-02	22.0	
32	0	1119.02*	82	18	1.47	2237.84	2231	14	2.29E-02	15.7	
33	0	1237.43	24	29	0.69	2474.76	2469	13	6.59E-03	53.1	
34	0	1268.69	1	6	0.79	2537.32	2537	3	2.91E-04	361.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1341.23	17	3	3.48	2682.48	2675	16	4.63E-03	36.0	
36	0	1375.16	34	16	2.50	2750.37	2742	20	9.55E-03	32.5	
37	0	1459.03*	395	10	2.88	2918.23	2907	21	1.10E-01	5.5	
38	0	1727.35	21	5	0.66	3455.29	3447	16	5.82E-03	30.3	
39	0	1762.80*	100	6	1.66	3526.24	3517	16	2.77E-02	11.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299031.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : MXR1
Sample date : 26-JUN-2024 11:55:00 Acquisition date : 31-JUL-2024 16:12:14
Sample ID : G674299031 Sample quantity : 108.01 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.84 0.0%
Energy tolerance : 2.00 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
TL-208	277.37	HG-203	279.20

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.809E+00	1.336E+01	1.336E+01	10.99	OK
NB-95	765.81	99.81*	3.212E+00	6.102E-02	8.932E-02	112.42	OK
CD-109	88.03	3.70*	6.175E+00	2.161E+00	2.279E+00	73.86	OK
SN-126	64.28	9.60	2.671E+00	1.382E+00	1.382E+00	105.94	OK
	86.94	8.90	6.175E+00	8.986E-01	8.986E-01	73.86	OK
	87.57	37.00*	6.175E+00	2.161E-01	2.161E-01	73.86	OK
CE-139	165.86	80.00*	7.692E+00	4.368E-02	5.215E-02	71.14	OK
HG-203	70.83	3.69	3.964E+00	----- Line	Not Found	-----	Absent
	72.87	6.19	4.295E+00	----- Line	Not Found	-----	Absent
	279.20	81.56*	6.112E+00	7.407E-03	1.251E-02	842.13	OK
TL-208	277.37	6.60	6.124E+00	----- Line	Not Found	-----	<<INT Reject
	583.19	85.00*	3.995E+00	2.017E-01	2.017E-01	42.56	OK
	860.56	12.50	2.900E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	4.295E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	5.421E+00	5.332E+00	5.332E+00	11.57	OK
BI-212	727.33	6.67*	3.366E+00	1.112E+00	1.112E+00	70.11	OK
	1620.50	1.47	1.701E+00	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.875E+00	4.762E+00	4.762E+00	38.34	OK
	77.11	17.10	4.875E+00	2.863E+00	2.863E+00	38.34	OK
	238.63	43.60*	6.598E+00	9.344E-01	9.344E-01	13.27	OK
	300.09	3.30	5.881E+00	8.203E-01	8.203E-01	154.88	OK
BI-214	609.32	45.49*	3.870E+00	1.415E+00	1.415E+00	15.20	OK
	1120.29	14.92	2.264E+00	1.604E+00	1.604E+00	31.40	OK
	1764.49	15.30	1.649E+00	2.563E+00	2.563E+00	22.72	OK
PB-214	74.82	5.80	4.875E+00	8.441E+00	8.441E+00	38.34	OK
	77.11	9.70	4.875E+00	5.047E+00	5.047E+00	38.34	OK
	87.09	3.41	6.175E+00	2.345E+00	2.345E+00	73.86	OK
	242.00	7.25	6.554E+00	2.143E+00	2.143E+00	36.72	OK
	295.22	18.42	5.937E+00	1.581E+00	1.581E+00	28.30	OK
	351.93	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57	OK
RN-222	609.32	45.49*	3.870E+00	1.415E+00	1.415E+00	15.20	OK
	1120.29	14.92	2.264E+00	1.604E+00	1.604E+00	31.40	OK
	1764.49	15.30	1.649E+00	2.563E+00	2.563E+00	22.72	OK
RA-224	240.99	4.10*	6.554E+00	3.789E+00	3.789E+00	36.72	OK
RA-226	74.82	5.80	4.875E+00	8.441E+00	8.441E+00	38.34	OK
	77.11	9.70	4.875E+00	5.047E+00	5.047E+00	38.34	OK
	87.09	3.41	6.175E+00	2.345E+00	2.345E+00	73.86	OK
	242.00	7.25	6.554E+00	2.143E+00	2.143E+00	36.72	OK
	295.22	18.42	5.937E+00	1.581E+00	1.581E+00	28.30	OK
	351.93	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57	OK
TH-228	74.82	10.28	4.875E+00	4.762E+00	4.762E+00	38.34	OK
	77.11	17.10	4.875E+00	2.863E+00	2.863E+00	38.34	OK
	238.63	43.60*	6.598E+00	9.344E-01	9.344E-01	13.27	OK
	300.09	3.30	5.881E+00	8.203E-01	8.203E-01	154.88	OK
TH-229	85.43	14.70	6.175E+00	5.440E-01	5.441E-01	73.86	OK
	88.47	24.00	6.175E+00	3.332E-01	3.332E-01	73.86	OK
	193.51	4.41*	7.270E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	6.997E+00	----- Line	Not Found	-----	Absent
TH-230	74.82	5.80	4.875E+00	8.441E+00	8.441E+00	38.34	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
	77.11	9.70	4.875E+00	5.047E+00	5.047E+00	38.34	OK
	87.09	3.41	6.175E+00	2.345E+00	2.345E+00	73.86	OK
	242.00	7.25	6.554E+00	2.143E+00	2.143E+00	36.72	OK
	295.22	18.42	5.937E+00	1.581E+00	1.581E+00	28.30	OK
	351.93	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57	OK
PA-231	283.69	1.70	6.055E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	5.881E+00	5.060E-01	5.060E-01	154.88	OK
TH-234	63.29	3.70*	2.671E+00	3.585E+00	3.585E+00	105.94	OK
	92.59	4.23	6.789E+00	1.366E+00	1.366E+00	119.73	OK
U-234	74.82	5.80	4.875E+00	8.441E+00	8.441E+00	38.34	OK
	77.11	9.70	4.875E+00	5.047E+00	5.047E+00	38.34	OK
	87.09	3.41	6.175E+00	2.345E+00	2.345E+00	73.86	OK
	242.00	7.25	6.554E+00	2.143E+00	2.143E+00	36.72	OK
	295.22	18.42	5.937E+00	1.581E+00	1.581E+00	28.30	OK
	351.93	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57	OK
U-238	63.29	3.70*	2.671E+00	3.585E+00	3.585E+00	105.94	OK
	92.59	4.23	6.789E+00	1.366E+00	1.366E+00	119.73	OK
AM-243	43.53	5.90	2.485E-01	----- Line	Not Found	-----	Absent
	74.66	67.20*	4.875E+00	7.285E-01	7.285E-01	38.34	OK
ANH-511	511.00	100.00*	4.370E+00	3.877E-02	3.877E-02	156.20	OK

Flag: "*" = Keyline

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299031.CNF;1 *
* Acquisition date : 31-JUL-2024 16:12:14 Sensitivity : 3.000 *
* Detector ID : GAM18 Energy tolerance: 2.000 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.84 Half life ratio : ***** *
* Sample date : 26-JUN-2024 11:55:00 Analyst initials: MXR1 *
* Sample ID : G674299031 Sample Quantity : 1.0801E+02 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 11-JUN-2024 09:10:49 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM18_CAN.CNF;20 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.336E+01	1.439E+00	6.726E-01
NB-95	8.932E-02	9.841E-02	9.945E-02
CD-109	2.279E+00	1.650E+00	1.811E+00
SN-126	2.161E-01	1.565E-01	1.636E-01
CE-139	5.215E-02	3.636E-02	5.577E-02
HG-203	1.251E-02	1.032E-01	9.718E-02
TL-208	2.017E-01	8.410E-02	5.909E-02
BI-211	5.332E+00	6.045E-01	2.994E-01
BI-212	1.112E+00	7.638E-01	1.044E+00
PB-212	9.344E-01	1.215E-01	1.081E-01
BI-214	1.415E+00	2.109E-01	1.260E-01
PB-214	1.935E+00	2.194E-01	1.088E-01
RN-222	1.415E+00	2.109E-01	1.260E-01
RA-224	3.789E+00	1.364E+00	1.157E+00
RA-226	1.935E+00	2.194E-01	1.088E-01
TH-228	9.344E-01	1.215E-01	1.081E-01
TH-229	2.078E-01	5.040E-01	9.577E-01
TH-230	1.935E+00	2.194E-01	1.088E-01
PA-231	5.060E-01	7.680E-01	8.730E-01
TH-234	3.585E+00	3.722E+00	3.168E+00
U-234	1.935E+00	2.194E-01	1.088E-01
U-238	3.585E+00	3.722E+00	3.168E+00
AM-243	7.285E-01	2.737E-01	1.227E-01
ANH-511	3.877E-02	5.935E-02	4.982E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.559E-01	3.626E-01	6.277E-01	NOT IDENT.
NA-22	2.477E-02	5.275E-02	9.862E-02	NOT IDENT.
NA-24	0.000E+00	4.535E+15	0.000E+00	SHORT HLIF
AL-26	-1.429E-03	3.503E-02	7.020E-02	NOT IDENT.
SC-46	3.190E-02	5.369E-02	9.595E-02	FAIL ABUN
V-48	7.257E-02	1.476E-01	2.992E-01	NOT IDENT.

CR-51	-2.414E-01	5.893E-01	1.010E+00	NOT IDENT.
MN-52	-3.785E-01	3.505E+00	6.566E+00	NOT IDENT.
MN-54	-3.140E-03	4.032E-02	7.465E-02	NOT IDENT.
CO-56	-9.505E-03	4.603E-02	8.469E-02	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.221E-03	2.694E-02	4.670E-02	NOT IDENT.
CO-58	-2.559E-02	4.201E-02	7.399E-02	NOT IDENT.
FE-59	-8.627E-03	1.270E-01	2.319E-01	NOT IDENT.
CO-60	2.062E-02	4.362E-02	8.431E-02	NOT IDENT.
ZN-65	1.138E-01	1.142E-01	2.096E-01	NOT IDENT.
GE-68	-1.050E-01	1.371E+00	2.510E+00	NOT IDENT.
AS-73	3.994E-01	1.958E+00	3.615E+00	NOT IDENT.
AS-74	-6.848E-03	2.213E-01	4.066E-01	NOT IDENT.
SE-75	-5.016E-03	5.615E-02	8.976E-02	FAIL ABUN
BR-77	0.000E+00	6.590E+03	0.000E+00	SHORT HLIF
SR-82	-2.909E-01	6.533E-01	9.988E-01	NOT IDENT.
RB-83	3.369E-02	8.141E-02	1.564E-01	NOT IDENT.
RB-84	4.264E-02	1.029E-01	2.033E-01	NOT IDENT.
KR-85	1.128E+01	7.607E+00	1.452E+01	NOT IDENT.
SR-85	7.351E-02	4.976E-02	9.493E-02	NOT IDENT.
RB-86	3.062E-01	1.714E+00	3.246E+00	NOT IDENT.
Y-88	-2.773E-02	4.757E-02	8.466E-02	FAIL ABUN
Y-91	-1.060E+01	2.888E+01	4.975E+01	NOT IDENT.
NB-94	1.448E-02	3.448E-02	6.466E-02	NOT IDENT.
NB-95M	1.890E-01	1.722E-01	3.064E-01	NOT IDENT.
ZR-95	5.819E-03	8.716E-02	1.662E-01	NOT IDENT.
NB-97	0.000E+00	9.461E+40	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.908E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.910E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	4.306E+40	0.000E+00	SHORT HLIF
RH-101	-1.582E-03	3.432E-02	5.895E-02	NOT IDENT.
RH-102	-7.333E-03	5.637E-02	1.009E-01	FAIL ABUN
RU-103	-2.276E-02	5.514E-02	9.798E-02	FAIL ABUN
RH-106	1.208E-01	3.178E-01	6.041E-01	NOT IDENT.
RU-106	1.208E-01	3.178E-01	6.041E-01	NOT IDENT.
AG-108M	-3.836E-04	2.784E-02	5.212E-02	NOT IDENT.
AG-110	-8.807E-01	7.392E-01	1.138E+00	NOT IDENT.
AG-110M	-3.101E-02	5.097E-02	8.865E-02	NOT IDENT.
SN-113	1.386E-02	4.784E-02	9.225E-02	NOT IDENT.
CD-115	0.000E+00	5.226E+03	0.000E+00	SHORT HLIF
SN-117M	3.299E-02	1.557E-01	2.946E-01	NOT IDENT.
SB-122	0.000E+00	3.074E+02	0.000E+00	SHORT HLIF
TE-123M	-5.353E-03	3.334E-02	6.159E-02	NOT IDENT.
SB-124	-7.396E-02	1.100E-01	1.837E-01	NOT IDENT.
SB-125	1.923E-03	8.774E-02	1.647E-01	FAIL ABUN
TE-125M	4.628E+00	1.331E+01	2.389E+01	NOT IDENT.
I-126	-7.640E-02	6.205E-01	1.109E+00	NOT IDENT.
SB-126	6.561E-01	5.484E-01	8.756E-01	FAIL ABUN
SB-127	5.633E+00	4.452E+01	8.247E+01	NOT IDENT.
I-131	2.684E-01	6.566E-01	1.207E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	5.362E+01	0.000E+00	SHORT HLIF
BA-133	-1.254E-04	4.787E-02	7.512E-02	NOT IDENT.
I-133	0.000E+00	4.858E+10	0.000E+00	SHORT HLIF
CS-134	5.807E-02	5.669E-02	8.985E-02	FAIL ABUN
I-135	0.000E+00	6.481E+37	0.000E+00	SHORT HLIF
CS-136	-1.330E-02	3.326E-01	6.098E-01	NOT IDENT.
BA-137M	9.209E-03	3.525E-02	6.564E-02	NOT IDENT.
CS-137	9.729E-03	3.723E-02	6.935E-02	NOT IDENT.
LA-138	-3.414E-02	6.748E-02	1.188E-01	FAIL ABUN
BA-140	2.199E-01	6.696E-01	1.298E+00	NOT IDENT.
LA-140	-2.219E-01	2.872E-01	4.727E-01	FAIL ABUN
CE-141	-2.103E-02	1.085E-01	1.813E-01	NOT IDENT.
CE-143	0.000E+00	9.391E+06	0.000E+00	SHORT HLIF
CE-144	2.200E-02	2.077E-01	3.616E-01	NOT IDENT.
PM-144	1.870E-02	3.416E-02	6.560E-02	NOT IDENT.
PR-144	1.440E+00	2.586E+00	4.971E+00	NOT IDENT.
PM-146	-1.865E-02	4.061E-02	7.247E-02	NOT IDENT.
ND-147	-1.023E-01	1.849E+00	3.407E+00	NOT IDENT.
PM-147	1.621E+02	7.616E+02	1.350E+03	NOT IDENT.
PM-149	0.000E+00	4.806E+04	0.000E+00	SHORT HLIF
EU-150	8.623E-03	3.061E-02	4.651E-02	FAIL ABUN
EU-152	-5.909E-02	9.071E-02	1.502E-01	NOT IDENT.
GD-153	2.532E-02	1.022E-01	1.706E-01	NOT IDENT.
EU-154	1.272E-01	1.408E-01	2.800E-01	FAIL ABUN
EU-155	3.201E-02	1.089E-01	1.962E-01	FAIL ABUN
TB-160	1.085E-01	1.708E-01	3.207E-01	FAIL ABUN
HO-166M	5.209E-03	5.447E-02	1.003E-01	FAIL ABUN

TM-171	1.991E+00	3.848E+01	6.594E+01	FAIL ABUN
HF-172	2.501E-02	2.044E-01	3.569E-01	FAIL ABUN
LU-172	2.269E-02	6.857E-02	1.317E-01	FAIL ABUN
LU-176	-1.136E-03	2.560E-02	4.570E-02	FAIL ABUN
HF-181	-1.167E-02	5.346E-02	9.783E-02	NOT IDENT.
TA-182	5.350E-02	2.065E-01	4.046E-01	NOT IDENT.
RE-183	-2.474E-01	3.624E-01	6.353E-01	NOT IDENT.
RE-184	9.668E-02	2.035E-01	3.597E-01	FAIL ABUN
W-188	-2.864E+00	1.023E+01	1.581E+01	FAIL ABUN
IR-192	1.066E-02	4.208E-02	7.679E-02	FAIL ABUN
TL-204	-1.043E+00	7.185E+00	1.182E+01	NOT IDENT.
BI-207	2.128E-02	4.572E-02	9.203E-02	FAIL ABUN
BI-210	-1.200E+01	9.365E+00	1.533E+01	NOT IDENT.
PB-210	-1.200E+01	9.365E+00	1.533E+01	NOT IDENT.
PB-211	2.942E-01	6.613E-01	1.291E+00	NOT IDENT.
BI-213	-6.196E-02	1.014E-01	1.785E-01	NOT IDENT.
RN-219	2.202E-02	3.757E-01	7.111E-01	FAIL ABUN
RA-223	2.132E-02	6.863E-01	1.095E+00	FAIL ABUN
AC-225	6.284E-01	2.245E+00	4.207E+00	NOT IDENT.
AC-227	1.649E-01	2.607E-01	4.938E-01	FAIL ABUN
TH-227	1.649E-01	2.607E-01	4.938E-01	FAIL ABUN
AC-228	0.000E+00	2.640E-01	5.197E-01	FAIL ABUN
RA-228	0.000E+00	2.640E-01	5.197E-01	FAIL ABUN
TH-231	2.132E-02	6.863E-01	1.095E+00	FAIL ABUN
TH-232	0.000E+00	2.640E-01	5.197E-01	FAIL ABUN
PA-233	1.945E-02	6.118E-02	1.130E-01	FAIL ABUN
PA-234	-1.504E-01	2.790E-01	4.870E-01	FAIL ABUN
PA-234M	1.368E+00	5.115E+00	9.766E+00	FAIL ABUN
U-235	1.775E-01	2.173E-01	3.936E-01	FAIL ABUN
NP-237	1.945E-02	6.118E-02	1.130E-01	FAIL ABUN
NP-238	0.000E+00	1.319E+04	0.000E+00	SHORT HLIF
NP-239	-8.572E-02	2.830E-01	4.803E-01	FAIL ABUN
PU-239	3.473E+02	3.510E+02	6.536E+02	NOT IDENT.
AM-241	1.656E-01	2.061E-01	3.836E-01	NOT IDENT.
CM-243	-8.716E-02	1.100E-01	1.810E-01	FAIL ABUN
BK-247	-5.119E-03	8.800E-02	1.414E-01	NOT IDENT.
CM-247	-7.946E-03	3.512E-02	6.473E-02	FAIL ABUN
CF-249	-7.161E-03	4.254E-02	7.309E-02	FAIL ABUN
CF-251	-2.564E-02	1.318E-01	2.412E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	371	10.66*	1.809E+00	1.336E+01	1.336E+01	10.99
NB-95	765.81	28	99.81*	3.212E+00	6.102E-02	8.932E-02	112.42
CD-109	88.03	71	3.70*	6.175E+00	2.161E+00	2.279E+00	73.86
SN-126	64.28	51	9.60	2.671E+00	1.382E+00	1.382E+00	105.94
	86.94	71	8.90	6.175E+00	8.986E-01	8.986E-01	73.86
	87.57	71	37.00*	6.175E+00	2.161E-01	2.161E-01	73.86
CE-139	165.86	39	80.00*	7.692E+00	4.368E-02	5.215E-02	71.14
HG-203	70.83	-----	3.69	3.964E+00	-----	Line Not Found	-----
	72.87	-----	6.19	4.295E+00	-----	Line Not Found	-----
	279.20	17	81.56*	6.112E+00	2.373E-02	4.006E-02	261.27
TL-208	277.37	17	6.60	6.112E+00	2.932E-01	2.932E-01	261.28
	583.19	99	85.00*	3.995E+00	2.017E-01	2.017E-01	42.56
	860.56	-----	12.50	2.900E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.295E+00	-----	Line Not Found	-----
	351.06	537	12.92*	5.421E+00	5.332E+00	5.332E+00	11.57
BI-212	727.33	36	6.67*	3.366E+00	1.112E+00	1.112E+00	70.11
	1620.50	-----	1.47	1.701E+00	-----	Line Not Found	-----
PB-212	74.82	343	10.28	4.875E+00	4.762E+00	4.762E+00	38.34
	77.11	343	17.10	4.875E+00	2.863E+00	2.863E+00	38.34
	238.63	387	43.60*	6.598E+00	9.344E-01	9.344E-01	13.27
	300.09	23	3.30	5.881E+00	8.203E-01	8.203E-01	154.88
BI-214	609.32	358	45.49*	3.870E+00	1.415E+00	1.415E+00	15.20
	1120.29	78	14.92	2.264E+00	1.604E+00	1.604E+00	31.40
	1764.49	93	15.30	1.649E+00	2.563E+00	2.563E+00	22.72
PB-214	74.82	343	5.80	4.875E+00	8.441E+00	8.441E+00	38.34
	77.11	343	9.70	4.875E+00	5.047E+00	5.047E+00	38.34
	87.09	71	3.41	6.175E+00	2.345E+00	2.345E+00	73.86
	242.00	146	7.25	6.554E+00	2.143E+00	2.143E+00	36.72
	295.22	249	18.42	5.937E+00	1.581E+00	1.581E+00	28.30
	351.93	537	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57
RN-222	609.32	358	45.49*	3.870E+00	1.415E+00	1.415E+00	15.20
	1120.29	78	14.92	2.264E+00	1.604E+00	1.604E+00	31.40
	1764.49	93	15.30	1.649E+00	2.563E+00	2.563E+00	22.72
RA-224	240.99	146	4.10*	6.554E+00	3.789E+00	3.789E+00	36.72
RA-226	74.82	343	5.80	4.875E+00	8.441E+00	8.441E+00	38.34
	77.11	343	9.70	4.875E+00	5.047E+00	5.047E+00	38.34
	87.09	71	3.41	6.175E+00	2.345E+00	2.345E+00	73.86
	242.00	146	7.25	6.554E+00	2.143E+00	2.143E+00	36.72
	295.22	249	18.42	5.937E+00	1.581E+00	1.581E+00	28.30
	351.93	537	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57
TH-228	74.82	343	10.28	4.875E+00	4.762E+00	4.762E+00	38.34
	77.11	343	17.10	4.875E+00	2.863E+00	2.863E+00	38.34
	238.63	387	43.60*	6.598E+00	9.344E-01	9.344E-01	13.27
	300.09	23	3.30	5.881E+00	8.203E-01	8.203E-01	154.88
TH-229	85.43	71	14.70	6.175E+00	5.440E-01	5.441E-01	73.86
	88.47	71	24.00	6.175E+00	3.332E-01	3.332E-01	73.86
	193.51	-----	4.41*	7.270E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	210.85	-----	2.80	6.997E+00	-----	Line Not Found	-----
	74.82	343	5.80	4.875E+00	8.441E+00	8.441E+00	38.34
	77.11	343	9.70	4.875E+00	5.047E+00	5.047E+00	38.34
	87.09	71	3.41	6.175E+00	2.345E+00	2.345E+00	73.86
	242.00	146	7.25	6.554E+00	2.143E+00	2.143E+00	36.72
	295.22	249	18.42	5.937E+00	1.581E+00	1.581E+00	28.30
PA-231	351.93	537	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57
	283.69	-----	1.70	6.055E+00	-----	Line Not Found	-----
	301.36	23	5.35*	5.881E+00	5.060E-01	5.060E-01	154.88
TH-234	63.29	51	3.70*	2.671E+00	3.585E+00	3.585E+00	105.94
	92.59	56	4.23	6.789E+00	1.366E+00	1.366E+00	119.73
U-234	74.82	343	5.80	4.875E+00	8.441E+00	8.441E+00	38.34
	77.11	343	9.70	4.875E+00	5.047E+00	5.047E+00	38.34
	87.09	71	3.41	6.175E+00	2.345E+00	2.345E+00	73.86
	242.00	146	7.25	6.554E+00	2.143E+00	2.143E+00	36.72
	295.22	249	18.42	5.937E+00	1.581E+00	1.581E+00	28.30
U-238	351.93	537	35.60*	5.421E+00	1.935E+00	1.935E+00	11.57
	63.29	51	3.70*	2.671E+00	3.585E+00	3.585E+00	105.94
	92.59	56	4.23	6.789E+00	1.366E+00	1.366E+00	119.73
AM-243	43.53	-----	5.90	2.485E-01	-----	Line Not Found	-----
ANH-511	74.66	343	67.20*	4.875E+00	7.285E-01	7.285E-01	38.34
	511.00	24	100.00*	4.370E+00	3.877E-02	3.877E-02	156.20

Flag: "*" = Keyline

Total number of lines in spectrum 39
Number of unidentified lines 5
Number of lines tentatively identified by NID 34 87.18%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.336E+01	1.336E+01	0.147E+01	10.99	
NB-95	64.03D	1.46	6.102E-02	8.932E-02	10.04E-02	112.42	
CD-109	461.40D	1.05	2.161E+00	2.279E+00	1.683E+00	73.86	
SN-126	2.30E+05Y	1.00	2.161E-01	2.161E-01	1.596E-01	73.86	
CE-139	137.64D	1.19	4.368E-02	5.215E-02	3.710E-02	71.14	
HG-203	46.59D	1.69	2.373E-02	4.006E-02	10.47E-02	261.27	
TL-208	1.41E+10Y	1.00	2.017E-01	2.017E-01	0.858E-01	42.56	
BI-211	7.04E+08Y	1.00	5.332E+00	5.332E+00	0.617E+00	11.57	
BI-212	1.41E+10Y	1.00	1.112E+00	1.112E+00	0.779E+00	70.11	
PB-212	1.41E+10Y	1.00	9.344E-01	9.344E-01	1.240E-01	13.27	
BI-214	1600.00Y	1.00	1.415E+00	1.415E+00	0.215E+00	15.20	
PB-214	1600.00Y	1.00	1.935E+00	1.935E+00	0.224E+00	11.57	
RN-222	1600.00Y	1.00	1.415E+00	1.415E+00	0.215E+00	15.20	
RA-224	1.41E+10Y	1.00	3.789E+00	3.789E+00	1.391E+00	36.72	
RA-226	1600.00Y	1.00	1.935E+00	1.935E+00	0.224E+00	11.57	
TH-228	1.41E+10Y	1.00	9.344E-01	9.344E-01	1.240E-01	13.27	
TH-229	7340.00Y	1.00	3.332E-01	3.332E-01	2.461E-01	73.86	K
TH-230	7.54E+04Y	1.00	1.935E+00	1.935E+00	0.224E+00	11.57	
PA-231	7.04E+08Y	1.00	5.060E-01	5.060E-01	7.837E-01	154.88	
TH-234	4.47E+09Y	1.00	3.585E+00	3.585E+00	3.798E+00	105.94	
U-234	2.45E+05Y	1.00	1.935E+00	1.935E+00	0.224E+00	11.57	
U-238	4.47E+09Y	1.00	3.585E+00	3.585E+00	3.798E+00	105.94	
AM-243	7370.00Y	1.00	7.285E-01	7.285E-01	2.793E-01	38.34	
ANH-511	1.00E+09Y	1.00	3.877E-02	3.877E-02	6.056E-02	156.20	
Total Activity :			4.752E+01	4.769E+01			

Grand Total Activity : 4.752E+01 4.769E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.94	22	91	1.39	99.69	97	6	5.78E-03	****	7.52E-01	T
0	186.40	212	151	1.62	372.50	366	15	5.88E-02	29.8	7.39E+00	T
0	270.32	93	111	2.31	540.31	532	15	2.61E-02	53.8	6.20E+00	T
0	327.58	53	60	2.18	654.80	649	12	1.51E-02	63.3	5.63E+00	T
0	334.07	7	49	0.83	667.77	662	7	1.87E-03	****	5.57E+00	T
0	338.08	116	78	1.10	675.79	670	11	3.29E-02	35.0	5.53E+00	T
0	462.47	47	41	0.76	924.53	918	14	1.35E-02	63.5	4.65E+00	T
2	719.53	24	25	2.69	1438.65	1434	25	6.92E-03	85.3	3.39E+00	T
0	787.40	45	77	7.58	1574.41	1553	32	1.30E-02	****	3.14E+00	T
0	795.04	22	26	1.51	1589.69	1584	11	6.25E-03	99.6	3.12E+00	T
0	865.66	14	59	5.54	1730.97	1711	22	4.14E-03	****	2.88E+00	
0	874.35	10	14	0.60	1748.34	1741	11	2.82E-03	****	2.86E+00	T
0	896.47	6	20	0.50	1792.59	1784	10	1.87E-03	****	2.79E+00	T
0	910.27	97	18	1.87	1820.21	1812	15	2.84E-02	28.2	2.75E+00	T
0	966.95	77	34	2.31	1933.59	1921	21	2.25E-02	44.0	2.60E+00	T
0	1237.43	22	28	0.69	2474.76	2469	13	6.59E-03	****	2.06E+00	T
0	1268.69	1	6	0.79	2537.32	2537	3	2.91E-04	****	2.02E+00	
0	1341.23	16	3	3.48	2682.48	2675	16	4.63E-03	72.1	1.93E+00	
0	1375.16	32	15	2.50	2750.37	2742	20	9.55E-03	65.1	1.89E+00	
0	1727.35	20	5	0.66	3455.29	3447	16	5.82E-03	60.5	1.66E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29407                           *
*****
*                                     DETECTOR AND SAMPLE DATA                       *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299031.CNF;1      *
* Acquisition date   : 31-JUL-2024 16:12:14 Sensitivity      : 3.000                *
* Detector ID        : GAM18 Energy tolerance: 2.000          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:00.84 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 11:55:00 Nuclide Library : SOLID      *
* Sample ID          : G674299031 Analyst initials: MXR1          *
* Batch Number       : 2636543 Sample Quantity : 1.0801E+02 GRAM      *
* Wet wt corr        : 1.00000 Wet Weight : 0.00000            *
*                                     Dry Weight : 0.00000            *
*****
*                                     CALIBRATION INFORMATION                       *
*
* Eff. Cal. date     : 11-JUN-2024 09:10:49 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM18_CAN.CNF;20          *
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.879E-01
NB-95	4.547E-02
CD-109	8.631E-01
SN-126	7.773E-02
CE-139	2.606E-02
HG-203	4.541E-02
TL-208	2.679E-02
BI-211	1.363E-01
BI-212	4.804E-01
PB-212	5.081E-02
BI-214	5.770E-02
PB-214	4.956E-02
RN-222	5.770E-02
RA-224	5.438E-01
RA-226	4.956E-02
TH-228	5.081E-02
TH-229	4.495E-01
TH-230	4.955E-02
PA-231	4.067E-01
TH-234	1.489E+00
U-234	4.955E-02
U-238	1.489E+00
AM-243	5.827E-02
ANH-511	2.277E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	2.827E-01	NOT IDENT.
NA-22	4.456E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.941E-02	NOT IDENT.
SC-46	4.353E-02	FAIL ABUN
V-48	1.328E-01	NOT IDENT.
CR-51	4.650E-01	NOT IDENT.

MN-52	2.883E+00	NOT IDENT.
MN-54	3.394E-02	NOT IDENT.
CO-56	3.799E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.184E-02	NOT IDENT.
CO-58	3.266E-02	NOT IDENT.
FE-59	1.036E-01	NOT IDENT.
CO-60	3.728E-02	NOT IDENT.
ZN-65	9.583E-02	NOT IDENT.
GE-68	1.120E+00	NOT IDENT.
AS-73	1.701E+00	NOT IDENT.
AS-74	1.874E-01	NOT IDENT.
SE-75	4.176E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	4.484E-01	NOT IDENT.
RB-83	7.182E-02	NOT IDENT.
RB-84	9.162E-02	NOT IDENT.
KR-85	6.762E+00	NOT IDENT.
SR-85	4.421E-02	NOT IDENT.
RB-86	1.453E+00	NOT IDENT.
Y-88	3.512E-02	FAIL ABUN
Y-91	2.230E+01	NOT IDENT.
NB-94	2.962E-02	NOT IDENT.
NB-95M	1.449E-01	NOT IDENT.
ZR-95	7.535E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.772E-02	NOT IDENT.
RH-102	4.592E-02	FAIL ABUN
RU-103	4.468E-02	FAIL ABUN
RH-106	2.756E-01	NOT IDENT.
RU-106	2.756E-01	NOT IDENT.
AG-108M	2.391E-02	NOT IDENT.
AG-110	5.062E-01	NOT IDENT.
AG-110M	3.931E-02	NOT IDENT.
SN-113	4.264E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.389E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.904E-02	NOT IDENT.
SB-124	7.423E-02	NOT IDENT.
SB-125	7.574E-02	FAIL ABUN
TE-125M	1.125E+01	NOT IDENT.
I-126	5.024E-01	NOT IDENT.
SB-126	4.009E-01	FAIL ABUN
SB-127	3.717E+01	NOT IDENT.
I-131	5.585E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.473E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.130E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.740E-01	NOT IDENT.
BA-137M	2.995E-02	NOT IDENT.
CS-137	3.164E-02	NOT IDENT.
LA-138	5.162E-02	FAIL ABUN
BA-140	5.873E-01	NOT IDENT.
LA-140	1.977E-01	FAIL ABUN
CE-141	8.545E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.693E-01	NOT IDENT.
PM-144	2.992E-02	NOT IDENT.
PR-144	2.268E+00	NOT IDENT.
PM-146	3.313E-02	NOT IDENT.
ND-147	1.549E+00	NOT IDENT.
PM-147	6.324E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.150E-02	FAIL ABUN
EU-152	6.863E-02	NOT IDENT.
GD-153	8.024E-02	NOT IDENT.
EU-154	1.267E-01	FAIL ABUN
EU-155	9.212E-02	FAIL ABUN
TB-160	1.450E-01	FAIL ABUN
HO-166M	4.511E-02	FAIL ABUN
TM-171	3.094E+01	FAIL ABUN

HF-172	1.677E-01	FAIL ABUN
LU-172	5.920E-02	FAIL ABUN
LU-176	2.113E-02	FAIL ABUN
HF-181	4.435E-02	NOT IDENT.
TA-182	1.818E-01	NOT IDENT.
RE-183	2.961E-01	NOT IDENT.
RE-184	1.622E-01	FAIL ABUN
W-188	7.349E+00	FAIL ABUN
IR-192	3.564E-02	FAIL ABUN
TL-204	5.603E+00	NOT IDENT.
BI-207	4.073E-02	FAIL ABUN
BI-210	7.159E+00	NOT IDENT.
PB-210	7.159E+00	NOT IDENT.
PB-211	5.962E-01	NOT IDENT.
BI-213	8.173E-02	NOT IDENT.
RN-219	3.274E-01	FAIL ABUN
RA-223	5.061E-01	FAIL ABUN
AC-225	1.966E+00	NOT IDENT.
AC-227	2.314E-01	FAIL ABUN
TH-227	2.314E-01	FAIL ABUN
AC-228	2.468E-01	FAIL ABUN
RA-228	2.468E-01	FAIL ABUN
TH-231	5.061E-01	FAIL ABUN
TH-232	2.468E-01	FAIL ABUN
PA-233	5.230E-02	FAIL ABUN
PA-234	2.142E-01	FAIL ABUN
PA-234M	4.442E+00	FAIL ABUN
U-235	1.861E-01	FAIL ABUN
NP-237	5.230E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.252E-01	FAIL ABUN
PU-239	3.082E+02	NOT IDENT.
AM-241	1.790E-01	NOT IDENT.
CM-243	8.445E-02	FAIL ABUN
BK-247	6.569E-02	NOT IDENT.
CM-247	2.978E-02	FAIL ABUN
CF-249	3.378E-02	FAIL ABUN
CF-251	1.134E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299031.CNF;1
Acquisition date : 31-JUL-2024 16:12:14 Sensitivity : 3.000
Detector ID : GAM18 Energy tolerance: 2.000
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.84 Half life ratio : *****
Sample date : 26-JUN-2024 11:55:00 Nuclide Library : SOLID
Sample ID : G674299031 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.0801E+02 GRAM
Quantity Err(%) : 1.8517E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 11-JUN-2024 09:10:49 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM18_CAN.CNF;20

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.336E+01	1.944E+00	1.944E+00
NB-95	8.932E-02	9.880E-02	9.880E-02
CD-109	2.279E+00	1.667E+00	1.667E+00
SN-126	2.161E-01	1.577E-01	1.577E-01
CE-139	5.215E-02	3.797E-02	3.797E-02
HG-203	1.251E-02	1.033E-01	1.033E-01
TL-208	2.017E-01	8.577E-02	8.577E-02
BI-211	5.332E+00	7.641E-01	7.641E-01
BI-212	1.112E+00	7.711E-01	7.711E-01
PB-212	9.344E-01	1.466E-01	1.466E-01
BI-214	1.415E+00	2.415E-01	2.415E-01
PB-214	1.935E+00	2.755E-01	2.755E-01
RN-222	1.415E+00	2.415E-01	2.415E-01
RA-224	3.789E+00	1.404E+00	1.404E+00
RA-226	1.935E+00	2.755E-01	2.755E-01
TH-228	9.344E-01	1.466E-01	1.466E-01
TH-229	2.078E-01	5.043E-01	5.043E-01
TH-230	1.935E+00	2.755E-01	2.755E-01
PA-231	5.060E-01	7.766E-01	7.766E-01
TH-234	3.585E+00	3.818E+00	3.818E+00
U-234	1.935E+00	2.755E-01	2.755E-01
U-238	3.585E+00	3.818E+00	3.818E+00
AM-243	7.285E-01	2.816E-01	2.816E-01
ANH-511	3.877E-02	5.943E-02	5.943E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.559E-01	3.632E-01	3.811E-01	NOT IDENT.
NA-22	2.477E-02	5.281E-02	5.398E-02	NOT IDENT.
NA-24	-1.130E+15	4.537E+15	4.565E+15	SHORT HLIF
AL-26	-1.429E-03	3.503E-02	3.504E-02	NOT IDENT.
SC-46	3.190E-02	5.383E-02	5.572E-02	FAIL ABUN
V-48	7.257E-02	1.479E-01	1.515E-01	NOT IDENT.

CR-51	-2.414E-01	5.897E-01	5.997E-01	NOT IDENT.
MN-52	-3.785E-01	3.505E+00	3.509E+00	NOT IDENT.
MN-54	-3.140E-03	4.032E-02	4.034E-02	NOT IDENT.
CO-56	-9.505E-03	4.605E-02	4.624E-02	FAIL ABUN
MN-56	-1.000E+41	4.913E+41	0.000E+00	SHORT HLIF
CO-57	-1.221E-03	2.694E-02	2.695E-02	NOT IDENT.
CO-58	-2.559E-02	4.210E-02	4.365E-02	NOT IDENT.
FE-59	-8.627E-03	1.270E-01	1.270E-01	NOT IDENT.
CO-60	2.062E-02	4.366E-02	4.464E-02	NOT IDENT.
ZN-65	1.138E-01	1.149E-01	1.259E-01	NOT IDENT.
GE-68	-1.050E-01	1.372E+00	1.372E+00	NOT IDENT.
AS-73	3.994E-01	1.960E+00	1.968E+00	NOT IDENT.
AS-74	-6.848E-03	2.213E-01	2.213E-01	NOT IDENT.
SE-75	-5.016E-03	5.615E-02	5.620E-02	FAIL ABUN
BR-77	5.067E+04	5.208E+04	5.687E+04	SHORT HLIF
SR-82	-2.909E-01	6.539E-01	6.670E-01	NOT IDENT.
RB-83	3.369E-02	8.158E-02	8.298E-02	NOT IDENT.
RB-84	4.264E-02	1.030E-01	1.048E-01	NOT IDENT.
KR-85	1.128E+01	7.665E+00	9.199E+00	NOT IDENT.
SR-85	7.351E-02	5.014E-02	6.010E-02	NOT IDENT.
RB-86	3.062E-01	1.714E+00	1.720E+00	NOT IDENT.
Y-88	-2.773E-02	4.762E-02	4.923E-02	FAIL ABUN
Y-91	-1.060E+01	2.890E+01	2.929E+01	NOT IDENT.
NB-94	1.448E-02	3.450E-02	3.511E-02	NOT IDENT.
NB-95M	1.890E-01	1.733E-01	1.931E-01	NOT IDENT.
ZR-95	5.819E-03	8.716E-02	8.720E-02	NOT IDENT.
NB-97	-1.000E+41	9.497E+40	0.000E+00	SHORT HLIF
ZR-97	4.392E+14	6.918E+14	7.196E+14	SHORT HLIF
MO-99	1.437E+03	1.916E+03	2.022E+03	SHORT HLIF
TC-99M	1.786E+40	4.311E+40	0.000E+00	SHORT HLIF
RH-101	-1.582E-03	3.432E-02	3.433E-02	NOT IDENT.
RH-102	-7.333E-03	5.637E-02	5.647E-02	FAIL ABUN
RU-103	-2.276E-02	5.517E-02	5.612E-02	FAIL ABUN
RH-106	1.208E-01	3.180E-01	3.227E-01	NOT IDENT.
RU-106	1.208E-01	3.180E-01	3.227E-01	NOT IDENT.
AG-108M	-3.836E-04	2.784E-02	2.784E-02	NOT IDENT.
AG-110	-8.807E-01	7.427E-01	8.421E-01	NOT IDENT.
AG-110M	-3.101E-02	5.112E-02	5.299E-02	NOT IDENT.
SN-113	1.386E-02	4.785E-02	4.826E-02	NOT IDENT.
CD-115	2.663E+03	5.232E+03	5.368E+03	SHORT HLIF
SN-117M	3.299E-02	1.557E-01	1.564E-01	NOT IDENT.
SB-122	-1.161E+02	3.075E+02	3.120E+02	SHORT HLIF
TE-123M	-5.353E-03	3.334E-02	3.343E-02	NOT IDENT.
SB-124	-7.396E-02	1.102E-01	1.151E-01	NOT IDENT.
SB-125	1.923E-03	8.774E-02	8.774E-02	FAIL ABUN
TE-125M	4.628E+00	1.331E+01	1.348E+01	NOT IDENT.
I-126	-7.640E-02	6.206E-01	6.215E-01	NOT IDENT.
SB-126	6.561E-01	5.547E-01	6.286E-01	FAIL ABUN
SB-127	5.633E+00	4.453E+01	4.461E+01	NOT IDENT.
I-131	2.684E-01	6.570E-01	6.681E-01	NOT IDENT.
I-132	-1.000E+41	3.164E+41	0.000E+00	SHORT HLIF
TE-132	-5.278E+01	5.398E+01	5.899E+01	SHORT HLIF
BA-133	-1.254E-04	4.787E-02	4.787E-02	NOT IDENT.
I-133	4.341E+09	4.859E+10	4.863E+10	SHORT HLIF
CS-134	5.807E-02	5.701E-02	6.273E-02	FAIL ABUN
I-135	2.449E+37	6.773E+37	0.000E+00	SHORT HLIF
CS-136	-1.330E-02	3.326E-01	3.326E-01	NOT IDENT.
BA-137M	9.209E-03	3.525E-02	3.550E-02	NOT IDENT.
CS-137	9.729E-03	3.724E-02	3.750E-02	NOT IDENT.
LA-138	-3.414E-02	6.755E-02	6.928E-02	FAIL ABUN
BA-140	2.199E-01	6.699E-01	6.772E-01	NOT IDENT.
LA-140	-2.219E-01	2.879E-01	3.048E-01	FAIL ABUN
CE-141	-2.103E-02	1.085E-01	1.089E-01	NOT IDENT.
CE-143	3.386E+07	9.900E+06	1.820E+07	SHORT HLIF
CE-144	2.200E-02	2.077E-01	2.079E-01	NOT IDENT.
PM-144	1.870E-02	3.420E-02	3.522E-02	NOT IDENT.
PR-144	1.440E+00	2.589E+00	2.670E+00	NOT IDENT.
PM-146	-1.865E-02	4.066E-02	4.152E-02	NOT IDENT.
ND-147	-1.023E-01	1.849E+00	1.850E+00	NOT IDENT.
PM-147	1.621E+02	7.617E+02	7.652E+02	NOT IDENT.
PM-149	-1.081E+04	4.809E+04	4.834E+04	SHORT HLIF
EU-150	8.623E-03	3.062E-02	3.087E-02	FAIL ABUN
EU-152	-5.909E-02	9.088E-02	9.470E-02	NOT IDENT.
GD-153	2.532E-02	1.022E-01	1.028E-01	NOT IDENT.
EU-154	1.272E-01	1.414E-01	1.526E-01	FAIL ABUN
EU-155	3.201E-02	1.090E-01	1.099E-01	FAIL ABUN
TB-160	1.085E-01	1.713E-01	1.782E-01	FAIL ABUN
HO-166M	5.209E-03	5.447E-02	5.453E-02	FAIL ABUN

TM-171	1.991E+00	3.848E+01	3.849E+01	FAIL ABUN
HF-172	2.501E-02	2.045E-01	2.048E-01	FAIL ABUN
LU-172	2.269E-02	6.864E-02	6.940E-02	FAIL ABUN
LU-176	-1.136E-03	2.560E-02	2.561E-02	FAIL ABUN
HF-181	-1.167E-02	5.347E-02	5.373E-02	NOT IDENT.
TA-182	5.350E-02	2.066E-01	2.080E-01	NOT IDENT.
RE-183	-2.474E-01	3.641E-01	3.808E-01	NOT IDENT.
RE-184	9.668E-02	2.039E-01	2.085E-01	FAIL ABUN
W-188	-2.864E+00	1.024E+01	1.032E+01	FAIL ABUN
IR-192	1.066E-02	4.209E-02	4.236E-02	FAIL ABUN
TL-204	-1.043E+00	7.186E+00	7.201E+00	NOT IDENT.
BI-207	2.128E-02	4.579E-02	4.678E-02	FAIL ABUN
BI-210	-1.200E+01	9.459E+00	1.090E+01	NOT IDENT.
PB-210	-1.200E+01	9.459E+00	1.090E+01	NOT IDENT.
PB-211	2.942E-01	6.618E-01	6.749E-01	NOT IDENT.
BI-213	-6.196E-02	1.015E-01	1.053E-01	NOT IDENT.
RN-219	2.202E-02	3.757E-01	3.759E-01	FAIL ABUN
RA-223	2.132E-02	6.863E-01	6.864E-01	FAIL ABUN
AC-225	6.284E-01	2.246E+00	2.264E+00	NOT IDENT.
AC-227	1.649E-01	2.619E-01	2.722E-01	FAIL ABUN
TH-227	1.649E-01	2.619E-01	2.722E-01	FAIL ABUN
AC-228	9.539E-01	2.900E-01	5.187E-01	FAIL ABUN
RA-228	9.539E-01	2.900E-01	5.187E-01	FAIL ABUN
TH-231	2.132E-02	6.863E-01	6.864E-01	FAIL ABUN
TH-232	9.539E-01	2.900E-01	5.187E-01	FAIL ABUN
PA-233	1.945E-02	6.121E-02	6.183E-02	FAIL ABUN
PA-234	-1.504E-01	3.282E-01	3.352E-01	FAIL ABUN
PA-234M	1.368E+00	5.118E+00	5.155E+00	FAIL ABUN
U-235	1.775E-01	2.178E-01	2.320E-01	FAIL ABUN
NP-237	1.945E-02	6.121E-02	6.183E-02	FAIL ABUN
NP-238	1.165E+04	1.327E+04	1.427E+04	SHORT HLIF
NP-239	-8.572E-02	2.832E-01	2.858E-01	FAIL ABUN
PU-239	3.473E+02	3.521E+02	3.853E+02	NOT IDENT.
AM-241	1.656E-01	2.071E-01	2.201E-01	NOT IDENT.
CM-243	-8.716E-02	1.105E-01	1.172E-01	FAIL ABUN
BK-247	-5.119E-03	8.801E-02	8.804E-02	NOT IDENT.
CM-247	-7.946E-03	3.515E-02	3.533E-02	FAIL ABUN
CF-249	-7.161E-03	4.255E-02	4.267E-02	FAIL ABUN
CF-251	-2.564E-02	1.318E-01	1.324E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	68.7367	85.43	128.3830	131.20	76.4268
45.60	58.1085	86.55	120.8223	133.02	59.9724
46.54	74.3443	86.79	120.9206	133.52	69.6520
49.72	0.0000	86.94	120.9829	136.00	72.4814
51.35	72.6401	87.09	121.0443	136.47	64.0964
51.87	80.1166	87.57	121.2417	140.51	0.0000
52.39	71.8084	88.03	136.5651	143.76	77.4849
52.97	68.3562	88.34	145.8680	144.24	66.4882
53.44	74.3283	88.47	145.9322	145.44	96.2979
54.07	79.1631	89.96	125.4029	152.43	91.1017
57.36	0.0000	1093.63	146.9872	153.25	87.9134
57.53	72.0694	91.11	137.9692	323.87	94.8058
57.98	78.7865	92.59	105.0484	156.02	92.6447
59.27	62.9036	93.35	105.3063	158.56	86.3676
59.32	50.3345	94.56	105.7146	159.00	94.9215
59.54	47.8661	94.65	105.7445	162.33	61.4414
60.96	57.0497	94.67	105.7512	162.66	57.3843
61.17	57.1035	94.87	83.5030	163.33	66.6972
62.93	81.5302	97.43	76.9202	165.86	68.3292
63.29	81.6589	98.43	73.1550	176.31	80.7078
63.58	81.7620	98.44	73.1570	176.60	78.9972
64.28	82.0104	99.53	79.9757	177.52	87.0490
66.73	97.4930	100.11	86.7016	181.07	0.0000
67.24	93.7925	102.03	70.6475	181.52	70.4311
125.81	92.6595	103.18	78.6432	184.41	75.7075
67.75	92.6855	103.37	84.2290	143.76	75.8890
68.89	99.3518	105.21	70.2002	193.51	68.8101
69.67	112.4971	105.31	71.3354	197.03	74.7020
70.82	114.9999	106.12	72.6207	198.01	72.0920
70.83	115.0052	106.47	74.9313	201.83	66.1362
72.81	113.2451	109.28	78.9182	203.43	72.7638
72.87	118.9355	111.00	91.7628	205.31	65.6033
74.66	119.7626	111.76	0.0000	210.85	104.4440
74.82	119.8362	114.06	92.5420	215.65	75.1872
74.97	119.9052	116.30	0.0000	218.12	62.2758
77.11	120.8793	116.74	82.8589	222.11	75.0148
78.74	121.6129	119.76	62.6447	227.09	70.8143
79.69	122.0369	121.12	62.8680	227.38	77.5475
80.03	122.1849	121.22	68.7067	228.16	0.0000
80.12	122.2276	121.78	65.3084	228.18	77.6431
80.19	122.2584	122.06	71.1912	116.74	77.6431
80.57	122.4264	122.92	83.0455	235.69	69.8057
81.00	122.6171	123.07	76.0573	235.96	58.1952
81.07	122.6479	265.00	77.3483	238.63	80.8233
81.75	122.9466	125.81	77.7682	238.98	0.0000
82.47	110.4883	127.23	83.9580	240.99	81.1045
83.79	93.6584	127.91	80.5479	242.00	81.2244
84.00	85.3958	129.30	66.5617	244.70	61.8945

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	68.5392	344.28	50.0400	563.25	39.2642
252.80	69.5720	345.93	36.7611	564.24	0.0000
254.15	0.0000	351.06	34.7230	569.33	26.2872
256.23	59.9197	351.93	34.7545	946.00	29.3239
260.90	0.0000	355.39	0.0000	569.70	29.3275
264.66	62.1319	356.01	50.6671	583.19	31.6405
264.80	62.1444	364.49	43.1636	584.27	31.6641
265.00	59.1284	366.42	0.0000	595.83	39.1156
269.46	61.0095	372.51	44.6621	427.87	44.8440
270.03	61.0559	375.05	40.1839	602.52	0.0000
271.23	61.1523	377.52	47.1885	604.72	33.1328
273.65	55.2140	356.01	61.3815	607.14	39.4078
276.40	59.5175	388.16	53.4991	609.32	39.4635
277.37	67.8127	388.63	44.2150	610.33	39.4902
277.60	67.8329	391.69	44.6382	614.28	40.0078
278.00	67.8678	264.66	36.1934	618.01	33.4199
279.20	67.9739	401.81	44.1864	620.36	42.8843
279.54	72.6400	402.40	48.6319	621.93	30.3629
279.70	72.6544	404.85	40.7680	630.19	0.0000
280.46	60.3472	410.95	33.8693	631.29	36.8639
283.69	62.1509	413.71	42.8914	633.25	34.7997
284.31	65.3097	414.70	39.3527	634.78	32.7218
285.41	71.6307	423.72	40.5773	635.95	35.9154
285.90	0.0000	427.09	46.1269	636.99	41.2233
287.50	53.0845	427.87	43.4436	657.50	40.6777
290.67	65.8365	433.94	41.8581	657.76	36.4020
293.27	0.0000	439.40	42.0588	657.90	0.0000
351.93	70.9373	440.45	50.3330	661.66	32.1954
295.96	71.0019	453.88	46.2875	664.57	0.0000
879.38	75.9785	463.37	27.0609	666.33	33.3623
299.98	76.1089	468.07	25.4801	666.50	33.3651
300.09	82.4624	473.00	39.5038	667.71	0.0000
300.13	82.4656	475.06	22.6113	677.62	27.0866
301.36	61.9420	476.78	33.9642	685.70	26.1270
302.85	39.7781	477.60	38.7078	692.65	0.0000
256.23	58.9879	482.18	35.0601	695.00	31.7409
304.85	55.8229	487.02	20.9273	696.49	27.3865
306.78	51.1563	492.35	0.0000	696.51	27.3872
308.46	44.8506	497.08	43.1461	697.00	29.5865
311.90	45.0334	505.52	24.7066	697.30	33.9753
316.51	50.6661	507.63	0.0000	697.49	33.9791
319.41	61.6526	511.00	37.7967	702.65	32.9810
320.08	53.0405	514.00	31.0837	706.68	34.1588
321.04	45.5137	514.00	31.0837	711.68	25.4153
323.87	48.9221	520.40	35.1376	720.70	38.8719
325.23	50.6314	520.69	0.0000	721.93	0.0000
328.76	49.1931	522.65	0.0000	722.78	38.9178
333.37	42.8538	527.90	0.0000	722.91	38.9200
333.97	59.3756	528.26	26.5081	723.31	38.9296
334.37	52.8018	529.59	30.4655	724.19	38.9478
338.28	58.0008	529.87	0.0000	727.33	44.5898
338.32	58.0029	531.02	34.4328	733.00	31.3112
311.90	39.8679	537.26	25.6953	735.93	33.6017
340.48	39.8679	546.56	0.0000	333.97	25.7831
340.55	39.8708	552.55	32.9738	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	28.8039	949.00	24.8553	1384.29	16.6434
747.24	26.1460	667.71	0.0000	1408.01	14.6692
748.06	21.6475	962.31	21.6656	1434.09	18.7271
752.31	28.0256	964.08	20.0146	1435.80	20.7086
753.82	27.1436	966.17	20.0322	1457.56	0.0000
756.73	30.8108	911.20	26.7422	1460.82	11.9214
756.80	30.8125	983.53	15.1355	1489.16	14.0234
884.68	30.3231	984.45	0.0000	1505.03	15.0934
765.81	38.2450	1274.44	33.4770	1584.12	19.5435
766.42	38.2573	1001.03	25.4114	1596.21	16.5117
766.84	38.2655	1002.74	30.5156	1620.50	8.3096
772.60	0.0000	1004.73	34.6126	1621.92	10.3910
776.52	33.5774	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	11.6378
778.90	32.0913	1028.54	0.0000	1750.46	0.0000
783.70	32.1708	1037.84	19.6049	1764.49	1.8474
788.74	32.2554	1038.76	0.0000	1063.66	22.6628
792.07	9.2314	631.29	22.7799	1771.35	8.6357
795.86	30.8317	1048.07	26.9382	1791.20	0.0000
810.06	22.3594	1049.04	19.6930	1808.65	9.3366
810.29	21.4300	1050.41	25.9253	1810.72	0.0000
344.28	21.4317	1063.66	14.5947	1836.06	13.1567
810.76	27.0268	1077.00	22.0059		
815.77	21.4889	1077.34	24.1051		
1048.07	23.3899	1085.87	22.0818		
832.01	24.4886	1093.63	22.1474		
834.85	34.8980	1099.45	24.3106		
835.71	31.1381	1112.07	15.9309		
836.80	0.0000	1112.84	17.7059		
846.75	0.0000	1115.54	21.2695		
846.77	28.4597	1120.29	30.1844		
856.80	22.2424	1120.55	30.1872		
860.56	25.7838	1221.41	26.6443		
871.09	23.0338	1129.67	24.5891		
873.19	29.7815	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	20.6459	1173.23	30.4145		
880.51	18.2087	1177.95	23.9368		
881.60	22.1830	1189.05	26.2172		
883.24	32.8171	1204.77	30.7563		
884.68	28.9761	1221.41	23.0164		
889.28	22.5848	1231.02	20.5854		
894.76	32.9923	1235.36	26.9598		
898.04	29.1548	1238.28	25.3996		
900.72	33.3608	1260.41	0.0000		
903.28	21.1070	1271.87	17.6609		
911.20	17.9238	1274.44	17.4977		
912.08	17.9310	1274.54	22.4971		
923.98	0.0000	1291.59	17.9111		
926.50	19.6880	1298.22	0.0000		
929.11	29.5664	1312.11	13.2862		
935.54	18.7787	1332.49	14.0102		
937.49	27.6979	1362.66	0.0000		
944.13	16.8659	1365.19	18.9524		
946.00	24.8230	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:15:31.24

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299032.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM19.CNF;964
Background date    : 28-JUL-2024 11:25:05
Sample date       : 26-JUN-2024 12:00:00 Acquisition date : 31-JUL-2024 16:12:36
Sample ID        : G674299032 Sample quantity : 1.16020E+02 GRAM
Detector name    : GAM19 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.39 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
```

BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.09*	142	436	1.00	126.32	123	8	3.96E-02	26.9	
2	2	74.78	504	433	1.00	149.69	145	13	1.40E-01	7.9	1.87E+00
3	2	77.06	870	422	0.98	154.26	145	13	2.42E-01	5.2	
4	0	83.71*	160	377	1.20	167.55	165	7	4.46E-02	21.7	
5	0	87.00	291	509	1.12	174.14	171	8	8.10E-02	14.5	
6	0	92.70*	357	456	1.30	185.53	183	7	9.91E-02	11.4	
7	0	98.39	50	270	1.22	196.90	194	7	1.39E-02	56.6	
8	0	108.42	70	358	1.94	216.97	212	9	1.95E-02	50.2	
9	0	134.52	55	233	1.29	269.16	267	6	1.53E-02	45.9	
10	0	143.67*	92	409	1.13	287.46	282	10	2.56E-02	42.7	
11	0	154.01	36	321	1.13	308.13	305	7	1.00E-02	84.0	
12	2	184.16	49	105	0.91	368.43	367	10	1.36E-02	30.5	2.82E+00
13	2	186.01*	556	285	1.10	372.11	367	10	1.54E-01	6.7	
14	0	200.61	74	239	2.34	401.33	399	8	2.05E-02	38.0	
15	2	209.35	42	118	0.96	418.80	417	12	1.17E-02	38.9	1.29E+00
16	2	212.00	68	223	1.40	424.09	417	12	1.90E-02	39.9	
17	3	238.65*	400	248	1.00	477.39	473	16	1.11E-01	7.8	2.15E+00
18	3	241.98	563	212	1.16	484.06	473	16	1.56E-01	6.2	
19	0	258.27	90	263	1.11	516.63	510	12	2.51E-02	37.6	
20	0	269.68	85	249	1.53	539.43	535	10	2.37E-02	36.2	
21	0	295.21*	1308	162	1.21	590.50	586	10	3.63E-01	3.3	
22	0	299.89	42	156	0.92	599.86	597	9	1.16E-02	56.1	
23	0	328.15	19	150	1.27	656.37	653	7	5.35E-03	107.5	
24	0	338.14*	90	112	0.93	676.35	673	7	2.50E-02	22.5	
25	0	351.92*	2175	206	1.21	703.90	697	14	6.04E-01	2.6	
26	0	453.96	18	99	1.37	907.96	905	10	5.02E-03	105.1	
27	4	460.49	45	34	1.68	921.01	918	15	1.25E-02	25.7	2.28E+00
28	4	462.84	45	62	1.52	925.72	918	15	1.26E-02	37.5	
29	0	510.81*	49	123	1.63	1021.64	1016	11	1.36E-02	49.9	
30	0	561.33	22	50	0.92	1122.68	1119	8	6.12E-03	60.2	
31	0	583.65*	120	123	1.78	1167.31	1162	15	3.33E-02	23.0	
32	0	609.37*	1577	86	1.34	1218.76	1213	14	4.38E-01	2.8	
33	0	661.84	73	63	1.11	1323.68	1317	12	2.03E-02	24.6	
34	0	666.04	47	47	1.60	1332.08	1328	10	1.30E-02	31.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	720.16	10	42	0.99	1440.31	1436	8	2.90E-03	111.7	
36	0	727.18	41	33	2.05	1454.34	1451	8	1.15E-02	28.3	
37	0	768.26	131	51	1.70	1536.51	1530	11	3.65E-02	13.7	
38	0	786.85	37	74	0.62	1573.68	1566	13	1.02E-02	52.0	
39	0	806.43	27	79	1.63	1612.83	1604	15	7.49E-03	74.3	
40	0	861.39*	21	28	1.86	1722.75	1720	8	5.71E-03	50.5	
41	1	911.18*	97	40	1.84	1822.33	1815	32	2.70E-02	16.4	1.08E+00
42	1	918.53	24	35	1.84	1837.04	1815	32	6.67E-03	53.0	
43	0	934.69	72	58	2.06	1869.35	1862	13	2.00E-02	24.8	
44	0	963.77	27	48	1.39	1927.50	1922	11	7.39E-03	54.6	
45	0	969.42*	64	47	2.45	1938.80	1933	10	1.79E-02	23.9	
46	0	1003.54*	29	52	5.80	2007.04	1996	18	8.02E-03	62.7	
47	10	1060.45	15	12	1.66	2120.86	2118	15	4.20E-03	43.8	1.19E+00
48	0	1090.61	29	9	3.20	2181.17	2177	9	7.98E-03	26.6	
49	0	1109.42	16	22	1.50	2218.80	2212	11	4.55E-03	60.6	
50	0	1120.49	326	65	1.89	2240.94	2234	18	9.05E-02	8.0	
51	0	1155.44	50	43	2.51	2310.84	2302	17	1.39E-02	33.0	
52	0	1238.39	119	38	1.14	2476.74	2471	13	3.30E-02	14.2	
53	0	1280.84	35	26	1.48	2561.63	2554	15	9.75E-03	36.0	
54	1	1290.21	23	14	2.05	2580.37	2577	14	6.33E-03	28.7	2.61E+00
55	1	1293.02	16	14	1.86	2586.00	2577	14	4.33E-03	63.4	
56	0	1361.99	8	8	1.38	2723.94	2721	6	2.27E-03	63.8	
57	0	1377.78*	121	10	2.08	2755.52	2749	13	3.37E-02	10.6	
58	0	1385.97	40	9	4.23	2771.89	2765	16	1.10E-02	24.9	
59	0	1397.45*	10	17	1.00	2794.85	2786	12	2.88E-03	87.9	
60	0	1402.61	29	34	2.20	2805.17	2798	15	8.08E-03	45.6	
61	0	1408.02	37	20	2.81	2815.99	2812	10	1.03E-02	27.0	
62	0	1424.38	16	6	0.73	2848.71	2843	11	4.31E-03	38.8	
63	0	1461.08*	224	24	2.00	2922.11	2914	16	6.21E-02	8.4	
64	0	1509.73	46	22	2.78	3019.43	3011	18	1.27E-02	28.3	
65	0	1544.72	14	24	0.90	3089.41	3079	14	3.87E-03	79.8	
66	0	1631.37	5	7	1.01	3262.71	3256	9	1.42E-03	101.7	
67	0	1661.99	12	13	1.54	3323.95	3318	10	3.42E-03	60.9	
68	0	1688.04	10	2	2.37	3376.06	3371	9	2.72E-03	42.2	
69	0	1729.48	82	6	2.09	3458.94	3450	15	2.28E-02	13.2	
70	0	1764.69	280	8	2.55	3529.36	3522	16	7.78E-02	6.4	
71	0	1847.32	36	6	1.75	3694.63	3687	14	9.90E-03	22.9	
72	0	1898.16*	9	10	2.20	3796.32	3787	13	2.41E-03	82.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299032.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:00:00	Acquisition date	: 31-JUL-2024 16:12:36
Sample ID	: G674299032	Sample quantity	: 116.02 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA19	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:01.39 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	211	10.66*	1.182E+00	1.085E+01	1.085E+01	16.75
CD-109	88.03	311	3.70*	5.992E+00	9.086E+00	9.579E+00	29.08
TE-125M	109.28	74	0.27*	6.838E+00	2.601E+01	3.978E+01	100.37
SN-126	64.28	154	9.60	3.283E+00	3.164E+00	3.164E+00	53.73
	86.94	311	8.90	5.992E+00	3.777E+00	3.777E+00	29.08
	87.57	311	37.00*	5.992E+00	9.086E-01	9.086E-01	29.08
BA-137M	661.66	72	89.90*	2.334E+00	2.208E-01	2.212E-01	49.29
CS-137	661.66	72	85.10*	2.334E+00	2.332E-01	2.337E-01	49.29
CE-144	80.12	-----	1.36	5.424E+00	-----	Line Not Found	-----
	133.52	58	11.09*	6.808E+00	4.937E-01	5.378E-01	91.74
TL-208	277.37	-----	6.60	4.498E+00	-----	Line Not Found	-----
	583.19	118	85.00*	2.582E+00	3.477E-01	3.477E-01	46.08
	860.56	20	12.50	1.868E+00	5.505E-01	5.505E-01	101.00
BI-211	72.87	-----	1.23	4.634E+00	-----	Line Not Found	-----
	351.06	2189	12.92*	3.784E+00	2.898E+01	2.898E+01	5.14
BI-212	727.33	40	6.67*	2.159E+00	1.815E+00	1.815E+00	56.69
	1620.50	-----	1.47	1.094E+00	-----	Line Not Found	-----
PB-212	74.82	542	10.28	4.862E+00	7.019E+00	7.019E+00	15.82
	77.11	934	17.10	5.116E+00	6.906E+00	6.906E+00	10.31
	238.63	410	43.60*	5.004E+00	1.215E+00	1.215E+00	15.54
	300.09	42	3.30	4.252E+00	1.950E+00	1.950E+00	112.15
BI-214	609.32	1549	45.49*	2.495E+00	8.831E+00	8.831E+00	5.64
	1120.29	311	14.92	1.480E+00	9.126E+00	9.127E+00	15.94
	1764.49	262	15.30	1.036E+00	1.070E+01	1.070E+01	12.78
PB-214	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.218E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.859E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
RN-222	609.32	1549	45.49*	2.495E+00	8.831E+00	8.831E+00	5.64
	1120.29	311	14.92	1.480E+00	9.126E+00	9.127E+00	15.94
	1764.49	262	15.30	1.036E+00	1.070E+01	1.070E+01	12.78
RA-224	240.99	576	4.10*	4.956E+00	1.834E+01	1.834E+01	12.37
RA-226	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.218E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.859E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
AC-228	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01
	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74
	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
RA-228	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01
	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
	74.82	542	10.28	4.862E+00	7.019E+00	7.019E+00	15.82
	77.11	934	17.10	5.116E+00	6.906E+00	6.906E+00	10.31
	238.63	410	43.60*	5.004E+00	1.215E+00	1.215E+00	15.54
TH-230	300.09	42	3.30	4.252E+00	1.950E+00	1.950E+00	112.15
	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.217E+01	10.31
	87.09	311	3.41	5.992E+00	9.859E+00	9.859E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
PA-231	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
	283.69	-----	1.70	4.426E+00	-----	Line Not Found	-----
	301.36	42	5.35*	4.252E+00	1.203E+00	1.203E+00	112.15
TH-232	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01
	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74
TH-234	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
	63.29	154	3.70*	3.283E+00	8.210E+00	8.210E+00	53.73
	92.59	380	4.23	6.339E+00	9.169E+00	9.169E+00	22.84
U-234	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.217E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.858E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
U-235	89.96	-----	3.47	6.185E+00	-----	Line Not Found	-----
	93.35	380	5.60	6.339E+00	6.926E+00	6.926E+00	22.84
	143.76	96	10.96*	6.679E+00	8.519E-01	8.519E-01	85.33
	163.33	-----	5.08	6.327E+00	-----	Line Not Found	-----
	185.72	575	57.20	5.891E+00	1.105E+00	1.105E+00	13.30
U-238	205.31	-----	5.01	5.539E+00	-----	Line Not Found	-----
	63.29	154	3.70*	3.283E+00	8.210E+00	8.210E+00	53.73
	92.59	380	4.23	6.339E+00	9.169E+00	9.169E+00	22.84
AM-243	43.53	-----	5.90	6.010E-01	-----	Line Not Found	-----
ANH-511	74.66	542	67.20*	4.862E+00	1.074E+00	1.074E+00	15.82
	511.00	49	100.00*	2.865E+00	1.099E-01	1.099E-01	99.87

Flag: "*" = Keyline

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299032.CNF;1 *
* Acquisition date : 31-JUL-2024 16:12:36 Sensitivity : 3.000 *
* Detector ID : GAM19 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.39 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:00:00 Analyst initials: MXR1 *
* Sample ID : G674299032 Sample Quantity : 1.1602E+02 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.085E+01	1.780E+00	1.104E+00
CD-109	9.579E+00	2.730E+00	2.730E+00
TE-125M	3.978E+01	3.913E+01	3.465E+01
SN-126	9.086E-01	2.589E-01	2.602E-01
BA-137M	2.212E-01	1.069E-01	8.607E-02
CS-137	2.337E-01	1.129E-01	9.093E-02
CE-144	5.378E-01	4.835E-01	6.173E-01
TL-208	3.477E-01	1.570E-01	1.055E-01
BI-211	2.898E+01	1.458E+00	5.679E-01
BI-212	1.815E+00	1.008E+00	1.334E+00
PB-212	1.215E+00	1.851E-01	1.871E-01
BI-214	8.831E+00	4.885E-01	2.014E-01
PB-214	1.052E+01	5.293E-01	2.065E-01
RN-222	8.831E+00	4.885E-01	2.014E-01
RA-224	1.834E+01	2.224E+00	2.005E+00
RA-226	1.052E+01	5.293E-01	2.065E-01
AC-228	1.324E+00	4.248E-01	4.116E-01
RA-228	1.324E+00	4.248E-01	4.116E-01
TH-228	1.215E+00	1.851E-01	1.871E-01
TH-230	1.052E+01	5.293E-01	2.065E-01
PA-231	1.203E+00	1.322E+00	1.292E+00
TH-232	1.324E+00	4.248E-01	4.116E-01
TH-234	8.210E+00	4.323E+00	3.994E+00
U-234	1.052E+01	5.293E-01	2.065E-01
U-235	8.519E-01	7.124E-01	6.000E-01
U-238	8.210E+00	4.323E+00	3.994E+00
AM-243	1.074E+00	1.664E-01	1.730E-01
ANH-511	1.099E-01	1.076E-01	9.295E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.110E-01	6.388E-01	1.205E+00	NOT IDENT.
NA-22	1.712E-02	6.245E-02	1.131E-01	NOT IDENT.

NA-24	0.000E+00	5.051E+15	0.000E+00	SHORT HLIF
AL-26	-2.117E-02	4.223E-02	7.542E-02	NOT IDENT.
SC-46	1.216E-02	8.080E-02	1.477E-01	FAIL ABUN
V-48	-4.141E-02	2.961E-01	5.200E-01	NOT IDENT.
CR-51	-7.521E-02	9.628E-01	1.800E+00	NOT IDENT.
MN-52	2.842E+00	4.621E+00	9.748E+00	FAIL ABUN
MN-54	-2.043E-02	6.848E-02	1.188E-01	NOT IDENT.
CO-56	3.389E-02	6.955E-02	1.346E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.492E-02	4.636E-02	8.065E-02	NOT IDENT.
CO-58	1.147E-02	8.098E-02	1.347E-01	NOT IDENT.
FE-59	-7.216E-02	1.480E-01	2.715E-01	FAIL ABUN
CO-60	-1.298E-02	5.209E-02	9.837E-02	NOT IDENT.
ZN-65	2.530E-02	1.330E-01	2.357E-01	NOT IDENT.
GE-68	-1.929E-01	1.741E+00	3.353E+00	NOT IDENT.
AS-73	1.438E+00	1.755E+00	3.344E+00	NOT IDENT.
AS-74	1.850E-01	3.122E-01	6.061E-01	NOT IDENT.
SE-75	1.727E-02	8.971E-02	1.551E-01	FAIL ABUN
BR-77	0.000E+00	1.003E+04	0.000E+00	SHORT HLIF
SR-82	9.077E-01	7.744E-01	1.634E+00	NOT IDENT.
RB-83	-9.184E-02	1.221E-01	2.106E-01	NOT IDENT.
RB-84	4.748E-02	1.848E-01	3.415E-01	NOT IDENT.
KR-85	4.202E+00	1.232E+01	2.107E+01	NOT IDENT.
SR-85	2.732E-02	8.059E-02	1.379E-01	NOT IDENT.
RB-86	-3.726E-02	2.131E+00	4.167E+00	NOT IDENT.
Y-88	-2.258E-02	6.001E-02	1.101E-01	NOT IDENT.
Y-91	-2.702E+00	3.099E+01	5.974E+01	NOT IDENT.
NB-94	5.330E-02	5.353E-02	1.065E-01	NOT IDENT.
NB-95	3.849E-02	8.759E-02	1.508E-01	NOT IDENT.
NB-95M	-2.179E-01	3.285E-01	4.903E-01	NOT IDENT.
ZR-95	1.354E-01	1.351E-01	2.735E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.086E+15	0.000E+00	SHORT HLIF
MO-99	0.000E+00	3.056E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	7.812E+40	0.000E+00	SHORT HLIF
RH-101	-2.320E-02	5.454E-02	9.416E-02	NOT IDENT.
RH-102	1.246E-02	8.116E-02	1.523E-01	FAIL ABUN
RU-103	8.327E-02	8.136E-02	1.656E-01	FAIL ABUN
RH-106	2.316E-01	4.909E-01	9.472E-01	NOT IDENT.
RU-106	2.316E-01	4.909E-01	9.472E-01	NOT IDENT.
AG-108M	-1.567E-02	4.750E-02	8.560E-02	NOT IDENT.
AG-110	2.849E-01	1.247E+00	2.121E+00	NOT IDENT.
AG-110M	6.644E-03	9.085E-02	1.633E-01	NOT IDENT.
SN-113	-9.099E-02	8.347E-02	1.434E-01	NOT IDENT.
CD-115	0.000E+00	9.153E+03	0.000E+00	SHORT HLIF
SN-117M	-1.019E-01	2.776E-01	4.742E-01	NOT IDENT.
SB-122	0.000E+00	5.209E+02	0.000E+00	SHORT HLIF
TE-123M	1.749E-02	5.714E-02	1.011E-01	NOT IDENT.
SB-124	-6.605E-02	2.084E-01	3.262E-01	NOT IDENT.
SB-125	-1.124E-01	1.568E-01	2.753E-01	FAIL ABUN
I-126	0.000E+00	1.563E+00	2.427E+00	FAIL ABUN
SB-126	4.056E-01	8.877E-01	1.305E+00	FAIL ABUN
SB-127	-2.146E+00	7.611E+01	1.389E+02	NOT IDENT.
I-131	-3.846E-01	1.034E+00	1.886E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	1.041E+02	0.000E+00	SHORT HLIF
BA-133	6.169E-03	7.070E-02	1.204E-01	NOT IDENT.
I-133	0.000E+00	9.107E+10	0.000E+00	SHORT HLIF
CS-134	4.337E-02	6.655E-02	1.289E-01	NOT IDENT.
I-135	0.000E+00	8.923E+37	0.000E+00	SHORT HLIF
CS-136	-1.900E-01	5.180E-01	8.799E-01	FAIL ABUN
LA-138	4.887E-02	9.200E-02	1.906E-01	NOT IDENT.
CE-139	5.449E-03	6.072E-02	1.059E-01	NOT IDENT.
BA-140	-5.456E-01	1.260E+00	2.236E+00	NOT IDENT.
LA-140	-3.047E-01	4.351E-01	7.391E-01	FAIL ABUN
CE-141	4.456E-02	1.785E-01	2.933E-01	NOT IDENT.
CE-143	0.000E+00	6.884E+06	0.000E+00	SHORT HLIF
PM-144	-3.555E-02	5.542E-02	9.423E-02	NOT IDENT.
PR-144	-2.641E+00	4.197E+00	7.145E+00	NOT IDENT.
PM-146	5.784E-02	1.192E-01	1.371E-01	FAIL ABUN
ND-147	-2.595E+00	3.478E+00	5.986E+00	NOT IDENT.
PM-147	1.459E+02	1.304E+03	2.319E+03	NOT IDENT.
PM-149	0.000E+00	9.284E+04	0.000E+00	SHORT HLIF
EU-150	-2.218E-02	5.189E-02	8.426E-02	FAIL ABUN
EU-152	6.678E-02	1.670E-01	3.185E-01	FAIL ABUN
GD-153	1.988E-01	2.206E-01	2.587E-01	FAIL ABUN
EU-154	4.521E-02	1.747E-01	3.157E-01	FAIL ABUN
EU-155	1.948E-01	1.830E-01	3.216E-01	FAIL ABUN

TB-160	4.397E-02	3.028E-01	5.488E-01	FAIL ABUN
HO-166M	-3.792E-02	9.890E-02	1.727E-01	FAIL ABUN
TM-171	3.435E+00	3.137E+01	5.807E+01	NOT IDENT.
HF-172	5.913E-02	3.220E-01	5.746E-01	FAIL ABUN
LU-172	3.067E-02	8.929E-02	1.650E-01	FAIL ABUN
LU-176	5.318E-03	4.172E-02	7.906E-02	FAIL ABUN
HF-181	9.928E-02	9.535E-02	1.916E-01	NOT IDENT.
TA-182	-6.282E-02	2.590E-01	4.857E-01	FAIL ABUN
RE-183	2.337E-01	4.068E-01	7.641E-01	NOT IDENT.
RE-184	2.129E-02	2.972E-01	5.418E-01	NOT IDENT.
W-188	1.961E+01	1.742E+01	2.978E+01	FAIL ABUN
IR-192	-3.110E-02	6.921E-02	1.263E-01	FAIL ABUN
HG-203	2.325E-03	9.896E-02	1.679E-01	NOT IDENT.
TL-204	-4.864E-01	8.949E+00	1.499E+01	FAIL ABUN
BI-207	-1.011E-01	1.242E-01	2.764E-01	FAIL ABUN
BI-210	5.775E+00	6.255E+00	1.200E+01	NOT IDENT.
PB-210	5.775E+00	6.255E+00	1.200E+01	NOT IDENT.
PB-211	-7.195E-01	1.301E+00	2.316E+00	NOT IDENT.
BI-213	-9.254E-02	1.490E-01	2.634E-01	NOT IDENT.
RN-219	5.256E-01	7.157E-01	1.386E+00	NOT IDENT.
RA-223	5.744E-01	1.108E+00	2.051E+00	FAIL ABUN
AC-225	-8.542E-01	4.549E+00	7.705E+00	NOT IDENT.
AC-227	3.517E-01	4.708E-01	8.412E-01	FAIL ABUN
TH-227	3.517E-01	4.708E-01	8.412E-01	FAIL ABUN
TH-229	2.626E-01	9.788E-01	1.711E+00	FAIL ABUN
TH-231	5.744E-01	1.108E+00	2.051E+00	FAIL ABUN
PA-233	-5.423E-02	1.049E-01	1.908E-01	FAIL ABUN
PA-234	-4.203E-01	5.415E-01	8.762E-01	FAIL ABUN
PA-234M	1.074E+01	7.890E+00	1.621E+01	NOT IDENT.
NP-237	-5.423E-02	1.049E-01	1.908E-01	FAIL ABUN
NP-238	0.000E+00	2.476E+04	0.000E+00	SHORT HLIF
NP-239	-1.425E-01	4.456E-01	7.776E-01	FAIL ABUN
PU-239	6.873E+01	6.003E+02	1.062E+03	NOT IDENT.
AM-241	1.706E-01	2.745E-01	4.815E-01	NOT IDENT.
CM-243	-1.639E-02	1.713E-01	3.045E-01	FAIL ABUN
BK-247	1.070E-01	1.537E-01	2.556E-01	FAIL ABUN
CM-247	6.092E-02	6.799E-02	1.324E-01	NOT IDENT.
CF-249	2.630E-02	7.103E-02	1.346E-01	NOT IDENT.
CF-251	6.458E-02	2.435E-01	4.271E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	211	10.66*	1.182E+00	1.085E+01	1.085E+01	16.75
CD-109	88.03	311	3.70*	5.992E+00	9.086E+00	9.579E+00	29.08
TE-125M	109.28	74	0.27*	6.838E+00	2.601E+01	3.978E+01	100.37
SN-126	64.28	154	9.60	3.283E+00	3.164E+00	3.164E+00	53.73
	86.94	311	8.90	5.992E+00	3.777E+00	3.777E+00	29.08
	87.57	311	37.00*	5.992E+00	9.086E-01	9.086E-01	29.08
BA-137M	661.66	72	89.90*	2.334E+00	2.208E-01	2.212E-01	49.29
CS-137	661.66	72	85.10*	2.334E+00	2.332E-01	2.337E-01	49.29
CE-144	80.12	-----	1.36	5.424E+00	-----	Line Not Found	-----
	133.52	58	11.09*	6.808E+00	4.937E-01	5.378E-01	91.74
TL-208	277.37	-----	6.60	4.498E+00	-----	Line Not Found	-----
	583.19	118	85.00*	2.582E+00	3.477E-01	3.477E-01	46.08
	860.56	20	12.50	1.868E+00	5.505E-01	5.505E-01	101.00
BI-211	72.87	-----	1.23	4.634E+00	-----	Line Not Found	-----
	351.06	2189	12.92*	3.784E+00	2.898E+01	2.898E+01	5.14
BI-212	727.33	40	6.67*	2.159E+00	1.815E+00	1.815E+00	56.69
	1620.50	-----	1.47	1.094E+00	-----	Line Not Found	-----
PB-212	74.82	542	10.28	4.862E+00	7.019E+00	7.019E+00	15.82
	77.11	934	17.10	5.116E+00	6.906E+00	6.906E+00	10.31
	238.63	410	43.60*	5.004E+00	1.215E+00	1.215E+00	15.54
	300.09	42	3.30	4.252E+00	1.950E+00	1.950E+00	112.15
BI-214	609.32	1549	45.49*	2.495E+00	8.831E+00	8.831E+00	5.64
	1120.29	311	14.92	1.480E+00	9.126E+00	9.127E+00	15.94
	1764.49	262	15.30	1.036E+00	1.070E+01	1.070E+01	12.78
PB-214	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.218E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.859E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
RN-222	609.32	1549	45.49*	2.495E+00	8.831E+00	8.831E+00	5.64
	1120.29	311	14.92	1.480E+00	9.126E+00	9.127E+00	15.94
	1764.49	262	15.30	1.036E+00	1.070E+01	1.070E+01	12.78
RA-224	240.99	576	4.10*	4.956E+00	1.834E+01	1.834E+01	12.37
RA-226	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.218E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.859E+00	29.08
	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
AC-228	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01
	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74
	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
RA-228	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74
	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
	74.82	542	10.28	4.862E+00	7.019E+00	7.019E+00	15.82
	77.11	934	17.10	5.116E+00	6.906E+00	6.906E+00	10.31
TH-230	238.63	410	43.60*	5.004E+00	1.215E+00	1.215E+00	15.54
	300.09	42	3.30	4.252E+00	1.950E+00	1.950E+00	112.15
	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.217E+01	10.31
	87.09	311	3.41	5.992E+00	9.859E+00	9.859E+00	29.08
PA-231	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
	283.69	-----	1.70	4.426E+00	-----	Line Not Found	-----
	301.36	42	5.35*	4.252E+00	1.203E+00	1.203E+00	112.15
TH-232	105.21	-----	1.10	6.781E+00	-----	Line Not Found	-----
	338.32	91	11.27	3.896E+00	1.338E+00	1.338E+00	45.01
	835.71	-----	1.61	1.918E+00	-----	Line Not Found	-----
	911.20	94	25.80*	1.778E+00	1.324E+00	1.324E+00	32.74
	968.97	62	15.80	1.683E+00	1.506E+00	1.506E+00	47.72
TH-234	63.29	154	3.70*	3.283E+00	8.210E+00	8.210E+00	53.73
	92.59	380	4.23	6.339E+00	9.169E+00	9.169E+00	22.84
	74.82	542	5.80	4.862E+00	1.244E+01	1.244E+01	15.82
	77.11	934	9.70	5.116E+00	1.217E+01	1.217E+01	10.31
	87.09	311	3.41	5.992E+00	9.858E+00	9.858E+00	29.08
U-234	242.00	576	7.25	4.956E+00	1.037E+01	1.037E+01	12.37
	295.22	1326	18.42	4.300E+00	1.083E+01	1.083E+01	6.64
	351.93	2189	35.60*	3.784E+00	1.052E+01	1.052E+01	5.14
	89.96	-----	3.47	6.185E+00	-----	Line Not Found	-----
	93.35	380	5.60	6.339E+00	6.926E+00	6.926E+00	22.84
U-235	143.76	96	10.96*	6.679E+00	8.519E-01	8.519E-01	85.33
	163.33	-----	5.08	6.327E+00	-----	Line Not Found	-----
	185.72	575	57.20	5.891E+00	1.105E+00	1.105E+00	13.30
	205.31	-----	5.01	5.539E+00	-----	Line Not Found	-----
	63.29	154	3.70*	3.283E+00	8.210E+00	8.210E+00	53.73
U-238	92.59	380	4.23	6.339E+00	9.169E+00	9.169E+00	22.84
	43.53	-----	5.90	6.010E-01	-----	Line Not Found	-----
	74.66	542	67.20*	4.862E+00	1.074E+00	1.074E+00	15.82
	511.00	49	100.00*	2.865E+00	1.099E-01	1.099E-01	99.87

Flag: "*" = Keyline

Total number of lines in spectrum 72
Number of unidentified lines 26
Number of lines tentatively identified by NID 46 63.89%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.085E+01	1.085E+01	0.182E+01	16.75	
CD-109	461.40D	1.05	9.086E+00	9.579E+00	2.786E+00	29.08	
TE-125M	57.40D	1.53	2.601E+01	3.978E+01	3.993E+01	100.37	
SN-126	2.30E+05Y	1.00	9.086E-01	9.086E-01	2.642E-01	29.08	
BA-137M	30.08Y	1.00	2.208E-01	2.212E-01	1.091E-01	49.29	
CS-137	30.08Y	1.00	2.332E-01	2.337E-01	1.152E-01	49.29	
CE-144	284.91D	1.09	4.937E-01	5.378E-01	4.934E-01	91.74	
TL-208	1.41E+10Y	1.00	3.477E-01	3.477E-01	1.602E-01	46.08	
BI-211	7.04E+08Y	1.00	2.898E+01	2.898E+01	0.149E+01	5.14	
BI-212	1.41E+10Y	1.00	1.815E+00	1.815E+00	1.029E+00	56.69	
PB-212	1.41E+10Y	1.00	1.215E+00	1.215E+00	0.189E+00	15.54	
BI-214	1600.00Y	1.00	8.831E+00	8.831E+00	0.498E+00	5.64	
PB-214	1600.00Y	1.00	1.052E+01	1.052E+01	0.054E+01	5.14	
RN-222	1600.00Y	1.00	8.831E+00	8.831E+00	0.498E+00	5.64	
RA-224	1.41E+10Y	1.00	1.834E+01	1.834E+01	0.227E+01	12.37	
RA-226	1600.00Y	1.00	1.052E+01	1.052E+01	0.054E+01	5.14	
AC-228	1.41E+10Y	1.00	1.324E+00	1.324E+00	0.434E+00	32.74	
RA-228	1.41E+10Y	1.00	1.324E+00	1.324E+00	0.434E+00	32.74	
TH-228	1.41E+10Y	1.00	1.215E+00	1.215E+00	0.189E+00	15.54	
TH-230	7.54E+04Y	1.00	1.052E+01	1.052E+01	0.054E+01	5.14	
PA-231	7.04E+08Y	1.00	1.203E+00	1.203E+00	1.349E+00	112.15	
TH-232	1.41E+10Y	1.00	1.324E+00	1.324E+00	0.434E+00	32.74	
TH-234	4.47E+09Y	1.00	8.210E+00	8.210E+00	4.411E+00	53.73	
U-234	2.45E+05Y	1.00	1.052E+01	1.052E+01	0.054E+01	5.14	
U-235	7.04E+08Y	1.00	8.519E-01	8.519E-01	7.270E-01	85.33	
U-238	4.47E+09Y	1.00	8.210E+00	8.210E+00	4.411E+00	53.73	
AM-243	7370.00Y	1.00	1.074E+00	1.074E+00	0.170E+00	15.82	
ANH-511	1.00E+09Y	1.00	1.099E-01	1.099E-01	1.098E-01	99.87	
Total Activity :			1.831E+02	1.974E+02			

Grand Total Activity : 1.831E+02 1.974E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.71	172	404	1.20	167.55	165	7	4.46E-02	43.4	5.74E+00	T
0	98.39	53	287	1.22	196.90	194	7	1.39E-02	****	6.59E+00	T
0	154.01	38	335	1.13	308.13	305	7	1.00E-02	****	6.50E+00	T
2	184.16	51	109	0.91	368.43	367	10	1.36E-02	61.1	5.93E+00	T
0	200.61	76	247	2.34	401.33	399	8	2.05E-02	76.0	5.62E+00	T
2	209.35	43	122	0.96	418.80	417	12	1.17E-02	77.7	5.47E+00	
2	212.00	70	229	1.40	424.09	417	12	1.90E-02	79.8	5.42E+00	T
0	258.27	92	268	1.11	516.63	510	12	2.51E-02	75.1	4.73E+00	
0	269.68	87	253	1.53	539.43	535	10	2.37E-02	72.3	4.59E+00	T
0	328.15	19	151	1.27	656.37	653	7	5.35E-03	****	3.98E+00	T
0	453.96	18	98	1.37	907.96	905	10	5.02E-03	****	3.13E+00	T
4	460.49	45	34	1.68	921.01	918	15	1.25E-02	51.4	3.10E+00	
4	462.84	45	62	1.52	925.72	918	15	1.26E-02	75.0	3.09E+00	T
0	561.33	22	49	0.92	1122.68	1119	8	6.12E-03	****	2.66E+00	
0	666.04	46	46	1.60	1332.08	1328	10	1.30E-02	62.1	2.32E+00	T
0	720.16	10	41	0.99	1440.31	1436	8	2.90E-03	****	2.18E+00	T
0	768.26	128	49	1.70	1536.51	1530	11	3.65E-02	27.5	2.06E+00	T
0	786.85	36	72	0.62	1573.68	1566	13	1.02E-02	****	2.02E+00	
0	806.43	26	77	1.63	1612.83	1604	15	7.49E-03	****	1.98E+00	
1	918.53	23	34	1.84	1837.04	1815	32	6.67E-03	****	1.77E+00	
0	934.69	69	56	2.06	1869.35	1862	13	2.00E-02	49.6	1.74E+00	T
0	963.77	26	47	1.39	1927.50	1922	11	7.39E-03	****	1.69E+00	T
0	1003.54	28	50	5.80	2007.04	1996	18	8.02E-03	****	1.63E+00	T
10	1060.45	14	11	1.66	2120.86	2118	15	4.20E-03	87.6	1.55E+00	
0	1090.61	27	9	3.20	2181.17	2177	9	7.98E-03	53.1	1.52E+00	
0	1109.42	16	21	1.50	2218.80	2212	11	4.55E-03	****	1.49E+00	
0	1155.44	48	41	2.51	2310.84	2302	17	1.39E-02	66.0	1.44E+00	
0	1238.39	113	36	1.14	2476.74	2471	13	3.30E-02	28.3	1.36E+00	T
0	1280.84	33	25	1.48	2561.63	2554	15	9.75E-03	71.9	1.32E+00	
1	1290.21	22	13	2.05	2580.37	2577	14	6.33E-03	57.4	1.31E+00	T
1	1293.02	15	14	1.86	2586.00	2577	14	4.33E-03	****	1.31E+00	
0	1361.99	8	7	1.38	2723.94	2721	6	2.27E-03	****	1.25E+00	T
0	1377.78	115	9	2.08	2755.52	2749	13	3.37E-02	21.2	1.24E+00	
0	1385.97	37	9	4.23	2771.89	2765	16	1.10E-02	49.7	1.23E+00	
0	1397.45	10	16	1.00	2794.85	2786	12	2.88E-03	****	1.22E+00	
0	1402.61	27	32	2.20	2805.17	2798	15	8.08E-03	91.1	1.22E+00	
0	1408.02	35	19	2.81	2815.99	2812	10	1.03E-02	54.0	1.22E+00	T
0	1424.38	15	5	0.73	2848.71	2843	11	4.31E-03	77.6	1.21E+00	
0	1509.73	43	21	2.78	3019.43	3011	18	1.27E-02	56.7	1.15E+00	
0	1544.72	13	23	0.90	3089.41	3079	14	3.87E-03	****	1.13E+00	
0	1631.37	5	6	1.01	3262.71	3256	9	1.42E-03	****	1.09E+00	
0	1661.99	12	12	1.54	3323.95	3318	10	3.42E-03	****	1.08E+00	
0	1688.04	9	2	2.37	3376.06	3371	9	2.72E-03	84.4	1.06E+00	
0	1729.48	77	6	2.09	3458.94	3450	15	2.28E-02	26.3	1.05E+00	
0	1847.32	33	6	1.75	3694.63	3687	14	9.90E-03	45.8	1.01E+00	
0	1898.16	8	9	2.20	3796.32	3787	13	2.41E-03	****	9.96E-01	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299032.CNF;1 *
* Acquisition date : 31-JUL-2024 16:12:36 Sensitivity : 3.000 *
* Detector ID : GAM19 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.39 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:00:00 Nuclide Library : SOLID *
* Sample ID : G674299032 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1602E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.832E-01
CD-109	1.324E+00
TE-125M	1.660E+01
SN-126	1.262E-01
BA-137M	3.885E-02
CS-137	4.105E-02
CE-144	2.959E-01
TL-208	4.877E-02
BI-211	2.660E-01
BI-212	6.062E-01
PB-212	8.951E-02
BI-214	9.301E-02
PB-214	9.675E-02
RN-222	9.301E-02
RA-224	9.594E-01
RA-226	9.675E-02
AC-228	1.868E-01
RA-228	1.868E-01
TH-228	8.951E-02
TH-230	9.675E-02
PA-231	6.071E-01
TH-232	1.868E-01
TH-234	1.925E+00
U-234	9.675E-02
U-235	2.879E-01
U-238	1.925E+00
AM-243	8.376E-02
ANH-511	4.342E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.584E-01	NOT IDENT.
NA-22	4.979E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF

AL-26	2.917E-02	NOT IDENT.
SC-46	6.741E-02	FAIL ABUN
V-48	2.358E-01	NOT IDENT.
CR-51	8.470E-01	NOT IDENT.
MN-52	4.304E+00	FAIL ABUN
MN-54	5.449E-02	NOT IDENT.
CO-56	6.100E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.869E-02	NOT IDENT.
CO-58	6.106E-02	NOT IDENT.
FE-59	1.180E-01	FAIL ABUN
CO-60	4.225E-02	NOT IDENT.
ZN-65	1.050E-01	NOT IDENT.
GE-68	1.483E+00	NOT IDENT.
AS-73	1.607E+00	NOT IDENT.
AS-74	2.800E-01	NOT IDENT.
SE-75	7.361E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	7.427E-01	NOT IDENT.
RB-83	9.612E-02	NOT IDENT.
RB-84	1.562E-01	NOT IDENT.
KR-85	9.824E+00	NOT IDENT.
SR-85	6.427E-02	NOT IDENT.
RB-86	1.839E+00	NOT IDENT.
Y-88	4.417E-02	NOT IDENT.
Y-91	2.621E+01	NOT IDENT.
NB-94	4.931E-02	NOT IDENT.
NB-95	6.921E-02	NOT IDENT.
NB-95M	2.349E-01	NOT IDENT.
ZR-95	1.255E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.516E-02	NOT IDENT.
RH-102	6.959E-02	FAIL ABUN
RU-103	7.667E-02	FAIL ABUN
RH-106	4.353E-01	NOT IDENT.
RU-106	4.353E-01	NOT IDENT.
AG-108M	3.981E-02	NOT IDENT.
AG-110	9.693E-01	NOT IDENT.
AG-110M	7.439E-02	NOT IDENT.
SN-113	6.690E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.276E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.856E-02	NOT IDENT.
SB-124	1.373E-01	NOT IDENT.
SB-125	1.285E-01	FAIL ABUN
I-126	1.138E+00	FAIL ABUN
SB-126	5.985E-01	FAIL ABUN
SB-127	6.351E+01	NOT IDENT.
I-131	8.821E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.642E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.920E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.957E-01	FAIL ABUN
LA-138	8.423E-02	NOT IDENT.
CE-139	5.088E-02	NOT IDENT.
BA-140	1.030E+00	NOT IDENT.
LA-140	3.137E-01	FAIL ABUN
CE-141	1.408E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
PM-144	4.291E-02	NOT IDENT.
PR-144	3.255E+00	NOT IDENT.
PM-146	6.421E-02	FAIL ABUN
ND-147	2.771E+00	NOT IDENT.
PM-147	1.113E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.980E-02	FAIL ABUN
EU-152	1.506E-01	FAIL ABUN
GD-153	1.242E-01	FAIL ABUN
EU-154	1.389E-01	FAIL ABUN
EU-155	1.545E-01	FAIL ABUN
TB-160	2.523E-01	FAIL ABUN

HO-166M	7.900E-02	FAIL ABUN
TM-171	2.786E+01	NOT IDENT.
HF-172	2.755E-01	FAIL ABUN
LU-172	7.300E-02	FAIL ABUN
LU-176	3.729E-02	FAIL ABUN
HF-181	8.934E-02	NOT IDENT.
TA-182	2.137E-01	FAIL ABUN
RE-183	3.674E-01	NOT IDENT.
RE-184	2.454E-01	NOT IDENT.
W-188	1.418E+01	FAIL ABUN
IR-192	5.951E-02	FAIL ABUN
HG-203	7.987E-02	NOT IDENT.
TL-204	7.234E+00	FAIL ABUN
BI-207	1.307E-01	FAIL ABUN
BI-210	5.768E+00	NOT IDENT.
PB-210	5.768E+00	NOT IDENT.
PB-211	1.090E+00	NOT IDENT.
BI-213	1.212E-01	NOT IDENT.
RN-219	6.541E-01	NOT IDENT.
RA-223	9.709E-01	FAIL ABUN
AC-225	3.687E+00	NOT IDENT.
AC-227	4.012E-01	FAIL ABUN
TH-227	4.012E-01	FAIL ABUN
TH-229	8.207E-01	FAIL ABUN
TH-231	9.709E-01	FAIL ABUN
PA-233	8.990E-02	FAIL ABUN
PA-234	3.958E-01	FAIL ABUN
PA-234M	7.470E+00	NOT IDENT.
NP-237	8.990E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.727E-01	FAIL ABUN
PU-239	5.108E+02	NOT IDENT.
AM-241	2.317E-01	NOT IDENT.
CM-243	1.459E-01	FAIL ABUN
BK-247	1.215E-01	FAIL ABUN
CM-247	6.263E-02	NOT IDENT.
CF-249	6.353E-02	NOT IDENT.
CF-251	2.051E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299032.CNF;1
Acquisition date : 31-JUL-2024 16:12:36 Sensitivity : 3.000
Detector ID : GAM19 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.39 Half life ratio : *****
Sample date : 26-JUN-2024 12:00:00 Nuclide Library : SOLID
Sample ID : G674299032 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1602E+02 GRAM
Quantity Err(%) : 1.7238E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.085E+01	2.031E+00	2.031E+00
CD-109	9.579E+00	2.974E+00	2.974E+00
TE-125M	3.978E+01	3.927E+01	3.927E+01
SN-126	9.086E-01	2.780E-01	2.780E-01
BA-137M	2.212E-01	1.089E-01	1.089E-01
CS-137	2.337E-01	1.150E-01	1.150E-01
CE-144	5.378E-01	4.855E-01	4.855E-01
TL-208	3.477E-01	1.603E-01	1.603E-01
BI-211	2.898E+01	2.820E+00	2.820E+00
BI-212	1.815E+00	1.024E+00	1.024E+00
PB-212	1.215E+00	2.148E-01	2.148E-01
BI-214	8.831E+00	9.580E-01	9.580E-01
PB-214	1.052E+01	1.009E+00	1.009E+00
RN-222	8.831E+00	9.580E-01	9.580E-01
RA-224	1.834E+01	2.765E+00	2.765E+00
RA-226	1.052E+01	1.009E+00	1.009E+00
AC-228	1.324E+00	4.435E-01	4.435E-01
RA-228	1.324E+00	4.435E-01	4.435E-01
TH-228	1.215E+00	2.148E-01	2.148E-01
TH-230	1.052E+01	1.009E+00	1.009E+00
PA-231	1.203E+00	1.349E+00	1.349E+00
TH-232	1.324E+00	4.435E-01	4.435E-01
TH-234	8.210E+00	4.730E+00	4.730E+00
U-234	1.052E+01	1.009E+00	1.009E+00
U-235	8.519E-01	7.159E-01	7.159E-01
U-238	8.210E+00	4.730E+00	4.730E+00
AM-243	1.074E+00	1.988E-01	1.988E-01
ANH-511	1.099E-01	1.080E-01	1.080E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.110E-01	6.389E-01	6.409E-01	NOT IDENT.
NA-22	1.712E-02	6.247E-02	6.294E-02	NOT IDENT.

NA-24	3.281E+15	5.062E+15	5.273E+15	SHORT HLIF
AL-26	-2.117E-02	4.226E-02	4.333E-02	NOT IDENT.
SC-46	1.216E-02	8.081E-02	8.100E-02	FAIL ABUN
V-48	-4.141E-02	2.962E-01	2.968E-01	NOT IDENT.
CR-51	-7.521E-02	9.628E-01	9.634E-01	NOT IDENT.
MN-52	2.842E+00	4.627E+00	4.801E+00	FAIL ABUN
MN-54	-2.043E-02	6.850E-02	6.912E-02	NOT IDENT.
CO-56	3.389E-02	6.962E-02	7.127E-02	FAIL ABUN
MN-56	1.000E+41	2.033E+41	0.000E+00	SHORT HLIF
CO-57	-1.492E-02	4.637E-02	4.686E-02	NOT IDENT.
CO-58	1.147E-02	8.099E-02	8.115E-02	NOT IDENT.
FE-59	-7.216E-02	1.482E-01	1.517E-01	FAIL ABUN
CO-60	-1.298E-02	5.211E-02	5.243E-02	NOT IDENT.
ZN-65	2.530E-02	1.330E-01	1.335E-01	NOT IDENT.
GE-68	-1.929E-01	1.741E+00	1.743E+00	NOT IDENT.
AS-73	1.438E+00	1.782E+00	1.896E+00	NOT IDENT.
AS-74	1.850E-01	3.129E-01	3.238E-01	NOT IDENT.
SE-75	1.727E-02	8.972E-02	9.006E-02	FAIL ABUN
BR-77	6.584E+04	6.787E+04	7.407E+04	SHORT HLIF
SR-82	9.077E-01	7.791E-01	8.800E-01	NOT IDENT.
RB-83	-9.184E-02	1.229E-01	1.297E-01	NOT IDENT.
RB-84	4.748E-02	1.849E-01	1.861E-01	NOT IDENT.
KR-85	4.202E+00	1.232E+01	1.247E+01	NOT IDENT.
SR-85	2.732E-02	8.063E-02	8.156E-02	NOT IDENT.
RB-86	-3.726E-02	2.131E+00	2.131E+00	NOT IDENT.
Y-88	-2.258E-02	6.003E-02	6.089E-02	NOT IDENT.
Y-91	-2.702E+00	3.099E+01	3.102E+01	NOT IDENT.
NB-94	5.330E-02	5.377E-02	5.890E-02	NOT IDENT.
NB-95	3.849E-02	8.767E-02	8.937E-02	NOT IDENT.
NB-95M	-2.179E-01	3.294E-01	3.437E-01	NOT IDENT.
ZR-95	1.354E-01	1.357E-01	1.488E-01	NOT IDENT.
NB-97	1.000E+41	3.847E+41	0.000E+00	SHORT HLIF
ZR-97	3.459E+14	1.086E+15	1.097E+15	SHORT HLIF
MO-99	7.462E+02	3.057E+03	3.075E+03	SHORT HLIF
TC-99M	-1.758E+40	7.815E+40	0.000E+00	SHORT HLIF
RH-101	-2.320E-02	5.472E-02	5.571E-02	NOT IDENT.
RH-102	1.246E-02	8.117E-02	8.137E-02	FAIL ABUN
RU-103	8.327E-02	8.172E-02	8.993E-02	FAIL ABUN
RH-106	2.316E-01	4.915E-01	5.024E-01	NOT IDENT.
RU-106	2.316E-01	4.915E-01	5.024E-01	NOT IDENT.
AG-108M	-1.567E-02	4.752E-02	4.804E-02	NOT IDENT.
AG-110	2.849E-01	1.247E+00	1.254E+00	NOT IDENT.
AG-110M	6.644E-03	9.085E-02	9.090E-02	NOT IDENT.
SN-113	-9.099E-02	8.380E-02	9.330E-02	NOT IDENT.
CD-115	4.886E+03	9.166E+03	9.427E+03	SHORT HLIF
SN-117M	-1.019E-01	2.777E-01	2.815E-01	NOT IDENT.
SB-122	-2.205E+02	5.213E+02	5.306E+02	SHORT HLIF
TE-123M	1.749E-02	5.716E-02	5.770E-02	NOT IDENT.
SB-124	-6.605E-02	2.085E-01	2.106E-01	NOT IDENT.
SB-125	-1.124E-01	1.571E-01	1.651E-01	FAIL ABUN
I-126	2.567E+00	1.586E+00	1.963E+00	FAIL ABUN
SB-126	4.056E-01	8.893E-01	9.079E-01	FAIL ABUN
SB-127	-2.146E+00	7.611E+01	7.611E+01	NOT IDENT.
I-131	-3.846E-01	1.035E+00	1.049E+00	NOT IDENT.
I-132	1.000E+41	4.777E+41	0.000E+00	SHORT HLIF
TE-132	-5.133E+01	1.043E+02	1.068E+02	SHORT HLIF
BA-133	6.169E-03	7.070E-02	7.076E-02	NOT IDENT.
I-133	-3.918E+10	9.154E+10	9.323E+10	SHORT HLIF
CS-134	4.337E-02	6.667E-02	6.948E-02	NOT IDENT.
I-135	-2.630E+37	9.169E+37	0.000E+00	SHORT HLIF
CS-136	-1.900E-01	5.185E-01	5.255E-01	FAIL ABUN
LA-138	4.887E-02	9.210E-02	9.469E-02	NOT IDENT.
CE-139	5.449E-03	6.073E-02	6.078E-02	NOT IDENT.
BA-140	-5.456E-01	1.261E+00	1.285E+00	NOT IDENT.
LA-140	-3.047E-01	4.358E-01	4.569E-01	FAIL ABUN
CE-141	4.456E-02	1.786E-01	1.797E-01	NOT IDENT.
CE-143	1.678E+07	7.023E+06	1.032E+07	SHORT HLIF
PM-144	-3.555E-02	5.553E-02	5.779E-02	NOT IDENT.
PR-144	-2.641E+00	4.204E+00	4.370E+00	NOT IDENT.
PM-146	5.784E-02	1.193E-01	1.221E-01	FAIL ABUN
ND-147	-2.595E+00	3.486E+00	3.677E+00	NOT IDENT.
PM-147	1.459E+02	1.304E+03	1.306E+03	NOT IDENT.
PM-149	-5.641E+04	9.323E+04	9.663E+04	SHORT HLIF
EU-150	-2.218E-02	5.192E-02	5.288E-02	FAIL ABUN
EU-152	6.678E-02	1.671E-01	1.698E-01	FAIL ABUN
GD-153	1.988E-01	2.213E-01	2.388E-01	FAIL ABUN
EU-154	4.521E-02	1.748E-01	1.759E-01	FAIL ABUN
EU-155	1.948E-01	1.839E-01	2.038E-01	FAIL ABUN

TB-160	4.397E-02	3.028E-01	3.034E-01	FAIL ABUN
HO-166M	-3.792E-02	9.897E-02	1.004E-01	FAIL ABUN
TM-171	3.435E+00	3.137E+01	3.141E+01	NOT IDENT.
HF-172	5.913E-02	3.222E-01	3.233E-01	FAIL ABUN
LU-172	3.067E-02	8.937E-02	9.043E-02	FAIL ABUN
LU-176	5.318E-03	4.172E-02	4.179E-02	FAIL ABUN
HF-181	9.928E-02	9.575E-02	1.057E-01	NOT IDENT.
TA-182	-6.282E-02	2.591E-01	2.606E-01	FAIL ABUN
RE-183	2.337E-01	4.079E-01	4.213E-01	NOT IDENT.
RE-184	2.129E-02	2.972E-01	2.974E-01	NOT IDENT.
W-188	1.961E+01	1.761E+01	1.971E+01	FAIL ABUN
IR-192	-3.110E-02	6.926E-02	7.066E-02	FAIL ABUN
HG-203	2.325E-03	9.896E-02	9.897E-02	NOT IDENT.
TL-204	-4.864E-01	8.949E+00	8.952E+00	FAIL ABUN
BI-207	-1.011E-01	1.245E-01	1.325E-01	FAIL ABUN
BI-210	5.775E+00	6.280E+00	6.798E+00	NOT IDENT.
PB-210	5.775E+00	6.280E+00	6.798E+00	NOT IDENT.
PB-211	-7.195E-01	1.302E+00	1.342E+00	NOT IDENT.
BI-213	-9.254E-02	1.492E-01	1.549E-01	NOT IDENT.
RN-219	5.256E-01	7.197E-01	7.577E-01	NOT IDENT.
RA-223	5.744E-01	1.109E+00	1.139E+00	FAIL ABUN
AC-225	-8.542E-01	4.550E+00	4.567E+00	NOT IDENT.
AC-227	3.517E-01	4.737E-01	4.996E-01	FAIL ABUN
TH-227	3.517E-01	4.737E-01	4.996E-01	FAIL ABUN
TH-229	2.626E-01	9.791E-01	9.862E-01	FAIL ABUN
TH-231	5.744E-01	1.109E+00	1.139E+00	FAIL ABUN
PA-233	-5.423E-02	1.050E-01	1.078E-01	FAIL ABUN
PA-234	-4.203E-01	7.250E-01	7.494E-01	FAIL ABUN
PA-234M	1.074E+01	7.949E+00	9.308E+00	NOT IDENT.
NP-237	-5.423E-02	1.050E-01	1.078E-01	FAIL ABUN
NP-238	-8.993E+03	2.478E+04	2.511E+04	SHORT HLIF
NP-239	-1.425E-01	4.458E-01	4.504E-01	FAIL ABUN
PU-239	6.873E+01	6.004E+02	6.012E+02	NOT IDENT.
AM-241	1.706E-01	2.751E-01	2.856E-01	NOT IDENT.
CM-243	-1.639E-02	1.713E-01	1.715E-01	FAIL ABUN
BK-247	1.070E-01	1.553E-01	1.626E-01	FAIL ABUN
CM-247	6.092E-02	6.889E-02	7.416E-02	NOT IDENT.
CF-249	2.630E-02	7.108E-02	7.207E-02	NOT IDENT.
CF-251	6.458E-02	2.437E-01	2.454E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	149.9736	85.43	196.0144	131.20	193.7733
45.60	179.5647	86.55	335.2109	133.02	204.1068
46.54	165.6206	86.79	332.7342	133.52	178.8909
49.72	0.0000	86.94	332.8272	136.00	195.0339
51.35	185.0281	87.09	332.9177	136.47	185.2582
51.87	179.7945	87.57	333.2045	140.51	0.0000
52.39	180.0290	88.03	333.4783	143.76	188.4609
52.97	173.8828	88.34	366.5025	144.24	188.5791
53.44	174.0850	88.47	366.5877	145.44	183.1458
54.07	165.1781	89.96	302.3464	152.43	216.5161
57.36	0.0000	1093.63	245.3322	153.25	219.6226
57.53	189.6890	91.11	308.8960	323.87	214.8192
57.98	184.3307	92.59	254.1074	156.02	184.1231
59.27	190.7682	93.35	254.4395	158.56	201.7792
59.32	190.7901	94.56	201.8503	159.00	181.1496
59.54	190.8872	94.65	201.8812	162.33	189.5408
60.96	203.9431	94.67	201.8874	162.66	200.5751
61.17	210.2606	94.87	209.2646	163.33	191.9590
62.93	232.3269	97.43	194.8241	165.86	191.4276
63.29	232.5118	98.43	177.4375	176.31	173.6838
63.58	232.6608	98.44	177.4416	176.60	169.2837
64.28	259.3286	99.53	164.7057	177.52	186.1804
66.73	241.8164	100.11	146.0973	181.07	0.0000
67.24	247.7538	102.03	154.6237	181.52	191.1094
125.81	254.6113	103.18	194.9849	184.41	190.9647
67.75	250.8616	103.37	180.8969	143.76	191.2344
68.89	242.9258	105.21	158.1173	193.51	174.6740
69.67	256.6290	105.31	158.1423	197.03	152.5473
70.82	247.7113	106.12	173.2331	198.01	159.5380
70.83	247.7173	106.47	211.2437	201.83	157.8758
72.81	272.9554	109.28	170.0109	203.43	181.8120
72.87	272.9880	111.00	185.4630	205.31	182.1582
74.66	312.0567	111.76	0.0000	210.85	158.1512
74.82	312.1559	114.06	195.2316	215.65	142.2713
74.97	312.2502	116.30	0.0000	218.12	169.7393
77.11	313.5668	116.74	188.7928	222.11	150.5479
78.74	303.2668	119.76	198.9580	227.09	126.6317
79.69	250.8122	121.12	184.8146	227.38	146.6045
80.03	216.0430	121.22	188.9955	228.16	0.0000
80.12	216.0821	121.78	197.4625	228.18	160.7998
80.19	265.2859	122.06	197.5422	116.74	160.7998
80.57	270.0103	122.92	167.5974	235.69	201.7031
81.00	312.3508	123.07	167.6330	235.96	189.1431
81.07	312.3924	265.00	200.0845	238.63	163.5318
81.75	249.1953	125.81	174.5580	238.98	0.0000
82.47	257.3311	127.23	197.9473	240.99	163.8792
83.79	221.4821	127.91	179.2655	242.00	164.0266
84.00	221.5669	129.30	202.7183	244.70	123.9126

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	118.7529	344.28	90.9924	563.25	30.6323
252.80	118.3937	345.93	90.7522	564.24	0.0000
254.15	0.0000	351.06	73.3063	569.33	46.8125
256.23	116.7386	351.93	73.3495	946.00	46.8164
260.90	0.0000	355.39	0.0000	569.70	46.8203
264.66	110.3036	356.01	71.3902	583.19	50.0620
264.80	110.3147	364.49	78.3215	584.27	50.0869
265.00	100.2303	366.42	0.0000	595.83	38.5065
269.46	122.9150	372.51	62.9897	427.87	39.5801
270.03	122.9720	375.05	76.2383	602.52	0.0000
271.23	131.6250	377.52	76.3604	604.72	47.5840
273.65	120.4879	356.01	74.9076	607.14	69.9664
276.40	135.8537	388.16	84.8340	609.32	48.6770
277.37	131.0626	388.63	76.9038	610.33	48.6989
277.60	118.8345	391.69	91.2231	614.28	40.3220
278.00	133.5789	264.66	89.0605	618.01	45.8746
279.20	127.5752	401.81	76.6462	620.36	40.9299
279.54	149.6965	402.40	80.2405	621.93	34.9644
279.70	149.7151	404.85	100.0052	630.19	0.0000
280.46	139.9847	410.95	75.2842	631.29	35.1082
283.69	139.1154	413.71	79.8976	633.25	29.1156
284.31	126.8672	414.70	88.9292	634.78	30.1392
285.41	139.3051	423.72	88.5055	635.95	31.1602
285.90	0.0000	427.09	75.1090	636.99	37.2078
287.50	142.0058	427.87	81.4801	657.50	33.4780
290.67	94.0815	433.94	63.5984	657.76	33.4821
293.27	0.0000	439.40	60.1549	657.90	0.0000
351.93	86.1335	440.45	52.8953	661.66	28.9639
295.96	86.1821	453.88	52.3810	664.57	0.0000
879.38	74.7308	463.37	57.2786	666.33	38.1851
299.98	81.4613	468.07	55.5750	666.50	38.1882
300.09	81.4673	473.00	59.4401	667.71	0.0000
300.13	81.4713	475.06	58.5767	677.62	31.7152
301.36	81.5470	476.78	45.6025	685.70	39.0050
302.85	89.9692	477.60	50.2778	692.65	0.0000
256.23	93.8370	482.18	42.9350	695.00	47.3963
304.85	93.8599	487.02	44.9180	696.49	46.3934
306.78	88.5662	492.35	0.0000	696.51	46.3953
308.46	97.0443	497.08	33.8687	697.00	47.4356
311.90	101.4882	505.52	55.2794	697.30	39.1906
316.51	101.8328	507.63	0.0000	697.49	39.1937
319.41	85.1818	511.00	67.2811	702.65	34.1064
320.08	87.7563	514.00	55.5198	706.68	48.6543
321.04	95.4173	514.00	55.5222	711.68	45.6400
323.87	90.3667	520.40	50.4660	720.70	51.5283
325.23	101.6357	520.69	0.0000	721.93	0.0000
328.76	123.5471	522.65	0.0000	722.78	31.2549
333.37	110.7481	527.90	0.0000	722.91	31.2573
333.97	109.9408	528.26	44.9307	723.31	34.3884
334.37	89.5123	529.59	48.7858	724.19	31.2732
338.28	100.0184	529.87	0.0000	727.33	33.3984
338.32	100.0208	531.02	67.9666	733.00	32.4266
311.90	97.6023	537.26	53.7738	735.93	35.6048
340.48	97.6023	546.56	0.0000	333.97	35.6256
340.55	97.6069	552.55	53.2096	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	39.9220	949.00	37.2297	1384.29	9.7904
747.24	30.5022	667.71	0.0000	1408.01	27.5643
748.06	33.6680	962.31	39.0862	1434.09	11.5532
752.31	31.6150	964.08	37.4070	1435.80	13.4847
753.82	42.1777	966.17	44.2384	1457.56	0.0000
756.73	25.3340	911.20	34.0588	1460.82	16.4667
756.80	25.3350	983.53	34.2126	1489.16	14.6201
884.68	31.7542	984.45	0.0000	1505.03	12.5195
765.81	33.3649	1274.44	27.4775	1584.12	14.9203
766.42	36.0212	1001.03	21.7840	1596.21	17.9495
766.84	36.0268	1002.74	21.7956	1620.50	10.0220
772.60	0.0000	1004.73	21.8087	1621.92	16.0400
776.52	17.0156	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	13.0109
778.90	29.8035	1028.54	0.0000	1750.46	0.0000
783.70	28.7897	1037.84	25.5037	1764.49	9.2802
788.74	43.2653	1038.76	0.0000	1063.66	3.3031
792.07	41.0719	631.29	24.4060	1771.35	1.6520
795.86	31.0603	1048.07	32.5573	1791.20	0.0000
810.06	25.8379	1049.04	19.7725	1808.65	7.2781
810.29	29.0698	1050.41	27.9238	1810.72	0.0000
344.28	29.0720	1063.66	21.0234	1836.06	8.3604
810.76	29.0742	1077.00	19.3467		
815.77	32.3633	1077.34	21.1069		
1048.07	25.9160	1085.87	25.3898		
832.01	41.2301	1093.63	15.5504		
834.85	46.7023	1099.45	20.3552		
835.71	53.2349	1112.07	22.7359		
836.80	0.0000	1112.84	27.0045		
846.75	0.0000	1115.54	19.9131		
846.77	23.9936	1120.29	21.3633		
856.80	34.1453	1120.55	21.3647		
860.56	31.2310	1221.41	21.3691		
871.09	38.4906	1129.67	19.6340		
873.19	31.9158	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	40.8045	1173.23	29.8015		
880.51	35.3047	1177.95	19.8918		
881.60	34.2140	1189.05	13.6029		
883.24	37.5458	1204.77	18.2129		
884.68	33.1445	1221.41	21.0347		
889.28	34.3011	1231.02	27.5043		
894.76	37.6897	1235.36	17.6227		
898.04	34.4020	1238.28	27.5555		
900.72	38.8751	1260.41	0.0000		
903.28	30.0146	1271.87	18.5278		
911.20	32.3217	1274.44	14.8311		
912.08	32.3312	1274.54	14.8320		
923.98	0.0000	1291.59	19.5491		
926.50	31.3633	1298.22	0.0000		
929.11	33.6316	1312.11	16.8409		
935.54	30.3311	1332.49	15.0439		
937.49	26.9775	1362.66	0.0000		
944.13	29.2881	1365.19	12.1289		
946.00	42.8304	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:16:15.07

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299033.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM20.CNF;970
Background date    : 28-JUL-2024 11:27:01
Sample date       : 26-JUN-2024 12:05:00 Acquisition date : 31-JUL-2024 16:12:58
Sample ID        : G674299033 Sample quantity : 1.27150E+02 GRAM
Detector name     : GAM20 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:14.17 0.4%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	37.72*	20	83	0.71	75.53	73	6	5.59E-03	77.1	
2	0	40.55	19	69	1.31	81.19	79	5	5.17E-03	70.8	
3	0	43.85	21	85	0.52	87.77	85	6	5.76E-03	73.8	
4	0	46.39*	11	102	1.03	92.85	91	6	3.02E-03	156.2	
5	0	63.26*	41	220	1.08	126.57	121	10	1.13E-02	71.8	
6	3	74.82*	184	183	1.39	149.67	145	16	5.11E-02	15.4	5.18E-01
7	3	77.17	300	155	1.22	154.36	145	16	8.33E-02	9.3	
8	6	84.22*	77	153	1.88	168.45	164	29	2.14E-02	30.4	1.90E+00
9	6	87.31	144	146	1.56	174.62	164	29	4.00E-02	17.2	
10	6	90.07	126	153	1.68	180.13	164	29	3.49E-02	21.9	
11	6	92.86*	142	130	1.46	185.70	164	29	3.96E-02	18.8	
12	0	129.24	18	136	0.62	258.39	254	8	5.00E-03	114.7	
13	0	143.84*	28	123	1.15	287.57	284	9	7.70E-03	75.8	
14	0	185.86*	78	121	1.16	371.54	367	11	2.17E-02	30.7	
15	0	209.02	54	105	1.50	417.82	414	9	1.51E-02	36.8	
16	4	238.52*	482	73	1.19	476.78	472	16	1.34E-01	5.4	8.53E-01
17	4	241.60	154	91	1.88	482.95	472	16	4.28E-02	18.8	
18	0	295.18	164	75	1.40	590.02	583	12	4.56E-02	13.1	
19	0	305.25	27	64	3.49	610.15	605	14	7.57E-03	64.8	
20	0	327.88	39	57	1.12	655.40	651	10	1.08E-02	39.9	
21	0	338.36*	76	85	0.93	676.33	672	10	2.11E-02	26.3	
22	0	351.86*	305	69	1.29	703.32	698	12	8.47E-02	8.0	
23	0	375.31	21	28	1.03	750.20	747	7	5.79E-03	48.2	
24	0	403.04	39	97	7.23	805.62	792	22	1.09E-02	66.8	
25	0	462.76	35	34	1.00	925.03	921	10	9.84E-03	34.6	
26	0	473.89	12	54	3.82	947.28	939	13	3.27E-03	133.1	
27	0	510.70*	61	36	1.94	1020.88	1013	16	1.69E-02	30.2	
28	0	583.17	105	52	1.16	1165.78	1161	12	2.93E-02	16.7	
29	0	609.30*	203	38	1.53	1218.03	1213	11	5.64E-02	9.4	
30	0	727.72	40	20	3.21	1454.85	1445	15	1.12E-02	28.2	
31	5	768.16*	31	13	2.76	1535.73	1529	26	8.50E-03	33.8	1.77E+00
32	5	772.25	21	17	2.77	1543.91	1529	26	5.77E-03	56.4	
33	1	779.77	12	1	1.70	1558.96	1557	13	3.42E-03	28.1	1.30E+00
34	1	782.92	15	6	1.90	1565.26	1557	13	4.26E-03	39.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	860.84	25	13	1.12	1721.13	1715	11	6.92E-03	34.9	
36	0	911.07*	123	16	1.84	1821.62	1813	16	3.43E-02	11.7	
37	0	969.04	57	43	1.10	1937.59	1932	11	1.57E-02	26.3	
38	0	995.80	7	10	0.83	1991.14	1986	10	1.94E-03	92.6	
39	0	1033.12	14	11	2.53	2065.80	2062	10	3.92E-03	50.1	
40	0	1066.63	10	15	0.53	2132.86	2123	12	2.74E-03	84.9	
41	2	1120.20	36	15	2.32	2240.07	2233	23	9.88E-03	29.2	9.79E-01
42	2	1126.16	14	5	1.92	2252.00	2233	23	3.91E-03	38.9	
43	0	1134.94	10	3	0.85	2269.56	2267	6	2.74E-03	42.5	
44	0	1304.86	8	11	3.43	2609.67	2602	12	2.18E-03	94.6	
45	0	1307.91	9	4	1.58	2615.78	2613	6	2.41E-03	54.0	
46	0	1378.41	16	11	1.90	2756.91	2750	12	4.37E-03	50.4	
47	0	1402.14	9	6	1.98	2804.41	2797	11	2.36E-03	63.5	
48	0	1409.63	5	8	0.61	2819.41	2810	11	1.37E-03	121.3	
49	0	1415.07	10	8	3.80	2830.31	2824	12	2.65E-03	70.2	
50	0	1460.70*	456	11	2.32	2921.66	2914	15	1.27E-01	5.0	
51	0	1764.20	52	3	1.44	3529.50	3523	13	1.44E-02	15.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299033.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:05:00	Acquisition date	: 31-JUL-2024 16:12:58
Sample ID	: G674299033	Sample quantity	: 127.15 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA20	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:14.17 0.4%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	433	10.66*	1.267E+00	1.894E+01	1.894E+01	9.96
CD-109	88.03	163	3.70*	7.132E+00	3.648E+00	3.846E+00	34.48
SN-126	64.28	47	9.60	4.714E+00	6.116E-01	6.116E-01	143.52
	86.94	163	8.90	7.132E+00	1.517E+00	1.517E+00	34.48
	87.57	163	37.00*	7.132E+00	3.648E-01	3.648E-01	34.48
TL-208	277.37	-----	6.60	4.980E+00	-----	Line Not Found	-----
	583.19	106	85.00*	2.860E+00	2.586E-01	2.586E-01	33.39
	860.56	25	12.50	2.033E+00	5.700E-01	5.700E-01	69.88
BI-210	46.54	13	4.25*	1.796E+00	9.859E-01	9.889E-01	312.32
PB-210	46.54	13	4.25*	1.796E+00	9.859E-01	9.889E-01	312.32
BI-211	72.87	-----	1.23	5.985E+00	-----	Line Not Found	-----
	351.06	318	12.92*	4.214E+00	3.444E+00	3.444E+00	16.04
BI-212	727.33	40	6.67*	2.366E+00	1.506E+00	1.506E+00	56.43
	1620.50	-----	1.47	1.174E+00	-----	Line Not Found	-----
PB-212	74.82	210	10.28	6.191E+00	1.947E+00	1.947E+00	30.75
	77.11	342	17.10	6.417E+00	1.838E+00	1.838E+00	18.53
	238.63	514	43.60*	5.509E+00	1.264E+00	1.264E+00	10.87
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
BI-214	609.32	204	45.49*	2.757E+00	9.620E-01	9.621E-01	18.88
	1120.29	34	14.92	1.594E+00	8.547E-01	8.548E-01	58.43
	1764.49	49	15.30	1.115E+00	1.682E+00	1.682E+00	31.28
PB-214	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.450E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
RN-222	609.32	204	45.49*	2.757E+00	9.620E-01	9.621E-01	18.88
	1120.29	34	14.92	1.594E+00	8.547E-01	8.548E-01	58.43
	1764.49	49	15.30	1.115E+00	1.682E+00	1.682E+00	31.28
RA-224	240.99	164	4.10*	5.463E+00	4.331E+00	4.331E+00	37.57
RA-226	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.450E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
AC-228	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57
RA-228	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57
TH-228	74.82	210	10.28	6.191E+00	1.947E+00	1.947E+00	30.75
	77.11	342	17.10	6.417E+00	1.838E+00	1.838E+00	18.53

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-229	238.63	514	43.60*	5.509E+00	1.264E+00	1.264E+00	10.87
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
	85.43	87	14.70	6.955E+00	5.049E-01	5.049E-01	60.78
	88.47	163	24.00	7.132E+00	5.624E-01	5.624E-01	34.48
TH-230	193.51	-----	4.41*	6.278E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.961E+00	-----	Line Not Found	-----
	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
TH-232	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.449E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
TH-234	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
U-234	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57
	63.29	47	3.70*	4.714E+00	1.587E+00	1.587E+00	143.52
	92.59	161	4.23	7.373E+00	3.040E+00	3.040E+00	37.62
	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
U-235	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.449E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
U-238	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
	89.96	142	3.47	7.264E+00	3.319E+00	3.319E+00	43.86
	93.35	161	5.60	7.373E+00	2.296E+00	2.296E+00	37.62
	143.76	30	10.96*	7.274E+00	2.257E-01	2.257E-01	151.58
U-238	163.33	-----	5.08	6.883E+00	-----	Line Not Found	-----
	185.72	85	57.20	6.427E+00	1.359E-01	1.359E-01	61.34
	205.31	-----	5.01	6.059E+00	-----	Line Not Found	-----
	63.29	47	3.70*	4.714E+00	1.587E+00	1.587E+00	143.52
PU-239	92.59	161	4.23	7.373E+00	3.040E+00	3.040E+00	37.62
	129.30	20	0.01*	7.522E+00	2.476E+02	2.476E+02	229.33
	375.05	22	0.00	4.022E+00	2.044E+03	2.044E+03	96.40
	413.71	-----	0.00	3.743E+00	-----	Line Not Found	-----
AM-243	43.53	24	5.90	1.387E+00	1.758E+00	1.758E+00	147.65
	74.66	210	67.20*	6.191E+00	2.978E-01	2.978E-01	30.75
CM-247	278.00	-----	3.40	4.972E+00	-----	Line Not Found	-----
	287.50	-----	2.00	4.858E+00	-----	Line Not Found	-----
ANH-511	402.40	40	72.00*	3.817E+00	8.673E-02	8.673E-02	133.52
	511.00	62	100.00*	3.184E+00	1.150E-01	1.150E-01	60.39

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299033.CNF;1
Acquisition date : 31-JUL-2024 16:12:58 Sensitivity : 3.000
Detector ID : GAM20 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:14.17 Half life ratio : *****
Sample date : 26-JUN-2024 12:05:00 Analyst initials: MXR1
Sample ID : G674299033 Sample Quantity : 1.2715E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.894E+01	1.849E+00	7.408E-01
CD-109	3.846E+00	1.300E+00	1.029E+00
SN-126	3.648E-01	1.233E-01	9.786E-02
TL-208	2.586E-01	8.461E-02	7.013E-02
BI-210	9.889E-01	3.027E+00	3.416E+00
PB-210	9.889E-01	3.027E+00	3.416E+00
BI-211	3.444E+00	5.415E-01	3.630E-01
BI-212	1.506E+00	8.331E-01	7.997E-01
PB-212	1.264E+00	1.346E-01	9.304E-02
BI-214	9.621E-01	1.781E-01	1.130E-01
PB-214	1.250E+00	1.965E-01	1.320E-01
RN-222	9.621E-01	1.781E-01	1.130E-01
RA-224	4.331E+00	1.595E+00	9.966E-01
RA-226	1.250E+00	1.965E-01	1.320E-01
AC-228	1.436E+00	3.305E-01	2.681E-01
RA-228	1.436E+00	3.305E-01	2.681E-01
TH-228	1.264E+00	1.346E-01	9.304E-02
TH-229	6.030E-02	4.742E-01	8.465E-01
TH-230	1.250E+00	1.965E-01	1.320E-01
TH-232	1.436E+00	3.305E-01	2.681E-01
TH-234	1.587E+00	2.232E+00	1.749E+00
U-234	1.250E+00	1.965E-01	1.320E-01
U-235	2.257E-01	3.352E-01	3.105E-01
U-238	1.587E+00	2.232E+00	1.749E+00
PU-239	2.476E+02	5.565E+02	5.428E+02
AM-243	2.978E-01	8.977E-02	7.245E-02
CM-247	8.673E-02	1.135E-01	6.499E-02
ANH-511	1.150E-01	6.808E-02	4.668E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	2.250E-01	3.832E-01	7.226E-01	NOT IDENT.
NA-22	-4.293E-02	4.253E-02	6.753E-02	NOT IDENT.

NA-24	0.000E+00	3.007E+15	0.000E+00	SHORT HLIF
AL-26	3.484E-03	2.935E-02	6.439E-02	NOT IDENT.
SC-46	4.710E-03	4.415E-02	8.887E-02	FAIL ABUN
V-48	-1.207E-01	1.603E-01	2.799E-01	NOT IDENT.
CR-51	-6.795E-02	5.704E-01	1.078E+00	NOT IDENT.
MN-52	-1.070E+00	2.428E+00	4.451E+00	NOT IDENT.
MN-54	-5.000E-04	3.834E-02	7.516E-02	NOT IDENT.
CO-56	-2.256E-03	4.391E-02	8.671E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-6.247E-04	2.403E-02	4.324E-02	NOT IDENT.
CO-58	-4.817E-03	4.281E-02	7.876E-02	NOT IDENT.
FE-59	-6.173E-02	1.266E-01	2.284E-01	NOT IDENT.
CO-60	2.851E-02	4.276E-02	9.244E-02	NOT IDENT.
ZN-65	2.580E-02	8.701E-02	1.623E-01	NOT IDENT.
GE-68	4.283E-01	1.116E+00	2.376E+00	NOT IDENT.
AS-73	2.111E-01	6.071E-01	1.172E+00	NOT IDENT.
AS-74	1.369E-01	1.847E-01	3.815E-01	NOT IDENT.
SE-75	-1.153E-02	4.489E-02	8.460E-02	NOT IDENT.
BR-77	0.000E+00	7.289E+03	0.000E+00	SHORT HLIF
SR-82	2.098E-01	5.329E-01	8.545E-01	NOT IDENT.
RB-83	-5.856E-03	6.934E-02	1.310E-01	NOT IDENT.
RB-84	-3.623E-02	9.404E-02	1.774E-01	NOT IDENT.
KR-85	6.978E-01	6.565E+00	1.133E+01	NOT IDENT.
SR-85	4.381E-03	4.294E-02	7.404E-02	NOT IDENT.
RB-86	1.063E+00	1.397E+00	3.141E+00	NOT IDENT.
Y-88	-3.374E-03	4.039E-02	8.199E-02	NOT IDENT.
Y-91	7.759E+00	2.579E+01	5.205E+01	NOT IDENT.
NB-94	-5.276E-04	3.171E-02	5.881E-02	NOT IDENT.
NB-95	1.452E-02	5.560E-02	9.600E-02	NOT IDENT.
NB-95M	1.158E-01	1.350E-01	2.559E-01	NOT IDENT.
ZR-95	-2.618E-02	9.131E-02	1.613E-01	NOT IDENT.
NB-97	0.000E+00	1.601E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.026E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.559E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	4.264E+40	0.000E+00	SHORT HLIF
RH-101	-1.007E-02	3.165E-02	5.068E-02	NOT IDENT.
RH-102	-2.688E-03	5.236E-02	9.748E-02	FAIL ABUN
RU-103	1.252E-02	5.169E-02	1.009E-01	FAIL ABUN
RH-106	5.319E-02	3.149E-01	6.028E-01	NOT IDENT.
RU-106	5.319E-02	3.149E-01	6.028E-01	NOT IDENT.
AG-108M	7.608E-03	2.271E-02	4.588E-02	NOT IDENT.
AG-110	2.382E-01	7.016E-01	1.382E+00	NOT IDENT.
AG-110M	3.482E-03	4.667E-02	9.442E-02	NOT IDENT.
SN-113	-3.504E-02	4.798E-02	8.397E-02	NOT IDENT.
CD-115	0.000E+00	4.917E+03	0.000E+00	SHORT HLIF
SN-117M	4.621E-02	1.386E-01	2.539E-01	NOT IDENT.
SB-122	0.000E+00	3.065E+02	0.000E+00	SHORT HLIF
TE-123M	6.296E-03	2.888E-02	5.239E-02	NOT IDENT.
SB-124	-2.233E-02	8.903E-02	1.749E-01	NOT IDENT.
SB-125	6.374E-02	9.085E-02	1.836E-01	FAIL ABUN
TE-125M	3.645E+00	1.066E+01	1.987E+01	NOT IDENT.
I-126	2.713E-01	5.772E-01	1.157E+00	NOT IDENT.
SB-126	2.348E-01	4.271E-01	7.969E-01	NOT IDENT.
SB-127	3.950E+01	5.177E+01	1.048E+02	FAIL ABUN
I-131	-7.649E-02	5.321E-01	1.010E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.826E+01	0.000E+00	SHORT HLIF
BA-133	-1.287E-02	3.982E-02	6.540E-02	NOT IDENT.
I-133	0.000E+00	4.606E+10	0.000E+00	SHORT HLIF
CS-134	6.888E-02	4.340E-02	9.650E-02	NOT IDENT.
I-135	0.000E+00	5.668E+37	0.000E+00	SHORT HLIF
CS-136	-9.468E-02	2.860E-01	5.360E-01	NOT IDENT.
BA-137M	1.427E-02	2.888E-02	5.915E-02	NOT IDENT.
CS-137	1.508E-02	3.051E-02	6.249E-02	NOT IDENT.
LA-138	-3.357E-02	4.832E-02	8.430E-02	NOT IDENT.
CE-139	-5.404E-03	2.986E-02	5.213E-02	NOT IDENT.
BA-140	-1.629E-01	7.412E-01	1.358E+00	FAIL ABUN
LA-140	-2.797E-01	2.619E-01	3.705E-01	FAIL ABUN
CE-141	2.519E-02	9.113E-02	1.546E-01	NOT IDENT.
CE-143	0.000E+00	2.918E+06	0.000E+00	SHORT HLIF
CE-144	9.157E-02	1.832E-01	3.433E-01	NOT IDENT.
PM-144	1.232E-02	3.954E-02	7.513E-02	NOT IDENT.
PR-144	9.006E-01	2.987E+00	5.669E+00	NOT IDENT.
PM-146	1.344E-02	3.881E-02	7.656E-02	NOT IDENT.
ND-147	-1.432E-01	1.814E+00	3.400E+00	FAIL ABUN
PM-147	-4.054E+02	6.973E+02	1.195E+03	NOT IDENT.
PM-149	0.000E+00	4.503E+04	0.000E+00	SHORT HLIF
EU-150	-2.224E-02	2.842E-02	4.370E-02	FAIL ABUN

EU-152	7.504E-02	9.167E-02	1.873E-01	FAIL ABUN
GD-153	-2.948E-02	8.210E-02	1.349E-01	NOT IDENT.
EU-154	-1.252E-01	1.183E-01	1.854E-01	FAIL ABUN
EU-155	1.116E-01	9.392E-02	1.855E-01	FAIL ABUN
TB-160	-2.156E-02	1.532E-01	2.981E-01	FAIL ABUN
HO-166M	2.660E-02	5.368E-02	1.085E-01	FAIL ABUN
TM-171	-1.688E+01	1.140E+01	1.899E+01	NOT IDENT.
HF-172	-1.733E-02	1.958E-01	3.212E-01	FAIL ABUN
LU-172	-4.015E-02	6.634E-02	1.175E-01	FAIL ABUN
LU-176	2.403E-03	2.181E-02	4.260E-02	FAIL ABUN
HF-181	-2.733E-02	5.623E-02	1.000E-01	NOT IDENT.
TA-182	1.673E-01	1.991E-01	4.322E-01	FAIL ABUN
RE-183	-5.428E-02	1.672E-01	3.045E-01	NOT IDENT.
RE-184	2.153E-01	1.608E-01	3.720E-01	NOT IDENT.
W-188	-4.576E+00	8.424E+00	1.359E+01	FAIL ABUN
IR-192	2.823E-03	3.778E-02	7.291E-02	FAIL ABUN
HG-203	-2.727E-02	4.382E-02	7.971E-02	NOT IDENT.
TL-204	-2.961E+00	3.969E+00	6.321E+00	NOT IDENT.
BI-207	7.954E-03	4.862E-02	9.842E-02	FAIL ABUN
PB-211	-2.859E-01	6.200E-01	1.121E+00	NOT IDENT.
BI-213	-1.998E-02	9.470E-02	1.755E-01	NOT IDENT.
RN-219	0.000E+00	1.238E+00	8.488E-01	FAIL ABUN
RA-223	-3.248E-01	6.618E-01	1.065E+00	FAIL ABUN
AC-225	-4.719E-01	2.102E+00	4.000E+00	NOT IDENT.
AC-227	4.243E-03	2.272E-01	4.383E-01	FAIL ABUN
TH-227	4.243E-03	2.272E-01	4.383E-01	FAIL ABUN
PA-231	-2.162E-01	4.988E-01	8.126E-01	NOT IDENT.
TH-231	-3.248E-01	6.618E-01	1.065E+00	FAIL ABUN
PA-233	2.391E-02	5.767E-02	1.109E-01	NOT IDENT.
PA-234	-3.587E-02	2.992E-01	5.792E-01	NOT IDENT.
PA-234M	2.169E+00	3.981E+00	8.238E+00	NOT IDENT.
NP-237	2.391E-02	5.767E-02	1.109E-01	NOT IDENT.
NP-238	0.000E+00	1.328E+04	0.000E+00	SHORT HLIF
NP-239	-2.383E-01	2.359E-01	3.889E-01	NOT IDENT.
AM-241	1.466E-03	1.158E-01	1.995E-01	NOT IDENT.
CM-243	-6.728E-02	9.051E-02	1.544E-01	NOT IDENT.
BK-247	-2.071E-02	7.111E-02	1.337E-01	FAIL ABUN
CF-249	3.332E-02	3.853E-02	7.898E-02	NOT IDENT.
CF-251	7.071E-02	1.196E-01	2.229E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	433	10.66*	1.267E+00	1.894E+01	1.894E+01	9.96
CD-109	88.03	163	3.70*	7.132E+00	3.648E+00	3.846E+00	34.48
SN-126	64.28	47	9.60	4.714E+00	6.116E-01	6.116E-01	143.52
	86.94	163	8.90	7.132E+00	1.517E+00	1.517E+00	34.48
	87.57	163	37.00*	7.132E+00	3.648E-01	3.648E-01	34.48
TL-208	277.37	-----	6.60	4.980E+00	-----	Line Not Found	-----
	583.19	106	85.00*	2.860E+00	2.586E-01	2.586E-01	33.39
	860.56	25	12.50	2.033E+00	5.700E-01	5.700E-01	69.88
BI-210	46.54	13	4.25*	1.796E+00	9.859E-01	9.889E-01	312.32
PB-210	46.54	13	4.25*	1.796E+00	9.859E-01	9.889E-01	312.32
BI-211	72.87	-----	1.23	5.985E+00	-----	Line Not Found	-----
	351.06	318	12.92*	4.214E+00	3.444E+00	3.444E+00	16.04
BI-212	727.33	40	6.67*	2.366E+00	1.506E+00	1.506E+00	56.43
	1620.50	-----	1.47	1.174E+00	-----	Line Not Found	-----
PB-212	74.82	210	10.28	6.191E+00	1.947E+00	1.947E+00	30.75
	77.11	342	17.10	6.417E+00	1.838E+00	1.838E+00	18.53
	238.63	514	43.60*	5.509E+00	1.264E+00	1.264E+00	10.87
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
BI-214	609.32	204	45.49*	2.757E+00	9.620E-01	9.621E-01	18.88
	1120.29	34	14.92	1.594E+00	8.547E-01	8.548E-01	58.43
	1764.49	49	15.30	1.115E+00	1.682E+00	1.682E+00	31.28
PB-214	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.450E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
RN-222	609.32	204	45.49*	2.757E+00	9.620E-01	9.621E-01	18.88
	1120.29	34	14.92	1.594E+00	8.547E-01	8.548E-01	58.43
	1764.49	49	15.30	1.115E+00	1.682E+00	1.682E+00	31.28
RA-224	240.99	164	4.10*	5.463E+00	4.331E+00	4.331E+00	37.57
RA-226	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.450E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
AC-228	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57
RA-228	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	210	10.28	6.191E+00	1.947E+00	1.947E+00	30.75
	77.11	342	17.10	6.417E+00	1.838E+00	1.838E+00	18.53
	238.63	514	43.60*	5.509E+00	1.264E+00	1.264E+00	10.87
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
TH-229	85.43	87	14.70	6.955E+00	5.049E-01	5.049E-01	60.78
	88.47	163	24.00	7.132E+00	5.624E-01	5.624E-01	34.48
	193.51	-----	4.41*	6.278E+00	-----	Line Not Found	-----
	210.85	-----	2.80	5.961E+00	-----	Line Not Found	-----
TH-230	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.449E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
TH-232	105.21	-----	1.10	7.636E+00	-----	Line Not Found	-----
	338.32	79	11.27	4.334E+00	9.578E-01	9.578E-01	52.61
	835.71	-----	1.61	2.089E+00	-----	Line Not Found	-----
	911.20	121	25.80*	1.930E+00	1.436E+00	1.436E+00	23.48
	968.97	55	15.80	1.822E+00	1.133E+00	1.133E+00	52.57
TH-234	63.29	47	3.70*	4.714E+00	1.587E+00	1.587E+00	143.52
	92.59	161	4.23	7.373E+00	3.040E+00	3.040E+00	37.62
U-234	74.82	210	5.80	6.191E+00	3.451E+00	3.451E+00	30.75
	77.11	342	9.70	6.417E+00	3.241E+00	3.241E+00	18.53
	87.09	163	3.41	7.132E+00	3.958E+00	3.958E+00	34.48
	242.00	164	7.25	5.463E+00	2.449E+00	2.449E+00	37.57
	295.22	173	18.42	4.771E+00	1.162E+00	1.162E+00	26.23
U-235	351.93	318	35.60*	4.214E+00	1.250E+00	1.250E+00	16.04
	89.96	142	3.47	7.264E+00	3.319E+00	3.319E+00	43.86
	93.35	161	5.60	7.373E+00	2.296E+00	2.296E+00	37.62
	143.76	30	10.96*	7.274E+00	2.257E-01	2.257E-01	151.58
	163.33	-----	5.08	6.883E+00	-----	Line Not Found	-----
	185.72	85	57.20	6.427E+00	1.359E-01	1.359E-01	61.34
U-238	205.31	-----	5.01	6.059E+00	-----	Line Not Found	-----
	63.29	47	3.70*	4.714E+00	1.587E+00	1.587E+00	143.52
	92.59	161	4.23	7.373E+00	3.040E+00	3.040E+00	37.62
PU-239	129.30	20	0.01*	7.522E+00	2.476E+02	2.476E+02	229.33
	375.05	22	0.00	4.022E+00	2.044E+03	2.044E+03	96.40
	413.71	-----	0.00	3.743E+00	-----	Line Not Found	-----
AM-243	43.53	24	5.90	1.387E+00	1.758E+00	1.758E+00	147.65
	74.66	210	67.20*	6.191E+00	2.978E-01	2.978E-01	30.75
CM-247	278.00	-----	3.40	4.972E+00	-----	Line Not Found	-----
	287.50	-----	2.00	4.858E+00	-----	Line Not Found	-----
	402.40	40	72.00*	3.817E+00	8.673E-02	8.673E-02	133.52
ANH-511	511.00	62	100.00*	3.184E+00	1.150E-01	1.150E-01	60.39

Flag: "*" = Keyline

Total number of lines in spectrum 51
Number of unidentified lines 13
Number of lines tentatively identified by NID 38 74.51%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.894E+01	1.894E+01	0.189E+01	9.96	
CD-109	461.40D	1.05	3.648E+00	3.846E+00	1.326E+00	34.48	
SN-126	2.30E+05Y	1.00	3.648E-01	3.648E-01	1.258E-01	34.48	
TL-208	1.41E+10Y	1.00	2.586E-01	2.586E-01	0.863E-01	33.39	
BI-210	22.20Y	1.00	9.859E-01	9.889E-01	30.89E-01	312.32	
PB-210	22.20Y	1.00	9.859E-01	9.889E-01	30.89E-01	312.32	
BI-211	7.04E+08Y	1.00	3.444E+00	3.444E+00	0.553E+00	16.04	
BI-212	1.41E+10Y	1.00	1.506E+00	1.506E+00	0.850E+00	56.43	
PB-212	1.41E+10Y	1.00	1.264E+00	1.264E+00	0.137E+00	10.87	
BI-214	1600.00Y	1.00	9.620E-01	9.621E-01	1.817E-01	18.88	
PB-214	1600.00Y	1.00	1.250E+00	1.250E+00	0.201E+00	16.04	
RN-222	1600.00Y	1.00	9.620E-01	9.621E-01	1.817E-01	18.88	
RA-224	1.41E+10Y	1.00	4.331E+00	4.331E+00	1.627E+00	37.57	
RA-226	1600.00Y	1.00	1.250E+00	1.250E+00	0.201E+00	16.04	
AC-228	1.41E+10Y	1.00	1.436E+00	1.436E+00	0.337E+00	23.48	
RA-228	1.41E+10Y	1.00	1.436E+00	1.436E+00	0.337E+00	23.48	
TH-228	1.41E+10Y	1.00	1.264E+00	1.264E+00	0.137E+00	10.87	
TH-229	7340.00Y	1.00	5.624E-01	5.624E-01	1.939E-01	34.48	K
TH-230	7.54E+04Y	1.00	1.250E+00	1.250E+00	0.201E+00	16.04	
TH-232	1.41E+10Y	1.00	1.436E+00	1.436E+00	0.337E+00	23.48	
TH-234	4.47E+09Y	1.00	1.587E+00	1.587E+00	2.277E+00	143.52	
U-234	2.45E+05Y	1.00	1.250E+00	1.250E+00	0.201E+00	16.04	
U-235	7.04E+08Y	1.00	2.257E-01	2.257E-01	3.421E-01	151.58	
U-238	4.47E+09Y	1.00	1.587E+00	1.587E+00	2.277E+00	143.52	
PU-239	24110.00Y	1.00	2.476E+02	2.476E+02	5.679E+02	229.33	
AM-243	7370.00Y	1.00	2.978E-01	2.978E-01	0.916E-01	30.75	
CM-247	1.56E+07Y	1.00	8.673E-02	8.673E-02	11.58E-02	133.52	
ANH-511	1.00E+09Y	1.00	1.150E-01	1.150E-01	0.695E-01	60.39	
Total Activity :			3.003E+02	3.005E+02			

Grand Total Activity : 3.003E+02 3.005E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	37.72	24	98	0.71	75.53	73	6	5.59E-03	****	5.93E-01	
0	40.55	22	82	1.31	81.19	79	5	5.17E-03	****	9.20E-01	
0	209.02	58	113	1.50	417.82	414	9	1.51E-02	73.5	5.99E+00	
0	305.25	29	67	3.49	610.15	605	14	7.57E-03	****	4.66E+00	T
0	327.88	41	60	1.12	655.40	651	10	1.08E-02	79.8	4.43E+00	T
0	462.76	36	34	1.00	925.03	921	10	9.84E-03	69.2	3.44E+00	T
0	473.89	12	55	3.82	947.28	939	13	3.27E-03	****	3.38E+00	T
5	768.16	30	13	2.76	1535.73	1529	26	8.50E-03	67.6	2.25E+00	T
5	772.25	21	17	2.77	1543.91	1529	26	5.77E-03	****	2.24E+00	T
1	779.77	12	1	1.70	1558.96	1557	13	3.42E-03	56.2	2.22E+00	T
1	782.92	15	6	1.90	1565.26	1557	13	4.26E-03	79.4	2.22E+00	T
0	995.80	7	10	0.83	1991.14	1986	10	1.94E-03	****	1.78E+00	T
0	1033.12	14	11	2.53	2065.80	2062	10	3.92E-03	****	1.72E+00	
0	1066.63	10	15	0.53	2132.86	2123	12	2.74E-03	****	1.67E+00	
2	1126.16	14	4	1.92	2252.00	2233	23	3.91E-03	77.8	1.59E+00	
0	1134.94	10	3	0.85	2269.56	2267	6	2.74E-03	85.0	1.57E+00	
0	1304.86	8	11	3.43	2609.67	2602	12	2.18E-03	****	1.39E+00	
0	1307.91	8	4	1.58	2615.78	2613	6	2.41E-03	****	1.39E+00	
0	1378.41	15	11	1.90	2756.91	2750	12	4.37E-03	****	1.33E+00	
0	1402.14	8	5	1.98	2804.41	2797	11	2.36E-03	****	1.31E+00	
0	1409.63	5	8	0.61	2819.41	2810	11	1.37E-03	****	1.30E+00	
0	1415.07	9	8	3.80	2830.31	2824	12	2.65E-03	****	1.30E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299033.CNF;1 *
* Acquisition date : 31-JUL-2024 16:12:58 Sensitivity : 3.000 *
* Detector ID : GAM20 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:14.17 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:05:00 Nuclide Library : SOLID *
* Sample ID : G674299033 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.2715E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.114E-01
CD-109	4.815E-01
SN-126	4.580E-02
TL-208	3.175E-02
BI-210	1.600E+00
PB-210	1.600E+00
BI-211	1.666E-01
BI-212	3.489E-01
PB-212	4.312E-02
BI-214	5.006E-02
PB-214	6.059E-02
RN-222	5.006E-02
RA-224	4.619E-01
RA-226	6.059E-02
AC-228	1.179E-01
RA-228	1.179E-01
TH-228	4.312E-02
TH-229	3.937E-01
TH-230	6.059E-02
TH-232	1.179E-01
TH-234	8.271E-01
U-234	6.059E-02
U-235	1.450E-01
U-238	8.271E-01
PU-239	2.541E+02
AM-243	3.423E-02
CM-247	2.955E-02
ANH-511	2.080E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.248E-01	NOT IDENT.
NA-22	2.798E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF

AL-26	2.494E-02	NOT IDENT.
SC-46	3.899E-02	FAIL ABUN
V-48	1.194E-01	NOT IDENT.
CR-51	4.950E-01	NOT IDENT.
MN-52	1.738E+00	NOT IDENT.
MN-54	3.343E-02	NOT IDENT.
CO-56	3.801E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.024E-02	NOT IDENT.
CO-58	3.407E-02	NOT IDENT.
FE-59	9.910E-02	NOT IDENT.
CO-60	4.030E-02	NOT IDENT.
ZN-65	7.024E-02	NOT IDENT.
GE-68	1.023E+00	NOT IDENT.
AS-73	5.501E-01	NOT IDENT.
AS-74	1.715E-01	NOT IDENT.
SE-75	3.900E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	3.647E-01	NOT IDENT.
RB-83	5.791E-02	NOT IDENT.
RB-84	7.639E-02	NOT IDENT.
KR-85	5.072E+00	NOT IDENT.
SR-85	3.315E-02	NOT IDENT.
RB-86	1.363E+00	NOT IDENT.
Y-88	3.176E-02	NOT IDENT.
Y-91	2.290E+01	NOT IDENT.
NB-94	2.610E-02	NOT IDENT.
NB-95	4.279E-02	NOT IDENT.
NB-95M	1.193E-01	NOT IDENT.
ZR-95	7.119E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.371E-02	NOT IDENT.
RH-102	4.326E-02	FAIL ABUN
RU-103	4.539E-02	FAIL ABUN
RH-106	2.694E-01	NOT IDENT.
RU-106	2.694E-01	NOT IDENT.
AG-108M	2.046E-02	NOT IDENT.
AG-110	6.146E-01	NOT IDENT.
AG-110M	4.107E-02	NOT IDENT.
SN-113	3.802E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.188E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.448E-02	NOT IDENT.
SB-124	6.548E-02	NOT IDENT.
SB-125	8.416E-02	FAIL ABUN
TE-125M	9.324E+00	NOT IDENT.
I-126	5.153E-01	NOT IDENT.
SB-126	3.533E-01	NOT IDENT.
SB-127	4.744E+01	FAIL ABUN
I-131	4.545E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.955E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.381E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.303E-01	NOT IDENT.
BA-137M	2.608E-02	NOT IDENT.
CS-137	2.755E-02	NOT IDENT.
LA-138	3.266E-02	NOT IDENT.
CE-139	2.428E-02	NOT IDENT.
BA-140	6.057E-01	FAIL ABUN
LA-140	1.375E-01	FAIL ABUN
CE-141	7.231E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.608E-01	NOT IDENT.
PM-144	3.405E-02	NOT IDENT.
PR-144	2.568E+00	NOT IDENT.
PM-146	3.467E-02	NOT IDENT.
ND-147	1.515E+00	FAIL ABUN
PM-147	5.585E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.991E-02	FAIL ABUN
EU-152	8.646E-02	FAIL ABUN

GD-153	6.326E-02	NOT IDENT.
EU-154	7.646E-02	FAIL ABUN
EU-155	8.755E-02	FAIL ABUN
TB-160	1.303E-01	FAIL ABUN
HO-166M	4.806E-02	FAIL ABUN
TM-171	8.853E+00	NOT IDENT.
HF-172	1.506E-01	FAIL ABUN
LU-172	5.068E-02	FAIL ABUN
LU-176	1.943E-02	FAIL ABUN
HF-181	4.465E-02	NOT IDENT.
TA-182	1.913E-01	FAIL ABUN
RE-183	1.433E-01	NOT IDENT.
RE-184	1.644E-01	NOT IDENT.
W-188	6.200E+00	FAIL ABUN
IR-192	3.345E-02	FAIL ABUN
HG-203	3.645E-02	NOT IDENT.
TL-204	2.975E+00	NOT IDENT.
BI-207	4.278E-02	FAIL ABUN
PB-211	5.040E-01	NOT IDENT.
BI-213	7.902E-02	NOT IDENT.
RN-219	3.923E-01	FAIL ABUN
RA-223	4.867E-01	FAIL ABUN
AC-225	1.859E+00	NOT IDENT.
AC-227	2.028E-01	FAIL ABUN
TH-227	2.028E-01	FAIL ABUN
PA-231	3.740E-01	NOT IDENT.
TH-231	4.867E-01	FAIL ABUN
PA-233	5.085E-02	NOT IDENT.
PA-234	2.538E-01	NOT IDENT.
PA-234M	3.579E+00	NOT IDENT.
NP-237	5.085E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	1.809E-01	NOT IDENT.
AM-241	9.413E-02	NOT IDENT.
CM-243	7.202E-02	NOT IDENT.
BK-247	6.155E-02	FAIL ABUN
CF-249	3.636E-02	NOT IDENT.
CF-251	1.043E-01	NOT IDENT.

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299033.CNF;1 *
* Acquisition date : 31-JUL-2024 16:12:58 Sensitivity : 3.000 *
* Detector ID : GAM20 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:14.17 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:05:00 Nuclide Library : SOLID *
* Sample ID : G674299033 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.2715E+02 GRAM *
* Quantity Err(%) : 1.5729E-03 % *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.894E+01	2.639E+00	2.639E+00
CD-109	3.846E+00	1.353E+00	1.353E+00
SN-126	3.648E-01	1.268E-01	1.268E-01
TL-208	2.586E-01	8.761E-02	8.761E-02
BI-210	9.889E-01	3.028E+00	3.028E+00
PB-210	9.889E-01	3.028E+00	3.028E+00
BI-211	3.444E+00	6.132E-01	6.132E-01
BI-212	1.506E+00	8.458E-01	8.458E-01
PB-212	1.264E+00	1.737E-01	1.737E-01
BI-214	9.621E-01	1.972E-01	1.972E-01
PB-214	1.250E+00	2.216E-01	2.216E-01
RN-222	9.621E-01	1.972E-01	1.972E-01
RA-224	4.331E+00	1.639E+00	1.639E+00
RA-226	1.250E+00	2.216E-01	2.216E-01
AC-228	1.436E+00	3.679E-01	3.679E-01
RA-228	1.436E+00	3.679E-01	3.679E-01
TH-228	1.264E+00	1.737E-01	1.737E-01
TH-229	6.030E-02	4.742E-01	4.742E-01
TH-230	1.250E+00	2.216E-01	2.216E-01
TH-232	1.436E+00	3.679E-01	3.679E-01
TH-234	1.587E+00	2.260E+00	2.260E+00
U-234	1.250E+00	2.216E-01	2.216E-01
U-235	2.257E-01	3.357E-01	3.357E-01
U-238	1.587E+00	2.260E+00	2.260E+00
PU-239	2.476E+02	5.568E+02	5.568E+02
AM-243	2.978E-01	9.250E-02	9.250E-02
CM-247	8.673E-02	1.146E-01	1.146E-01
ANH-511	1.150E-01	6.880E-02	6.880E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	2.250E-01	3.837E-01	3.969E-01	NOT IDENT.
NA-22	-4.293E-02	4.271E-02	4.689E-02	NOT IDENT.

NA-24	1.897E+15	3.014E+15	3.133E+15	SHORT HLIF
AL-26	3.484E-03	2.935E-02	2.939E-02	NOT IDENT.
SC-46	4.710E-03	4.415E-02	4.420E-02	FAIL ABUN
V-48	-1.207E-01	1.607E-01	1.697E-01	NOT IDENT.
CR-51	-6.795E-02	5.704E-01	5.713E-01	NOT IDENT.
MN-52	-1.070E+00	2.431E+00	2.478E+00	NOT IDENT.
MN-54	-5.000E-04	3.834E-02	3.834E-02	NOT IDENT.
CO-56	-2.256E-03	4.392E-02	4.393E-02	NOT IDENT.
MN-56	1.000E+41	3.602E+42	0.000E+00	SHORT HLIF
CO-57	-6.247E-04	2.403E-02	2.403E-02	NOT IDENT.
CO-58	-4.817E-03	4.281E-02	4.286E-02	NOT IDENT.
FE-59	-6.173E-02	1.268E-01	1.298E-01	NOT IDENT.
CO-60	2.851E-02	4.285E-02	4.474E-02	NOT IDENT.
ZN-65	2.580E-02	8.704E-02	8.781E-02	NOT IDENT.
GE-68	4.283E-01	1.116E+00	1.133E+00	NOT IDENT.
AS-73	2.111E-01	6.087E-01	6.161E-01	NOT IDENT.
AS-74	1.369E-01	1.853E-01	1.953E-01	NOT IDENT.
SE-75	-1.153E-02	4.490E-02	4.520E-02	NOT IDENT.
BR-77	6.841E+04	7.010E+04	7.659E+04	SHORT HLIF
SR-82	2.098E-01	5.333E-01	5.416E-01	NOT IDENT.
RB-83	-5.856E-03	6.934E-02	6.939E-02	NOT IDENT.
RB-84	-3.623E-02	9.412E-02	9.552E-02	NOT IDENT.
KR-85	6.978E-01	6.565E+00	6.573E+00	NOT IDENT.
SR-85	4.381E-03	4.294E-02	4.299E-02	NOT IDENT.
RB-86	1.063E+00	1.401E+00	1.481E+00	NOT IDENT.
Y-88	-3.374E-03	4.039E-02	4.042E-02	NOT IDENT.
Y-91	7.759E+00	2.580E+01	2.604E+01	NOT IDENT.
NB-94	-5.276E-04	3.171E-02	3.171E-02	NOT IDENT.
NB-95	1.452E-02	5.562E-02	5.600E-02	NOT IDENT.
NB-95M	1.158E-01	1.355E-01	1.453E-01	NOT IDENT.
ZR-95	-2.618E-02	9.134E-02	9.210E-02	NOT IDENT.
NB-97	1.000E+41	1.603E+41	0.000E+00	SHORT HLIF
ZR-97	2.015E+14	6.028E+14	6.096E+14	SHORT HLIF
MO-99	2.595E+02	1.559E+03	1.564E+03	SHORT HLIF
TC-99M	-7.100E+38	4.264E+40	0.000E+00	SHORT HLIF
RH-101	-1.007E-02	3.171E-02	3.203E-02	NOT IDENT.
RH-102	-2.688E-03	5.236E-02	5.238E-02	FAIL ABUN
RU-103	1.252E-02	5.170E-02	5.201E-02	FAIL ABUN
RH-106	5.319E-02	3.149E-01	3.159E-01	NOT IDENT.
RU-106	5.319E-02	3.149E-01	3.159E-01	NOT IDENT.
AG-108M	7.608E-03	2.272E-02	2.298E-02	NOT IDENT.
AG-110	2.382E-01	7.019E-01	7.100E-01	NOT IDENT.
AG-110M	3.482E-03	4.667E-02	4.670E-02	NOT IDENT.
SN-113	-3.504E-02	4.806E-02	5.059E-02	NOT IDENT.
CD-115	-6.081E+02	4.917E+03	4.925E+03	SHORT HLIF
SN-117M	4.621E-02	1.387E-01	1.402E-01	NOT IDENT.
SB-122	-9.047E+00	3.065E+02	3.065E+02	SHORT HLIF
TE-123M	6.296E-03	2.888E-02	2.902E-02	NOT IDENT.
SB-124	-2.233E-02	8.905E-02	8.962E-02	NOT IDENT.
SB-125	6.374E-02	9.100E-02	9.543E-02	FAIL ABUN
TE-125M	3.645E+00	1.066E+01	1.079E+01	NOT IDENT.
I-126	2.713E-01	5.778E-01	5.906E-01	NOT IDENT.
SB-126	2.348E-01	4.282E-01	4.411E-01	NOT IDENT.
SB-127	3.950E+01	5.228E+01	5.523E+01	FAIL ABUN
I-131	-7.649E-02	5.322E-01	5.333E-01	NOT IDENT.
I-132	-1.000E+41	2.332E+42	0.000E+00	SHORT HLIF
TE-132	1.603E+01	4.830E+01	4.884E+01	SHORT HLIF
BA-133	-1.287E-02	3.984E-02	4.026E-02	NOT IDENT.
I-133	2.674E+10	4.648E+10	4.802E+10	SHORT HLIF
CS-134	6.888E-02	4.395E-02	5.381E-02	NOT IDENT.
I-135	-1.634E+37	5.818E+37	0.000E+00	SHORT HLIF
CS-136	-9.468E-02	2.862E-01	2.894E-01	NOT IDENT.
BA-137M	1.427E-02	2.891E-02	2.962E-02	NOT IDENT.
CS-137	1.508E-02	3.054E-02	3.129E-02	NOT IDENT.
LA-138	-3.357E-02	4.842E-02	5.073E-02	NOT IDENT.
CE-139	-5.404E-03	2.988E-02	2.998E-02	NOT IDENT.
BA-140	-1.629E-01	7.414E-01	7.450E-01	FAIL ABUN
LA-140	-2.797E-01	2.631E-01	2.918E-01	FAIL ABUN
CE-141	2.519E-02	9.115E-02	9.185E-02	NOT IDENT.
CE-143	4.155E+06	2.939E+06	3.485E+06	SHORT HLIF
CE-144	9.157E-02	1.834E-01	1.879E-01	NOT IDENT.
PM-144	1.232E-02	3.956E-02	3.995E-02	NOT IDENT.
PR-144	9.006E-01	2.988E+00	3.015E+00	NOT IDENT.
PM-146	1.344E-02	3.883E-02	3.930E-02	NOT IDENT.
ND-147	-1.432E-01	1.814E+00	1.815E+00	FAIL ABUN
PM-147	-4.054E+02	6.979E+02	7.214E+02	NOT IDENT.
PM-149	1.280E+04	4.507E+04	4.544E+04	SHORT HLIF
EU-150	-2.224E-02	2.848E-02	3.019E-02	FAIL ABUN

EU-152	7.504E-02	9.192E-02	9.795E-02	FAIL ABUN
GD-153	-2.948E-02	8.213E-02	8.320E-02	NOT IDENT.
EU-154	-1.252E-01	1.189E-01	1.316E-01	FAIL ABUN
EU-155	1.116E-01	9.442E-02	1.070E-01	FAIL ABUN
TB-160	-2.156E-02	1.532E-01	1.535E-01	FAIL ABUN
HO-166M	2.660E-02	5.375E-02	5.507E-02	FAIL ABUN
TM-171	-1.688E+01	1.150E+01	1.379E+01	NOT IDENT.
HF-172	-1.733E-02	1.958E-01	1.960E-01	FAIL ABUN
LU-172	-4.015E-02	6.655E-02	6.897E-02	FAIL ABUN
LU-176	2.403E-03	2.181E-02	2.183E-02	FAIL ABUN
HF-181	-2.733E-02	5.628E-02	5.761E-02	NOT IDENT.
TA-182	1.673E-01	1.996E-01	2.134E-01	FAIL ABUN
RE-183	-5.428E-02	1.673E-01	1.691E-01	NOT IDENT.
RE-184	2.153E-01	1.631E-01	1.898E-01	NOT IDENT.
W-188	-4.576E+00	8.446E+00	8.694E+00	FAIL ABUN
IR-192	2.823E-03	3.778E-02	3.780E-02	FAIL ABUN
HG-203	-2.727E-02	4.388E-02	4.557E-02	NOT IDENT.
TL-204	-2.961E+00	3.979E+00	4.197E+00	NOT IDENT.
BI-207	7.954E-03	4.862E-02	4.876E-02	FAIL ABUN
PB-211	-2.859E-01	6.205E-01	6.337E-01	NOT IDENT.
BI-213	-1.998E-02	9.471E-02	9.514E-02	NOT IDENT.
RN-219	9.461E-01	1.246E+00	1.317E+00	FAIL ABUN
RA-223	-3.248E-01	6.625E-01	6.785E-01	FAIL ABUN
AC-225	-4.719E-01	2.102E+00	2.113E+00	NOT IDENT.
AC-227	4.243E-03	2.272E-01	2.272E-01	FAIL ABUN
TH-227	4.243E-03	2.272E-01	2.272E-01	FAIL ABUN
PA-231	-2.162E-01	5.012E-01	5.106E-01	NOT IDENT.
TH-231	-3.248E-01	6.625E-01	6.785E-01	FAIL ABUN
PA-233	2.391E-02	5.770E-02	5.870E-02	NOT IDENT.
PA-234	-3.587E-02	3.020E-01	3.024E-01	NOT IDENT.
PA-234M	2.169E+00	3.987E+00	4.105E+00	NOT IDENT.
NP-237	2.391E-02	5.770E-02	5.870E-02	NOT IDENT.
NP-238	-1.325E+03	1.328E+04	1.330E+04	SHORT HLIF
NP-239	-2.383E-01	2.370E-01	2.602E-01	NOT IDENT.
AM-241	1.466E-03	1.158E-01	1.158E-01	NOT IDENT.
CM-243	-6.728E-02	9.078E-02	9.572E-02	NOT IDENT.
BK-247	-2.071E-02	7.124E-02	7.185E-02	FAIL ABUN
CF-249	3.332E-02	3.869E-02	4.151E-02	NOT IDENT.
CF-251	7.071E-02	1.200E-01	1.241E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	66.0070	85.43	71.2718	131.20	80.6710
45.60	54.6642	86.55	71.4145	133.02	67.5174
46.54	73.0676	86.79	71.4446	133.52	61.8368
49.72	0.0000	86.94	71.4635	136.00	71.2306
51.35	70.3383	87.09	71.4824	136.47	59.7783
51.87	94.2357	87.57	71.5433	140.51	0.0000
52.39	100.3154	88.03	71.6010	143.76	66.1437
52.97	82.5542	88.34	71.6399	144.24	66.1846
53.44	69.7033	88.47	71.6562	145.44	63.5704
54.07	56.8445	89.96	71.8423	152.43	64.5127
57.36	0.0000	1093.63	71.9267	153.25	61.0541
57.53	72.3908	91.11	71.9849	323.87	85.8109
57.98	94.6078	92.59	72.1669	156.02	64.7922
59.27	92.8676	93.35	72.2594	158.56	62.6253
59.32	92.8781	94.56	72.4066	159.00	62.6577
59.54	92.9244	94.65	72.4179	162.33	55.7817
60.96	98.6243	94.67	72.4199	162.66	52.2413
61.17	98.6704	94.87	72.4445	163.33	61.7873
62.93	100.7493	97.43	78.1815	165.86	65.5433
63.29	100.8280	98.43	79.3971	176.31	75.9622
63.58	100.8915	98.44	79.3982	176.60	66.3372
64.28	103.4254	99.53	74.0912	177.52	56.7455
66.73	110.8048	100.11	62.1641	181.07	0.0000
67.24	106.8152	102.03	72.2011	181.52	51.7376
125.81	106.9128	103.18	85.4845	184.41	56.7632
67.75	99.7315	103.37	82.2212	143.76	57.2483
68.89	88.6304	105.21	64.8675	193.51	56.4886
69.67	102.1919	105.31	64.8779	197.03	59.1570
70.82	107.6031	106.12	70.4648	198.01	59.2156
70.83	107.6055	106.47	87.0271	201.83	66.8746
72.81	101.1079	109.28	69.7012	203.43	65.7413
72.87	101.1198	111.00	63.2274	205.31	69.5916
74.66	98.0018	111.76	0.0000	210.85	61.6403
74.82	98.0326	114.06	65.7453	215.65	65.2729
74.97	98.0613	116.30	0.0000	218.12	62.9097
77.11	98.4665	116.74	83.9035	222.11	51.3589
78.74	98.7720	119.76	62.9214	227.09	55.8265
79.69	81.4044	121.12	83.3076	227.38	53.3030
80.03	88.4778	121.22	83.3194	228.16	0.0000
80.12	88.4931	121.78	76.6245	228.18	52.4954
80.19	88.5047	122.06	72.1460	116.74	52.4954
80.57	86.4587	122.92	68.8475	235.69	44.7551
81.00	88.6380	123.07	68.8619	235.96	44.7663
81.07	88.6495	265.00	75.7001	238.63	53.8477
81.75	78.1942	125.81	78.5692	238.98	0.0000
82.47	81.8251	127.23	78.7223	240.99	53.9599
83.79	71.0618	127.91	78.7966	242.00	54.0080
84.00	71.0888	129.30	71.7344	244.70	29.6460

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	57.9571	344.28	34.3217	563.25	22.0305
252.80	48.4583	345.93	54.7903	564.24	0.0000
254.15	0.0000	351.06	41.9339	569.33	21.0417
256.23	51.2028	351.93	41.9586	946.00	24.1998
260.90	0.0000	355.39	0.0000	569.70	25.2539
264.66	51.5650	356.01	35.0609	583.19	30.7063
264.80	50.6957	364.49	29.1464	584.27	30.7216
265.00	50.7052	366.42	0.0000	595.83	17.0391
269.46	50.8904	372.51	25.5174	427.87	14.9411
270.03	46.5249	375.05	34.0789	602.52	0.0000
271.23	44.8128	377.52	24.1776	604.72	30.4726
273.65	54.5843	356.01	19.9908	607.14	24.0829
276.40	39.7055	388.16	30.5443	609.32	20.3560
277.37	43.2688	388.63	25.7794	610.33	20.3653
277.60	42.3936	391.69	43.0472	614.28	17.7166
278.00	34.4551	264.66	33.6663	618.01	30.1146
279.20	49.5218	401.81	33.6898	620.36	20.4558
279.54	58.3811	402.40	33.7019	621.93	21.5470
279.70	57.5032	404.85	33.7517	630.19	0.0000
280.46	43.3745	410.95	35.8114	631.29	21.6349
283.69	46.1475	413.71	39.7488	633.25	16.2396
284.31	43.5060	414.70	32.9818	634.78	19.5007
285.41	43.5439	423.72	38.0336	635.95	27.0976
285.90	0.0000	427.09	27.3597	636.99	24.9410
287.50	43.6147	427.87	29.3274	657.50	17.5013
290.67	46.8454	433.94	18.6390	657.76	14.2214
293.27	0.0000	439.40	28.5380	657.90	0.0000
351.93	42.0841	440.45	30.5245	661.66	13.1489
295.96	42.1080	453.88	25.7948	664.57	0.0000
879.38	48.4750	463.37	24.9324	666.33	16.4679
299.98	33.6990	468.07	23.9966	666.50	16.4691
300.09	32.3540	473.00	24.0605	667.71	0.0000
300.13	32.3547	475.06	24.0874	677.62	9.9269
301.36	53.9746	476.78	24.1094	685.70	19.9189
302.85	51.3327	477.60	18.0901	692.65	0.0000
256.23	34.2643	482.18	30.2234	695.00	18.8829
304.85	34.2728	487.02	24.2407	696.49	26.6738
306.78	34.3223	492.35	0.0000	696.51	26.6748
308.46	36.6257	497.08	23.3528	697.00	27.7913
311.90	33.7269	505.52	15.2966	697.30	27.7944
316.51	40.0263	507.63	0.0000	697.49	26.6846
319.41	49.2264	511.00	22.4977	702.65	21.1686
320.08	44.6894	514.00	23.0438	706.68	17.8548
321.04	41.9823	514.00	23.0438	711.68	14.5356
323.87	48.0118	520.40	20.5493	720.70	13.4648
325.23	30.2077	520.69	0.0000	721.93	0.0000
328.76	40.3781	522.65	0.0000	722.78	25.2676
333.37	44.1914	527.90	0.0000	722.91	25.2686
333.97	51.1178	528.26	21.6614	723.31	28.6418
334.37	48.3685	529.59	16.5150	724.19	25.2814
338.28	36.9515	529.87	0.0000	727.33	15.7500
338.32	36.9531	531.02	23.7571	733.00	12.1764
311.90	45.7970	537.26	25.9023	735.93	15.8018
340.48	45.7970	546.56	0.0000	333.97	18.0697
340.55	45.7990	552.55	31.3123	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	13.5874	949.00	9.1122	1384.29	7.0204
747.24	11.3359	667.71	0.0000	1408.01	8.2354
748.06	17.0093	962.31	32.4174	1434.09	7.2487
752.31	20.4434	964.08	19.0430	1435.80	7.2512
753.82	20.4551	966.17	32.2470	1457.56	0.0000
756.73	22.7531	911.20	33.9253	1460.82	9.3752
756.80	23.8907	983.53	19.3414	1489.16	5.2408
884.68	6.8442	984.45	0.0000	1505.03	12.6211
765.81	18.8344	1274.44	5.9172	1584.12	17.1113
766.42	10.9609	1001.03	6.1727	1596.21	10.7214
766.84	10.9625	1002.74	10.1900	1620.50	5.3873
772.60	0.0000	1004.73	15.7575	1621.92	5.3891
776.52	6.8762	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	4.3708
778.90	6.8821	1028.54	0.0000	1750.46	0.0000
783.70	18.9593	1037.84	14.9766	1764.49	3.3248
788.74	18.4186	1038.76	0.0000	1063.66	8.8760
792.07	36.8815	631.29	17.8299	1771.35	2.2194
795.86	11.5409	1048.07	15.9603	1791.20	0.0000
810.06	16.2399	1049.04	15.9645	1808.65	3.3525
810.29	17.4011	1050.41	12.2129	1810.72	0.0000
344.28	15.0820	1063.66	13.2028	1836.06	4.4924
810.76	15.0836	1077.00	7.5732		
815.77	16.2729	1077.34	9.4672		
1048.07	15.1249	1085.87	16.1326		
832.01	20.1650	1093.63	19.9720		
834.85	21.9398	1099.45	20.0054		
835.71	24.5803	1112.07	20.0746		
836.80	0.0000	1112.84	22.9482		
846.75	0.0000	1115.54	10.7167		
846.77	17.6245	1120.29	17.2463		
856.80	14.1479	1120.55	17.2474		
860.56	14.1660	1221.41	17.2507		
871.09	16.8819	1129.67	5.7634		
873.19	15.1152	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	17.8198	1173.23	20.4091		
880.51	20.5005	1177.95	15.5693		
881.60	16.9410	1189.05	15.6143		
883.24	13.3818	1204.77	14.6988		
884.68	14.2808	1221.41	10.8254		
889.28	16.0900	1231.02	16.7707		
894.76	17.0146	1235.36	26.6655		
898.04	14.3438	1238.28	15.8135		
900.72	17.0483	1260.41	0.0000		
903.28	5.9867	1271.87	8.9703		
911.20	18.0066	1274.44	17.9517		
912.08	18.0115	1274.54	17.9528		
923.98	0.0000	1291.59	12.0183		
926.50	16.2861	1298.22	0.0000		
929.11	27.1655	1312.11	12.8836		
935.54	22.6845	1332.49	9.1033		
937.49	22.6982	1362.66	0.0000		
944.13	10.9182	1365.19	9.1736		
946.00	18.2074	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:16:57.38

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299034.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM21.CNF;850
Background date    : 28-JUL-2024 11:27:08
Sample date       : 26-JUN-2024 12:15:00 Acquisition date : 31-JUL-2024 16:13:25
Sample ID        : G674299034 Sample quantity : 1.02380E+02 GRAM
Detector name     : GAM21 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.36 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.68	28	116	0.70	127.65	124	7	7.64E-03	67.6	
2	2	73.54	24	108	1.04	147.36	144	23	6.53E-03	74.2	2.77E+00
3	2	74.90	161	102	0.99	150.08	144	23	4.48E-02	12.6	
4	2	77.04	285	90	1.05	154.36	144	23	7.93E-02	8.1	
5	0	87.05	84	153	0.98	174.37	171	8	2.33E-02	27.7	
6	6	90.04	37	61	1.32	180.34	178	12	1.02E-02	33.4	1.26E+00
7	6	92.94	83	116	1.25	186.13	178	12	2.29E-02	25.3	
8	0	130.00	25	61	0.98	260.18	256	7	6.94E-03	56.0	
9	0	186.25*	92	51	1.17	372.59	368	10	2.56E-02	18.2	
10	0	238.74	215	74	1.11	477.49	474	7	5.96E-02	9.5	
11	0	242.03	69	52	0.92	484.08	482	7	1.91E-02	22.4	
12	0	270.87	24	33	0.61	541.72	536	10	6.59E-03	50.6	
13	0	295.29	104	37	1.11	590.53	584	10	2.88E-02	15.0	
14	0	300.36	15	30	0.70	600.65	596	8	4.28E-03	67.8	
15	0	338.78	37	36	1.10	677.45	673	8	1.02E-02	33.2	
16	0	351.90*	162	39	1.20	703.67	698	11	4.51E-02	10.9	
17	0	412.53	3	26	3.56	824.85	818	9	8.00E-04	329.0	
18	0	423.52	16	40	2.31	846.81	841	14	4.43E-03	86.7	
19	0	487.87	9	14	0.54	975.46	971	11	2.43E-03	89.0	
20	4	510.79*	24	14	2.24	1021.27	1014	21	6.64E-03	49.8	1.53E+00
21	4	515.28	17	5	2.24	1030.25	1014	21	4.72E-03	36.4	
22	0	569.72	9	23	0.83	1139.08	1133	10	2.61E-03	100.0	
23	0	583.14	48	24	1.30	1165.90	1161	12	1.33E-02	25.0	
24	0	609.04*	120	11	1.53	1217.68	1211	12	3.34E-02	11.0	
25	0	665.27	8	13	1.34	1330.11	1322	10	2.22E-03	95.6	
26	0	860.36	17	0	1.49	1720.18	1716	9	4.72E-03	24.3	
27	0	886.06	8	4	0.94	1771.57	1766	9	2.20E-03	59.4	
28	0	911.13	30	20	1.86	1821.70	1814	14	8.21E-03	37.6	
29	0	969.46	17	12	1.00	1938.35	1931	12	4.72E-03	47.4	
30	0	1120.56*	30	5	1.32	2240.55	2235	11	8.31E-03	24.1	
31	0	1460.26*	96	10	1.87	2920.07	2914	16	2.67E-02	12.4	
32	0	1763.62*	10	4	1.90	3527.07	3519	12	2.72E-03	59.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299034.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:15:00	Acquisition date	: 31-JUL-2024 16:13:25
Sample ID	: G674299034	Sample quantity	: 102.38 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA21	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.36 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	90	10.66*	9.379E-01	6.599E+00	6.599E+00	24.77
KR-85	514.00	16	0.43*	2.839E+00	9.663E+00	9.724E+00	72.82
SR-85	514.00	16	96.00*	2.839E+00	4.369E-02	6.363E-02	72.82
CD-109	88.03	83	3.70*	1.132E+01	1.458E+00	1.537E+00	55.37
SN-126	64.28	27	9.60	1.177E+01	1.779E-01	1.779E-01	135.11
	86.94	83	8.90	1.132E+01	6.060E-01	6.060E-01	55.37
	87.57	83	37.00*	1.132E+01	1.458E-01	1.458E-01	55.37
TL-208	277.37	-----	6.60	5.337E+00	-----	Line Not Found	-----
	583.19	46	85.00*	2.484E+00	1.590E-01	1.590E-01	50.00
	860.56	16	12.50	1.626E+00	5.801E-01	5.801E-01	48.51
BI-211	72.87	23	1.23	1.169E+01	1.192E+00	1.192E+00	148.37
	351.06	157	12.92*	4.232E+00	2.099E+00	2.099E+00	21.79
PB-212	74.82	160	10.28	1.166E+01	9.810E-01	9.810E-01	25.13
	77.11	283	17.10	1.162E+01	1.046E+00	1.046E+00	16.19
	238.63	208	43.60*	6.118E+00	5.726E-01	5.726E-01	19.03
	300.09	15	3.30	4.948E+00	6.685E-01	6.685E-01	135.59
BI-214	609.32	115	45.49*	2.369E+00	7.794E-01	7.795E-01	21.99
	1120.29	28	14.92	1.227E+00	1.127E+00	1.127E+00	48.29
	1764.49	9	15.30	7.839E-01	5.584E-01	5.585E-01	119.43
PB-214	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
RN-222	609.32	115	45.49*	2.369E+00	7.794E-01	7.795E-01	21.99
	1120.29	28	14.92	1.227E+00	1.127E+00	1.127E+00	48.29
	1764.49	9	15.30	7.839E-01	5.584E-01	5.585E-01	119.43
RA-224	240.99	67	4.10*	6.045E+00	1.973E+00	1.973E+00	44.87
RA-226	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
AC-228	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
RA-228	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
TH-228	74.82	160	10.28	1.166E+01	9.810E-01	9.810E-01	25.13
	77.11	283	17.10	1.162E+01	1.046E+00	1.046E+00	16.19
	238.63	208	43.60*	6.118E+00	5.726E-01	5.726E-01	19.03
	300.09	15	3.30	4.948E+00	6.685E-01	6.685E-01	135.59

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
PA-231	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
	283.69	-----	1.70	5.225E+00	-----	Line Not Found	-----
	301.36	15	5.35*	4.948E+00	4.123E-01	4.123E-01	135.59
TH-232	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
TH-234	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
	63.29	27	3.70*	1.177E+01	4.615E-01	4.615E-01	135.11
	92.59	82	4.23	1.111E+01	1.275E+00	1.275E+00	50.55
U-234	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
U-235	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
	89.96	36	3.47	1.121E+01	6.857E-01	6.857E-01	66.89
	93.35	82	5.60	1.111E+01	9.629E-01	9.629E-01	50.55
	143.76	-----	10.96*	9.009E+00	-----	Line Not Found	-----
	163.33	-----	5.08	8.277E+00	-----	Line Not Found	-----
	185.72	90	57.20	7.515E+00	1.532E-01	1.532E-01	36.49
U-238	205.31	-----	5.01	6.956E+00	-----	Line Not Found	-----
	63.29	27	3.70*	1.177E+01	4.615E-01	4.615E-01	135.11
	92.59	82	4.23	1.111E+01	1.275E+00	1.275E+00	50.55
PU-239	129.30	25	0.01*	9.565E+00	2.986E+02	2.986E+02	112.07
	375.05	-----	0.00	3.967E+00	-----	Line Not Found	-----
AM-243	413.71	3	0.00	3.595E+00	3.847E+02	3.847E+02	658.05
	43.53	-----	5.90	1.082E+01	-----	Line Not Found	-----
ANH-511	74.66	160	67.20*	1.166E+01	1.501E-01	1.501E-01	25.13
	511.00	23	100.00*	2.866E+00	5.849E-02	5.849E-02	99.53

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299034.CNF;1  *
* Acquisition date   : 31-JUL-2024 16:13:25 Sensitivity      : 3.000          *
* Detector ID        : GAM21 Energy tolerance: 1.500        *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 01:00:00.36 Half life ratio : *****      *
* Sample date       : 26-JUN-2024 12:15:00 Analyst initials: MXR1      *
* Sample ID         : G674299034 Sample Quantity : 1.0238E+02 GRAM    *
* Batch Number      : 2636543 Wet Weight : 0.00000         *
* Wet wt corr       : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library   : SOLID.NLB;17
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date    : 8-JUL-2024 06:28:17 Eff. Geometry   : CAN          *
* Eff. File         : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26
*****

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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	6.599E+00	1.602E+00	7.558E-01
KR-85	9.724E+00	6.940E+00	9.989E+00
SR-85	6.363E-02	4.541E-02	6.537E-02
CD-109	1.537E+00	8.339E-01	8.451E-01
SN-126	1.458E-01	7.909E-02	8.000E-02
TL-208	1.590E-01	7.791E-02	6.924E-02
BI-211	2.099E+00	4.484E-01	3.353E-01
PB-212	5.726E-01	1.068E-01	1.010E-01
BI-214	7.795E-01	1.679E-01	1.320E-01
PB-214	7.619E-01	1.627E-01	1.220E-01
RN-222	7.795E-01	1.679E-01	1.320E-01
RA-224	1.973E+00	8.674E-01	1.070E+00
RA-226	7.619E-01	1.627E-01	1.220E-01
AC-228	5.193E-01	3.826E-01	3.005E-01
RA-228	5.193E-01	3.826E-01	3.005E-01
TH-228	5.726E-01	1.068E-01	1.010E-01
TH-230	7.619E-01	1.627E-01	1.220E-01
PA-231	4.123E-01	5.479E-01	7.736E-01
TH-232	5.193E-01	3.826E-01	3.005E-01
TH-234	4.615E-01	6.111E-01	6.309E-01
U-234	7.619E-01	1.627E-01	1.220E-01
U-235	1.087E-01	1.403E-01	2.726E-01
U-238	4.615E-01	6.111E-01	6.309E-01
PU-239	2.986E+02	3.279E+02	3.878E+02
AM-243	1.501E-01	3.697E-02	3.711E-02
ANH-511	5.849E-02	5.705E-02	4.277E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.863E-01	4.099E-01	6.978E-01	NOT IDENT.
NA-22	-2.631E-02	5.912E-02	1.043E-01	NOT IDENT.
NA-24	0.000E+00	3.626E+15	0.000E+00	SHORT HLIF
AL-26	-1.880E-02	4.575E-02	8.833E-02	NOT IDENT.

SC-46	4.073E-02	5.158E-02	1.127E-01	FAIL ABUN
V-48	-4.659E-02	1.950E-01	3.734E-01	NOT IDENT.
CR-51	-7.972E-02	5.129E-01	9.748E-01	NOT IDENT.
MN-52	-1.742E+00	2.352E+00	3.974E+00	NOT IDENT.
MN-54	2.310E-03	3.919E-02	8.038E-02	NOT IDENT.
CO-56	-1.417E-02	5.166E-02	9.921E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	3.074E-04	1.391E-02	2.615E-02	NOT IDENT.
CO-58	-1.509E-02	5.000E-02	9.613E-02	NOT IDENT.
FE-59	1.329E-01	1.476E-01	3.409E-01	NOT IDENT.
CO-60	1.898E-02	4.865E-02	1.077E-01	NOT IDENT.
ZN-65	1.535E-01	1.150E-01	2.679E-01	NOT IDENT.
GE-68	5.057E-01	1.247E+00	2.840E+00	NOT IDENT.
AS-73	7.869E-02	1.525E-01	3.052E-01	NOT IDENT.
AS-74	4.342E-02	2.436E-01	4.659E-01	NOT IDENT.
SE-75	2.038E-02	3.727E-02	7.196E-02	NOT IDENT.
BR-77	0.000E+00	5.770E+03	0.000E+00	SHORT HLIF
SR-82	1.109E-01	5.315E-01	1.143E+00	NOT IDENT.
RB-83	7.843E-02	8.903E-02	1.851E-01	NOT IDENT.
RB-84	7.589E-02	1.245E-01	2.579E-01	NOT IDENT.
RB-86	5.118E-01	1.533E+00	3.463E+00	NOT IDENT.
Y-88	-4.893E-02	5.883E-02	8.970E-02	NOT IDENT.
Y-91	3.137E+00	4.103E+01	7.855E+01	NOT IDENT.
NB-94	-1.385E-02	4.070E-02	7.091E-02	NOT IDENT.
NB-95	-2.894E-02	5.516E-02	1.011E-01	NOT IDENT.
NB-95M	7.269E-04	1.434E-01	2.309E-01	NOT IDENT.
ZR-95	3.782E-02	1.036E-01	2.176E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.422E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.045E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.690E+40	0.000E+00	SHORT HLIF
RH-101	1.375E-03	2.178E-02	3.737E-02	NOT IDENT.
RH-102	1.703E-02	5.839E-02	1.167E-01	NOT IDENT.
RU-103	3.022E-02	5.095E-02	1.079E-01	FAIL ABUN
RH-106	-5.741E-02	3.068E-01	5.705E-01	NOT IDENT.
RU-106	-5.741E-02	3.068E-01	5.705E-01	NOT IDENT.
AG-108M	-8.065E-03	2.728E-02	5.023E-02	NOT IDENT.
AG-110	3.431E-01	7.340E-01	1.541E+00	NOT IDENT.
AG-110M	5.284E-02	6.153E-02	1.272E-01	FAIL ABUN
SN-113	-5.039E-02	4.557E-02	7.405E-02	NOT IDENT.
CD-115	0.000E+00	5.246E+03	0.000E+00	SHORT HLIF
SN-117M	4.033E-02	1.061E-01	1.999E-01	NOT IDENT.
SB-122	0.000E+00	4.002E+02	0.000E+00	SHORT HLIF
TE-123M	6.585E-03	2.242E-02	4.188E-02	NOT IDENT.
SB-124	-5.252E-02	1.328E-01	2.611E-01	NOT IDENT.
SB-125	-1.773E-02	9.357E-02	1.556E-01	NOT IDENT.
TE-125M	-2.003E+00	6.635E+00	1.200E+01	NOT IDENT.
I-126	5.198E-01	9.740E-01	9.542E-01	FAIL ABUN
SB-126	-1.586E-01	3.674E-01	6.432E-01	FAIL ABUN
SB-127	-4.173E-01	5.914E+01	1.100E+02	NOT IDENT.
I-131	3.762E-01	5.514E-01	1.158E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.329E+01	0.000E+00	SHORT HLIF
BA-133	3.103E-02	3.204E-02	6.716E-02	NOT IDENT.
I-133	0.000E+00	5.428E+10	0.000E+00	SHORT HLIF
CS-134	9.496E-03	5.137E-02	1.042E-01	FAIL ABUN
I-135	0.000E+00	6.042E+37	0.000E+00	SHORT HLIF
CS-136	8.761E-02	4.069E-01	8.282E-01	NOT IDENT.
BA-137M	1.910E-02	3.878E-02	7.422E-02	NOT IDENT.
CS-137	2.017E-02	4.097E-02	7.841E-02	NOT IDENT.
LA-138	3.522E-02	3.986E-02	1.254E-01	NOT IDENT.
CE-139	-1.662E-02	2.238E-02	3.709E-02	NOT IDENT.
BA-140	-2.067E-01	6.645E-01	1.223E+00	FAIL ABUN
LA-140	-7.485E-02	3.696E-01	7.482E-01	FAIL ABUN
CE-141	-2.567E-02	6.614E-02	1.155E-01	NOT IDENT.
CE-143	0.000E+00	2.506E+06	0.000E+00	SHORT HLIF
CE-144	-7.653E-03	1.314E-01	2.400E-01	NOT IDENT.
PM-144	-4.170E-03	3.638E-02	6.754E-02	NOT IDENT.
PR-144	-2.804E-01	2.759E+00	5.133E+00	NOT IDENT.
PM-146	-1.405E-02	4.266E-02	7.748E-02	NOT IDENT.
ND-147	-1.753E+00	2.099E+00	3.427E+00	FAIL ABUN
PM-147	1.910E+02	3.869E+02	7.667E+02	NOT IDENT.
PM-149	0.000E+00	3.379E+04	0.000E+00	SHORT HLIF
EU-150	-3.258E-04	2.422E-02	4.454E-02	FAIL ABUN
EU-152	-4.896E-02	8.037E-02	1.437E-01	NOT IDENT.
GD-153	-2.343E-02	4.361E-02	7.750E-02	NOT IDENT.
EU-154	-8.560E-02	1.631E-01	2.821E-01	NOT IDENT.
EU-155	2.472E-02	6.416E-02	1.210E-01	FAIL ABUN

TB-160	-6.963E-02	1.926E-01	3.468E-01	FAIL ABUN
HO-166M	-1.654E-02	6.590E-02	1.303E-01	NOT IDENT.
TM-171	-3.292E-01	2.655E+00	5.060E+00	NOT IDENT.
HF-172	-1.865E-02	1.226E-01	2.062E-01	FAIL ABUN
LU-172	3.032E-02	6.861E-02	1.527E-01	FAIL ABUN
LU-176	-1.075E-02	1.776E-02	3.230E-02	FAIL ABUN
HF-181	-2.127E-03	5.649E-02	1.082E-01	NOT IDENT.
TA-182	1.266E-01	2.110E-01	4.825E-01	FAIL ABUN
RE-183	3.428E-02	5.036E-02	1.009E-01	NOT IDENT.
RE-184	-3.872E-02	2.333E-01	4.347E-01	NOT IDENT.
W-188	-2.492E+00	6.764E+00	1.129E+01	FAIL ABUN
IR-192	-1.039E-02	3.665E-02	6.845E-02	FAIL ABUN
HG-203	-1.667E-02	5.040E-02	8.374E-02	FAIL ABUN
TL-204	-1.021E+00	1.750E+00	2.899E+00	NOT IDENT.
BI-207	5.784E-03	5.727E-02	1.183E-01	FAIL ABUN
BI-210	6.847E-01	3.179E-01	6.946E-01	NOT IDENT.
PB-210	6.847E-01	3.179E-01	6.946E-01	NOT IDENT.
PB-211	4.633E-01	6.380E-01	1.339E+00	NOT IDENT.
BI-212	3.926E-01	5.985E-01	1.238E+00	NOT IDENT.
BI-213	-7.789E-02	9.412E-02	1.579E-01	NOT IDENT.
RN-219	-2.590E-01	3.479E-01	5.998E-01	FAIL ABUN
RA-223	7.262E-01	5.210E-01	1.159E+00	FAIL ABUN
AC-225	5.233E-01	1.817E+00	3.350E+00	NOT IDENT.
AC-227	-2.424E-01	2.210E-01	3.287E-01	FAIL ABUN
TH-227	-2.424E-01	2.210E-01	3.287E-01	FAIL ABUN
TH-229	1.624E-01	3.493E-01	6.676E-01	FAIL ABUN
TH-231	7.262E-01	5.210E-01	1.159E+00	FAIL ABUN
PA-233	3.693E-03	5.144E-02	1.013E-01	FAIL ABUN
PA-234	-1.177E-01	1.761E-01	3.044E-01	FAIL ABUN
PA-234M	3.858E+00	5.751E+00	1.259E+01	NOT IDENT.
NP-237	3.693E-03	5.144E-02	1.013E-01	FAIL ABUN
NP-238	0.000E+00	1.562E+04	0.000E+00	SHORT HLIF
NP-239	-1.089E-01	1.607E-01	2.771E-01	NOT IDENT.
AM-241	-2.509E-02	3.409E-02	6.132E-02	NOT IDENT.
CM-243	1.927E-03	5.500E-02	1.033E-01	NOT IDENT.
BK-247	-3.103E-03	6.146E-02	1.087E-01	NOT IDENT.
CM-247	5.217E-05	3.176E-02	6.145E-02	NOT IDENT.
CF-249	4.848E-02	3.747E-02	8.223E-02	NOT IDENT.
CF-251	1.134E-03	1.014E-01	1.816E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	90	10.66*	9.379E-01	6.599E+00	6.599E+00	24.77
KR-85	514.00	16	0.43*	2.839E+00	9.663E+00	9.724E+00	72.82
SR-85	514.00	16	96.00*	2.839E+00	4.369E-02	6.363E-02	72.82
CD-109	88.03	83	3.70*	1.132E+01	1.458E+00	1.537E+00	55.37
SN-126	64.28	27	9.60	1.177E+01	1.779E-01	1.779E-01	135.11
	86.94	83	8.90	1.132E+01	6.060E-01	6.060E-01	55.37
	87.57	83	37.00*	1.132E+01	1.458E-01	1.458E-01	55.37
TL-208	277.37	-----	6.60	5.337E+00	-----	Line Not Found	-----
	583.19	46	85.00*	2.484E+00	1.590E-01	1.590E-01	50.00
	860.56	16	12.50	1.626E+00	5.801E-01	5.801E-01	48.51
BI-211	72.87	23	1.23	1.169E+01	1.192E+00	1.192E+00	148.37
	351.06	157	12.92*	4.232E+00	2.099E+00	2.099E+00	21.79
PB-212	74.82	160	10.28	1.166E+01	9.810E-01	9.810E-01	25.13
	77.11	283	17.10	1.162E+01	1.046E+00	1.046E+00	16.19
	238.63	208	43.60*	6.118E+00	5.726E-01	5.726E-01	19.03
	300.09	15	3.30	4.948E+00	6.685E-01	6.685E-01	135.59
BI-214	609.32	115	45.49*	2.369E+00	7.794E-01	7.795E-01	21.99
	1120.29	28	14.92	1.227E+00	1.127E+00	1.127E+00	48.29
	1764.49	9	15.30	7.839E-01	5.584E-01	5.585E-01	119.43
PB-214	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
RN-222	609.32	115	45.49*	2.369E+00	7.794E-01	7.795E-01	21.99
	1120.29	28	14.92	1.227E+00	1.127E+00	1.127E+00	48.29
	1764.49	9	15.30	7.839E-01	5.584E-01	5.585E-01	119.43
RA-224	240.99	67	4.10*	6.045E+00	1.973E+00	1.973E+00	44.87
RA-226	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
AC-228	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
RA-228	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
TH-228	74.82	160	10.28	1.166E+01	9.810E-01	9.810E-01	25.13
	77.11	283	17.10	1.162E+01	1.046E+00	1.046E+00	16.19

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	238.63	208	43.60*	6.118E+00	5.726E-01	5.726E-01	19.03
	300.09	15	3.30	4.948E+00	6.685E-01	6.685E-01	135.59
	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
PA-231	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
	283.69	-----	1.70	5.225E+00	-----	Line Not Found	-----
	301.36	15	5.35*	4.948E+00	4.123E-01	4.123E-01	135.59
TH-232	105.21	-----	1.10	1.061E+01	-----	Line Not Found	-----
	338.32	35	11.27	4.397E+00	5.240E-01	5.240E-01	66.47
	835.71	-----	1.61	1.678E+00	-----	Line Not Found	-----
	911.20	28	25.80*	1.529E+00	5.193E-01	5.193E-01	75.19
TH-234	968.97	16	15.80	1.430E+00	5.205E-01	5.205E-01	94.85
	63.29	27	3.70*	1.177E+01	4.615E-01	4.615E-01	135.11
	92.59	82	4.23	1.111E+01	1.275E+00	1.275E+00	50.55
U-234	74.82	160	5.80	1.166E+01	1.739E+00	1.739E+00	25.13
	77.11	283	9.70	1.162E+01	1.844E+00	1.844E+00	16.19
	87.09	83	3.41	1.132E+01	1.582E+00	1.582E+00	55.37
	242.00	67	7.25	6.045E+00	1.116E+00	1.116E+00	44.87
	295.22	100	18.42	5.030E+00	7.943E-01	7.943E-01	29.92
	351.93	157	35.60*	4.232E+00	7.619E-01	7.619E-01	21.79
U-235	89.96	36	3.47	1.121E+01	6.857E-01	6.857E-01	66.89
	93.35	82	5.60	1.111E+01	9.629E-01	9.629E-01	50.55
	143.76	-----	10.96*	9.009E+00	-----	Line Not Found	-----
	163.33	-----	5.08	8.277E+00	-----	Line Not Found	-----
	185.72	90	57.20	7.515E+00	1.532E-01	1.532E-01	36.49
	205.31	-----	5.01	6.956E+00	-----	Line Not Found	-----
U-238	63.29	27	3.70*	1.177E+01	4.615E-01	4.615E-01	135.11
	92.59	82	4.23	1.111E+01	1.275E+00	1.275E+00	50.55
PU-239	129.30	25	0.01*	9.565E+00	2.986E+02	2.986E+02	112.07
	375.05	-----	0.00	3.967E+00	-----	Line Not Found	-----
	413.71	3	0.00	3.595E+00	3.847E+02	3.847E+02	658.05
AM-243	43.53	-----	5.90	1.082E+01	-----	Line Not Found	-----
	74.66	160	67.20*	1.166E+01	1.501E-01	1.501E-01	25.13
ANH-511	511.00	23	100.00*	2.866E+00	5.849E-02	5.849E-02	99.53

Flag: "*" = Keyline

Total number of lines in spectrum 32
Number of unidentified lines 0
Number of lines tentatively identified by NID 32 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	6.599E+00	6.599E+00	1.634E+00	24.77	
KR-85	10.56Y	1.01	9.663E+00	9.724E+00	7.082E+00	72.82	
SR-85	64.84D	1.46	4.369E-02	6.363E-02	4.634E-02	72.82	
CD-109	461.40D	1.05	1.458E+00	1.537E+00	0.851E+00	55.37	
SN-126	2.30E+05Y	1.00	1.458E-01	1.458E-01	0.807E-01	55.37	
TL-208	1.41E+10Y	1.00	1.590E-01	1.590E-01	0.795E-01	50.00	
BI-211	7.04E+08Y	1.00	2.099E+00	2.099E+00	0.458E+00	21.79	
PB-212	1.41E+10Y	1.00	5.726E-01	5.726E-01	1.090E-01	19.03	
BI-214	1600.00Y	1.00	7.794E-01	7.795E-01	1.714E-01	21.99	
PB-214	1600.00Y	1.00	7.619E-01	7.619E-01	1.660E-01	21.79	
RN-222	1600.00Y	1.00	7.794E-01	7.795E-01	1.714E-01	21.99	
RA-224	1.41E+10Y	1.00	1.973E+00	1.973E+00	0.885E+00	44.87	
RA-226	1600.00Y	1.00	7.619E-01	7.619E-01	1.660E-01	21.79	
AC-228	1.41E+10Y	1.00	5.193E-01	5.193E-01	3.905E-01	75.19	
RA-228	1.41E+10Y	1.00	5.193E-01	5.193E-01	3.905E-01	75.19	
TH-228	1.41E+10Y	1.00	5.726E-01	5.726E-01	1.090E-01	19.03	
TH-230	7.54E+04Y	1.00	7.619E-01	7.619E-01	1.660E-01	21.79	
PA-231	7.04E+08Y	1.00	4.123E-01	4.123E-01	5.591E-01	135.59	
TH-232	1.41E+10Y	1.00	5.193E-01	5.193E-01	3.905E-01	75.19	
TH-234	4.47E+09Y	1.00	4.615E-01	4.615E-01	6.235E-01	135.11	
U-234	2.45E+05Y	1.00	7.619E-01	7.619E-01	1.660E-01	21.79	
U-235	7.04E+08Y	1.00	1.532E-01	1.532E-01	0.559E-01	36.49	K
U-238	4.47E+09Y	1.00	4.615E-01	4.615E-01	6.235E-01	135.11	
PU-239	24110.00Y	1.00	2.986E+02	2.986E+02	3.346E+02	112.07	
AM-243	7370.00Y	1.00	1.501E-01	1.501E-01	0.377E-01	25.13	
ANH-511	1.00E+09Y	1.00	5.849E-02	5.849E-02	5.822E-02	99.53	

Total Activity : 3.297E+02 3.299E+02

Grand Total Activity : 3.297E+02 3.299E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	270.87	23	32	0.61	541.72	536	10	6.59E-03	****	5.46E+00	T
0	423.52	15	38	2.31	846.81	841	14	4.43E-03	****	3.50E+00	T
0	487.87	8	14	0.54	975.46	971	11	2.43E-03	****	3.01E+00	T
0	569.72	9	22	0.83	1139.08	1133	10	2.61E-03	****	2.55E+00	T
0	665.27	8	12	1.34	1330.11	1322	10	2.22E-03	****	2.15E+00	T
0	886.06	7	4	0.94	1771.57	1766	9	2.20E-03	****	1.58E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299034.CNF;1 *
* Acquisition date : 31-JUL-2024 16:13:25 Sensitivity : 3.000 *
* Detector ID : GAM21 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.36 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:15:00 Nuclide Library : SOLID *
* Sample ID : G674299034 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.0238E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 8-JUL-2024 06:28:17 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.794E-01
KR-85	4.191E+00
SR-85	2.742E-02
CD-109	3.976E-01
SN-126	3.764E-02
TL-208	2.995E-02
BI-211	1.497E-01
PB-212	4.679E-02
BI-214	5.683E-02
PB-214	5.448E-02
RN-222	5.683E-02
RA-224	4.952E-01
RA-226	5.448E-02
AC-228	1.253E-01
RA-228	1.253E-01
TH-228	4.679E-02
TH-230	5.447E-02
PA-231	3.494E-01
TH-232	1.253E-01
TH-234	2.927E-01
U-234	5.447E-02
U-235	1.263E-01
U-238	2.927E-01
PU-239	1.776E+02
AM-243	1.729E-02
ANH-511	1.794E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.004E-01	NOT IDENT.
NA-22	4.277E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.129E-02	NOT IDENT.
SC-46	4.796E-02	FAIL ABUN

V-48	1.545E-01	NOT IDENT.
CR-51	4.358E-01	NOT IDENT.
MN-52	1.177E+00	NOT IDENT.
MN-54	3.385E-02	NOT IDENT.
CO-56	4.144E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.180E-02	NOT IDENT.
CO-58	4.001E-02	NOT IDENT.
FE-59	1.464E-01	NOT IDENT.
CO-60	4.417E-02	NOT IDENT.
ZN-65	1.165E-01	NOT IDENT.
GE-68	1.158E+00	NOT IDENT.
AS-73	1.413E-01	NOT IDENT.
AS-74	2.058E-01	NOT IDENT.
SE-75	3.229E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	4.774E-01	NOT IDENT.
RB-83	8.220E-02	NOT IDENT.
RB-84	1.100E-01	NOT IDENT.
RB-86	1.402E+00	NOT IDENT.
Y-88	2.835E-02	NOT IDENT.
Y-91	3.424E+01	NOT IDENT.
NB-94	3.058E-02	NOT IDENT.
NB-95	4.274E-02	NOT IDENT.
NB-95M	1.061E-01	NOT IDENT.
ZR-95	9.465E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.715E-02	NOT IDENT.
RH-102	5.047E-02	NOT IDENT.
RU-103	4.713E-02	FAIL ABUN
RH-106	2.395E-01	NOT IDENT.
RU-106	2.395E-01	NOT IDENT.
AG-108M	2.192E-02	NOT IDENT.
AG-110	6.599E-01	NOT IDENT.
AG-110M	5.414E-02	FAIL ABUN
SN-113	3.207E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	9.185E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	1.923E-02	NOT IDENT.
SB-124	9.252E-02	NOT IDENT.
SB-125	6.800E-02	NOT IDENT.
TE-125M	5.464E+00	NOT IDENT.
I-126	3.850E-01	FAIL ABUN
SB-126	2.546E-01	FAIL ABUN
SB-127	4.777E+01	NOT IDENT.
I-131	5.174E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.975E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.537E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.545E-01	NOT IDENT.
BA-137M	3.204E-02	NOT IDENT.
CS-137	3.384E-02	NOT IDENT.
LA-138	4.693E-02	NOT IDENT.
CE-139	1.674E-02	NOT IDENT.
BA-140	5.106E-01	FAIL ABUN
LA-140	2.930E-01	FAIL ABUN
CE-141	5.288E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.097E-01	NOT IDENT.
PM-144	2.860E-02	NOT IDENT.
PR-144	2.175E+00	NOT IDENT.
PM-146	3.402E-02	NOT IDENT.
ND-147	1.461E+00	FAIL ABUN
PM-147	3.475E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.996E-02	FAIL ABUN
EU-152	6.324E-02	NOT IDENT.
GD-153	3.530E-02	NOT IDENT.
EU-154	1.147E-01	NOT IDENT.
EU-155	5.601E-02	FAIL ABUN
TB-160	1.446E-01	FAIL ABUN

HO-166M	5.605E-02	NOT IDENT.
TM-171	2.340E+00	NOT IDENT.
HF-172	9.378E-02	FAIL ABUN
LU-172	6.349E-02	FAIL ABUN
LU-176	1.397E-02	FAIL ABUN
HF-181	4.695E-02	NOT IDENT.
TA-182	2.011E-01	FAIL ABUN
RE-183	4.696E-02	NOT IDENT.
RE-184	1.840E-01	NOT IDENT.
W-188	4.961E+00	FAIL ABUN
IR-192	3.070E-02	FAIL ABUN
HG-203	3.802E-02	FAIL ABUN
TL-204	1.341E+00	NOT IDENT.
BI-207	4.894E-02	FAIL ABUN
BI-210	3.263E-01	NOT IDENT.
PB-210	3.263E-01	NOT IDENT.
PB-211	5.982E-01	NOT IDENT.
BI-212	5.432E-01	NOT IDENT.
BI-213	6.763E-02	NOT IDENT.
RN-219	2.594E-01	FAIL ABUN
RA-223	5.256E-01	FAIL ABUN
AC-225	1.525E+00	NOT IDENT.
AC-227	1.462E-01	FAIL ABUN
TH-227	1.462E-01	FAIL ABUN
TH-229	3.031E-01	FAIL ABUN
TH-231	5.256E-01	FAIL ABUN
PA-233	4.529E-02	FAIL ABUN
PA-234	9.621E-02	FAIL ABUN
PA-234M	5.448E+00	NOT IDENT.
NP-237	4.529E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	1.262E-01	NOT IDENT.
AM-241	2.831E-02	NOT IDENT.
CM-243	4.722E-02	NOT IDENT.
BK-247	4.842E-02	NOT IDENT.
CM-247	2.701E-02	NOT IDENT.
CF-249	3.722E-02	NOT IDENT.
CF-251	8.349E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299034.CNF;1
Acquisition date : 31-JUL-2024 16:13:25 Sensitivity : 3.000
Detector ID : GAM21 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.36 Half life ratio : *****
Sample date : 26-JUN-2024 12:15:00 Nuclide Library : SOLID
Sample ID : G674299034 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.0238E+02 GRAM
Quantity Err(%) : 1.9535E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 8-JUL-2024 06:28:17 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	6.599E+00	1.726E+00	1.726E+00
KR-85	9.724E+00	7.005E+00	7.005E+00
SR-85	6.363E-02	4.584E-02	4.584E-02
CD-109	1.537E+00	8.478E-01	8.478E-01
SN-126	1.458E-01	8.004E-02	8.004E-02
TL-208	1.590E-01	7.970E-02	7.970E-02
BI-211	2.099E+00	4.851E-01	4.851E-01
PB-212	5.726E-01	1.317E-01	1.317E-01
BI-214	7.795E-01	1.880E-01	1.880E-01
PB-214	7.619E-01	1.756E-01	1.756E-01
RN-222	7.795E-01	1.880E-01	1.880E-01
RA-224	1.973E+00	9.056E-01	9.056E-01
RA-226	7.619E-01	1.756E-01	1.756E-01
AC-228	5.193E-01	3.890E-01	3.890E-01
RA-228	5.193E-01	3.890E-01	3.890E-01
TH-228	5.726E-01	1.317E-01	1.317E-01
TH-230	7.619E-01	1.756E-01	1.756E-01
PA-231	4.123E-01	5.558E-01	5.558E-01
TH-232	5.193E-01	3.890E-01	3.890E-01
TH-234	4.615E-01	6.201E-01	6.201E-01
U-234	7.619E-01	1.756E-01	1.756E-01
U-235	1.087E-01	1.413E-01	1.413E-01
U-238	4.615E-01	6.201E-01	6.201E-01
PU-239	2.986E+02	3.307E+02	3.307E+02
AM-243	1.501E-01	3.903E-02	3.903E-02
ANH-511	5.849E-02	5.734E-02	5.734E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.863E-01	4.108E-01	4.306E-01	NOT IDENT.
NA-22	-2.631E-02	5.917E-02	6.035E-02	NOT IDENT.
NA-24	-2.291E+15	3.634E+15	3.778E+15	SHORT HLIF
AL-26	-1.880E-02	4.578E-02	4.655E-02	NOT IDENT.

SC-46	4.073E-02	5.186E-02	5.501E-02	FAIL ABUN
V-48	-4.659E-02	1.951E-01	1.962E-01	NOT IDENT.
CR-51	-7.972E-02	5.130E-01	5.142E-01	NOT IDENT.
MN-52	-1.742E+00	2.358E+00	2.485E+00	NOT IDENT.
MN-54	2.310E-03	3.919E-02	3.920E-02	NOT IDENT.
CO-56	-1.417E-02	5.169E-02	5.208E-02	NOT IDENT.
MN-56	-1.000E+41	3.646E+41	0.000E+00	SHORT HLIF
CO-57	3.074E-04	1.391E-02	1.391E-02	NOT IDENT.
CO-58	-1.509E-02	5.004E-02	5.050E-02	NOT IDENT.
FE-59	1.329E-01	1.484E-01	1.601E-01	NOT IDENT.
CO-60	1.898E-02	4.869E-02	4.943E-02	NOT IDENT.
ZN-65	1.535E-01	1.160E-01	1.350E-01	NOT IDENT.
GE-68	5.057E-01	1.249E+00	1.269E+00	NOT IDENT.
AS-73	7.869E-02	1.534E-01	1.574E-01	NOT IDENT.
AS-74	4.342E-02	2.436E-01	2.444E-01	NOT IDENT.
SE-75	2.038E-02	3.734E-02	3.845E-02	NOT IDENT.
BR-77	3.093E+04	3.220E+04	3.509E+04	SHORT HLIF
SR-82	1.109E-01	5.316E-01	5.340E-01	NOT IDENT.
RB-83	7.843E-02	8.995E-02	9.665E-02	NOT IDENT.
RB-84	7.589E-02	1.249E-01	1.295E-01	NOT IDENT.
RB-86	5.118E-01	1.534E+00	1.552E+00	NOT IDENT.
Y-88	-4.893E-02	5.894E-02	6.293E-02	NOT IDENT.
Y-91	3.137E+00	4.103E+01	4.106E+01	NOT IDENT.
NB-94	-1.385E-02	4.073E-02	4.121E-02	NOT IDENT.
NB-95	-2.894E-02	5.527E-02	5.679E-02	NOT IDENT.
NB-95M	7.269E-04	1.434E-01	1.434E-01	NOT IDENT.
ZR-95	3.782E-02	1.037E-01	1.051E-01	NOT IDENT.
NB-97	1.000E+41	1.267E+42	0.000E+00	SHORT HLIF
ZR-97	-1.984E+14	6.425E+14	6.487E+14	SHORT HLIF
MO-99	2.707E+02	2.045E+03	2.049E+03	SHORT HLIF
TC-99M	-6.661E+39	2.693E+40	0.000E+00	SHORT HLIF
RH-101	1.375E-03	2.178E-02	2.179E-02	NOT IDENT.
RH-102	1.703E-02	5.843E-02	5.893E-02	NOT IDENT.
RU-103	3.022E-02	5.104E-02	5.282E-02	FAIL ABUN
RH-106	-5.741E-02	3.069E-01	3.080E-01	NOT IDENT.
RU-106	-5.741E-02	3.069E-01	3.080E-01	NOT IDENT.
AG-108M	-8.065E-03	2.728E-02	2.753E-02	NOT IDENT.
AG-110	3.431E-01	7.351E-01	7.512E-01	NOT IDENT.
AG-110M	5.284E-02	6.195E-02	6.637E-02	FAIL ABUN
SN-113	-5.039E-02	4.576E-02	5.108E-02	NOT IDENT.
CD-115	6.191E+03	5.290E+03	5.981E+03	SHORT HLIF
SN-117M	4.033E-02	1.063E-01	1.078E-01	NOT IDENT.
SB-122	-9.728E+01	4.003E+02	4.027E+02	SHORT HLIF
TE-123M	6.585E-03	2.245E-02	2.265E-02	NOT IDENT.
SB-124	-5.252E-02	1.329E-01	1.350E-01	NOT IDENT.
SB-125	-1.773E-02	9.358E-02	9.392E-02	NOT IDENT.
TE-125M	-2.003E+00	6.639E+00	6.700E+00	NOT IDENT.
I-126	5.198E-01	9.760E-01	1.004E+00	FAIL ABUN
SB-126	-1.586E-01	3.682E-01	3.751E-01	FAIL ABUN
SB-127	-4.173E-01	5.914E+01	5.914E+01	NOT IDENT.
I-131	3.762E-01	5.524E-01	5.778E-01	NOT IDENT.
I-132	1.000E+41	7.035E+42	0.000E+00	SHORT HLIF
TE-132	-1.387E+01	4.335E+01	4.380E+01	SHORT HLIF
BA-133	3.103E-02	3.215E-02	3.506E-02	NOT IDENT.
I-133	-2.007E+10	5.450E+10	5.524E+10	SHORT HLIF
CS-134	9.496E-03	5.138E-02	5.156E-02	FAIL ABUN
I-135	-1.812E+37	6.214E+37	0.000E+00	SHORT HLIF
CS-136	8.761E-02	4.070E-01	4.090E-01	NOT IDENT.
BA-137M	1.910E-02	3.884E-02	3.978E-02	NOT IDENT.
CS-137	2.017E-02	4.103E-02	4.203E-02	NOT IDENT.
LA-138	3.522E-02	3.999E-02	4.303E-02	NOT IDENT.
CE-139	-1.662E-02	2.280E-02	2.400E-02	NOT IDENT.
BA-140	-2.067E-01	6.648E-01	6.713E-01	FAIL ABUN
LA-140	-7.485E-02	3.697E-01	3.712E-01	FAIL ABUN
CE-141	-2.567E-02	6.626E-02	6.726E-02	NOT IDENT.
CE-143	5.786E+05	2.506E+06	2.520E+06	SHORT HLIF
CE-144	-7.653E-03	1.314E-01	1.315E-01	NOT IDENT.
PM-144	-4.170E-03	3.639E-02	3.643E-02	NOT IDENT.
PR-144	-2.804E-01	2.759E+00	2.762E+00	NOT IDENT.
PM-146	-1.405E-02	4.268E-02	4.315E-02	NOT IDENT.
ND-147	-1.753E+00	2.106E+00	2.250E+00	FAIL ABUN
PM-147	1.910E+02	3.878E+02	3.973E+02	NOT IDENT.
PM-149	-6.164E+03	3.380E+04	3.391E+04	SHORT HLIF
EU-150	-3.258E-04	2.422E-02	2.422E-02	FAIL ABUN
EU-152	-4.896E-02	8.050E-02	8.347E-02	NOT IDENT.
GD-153	-2.343E-02	4.367E-02	4.493E-02	NOT IDENT.
EU-154	-8.560E-02	1.633E-01	1.678E-01	NOT IDENT.
EU-155	2.472E-02	6.423E-02	6.519E-02	FAIL ABUN

TB-160	-6.963E-02	1.928E-01	1.954E-01	FAIL ABUN
HO-166M	1.654E-02	6.593E-02	6.635E-02	NOT IDENT.
TM-171	-3.292E-01	2.656E+00	2.660E+00	NOT IDENT.
HF-172	-1.865E-02	1.227E-01	1.230E-01	FAIL ABUN
LU-172	3.032E-02	6.874E-02	7.009E-02	FAIL ABUN
LU-176	-1.075E-02	1.778E-02	1.843E-02	FAIL ABUN
HF-181	-2.127E-03	5.649E-02	5.650E-02	NOT IDENT.
TA-182	1.266E-01	2.113E-01	2.188E-01	FAIL ABUN
RE-183	3.428E-02	5.052E-02	5.283E-02	NOT IDENT.
RE-184	-3.872E-02	2.334E-01	2.340E-01	NOT IDENT.
W-188	-2.492E+00	6.773E+00	6.866E+00	FAIL ABUN
IR-192	-1.039E-02	3.666E-02	3.696E-02	FAIL ABUN
HG-203	-1.667E-02	5.042E-02	5.098E-02	FAIL ABUN
TL-204	-1.021E+00	1.753E+00	1.812E+00	NOT IDENT.
BI-207	5.784E-03	5.727E-02	5.733E-02	FAIL ABUN
BI-210	6.847E-01	3.246E-01	4.479E-01	NOT IDENT.
PB-210	6.847E-01	3.246E-01	4.479E-01	NOT IDENT.
PB-211	4.633E-01	6.393E-01	6.726E-01	NOT IDENT.
BI-212	3.926E-01	6.004E-01	6.259E-01	NOT IDENT.
BI-213	-7.789E-02	9.438E-02	1.007E-01	NOT IDENT.
RN-219	-2.590E-01	3.500E-01	3.689E-01	FAIL ABUN
RA-223	7.262E-01	5.260E-01	6.196E-01	FAIL ABUN
AC-225	5.233E-01	1.819E+00	1.834E+00	NOT IDENT.
AC-227	-2.424E-01	2.248E-01	2.499E-01	FAIL ABUN
TH-227	-2.424E-01	2.248E-01	2.499E-01	FAIL ABUN
TH-229	1.624E-01	3.503E-01	3.578E-01	FAIL ABUN
TH-231	7.262E-01	5.260E-01	6.196E-01	FAIL ABUN
PA-233	3.693E-03	5.144E-02	5.147E-02	FAIL ABUN
PA-234	-1.177E-01	2.222E-01	2.284E-01	FAIL ABUN
PA-234M	3.858E+00	5.770E+00	6.026E+00	NOT IDENT.
NP-237	3.693E-03	5.144E-02	5.147E-02	FAIL ABUN
NP-238	-4.663E+02	1.562E+04	1.562E+04	SHORT HLIF
NP-239	-1.089E-01	1.615E-01	1.688E-01	NOT IDENT.
AM-241	-2.509E-02	3.416E-02	3.599E-02	NOT IDENT.
CM-243	1.927E-03	5.500E-02	5.501E-02	NOT IDENT.
BK-247	-3.103E-03	6.146E-02	6.148E-02	NOT IDENT.
CM-247	5.217E-05	3.176E-02	3.176E-02	NOT IDENT.
CF-249	4.848E-02	3.784E-02	4.370E-02	NOT IDENT.
CF-251	1.134E-03	1.014E-01	1.014E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	39.6830	85.43	72.3140	131.20	35.7995
45.60	59.3300	86.55	84.4411	133.02	38.5970
46.54	36.3693	86.79	84.4988	133.52	38.9697
49.72	0.0000	86.94	84.5357	136.00	39.1684
51.35	46.6213	87.09	84.5718	136.47	39.2056
51.87	43.5554	87.57	84.6873	140.51	0.0000
52.39	53.1734	88.03	84.7979	143.76	38.7578
52.97	38.9811	88.34	46.6200	144.24	35.7311
53.44	43.0418	88.47	46.6370	145.44	47.0704
54.07	45.5495	89.96	68.4477	152.43	45.6241
57.36	0.0000	1093.63	57.7490	153.25	47.7702
57.53	39.6974	91.11	57.8242	323.87	33.2905
57.98	47.0701	92.59	58.0596	156.02	53.2334
59.27	53.8274	93.35	58.1797	158.56	32.5070
59.32	60.3635	94.56	40.1295	159.00	33.5820
59.54	62.8630	94.65	40.1392	162.33	28.5038
60.96	58.0003	94.67	40.1412	162.66	30.6333
61.17	58.0453	94.87	41.3797	163.33	40.1877
62.93	55.3901	97.43	44.1123	165.86	41.4280
63.29	55.4625	98.43	41.4634	176.31	40.0075
63.58	55.5205	98.44	41.4645	176.60	40.0267
64.28	48.7373	99.53	30.4934	177.52	43.3380
66.73	54.7467	100.11	37.9426	181.07	0.0000
67.24	47.8480	102.03	39.9890	181.52	52.3469
125.81	53.8057	103.18	45.7012	184.41	49.6698
67.75	53.8188	103.37	37.3248	143.76	35.1343
68.89	54.0288	105.21	41.2463	193.51	25.5627
69.67	55.0188	105.31	41.2564	197.03	36.8747
70.82	63.4438	106.12	51.6737	198.01	50.3586
70.83	63.4466	106.47	50.7778	201.83	46.1456
72.81	62.4364	109.28	39.7643	203.43	42.8712
72.87	62.4487	111.00	38.9777	205.31	24.8890
74.66	62.8112	111.76	0.0000	210.85	42.1969
74.82	62.8430	114.06	45.0045	215.65	32.1520
74.97	62.8731	116.30	0.0000	218.12	29.9594
77.11	63.2997	116.74	47.2108	222.11	38.2368
78.74	63.6210	119.76	42.6844	227.09	30.3315
79.69	63.8065	121.12	30.1646	227.38	30.3434
80.03	63.8717	121.22	24.3317	228.16	0.0000
80.12	63.8900	121.78	28.2598	228.18	33.8813
80.19	63.9034	122.06	28.2774	116.74	33.8813
80.57	63.9775	122.92	33.2156	235.69	42.4825
81.00	64.0605	123.07	33.2265	235.96	44.0713
81.07	64.0738	265.00	32.2925	238.63	53.7019
81.75	64.2053	125.81	36.7024	238.98	0.0000
82.47	76.3901	127.23	40.7588	240.99	52.2822
83.79	54.8611	127.91	42.1349	242.00	39.6596
84.00	54.8952	129.30	39.6179	244.70	33.4294

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	25.3163	344.28	25.7632	563.25	17.8972
252.80	31.3594	345.93	23.1346	564.24	0.0000
254.15	0.0000	351.06	23.2483	569.33	15.8527
256.23	39.9713	351.93	23.2673	946.00	15.8545
260.90	0.0000	355.39	0.0000	569.70	15.8563
264.66	18.3554	356.01	9.4325	583.19	13.8580
264.80	18.3586	364.49	15.3924	584.27	13.8675
265.00	23.2595	366.42	0.0000	595.83	17.1882
269.46	17.2296	372.51	15.5052	427.87	17.2383
270.03	17.2411	375.05	18.2833	602.52	0.0000
271.23	17.2654	377.52	17.4074	604.72	12.9604
273.65	26.3841	356.01	19.3478	607.14	12.9790
276.40	31.0173	388.16	13.8721	609.32	12.9961
277.37	32.2937	388.63	17.5786	610.33	13.0039
277.60	36.0296	391.69	27.8296	614.28	11.7308
278.00	36.0464	264.66	19.6307	618.01	6.5315
279.20	38.5854	401.81	22.4570	620.36	4.3604
279.54	33.6198	402.40	17.7874	621.93	10.9106
279.70	33.6256	404.85	15.0098	630.19	0.0000
280.46	23.6833	410.95	11.3149	631.29	10.9701
283.69	25.0214	413.71	19.8464	633.25	10.9823
284.31	21.7005	414.70	17.0251	634.78	13.1904
285.41	17.5487	423.72	15.2454	635.95	9.8994
285.90	0.0000	427.09	20.0639	636.99	11.0059
287.50	22.6159	427.87	18.6423	657.50	7.7938
290.67	22.6956	433.94	19.2135	657.76	8.9085
293.27	0.0000	439.40	11.5778	657.90	0.0000
351.93	27.3718	440.45	21.2436	661.66	8.3698
295.96	40.5830	453.88	21.4651	664.57	0.0000
879.38	40.6992	463.37	18.6718	666.33	6.7131
299.98	29.5515	468.07	19.7237	666.50	6.7136
300.09	29.5551	473.00	14.8468	667.71	0.0000
300.13	29.5565	475.06	15.8607	677.62	4.5031
301.36	29.3403	476.78	21.8362	685.70	14.6985
302.85	24.2765	477.60	20.8560	692.65	0.0000
256.23	19.4555	482.18	14.9469	695.00	13.6357
304.85	17.9264	487.02	9.9996	696.49	11.3721
306.78	20.5293	492.35	0.0000	696.51	11.3721
308.46	16.2810	497.08	10.0714	697.00	12.5124
311.90	19.7801	505.52	15.1971	697.30	11.3770
316.51	29.3806	507.63	0.0000	697.49	11.3778
319.41	21.6680	511.00	9.1530	702.65	17.1130
320.08	26.0193	514.00	9.1718	706.68	13.7197
321.04	29.5176	514.00	9.1718	711.68	10.3165
323.87	13.9307	520.40	11.0544	720.70	8.0613
325.23	27.0279	520.69	0.0000	721.93	0.0000
328.76	10.4995	522.65	0.0000	722.78	6.9172
333.37	21.9747	527.90	0.0000	722.91	6.9177
333.97	25.3295	528.26	5.1451	723.31	13.8379
334.37	31.6743	529.59	17.5091	724.19	14.9979
338.28	27.3804	529.87	0.0000	727.33	10.4000
338.32	27.3811	531.02	20.6185	733.00	16.2240
311.90	26.5540	537.26	11.3872	735.93	11.6060
340.48	26.5540	546.56	0.0000	333.97	11.6150
340.55	27.8836	552.55	17.7754	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	10.4890	949.00	2.8740	1384.29	3.3312
747.24	13.1310	667.71	0.0000	1408.01	5.5899
748.06	10.5088	962.31	12.8418	1434.09	3.6039
752.31	13.1639	964.08	10.7950	1435.80	0.0000
753.82	10.5388	966.17	12.3473	1457.56	0.0000
756.73	11.4337	911.20	13.5198	1460.82	2.7230
756.80	12.3137	983.53	9.7125	1489.16	5.4882
884.68	11.4742	984.45	0.0000	1505.03	5.5116
765.81	15.0182	1274.44	10.7368	1584.12	4.6890
766.42	13.2555	1001.03	7.8228	1596.21	5.6440
766.84	10.6066	1002.74	11.7422	1620.50	1.8929
772.60	0.0000	1004.73	11.7510	1621.92	1.8936
776.52	7.1040	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	3.8518
778.90	8.0013	1028.54	0.0000	1750.46	0.0000
783.70	12.4752	1037.84	8.9242	1764.49	8.1649
788.74	16.9712	1038.76	0.0000	1063.66	2.9432
792.07	17.8925	631.29	8.9533	1771.35	3.9254
795.86	13.4436	1048.07	9.9536	1791.20	0.0000
810.06	9.9241	1049.04	8.9615	1808.65	3.9590
810.29	9.9251	1050.41	9.9622	1810.72	0.0000
344.28	12.6328	1063.66	7.0077	1836.06	4.9792
810.76	10.8300	1077.00	4.0237		
815.77	7.2366	1077.34	4.0242		
1048.07	5.4344	1085.87	5.0458		
832.01	8.2018	1093.63	5.0598		
834.85	9.1248	1099.45	5.0702		
835.71	7.3027	1112.07	15.2783		
836.80	0.0000	1112.84	16.3008		
846.75	0.0000	1115.54	3.2633		
846.77	11.0087	1120.29	12.2578		
856.80	1.4744	1120.55	12.2585		
860.56	2.7690	1221.41	6.5398		
871.09	8.3454	1129.67	14.3469		
873.19	6.4967	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	11.6990	1173.23	10.4010		
880.51	5.9588	1177.95	7.2922		
881.60	5.9615	1189.05	11.5015		
883.24	7.4573	1204.77	14.7135		
884.68	10.4463	1221.41	4.2266		
889.28	4.4859	1231.02	10.5994		
894.76	10.3041	1235.36	11.6754		
898.04	8.4424	1238.28	5.3119		
900.72	8.4521	1260.41	0.0000		
903.28	11.8187	1271.87	7.5157		
911.20	8.4894	1274.44	10.7452		
912.08	8.4924	1274.54	10.7458		
923.98	0.0000	1291.59	5.4013		
926.50	9.4928	1298.22	0.0000		
929.11	10.4532	1312.11	4.3481		
935.54	9.5279	1332.49	4.3748		
937.49	11.4426	1362.66	0.0000		
944.13	7.6492	1365.19	4.4172		
946.00	3.8274	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:17:42.91

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299035.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM22.CNF;678
Background date    : 28-JUL-2024 11:28:18
Sample date       : 26-JUN-2024 12:20:00 Acquisition date : 31-JUL-2024 16:13:52
Sample ID        : G674299035 Sample quantity : 9.41800E+01 GRAM
Detector name    : GAM22 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:03.84 0.1%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	41.58	38	378	1.25	83.69	81	7	1.06E-02	86.2	
2	0	74.92	26	196	1.28	150.35	145	10	7.23E-03	102.3	
3	0	98.27	18	134	1.39	197.05	192	11	5.04E-03	126.0	
4	0	113.20	26	76	1.58	226.91	223	8	7.31E-03	61.1	
5	0	166.27	32	155	4.84	333.02	322	16	8.89E-03	89.0	
6	0	185.94*	42	121	1.23	372.36	366	13	1.18E-02	59.2	
7	4	238.72*	138	93	1.63	477.91	470	26	3.83E-02	16.0	1.22E+00
8	4	241.85	60	58	1.38	484.17	470	26	1.67E-02	27.4	
9	4	245.75	41	54	2.24	491.97	470	26	1.14E-02	38.9	
10	0	288.06	46	35	1.38	576.58	571	11	1.28E-02	29.1	
11	0	295.02*	123	35	2.09	590.49	583	14	3.42E-02	14.1	
12	0	351.86*	152	68	1.68	704.17	695	17	4.23E-02	15.1	
13	0	421.17	11	64	3.31	842.77	826	19	3.12E-03	170.8	
14	0	436.35	17	46	1.49	873.12	867	13	4.58E-03	87.8	
15	0	492.22	34	39	6.05	984.86	972	22	9.57E-03	49.0	
16	0	511.31*	12	52	2.95	1023.03	1013	20	3.41E-03	182.8	
17	0	553.11*	31	12	3.90	1106.64	1100	12	8.58E-03	29.7	
18	0	583.32*	33	38	1.92	1167.05	1158	14	9.10E-03	46.1	
19	0	609.76*	100	39	1.55	1219.93	1213	16	2.77E-02	18.5	
20	0	635.47	13	28	3.41	1271.35	1261	14	3.74E-03	87.6	
21	0	661.02	27	17	1.15	1322.45	1315	14	7.36E-03	38.7	
22	0	728.36	26	20	0.96	1457.13	1448	16	7.29E-03	42.8	
23	0	772.01	33	34	12.26	1544.43	1531	28	9.12E-03	53.8	
24	0	850.05	14	14	3.67	1700.52	1695	11	3.85E-03	58.5	
25	0	900.49	7	13	2.13	1801.42	1796	9	2.07E-03	95.3	
26	0	910.79*	32	6	2.63	1822.01	1816	12	8.84E-03	27.0	
27	0	964.54	16	10	5.82	1929.53	1921	14	4.34E-03	50.7	
28	0	969.07*	16	10	2.35	1938.58	1934	9	4.49E-03	47.7	
29	0	988.46	10	8	4.52	1977.36	1969	12	2.73E-03	68.2	
30	0	1081.02	10	0	1.00	2162.50	2159	8	2.78E-03	31.6	
31	0	1109.56	19	4	4.90	2219.60	2210	17	5.36E-03	33.2	
32	0	1120.50*	16	4	1.62	2241.48	2237	10	4.40E-03	41.5	
33	0	1312.39	12	2	3.14	2625.31	2620	11	3.23E-03	39.9	
34	0	1342.15	8	2	0.96	2684.84	2681	8	2.31E-03	45.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1373.12	7	3	1.17	2746.81	2741	10	1.81E-03	60.1	
36	0	1461.38*	56	4	1.57	2923.36	2915	17	1.57E-02	17.3	
37	0	1509.98*	11	0	4.10	3020.58	3015	12	2.97E-03	33.7	
38	0	1589.91	7	10	0.75	3180.49	3170	13	2.02E-03	96.0	
39	0	1765.01*	36	0	2.21	3530.80	3523	16	9.94E-03	19.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299035.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:20:00	Acquisition date	: 31-JUL-2024 16:13:52
Sample ID	: G674299035	Sample quantity	: 94.180 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA22	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:03.84 0.1%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	52	10.66*	1.820E+00	2.156E+00	2.156E+00	34.63
BA-137M	661.66	25	89.90*	3.427E+00	6.410E-02	6.424E-02	77.39
CS-137	661.66	25	85.10*	3.427E+00	6.772E-02	6.787E-02	77.39
CE-139	165.86	30	80.00*	7.420E+00	4.045E-02	4.829E-02	177.97
TL-208	277.37	-----	6.60	5.729E+00	-----	Line Not Found	-----
	583.19	31	85.00*	3.730E+00	7.701E-02	7.701E-02	92.19
	860.56	-----	12.50	2.805E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.039E+00	-----	Line Not Found	-----
	351.06	143	12.92*	5.021E+00	1.756E+00	1.756E+00	30.17
BI-212	727.33	25	6.67*	3.195E+00	9.172E-01	9.172E-01	85.52
	1620.50	-----	1.47	1.707E+00	-----	Line Not Found	-----
BI-214	609.32	93	45.49*	3.622E+00	4.503E-01	4.503E-01	36.97
	1120.29	15	14.92	2.247E+00	3.510E-01	3.510E-01	83.02
	1764.49	33	15.30	1.641E+00	1.056E+00	1.056E+00	37.96
PB-214	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.032E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
RN-222	609.32	93	45.49*	3.622E+00	4.503E-01	4.503E-01	36.97
	1120.29	15	14.92	2.247E+00	3.510E-01	3.510E-01	83.02
	1764.49	33	15.30	1.641E+00	1.056E+00	1.056E+00	37.96
RA-224	240.99	57	4.10*	6.180E+00	1.782E+00	1.782E+00	54.82
RA-226	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.032E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
TH-230	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.031E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
U-234	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.031E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
AM-243	43.53	-----	5.90	2.160E-01	-----	Line Not Found	-----
	74.66	25	67.20*	4.355E+00	6.702E-02	6.702E-02	204.68
ANH-511	511.00	11	100.00*	4.053E+00	2.258E-02	2.258E-02	365.56

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299035.CNF;1
Acquisition date : 31-JUL-2024 16:13:52 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:03.84 Half life ratio : *****
Sample date : 26-JUN-2024 12:20:00 Analyst initials: MXR1
Sample ID : G674299035 Sample Quantity : 9.4180E+01 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.156E+00	7.318E-01	5.692E-01
BA-137M	6.424E-02	4.873E-02	5.664E-02
CS-137	6.787E-02	5.147E-02	5.984E-02
CE-139	4.829E-02	8.423E-02	6.282E-02
TL-208	7.701E-02	6.957E-02	6.318E-02
BI-211	1.756E+00	5.193E-01	3.675E-01
BI-212	9.172E-01	7.687E-01	8.231E-01
BI-214	4.503E-01	1.631E-01	1.220E-01
PB-214	6.374E-01	1.885E-01	1.336E-01
RN-222	4.503E-01	1.631E-01	1.220E-01
RA-224	1.782E+00	9.571E-01	1.273E+00
RA-226	6.374E-01	1.885E-01	1.336E-01
TH-230	6.374E-01	1.884E-01	1.336E-01
U-234	6.374E-01	1.884E-01	1.336E-01
AM-243	6.702E-02	1.344E-01	1.400E-01
ANH-511	2.258E-02	8.091E-02	5.147E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	5.582E-01	4.154E-01	8.837E-01	NOT IDENT.
NA-22	1.626E-02	3.090E-02	6.899E-02	NOT IDENT.
NA-24	0.000E+00	3.030E+15	0.000E+00	SHORT HLIF
AL-26	1.902E-02	3.082E-02	7.293E-02	NOT IDENT.
SC-46	-3.838E-03	4.250E-02	7.830E-02	FAIL ABUN
V-48	5.505E-02	1.659E-01	2.950E-01	FAIL ABUN
CR-51	-3.536E-02	6.600E-01	1.220E+00	NOT IDENT.
MN-52	5.005E-02	2.787E+00	5.579E+00	NOT IDENT.
MN-54	-3.591E-02	3.233E-02	4.804E-02	NOT IDENT.
CO-56	3.304E-02	5.119E-02	9.403E-02	NOT IDENT.
MN-56	0.000E+00	1.563E+41	0.000E+00	SHORT HLIF
CO-57	1.440E-02	3.004E-02	5.503E-02	NOT IDENT.
CO-58	1.617E-02	4.015E-02	8.087E-02	NOT IDENT.
FE-59	-2.492E-02	9.475E-02	1.807E-01	NOT IDENT.

CO-60	-8.523E-03	3.326E-02	6.349E-02	NOT IDENT.
ZN-65	4.901E-02	1.149E-01	1.607E-01	NOT IDENT.
GE-68	1.874E-01	1.040E+00	1.939E+00	NOT IDENT.
AS-73	1.323E-01	3.604E+00	6.343E+00	NOT IDENT.
AS-74	-9.311E-02	1.994E-01	3.478E-01	FAIL ABUN
SE-75	3.479E-02	5.416E-02	1.005E-01	NOT IDENT.
BR-77	0.000E+00	6.453E+03	0.000E+00	SHORT HLIF
SR-82	1.083E-01	5.425E-01	1.040E+00	NOT IDENT.
RB-83	-1.282E-02	8.077E-02	1.478E-01	FAIL ABUN
RB-84	-8.802E-03	9.606E-02	1.771E-01	NOT IDENT.
KR-85	9.475E+00	7.615E+00	1.563E+01	NOT IDENT.
SR-85	6.163E-02	4.979E-02	1.022E-01	NOT IDENT.
RB-86	-3.754E-01	1.524E+00	2.486E+00	NOT IDENT.
Y-88	2.236E-02	3.427E-02	8.507E-02	NOT IDENT.
Y-91	3.317E+00	1.726E+01	3.626E+01	NOT IDENT.
NB-94	1.312E-02	3.283E-02	6.368E-02	NOT IDENT.
NB-95	1.590E-02	5.232E-02	9.034E-02	NOT IDENT.
NB-95M	1.202E-01	2.019E-01	3.292E-01	NOT IDENT.
ZR-95	-3.560E-02	8.795E-02	1.532E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.269E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.616E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	4.845E+40	0.000E+00	SHORT HLIF
RH-101	-8.007E-03	3.611E-02	6.241E-02	NOT IDENT.
RH-102	1.562E-02	6.149E-02	1.048E-01	NOT IDENT.
RU-103	8.803E-03	5.208E-02	9.019E-02	FAIL ABUN
RH-106	-2.984E-02	3.159E-01	5.805E-01	NOT IDENT.
RU-106	-2.984E-02	3.159E-01	5.805E-01	NOT IDENT.
AG-108M	1.662E-02	3.608E-02	6.262E-02	NOT IDENT.
CD-109	5.359E-01	1.130E+00	2.035E+00	NOT IDENT.
AG-110	2.196E-01	6.472E-01	1.173E+00	NOT IDENT.
AG-110M	-3.140E-02	4.480E-02	7.325E-02	NOT IDENT.
SN-113	2.196E-02	4.859E-02	9.515E-02	NOT IDENT.
CD-115	0.000E+00	6.138E+03	0.000E+00	SHORT HLIF
SN-117M	-1.680E-01	2.183E-01	3.113E-01	NOT IDENT.
SB-122	0.000E+00	2.961E+02	0.000E+00	SHORT HLIF
TE-123M	-1.706E-02	4.240E-02	6.305E-02	NOT IDENT.
SB-124	3.146E-02	1.123E-01	2.388E-01	NOT IDENT.
SB-125	-5.379E-03	9.424E-02	1.743E-01	FAIL ABUN
TE-125M	-3.426E+00	1.601E+01	2.471E+01	NOT IDENT.
I-126	-1.644E-01	7.175E-01	1.114E+00	NOT IDENT.
SB-126	-2.019E-01	5.399E-01	8.066E-01	NOT IDENT.
SN-126	1.028E-01	1.108E-01	2.042E-01	NOT IDENT.
SB-127	3.706E+01	4.119E+01	8.767E+01	NOT IDENT.
I-131	-1.257E-01	6.060E-01	1.115E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.175E+01	0.000E+00	SHORT HLIF
BA-133	-6.954E-03	4.503E-02	7.284E-02	NOT IDENT.
I-133	0.000E+00	5.708E+10	0.000E+00	SHORT HLIF
CS-134	2.552E-02	3.925E-02	7.948E-02	NOT IDENT.
I-135	0.000E+00	4.692E+37	0.000E+00	SHORT HLIF
CS-136	7.127E-02	2.531E-01	5.238E-01	NOT IDENT.
LA-138	4.703E-02	5.605E-02	1.272E-01	NOT IDENT.
BA-140	1.520E-02	8.273E-01	1.535E+00	NOT IDENT.
LA-140	1.327E-02	2.089E-01	4.409E-01	NOT IDENT.
CE-141	2.309E-02	1.062E-01	1.894E-01	NOT IDENT.
CE-143	0.000E+00	3.961E+06	0.000E+00	SHORT HLIF
CE-144	2.582E-02	2.436E-01	4.306E-01	NOT IDENT.
PM-144	5.184E-04	3.612E-02	6.658E-02	NOT IDENT.
PR-144	1.562E-02	2.728E+00	5.024E+00	NOT IDENT.
PM-146	-1.036E-02	4.795E-02	8.645E-02	NOT IDENT.
ND-147	1.803E+00	2.130E+00	4.295E+00	NOT IDENT.
PM-147	-2.448E+02	8.569E+02	1.476E+03	NOT IDENT.
PM-149	0.000E+00	6.678E+04	0.000E+00	SHORT HLIF
EU-150	-2.735E-02	3.096E-02	5.278E-02	FAIL ABUN
EU-152	1.169E-02	1.182E-01	1.959E-01	FAIL ABUN
GD-153	7.538E-02	1.861E-01	2.006E-01	FAIL ABUN
EU-154	4.106E-02	8.550E-02	1.901E-01	NOT IDENT.
EU-155	-3.854E-02	1.264E-01	2.179E-01	NOT IDENT.
TB-160	4.498E-02	1.457E-01	2.867E-01	NOT IDENT.
HO-166M	-1.567E-02	5.675E-02	1.013E-01	NOT IDENT.
TM-171	4.356E+01	7.082E+01	1.278E+02	NOT IDENT.
HF-172	-9.269E-02	2.298E-01	3.820E-01	FAIL ABUN
LU-172	1.257E-02	5.789E-02	1.172E-01	FAIL ABUN
LU-176	-1.704E-02	2.844E-02	5.008E-02	NOT IDENT.
HF-181	-2.438E-02	6.707E-02	1.097E-01	NOT IDENT.
TA-182	9.855E-02	1.232E-01	2.934E-01	FAIL ABUN
RE-183	6.303E-02	6.159E-01	1.094E+00	NOT IDENT.

RE-184	-1.406E-01	1.640E-01	1.985E-01	NOT IDENT.
W-188	5.911E+00	1.016E+01	1.460E+01	NOT IDENT.
IR-192	-4.073E-03	4.373E-02	8.081E-02	FAIL ABUN
HG-203	-2.684E-02	5.882E-02	9.695E-02	NOT IDENT.
TL-204	-3.149E+00	8.627E+00	1.323E+01	NOT IDENT.
BI-207	-1.040E-02	4.350E-02	8.284E-02	FAIL ABUN
BI-210	7.466E+00	2.318E+01	4.087E+01	NOT IDENT.
PB-210	7.466E+00	2.318E+01	4.087E+01	NOT IDENT.
PB-211	4.987E-01	7.141E-01	1.422E+00	NOT IDENT.
PB-212	0.000E+00	1.196E-01	2.066E-01	FAIL ABUN
BI-213	-3.985E-02	1.221E-01	1.877E-01	NOT IDENT.
RN-219	-2.937E-01	4.037E-01	6.935E-01	NOT IDENT.
RA-223	-2.091E-01	6.524E-01	1.180E+00	NOT IDENT.
AC-225	-9.083E-01	2.753E+00	4.632E+00	NOT IDENT.
AC-227	-2.585E-02	2.950E-01	5.064E-01	NOT IDENT.
TH-227	-2.585E-02	2.950E-01	5.064E-01	NOT IDENT.
AC-228	3.427E-01	1.817E-01	3.873E-01	FAIL ABUN
RA-228	3.427E-01	1.817E-01	3.873E-01	FAIL ABUN
TH-228	0.000E+00	1.196E-01	2.066E-01	FAIL ABUN
TH-229	1.571E-01	6.056E-01	1.075E+00	NOT IDENT.
PA-231	3.292E-01	5.298E-01	1.004E+00	NOT IDENT.
TH-231	-2.091E-01	6.524E-01	1.180E+00	NOT IDENT.
TH-232	3.427E-01	1.817E-01	3.873E-01	FAIL ABUN
PA-233	6.383E-02	6.750E-02	1.359E-01	NOT IDENT.
PA-234	9.603E-02	2.245E-01	4.677E-01	FAIL ABUN
PA-234M	1.038E+00	3.925E+00	7.951E+00	NOT IDENT.
TH-234	-3.091E-01	2.701E+00	4.684E+00	NOT IDENT.
U-235	-8.157E-02	2.392E-01	3.997E-01	FAIL ABUN
NP-237	6.383E-02	6.750E-02	1.359E-01	FAIL ABUN
NP-238	0.000E+00	1.276E+04	0.000E+00	SHORT HLIF
U-238	-3.091E-01	2.701E+00	4.684E+00	NOT IDENT.
NP-239	1.575E-01	2.996E-01	5.056E-01	FAIL ABUN
PU-239	5.059E+01	3.787E+02	6.733E+02	NOT IDENT.
AM-241	3.819E-03	3.627E-01	6.407E-01	NOT IDENT.
CM-243	-8.711E-03	1.440E-01	2.260E-01	FAIL ABUN
BK-247	1.281E-03	9.022E-02	1.569E-01	NOT IDENT.
CM-247	-6.750E-03	3.641E-02	6.664E-02	FAIL ABUN
CF-249	-5.954E-03	3.945E-02	7.251E-02	NOT IDENT.
CF-251	1.088E-03	1.390E-01	2.434E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	52	10.66*	1.820E+00	2.156E+00	2.156E+00	34.63
BA-137M	661.66	25	89.90*	3.427E+00	6.410E-02	6.424E-02	77.39
CS-137	661.66	25	85.10*	3.427E+00	6.772E-02	6.787E-02	77.39
CE-139	165.86	30	80.00*	7.420E+00	4.045E-02	4.829E-02	177.97
TL-208	277.37	-----	6.60	5.729E+00	-----	Line Not Found	-----
	583.19	31	85.00*	3.730E+00	7.701E-02	7.701E-02	92.19
	860.56	-----	12.50	2.805E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.039E+00	-----	Line Not Found	-----
	351.06	143	12.92*	5.021E+00	1.756E+00	1.756E+00	30.17
BI-212	727.33	25	6.67*	3.195E+00	9.172E-01	9.172E-01	85.52
	1620.50	-----	1.47	1.707E+00	-----	Line Not Found	-----
BI-214	609.32	93	45.49*	3.622E+00	4.503E-01	4.503E-01	36.97
	1120.29	15	14.92	2.247E+00	3.510E-01	3.510E-01	83.02
	1764.49	33	15.30	1.641E+00	1.056E+00	1.056E+00	37.96
PB-214	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.032E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
RN-222	609.32	93	45.49*	3.622E+00	4.503E-01	4.503E-01	36.97
	1120.29	15	14.92	2.247E+00	3.510E-01	3.510E-01	83.02
	1764.49	33	15.30	1.641E+00	1.056E+00	1.056E+00	37.96
RA-224	240.99	57	4.10*	6.180E+00	1.782E+00	1.782E+00	54.82
RA-226	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.032E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
TH-230	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.031E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
U-234	74.82	25	5.80	4.355E+00	7.765E-01	7.765E-01	204.68
	77.11	-----	9.70	4.680E+00	-----	Line Not Found	-----
	87.09	-----	3.41	5.944E+00	-----	Line Not Found	-----
	242.00	57	7.25	6.180E+00	1.008E+00	1.008E+00	54.82
	295.22	116	18.42	5.536E+00	9.031E-01	9.031E-01	28.14
	351.93	143	35.60*	5.021E+00	6.374E-01	6.374E-01	30.17
AM-243	43.53	-----	5.90	2.160E-01	-----	Line Not Found	-----
	74.66	25	67.20*	4.355E+00	6.702E-02	6.702E-02	204.68
ANH-511	511.00	11	100.00*	4.053E+00	2.258E-02	2.258E-02	365.56

Flag: "*" = Keyline

Total number of lines in spectrum 39
Number of unidentified lines 11
Number of lines tentatively identified by NID 28 71.79%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.156E+00	2.156E+00	0.747E+00	34.63	
BA-137M	30.08Y	1.00	6.410E-02	6.424E-02	4.972E-02	77.39	
CS-137	30.08Y	1.00	6.772E-02	6.787E-02	5.253E-02	77.39	
CE-139	137.64D	1.19	4.045E-02	4.829E-02	8.595E-02	177.97	
TL-208	1.41E+10Y	1.00	7.701E-02	7.701E-02	7.099E-02	92.19	
BI-211	7.04E+08Y	1.00	1.756E+00	1.756E+00	0.530E+00	30.17	
BI-212	1.41E+10Y	1.00	9.172E-01	9.172E-01	7.844E-01	85.52	
BI-214	1600.00Y	1.00	4.503E-01	4.503E-01	1.665E-01	36.97	
PB-214	1600.00Y	1.00	6.374E-01	6.374E-01	1.923E-01	30.17	
RN-222	1600.00Y	1.00	4.503E-01	4.503E-01	1.665E-01	36.97	
RA-224	1.41E+10Y	1.00	1.782E+00	1.782E+00	0.977E+00	54.82	
RA-226	1600.00Y	1.00	6.374E-01	6.374E-01	1.923E-01	30.17	
TH-230	7.54E+04Y	1.00	6.374E-01	6.374E-01	1.923E-01	30.17	
U-234	2.45E+05Y	1.00	6.374E-01	6.374E-01	1.923E-01	30.17	
AM-243	7370.00Y	1.00	6.702E-02	6.702E-02	13.72E-02	204.68	
ANH-511	1.00E+09Y	1.00	2.258E-02	2.258E-02	8.256E-02	365.56	
Total Activity :			1.040E+01	1.041E+01			

Grand Total Activity : 1.040E+01 1.041E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	41.58	36	358	1.25	83.69	81	7	1.06E-02	****	1.38E-01	
0	98.27	17	126	1.39	197.05	192	11	5.04E-03	****	6.91E+00	T
0	113.20	25	71	1.58	226.91	223	8	7.31E-03	****	7.59E+00	T
0	185.94	40	114	1.23	372.36	366	13	1.18E-02	****	7.08E+00	T
4	238.72	130	87	1.63	477.91	470	26	3.83E-02	32.0	6.22E+00	T
4	245.75	39	51	2.24	491.97	470	26	1.14E-02	77.8	6.13E+00	T
0	288.06	43	33	1.38	576.58	571	11	1.28E-02	58.3	5.61E+00	T
0	421.17	11	60	3.31	842.77	826	19	3.12E-03	****	4.54E+00	
0	436.35	15	43	1.49	873.12	867	13	4.58E-03	****	4.45E+00	
0	492.22	32	36	6.05	984.86	972	22	9.57E-03	97.9	4.15E+00	T
0	553.11	29	11	3.90	1106.64	1100	12	8.58E-03	59.4	3.86E+00	T
0	635.47	13	26	3.41	1271.35	1261	14	3.74E-03	****	3.52E+00	T
0	772.01	31	32	12.26	1544.43	1531	28	9.12E-03	****	3.06E+00	T
0	850.05	13	13	3.67	1700.52	1695	11	3.85E-03	****	2.83E+00	
0	900.49	7	12	2.13	1801.42	1796	9	2.07E-03	****	2.70E+00	T
0	910.79	30	6	2.63	1822.01	1816	12	8.84E-03	54.1	2.68E+00	T
0	964.54	15	10	5.82	1929.53	1921	14	4.34E-03	****	2.55E+00	T
0	969.07	15	10	2.35	1938.58	1934	9	4.49E-03	95.3	2.54E+00	T
0	988.46	9	8	4.52	1977.36	1969	12	2.73E-03	****	2.50E+00	
0	1081.02	9	0	1.00	2162.50	2159	8	2.78E-03	63.2	2.32E+00	
0	1109.56	18	3	4.90	2219.60	2210	17	5.36E-03	66.5	2.27E+00	
0	1312.39	11	2	3.14	2625.31	2620	11	3.23E-03	79.8	1.97E+00	T
0	1342.15	8	2	0.96	2684.84	2681	8	2.31E-03	90.2	1.94E+00	
0	1373.12	6	2	1.17	2746.81	2741	10	1.81E-03	****	1.90E+00	
0	1509.98	10	0	4.10	3020.58	3015	12	2.97E-03	67.3	1.78E+00	
0	1589.91	7	9	0.75	3180.49	3170	13	2.02E-03	****	1.73E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299035.CNF;1 *
* Acquisition date : 31-JUL-2024 16:13:52 Sensitivity : 3.000 *
* Detector ID : GAM22 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:03.84 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:20:00 Nuclide Library : SOLID *
* Sample ID : G674299035 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 9.4180E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.297E-01
BA-137M	2.486E-02
CS-137	2.626E-02
CE-139	2.928E-02
TL-208	2.824E-02
BI-211	1.674E-01
BI-212	3.617E-01
BI-214	5.456E-02
PB-214	6.086E-02
RN-222	5.456E-02
RA-224	5.948E-01
RA-226	6.086E-02
TH-230	6.086E-02
U-234	6.086E-02
AM-243	6.635E-02
ANH-511	2.311E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.038E-01	NOT IDENT.
NA-22	2.908E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.990E-02	NOT IDENT.
SC-46	3.393E-02	FAIL ABUN
V-48	1.280E-01	FAIL ABUN
CR-51	5.613E-01	NOT IDENT.
MN-52	2.336E+00	NOT IDENT.
MN-54	2.001E-02	NOT IDENT.
CO-56	4.188E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.577E-02	NOT IDENT.
CO-58	3.530E-02	NOT IDENT.
FE-59	7.609E-02	NOT IDENT.
CO-60	2.621E-02	NOT IDENT.

ZN-65	7.002E-02	NOT IDENT.
GE-68	8.138E-01	NOT IDENT.
AS-73	3.039E+00	NOT IDENT.
AS-74	1.546E-01	FAIL ABUN
SE-75	4.650E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	4.592E-01	NOT IDENT.
RB-83	6.610E-02	FAIL ABUN
RB-84	7.672E-02	NOT IDENT.
KR-85	7.206E+00	NOT IDENT.
SR-85	4.709E-02	NOT IDENT.
RB-86	1.047E+00	NOT IDENT.
Y-88	3.420E-02	NOT IDENT.
Y-91	1.519E+01	NOT IDENT.
NB-94	2.859E-02	NOT IDENT.
NB-95	4.010E-02	NOT IDENT.
NB-95M	1.546E-01	NOT IDENT.
ZR-95	6.736E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.916E-02	NOT IDENT.
RH-102	4.694E-02	NOT IDENT.
RU-103	3.982E-02	FAIL ABUN
RH-106	2.582E-01	NOT IDENT.
RU-106	2.582E-01	NOT IDENT.
AG-108M	2.868E-02	NOT IDENT.
CD-109	9.678E-01	NOT IDENT.
AG-110	5.106E-01	NOT IDENT.
AG-110M	3.074E-02	NOT IDENT.
SN-113	4.330E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.459E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.947E-02	NOT IDENT.
SB-124	9.932E-02	NOT IDENT.
SB-125	7.904E-02	FAIL ABUN
TE-125M	1.155E+01	NOT IDENT.
I-126	4.943E-01	NOT IDENT.
SB-126	3.591E-01	NOT IDENT.
SN-126	9.732E-02	NOT IDENT.
SB-127	3.896E+01	NOT IDENT.
I-131	5.024E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.297E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.543E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.262E-01	NOT IDENT.
LA-138	5.480E-02	NOT IDENT.
BA-140	6.927E-01	NOT IDENT.
LA-140	1.765E-01	NOT IDENT.
CE-141	8.867E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.020E-01	NOT IDENT.
PM-144	2.983E-02	NOT IDENT.
PR-144	2.250E+00	NOT IDENT.
PM-146	3.942E-02	NOT IDENT.
ND-147	1.959E+00	NOT IDENT.
PM-147	6.890E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.425E-02	FAIL ABUN
EU-152	9.009E-02	FAIL ABUN
GD-153	9.442E-02	FAIL ABUN
EU-154	7.985E-02	NOT IDENT.
EU-155	1.020E-01	NOT IDENT.
TB-160	1.254E-01	NOT IDENT.
HO-166M	4.462E-02	NOT IDENT.
TM-171	6.139E+01	NOT IDENT.
HF-172	1.785E-01	FAIL ABUN
LU-172	5.095E-02	FAIL ABUN
LU-176	2.295E-02	NOT IDENT.
HF-181	4.924E-02	NOT IDENT.
TA-182	1.233E-01	FAIL ABUN
RE-183	5.206E-01	NOT IDENT.
RE-184	7.856E-02	NOT IDENT.

W-188	6.628E+00	NOT IDENT.
IR-192	3.705E-02	FAIL ABUN
HG-203	4.463E-02	NOT IDENT.
TL-204	6.249E+00	NOT IDENT.
BI-207	3.533E-02	FAIL ABUN
BI-210	1.980E+01	NOT IDENT.
PB-210	1.980E+01	NOT IDENT.
PB-211	6.503E-01	NOT IDENT.
PB-212	9.942E-02	FAIL ABUN
BI-213	8.459E-02	NOT IDENT.
RN-219	3.122E-01	NOT IDENT.
RA-223	5.394E-01	NOT IDENT.
AC-225	2.153E+00	NOT IDENT.
AC-227	2.346E-01	NOT IDENT.
TH-227	2.346E-01	NOT IDENT.
AC-228	1.783E-01	FAIL ABUN
RA-228	1.783E-01	FAIL ABUN
TH-228	9.942E-02	FAIL ABUN
TH-229	5.028E-01	NOT IDENT.
PA-231	4.657E-01	NOT IDENT.
TH-231	5.394E-01	NOT IDENT.
TH-232	1.783E-01	FAIL ABUN
PA-233	6.283E-02	NOT IDENT.
PA-234	1.997E-01	FAIL ABUN
PA-234M	3.463E+00	NOT IDENT.
TH-234	2.227E+00	NOT IDENT.
U-235	1.874E-01	FAIL ABUN
NP-237	6.283E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	2.227E+00	NOT IDENT.
NP-239	2.354E-01	FAIL ABUN
PU-239	3.151E+02	NOT IDENT.
AM-241	3.048E-01	NOT IDENT.
CM-243	1.060E-01	FAIL ABUN
BK-247	7.242E-02	NOT IDENT.
CM-247	3.015E-02	FAIL ABUN
CF-249	3.287E-02	NOT IDENT.
CF-251	1.132E-01	NOT IDENT.

GEL Laboratories LLC
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DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299035.CNF;1
Acquisition date : 31-JUL-2024 16:13:52 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:03.84 Half life ratio : *****
Sample date : 26-JUN-2024 12:20:00 Nuclide Library : SOLID
Sample ID : G674299035 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 9.4180E+01 GRAM
Quantity Err(%) : 1.0618E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.156E+00	7.625E-01	7.625E-01
BA-137M	6.424E-02	4.919E-02	4.919E-02
CS-137	6.787E-02	5.196E-02	5.196E-02
CE-139	4.829E-02	8.496E-02	8.496E-02
TL-208	7.701E-02	6.998E-02	6.998E-02
BI-211	1.756E+00	5.448E-01	5.448E-01
BI-212	9.172E-01	7.755E-01	7.755E-01
BI-214	4.503E-01	1.693E-01	1.693E-01
PB-214	6.374E-01	1.975E-01	1.975E-01
RN-222	4.503E-01	1.693E-01	1.693E-01
RA-224	1.782E+00	9.791E-01	9.791E-01
RA-226	6.374E-01	1.975E-01	1.975E-01
TH-230	6.374E-01	1.975E-01	1.975E-01
U-234	6.374E-01	1.975E-01	1.975E-01
AM-243	6.702E-02	1.347E-01	1.347E-01
ANH-511	2.258E-02	8.093E-02	8.093E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	5.582E-01	4.184E-01	4.882E-01	NOT IDENT.
NA-22	1.626E-02	3.093E-02	3.179E-02	NOT IDENT.
NA-24	2.718E+14	3.030E+15	3.032E+15	SHORT HLIF
AL-26	1.902E-02	3.085E-02	3.202E-02	NOT IDENT.
SC-46	-3.838E-03	4.250E-02	4.254E-02	FAIL ABUN
V-48	5.505E-02	1.660E-01	1.679E-01	FAIL ABUN
CR-51	-3.536E-02	6.601E-01	6.602E-01	NOT IDENT.
MN-52	5.005E-02	2.787E+00	2.787E+00	NOT IDENT.
MN-54	-3.591E-02	3.259E-02	3.639E-02	NOT IDENT.
CO-56	3.304E-02	5.133E-02	5.345E-02	NOT IDENT.
MN-56	1.000E+41	1.567E+41	0.000E+00	SHORT HLIF
CO-57	1.440E-02	3.006E-02	3.076E-02	NOT IDENT.
CO-58	1.617E-02	4.019E-02	4.085E-02	NOT IDENT.
FE-59	-2.492E-02	9.479E-02	9.546E-02	NOT IDENT.

CO-60	-8.523E-03	3.327E-02	3.350E-02	NOT IDENT.
ZN-65	4.901E-02	1.150E-01	1.171E-01	NOT IDENT.
GE-68	1.874E-01	1.040E+00	1.044E+00	NOT IDENT.
AS-73	1.323E-01	3.604E+00	3.605E+00	NOT IDENT.
AS-74	-9.311E-02	1.997E-01	2.041E-01	FAIL ABUN
SE-75	3.479E-02	5.430E-02	5.652E-02	NOT IDENT.
BR-77	2.056E+04	2.198E+04	2.385E+04	SHORT HLIF
SR-82	1.083E-01	5.427E-01	5.448E-01	NOT IDENT.
RB-83	-1.282E-02	8.079E-02	8.100E-02	FAIL ABUN
RB-84	-8.802E-03	9.606E-02	9.615E-02	NOT IDENT.
KR-85	9.475E+00	7.665E+00	8.775E+00	NOT IDENT.
SR-85	6.163E-02	5.011E-02	5.730E-02	NOT IDENT.
RB-86	-3.754E-01	1.524E+00	1.534E+00	NOT IDENT.
Y-88	2.236E-02	3.431E-02	3.576E-02	NOT IDENT.
Y-91	3.317E+00	1.726E+01	1.732E+01	NOT IDENT.
NB-94	1.312E-02	3.286E-02	3.339E-02	NOT IDENT.
NB-95	1.590E-02	5.235E-02	5.284E-02	NOT IDENT.
NB-95M	1.202E-01	2.026E-01	2.097E-01	NOT IDENT.
ZR-95	-3.560E-02	8.803E-02	8.949E-02	NOT IDENT.
NB-97	1.000E+41	3.937E+41	0.000E+00	SHORT HLIF
ZR-97	3.996E+14	8.277E+14	8.471E+14	SHORT HLIF
MO-99	7.518E+02	1.619E+03	1.654E+03	SHORT HLIF
TC-99M	3.432E+40	4.864E+40	0.000E+00	SHORT HLIF
RH-101	-8.007E-03	3.614E-02	3.632E-02	NOT IDENT.
RH-102	1.562E-02	6.152E-02	6.192E-02	NOT IDENT.
RU-103	8.803E-03	5.209E-02	5.224E-02	FAIL ABUN
RH-106	-2.984E-02	3.159E-01	3.162E-01	NOT IDENT.
RU-106	-2.984E-02	3.159E-01	3.162E-01	NOT IDENT.
AG-108M	1.662E-02	3.611E-02	3.688E-02	NOT IDENT.
CD-109	5.359E-01	1.132E+00	1.158E+00	NOT IDENT.
AG-110	2.196E-01	6.476E-01	6.552E-01	NOT IDENT.
AG-110M	-3.140E-02	4.496E-02	4.714E-02	NOT IDENT.
SN-113	2.196E-02	4.862E-02	4.962E-02	NOT IDENT.
CD-115	-2.186E+02	6.138E+03	6.139E+03	SHORT HLIF
SN-117M	-1.680E-01	2.191E-01	2.318E-01	NOT IDENT.
SB-122	3.496E+02	2.981E+02	3.372E+02	SHORT HLIF
TE-123M	-1.706E-02	4.244E-02	4.313E-02	NOT IDENT.
SB-124	3.146E-02	1.123E-01	1.132E-01	NOT IDENT.
SB-125	-5.379E-03	9.424E-02	9.427E-02	FAIL ABUN
TE-125M	-3.426E+00	1.601E+01	1.609E+01	NOT IDENT.
I-126	-1.644E-01	7.178E-01	7.216E-01	NOT IDENT.
SB-126	-2.019E-01	5.406E-01	5.482E-01	NOT IDENT.
SN-126	1.028E-01	1.116E-01	1.208E-01	NOT IDENT.
SB-127	3.706E+01	4.180E+01	4.502E+01	NOT IDENT.
I-131	-1.257E-01	6.061E-01	6.088E-01	NOT IDENT.
I-132	1.000E+41	1.121E+42	0.000E+00	SHORT HLIF
TE-132	5.539E+00	6.176E+01	6.181E+01	SHORT HLIF
BA-133	-6.954E-03	4.504E-02	4.515E-02	NOT IDENT.
I-133	6.864E+09	5.710E+10	5.718E+10	SHORT HLIF
CS-134	2.552E-02	3.936E-02	4.100E-02	NOT IDENT.
I-135	1.254E+37	4.798E+37	0.000E+00	SHORT HLIF
CS-136	7.127E-02	2.533E-01	2.553E-01	NOT IDENT.
LA-138	4.703E-02	5.622E-02	6.009E-02	NOT IDENT.
BA-140	1.520E-02	8.273E-01	8.273E-01	NOT IDENT.
LA-140	1.327E-02	2.089E-01	2.090E-01	NOT IDENT.
CE-141	2.309E-02	1.062E-01	1.067E-01	NOT IDENT.
CE-143	5.604E+06	4.006E+06	4.736E+06	SHORT HLIF
CE-144	2.582E-02	2.436E-01	2.439E-01	NOT IDENT.
PM-144	5.184E-04	3.612E-02	3.612E-02	NOT IDENT.
PR-144	1.562E-02	2.728E+00	2.728E+00	NOT IDENT.
PM-146	-1.036E-02	4.796E-02	4.819E-02	NOT IDENT.
ND-147	1.803E+00	2.137E+00	2.286E+00	NOT IDENT.
PM-147	-2.448E+02	8.571E+02	8.642E+02	NOT IDENT.
PM-149	-4.152E+04	6.714E+04	6.970E+04	SHORT HLIF
EU-150	-2.735E-02	3.107E-02	3.343E-02	FAIL ABUN
EU-152	1.169E-02	1.182E-01	1.183E-01	FAIL ABUN
GD-153	7.538E-02	1.863E-01	1.893E-01	FAIL ABUN
EU-154	4.106E-02	8.558E-02	8.756E-02	NOT IDENT.
EU-155	-3.854E-02	1.264E-01	1.276E-01	NOT IDENT.
TB-160	4.498E-02	1.458E-01	1.472E-01	NOT IDENT.
HO-166M	-1.567E-02	5.678E-02	5.722E-02	NOT IDENT.
TM-171	4.356E+01	7.111E+01	7.377E+01	NOT IDENT.
HF-172	-9.269E-02	2.304E-01	2.342E-01	FAIL ABUN
LU-172	1.257E-02	5.791E-02	5.819E-02	FAIL ABUN
LU-176	-1.704E-02	2.849E-02	2.951E-02	NOT IDENT.
HF-181	-2.438E-02	6.711E-02	6.800E-02	NOT IDENT.
TA-182	9.855E-02	1.235E-01	1.312E-01	FAIL ABUN
RE-183	6.303E-02	6.160E-01	6.166E-01	NOT IDENT.

RE-184	-1.406E-01	1.650E-01	1.768E-01	NOT IDENT.
W-188	5.911E+00	1.019E+01	1.054E+01	NOT IDENT.
IR-192	-4.073E-03	4.373E-02	4.377E-02	FAIL ABUN
HG-203	-2.684E-02	5.889E-02	6.012E-02	NOT IDENT.
TL-204	-3.149E+00	8.637E+00	8.753E+00	NOT IDENT.
BI-207	-1.040E-02	4.351E-02	4.377E-02	FAIL ABUN
BI-210	7.466E+00	2.319E+01	2.343E+01	NOT IDENT.
PB-210	7.466E+00	2.319E+01	2.343E+01	NOT IDENT.
PB-211	4.987E-01	7.155E-01	7.499E-01	NOT IDENT.
PB-212	3.810E-01	1.274E-01	2.139E-01	FAIL ABUN
BI-213	-3.985E-02	1.222E-01	1.235E-01	NOT IDENT.
RN-219	-2.937E-01	4.059E-01	4.270E-01	NOT IDENT.
RA-223	-2.091E-01	6.528E-01	6.596E-01	NOT IDENT.
AC-225	-9.083E-01	2.755E+00	2.786E+00	NOT IDENT.
AC-227	-2.585E-02	2.950E-01	2.952E-01	NOT IDENT.
TH-227	-2.585E-02	2.950E-01	2.952E-01	NOT IDENT.
AC-228	3.427E-01	1.862E-01	2.420E-01	FAIL ABUN
RA-228	3.427E-01	1.862E-01	2.420E-01	FAIL ABUN
TH-228	3.810E-01	1.274E-01	2.139E-01	FAIL ABUN
TH-229	1.571E-01	6.059E-01	6.100E-01	NOT IDENT.
PA-231	3.292E-01	5.353E-01	5.555E-01	NOT IDENT.
TH-231	-2.091E-01	6.528E-01	6.596E-01	NOT IDENT.
TH-232	3.427E-01	1.862E-01	2.420E-01	FAIL ABUN
PA-233	6.383E-02	6.782E-02	7.367E-02	NOT IDENT.
PA-234	9.603E-02	2.501E-01	2.538E-01	FAIL ABUN
PA-234M	1.038E+00	3.927E+00	3.955E+00	NOT IDENT.
TH-234	-3.091E-01	2.702E+00	2.705E+00	NOT IDENT.
U-235	-8.157E-02	2.393E-01	2.421E-01	FAIL ABUN
NP-237	6.383E-02	6.782E-02	7.367E-02	FAIL ABUN
NP-238	9.134E+03	1.280E+04	1.344E+04	SHORT HLIF
U-238	-3.091E-01	2.702E+00	2.705E+00	NOT IDENT.
NP-239	1.575E-01	3.001E-01	3.084E-01	FAIL ABUN
PU-239	5.059E+01	3.787E+02	3.794E+02	NOT IDENT.
AM-241	3.819E-03	3.627E-01	3.627E-01	NOT IDENT.
CM-243	-8.711E-03	1.440E-01	1.441E-01	FAIL ABUN
BK-247	1.281E-03	9.022E-02	9.022E-02	NOT IDENT.
CM-247	-6.750E-03	3.643E-02	3.655E-02	FAIL ABUN
CF-249	-5.954E-03	3.945E-02	3.954E-02	NOT IDENT.
CF-251	1.088E-03	1.390E-01	1.390E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	341.1910	85.43	111.6344	131.20	73.6745
45.60	293.5477	86.55	101.8951	133.02	68.6036
46.54	301.5064	86.79	101.9250	133.52	73.8355
49.72	0.0000	86.94	101.9438	136.00	60.4556
51.35	219.2979	87.09	110.8715	136.47	79.2517
51.87	211.0094	87.57	109.9459	140.51	0.0000
52.39	174.4208	88.03	110.9985	143.76	76.6298
52.97	163.2628	88.34	111.0401	144.24	73.5120
53.44	172.8326	88.47	111.0572	145.44	67.2826
54.07	174.9002	89.96	157.9438	152.43	78.2719
57.36	0.0000	1093.63	142.1650	153.25	86.7955
57.53	129.2843	91.11	108.4240	323.87	83.6884
57.98	126.5207	92.59	104.0299	156.02	82.7568
59.27	130.5854	93.35	94.2486	158.56	97.2886
59.32	130.5956	94.56	137.8266	159.00	79.7745
59.54	126.8251	94.65	137.8414	162.33	62.9300
60.96	124.2319	94.67	137.8442	162.66	62.9474
61.17	118.5356	94.87	137.8765	163.33	62.9822
62.93	113.0965	97.43	79.1611	165.86	63.1130
63.29	103.5673	98.43	79.2511	176.31	70.1152
63.58	106.4895	98.44	79.2519	176.60	66.8945
64.28	110.4401	99.53	76.8381	177.52	59.3847
66.73	115.6506	100.11	85.9340	181.07	0.0000
67.24	106.0903	102.03	78.5634	181.52	61.7355
125.81	106.1563	103.18	77.1502	184.41	68.3852
67.75	106.1669	103.37	77.1661	143.76	68.4538
68.89	94.7371	105.21	78.8375	193.51	64.4826
69.67	95.8086	105.31	78.8458	197.03	74.5120
70.82	107.5922	106.12	73.8566	198.01	77.8549
70.83	107.5939	106.47	73.8844	201.83	75.8716
72.81	103.5121	109.28	74.6140	203.43	66.0510
72.87	103.5207	111.00	62.5454	205.31	78.2651
74.66	110.1039	111.76	0.0000	210.85	71.9322
74.82	110.1268	114.06	55.0931	215.65	58.8486
74.97	110.1493	116.30	0.0000	218.12	65.6218
77.11	105.5737	116.74	49.1064	222.11	62.4543
78.74	92.5731	119.76	63.6228	227.09	62.6639
79.69	107.1044	121.12	71.9297	227.38	67.1527
80.03	104.0106	121.22	71.9369	228.16	0.0000
80.12	104.0230	121.78	70.9488	228.18	54.8708
80.19	104.0327	122.06	61.7117	116.74	54.8708
80.57	99.1732	122.92	57.6466	235.69	64.1453
81.00	94.3154	123.07	60.7438	235.96	70.9102
81.07	100.2190	265.00	75.2025	238.63	67.6501
81.75	104.2392	125.81	75.3592	238.98	0.0000
82.47	93.5069	127.23	73.3950	240.99	67.7533
83.79	109.4361	127.91	69.3057	242.00	67.7972
84.00	109.4649	129.30	68.3619	244.70	67.9138

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	50.0452	344.28	41.6698	563.25	24.6353
252.80	47.7823	345.93	43.1426	564.24	0.0000
254.15	0.0000	351.06	35.1438	569.33	30.6150
256.23	54.7246	351.93	35.1593	946.00	30.6169
260.90	0.0000	355.39	0.0000	569.70	27.6556
264.66	38.9632	356.01	33.2427	583.19	23.8191
264.80	43.5502	364.49	30.8416	584.27	20.6508
265.00	48.1404	366.42	0.0000	595.83	27.9111
269.46	42.5230	372.51	32.7827	427.87	33.9481
270.03	41.3877	375.05	39.2050	602.52	0.0000
271.23	48.3207	377.52	36.5125	604.72	27.1975
273.65	57.6070	356.01	38.4534	607.14	38.4281
276.40	42.6977	388.16	33.9440	609.32	24.0352
277.37	55.4238	388.63	33.9513	610.33	24.0439
277.60	55.4307	391.69	27.5674	614.28	17.6559
278.00	60.0636	264.66	34.1404	618.01	20.6625
279.20	54.3265	401.81	38.7745	620.36	27.1409
279.54	48.5565	402.40	33.2441	621.93	23.1327
279.70	48.5616	404.85	27.7345	630.19	0.0000
280.46	50.8965	410.95	29.6650	631.29	20.9854
283.69	46.9352	413.71	37.1271	633.25	20.1917
284.31	48.6907	414.70	36.2150	634.78	20.2020
285.41	53.9425	423.72	34.3085	635.95	17.7842
285.90	0.0000	427.09	27.0769	636.99	17.7907
287.50	50.5226	427.87	32.6897	657.50	11.3976
290.67	20.9436	433.94	31.4651	657.76	13.0266
293.27	0.0000	439.40	33.0414	657.90	0.0000
351.93	41.9949	440.45	31.5533	661.66	17.3227
295.96	47.6141	453.88	39.6666	664.57	0.0000
879.38	37.8666	463.37	30.3418	666.33	24.4929
299.98	46.3168	468.07	34.2010	666.50	24.4937
300.09	46.3200	473.00	34.2697	667.71	0.0000
300.13	46.3209	475.06	34.2988	677.62	16.3872
301.36	43.1417	476.78	23.8350	685.70	11.2951
302.85	55.3528	477.60	18.1207	692.65	0.0000
256.23	43.0911	482.18	31.8497	695.00	24.7148
304.85	39.5810	487.02	24.5078	696.49	24.7266
306.78	51.0695	492.35	0.0000	696.51	24.7266
308.46	44.9472	497.08	16.9165	697.00	22.6694
311.90	33.5527	505.52	37.0307	697.30	21.6409
316.51	42.4878	507.63	0.0000	697.49	20.6116
319.41	45.2133	511.00	26.0926	702.65	20.6445
320.08	45.2289	514.00	26.1225	706.68	23.7707
321.04	34.6046	514.00	26.1233	711.68	21.7370
323.87	43.5427	520.40	26.1867	720.70	28.2318
325.23	47.1311	520.69	0.0000	721.93	0.0000
328.76	37.4184	522.65	0.0000	722.78	19.9412
333.37	65.1927	527.90	0.0000	722.91	19.9418
333.97	59.8528	528.26	31.1289	723.31	19.9441
334.37	60.7586	529.59	33.0911	724.19	18.2870
338.28	38.4983	529.87	0.0000	727.33	17.6807
338.32	42.9756	531.02	23.3708	733.00	16.6689
311.90	60.9495	537.26	28.3062	735.93	15.6404
340.48	60.9495	546.56	0.0000	333.97	19.8205
340.55	60.9516	552.55	17.6688	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	17.7699	949.00	12.1524	1384.29	8.7319
747.24	12.5544	667.71	0.0000	1408.01	3.8979
748.06	14.6507	962.31	15.9609	1434.09	8.8124
752.31	15.7164	964.08	15.9680	1435.80	5.8767
753.82	16.7720	966.17	0.0000	1457.56	0.0000
756.73	23.0809	911.20	12.4342	1460.82	5.9033
756.80	23.0816	983.53	10.6957	1489.16	4.9443
884.68	20.1855	984.45	0.0000	1505.03	1.6528
765.81	16.8306	1274.44	16.7633	1584.12	5.0261
766.42	16.8335	1001.03	6.7128	1596.21	5.0364
766.84	20.2025	1002.74	14.5504	1620.50	11.1251
772.60	0.0000	1004.73	12.3179	1621.92	8.0930
776.52	16.8823	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	6.1383
778.90	15.2046	1028.54	0.0000	1750.46	0.0000
783.70	20.0895	1037.84	14.4453	1764.49	1.0350
788.74	20.1179	1038.76	0.0000	1063.66	3.4530
792.07	28.6158	631.29	11.7609	1771.35	0.0000
795.86	14.8536	1048.07	10.8598	1791.20	0.0000
810.06	9.5869	1049.04	15.3880	1808.65	3.1261
810.29	10.6528	1050.41	17.2039	1810.72	0.0000
344.28	9.5878	1063.66	13.6230	1836.06	2.0928
810.76	11.7194	1077.00	12.1465		
815.77	10.6689	1077.34	7.5920		
1048.07	14.9481	1085.87	7.6066		
832.01	13.9315	1093.63	12.8010		
834.85	20.3777	1099.45	11.9025		
835.71	18.2368	1112.07	15.3019		
836.80	0.0000	1112.84	13.7739		
846.75	0.0000	1115.54	9.1880		
846.77	13.7723	1120.29	17.4757		
856.80	21.5771	1120.55	13.7974		
860.56	14.0394	1221.41	13.7996		
871.09	12.9957	1129.67	13.8252		
873.19	16.2534	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	13.0239	1173.23	12.0942		
880.51	11.9423	1177.95	9.3125		
881.60	15.2036	1189.05	15.8686		
883.24	13.0371	1204.77	7.4922		
884.68	16.3023	1221.41	3.7590		
889.28	15.2339	1231.02	13.1824		
894.76	22.6656	1235.36	13.1940		
898.04	13.9598	1238.28	15.0875		
900.72	6.9848	1260.41	0.0000		
903.28	13.9785	1271.87	12.3417		
911.20	15.3202	1274.44	5.6991		
912.08	19.2640	1274.54	5.6994		
923.98	0.0000	1291.59	6.6715		
926.50	15.3800	1298.22	0.0000		
929.11	14.2906	1312.11	8.6124		
935.54	13.2129	1332.49	9.6069		
937.49	13.2191	1362.66	0.0000		
944.13	8.8274	1365.19	5.3706		
946.00	7.7276	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:18:27.35

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299036.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM23.CNF;911
Background date    : 28-JUL-2024 11:28:24
Sample date       : 26-JUN-2024 12:25:00 Acquisition date : 31-JUL-2024 16:14:14
Sample ID        : G674299036 Sample quantity : 9.26100E+01 GRAM
Detector name    : GAM23 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.79 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	74.92	33	54	1.18	149.82	144	15	9.21E-03	41.8	3.11E+00
2	4	76.88	46	58	1.17	153.75	144	15	1.29E-02	33.0	
3	0	87.58	13	49	0.93	175.14	173	6	3.66E-03	87.2	
4	5	90.02	24	30	1.13	180.02	178	15	6.55E-03	40.1	1.60E+00
5	5	92.53*	16	48	1.39	185.04	178	15	4.35E-03	93.5	
6	0	122.31	21	31	2.17	244.60	241	8	5.87E-03	50.1	
7	6	183.76	12	20	0.92	367.46	366	10	3.45E-03	57.5	3.25E+00
8	6	185.84*	28	38	1.39	371.62	366	10	7.81E-03	50.4	
9	0	209.61	26	27	1.59	419.16	415	9	7.14E-03	42.4	
10	0	238.86*	73	56	1.09	477.64	474	9	2.03E-02	22.0	
11	3	241.79	22	12	0.86	483.51	482	11	6.03E-03	28.1	1.90E+00
12	3	243.29	20	27	1.43	486.50	482	11	5.47E-03	58.8	
13	0	269.98	15	27	0.85	539.87	536	8	4.04E-03	68.0	
14	0	295.03*	38	25	1.33	589.96	584	11	1.07E-02	30.6	
15	0	338.50	17	21	1.31	676.90	672	9	4.66E-03	56.2	
16	0	351.98*	63	33	1.50	703.85	698	11	1.75E-02	22.0	
17	2	515.92	16	1	1.72	1031.69	1015	22	4.51E-03	36.2	1.72E+00
18	0	553.22	8	6	0.99	1106.28	1103	7	2.35E-03	56.9	
19	0	582.97	32	9	1.10	1165.78	1161	11	9.02E-03	24.6	
20	0	609.26*	75	7	1.94	1218.35	1212	14	2.08E-02	14.2	
21	0	686.69	6	3	0.56	1373.19	1366	10	1.74E-03	62.2	
22	0	699.29	8	6	0.82	1398.40	1394	8	2.17E-03	65.2	
23	0	714.96	14	12	0.78	1429.73	1423	15	4.00E-03	57.3	
24	3	768.83	15	0	2.22	1537.45	1529	17	4.23E-03	34.2	1.01E+00
25	3	771.87	10	0	1.46	1543.53	1529	17	2.72E-03	30.6	
26	0	797.39	5	8	0.89	1594.57	1590	6	1.41E-03	101.4	
27	0	859.46	14	0	3.97	1718.71	1713	11	3.89E-03	26.7	
28	0	910.80*	19	0	0.88	1821.38	1815	12	5.41E-03	24.2	
29	0	969.85	13	6	0.99	1939.48	1931	13	3.48E-03	50.6	
30	0	1460.27	40	0	1.82	2920.32	2914	13	1.11E-02	15.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299036.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:25:00	Acquisition date	: 31-JUL-2024 16:14:14
Sample ID	: G674299036	Sample quantity	: 92.610 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA23	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.79 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	37	10.66*	9.698E-01	2.916E+00	2.916E+00	31.62
CO-57	122.06	20	85.60*	6.054E+00	3.089E-02	3.379E-02	100.19
	136.47	-----	10.68	5.982E+00	-----	Line Not Found	-----
CD-109	88.03	12	3.70*	4.981E+00	5.416E-01	5.710E-01	174.42
SN-126	64.28	-----	9.60	2.453E+00	-----	Line Not Found	-----
	86.94	12	8.90	4.981E+00	2.252E-01	2.252E-01	174.42
	87.57	12	37.00*	4.981E+00	5.416E-02	5.416E-02	174.42
PM-147	121.22	20	0.00*	6.054E+00	9.279E+02	9.518E+02	100.19
TL-208	277.37	-----	6.60	3.918E+00	-----	Line Not Found	-----
	583.19	30	85.00*	2.204E+00	1.310E-01	1.310E-01	49.13
	860.56	13	12.50	1.570E+00	5.383E-01	5.383E-01	53.45
BI-211	72.87	-----	1.23	3.550E+00	-----	Line Not Found	-----
	351.06	59	12.92*	3.272E+00	1.129E+00	1.129E+00	44.07
PB-212	74.82	31	10.28	3.789E+00	6.456E-01	6.456E-01	83.63
	77.11	43	17.10	4.007E+00	5.132E-01	5.132E-01	66.01
	238.63	68	43.60*	4.378E+00	2.902E-01	2.902E-01	44.01
	300.09	-----	3.30	3.693E+00	-----	Line Not Found	-----
PB-214	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.047E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.877E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
RA-224	240.99	20	4.10*	4.339E+00	9.236E-01	9.236E-01	56.27
RA-226	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.047E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.877E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
AC-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
RA-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
TH-228	74.82	31	10.28	3.789E+00	6.456E-01	6.456E-01	83.63
	77.11	43	17.10	4.007E+00	5.132E-01	5.132E-01	66.01
	238.63	68	43.60*	4.378E+00	2.902E-01	2.902E-01	44.01
	300.09	-----	3.30	3.693E+00	-----	Line Not Found	-----
TH-230	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.046E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.876E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-232	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
U-234	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.046E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.876E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
U-235	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
	89.96	22	3.47	5.152E+00	9.998E-01	9.998E-01	80.28
	93.35	15	5.60	5.309E+00	3.991E-01	3.991E-01	186.99
	143.76	-----	10.96*	5.897E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.592E+00	-----	Line Not Found	-----
AM-243	185.72	26	57.20	5.199E+00	7.159E-02	7.159E-02	100.78
	205.31	-----	5.01	4.872E+00	-----	Line Not Found	-----
	43.53	-----	5.90	2.737E-01	-----	Line Not Found	-----
	74.66	31	67.20*	3.789E+00	9.875E-02	9.876E-02	83.63

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299036.CNF;1
Acquisition date : 31-JUL-2024 16:14:14 Sensitivity : 3.000
Detector ID : GAM23 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.79 Half life ratio : *****
Sample date : 26-JUN-2024 12:25:00 Analyst initials: MXR1
Sample ID : G674299036 Sample Quantity : 9.2610E+01 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 6-SEP-2023 11:17:47 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.916E+00	9.036E-01	9.997E-01
CO-57	3.379E-02	3.318E-02	4.021E-02
CD-109	5.710E-01	9.760E-01	1.353E+00
SN-126	5.416E-02	9.258E-02	1.291E-01
PM-147	9.518E+02	9.346E+02	1.132E+03
TL-208	1.310E-01	6.306E-02	8.363E-02
BI-211	1.129E+00	4.874E-01	3.949E-01
PB-212	2.902E-01	1.252E-01	1.307E-01
PB-214	4.096E-01	1.769E-01	1.437E-01
RA-224	9.236E-01	5.093E-01	9.058E-01
RA-226	4.096E-01	1.769E-01	1.437E-01
AC-228	3.826E-01	1.812E-01	3.288E-01
RA-228	3.826E-01	1.812E-01	3.288E-01
TH-228	2.902E-01	1.252E-01	1.307E-01
TH-230	4.096E-01	1.769E-01	1.437E-01
TH-232	3.826E-01	1.812E-01	3.288E-01
U-234	4.096E-01	1.769E-01	1.437E-01
U-235	1.009E-01	1.756E-01	3.474E-01
AM-243	9.876E-02	8.093E-02	8.099E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-4.747E-02	4.500E-01	8.547E-01	NOT IDENT.
NA-22	-2.543E-02	4.424E-02	8.138E-02	NOT IDENT.
NA-24	0.000E+00	3.817E+15	0.000E+00	SHORT HLIF
AL-26	-2.027E-02	2.809E-02	2.586E-02	NOT IDENT.
SC-46	-4.218E-02	5.443E-02	9.073E-02	NOT IDENT.
V-48	-5.321E-02	1.693E-01	3.234E-01	NOT IDENT.
CR-51	4.388E-01	5.915E-01	1.277E+00	NOT IDENT.
MN-52	4.523E+00	3.351E+00	9.594E+00	NOT IDENT.
MN-54	3.851E-03	3.933E-02	8.227E-02	NOT IDENT.
CO-56	-5.222E-02	5.295E-02	8.518E-02	NOT IDENT.
MN-56	0.000E+00	1.004E+41	0.000E+00	SHORT HLIF

CO-58	-2.040E-03	6.031E-02	1.195E-01	NOT IDENT.
FE-59	-4.428E-02	1.288E-01	2.396E-01	NOT IDENT.
CO-60	1.032E-02	4.454E-02	1.017E-01	NOT IDENT.
ZN-65	5.287E-02	9.054E-02	2.121E-01	NOT IDENT.
GE-68	-1.165E+00	1.926E+00	3.265E+00	NOT IDENT.
AS-73	5.732E-02	1.514E+00	2.530E+00	NOT IDENT.
AS-74	1.201E-01	2.371E-01	4.916E-01	NOT IDENT.
SE-75	1.446E-02	5.722E-02	1.049E-01	FAIL ABUN
BR-77	0.000E+00	6.749E+03	0.000E+00	SHORT HLIF
SR-82	-6.217E-01	6.841E-01	1.058E+00	NOT IDENT.
RB-83	1.045E-01	9.227E-02	2.041E-01	FAIL ABUN
RB-84	4.737E-02	1.199E-01	2.625E-01	NOT IDENT.
KR-85	1.896E+00	7.978E+00	1.574E+01	NOT IDENT.
SR-85	1.244E-02	5.221E-02	1.030E-01	NOT IDENT.
RB-86	-9.887E-01	2.269E+00	4.030E+00	NOT IDENT.
Y-88	-2.902E-02	6.334E-02	1.308E-01	NOT IDENT.
Y-91	-9.537E+00	1.745E+01	3.005E+01	NOT IDENT.
NB-94	-8.286E-03	4.806E-02	8.067E-02	NOT IDENT.
NB-95	-1.366E-03	6.184E-02	1.100E-01	NOT IDENT.
NB-95M	3.483E-02	1.628E-01	2.774E-01	NOT IDENT.
ZR-95	6.464E-02	9.599E-02	2.191E-01	NOT IDENT.
NB-97	0.000E+00	9.038E+40	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.225E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.115E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.354E+40	0.000E+00	SHORT HLIF
RH-101	-1.264E-02	2.433E-02	4.286E-02	NOT IDENT.
RH-102	-3.503E-02	5.724E-02	9.437E-02	NOT IDENT.
RU-103	2.529E-03	5.013E-02	1.013E-01	FAIL ABUN
RH-106	2.643E-01	3.922E-01	8.341E-01	NOT IDENT.
RU-106	2.643E-01	3.922E-01	8.341E-01	NOT IDENT.
AG-108M	-7.224E-03	2.445E-02	4.631E-02	NOT IDENT.
AG-110	6.298E-01	7.233E-01	1.698E+00	NOT IDENT.
AG-110M	-2.763E-02	6.610E-02	1.210E-01	NOT IDENT.
SN-113	-1.190E-02	4.423E-02	8.388E-02	NOT IDENT.
CD-115	0.000E+00	5.851E+03	0.000E+00	SHORT HLIF
SN-117M	-7.794E-02	1.483E-01	2.536E-01	NOT IDENT.
SB-122	0.000E+00	3.607E+02	0.000E+00	SHORT HLIF
TE-123M	1.262E-02	2.877E-02	5.586E-02	NOT IDENT.
SB-124	2.865E-02	9.992E-02	2.685E-01	NOT IDENT.
SB-125	-3.059E-02	9.795E-02	1.802E-01	NOT IDENT.
TE-125M	-9.780E-01	9.393E+00	1.776E+01	NOT IDENT.
I-126	5.165E-03	7.649E-01	1.445E+00	NOT IDENT.
SB-126	1.431E-01	4.666E-01	9.313E-01	NOT IDENT.
SB-127	3.780E+01	4.608E+01	9.894E+01	FAIL ABUN
I-131	-3.667E-01	6.470E-01	1.155E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.971E+01	0.000E+00	SHORT HLIF
BA-133	-5.527E-03	4.831E-02	8.273E-02	NOT IDENT.
I-133	0.000E+00	5.794E+10	0.000E+00	SHORT HLIF
CS-134	5.217E-02	5.504E-02	1.239E-01	NOT IDENT.
I-135	0.000E+00	8.034E+37	0.000E+00	SHORT HLIF
CS-136	-2.288E-01	3.698E-01	6.292E-01	NOT IDENT.
BA-137M	-2.399E-02	3.683E-02	5.948E-02	NOT IDENT.
CS-137	-2.534E-02	3.891E-02	6.283E-02	NOT IDENT.
LA-138	-2.208E-02	6.767E-02	1.340E-01	NOT IDENT.
CE-139	-3.385E-03	2.791E-02	5.078E-02	NOT IDENT.
BA-140	3.242E-01	6.515E-01	1.468E+00	NOT IDENT.
LA-140	3.165E-02	3.157E-01	7.142E-01	NOT IDENT.
CE-141	-3.796E-02	8.461E-02	1.477E-01	NOT IDENT.
CE-143	0.000E+00	2.706E+06	0.000E+00	SHORT HLIF
CE-144	-1.569E-01	1.666E-01	2.720E-01	NOT IDENT.
PM-144	6.292E-03	3.481E-02	6.821E-02	NOT IDENT.
PR-144	4.758E-01	2.633E+00	5.158E+00	NOT IDENT.
PM-146	-2.900E-02	4.057E-02	6.834E-02	NOT IDENT.
ND-147	1.212E+00	1.873E+00	4.182E+00	FAIL ABUN
PM-149	0.000E+00	4.323E+04	0.000E+00	SHORT HLIF
EU-150	1.465E-02	2.949E-02	5.656E-02	FAIL ABUN
EU-152	3.319E-03	1.266E-01	2.114E-01	FAIL ABUN
GD-153	8.767E-03	7.468E-02	1.360E-01	NOT IDENT.
EU-154	-7.132E-02	1.241E-01	2.282E-01	FAIL ABUN
EU-155	-1.814E-02	9.222E-02	1.708E-01	FAIL ABUN
TB-160	0.000E+00	1.878E-01	3.797E-01	FAIL ABUN
HO-166M	3.516E-03	6.627E-02	1.232E-01	FAIL ABUN
TM-171	-1.255E+01	2.972E+01	4.580E+01	NOT IDENT.
HF-172	9.324E-03	1.588E-01	2.828E-01	FAIL ABUN
LU-172	2.571E-02	8.212E-02	1.734E-01	FAIL ABUN
LU-176	1.351E-02	2.671E-02	5.562E-02	FAIL ABUN
HF-181	-1.061E-02	6.258E-02	1.181E-01	NOT IDENT.

TA-182	-8.009E-02	1.694E-01	3.016E-01	NOT IDENT.
RE-183	-1.238E-01	2.632E-01	4.947E-01	NOT IDENT.
RE-184	5.713E-03	2.194E-01	4.438E-01	NOT IDENT.
W-188	-5.630E-02	9.668E+00	1.708E+01	NOT IDENT.
IR-192	2.123E-02	4.220E-02	8.800E-02	FAIL ABUN
HG-203	-1.107E-02	5.635E-02	9.651E-02	NOT IDENT.
TL-204	2.755E+00	4.400E+00	8.651E+00	NOT IDENT.
BI-207	1.207E-03	7.314E-02	1.431E-01	FAIL ABUN
BI-210	-6.116E-02	6.426E+00	1.076E+01	NOT IDENT.
PB-210	-6.116E-02	6.426E+00	1.076E+01	NOT IDENT.
PB-211	1.270E-01	6.431E-01	1.318E+00	NOT IDENT.
BI-212	1.169E-01	6.370E-01	1.298E+00	NOT IDENT.
BI-213	5.351E-02	1.092E-01	2.289E-01	NOT IDENT.
BI-214	0.000E+00	1.629E-01	3.535E-01	FAIL ABUN
RN-219	-1.525E-01	3.984E-01	7.300E-01	FAIL ABUN
RN-222	0.000E+00	1.629E-01	3.535E-01	FAIL ABUN
RA-223	-2.396E-01	6.927E-01	1.283E+00	FAIL ABUN
AC-225	-4.530E-01	2.057E+00	3.625E+00	NOT IDENT.
AC-227	4.105E-02	2.680E-01	4.892E-01	NOT IDENT.
TH-227	4.105E-02	2.680E-01	4.892E-01	NOT IDENT.
TH-229	2.704E-01	5.064E-01	9.807E-01	FAIL ABUN
PA-231	2.326E-01	5.018E-01	1.027E+00	NOT IDENT.
TH-231	-2.396E-01	6.927E-01	1.283E+00	FAIL ABUN
PA-233	-1.033E-02	5.808E-02	1.125E-01	NOT IDENT.
PA-234	-1.619E-01	2.987E-01	5.328E-01	NOT IDENT.
PA-234M	3.470E+00	5.417E+00	1.220E+01	NOT IDENT.
TH-234	-4.743E-02	1.357E+00	2.693E+00	FAIL ABUN
NP-237	-1.033E-02	5.808E-02	1.125E-01	NOT IDENT.
NP-238	0.000E+00	1.631E+04	0.000E+00	SHORT HLIF
U-238	-4.743E-02	1.357E+00	2.693E+00	FAIL ABUN
NP-239	-1.487E-01	2.300E-01	3.992E-01	NOT IDENT.
PU-239	7.428E+01	2.781E+02	5.399E+02	NOT IDENT.
AM-241	2.580E-02	1.618E-01	3.235E-01	NOT IDENT.
CM-243	5.401E-02	9.468E-02	1.900E-01	NOT IDENT.
BK-247	1.866E-02	9.114E-02	1.662E-01	FAIL ABUN
CM-247	-6.372E-03	3.378E-02	6.470E-02	NOT IDENT.
CF-249	2.226E-02	4.134E-02	8.679E-02	NOT IDENT.
CF-251	-3.998E-02	1.132E-01	1.976E-01	NOT IDENT.
ANH-511	-1.459E-02	6.589E-02	1.437E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	37	10.66*	9.698E-01	2.916E+00	2.916E+00	31.62
CO-57	122.06	20	85.60*	6.054E+00	3.089E-02	3.379E-02	100.19
	136.47	-----	10.68	5.982E+00	-----	Line Not Found	-----
CD-109	88.03	12	3.70*	4.981E+00	5.416E-01	5.710E-01	174.42
SN-126	64.28	-----	9.60	2.453E+00	-----	Line Not Found	-----
	86.94	12	8.90	4.981E+00	2.252E-01	2.252E-01	174.42
	87.57	12	37.00*	4.981E+00	5.416E-02	5.416E-02	174.42
PM-147	121.22	20	0.00*	6.054E+00	9.279E+02	9.518E+02	100.19
TL-208	277.37	-----	6.60	3.918E+00	-----	Line Not Found	-----
	583.19	30	85.00*	2.204E+00	1.310E-01	1.310E-01	49.13
	860.56	13	12.50	1.570E+00	5.383E-01	5.383E-01	53.45
BI-211	72.87	-----	1.23	3.550E+00	-----	Line Not Found	-----
	351.06	59	12.92*	3.272E+00	1.129E+00	1.129E+00	44.07
PB-212	74.82	31	10.28	3.789E+00	6.456E-01	6.456E-01	83.63
	77.11	43	17.10	4.007E+00	5.132E-01	5.132E-01	66.01
	238.63	68	43.60*	4.378E+00	2.902E-01	2.902E-01	44.01
	300.09	-----	3.30	3.693E+00	-----	Line Not Found	-----
PB-214	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.047E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.877E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
RA-224	240.99	20	4.10*	4.339E+00	9.236E-01	9.236E-01	56.27
RA-226	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.047E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.877E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
AC-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
RA-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
TH-228	74.82	31	10.28	3.789E+00	6.456E-01	6.456E-01	83.63
	77.11	43	17.10	4.007E+00	5.132E-01	5.132E-01	66.01
	238.63	68	43.60*	4.378E+00	2.902E-01	2.902E-01	44.01
	300.09	-----	3.30	3.693E+00	-----	Line Not Found	-----
TH-230	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.046E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.876E-01	174.42

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-232	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	16	11.27	3.370E+00	3.337E-01	3.337E-01	112.32
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
U-234	911.20	18	25.80*	1.488E+00	3.826E-01	3.826E-01	48.32
	968.97	12	15.80	1.403E+00	4.263E-01	4.263E-01	101.14
	74.82	31	5.80	3.789E+00	1.144E+00	1.144E+00	83.63
	77.11	43	9.70	4.007E+00	9.046E-01	9.046E-01	66.01
	87.09	12	3.41	4.981E+00	5.876E-01	5.876E-01	174.42
	242.00	20	7.25	4.339E+00	5.223E-01	5.223E-01	56.27
U-235	295.22	36	18.42	3.740E+00	4.224E-01	4.224E-01	61.28
	351.93	59	35.60*	3.272E+00	4.096E-01	4.096E-01	44.07
	89.96	22	3.47	5.152E+00	9.998E-01	9.998E-01	80.28
	93.35	15	5.60	5.309E+00	3.991E-01	3.991E-01	186.99
	143.76	-----	10.96*	5.897E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.592E+00	-----	Line Not Found	-----
AM-243	185.72	26	57.20	5.199E+00	7.159E-02	7.159E-02	100.78
	205.31	-----	5.01	4.872E+00	-----	Line Not Found	-----
	43.53	-----	5.90	2.737E-01	-----	Line Not Found	-----
	74.66	31	67.20*	3.789E+00	9.875E-02	9.876E-02	83.63

Flag: "*" = Keyline

Total number of lines in spectrum 30
Number of unidentified lines 5
Number of lines tentatively identified by NID 25 83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.916E+00	2.916E+00	0.922E+00	31.62	
CO-57	271.74D	1.09	3.089E-02	3.379E-02	3.386E-02	100.19	
CD-109	461.40D	1.05	5.416E-01	5.710E-01	9.959E-01	174.42	
SN-126	2.30E+05Y	1.00	5.416E-02	5.416E-02	9.447E-02	174.42	
PM-147	2.62Y	1.03	9.279E+02	9.518E+02	9.537E+02	100.19	
TL-208	1.41E+10Y	1.00	1.310E-01	1.310E-01	0.643E-01	49.13	
BI-211	7.04E+08Y	1.00	1.129E+00	1.129E+00	0.497E+00	44.07	
PB-212	1.41E+10Y	1.00	2.902E-01	2.902E-01	1.277E-01	44.01	
PB-214	1600.00Y	1.00	4.096E-01	4.096E-01	1.805E-01	44.07	
RA-224	1.41E+10Y	1.00	9.236E-01	9.236E-01	5.196E-01	56.27	
RA-226	1600.00Y	1.00	4.096E-01	4.096E-01	1.805E-01	44.07	
AC-228	1.41E+10Y	1.00	3.826E-01	3.826E-01	1.849E-01	48.32	
RA-228	1.41E+10Y	1.00	3.826E-01	3.826E-01	1.849E-01	48.32	
TH-228	1.41E+10Y	1.00	2.902E-01	2.902E-01	1.277E-01	44.01	
TH-230	7.54E+04Y	1.00	4.096E-01	4.096E-01	1.805E-01	44.07	
TH-232	1.41E+10Y	1.00	3.826E-01	3.826E-01	1.849E-01	48.32	
U-234	2.45E+05Y	1.00	4.096E-01	4.096E-01	1.805E-01	44.07	
U-235	7.04E+08Y	1.00	7.159E-02	7.159E-02	7.215E-02	100.78	K
AM-243	7370.00Y	1.00	9.875E-02	9.876E-02	8.259E-02	83.63	
Total Activity :			9.372E+02	9.611E+02			

Grand Total Activity : 9.372E+02 9.611E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
6	183.76	12	18	0.92	367.46	366	10	3.45E-03	****	5.23E+00	T
0	209.61	24	25	1.59	419.16	415	9	7.14E-03	84.8	4.80E+00	T
3	243.29	18	26	1.43	486.50	482	11	5.47E-03	****	4.32E+00	T
0	269.98	14	26	0.85	539.87	536	8	4.04E-03	****	4.00E+00	T
2	515.92	15	1	1.72	1031.69	1015	22	4.51E-03	72.4	2.43E+00	
0	553.22	8	5	0.99	1106.28	1103	7	2.35E-03	****	2.30E+00	T
0	609.26	70	7	1.94	1218.35	1212	14	2.08E-02	28.4	2.12E+00	T
0	686.69	6	3	0.56	1373.19	1366	10	1.74E-03	****	1.92E+00	T
0	699.29	7	6	0.82	1398.40	1394	8	2.17E-03	****	1.89E+00	
0	714.96	13	11	0.78	1429.73	1423	15	4.00E-03	****	1.85E+00	
3	768.83	14	0	2.22	1537.45	1529	17	4.23E-03	68.3	1.74E+00	
3	771.87	9	0	1.46	1543.53	1529	17	2.72E-03	61.2	1.73E+00	T
0	797.39	5	7	0.89	1594.57	1590	6	1.41E-03	****	1.68E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299036.CNF;1 *
* Acquisition date : 31-JUL-2024 16:14:14 Sensitivity : 3.000 *
* Detector ID : GAM23 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.79 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:25:00 Nuclide Library : SOLID *
* Sample ID : G674299036 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 9.2610E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 6-SEP-2023 11:17:47 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.950E-01
CO-57	1.783E-02
CD-109	6.152E-01
SN-126	5.870E-02
PM-147	5.017E+02
TL-208	3.604E-02
BI-211	1.719E-01
PB-212	5.971E-02
PB-214	6.255E-02
RA-224	3.923E-01
RA-226	6.255E-02
AC-228	1.362E-01
RA-228	1.362E-01
TH-228	5.971E-02
TH-230	6.255E-02
TH-232	1.362E-01
U-234	6.255E-02
U-235	1.570E-01
AM-243	3.623E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.640E-01	NOT IDENT.
NA-22	3.046E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	0.000E+00	NOT IDENT.
SC-46	3.583E-02	NOT IDENT.
V-48	1.257E-01	NOT IDENT.
CR-51	5.636E-01	NOT IDENT.
MN-52	3.933E+00	NOT IDENT.
MN-54	3.387E-02	NOT IDENT.
CO-56	3.325E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-58	5.050E-02	NOT IDENT.

FE-59	9.321E-02	NOT IDENT.
CO-60	4.036E-02	NOT IDENT.
ZN-65	8.682E-02	NOT IDENT.
GE-68	1.343E+00	NOT IDENT.
AS-73	1.135E+00	NOT IDENT.
AS-74	2.124E-01	NOT IDENT.
SE-75	4.694E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	4.201E-01	NOT IDENT.
RB-83	8.886E-02	FAIL ABUN
RB-84	1.097E-01	NOT IDENT.
KR-85	6.844E+00	NOT IDENT.
SR-85	4.479E-02	NOT IDENT.
RB-86	1.650E+00	NOT IDENT.
Y-88	4.895E-02	NOT IDENT.
Y-91	9.499E+00	NOT IDENT.
NB-94	3.457E-02	NOT IDENT.
NB-95	4.591E-02	NOT IDENT.
NB-95M	1.243E-01	NOT IDENT.
ZR-95	9.304E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.875E-02	NOT IDENT.
RH-102	3.764E-02	NOT IDENT.
RU-103	4.183E-02	FAIL ABUN
RH-106	3.614E-01	NOT IDENT.
RU-106	3.614E-01	NOT IDENT.
AG-108M	1.886E-02	NOT IDENT.
AG-110	7.160E-01	NOT IDENT.
AG-110M	4.975E-02	NOT IDENT.
SN-113	3.511E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.136E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.515E-02	NOT IDENT.
SB-124	9.514E-02	NOT IDENT.
SB-125	7.689E-02	NOT IDENT.
TE-125M	7.851E+00	NOT IDENT.
I-126	6.125E-01	NOT IDENT.
SB-126	3.869E-01	NOT IDENT.
SB-127	4.085E+01	FAIL ABUN
I-131	4.908E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.596E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.417E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.484E-01	NOT IDENT.
BA-137M	2.364E-02	NOT IDENT.
CS-137	2.498E-02	NOT IDENT.
LA-138	5.017E-02	NOT IDENT.
CE-139	2.249E-02	NOT IDENT.
BA-140	6.065E-01	NOT IDENT.
LA-140	2.723E-01	NOT IDENT.
CE-141	6.582E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.184E-01	NOT IDENT.
PM-144	2.796E-02	NOT IDENT.
PR-144	2.115E+00	NOT IDENT.
PM-146	2.791E-02	NOT IDENT.
ND-147	1.771E+00	FAIL ABUN
PM-149	0.000E+00	SHORT HLIF
EU-150	2.497E-02	FAIL ABUN
EU-152	9.342E-02	FAIL ABUN
GD-153	6.059E-02	NOT IDENT.
EU-154	8.544E-02	FAIL ABUN
EU-155	7.653E-02	FAIL ABUN
TB-160	1.571E-01	FAIL ABUN
HO-166M	5.085E-02	FAIL ABUN
TM-171	2.047E+01	NOT IDENT.
HF-172	1.251E-01	FAIL ABUN
LU-172	7.249E-02	FAIL ABUN
LU-176	2.463E-02	FAIL ABUN
HF-181	4.976E-02	NOT IDENT.
TA-182	1.069E-01	NOT IDENT.

RE-183	2.200E-01	NOT IDENT.
RE-184	1.842E-01	NOT IDENT.
W-188	7.532E+00	NOT IDENT.
IR-192	3.888E-02	FAIL ABUN
HG-203	4.252E-02	NOT IDENT.
TL-204	3.904E+00	NOT IDENT.
BI-207	6.022E-02	FAIL ABUN
BI-210	4.826E+00	NOT IDENT.
PB-210	4.826E+00	NOT IDENT.
PB-211	5.617E-01	NOT IDENT.
BI-212	5.604E-01	NOT IDENT.
BI-213	9.932E-02	NOT IDENT.
BI-214	1.656E-01	FAIL ABUN
RN-219	3.096E-01	FAIL ABUN
RN-222	1.656E-01	FAIL ABUN
RA-223	5.636E-01	FAIL ABUN
AC-225	1.580E+00	NOT IDENT.
AC-227	2.173E-01	NOT IDENT.
TH-227	2.173E-01	NOT IDENT.
TH-229	4.421E-01	FAIL ABUN
PA-231	4.585E-01	NOT IDENT.
TH-231	5.636E-01	FAIL ABUN
PA-233	4.840E-02	NOT IDENT.
PA-234	2.035E-01	NOT IDENT.
PA-234M	5.155E+00	NOT IDENT.
TH-234	1.221E+00	FAIL ABUN
NP-237	4.840E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
U-238	1.221E+00	FAIL ABUN
NP-239	1.771E-01	NOT IDENT.
PU-239	2.416E+02	NOT IDENT.
AM-241	1.453E-01	NOT IDENT.
CM-243	8.606E-02	NOT IDENT.
BK-247	7.420E-02	FAIL ABUN
CM-247	2.726E-02	NOT IDENT.
CF-249	3.800E-02	NOT IDENT.
CF-251	8.713E-02	NOT IDENT.
ANH-511	6.744E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299036.CNF;1
Acquisition date : 31-JUL-2024 16:14:14 Sensitivity : 3.000
Detector ID : GAM23 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.79 Half life ratio : *****
Sample date : 26-JUN-2024 12:25:00 Nuclide Library : SOLID
Sample ID : G674299036 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 9.2610E+01 GRAM
Quantity Err(%) : 1.0798E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 6-SEP-2023 11:17:47 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.916E+00	9.399E-01	9.399E-01
CO-57	3.379E-02	3.328E-02	3.328E-02
CD-109	5.710E-01	9.790E-01	9.790E-01
SN-126	5.416E-02	9.282E-02	9.282E-02
PM-147	9.518E+02	9.372E+02	9.372E+02
TL-208	1.310E-01	6.413E-02	6.413E-02
BI-211	1.129E+00	4.958E-01	4.958E-01
PB-212	2.902E-01	1.280E-01	1.280E-01
PB-214	4.096E-01	1.798E-01	1.798E-01
RA-224	9.236E-01	5.162E-01	5.162E-01
RA-226	4.096E-01	1.798E-01	1.798E-01
AC-228	3.826E-01	1.846E-01	1.846E-01
RA-228	3.826E-01	1.846E-01	1.846E-01
TH-228	2.902E-01	1.280E-01	1.280E-01
TH-230	4.096E-01	1.798E-01	1.798E-01
TH-232	3.826E-01	1.846E-01	1.846E-01
U-234	4.096E-01	1.798E-01	1.798E-01
U-235	1.009E-01	1.758E-01	1.758E-01
AM-243	9.876E-02	8.175E-02	8.175E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-4.747E-02	4.500E-01	4.505E-01	NOT IDENT.
NA-22	-2.543E-02	4.429E-02	4.575E-02	NOT IDENT.
NA-24	1.678E+15	3.821E+15	3.895E+15	SHORT HLIF
AL-26	-2.027E-02	2.813E-02	2.957E-02	NOT IDENT.
SC-46	-4.218E-02	5.455E-02	5.777E-02	NOT IDENT.
V-48	-5.321E-02	1.694E-01	1.711E-01	NOT IDENT.
CR-51	4.388E-01	5.924E-01	6.246E-01	NOT IDENT.
MN-52	4.523E+00	3.372E+00	3.940E+00	NOT IDENT.
MN-54	3.851E-03	3.933E-02	3.937E-02	NOT IDENT.
CO-56	-5.222E-02	5.316E-02	5.814E-02	NOT IDENT.
MN-56	-1.000E+41	1.008E+41	0.000E+00	SHORT HLIF

CO-58	-2.040E-03	6.031E-02	6.032E-02	NOT IDENT.
FE-59	-4.428E-02	1.289E-01	1.305E-01	NOT IDENT.
CO-60	1.032E-02	4.455E-02	4.480E-02	NOT IDENT.
ZN-65	5.287E-02	9.064E-02	9.372E-02	NOT IDENT.
GE-68	-1.165E+00	1.928E+00	1.999E+00	NOT IDENT.
AS-73	5.732E-02	1.514E+00	1.514E+00	NOT IDENT.
AS-74	1.201E-01	2.374E-01	2.435E-01	NOT IDENT.
SE-75	1.446E-02	5.723E-02	5.760E-02	FAIL ABUN
BR-77	1.565E+04	1.732E+04	1.870E+04	SHORT HLIF
SR-82	-6.217E-01	6.863E-01	7.414E-01	NOT IDENT.
RB-83	1.045E-01	9.372E-02	1.049E-01	FAIL ABUN
RB-84	4.737E-02	1.199E-01	1.218E-01	NOT IDENT.
KR-85	1.896E+00	7.979E+00	8.025E+00	NOT IDENT.
SR-85	1.244E-02	5.222E-02	5.252E-02	NOT IDENT.
RB-86	-9.887E-01	2.271E+00	2.314E+00	NOT IDENT.
Y-88	-2.902E-02	6.338E-02	6.472E-02	NOT IDENT.
Y-91	-9.537E+00	1.747E+01	1.799E+01	NOT IDENT.
NB-94	-8.286E-03	4.807E-02	4.821E-02	NOT IDENT.
NB-95	-1.366E-03	6.184E-02	6.185E-02	NOT IDENT.
NB-95M	3.483E-02	1.629E-01	1.636E-01	NOT IDENT.
ZR-95	6.464E-02	9.617E-02	1.005E-01	NOT IDENT.
NB-97	1.000E+41	9.081E+40	0.000E+00	SHORT HLIF
ZR-97	-3.701E+14	8.232E+14	8.399E+14	SHORT HLIF
MO-99	-1.087E+03	2.117E+03	2.173E+03	SHORT HLIF
TC-99M	1.133E+40	3.357E+40	0.000E+00	SHORT HLIF
RH-101	-1.264E-02	2.445E-02	2.511E-02	NOT IDENT.
RH-102	-3.503E-02	5.737E-02	5.951E-02	NOT IDENT.
RU-103	2.529E-03	5.013E-02	5.014E-02	FAIL ABUN
RH-106	2.643E-01	3.931E-01	4.107E-01	NOT IDENT.
RU-106	2.643E-01	3.931E-01	4.107E-01	NOT IDENT.
AG-108M	-7.224E-03	2.446E-02	2.468E-02	NOT IDENT.
AG-110	6.298E-01	7.254E-01	7.790E-01	NOT IDENT.
AG-110M	-2.763E-02	6.615E-02	6.732E-02	NOT IDENT.
SN-113	-1.190E-02	4.424E-02	4.457E-02	NOT IDENT.
CD-115	6.294E+02	5.852E+03	5.858E+03	SHORT HLIF
SN-117M	-7.794E-02	1.486E-01	1.527E-01	NOT IDENT.
SB-122	-3.548E+01	3.607E+02	3.610E+02	SHORT HLIF
TE-123M	1.262E-02	2.880E-02	2.936E-02	NOT IDENT.
SB-124	2.865E-02	9.995E-02	1.008E-01	NOT IDENT.
SB-125	-3.059E-02	9.799E-02	9.895E-02	NOT IDENT.
TE-125M	-9.780E-01	9.394E+00	9.404E+00	NOT IDENT.
I-126	5.165E-03	7.649E-01	7.649E-01	NOT IDENT.
SB-126	1.431E-01	4.669E-01	4.714E-01	NOT IDENT.
SB-127	3.780E+01	4.660E+01	4.962E+01	FAIL ABUN
I-131	-3.667E-01	6.477E-01	6.685E-01	NOT IDENT.
I-132	-1.000E+41	4.578E+42	0.000E+00	SHORT HLIF
TE-132	3.113E+01	4.986E+01	5.179E+01	SHORT HLIF
BA-133	-5.527E-03	4.831E-02	4.838E-02	NOT IDENT.
I-133	-3.339E+10	5.847E+10	6.038E+10	SHORT HLIF
CS-134	5.217E-02	5.523E-02	6.003E-02	NOT IDENT.
I-135	7.646E+37	1.010E+38	0.000E+00	SHORT HLIF
CS-136	-2.288E-01	3.707E-01	3.848E-01	NOT IDENT.
BA-137M	-2.399E-02	3.689E-02	3.844E-02	NOT IDENT.
CS-137	-2.534E-02	3.897E-02	4.061E-02	NOT IDENT.
LA-138	-2.208E-02	6.769E-02	6.842E-02	NOT IDENT.
CE-139	-3.385E-03	2.792E-02	2.796E-02	NOT IDENT.
BA-140	3.242E-01	6.522E-01	6.683E-01	NOT IDENT.
LA-140	3.165E-02	3.157E-01	3.160E-01	NOT IDENT.
CE-141	-3.796E-02	8.468E-02	8.639E-02	NOT IDENT.
CE-143	1.896E+06	2.710E+06	2.841E+06	SHORT HLIF
CE-144	-1.569E-01	1.671E-01	1.815E-01	NOT IDENT.
PM-144	6.292E-03	3.482E-02	3.493E-02	NOT IDENT.
PR-144	4.758E-01	2.633E+00	2.642E+00	NOT IDENT.
PM-146	-2.900E-02	4.068E-02	4.273E-02	NOT IDENT.
ND-147	1.212E+00	1.876E+00	1.954E+00	FAIL ABUN
PM-149	5.470E+02	4.323E+04	4.323E+04	SHORT HLIF
EU-150	1.465E-02	2.951E-02	3.024E-02	FAIL ABUN
EU-152	3.319E-03	1.266E-01	1.266E-01	FAIL ABUN
GD-153	8.767E-03	7.468E-02	7.479E-02	NOT IDENT.
EU-154	-7.132E-02	1.242E-01	1.283E-01	FAIL ABUN
EU-155	-1.814E-02	9.224E-02	9.260E-02	FAIL ABUN
TB-160	0.000E+00	1.878E-01	0.000E+00	FAIL ABUN
HO-166M	3.516E-03	6.628E-02	6.629E-02	FAIL ABUN
TM-171	-1.255E+01	2.977E+01	3.030E+01	NOT IDENT.
HF-172	9.324E-03	1.588E-01	1.589E-01	FAIL ABUN
LU-172	2.571E-02	8.219E-02	8.300E-02	FAIL ABUN
LU-176	1.351E-02	2.673E-02	2.742E-02	FAIL ABUN
HF-181	-1.061E-02	6.258E-02	6.277E-02	NOT IDENT.

TA-182	-8.009E-02	1.695E-01	1.733E-01	NOT IDENT.
RE-183	-1.238E-01	2.638E-01	2.697E-01	NOT IDENT.
RE-184	5.713E-03	2.194E-01	2.194E-01	NOT IDENT.
W-188	-5.630E-02	9.668E+00	9.668E+00	NOT IDENT.
IR-192	2.123E-02	4.223E-02	4.330E-02	FAIL ABUN
HG-203	-1.107E-02	5.636E-02	5.658E-02	NOT IDENT.
TL-204	2.755E+00	4.415E+00	4.586E+00	NOT IDENT.
BI-207	1.207E-03	7.314E-02	7.314E-02	FAIL ABUN
BI-210	-6.116E-02	6.426E+00	6.426E+00	NOT IDENT.
PB-210	-6.116E-02	6.426E+00	6.426E+00	NOT IDENT.
PB-211	1.270E-01	6.432E-01	6.457E-01	NOT IDENT.
BI-212	1.169E-01	6.371E-01	6.393E-01	NOT IDENT.
BI-213	5.351E-02	1.093E-01	1.119E-01	NOT IDENT.
BI-214	5.862E-01	1.710E-01	3.148E-01	FAIL ABUN
RN-219	-1.525E-01	3.990E-01	4.049E-01	FAIL ABUN
RN-222	5.862E-01	1.710E-01	3.148E-01	FAIL ABUN
RA-223	-2.396E-01	6.930E-01	7.014E-01	FAIL ABUN
AC-225	-4.530E-01	2.057E+00	2.067E+00	NOT IDENT.
AC-227	4.105E-02	2.681E-01	2.687E-01	NOT IDENT.
TH-227	4.105E-02	2.681E-01	2.687E-01	NOT IDENT.
TH-229	2.704E-01	5.072E-01	5.216E-01	FAIL ABUN
PA-231	2.326E-01	5.044E-01	5.152E-01	NOT IDENT.
TH-231	-2.396E-01	6.930E-01	7.014E-01	FAIL ABUN
PA-233	-1.033E-02	5.808E-02	5.827E-02	NOT IDENT.
PA-234	-1.619E-01	3.517E-01	3.592E-01	NOT IDENT.
PA-234M	3.470E+00	5.426E+00	5.647E+00	NOT IDENT.
TH-234	-4.743E-02	1.357E+00	1.357E+00	FAIL ABUN
NP-237	-1.033E-02	5.808E-02	5.827E-02	NOT IDENT.
NP-238	-2.806E+03	1.631E+04	1.636E+04	SHORT HLIF
U-238	-4.743E-02	1.357E+00	1.357E+00	FAIL ABUN
NP-239	-1.487E-01	2.305E-01	2.400E-01	NOT IDENT.
PU-239	7.428E+01	2.782E+02	2.802E+02	NOT IDENT.
AM-241	2.580E-02	1.618E-01	1.622E-01	NOT IDENT.
CM-243	5.401E-02	9.491E-02	9.798E-02	NOT IDENT.
BK-247	1.866E-02	9.122E-02	9.161E-02	FAIL ABUN
CM-247	-6.372E-03	3.380E-02	3.392E-02	NOT IDENT.
CF-249	2.226E-02	4.141E-02	4.260E-02	NOT IDENT.
CF-251	-3.998E-02	1.133E-01	1.148E-01	NOT IDENT.
ANH-511	-1.459E-02	6.590E-02	6.623E-02	NOT IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	16.7376	85.43	27.9790	131.20	18.2033
45.60	16.9373	86.55	29.2106	133.02	25.0201
46.54	25.5398	86.79	33.7320	133.52	26.9776
49.72	0.0000	86.94	33.7494	136.00	23.2610
51.35	27.6600	87.09	33.7668	136.47	26.1979
51.87	13.1370	87.57	33.8220	140.51	0.0000
52.39	30.7343	88.03	33.8745	143.76	18.7497
52.97	23.4852	88.34	33.9099	144.24	19.7580
53.44	25.0119	88.47	13.5699	145.44	28.7265
54.07	25.0903	89.96	28.4119	152.43	20.1190
57.36	0.0000	1093.63	21.6417	153.25	23.1776
57.53	27.7644	91.11	21.6752	323.87	28.2743
57.98	27.8230	92.59	21.7801	156.02	19.2603
59.27	30.2597	93.35	21.8338	158.56	32.6128
59.32	30.2667	94.56	21.9187	159.00	21.4217
59.54	24.2379	94.65	21.9249	162.33	24.6511
60.96	25.1574	94.67	21.9264	162.66	24.6676
61.17	27.4704	94.87	21.9403	163.33	20.5847
62.93	22.3028	97.43	20.9537	165.86	21.7248
63.29	18.4866	98.43	16.6399	176.31	13.7276
63.58	23.1376	98.44	16.6404	176.60	14.7917
64.28	27.8497	99.53	21.0901	177.52	23.2850
66.73	26.5788	100.11	22.8881	181.07	0.0000
67.24	24.2854	102.03	19.4796	181.52	19.9065
125.81	19.6209	103.18	23.1005	184.41	23.5875
67.75	19.6266	103.37	23.1136	143.76	23.6442
68.89	30.7618	105.21	27.7082	193.51	20.7085
69.67	22.1561	105.31	27.7165	197.03	20.8369
70.82	20.1390	106.12	24.1973	198.01	34.0553
70.83	20.1400	106.47	20.6334	201.83	27.6451
72.81	24.0381	109.28	20.8004	203.43	23.2853
72.87	24.0436	111.00	17.2664	205.31	20.7639
74.66	24.2113	111.76	0.0000	210.85	17.9624
74.82	24.2265	114.06	22.9126	215.65	18.1036
74.97	24.2404	116.30	0.0000	218.12	18.1755
77.11	24.4379	116.74	29.5425	222.11	11.4319
78.74	29.5038	119.76	21.0949	227.09	13.8254
79.69	31.8002	121.12	19.9250	227.38	12.6790
80.03	28.5454	121.22	20.5530	228.16	0.0000
80.12	19.7690	121.78	20.5829	228.18	13.8486
80.19	19.7741	122.06	20.5978	116.74	13.8486
80.57	18.7013	122.92	20.6438	235.69	21.7893
81.00	26.4429	123.07	20.6517	235.96	20.2411
81.07	26.4495	265.00	22.5646	238.63	37.5171
81.75	24.0285	125.81	18.9061	238.98	0.0000
82.47	30.7363	127.23	22.7684	240.99	14.1180
83.79	30.8797	127.91	19.0062	242.00	26.7067
84.00	23.3857	129.30	20.9792	244.70	26.8122

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	9.5680	344.28	16.0701	563.25	9.7028
252.80	13.1634	345.93	18.7817	564.24	0.0000
254.15	0.0000	351.06	15.2880	569.33	9.7438
256.23	19.2391	351.93	15.3021	946.00	10.8276
260.90	0.0000	355.39	0.0000	569.70	10.8293
264.66	20.6798	356.01	16.2722	583.19	13.1157
264.80	20.6840	364.49	16.4161	584.27	16.4069
265.00	20.6892	366.42	0.0000	595.83	8.8184
269.46	14.6920	372.51	7.3558	427.87	6.6348
270.03	14.7034	375.05	12.9057	602.52	0.0000
271.23	21.2721	377.52	12.0132	604.72	3.3263
273.65	16.4156	356.01	12.0888	607.14	6.6633
276.40	14.8275	388.16	11.2061	609.32	6.6729
277.37	16.0834	388.63	9.3427	610.33	6.6772
277.60	16.0881	391.69	11.2444	614.28	5.0208
278.00	16.0965	264.66	7.5607	618.01	13.4209
279.20	21.0819	401.81	14.1919	620.36	7.8405
279.54	23.5726	402.40	11.3599	621.93	7.8485
279.70	21.0959	404.85	9.4883	630.19	0.0000
280.46	22.3588	410.95	10.4965	631.29	10.1510
283.69	21.2043	413.71	8.6100	633.25	4.5173
284.31	22.4692	414.70	10.5329	634.78	7.9126
285.41	15.8341	423.72	15.4466	635.95	9.0498
285.90	0.0000	427.09	16.4618	636.99	11.3196
287.50	15.8759	427.87	14.5352	657.50	3.4391
290.67	18.8754	433.94	8.7682	657.76	2.2931
293.27	0.0000	439.40	11.7471	657.90	0.0000
351.93	12.6550	440.45	9.7982	661.66	10.3436
295.96	12.6666	453.88	12.8852	664.57	0.0000
879.38	17.7901	463.37	15.9857	666.33	10.3726
299.98	17.3115	468.07	17.0512	666.50	10.3737
300.09	20.3691	473.00	17.1204	667.71	0.0000
300.13	20.3701	475.06	11.0965	677.62	8.1222
301.36	17.8503	476.78	12.1221	685.70	4.6634
302.85	24.6953	477.60	12.1301	692.65	0.0000
256.23	20.4780	482.18	11.1605	695.00	2.8133
304.85	25.6085	487.02	8.1481	696.49	5.6312
306.78	14.5450	492.35	0.0000	696.51	5.6314
308.46	18.0033	497.08	7.1864	697.00	5.6330
311.90	14.6336	505.52	12.4006	697.30	7.0425
316.51	13.8473	507.63	0.0000	697.49	7.0432
319.41	21.7092	511.00	12.4526	702.65	12.7156
320.08	11.2972	514.00	12.4810	706.68	7.9656
321.04	16.5299	514.00	12.4810	711.68	7.1006
323.87	21.8201	520.40	4.7031	720.70	5.7094
325.23	18.3575	520.69	0.0000	721.93	0.0000
328.76	16.6753	522.65	0.0000	722.78	15.1832
333.37	20.1137	527.90	0.0000	722.91	15.1842
333.97	13.2416	528.26	9.4614	723.31	10.7208
334.37	19.8711	529.59	13.6803	724.19	8.9383
338.28	20.4006	529.87	0.0000	727.33	11.6404
338.32	20.4016	531.02	5.2671	733.00	8.9822
311.90	12.0031	537.26	4.2331	735.93	5.3979
340.48	12.0031	546.56	0.0000	333.97	7.2034
340.55	12.0039	552.55	14.4448	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	9.0378	949.00	1.9968	1384.29	1.8723
747.24	9.0524	667.71	0.0000	1408.01	5.6575
748.06	4.5282	962.31	2.6777	1434.09	0.0000
752.31	8.1694	964.08	9.6472	1435.80	4.7542
753.82	11.8102	966.17	11.2653	1457.56	0.0000
756.73	5.4593	911.20	10.0702	1460.82	4.7896
756.80	5.4595	983.53	6.0797	1489.16	2.8975
884.68	4.3843	984.45	0.0000	1505.03	3.8809
765.81	8.7773	1274.44	4.0748	1584.12	3.9674
766.42	8.2315	1001.03	5.1036	1596.21	2.9852
766.84	8.2332	1002.74	4.0858	1620.50	5.0078
772.60	0.0000	1004.73	10.2231	1621.92	1.0020
776.52	12.6102	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.0202
778.90	1.8412	1028.54	0.0000	1750.46	0.0000
783.70	11.0753	1037.84	5.1810	1764.49	5.1958
788.74	8.3282	1038.76	0.0000	1063.66	4.1625
792.07	4.4493	631.29	8.3188	1771.35	2.0818
795.86	7.4299	1048.07	9.3642	1791.20	0.0000
810.06	11.2255	1049.04	11.4492	1808.65	2.1008
810.29	10.2914	1050.41	9.3730	1810.72	0.0000
344.28	10.2920	1063.66	9.4219	1836.06	3.1718
810.76	10.2937	1077.00	10.5237		
815.77	7.5051	1077.34	12.6299		
1048.07	8.4548	1085.87	5.2798		
832.01	3.7830	1093.63	6.3549		
834.85	6.6294	1099.45	6.3691		
835.71	6.6321	1112.07	5.3329		
836.80	0.0000	1112.84	5.3345		
846.75	0.0000	1115.54	3.2040		
846.77	9.5258	1120.29	5.3494		
856.80	4.5945	1120.55	5.3500		
860.56	3.0686	1221.41	3.2109		
871.09	2.8911	1129.67	2.1473		
873.19	5.7880	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	7.7397	1173.23	6.5453		
880.51	3.8719	1177.95	1.0927		
881.60	5.8109	1189.05	7.6793		
883.24	8.7229	1204.77	3.3094		
884.68	10.6687	1221.41	4.4382		
889.28	10.6912	1231.02	2.2264		
894.76	7.7952	1235.36	5.5743		
898.04	5.8552	1238.28	5.5801		
900.72	5.8625	1260.41	0.0000		
903.28	7.8257	1271.87	7.2238		
911.20	7.8540	1274.44	6.3263		
912.08	7.8572	1274.54	6.3267		
923.98	0.0000	1291.59	6.3622		
926.50	7.9082	1298.22	0.0000		
929.11	7.9172	1312.11	4.5750		
935.54	7.9399	1332.49	3.6842		
937.49	4.9667	1362.66	0.0000		
944.13	4.9812	1365.19	1.8611		
946.00	6.9795	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:19:11.32

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299037.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM24.CNF;751
Background date    : 28-JUL-2024 09:55:36
Sample date       : 26-JUN-2024 12:30:00 Acquisition date : 31-JUL-2024 16:14:36
Sample ID        : G674299037 Sample quantity : 9.73200E+01 GRAM
Detector name    : GAM24 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.55 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636543 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.69*	26	60	1.65	127.61	124	7	7.35E-03	56.3	1.35E+00
2	2	74.60*	34	92	1.18	149.41	144	19	9.32E-03	51.8	
3	2	77.10	110	79	1.16	154.41	144	19	3.05E-02	16.9	
4	0	93.08*	25	88	0.71	186.37	183	8	7.05E-03	74.9	
5	0	105.64	30	41	1.89	211.48	207	8	8.27E-03	41.8	1.71E+00
6	0	172.21	51	171	12.10	344.59	322	32	1.43E-02	78.6	
7	0	186.28*	32	74	1.09	372.73	368	9	8.98E-03	54.4	
8	0	199.38*	14	54	1.98	398.93	391	10	3.83E-03	107.2	
9	4	238.59*	128	36	1.36	477.33	470	21	3.56E-02	12.4	
10	4	241.52	49	35	1.85	483.19	470	21	1.35E-02	35.6	
11	0	264.87	16	25	0.79	529.88	525	8	4.44E-03	60.4	
12	0	295.67*	89	55	1.25	591.47	584	14	2.46E-02	21.0	
13	0	327.84	25	39	0.54	655.81	651	11	6.87E-03	52.7	
14	0	338.56	31	22	1.27	677.25	674	8	8.72E-03	31.4	
15	0	352.12*	107	55	1.48	704.36	699	13	2.97E-02	17.2	
16	0	391.70	20	8	3.75	783.52	778	10	5.42E-03	34.7	
17	0	510.89*	33	25	2.85	1021.87	1013	21	9.19E-03	52.7	
18	0	583.58*	35	23	1.72	1167.24	1162	10	9.83E-03	32.1	
19	0	590.49	12	8	1.80	1181.07	1174	11	3.26E-03	55.7	
20	0	609.12*	106	15	2.01	1218.32	1210	15	2.95E-02	12.9	
21	0	671.97	12	3	0.89	1344.02	1340	8	3.22E-03	41.3	
22	0	679.73	9	9	1.42	1359.53	1352	10	2.44E-03	74.7	
23	0	727.64	10	9	0.84	1455.35	1450	10	2.75E-03	67.0	
24	0	785.56	11	4	1.51	1571.20	1567	8	3.06E-03	43.6	
25	0	800.89	11	7	2.68	1601.87	1597	8	3.06E-03	53.0	
26	0	807.77	7	3	1.33	1615.62	1612	6	1.97E-03	53.6	
27	0	844.86	8	2	0.68	1689.80	1687	6	2.32E-03	41.9	
28	0	868.86	10	3	1.69	1737.80	1735	6	2.78E-03	41.8	
29	0	911.07*	26	11	1.80	1822.24	1815	15	7.20E-03	36.2	
30	0	970.48	9	21	0.88	1941.07	1932	12	2.56E-03	104.4	
31	0	1090.57	7	3	0.66	2181.26	2178	6	2.03E-03	52.2	
32	0	1120.03*	17	6	2.66	2240.19	2234	11	4.82E-03	40.6	
33	0	1154.80	14	10	2.40	2309.75	2302	13	4.02E-03	51.5	
34	0	1238.33	11	2	1.60	2476.83	2472	10	3.01E-03	40.5	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1399.59	10	3	1.02	2799.43	2793	12	2.83E-03	46.0	
36	0	1460.46*	51	8	1.35	2921.19	2915	11	1.43E-02	18.5	
37	0	1764.42*	26	0	2.99	3529.31	3522	13	7.31E-03	22.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299037.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 12:30:00	Acquisition date	: 31-JUL-2024 16:14:36
Sample ID	: G674299037	Sample quantity	: 97.320 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA24	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.55 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	48	10.66*	1.314E+00	2.639E+00	2.639E+00	36.98
SN-113	391.69	18	64.94*	4.047E+00	5.416E-02	6.694E-02	69.37
TL-208	277.37	-----	6.60	5.118E+00	-----	Line Not Found	-----
	583.19	33	85.00*	2.999E+00	1.009E-01	1.009E-01	64.15
	860.56	-----	12.50	2.132E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	6.856E+00	-----	Line Not Found	-----
	351.06	101	12.92*	4.358E+00	1.386E+00	1.386E+00	34.49
BI-212	727.33	9	6.67*	2.485E+00	4.327E-01	4.327E-01	134.08
	1620.50	-----	1.47	1.219E+00	-----	Line Not Found	-----
PB-212	74.82	32	10.28	7.036E+00	3.449E-01	3.449E-01	103.52
	77.11	106	17.10	7.270E+00	6.563E-01	6.563E-01	33.80
	238.63	122	43.60*	5.650E+00	3.814E-01	3.814E-01	24.75
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
BI-214	609.32	100	45.49*	2.895E+00	5.867E-01	5.867E-01	25.80
	1120.29	16	14.92	1.661E+00	5.054E-01	5.055E-01	81.10
	1764.49	24	15.30	1.161E+00	1.064E+00	1.064E+00	44.11
PB-214	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.779E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
RN-222	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
	609.32	100	45.49*	2.895E+00	5.867E-01	5.867E-01	25.80
	1120.29	16	14.92	1.661E+00	5.054E-01	5.055E-01	81.10
	1764.49	24	15.30	1.161E+00	1.064E+00	1.064E+00	44.11
RA-224	240.99	46	4.10*	5.605E+00	1.552E+00	1.552E+00	71.27
RA-226	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.779E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
TH-228	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
	74.82	32	10.28	7.036E+00	3.449E-01	3.449E-01	103.52
	77.11	106	17.10	7.270E+00	6.563E-01	6.563E-01	33.80
	238.63	122	43.60*	5.650E+00	3.814E-01	3.814E-01	24.75
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
TH-230	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.778E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
TH-234	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
	63.29	26	3.70*	5.608E+00	9.500E-01	9.500E-01	112.63
	92.59	24	4.23	8.112E+00	5.484E-01	5.484E-01	149.82
U-234	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.778E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
U-238	63.29	26	3.70*	5.608E+00	9.500E-01	9.500E-01	112.63
	92.59	24	4.23	8.112E+00	5.484E-01	5.484E-01	149.82
AM-243	43.53	-----	5.90	1.656E+00	-----	Line Not Found	-----
	74.66	32	67.20*	7.036E+00	5.277E-02	5.277E-02	103.52
ANH-511	511.00	31	100.00*	3.331E+00	7.231E-02	7.231E-02	105.49

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299037.CNF;1
Acquisition date : 31-JUL-2024 16:14:36 Sensitivity : 3.000
Detector ID : GAM24 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.55 Half life ratio : *****
Sample date : 26-JUN-2024 12:30:00 Analyst initials: MXR1
Sample ID : G674299037 Sample Quantity : 9.7320E+01 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 24-JUN-2024 07:06:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.639E+00	9.566E-01	8.222E-01
SN-113	6.694E-02	4.551E-02	7.116E-02
TL-208	1.009E-01	6.345E-02	6.762E-02
BI-211	1.386E+00	4.686E-01	3.092E-01
BI-212	4.327E-01	5.686E-01	6.416E-01
PB-212	3.814E-01	9.252E-02	8.225E-02
BI-214	5.867E-01	1.483E-01	9.063E-02
PB-214	5.032E-01	1.701E-01	1.124E-01
RN-222	5.867E-01	1.483E-01	9.063E-02
RA-224	1.552E+00	1.084E+00	8.813E-01
RA-226	5.032E-01	1.701E-01	1.124E-01
TH-228	3.814E-01	9.252E-02	8.225E-02
TH-230	5.032E-01	1.701E-01	1.124E-01
TH-234	9.500E-01	1.049E+00	1.226E+00
U-234	5.032E-01	1.701E-01	1.124E-01
U-238	9.500E-01	1.049E+00	1.226E+00
AM-243	5.277E-02	5.353E-02	5.967E-02
ANH-511	7.231E-02	7.476E-02	4.396E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	5.412E-01	4.282E-01	9.243E-01	NOT IDENT.
NA-22	-1.328E-02	4.336E-02	7.988E-02	NOT IDENT.
NA-24	0.000E+00	2.998E+15	0.000E+00	SHORT HLIF
AL-26	7.340E-03	2.904E-02	7.187E-02	NOT IDENT.
SC-46	-1.713E-02	3.728E-02	6.915E-02	FAIL ABUN
V-48	-6.425E-02	1.544E-01	2.842E-01	NOT IDENT.
CR-51	-4.454E-01	4.958E-01	8.377E-01	NOT IDENT.
MN-52	-1.476E+00	2.889E+00	5.030E+00	NOT IDENT.
MN-54	1.653E-02	3.187E-02	7.001E-02	NOT IDENT.
CO-56	2.968E-02	3.939E-02	8.603E-02	FAIL ABUN
MN-56	0.000E+00	1.299E+41	0.000E+00	SHORT HLIF
CO-57	1.531E-02	2.016E-02	3.927E-02	NOT IDENT.

CO-58	1.426E-02	3.929E-02	7.910E-02	NOT IDENT.
FE-59	-3.448E-02	9.296E-02	1.745E-01	NOT IDENT.
CO-60	-1.560E-02	3.490E-02	6.284E-02	NOT IDENT.
ZN-65	5.129E-02	9.256E-02	1.851E-01	NOT IDENT.
GE-68	-9.003E-01	1.187E+00	1.976E+00	NOT IDENT.
AS-73	1.065E-01	4.621E-01	8.869E-01	NOT IDENT.
AS-74	1.262E-01	1.805E-01	3.798E-01	NOT IDENT.
SE-75	4.620E-02	5.466E-02	8.194E-02	FAIL ABUN
BR-77	0.000E+00	4.984E+03	0.000E+00	SHORT HLIF
SR-82	-1.493E-01	4.458E-01	8.580E-01	NOT IDENT.
RB-83	-5.540E-03	6.770E-02	1.281E-01	NOT IDENT.
RB-84	5.058E-02	1.004E-01	2.167E-01	NOT IDENT.
KR-85	7.794E+00	6.685E+00	1.437E+01	NOT IDENT.
SR-85	5.089E-02	4.372E-02	9.396E-02	NOT IDENT.
RB-86	-3.963E-01	1.289E+00	2.465E+00	NOT IDENT.
Y-88	1.783E-02	4.066E-02	1.020E-01	NOT IDENT.
Y-91	-2.036E+01	2.277E+01	3.560E+01	NOT IDENT.
NB-94	-1.091E-02	3.286E-02	5.716E-02	NOT IDENT.
NB-95	2.502E-02	4.996E-02	1.051E-01	NOT IDENT.
NB-95M	-3.950E-02	1.273E-01	2.115E-01	NOT IDENT.
ZR-95	-3.440E-02	9.422E-02	1.753E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.818E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.690E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.526E+40	0.000E+00	SHORT HLIF
RH-101	-1.655E-02	2.428E-02	4.000E-02	FAIL ABUN
RH-102	-3.068E-02	4.582E-02	7.502E-02	NOT IDENT.
RU-103	1.495E-02	5.016E-02	9.969E-02	FAIL ABUN
RH-106	-1.640E-01	3.438E-01	5.858E-01	NOT IDENT.
RU-106	-1.640E-01	3.438E-01	5.858E-01	NOT IDENT.
AG-108M	7.923E-03	2.842E-02	5.547E-02	NOT IDENT.
CD-109	5.678E-01	6.415E-01	1.218E+00	NOT IDENT.
AG-110	-1.128E-01	6.774E-01	1.239E+00	NOT IDENT.
AG-110M	-3.217E-02	4.383E-02	7.559E-02	NOT IDENT.
CD-115	0.000E+00	5.425E+03	0.000E+00	SHORT HLIF
SN-117M	4.155E-02	1.409E-01	2.383E-01	NOT IDENT.
SB-122	0.000E+00	3.190E+02	0.000E+00	SHORT HLIF
TE-123M	2.060E-02	2.965E-02	5.265E-02	NOT IDENT.
SB-124	6.025E-02	1.027E-01	2.616E-01	NOT IDENT.
SB-125	1.675E-02	8.609E-02	1.668E-01	NOT IDENT.
TE-125M	4.283E+00	8.892E+00	1.689E+01	NOT IDENT.
I-126	4.101E-02	5.614E-01	1.074E+00	NOT IDENT.
SB-126	-1.148E-01	4.011E-01	7.096E-01	NOT IDENT.
SN-126	5.650E-02	6.116E-02	1.164E-01	FAIL ABUN
SB-127	1.395E+01	4.198E+01	8.471E+01	NOT IDENT.
I-131	-6.733E-01	5.769E-01	9.168E-01	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	5.324E+01	0.000E+00	SHORT HLIF
BA-133	3.139E-04	4.423E-02	7.502E-02	NOT IDENT.
I-133	0.000E+00	5.471E+10	0.000E+00	SHORT HLIF
CS-134	1.145E-02	4.162E-02	7.814E-02	FAIL ABUN
I-135	0.000E+00	5.495E+37	0.000E+00	SHORT HLIF
CS-136	-1.350E-01	2.130E-01	3.709E-01	NOT IDENT.
BA-137M	2.366E-02	3.219E-02	6.809E-02	NOT IDENT.
CS-137	2.500E-02	3.400E-02	7.194E-02	NOT IDENT.
LA-138	3.145E-02	4.951E-02	1.214E-01	NOT IDENT.
CE-139	-3.265E-02	2.804E-02	4.204E-02	NOT IDENT.
BA-140	4.016E-01	6.620E-01	1.394E+00	NOT IDENT.
LA-140	-2.506E-03	2.812E-01	5.958E-01	FAIL ABUN
CE-141	-8.545E-02	8.554E-02	1.340E-01	NOT IDENT.
CE-143	0.000E+00	2.407E+06	0.000E+00	SHORT HLIF
CE-144	1.778E-02	1.675E-01	3.021E-01	NOT IDENT.
PM-144	3.047E-03	3.607E-02	6.752E-02	NOT IDENT.
PR-144	5.411E-01	2.679E+00	5.125E+00	NOT IDENT.
PM-146	1.770E-02	2.995E-02	6.457E-02	NOT IDENT.
ND-147	4.167E-01	2.115E+00	4.033E+00	NOT IDENT.
PM-147	4.701E+02	5.620E+02	1.105E+03	NOT IDENT.
PM-149	0.000E+00	4.255E+04	0.000E+00	SHORT HLIF
EU-150	-2.346E-03	2.405E-02	4.322E-02	FAIL ABUN
EU-152	2.945E-02	9.371E-02	1.828E-01	NOT IDENT.
GD-153	-8.263E-03	6.264E-02	1.118E-01	NOT IDENT.
EU-154	-3.723E-02	1.216E-01	2.240E-01	NOT IDENT.
EU-155	1.287E-01	1.054E-01	1.620E-01	FAIL ABUN
TB-160	1.583E-01	1.503E-01	3.506E-01	NOT IDENT.
HO-166M	-2.492E-02	6.071E-02	1.039E-01	NOT IDENT.
TM-171	-8.315E+00	8.036E+00	1.353E+01	NOT IDENT.
HF-172	8.344E-02	1.360E-01	2.637E-01	FAIL ABUN
LU-172	6.032E-03	4.416E-02	8.890E-02	FAIL ABUN

LU-176	-5.430E-03	2.254E-02	4.192E-02	NOT IDENT.
HF-181	5.961E-03	4.891E-02	9.603E-02	NOT IDENT.
TA-182	5.538E-02	1.875E-01	3.923E-01	FAIL ABUN
RE-183	-6.044E-03	1.235E-01	2.272E-01	NOT IDENT.
RE-184	4.428E-02	1.497E-01	3.234E-01	NOT IDENT.
W-188	1.322E-01	7.581E+00	1.321E+01	FAIL ABUN
IR-192	5.272E-03	3.428E-02	6.717E-02	FAIL ABUN
HG-203	-1.245E-02	4.628E-02	8.553E-02	NOT IDENT.
TL-204	-1.039E+00	3.311E+00	5.380E+00	NOT IDENT.
BI-207	6.951E-04	4.913E-02	9.813E-02	FAIL ABUN
BI-210	2.981E-01	1.482E+00	2.794E+00	NOT IDENT.
PB-210	2.981E-01	1.482E+00	2.794E+00	NOT IDENT.
PB-211	8.519E-02	5.210E-01	1.038E+00	NOT IDENT.
BI-213	-7.597E-02	8.316E-02	1.345E-01	NOT IDENT.
RN-219	3.679E-02	3.047E-01	6.011E-01	NOT IDENT.
RA-223	-6.193E-02	5.636E-01	9.565E-01	FAIL ABUN
AC-225	2.446E+00	1.923E+00	3.943E+00	NOT IDENT.
AC-227	4.763E-02	2.137E-01	4.194E-01	NOT IDENT.
TH-227	4.763E-02	2.137E-01	4.194E-01	NOT IDENT.
AC-228	3.597E-01	2.553E-01	4.503E-01	FAIL ABUN
RA-228	3.597E-01	2.553E-01	4.503E-01	FAIL ABUN
TH-229	-4.629E-01	5.505E-01	7.681E-01	NOT IDENT.
PA-231	2.149E-01	3.916E-01	7.734E-01	NOT IDENT.
TH-231	-6.193E-02	5.636E-01	9.565E-01	FAIL ABUN
TH-232	3.597E-01	2.553E-01	4.503E-01	FAIL ABUN
PA-233	-1.768E-02	5.812E-02	1.067E-01	NOT IDENT.
PA-234	1.961E-01	2.810E-01	6.277E-01	NOT IDENT.
PA-234M	-5.768E-01	4.334E+00	8.388E+00	NOT IDENT.
U-235	-4.351E-02	1.805E-01	3.076E-01	FAIL ABUN
NP-237	-1.768E-02	5.812E-02	1.067E-01	NOT IDENT.
NP-238	0.000E+00	1.237E+04	0.000E+00	SHORT HLIF
NP-239	1.509E-01	1.796E-01	3.585E-01	FAIL ABUN
PU-239	2.027E+01	2.609E+02	4.709E+02	NOT IDENT.
AM-241	3.801E-02	7.960E-02	1.530E-01	NOT IDENT.
CM-243	-1.004E-02	7.225E-02	1.198E-01	NOT IDENT.
BK-247	7.400E-02	8.756E-02	1.287E-01	FAIL ABUN
CM-247	-8.556E-03	2.861E-02	5.265E-02	NOT IDENT.
CF-249	1.103E-02	3.348E-02	6.198E-02	NOT IDENT.
CF-251	3.312E-02	1.160E-01	1.964E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	48	10.66*	1.314E+00	2.639E+00	2.639E+00	36.98
SN-113	391.69	18	64.94*	4.047E+00	5.416E-02	6.694E-02	69.37
TL-208	277.37	-----	6.60	5.118E+00	-----	Line Not Found	-----
	583.19	33	85.00*	2.999E+00	1.009E-01	1.009E-01	64.15
	860.56	-----	12.50	2.132E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	6.856E+00	-----	Line Not Found	-----
	351.06	101	12.92*	4.358E+00	1.386E+00	1.386E+00	34.49
BI-212	727.33	9	6.67*	2.485E+00	4.327E-01	4.327E-01	134.08
	1620.50	-----	1.47	1.219E+00	-----	Line Not Found	-----
PB-212	74.82	32	10.28	7.036E+00	3.449E-01	3.449E-01	103.52
	77.11	106	17.10	7.270E+00	6.563E-01	6.563E-01	33.80
	238.63	122	43.60*	5.650E+00	3.814E-01	3.814E-01	24.75
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
BI-214	609.32	100	45.49*	2.895E+00	5.867E-01	5.867E-01	25.80
	1120.29	16	14.92	1.661E+00	5.054E-01	5.055E-01	81.10
	1764.49	24	15.30	1.161E+00	1.064E+00	1.064E+00	44.11
PB-214	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.779E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
RN-222	609.32	100	45.49*	2.895E+00	5.867E-01	5.867E-01	25.80
	1120.29	16	14.92	1.661E+00	5.054E-01	5.055E-01	81.10
	1764.49	24	15.30	1.161E+00	1.064E+00	1.064E+00	44.11
RA-224	240.99	46	4.10*	5.605E+00	1.552E+00	1.552E+00	71.27
RA-226	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.779E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
TH-228	74.82	32	10.28	7.036E+00	3.449E-01	3.449E-01	103.52
	77.11	106	17.10	7.270E+00	6.563E-01	6.563E-01	33.80
	238.63	122	43.60*	5.650E+00	3.814E-01	3.814E-01	24.75
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
TH-230	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----
	242.00	46	7.25	5.605E+00	8.778E-01	8.778E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
TH-234	63.29	26	3.70*	5.608E+00	9.500E-01	9.500E-01	112.63
	92.59	24	4.23	8.112E+00	5.484E-01	5.484E-01	149.82
U-234	74.82	32	5.80	7.036E+00	6.114E-01	6.114E-01	103.52
	77.11	106	9.70	7.270E+00	1.157E+00	1.157E+00	33.80
	87.09	-----	3.41	7.910E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	242.00	46	7.25	5.605E+00	8.778E-01	8.778E-01	71.27
	295.22	84	18.42	4.905E+00	7.176E-01	7.176E-01	42.09
	351.93	101	35.60*	4.358E+00	5.032E-01	5.032E-01	34.49
U-238	63.29	26	3.70*	5.608E+00	9.500E-01	9.500E-01	112.63
	92.59	24	4.23	8.112E+00	5.484E-01	5.484E-01	149.82
AM-243	43.53	-----	5.90	1.656E+00	-----	Line Not Found	-----
	74.66	32	67.20*	7.036E+00	5.277E-02	5.277E-02	103.52
ANH-511	511.00	31	100.00*	3.331E+00	7.231E-02	7.231E-02	105.49

Flag: "*" = Keyline

Total number of lines in spectrum 37
Number of unidentified lines 12
Number of lines tentatively identified by NID 25 67.57%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.639E+00	2.639E+00	0.976E+00	36.98	
SN-113	115.09D	1.24	5.416E-02	6.694E-02	4.644E-02	69.37	
TL-208	1.41E+10Y	1.00	1.009E-01	1.009E-01	0.647E-01	64.15	
BI-211	7.04E+08Y	1.00	1.386E+00	1.386E+00	0.478E+00	34.49	
BI-212	1.41E+10Y	1.00	4.327E-01	4.327E-01	5.802E-01	134.08	
PB-212	1.41E+10Y	1.00	3.814E-01	3.814E-01	0.944E-01	24.75	
BI-214	1600.00Y	1.00	5.867E-01	5.867E-01	1.514E-01	25.80	
PB-214	1600.00Y	1.00	5.032E-01	5.032E-01	1.736E-01	34.49	
RN-222	1600.00Y	1.00	5.867E-01	5.867E-01	1.514E-01	25.80	
RA-224	1.41E+10Y	1.00	1.552E+00	1.552E+00	1.106E+00	71.27	
RA-226	1600.00Y	1.00	5.032E-01	5.032E-01	1.736E-01	34.49	
TH-228	1.41E+10Y	1.00	3.814E-01	3.814E-01	0.944E-01	24.75	
TH-230	7.54E+04Y	1.00	5.032E-01	5.032E-01	1.735E-01	34.49	
TH-234	4.47E+09Y	1.00	9.500E-01	9.500E-01	10.70E-01	112.63	
U-234	2.45E+05Y	1.00	5.032E-01	5.032E-01	1.735E-01	34.49	
U-238	4.47E+09Y	1.00	9.500E-01	9.500E-01	10.70E-01	112.63	
AM-243	7370.00Y	1.00	5.277E-02	5.277E-02	5.462E-02	103.52	
ANH-511	1.00E+09Y	1.00	7.231E-02	7.231E-02	7.628E-02	105.49	
Total Activity :			1.214E+01	1.215E+01			

Grand Total Activity : 1.214E+01 1.215E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	105.64	29	40	1.89	211.48	207	8	8.27E-03	83.6	8.24E+00	T
0	172.21	49	163	12.10	344.59	322	32	1.43E-02	****	6.91E+00	
0	186.28	31	71	1.09	372.73	368	9	8.98E-03	****	6.60E+00	T
0	199.38	13	52	1.98	398.93	391	10	3.83E-03	****	6.33E+00	T
0	264.87	15	24	0.79	529.88	525	8	4.44E-03	****	5.28E+00	T
0	327.84	23	37	0.54	655.81	651	11	6.87E-03	****	4.58E+00	T
0	338.56	30	20	1.27	677.25	674	8	8.72E-03	62.8	4.48E+00	T
0	590.49	11	8	1.80	1181.07	1174	11	3.26E-03	****	2.97E+00	
0	671.97	11	3	0.89	1344.02	1340	8	3.22E-03	82.7	2.66E+00	
0	679.73	8	9	1.42	1359.53	1352	10	2.44E-03	****	2.64E+00	
0	785.56	10	4	1.51	1571.20	1567	8	3.06E-03	87.2	2.32E+00	
0	800.89	10	7	2.68	1601.87	1597	8	3.06E-03	****	2.28E+00	T
0	807.77	7	3	1.33	1615.62	1612	6	1.97E-03	****	2.26E+00	
0	844.86	8	2	0.68	1689.80	1687	6	2.32E-03	83.8	2.17E+00	
0	868.86	9	3	1.69	1737.80	1735	6	2.78E-03	83.7	2.11E+00	
0	911.07	24	11	1.80	1822.24	1815	15	7.20E-03	72.4	2.02E+00	T
0	970.48	9	19	0.88	1941.07	1932	12	2.56E-03	****	1.90E+00	
0	1090.57	7	3	0.66	2181.26	2178	6	2.03E-03	****	1.70E+00	
0	1154.80	14	9	2.40	2309.75	2302	13	4.02E-03	****	1.61E+00	
0	1238.33	10	2	1.60	2476.83	2472	10	3.01E-03	80.9	1.51E+00	T
0	1399.59	10	3	1.02	2799.43	2793	12	2.83E-03	92.0	1.36E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299037.CNF;1 *
* Acquisition date : 31-JUL-2024 16:14:36 Sensitivity : 3.000 *
* Detector ID : GAM24 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.55 Half life ratio : ***** *
* Sample date : 26-JUN-2024 12:30:00 Nuclide Library : SOLID *
* Sample ID : G674299037 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 9.7320E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 24-JUN-2024 07:06:44 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.374E-01
SN-113	3.072E-02
TL-208	2.976E-02
BI-211	1.363E-01
BI-212	2.585E-01
PB-212	3.694E-02
BI-214	3.746E-02
PB-214	4.957E-02
RN-222	3.746E-02
RA-224	3.958E-01
RA-226	4.957E-02
TH-228	3.694E-02
TH-230	4.956E-02
TH-234	5.626E-01
U-234	4.956E-02
U-238	5.626E-01
AM-243	2.765E-02
ANH-511	1.888E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.176E-01	NOT IDENT.
NA-22	3.275E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.690E-02	NOT IDENT.
SC-46	2.789E-02	FAIL ABUN
V-48	1.168E-01	NOT IDENT.
CR-51	3.648E-01	NOT IDENT.
MN-52	1.907E+00	NOT IDENT.
MN-54	2.992E-02	NOT IDENT.
CO-56	3.647E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	1.800E-02	NOT IDENT.
CO-58	3.305E-02	NOT IDENT.

FE-59	6.854E-02	NOT IDENT.
CO-60	2.404E-02	NOT IDENT.
ZN-65	7.901E-02	NOT IDENT.
GE-68	7.842E-01	NOT IDENT.
AS-73	4.065E-01	NOT IDENT.
AS-74	1.665E-01	NOT IDENT.
SE-75	3.690E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	3.525E-01	NOT IDENT.
RB-83	5.478E-02	NOT IDENT.
RB-84	9.324E-02	NOT IDENT.
KR-85	6.462E+00	NOT IDENT.
SR-85	4.226E-02	NOT IDENT.
RB-86	9.757E-01	NOT IDENT.
Y-88	3.953E-02	NOT IDENT.
Y-91	1.391E+01	NOT IDENT.
NB-94	2.454E-02	NOT IDENT.
NB-95	4.616E-02	NOT IDENT.
NB-95M	9.503E-02	NOT IDENT.
ZR-95	7.609E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.805E-02	FAIL ABUN
RH-102	3.082E-02	NOT IDENT.
RU-103	4.364E-02	FAIL ABUN
RH-106	2.539E-01	NOT IDENT.
RU-106	2.539E-01	NOT IDENT.
AG-108M	2.471E-02	NOT IDENT.
CD-109	5.722E-01	NOT IDENT.
AG-110	5.264E-01	NOT IDENT.
AG-110M	3.025E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.092E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.424E-02	NOT IDENT.
SB-124	1.034E-01	NOT IDENT.
SB-125	7.405E-02	NOT IDENT.
TE-125M	7.735E+00	NOT IDENT.
I-126	4.601E-01	NOT IDENT.
SB-126	2.996E-01	NOT IDENT.
SN-126	5.471E-02	FAIL ABUN
SB-127	3.632E+01	NOT IDENT.
I-131	3.963E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.364E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.363E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	1.388E-01	NOT IDENT.
BA-137M	2.979E-02	NOT IDENT.
CS-137	3.147E-02	NOT IDENT.
LA-138	4.886E-02	NOT IDENT.
CE-139	1.884E-02	NOT IDENT.
BA-140	6.073E-01	NOT IDENT.
LA-140	2.384E-01	FAIL ABUN
CE-141	6.098E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.381E-01	NOT IDENT.
PM-144	2.946E-02	NOT IDENT.
PR-144	2.238E+00	NOT IDENT.
PM-146	2.787E-02	NOT IDENT.
ND-147	1.792E+00	NOT IDENT.
PM-147	5.063E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.923E-02	FAIL ABUN
EU-152	8.258E-02	NOT IDENT.
GD-153	5.110E-02	NOT IDENT.
EU-154	9.185E-02	NOT IDENT.
EU-155	7.501E-02	FAIL ABUN
TB-160	1.523E-01	NOT IDENT.
HO-166M	4.440E-02	NOT IDENT.
TM-171	6.107E+00	NOT IDENT.
HF-172	1.200E-01	FAIL ABUN
LU-172	3.444E-02	FAIL ABUN
LU-176	1.865E-02	NOT IDENT.

HF-181	4.146E-02	NOT IDENT.
TA-182	1.653E-01	FAIL ABUN
RE-183	1.043E-01	NOT IDENT.
RE-184	1.352E-01	NOT IDENT.
W-188	5.872E+00	FAIL ABUN
IR-192	2.988E-02	FAIL ABUN
HG-203	3.858E-02	NOT IDENT.
TL-204	2.489E+00	NOT IDENT.
BI-207	4.111E-02	FAIL ABUN
BI-210	1.288E+00	NOT IDENT.
PB-210	1.288E+00	NOT IDENT.
PB-211	4.500E-01	NOT IDENT.
BI-213	5.652E-02	NOT IDENT.
RN-219	2.612E-01	NOT IDENT.
RA-223	4.221E-01	FAIL ABUN
AC-225	1.799E+00	NOT IDENT.
AC-227	1.896E-01	NOT IDENT.
TH-227	1.896E-01	NOT IDENT.
AC-228	2.054E-01	FAIL ABUN
RA-228	2.054E-01	FAIL ABUN
TH-229	3.478E-01	NOT IDENT.
PA-231	3.469E-01	NOT IDENT.
TH-231	4.221E-01	FAIL ABUN
TH-232	2.054E-01	FAIL ABUN
PA-233	4.769E-02	NOT IDENT.
PA-234	2.698E-01	NOT IDENT.
PA-234M	3.529E+00	NOT IDENT.
U-235	1.414E-01	FAIL ABUN
NP-237	4.769E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	1.633E-01	FAIL ABUN
PU-239	2.148E+02	NOT IDENT.
AM-241	7.062E-02	NOT IDENT.
CM-243	5.387E-02	NOT IDENT.
BK-247	5.781E-02	FAIL ABUN
CM-247	2.271E-02	NOT IDENT.
CF-249	2.715E-02	NOT IDENT.
CF-251	8.943E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299037.CNF;1
Acquisition date : 31-JUL-2024 16:14:36 Sensitivity : 3.000
Detector ID : GAM24 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.55 Half life ratio : *****
Sample date : 26-JUN-2024 12:30:00 Nuclide Library : SOLID
Sample ID : G674299037 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 9.7320E+01 GRAM
Quantity Err(%) : 1.0275E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 24-JUN-2024 07:06:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.639E+00	1.005E+00	1.005E+00
SN-113	6.694E-02	4.584E-02	4.584E-02
TL-208	1.009E-01	6.401E-02	6.401E-02
BI-211	1.386E+00	4.867E-01	4.867E-01
BI-212	4.327E-01	5.701E-01	5.701E-01
PB-212	3.814E-01	1.006E-01	1.006E-01
BI-214	5.867E-01	1.562E-01	1.562E-01
PB-214	5.032E-01	1.765E-01	1.765E-01
RN-222	5.867E-01	1.562E-01	1.562E-01
RA-224	1.552E+00	1.096E+00	1.096E+00
RA-226	5.032E-01	1.765E-01	1.765E-01
TH-228	3.814E-01	1.006E-01	1.006E-01
TH-230	5.032E-01	1.765E-01	1.765E-01
TH-234	9.500E-01	1.071E+00	1.071E+00
U-234	5.032E-01	1.765E-01	1.765E-01
U-238	9.500E-01	1.071E+00	1.071E+00
AM-243	5.277E-02	5.369E-02	5.369E-02
ANH-511	7.231E-02	7.501E-02	7.501E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	5.412E-01	4.306E-01	4.950E-01	NOT IDENT.
NA-22	-1.328E-02	4.339E-02	4.380E-02	NOT IDENT.
NA-24	-6.816E+14	2.999E+15	3.015E+15	SHORT HLIF
AL-26	7.340E-03	2.904E-02	2.923E-02	NOT IDENT.
SC-46	-1.713E-02	3.734E-02	3.813E-02	FAIL ABUN
V-48	-6.425E-02	1.546E-01	1.573E-01	NOT IDENT.
CR-51	-4.454E-01	4.978E-01	5.368E-01	NOT IDENT.
MN-52	-1.476E+00	2.893E+00	2.969E+00	NOT IDENT.
MN-54	1.653E-02	3.192E-02	3.278E-02	NOT IDENT.
CO-56	2.968E-02	3.953E-02	4.174E-02	FAIL ABUN
MN-56	1.000E+41	1.304E+41	0.000E+00	SHORT HLIF
CO-57	1.531E-02	2.019E-02	2.134E-02	NOT IDENT.

CO-58	1.426E-02	3.932E-02	3.984E-02	NOT IDENT.
FE-59	-3.448E-02	9.305E-02	9.434E-02	NOT IDENT.
CO-60	-1.560E-02	3.495E-02	3.565E-02	NOT IDENT.
ZN-65	5.129E-02	9.269E-02	9.553E-02	NOT IDENT.
GE-68	-9.003E-01	1.190E+00	1.258E+00	NOT IDENT.
AS-73	1.065E-01	4.626E-01	4.651E-01	NOT IDENT.
AS-74	1.262E-01	1.810E-01	1.897E-01	NOT IDENT.
SE-75	4.620E-02	5.488E-02	5.870E-02	FAIL ABUN
BR-77	2.055E+04	2.155E+04	2.346E+04	SHORT HLIF
SR-82	-1.493E-01	4.460E-01	4.511E-01	NOT IDENT.
RB-83	-5.540E-03	6.770E-02	6.775E-02	NOT IDENT.
RB-84	5.058E-02	1.005E-01	1.031E-01	NOT IDENT.
KR-85	7.794E+00	6.717E+00	7.580E+00	NOT IDENT.
SR-85	5.089E-02	4.393E-02	4.956E-02	NOT IDENT.
RB-86	-3.963E-01	1.289E+00	1.302E+00	NOT IDENT.
Y-88	1.783E-02	4.069E-02	4.147E-02	NOT IDENT.
Y-91	-2.036E+01	2.285E+01	2.462E+01	NOT IDENT.
NB-94	-1.091E-02	3.287E-02	3.324E-02	NOT IDENT.
NB-95	2.502E-02	5.002E-02	5.128E-02	NOT IDENT.
NB-95M	-3.950E-02	1.274E-01	1.286E-01	NOT IDENT.
ZR-95	-3.440E-02	9.428E-02	9.555E-02	NOT IDENT.
NB-97	-1.000E+41	5.044E+41	0.000E+00	SHORT HLIF
ZR-97	6.615E+14	6.841E+14	7.463E+14	SHORT HLIF
MO-99	9.592E+02	1.692E+03	1.747E+03	SHORT HLIF
TC-99M	2.045E+40	3.534E+40	0.000E+00	SHORT HLIF
RH-101	-1.655E-02	2.448E-02	2.559E-02	FAIL ABUN
RH-102	-3.068E-02	4.594E-02	4.798E-02	NOT IDENT.
RU-103	1.495E-02	5.017E-02	5.063E-02	FAIL ABUN
RH-106	-1.640E-01	3.442E-01	3.520E-01	NOT IDENT.
RU-106	-1.640E-01	3.442E-01	3.520E-01	NOT IDENT.
AG-108M	7.923E-03	2.843E-02	2.865E-02	NOT IDENT.
CD-109	5.678E-01	6.439E-01	6.929E-01	NOT IDENT.
AG-110	-1.128E-01	6.774E-01	6.793E-01	NOT IDENT.
AG-110M	-3.217E-02	4.401E-02	4.634E-02	NOT IDENT.
CD-115	8.621E+02	5.426E+03	5.439E+03	SHORT HLIF
SN-117M	4.155E-02	1.409E-01	1.422E-01	NOT IDENT.
SB-122	-8.888E+01	3.191E+02	3.216E+02	SHORT HLIF
TE-123M	2.060E-02	2.970E-02	3.111E-02	NOT IDENT.
SB-124	6.025E-02	1.028E-01	1.063E-01	NOT IDENT.
SB-125	1.675E-02	8.611E-02	8.644E-02	NOT IDENT.
TE-125M	4.283E+00	8.898E+00	9.105E+00	NOT IDENT.
I-126	4.101E-02	5.614E-01	5.617E-01	NOT IDENT.
SB-126	-1.148E-01	4.014E-01	4.047E-01	NOT IDENT.
SN-126	5.650E-02	6.134E-02	6.642E-02	FAIL ABUN
SB-127	1.395E+01	4.206E+01	4.253E+01	NOT IDENT.
I-131	-6.733E-01	5.802E-01	6.548E-01	NOT IDENT.
I-132	-1.000E+41	6.555E+41	0.000E+00	SHORT HLIF
TE-132	4.224E+01	5.352E+01	5.680E+01	SHORT HLIF
BA-133	3.139E-04	4.423E-02	4.423E-02	NOT IDENT.
I-133	5.492E+10	5.619E+10	6.141E+10	SHORT HLIF
CS-134	1.145E-02	4.164E-02	4.195E-02	FAIL ABUN
I-135	5.484E+37	7.044E+37	0.000E+00	SHORT HLIF
CS-136	-1.350E-01	2.137E-01	2.222E-01	NOT IDENT.
BA-137M	2.366E-02	3.224E-02	3.396E-02	NOT IDENT.
CS-137	2.500E-02	3.406E-02	3.588E-02	NOT IDENT.
LA-138	3.145E-02	4.964E-02	5.162E-02	NOT IDENT.
CE-139	-3.265E-02	2.889E-02	3.243E-02	NOT IDENT.
BA-140	4.016E-01	6.629E-01	6.872E-01	NOT IDENT.
LA-140	-2.506E-03	2.812E-01	2.812E-01	FAIL ABUN
CE-141	-8.545E-02	8.581E-02	9.406E-02	NOT IDENT.
CE-143	2.664E+06	2.424E+06	2.705E+06	SHORT HLIF
CE-144	1.778E-02	1.675E-01	1.677E-01	NOT IDENT.
PM-144	3.047E-03	3.608E-02	3.610E-02	NOT IDENT.
PR-144	5.411E-01	2.679E+00	2.691E+00	NOT IDENT.
PM-146	1.770E-02	3.001E-02	3.105E-02	NOT IDENT.
ND-147	4.167E-01	2.115E+00	2.123E+00	NOT IDENT.
PM-147	4.701E+02	5.630E+02	6.016E+02	NOT IDENT.
PM-149	1.346E+04	4.261E+04	4.304E+04	SHORT HLIF
EU-150	-2.346E-03	2.405E-02	2.407E-02	FAIL ABUN
EU-152	2.945E-02	9.376E-02	9.469E-02	NOT IDENT.
GD-153	-8.263E-03	6.264E-02	6.275E-02	NOT IDENT.
EU-154	-3.723E-02	1.217E-01	1.228E-01	NOT IDENT.
EU-155	1.287E-01	1.060E-01	1.209E-01	FAIL ABUN
TB-160	1.583E-01	1.517E-01	1.676E-01	NOT IDENT.
HO-166M	-2.492E-02	6.076E-02	6.179E-02	NOT IDENT.
TM-171	-8.315E+00	8.079E+00	8.906E+00	NOT IDENT.
HF-172	8.344E-02	1.368E-01	1.419E-01	FAIL ABUN
LU-172	6.032E-03	4.417E-02	4.425E-02	FAIL ABUN

LU-176	-5.430E-03	2.255E-02	2.268E-02	NOT IDENT.
HF-181	5.961E-03	4.892E-02	4.899E-02	NOT IDENT.
TA-182	5.538E-02	1.875E-01	1.892E-01	FAIL ABUN
RE-183	-6.044E-03	1.235E-01	1.236E-01	NOT IDENT.
RE-184	4.428E-02	1.499E-01	1.512E-01	NOT IDENT.
W-188	1.322E-01	7.581E+00	7.581E+00	FAIL ABUN
IR-192	5.272E-03	3.429E-02	3.437E-02	FAIL ABUN
HG-203	-1.245E-02	4.630E-02	4.664E-02	NOT IDENT.
TL-204	-1.039E+00	3.312E+00	3.345E+00	NOT IDENT.
BI-207	6.951E-04	4.913E-02	4.913E-02	FAIL ABUN
BI-210	2.981E-01	1.482E+00	1.488E+00	NOT IDENT.
PB-210	2.981E-01	1.482E+00	1.488E+00	NOT IDENT.
PB-211	8.519E-02	5.210E-01	5.224E-01	NOT IDENT.
BI-213	-7.597E-02	8.341E-02	9.016E-02	NOT IDENT.
RN-219	3.679E-02	3.047E-01	3.051E-01	NOT IDENT.
RA-223	-6.193E-02	5.637E-01	5.644E-01	FAIL ABUN
AC-225	2.446E+00	1.946E+00	2.237E+00	NOT IDENT.
AC-227	4.763E-02	2.139E-01	2.150E-01	NOT IDENT.
TH-227	4.763E-02	2.139E-01	2.150E-01	NOT IDENT.
AC-228	3.597E-01	2.593E-01	3.058E-01	FAIL ABUN
RA-228	3.597E-01	2.593E-01	3.058E-01	FAIL ABUN
TH-229	-4.629E-01	5.521E-01	5.902E-01	NOT IDENT.
PA-231	2.149E-01	3.948E-01	4.065E-01	NOT IDENT.
TH-231	-6.193E-02	5.637E-01	5.644E-01	FAIL ABUN
TH-232	3.597E-01	2.593E-01	3.058E-01	FAIL ABUN
PA-233	-1.768E-02	5.814E-02	5.869E-02	NOT IDENT.
PA-234	1.961E-01	3.602E-01	3.709E-01	NOT IDENT.
PA-234M	-5.768E-01	4.334E+00	4.342E+00	NOT IDENT.
U-235	-4.351E-02	1.806E-01	1.816E-01	FAIL ABUN
NP-237	-1.768E-02	5.814E-02	5.869E-02	NOT IDENT.
NP-238	-5.757E+03	1.238E+04	1.265E+04	SHORT HLIF
NP-239	1.509E-01	1.802E-01	1.926E-01	FAIL ABUN
PU-239	2.027E+01	2.609E+02	2.611E+02	NOT IDENT.
AM-241	3.801E-02	7.968E-02	8.150E-02	NOT IDENT.
CM-243	-1.004E-02	7.226E-02	7.240E-02	NOT IDENT.
BK-247	7.400E-02	8.910E-02	9.514E-02	FAIL ABUN
CM-247	-8.556E-03	2.865E-02	2.891E-02	NOT IDENT.
CF-249	1.103E-02	3.350E-02	3.387E-02	NOT IDENT.
CF-251	3.312E-02	1.161E-01	1.170E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	29.4638	85.43	76.2290	131.20	43.8043
45.60	35.9720	86.55	59.3259	133.02	41.7399
46.54	34.2830	86.79	57.3453	133.52	36.2775
49.72	0.0000	86.94	57.3649	136.00	45.2542
51.35	34.8273	87.09	57.3836	136.47	51.9162
51.87	35.8026	87.57	59.4605	140.51	0.0000
52.39	37.7001	88.03	59.5208	143.76	42.4624
52.97	33.1624	88.34	60.5708	144.24	39.1389
53.44	28.5981	88.47	60.5878	145.44	53.7759
54.07	29.5779	89.96	66.1882	152.43	41.8937
57.36	0.0000	1093.63	55.4633	153.25	37.4105
57.53	36.4244	91.11	55.5196	323.87	29.5166
57.98	43.0187	92.59	43.8090	156.02	39.8402
59.27	39.4253	93.35	43.8799	158.56	35.0367
59.32	39.4309	94.56	36.8300	159.00	32.0106
59.54	39.4559	94.65	27.2868	162.33	44.7992
60.96	44.0177	94.67	27.2878	162.66	44.8206
61.17	50.3359	94.87	27.2992	163.33	44.8629
62.93	41.7317	97.43	40.1372	165.86	45.0229
63.29	41.7733	98.43	26.8129	176.31	28.1060
63.58	41.8067	98.44	26.8135	176.60	32.8031
64.28	45.6948	99.53	38.2421	177.52	29.7153
66.73	39.6090	100.11	31.0432	181.07	0.0000
67.24	50.8577	102.03	26.3150	181.52	36.1621
125.81	51.8774	103.18	27.7631	184.41	42.6110
67.75	51.8869	103.37	29.1621	143.76	42.6835
68.89	52.0422	105.21	28.2220	193.51	47.8973
69.67	51.1820	105.31	28.2275	197.03	38.4854
70.82	58.1126	106.12	37.6957	198.01	38.5322
70.83	58.1145	106.47	37.7210	201.83	33.8729
72.81	53.5393	109.28	31.6033	203.43	36.3629
72.87	53.5473	111.00	28.5351	205.31	26.7262
74.66	53.7860	111.76	0.0000	210.85	39.1304
74.82	53.8070	114.06	29.7603	215.65	31.9716
74.97	53.8272	116.30	0.0000	218.12	17.2644
77.11	54.1083	116.74	22.4293	222.11	24.7754
78.74	54.3198	119.76	39.7323	227.09	33.6334
79.69	54.4419	121.12	26.9106	227.38	33.6445
80.03	54.4847	121.22	26.9154	228.16	0.0000
80.12	54.4969	121.78	28.0193	228.18	28.6854
80.19	46.2476	122.06	28.0332	116.74	28.6854
80.57	46.2886	122.92	26.9955	235.69	31.4365
81.00	41.0397	123.07	27.0025	235.96	25.9951
81.07	41.0464	265.00	42.1683	238.63	26.0698
81.75	55.6992	125.81	24.9599	238.98	0.0000
82.47	46.4936	127.23	40.2500	240.99	26.1354
83.79	50.9642	127.91	35.9402	242.00	26.1632
84.00	50.9883	129.30	34.9326	244.70	25.3912

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	30.7137	344.28	25.0351	563.25	14.9941
252.80	31.5797	345.93	22.2832	564.24	0.0000
254.15	0.0000	351.06	18.6454	569.33	15.0436
256.23	26.5512	351.93	18.6584	946.00	15.0453
260.90	0.0000	355.39	0.0000	569.70	15.0470
264.66	19.8662	356.01	25.2702	583.19	18.1870
264.80	19.8690	364.49	28.2642	584.27	9.7489
265.00	19.4408	366.42	0.0000	595.83	9.8082
269.46	19.9598	372.51	15.1670	427.87	10.9249
270.03	20.8394	375.05	19.9451	602.52	0.0000
271.23	25.2104	377.52	14.2731	604.72	21.3495
273.65	26.1407	356.01	21.0328	607.14	7.6733
276.40	27.0834	388.16	12.9477	609.32	7.6819
277.37	21.8618	388.63	20.1476	610.33	7.6859
277.60	24.4903	391.69	13.4620	614.28	9.9020
278.00	22.7500	264.66	14.5172	618.01	13.2275
279.20	32.4119	401.81	13.5605	620.36	16.5540
279.54	32.4220	402.40	16.4732	621.93	19.8809
279.70	32.4269	404.85	12.6194	630.19	0.0000
280.46	30.6962	410.95	20.4732	631.29	13.3159
283.69	28.1504	413.71	22.4666	633.25	7.7753
284.31	27.2865	414.70	27.3694	634.78	11.1161
285.41	22.9092	423.72	16.7209	635.95	16.6840
285.90	0.0000	427.09	20.7031	636.99	8.9027
287.50	28.2507	427.87	18.7414	657.50	12.3643
290.67	21.2500	433.94	18.8183	657.76	13.4897
293.27	0.0000	439.40	17.8931	657.90	0.0000
351.93	16.8933	440.45	18.9007	661.66	9.0101
295.96	16.9045	453.88	8.0286	664.57	0.0000
879.38	22.7415	463.37	14.1361	666.33	11.2878
299.98	20.0912	468.07	12.1531	666.50	7.9021
300.09	22.7722	473.00	13.2068	667.71	0.0000
300.13	22.7732	475.06	33.5687	677.62	10.2133
301.36	18.2385	476.78	14.2563	685.70	9.1130
302.85	25.0668	477.60	13.2449	692.65	0.0000
256.23	25.1033	482.18	12.2610	695.00	22.8809
304.85	20.6271	487.02	12.2976	696.49	14.8826
306.78	25.1540	492.35	0.0000	696.51	13.7378
308.46	26.0913	497.08	13.4041	697.00	11.4510
311.90	27.9745	505.52	24.8716	697.30	11.4526
316.51	19.9326	507.63	0.0000	697.49	14.8895
319.41	25.4320	511.00	12.4764	702.65	16.0727
320.08	26.3550	514.00	12.4985	706.68	11.5015
321.04	20.9196	514.00	12.4985	711.68	16.1385
323.87	20.5138	520.40	12.5454	720.70	12.7317
325.23	21.9067	520.69	0.0000	721.93	0.0000
328.76	20.1407	522.65	0.0000	722.78	10.4268
333.37	27.5702	527.90	0.0000	722.91	10.4271
333.97	23.1702	528.26	14.7030	723.31	13.9053
334.37	23.4539	529.59	13.6633	724.19	10.4333
338.28	24.9137	529.87	0.0000	727.33	5.8042
338.32	24.9142	531.02	18.9338	733.00	5.8189
311.90	27.7313	537.26	9.5006	735.93	11.6528
340.48	27.7313	546.56	0.0000	333.97	11.6606
340.55	27.7332	552.55	14.9063	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	10.5256	949.00	7.6045	1384.29	2.1676
747.24	5.2698	667.71	0.0000	1408.01	6.5427
748.06	5.2716	962.31	12.7336	1434.09	6.5859
752.31	15.8439	964.08	13.7610	1435.80	2.1963
753.82	8.8080	966.17	7.6506	1457.56	0.0000
756.73	18.5198	911.20	12.4446	1460.82	7.0719
756.80	18.5205	983.53	10.5834	1489.16	3.3380
884.68	17.6923	984.45	0.0000	1505.03	5.5847
765.81	12.3944	1274.44	10.6297	1584.12	6.3721
766.42	13.2829	1001.03	10.6469	1596.21	5.4771
766.84	11.5143	1002.74	8.7163	1620.50	3.6715
772.60	0.0000	1004.73	7.7529	1621.92	2.7545
776.52	9.7828	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.8646
778.90	8.9023	1028.54	0.0000	1750.46	0.0000
783.70	9.9904	1037.84	3.9197	1764.49	3.7881
788.74	11.4418	1038.76	0.0000	1063.66	12.3259
792.07	13.4267	631.29	4.9136	1771.35	5.6903
795.86	10.0410	1048.07	6.8825	1791.20	0.0000
810.06	5.7711	1049.04	5.9011	1808.65	1.9114
810.29	5.7717	1050.41	5.9037	1810.72	0.0000
344.28	5.7721	1063.66	8.8940	1836.06	1.9222
810.76	5.7727	1077.00	6.9470		
815.77	8.1343	1077.34	10.9181		
1048.07	6.3337	1085.87	4.7771		
832.01	14.5552	1093.63	3.1926		
834.85	7.2859	1099.45	6.9966		
835.71	9.1104	1112.07	12.0417		
836.80	0.0000	1112.84	6.8827		
846.75	0.0000	1115.54	6.4293		
846.77	4.3920	1120.29	4.8290		
856.80	9.1858	1120.55	4.8293		
860.56	5.5195	1221.41	1.6102		
871.09	7.3892	1129.67	4.0359		
873.19	4.9300	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	5.5594	1173.23	5.1117		
880.51	5.5618	1177.95	8.1899		
881.60	8.3460	1189.05	6.1626		
883.24	14.8467	1204.77	11.3505		
884.68	11.1412	1221.41	7.2576		
889.28	9.3002	1231.02	5.1984		
894.76	7.4556	1235.36	4.9966		
898.04	4.6654	1238.28	6.2509		
900.72	6.5381	1260.41	0.0000		
903.28	6.5443	1271.87	6.3102		
911.20	9.3765	1274.44	9.4719		
912.08	9.3796	1274.54	9.4724		
923.98	0.0000	1291.59	4.2297		
926.50	4.7145	1298.22	0.0000		
929.11	7.5503	1312.11	3.1901		
935.54	8.5139	1332.49	6.4153		
937.49	11.3599	1362.66	0.0000		
944.13	11.3870	1365.19	4.3140		
946.00	6.6467	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:19:53.71

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781346.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM27.CNF;738
Background date    : 28-JUL-2024 11:28:58
Sample date       : 9-JUL-2024 00:00:00. Acquisition date : 31-JUL-2024 16:15:08
Sample ID        : G1205781346. Sample quantity : 1.40020E+02 GRAM
Detector name    : GAM27. Detector geometry: CAN
Elapsed live time: 0 01:00:00.00. Elapsed real time: 0 01:00:00.50 0.0%
Energy tolerance : 1.50000 keV. Analyst Initials : MXR1
Abundance limit  : 75.00000. Sensitivity : 3.00000
Batch ID         : 2636543. Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	47.25*	10	57	1.00	95.34	90	10	2.80E-03	155.0	
2	0	87.91	19	53	1.43	176.62	170	10	5.18E-03	84.3	
3	0	92.68*	4	35	0.87	186.15	181	10	1.14E-03	354.5	
4	1	95.70	14	10	1.09	192.20	191	12	3.89E-03	35.5	1.86E+00
5	1	98.70*	10	20	1.10	198.20	191	12	2.73E-03	94.6	
6	0	148.29	19	8	1.54	297.34	295	6	5.21E-03	34.0	
7	0	174.06	17	26	1.28	348.86	345	9	4.68E-03	60.5	
8	0	185.91*	8	21	0.80	372.54	369	9	2.28E-03	135.8	
9	0	225.89	14	10	0.68	452.49	450	5	3.86E-03	44.4	
10	0	232.31	11	4	1.16	465.32	463	5	2.92E-03	41.2	
11	0	239.53*	7	49	1.14	479.75	473	14	1.89E-03	237.0	
12	0	389.09	9	9	1.17	778.77	776	8	2.44E-03	66.4	
13	0	431.74	10	5	0.76	864.06	861	7	2.82E-03	48.4	
14	0	436.12	20	3	3.44	872.81	867	12	5.63E-03	27.9	
15	0	492.80	8	13	1.32	986.15	979	9	2.22E-03	93.9	
16	0	511.25*	11	8	2.37	1023.03	1015	18	2.92E-03	118.7	
17	0	528.55	11	4	0.58	1057.62	1053	9	3.07E-03	45.3	
18	0	569.19*	5	8	1.46	1138.88	1135	8	1.51E-03	107.3	
19	0	586.79	7	23	3.56	1174.07	1163	14	2.00E-03	149.4	
20	0	599.71*	16	12	3.37	1199.92	1193	12	4.50E-03	51.0	
21	0	614.47	21	3	0.69	1229.43	1224	12	5.95E-03	26.8	
22	0	657.48	6	4	1.27	1315.42	1309	8	1.67E-03	70.7	
23	0	956.83	10	2	0.69	1914.03	1909	9	2.72E-03	42.2	
24	0	1001.50*	2	5	0.59	2003.35	1998	7	6.51E-04	205.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781346.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 9-JUL-2024 00:00:00	Acquisition date	: 31-JUL-2024 16:15:08
Sample ID	: G1205781346	Sample quantity	: 140.02 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA27	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.50 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CD-109	88.03	22	3.70*	6.771E+00	4.802E-01	4.969E-01	168.51
AG-110	657.50	6	4.50*	2.632E+00	2.792E-01	2.973E-01	141.42
SN-126	64.28	-----	9.60	4.008E+00	-----	Line Not Found	-----
	86.94	22	8.90	6.771E+00	1.996E-01	1.996E-01	168.51
	87.57	22	37.00*	6.771E+00	4.802E-02	4.802E-02	168.51
BI-210	46.54	13	4.25*	1.126E+00	1.418E+00	1.421E+00	310.06
PB-210	46.54	13	4.25*	1.126E+00	1.418E+00	1.421E+00	310.06
RA-224	240.99	8	4.10*	5.348E+00	1.861E-01	1.861E-01	473.93
CF-249	252.80	-----	2.50	5.169E+00	-----	Line Not Found	-----
	333.37	-----	14.60	4.328E+00	-----	Line Not Found	-----
	388.16	9	66.00*	3.908E+00	1.959E-02	1.959E-02	132.86
ANH-511	511.00	11	100.00*	3.221E+00	1.836E-02	1.836E-02	237.34

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781346.CNF;1
* Acquisition date   : 31-JUL-2024 16:15:08 Sensitivity      : 3.000
* Detector ID        : GAM27 Energy tolerance: 1.500
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 01:00:00.50 Half life ratio : *****
* Sample date        : 9-JUL-2024 00:00:00 Analyst initials: MXR1
* Sample ID          : G1205781346 Sample Quantity : 1.4002E+02 GRAM
* Batch Number       : 2636543 Wet Weight : 0.00000
* Wet wt corr        : 1.00000 Dry Weight : 0.00000
* Nuclide Library    : SOLID.NLB;17
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date     : 9-JUL-2024 08:43:14 Eff. Geometry   : CAN
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22
*****

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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
CD-109	4.969E-01	8.206E-01	6.496E-01
AG-110	2.973E-01	4.120E-01	8.890E-01
SN-126	4.802E-02	7.931E-02	6.304E-02
BI-210	1.421E+00	4.318E+00	3.310E+00
PB-210	1.421E+00	4.318E+00	3.310E+00
RA-224	1.861E-01	8.642E-01	5.202E-01
CF-249	1.959E-02	2.551E-02	2.893E-02
ANH-511	1.836E-02	4.271E-02	2.528E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-8.124E-02	1.800E-01	3.266E-01	NOT IDENT.
NA-22	6.533E-04	2.105E-02	4.689E-02	NOT IDENT.
NA-24	0.000E+00	1.174E+09	0.000E+00	SHORT HLIF
AL-26	4.458E-03	1.688E-02	4.492E-02	NOT IDENT.
K-40	2.259E-01	3.181E-01	7.722E-01	NOT IDENT.
SC-46	1.152E-02	2.886E-02	6.086E-02	NOT IDENT.
V-48	-3.502E-02	3.070E-02	2.181E-02	NOT IDENT.
CR-51	6.498E-03	2.068E-01	4.353E-01	NOT IDENT.
MN-52	8.992E-03	3.203E-01	7.603E-01	NOT IDENT.
MN-54	-2.284E-03	1.807E-02	3.786E-02	NOT IDENT.
CO-56	-1.582E-04	2.585E-02	5.153E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	6.046E-03	1.201E-02	2.514E-02	NOT IDENT.
CO-58	4.544E-04	2.456E-02	4.952E-02	NOT IDENT.
FE-59	2.830E-02	5.728E-02	1.331E-01	NOT IDENT.
CO-60	7.013E-03	1.853E-02	4.687E-02	NOT IDENT.
ZN-65	7.640E-03	3.954E-02	9.182E-02	NOT IDENT.
GE-68	5.629E-02	5.716E-01	1.316E+00	NOT IDENT.
AS-73	-5.960E-02	3.971E-01	7.946E-01	NOT IDENT.
AS-74	3.229E-02	6.657E-02	1.387E-01	NOT IDENT.
SE-75	-1.834E-03	2.564E-02	4.764E-02	NOT IDENT.
BR-77	2.476E+01	1.150E+02	1.111E+02	FAIL ABUN

SR-82	1.216E-01	2.256E-01	5.083E-01	NOT IDENT.
RB-83	9.125E-03	3.465E-02	7.627E-02	FAIL ABUN
RB-84	2.609E-02	3.147E-02	8.513E-02	NOT IDENT.
KR-85	4.440E+00	3.776E+00	8.957E+00	NOT IDENT.
SR-85	2.544E-02	2.166E-02	5.138E-02	NOT IDENT.
RB-86	-5.943E-02	4.277E-01	9.441E-01	NOT IDENT.
Y-88	7.309E-03	2.094E-02	5.591E-02	NOT IDENT.
Y-91	-7.876E-01	8.014E+00	1.816E+01	NOT IDENT.
NB-94	-2.365E-04	1.873E-02	3.744E-02	NOT IDENT.
NB-95	1.301E-03	2.366E-02	4.835E-02	NOT IDENT.
NB-95M	3.084E-02	4.757E-02	1.017E-01	NOT IDENT.
ZR-95	-1.688E-02	4.410E-02	8.112E-02	NOT IDENT.
NB-97	0.000E+00	1.386E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.667E+09	0.000E+00	SHORT HLIF
MO-99	-3.722E+01	4.760E+01	7.820E+01	NOT IDENT.
TC-99M	0.000E+00	2.093E+25	0.000E+00	SHORT HLIF
RH-101	-2.434E-04	1.352E-02	2.667E-02	NOT IDENT.
RH-102	3.933E-03	2.935E-02	6.139E-02	NOT IDENT.
RU-103	2.890E-03	2.744E-02	5.607E-02	NOT IDENT.
RH-106	9.038E-02	1.920E-01	4.147E-01	NOT IDENT.
RU-106	9.038E-02	1.920E-01	4.147E-01	NOT IDENT.
AG-108M	1.843E-02	1.075E-02	3.082E-02	FAIL ABUN
AG-110M	-1.433E-02	2.537E-02	4.365E-02	FAIL ABUN
SN-113	-3.411E-03	2.336E-02	4.259E-02	NOT IDENT.
CD-115	0.000E+00	7.457E+01	0.000E+00	SHORT HLIF
SN-117M	4.543E-04	3.953E-02	7.643E-02	NOT IDENT.
SB-122	1.470E+00	6.770E+00	1.405E+01	NOT IDENT.
TE-123M	2.529E-03	1.425E-02	2.826E-02	NOT IDENT.
SB-124	-1.383E-02	4.533E-02	9.534E-02	NOT IDENT.
SB-125	-1.779E-02	4.318E-02	7.299E-02	FAIL ABUN
TE-125M	9.755E-01	4.221E+00	8.735E+00	NOT IDENT.
I-126	1.182E-01	1.557E-01	3.720E-01	FAIL ABUN
SB-126	-1.265E-02	1.012E-01	2.041E-01	NOT IDENT.
SB-127	8.866E-01	2.244E+00	5.171E+00	NOT IDENT.
I-131	-4.547E-02	1.105E-01	2.146E-01	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	1.150E+00	1.564E+00	3.307E+00	NOT IDENT.
BA-133	-1.191E-02	2.078E-02	3.923E-02	NOT IDENT.
I-133	0.000E+00	1.545E+06	0.000E+00	SHORT HLIF
CS-134	1.349E-03	1.764E-02	3.809E-02	FAIL ABUN
I-135	0.000E+00	5.916E+23	0.000E+00	SHORT HLIF
CS-136	4.080E-03	8.962E-02	1.935E-01	NOT IDENT.
BA-137M	-2.194E-03	1.905E-02	3.770E-02	NOT IDENT.
CS-137	-2.317E-03	2.013E-02	3.982E-02	NOT IDENT.
LA-138	-9.329E-03	3.044E-02	6.434E-02	NOT IDENT.
CE-139	-1.245E-02	1.444E-02	2.414E-02	NOT IDENT.
BA-140	5.800E-02	1.659E-01	3.808E-01	NOT IDENT.
LA-140	-3.494E-02	8.038E-02	1.524E-01	NOT IDENT.
CE-141	-9.394E-03	3.531E-02	6.006E-02	NOT IDENT.
CE-143	0.000E+00	2.542E+03	0.000E+00	SHORT HLIF
CE-144	-3.239E-02	8.577E-02	1.598E-01	NOT IDENT.
PM-144	1.635E-03	2.085E-02	4.416E-02	NOT IDENT.
PR-144	1.229E-01	1.567E+00	3.318E+00	NOT IDENT.
PM-146	4.313E-03	1.975E-02	4.282E-02	NOT IDENT.
ND-147	1.839E-02	3.592E-01	7.207E-01	NOT IDENT.
PM-147	9.263E+01	3.644E+02	7.354E+02	NOT IDENT.
PM-149	0.000E+00	5.012E+02	0.000E+00	SHORT HLIF
EU-150	-4.099E-03	1.206E-02	2.395E-02	NOT IDENT.
EU-152	-5.355E-04	4.766E-02	9.870E-02	NOT IDENT.
GD-153	3.182E-02	5.900E-02	6.959E-02	FAIL ABUN
EU-154	-8.641E-03	6.287E-02	1.323E-01	NOT IDENT.
EU-155	3.937E-02	4.172E-02	9.429E-02	FAIL ABUN
TB-160	-1.632E-02	6.164E-02	1.207E-01	FAIL ABUN
HO-166M	-3.336E-02	3.362E-02	5.168E-02	FAIL ABUN
TM-171	-3.172E+00	8.299E+00	1.611E+01	NOT IDENT.
HF-172	-4.213E-02	7.990E-02	1.458E-01	NOT IDENT.
LU-172	1.990E-02	2.816E-02	7.383E-02	FAIL ABUN
LU-176	9.702E-03	1.302E-02	2.970E-02	FAIL ABUN
HF-181	-1.101E-02	2.706E-02	5.340E-02	NOT IDENT.
TA-182	-1.480E-02	7.853E-02	1.777E-01	FAIL ABUN
RE-183	-1.197E-02	1.006E-01	2.015E-01	NOT IDENT.
RE-184	-8.016E-03	7.441E-02	1.486E-01	NOT IDENT.
W-188	1.595E+00	3.633E+00	8.035E+00	FAIL ABUN
IR-192	-9.824E-03	1.563E-02	2.971E-02	NOT IDENT.
HG-203	-1.001E-03	2.041E-02	3.858E-02	NOT IDENT.
TL-204	3.552E-01	2.006E+00	4.112E+00	NOT IDENT.
BI-207	3.579E-03	2.342E-02	5.443E-02	FAIL ABUN
TL-208	-1.211E-03	2.305E-02	4.829E-02	NOT IDENT.

BI-211	-5.974E-02	1.095E-01	2.177E-01	NOT IDENT.
PB-211	1.963E-01	3.474E-01	7.812E-01	NOT IDENT.
BI-212	4.760E-02	2.346E-01	4.927E-01	NOT IDENT.
PB-212	1.750E-02	8.127E-02	7.794E-02	FAIL ABUN
BI-213	-1.865E-02	5.060E-02	8.640E-02	NOT IDENT.
BI-214	-2.573E-02	5.123E-02	8.479E-02	NOT IDENT.
PB-214	-7.686E-03	3.701E-02	7.807E-02	FAIL ABUN
RN-219	-3.940E-02	1.809E-01	3.653E-01	NOT IDENT.
RN-222	-2.573E-02	5.123E-02	8.479E-02	NOT IDENT.
RA-223	-3.991E-02	2.631E-01	5.459E-01	FAIL ABUN
AC-225	-6.464E-02	5.212E-01	9.698E-01	NOT IDENT.
RA-226	-7.686E-03	3.701E-02	7.807E-02	FAIL ABUN
AC-227	-2.284E-02	1.383E-01	2.532E-01	NOT IDENT.
TH-227	-2.284E-02	1.383E-01	2.532E-01	NOT IDENT.
AC-228	6.234E-02	1.039E-01	2.176E-01	NOT IDENT.
RA-228	6.234E-02	1.039E-01	2.176E-01	NOT IDENT.
TH-228	1.750E-02	8.127E-02	7.794E-02	FAIL ABUN
TH-229	2.373E-01	2.654E-01	5.686E-01	FAIL ABUN
TH-230	-7.686E-03	3.701E-02	7.807E-02	FAIL ABUN
PA-231	1.044E-01	2.126E-01	4.764E-01	NOT IDENT.
TH-231	-3.991E-02	2.631E-01	5.459E-01	FAIL ABUN
TH-232	6.234E-02	1.039E-01	2.176E-01	NOT IDENT.
PA-233	2.314E-03	2.566E-02	5.586E-02	NOT IDENT.
PA-234	-1.533E-01	1.873E-01	2.897E-01	FAIL ABUN
PA-234M	8.358E-01	3.368E+00	6.360E+00	FAIL ABUN
TH-234	-4.854E-01	6.092E-01	1.250E+00	FAIL ABUN
U-234	-7.686E-03	3.701E-02	7.807E-02	FAIL ABUN
U-235	-6.222E-02	9.205E-02	1.710E-01	FAIL ABUN
NP-237	2.314E-03	2.566E-02	5.586E-02	FAIL ABUN
NP-238	0.000E+00	9.006E+01	0.000E+00	SHORT HLIF
U-238	-4.854E-01	6.092E-01	1.250E+00	FAIL ABUN
NP-239	2.025E-02	1.121E-01	2.286E-01	FAIL ABUN
PU-239	4.113E+01	1.549E+02	3.142E+02	NOT IDENT.
AM-241	1.483E-02	6.449E-02	1.352E-01	NOT IDENT.
AM-243	8.051E-03	2.109E-02	4.344E-02	NOT IDENT.
CM-243	-6.287E-03	4.246E-02	8.347E-02	FAIL ABUN
BK-247	1.080E-02	4.333E-02	8.505E-02	NOT IDENT.
CM-247	-2.373E-03	1.689E-02	3.450E-02	NOT IDENT.
CF-251	2.686E-02	5.926E-02	1.164E-01	FAIL ABUN

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CD-109	88.03	22	3.70*	6.771E+00	4.802E-01	4.969E-01	168.51
AG-110	657.50	6	4.50*	2.632E+00	2.792E-01	2.973E-01	141.42
SN-126	64.28	-----	9.60	4.008E+00	-----	Line Not Found	-----
	86.94	22	8.90	6.771E+00	1.996E-01	1.996E-01	168.51
	87.57	22	37.00*	6.771E+00	4.802E-02	4.802E-02	168.51
BI-210	46.54	13	4.25*	1.126E+00	1.418E+00	1.421E+00	310.06
PB-210	46.54	13	4.25*	1.126E+00	1.418E+00	1.421E+00	310.06
RA-224	240.99	8	4.10*	5.348E+00	1.861E-01	1.861E-01	473.93
CF-249	252.80	-----	2.50	5.169E+00	-----	Line Not Found	-----
	333.37	-----	14.60	4.328E+00	-----	Line Not Found	-----
	388.16	9	66.00*	3.908E+00	1.959E-02	1.959E-02	132.86
ANH-511	511.00	11	100.00*	3.221E+00	1.836E-02	1.836E-02	237.34

Flag: "*" = Keyline

Total number of lines in spectrum 24
Number of unidentified lines 7
Number of lines tentatively identified by NID 17 70.83%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CD-109	461.40D	1.03	4.802E-01	4.969E-01	8.373E-01	168.51	
AG-110	249.76D	1.07	2.792E-01	2.973E-01	4.205E-01	141.42	
SN-126	2.30E+05Y	1.00	4.802E-02	4.802E-02	8.093E-02	168.51	
BI-210	22.20Y	1.00	1.418E+00	1.421E+00	4.406E+00	310.06	
PB-210	22.20Y	1.00	1.418E+00	1.421E+00	4.406E+00	310.06	
RA-224	1.41E+10Y	1.00	1.861E-01	1.861E-01	8.819E-01	473.93	
CF-249	351.00Y	1.00	1.959E-02	1.959E-02	2.603E-02	132.86	
ANH-511	1.00E+09Y	1.00	1.836E-02	1.836E-02	4.358E-02	237.34	
Total Activity :			3.868E+00	3.908E+00			

Grand Total Activity : 3.868E+00 3.908E+00

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	92.68	5	42	0.87	186.15	181	10	1.14E-03	****	7.04E+00	T
1	95.70	17	12	1.09	192.20	191	12	3.89E-03	71.0	7.17E+00	T
1	98.70	12	23	1.10	198.20	191	12	2.73E-03	****	7.27E+00	T
0	148.29	22	10	1.54	297.34	295	6	5.21E-03	67.9	7.01E+00	
0	174.06	19	30	1.28	348.86	345	9	4.68E-03	****	6.48E+00	
0	185.91	9	24	0.80	372.54	369	9	2.28E-03	****	6.24E+00	T
0	225.89	16	11	0.68	452.49	450	5	3.86E-03	88.8	5.55E+00	T
0	232.31	12	4	1.16	465.32	463	5	2.92E-03	82.3	5.45E+00	
0	431.74	11	5	0.76	864.06	861	7	2.82E-03	96.7	3.64E+00	
0	436.12	22	3	3.44	872.81	867	12	5.63E-03	55.8	3.61E+00	
0	492.80	8	14	1.32	986.15	979	9	2.22E-03	****	3.31E+00	T
0	528.55	12	4	0.58	1057.62	1053	9	3.07E-03	90.6	3.14E+00	T
0	569.19	6	8	1.46	1138.88	1135	8	1.51E-03	****	2.97E+00	T
0	586.79	7	24	3.56	1174.07	1163	14	2.00E-03	****	2.89E+00	
0	599.71	17	12	3.37	1199.92	1193	12	4.50E-03	****	2.84E+00	T
0	614.47	22	3	0.69	1229.43	1224	12	5.95E-03	53.6	2.79E+00	T
0	956.83	10	2	0.69	1914.03	1909	9	2.72E-03	84.4	1.86E+00	
0	1001.50	2	5	0.59	2003.35	1998	7	6.51E-04	****	1.77E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781346.CNF;1 *
* Acquisition date : 31-JUL-2024 16:15:08 Sensitivity : 3.000 *
* Detector ID : GAM27 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.50 Half life ratio : ***** *
* Sample date : 9-JUL-2024 00:00:00 Nuclide Library : SOLID *
* Sample ID : G1205781346 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.4002E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 9-JUL-2024 08:43:14 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
CD-109	2.931E-01
AG-110	3.781E-01
SN-126	2.845E-02
BI-210	1.477E+00
PB-210	1.477E+00
RA-224	2.256E-01
CF-249	1.157E-02
ANH-511	1.033E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	1.350E-01	NOT IDENT.
NA-22	1.817E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.591E-02	NOT IDENT.
K-40	3.317E-01	NOT IDENT.
SC-46	2.599E-02	NOT IDENT.
V-48	0.000E+00	NOT IDENT.
CR-51	1.876E-01	NOT IDENT.
MN-52	2.846E-01	NOT IDENT.
MN-54	1.528E-02	NOT IDENT.
CO-56	2.145E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.130E-02	NOT IDENT.
CO-58	2.052E-02	NOT IDENT.
FE-59	5.517E-02	NOT IDENT.
CO-60	1.799E-02	NOT IDENT.
ZN-65	3.624E-02	NOT IDENT.
GE-68	5.120E-01	NOT IDENT.
AS-73	3.537E-01	NOT IDENT.
AS-74	5.871E-02	NOT IDENT.
SE-75	2.092E-02	NOT IDENT.
BR-77	5.098E+01	FAIL ABUN
SR-82	2.141E-01	NOT IDENT.

RB-83	3.190E-02	FAIL ABUN
RB-84	3.399E-02	NOT IDENT.
KR-85	3.944E+00	NOT IDENT.
SR-85	2.262E-02	NOT IDENT.
RB-86	3.526E-01	NOT IDENT.
Y-88	2.030E-02	NOT IDENT.
Y-91	6.599E+00	NOT IDENT.
NB-94	1.574E-02	NOT IDENT.
NB-95	2.007E-02	NOT IDENT.
NB-95M	4.366E-02	NOT IDENT.
ZR-95	3.310E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	3.123E+01	NOT IDENT.
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.179E-02	NOT IDENT.
RH-102	2.579E-02	NOT IDENT.
RU-103	2.433E-02	NOT IDENT.
RH-106	1.792E-01	NOT IDENT.
RU-106	1.792E-01	NOT IDENT.
AG-108M	1.314E-02	FAIL ABUN
AG-110M	1.645E-02	FAIL ABUN
SN-113	1.791E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	3.411E-02	NOT IDENT.
SB-122	5.884E+00	NOT IDENT.
TE-123M	1.261E-02	NOT IDENT.
SB-124	3.030E-02	NOT IDENT.
SB-125	2.955E-02	FAIL ABUN
TE-125M	3.867E+00	NOT IDENT.
I-126	1.568E-01	FAIL ABUN
SB-126	8.186E-02	NOT IDENT.
SB-127	2.114E+00	NOT IDENT.
I-131	9.134E-02	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	1.441E+00	NOT IDENT.
BA-133	1.669E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	1.508E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	7.892E-02	NOT IDENT.
BA-137M	1.570E-02	NOT IDENT.
CS-137	1.659E-02	NOT IDENT.
LA-138	2.342E-02	NOT IDENT.
CE-139	1.047E-02	NOT IDENT.
BA-140	1.567E-01	NOT IDENT.
LA-140	5.398E-02	NOT IDENT.
CE-141	2.641E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	6.993E-02	NOT IDENT.
PM-144	1.898E-02	NOT IDENT.
PR-144	1.426E+00	NOT IDENT.
PM-146	1.812E-02	NOT IDENT.
ND-147	2.844E-01	NOT IDENT.
PM-147	3.311E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.017E-02	NOT IDENT.
EU-152	4.269E-02	NOT IDENT.
GD-153	3.089E-02	FAIL ABUN
EU-154	5.127E-02	NOT IDENT.
EU-155	4.221E-02	FAIL ABUN
TB-160	4.529E-02	FAIL ABUN
HO-166M	2.028E-02	FAIL ABUN
TM-171	7.177E+00	NOT IDENT.
HF-172	6.357E-02	NOT IDENT.
LU-172	2.961E-02	FAIL ABUN
LU-176	1.309E-02	FAIL ABUN
HF-181	2.272E-02	NOT IDENT.
TA-182	6.762E-02	FAIL ABUN
RE-183	9.103E-02	NOT IDENT.
RE-184	5.896E-02	NOT IDENT.
W-188	3.523E+00	FAIL ABUN
IR-192	1.234E-02	NOT IDENT.
HG-203	1.662E-02	NOT IDENT.
TL-204	1.860E+00	NOT IDENT.
BI-207	2.133E-02	FAIL ABUN
TL-208	2.115E-02	NOT IDENT.
BI-211	9.500E-02	NOT IDENT.

PB-211	3.387E-01	NOT IDENT.
BI-212	2.004E-01	NOT IDENT.
PB-212	3.575E-02	FAIL ABUN
BI-213	3.519E-02	NOT IDENT.
BI-214	3.660E-02	NOT IDENT.
PB-214	3.400E-02	FAIL ABUN
RN-219	1.531E-01	NOT IDENT.
RN-222	3.660E-02	NOT IDENT.
RA-223	2.303E-01	FAIL ABUN
AC-225	4.286E-01	NOT IDENT.
RA-226	3.400E-02	FAIL ABUN
AC-227	1.111E-01	NOT IDENT.
TH-227	1.111E-01	NOT IDENT.
AC-228	9.420E-02	NOT IDENT.
RA-228	9.420E-02	NOT IDENT.
TH-228	3.575E-02	FAIL ABUN
TH-229	2.562E-01	FAIL ABUN
TH-230	3.400E-02	FAIL ABUN
PA-231	2.078E-01	NOT IDENT.
TH-231	2.303E-01	FAIL ABUN
TH-232	9.420E-02	NOT IDENT.
PA-233	2.361E-02	NOT IDENT.
PA-234	1.122E-01	FAIL ABUN
PA-234M	2.688E+00	FAIL ABUN
TH-234	5.705E-01	FAIL ABUN
U-234	3.400E-02	FAIL ABUN
U-235	7.570E-02	FAIL ABUN
NP-237	2.361E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	5.705E-01	FAIL ABUN
NP-239	1.014E-01	FAIL ABUN
PU-239	1.407E+02	NOT IDENT.
AM-241	6.082E-02	NOT IDENT.
AM-243	1.965E-02	NOT IDENT.
CM-243	3.676E-02	FAIL ABUN
BK-247	3.753E-02	NOT IDENT.
CM-247	1.454E-02	NOT IDENT.
CF-251	5.139E-02	FAIL ABUN

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781346.CNF;1
Acquisition date : 31-JUL-2024 16:15:08 Sensitivity : 3.000
Detector ID : GAM27 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.50 Half life ratio : *****
Sample date : 9-JUL-2024 00:00:00 Nuclide Library : SOLID
Sample ID : G1205781346 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.4002E+02 GRAM
Quantity Err(%) : 1.4284E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 9-JUL-2024 08:43:14 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
CD-109	4.969E-01	8.230E-01	8.230E-01
AG-110	2.973E-01	4.128E-01	4.128E-01
SN-126	4.802E-02	7.950E-02	7.950E-02
BI-210	1.421E+00	4.322E+00	4.322E+00
PB-210	1.421E+00	4.322E+00	4.322E+00
RA-224	1.861E-01	8.644E-01	8.644E-01
CF-249	1.959E-02	2.560E-02	2.560E-02
ANH-511	1.836E-02	4.274E-02	4.274E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-8.124E-02	1.801E-01	1.838E-01	NOT IDENT.
NA-22	6.533E-04	2.105E-02	2.105E-02	NOT IDENT.
NA-24	3.586E+08	1.175E+09	1.186E+09	SHORT HLIF
AL-26	4.458E-03	1.688E-02	1.700E-02	NOT IDENT.
K-40	2.259E-01	3.193E-01	3.352E-01	NOT IDENT.
SC-46	1.152E-02	2.889E-02	2.935E-02	NOT IDENT.
V-48	-3.502E-02	3.099E-02	3.478E-02	NOT IDENT.
CR-51	6.498E-03	2.068E-01	2.068E-01	NOT IDENT.
MN-52	8.992E-03	3.203E-01	3.203E-01	NOT IDENT.
MN-54	-2.284E-03	1.807E-02	1.810E-02	NOT IDENT.
CO-56	-1.582E-04	2.585E-02	2.585E-02	NOT IDENT.
MN-56	-1.000E+41	6.288E+42	0.000E+00	SHORT HLIF
CO-57	6.046E-03	1.202E-02	1.232E-02	NOT IDENT.
CO-58	4.544E-04	2.456E-02	2.457E-02	NOT IDENT.
FE-59	2.830E-02	5.739E-02	5.879E-02	NOT IDENT.
CO-60	7.013E-03	1.855E-02	1.882E-02	NOT IDENT.
ZN-65	7.640E-03	3.955E-02	3.970E-02	NOT IDENT.
GE-68	5.629E-02	5.716E-01	5.722E-01	NOT IDENT.
AS-73	-5.960E-02	3.973E-01	3.982E-01	NOT IDENT.
AS-74	3.229E-02	6.666E-02	6.824E-02	NOT IDENT.
SE-75	-1.834E-03	2.564E-02	2.565E-02	NOT IDENT.
BR-77	2.476E+01	1.162E+02	1.167E+02	FAIL ABUN

SR-82	1.216E-01	2.260E-01	2.325E-01	NOT IDENT.
RB-83	9.125E-03	3.468E-02	3.493E-02	FAIL ABUN
RB-84	2.609E-02	3.164E-02	3.375E-02	NOT IDENT.
KR-85	4.440E+00	3.795E+00	4.290E+00	NOT IDENT.
SR-85	2.544E-02	2.177E-02	2.461E-02	NOT IDENT.
RB-86	-5.943E-02	4.278E-01	4.286E-01	NOT IDENT.
Y-88	7.309E-03	2.094E-02	2.120E-02	NOT IDENT.
Y-91	-7.876E-01	8.014E+00	8.022E+00	NOT IDENT.
NB-94	-2.365E-04	1.873E-02	1.873E-02	NOT IDENT.
NB-95	1.301E-03	2.366E-02	2.367E-02	NOT IDENT.
NB-95M	3.084E-02	4.770E-02	4.968E-02	NOT IDENT.
ZR-95	-1.688E-02	4.413E-02	4.478E-02	NOT IDENT.
NB-97	1.000E+41	1.388E+41	0.000E+00	SHORT HLIF
ZR-97	6.718E+08	1.668E+09	1.695E+09	SHORT HLIF
MO-99	-3.722E+01	4.775E+01	5.061E+01	NOT IDENT.
TC-99M	8.518E+23	2.093E+25	0.000E+00	SHORT HLIF
RH-101	-2.434E-04	1.352E-02	1.352E-02	NOT IDENT.
RH-102	3.933E-03	2.936E-02	2.941E-02	NOT IDENT.
RU-103	2.890E-03	2.744E-02	2.747E-02	NOT IDENT.
RH-106	9.038E-02	1.922E-01	1.965E-01	NOT IDENT.
RU-106	9.038E-02	1.922E-01	1.965E-01	NOT IDENT.
AG-108M	1.843E-02	1.086E-02	1.368E-02	FAIL ABUN
AG-110M	-1.433E-02	2.544E-02	2.625E-02	FAIL ABUN
SN-113	-3.411E-03	2.336E-02	2.341E-02	NOT IDENT.
CD-115	8.400E+01	7.500E+01	8.402E+01	SHORT HLIF
SN-117M	4.543E-04	3.953E-02	3.953E-02	NOT IDENT.
SB-122	1.470E+00	6.771E+00	6.803E+00	NOT IDENT.
TE-123M	2.529E-03	1.425E-02	1.430E-02	NOT IDENT.
SB-124	-1.383E-02	4.535E-02	4.578E-02	NOT IDENT.
SB-125	-1.779E-02	4.320E-02	4.394E-02	FAIL ABUN
TE-125M	9.755E-01	4.221E+00	4.244E+00	NOT IDENT.
I-126	1.182E-01	1.561E-01	1.649E-01	FAIL ABUN
SB-126	-1.265E-02	1.012E-01	1.013E-01	NOT IDENT.
SB-127	8.866E-01	2.247E+00	2.283E+00	NOT IDENT.
I-131	-4.547E-02	1.106E-01	1.125E-01	NOT IDENT.
I-132	-1.000E+41	9.036E+41	0.000E+00	SHORT HLIF
TE-132	1.150E+00	1.570E+00	1.653E+00	NOT IDENT.
BA-133	-1.191E-02	2.081E-02	2.149E-02	NOT IDENT.
I-133	1.740E+06	1.573E+06	1.757E+06	SHORT HLIF
CS-134	1.349E-03	1.764E-02	1.765E-02	FAIL ABUN
I-135	-1.946E+23	6.005E+23	0.000E+00	SHORT HLIF
CS-136	4.080E-03	8.962E-02	8.964E-02	NOT IDENT.
BA-137M	-2.194E-03	1.905E-02	1.908E-02	NOT IDENT.
CS-137	-2.317E-03	2.013E-02	2.015E-02	NOT IDENT.
LA-138	-9.329E-03	3.046E-02	3.075E-02	NOT IDENT.
CE-139	-1.245E-02	1.467E-02	1.571E-02	NOT IDENT.
BA-140	5.800E-02	1.660E-01	1.680E-01	NOT IDENT.
LA-140	-3.494E-02	8.047E-02	8.200E-02	NOT IDENT.
CE-141	-9.394E-03	3.532E-02	3.557E-02	NOT IDENT.
CE-143	-1.418E+03	2.546E+03	2.625E+03	SHORT HLIF
CE-144	-3.239E-02	8.581E-02	8.705E-02	NOT IDENT.
PM-144	1.635E-03	2.085E-02	2.086E-02	NOT IDENT.
PR-144	1.229E-01	1.567E+00	1.568E+00	NOT IDENT.
PM-146	4.313E-03	1.975E-02	1.985E-02	NOT IDENT.
ND-147	1.839E-02	3.592E-01	3.593E-01	NOT IDENT.
PM-147	9.263E+01	3.645E+02	3.669E+02	NOT IDENT.
PM-149	3.474E+02	5.045E+02	5.282E+02	SHORT HLIF
EU-150	-4.099E-03	1.206E-02	1.221E-02	NOT IDENT.
EU-152	-5.355E-04	4.766E-02	4.766E-02	NOT IDENT.
GD-153	3.182E-02	5.908E-02	6.080E-02	FAIL ABUN
EU-154	-8.641E-03	6.288E-02	6.300E-02	NOT IDENT.
EU-155	3.937E-02	4.191E-02	4.551E-02	FAIL ABUN
TB-160	-1.632E-02	6.168E-02	6.211E-02	FAIL ABUN
HO-166M	-3.336E-02	3.377E-02	3.697E-02	FAIL ABUN
TM-171	-3.172E+00	8.313E+00	8.435E+00	NOT IDENT.
HF-172	-4.213E-02	8.023E-02	8.245E-02	NOT IDENT.
LU-172	1.990E-02	2.830E-02	2.969E-02	FAIL ABUN
LU-176	9.702E-03	1.306E-02	1.377E-02	FAIL ABUN
HF-181	-1.101E-02	2.708E-02	2.753E-02	NOT IDENT.
TA-182	-1.480E-02	7.855E-02	7.883E-02	FAIL ABUN
RE-183	-1.197E-02	1.006E-01	1.008E-01	NOT IDENT.
RE-184	-8.016E-03	7.442E-02	7.451E-02	NOT IDENT.
W-188	1.595E+00	3.641E+00	3.711E+00	FAIL ABUN
IR-192	-9.824E-03	1.567E-02	1.628E-02	NOT IDENT.
HG-203	-1.001E-03	2.041E-02	2.042E-02	NOT IDENT.
TL-204	3.552E-01	2.006E+00	2.013E+00	NOT IDENT.
BI-207	3.579E-03	2.342E-02	2.348E-02	FAIL ABUN
TL-208	-1.211E-03	2.305E-02	2.306E-02	NOT IDENT.

BI-211	-5.974E-02	1.096E-01	1.129E-01	NOT IDENT.
PB-211	1.963E-01	3.478E-01	3.589E-01	NOT IDENT.
BI-212	4.760E-02	2.347E-01	2.356E-01	NOT IDENT.
PB-212	1.750E-02	8.129E-02	8.167E-02	FAIL ABUN
BI-213	-1.865E-02	5.063E-02	5.132E-02	NOT IDENT.
BI-214	-2.573E-02	5.128E-02	5.257E-02	NOT IDENT.
PB-214	-7.686E-03	3.702E-02	3.718E-02	FAIL ABUN
RN-219	-3.940E-02	1.810E-01	1.819E-01	NOT IDENT.
RN-222	-2.573E-02	5.128E-02	5.257E-02	NOT IDENT.
RA-223	-3.991E-02	2.632E-01	2.638E-01	FAIL ABUN
AC-225	-6.464E-02	5.212E-01	5.220E-01	NOT IDENT.
RA-226	-7.686E-03	3.702E-02	3.718E-02	FAIL ABUN
AC-227	-2.284E-02	1.383E-01	1.387E-01	NOT IDENT.
TH-227	-2.284E-02	1.383E-01	1.387E-01	NOT IDENT.
AC-228	6.234E-02	1.042E-01	1.079E-01	NOT IDENT.
RA-228	6.234E-02	1.042E-01	1.079E-01	NOT IDENT.
TH-228	1.750E-02	8.129E-02	8.167E-02	FAIL ABUN
TH-229	2.373E-01	2.661E-01	2.868E-01	FAIL ABUN
TH-230	-7.686E-03	3.701E-02	3.718E-02	FAIL ABUN
PA-231	1.044E-01	2.140E-01	2.191E-01	NOT IDENT.
TH-231	-3.991E-02	2.632E-01	2.638E-01	FAIL ABUN
TH-232	6.234E-02	1.042E-01	1.079E-01	NOT IDENT.
PA-233	2.314E-03	2.566E-02	2.568E-02	NOT IDENT.
PA-234	-1.533E-01	2.573E-01	2.664E-01	FAIL ABUN
PA-234M	8.358E-01	3.370E+00	3.391E+00	FAIL ABUN
TH-234	-4.854E-01	6.212E-01	6.586E-01	FAIL ABUN
U-234	-7.686E-03	3.701E-02	3.718E-02	FAIL ABUN
U-235	-6.222E-02	9.218E-02	9.635E-02	FAIL ABUN
NP-237	2.314E-03	2.566E-02	2.568E-02	FAIL ABUN
NP-238	-1.216E+02	9.125E+01	1.064E+02	SHORT HLIF
U-238	-4.854E-01	6.212E-01	6.586E-01	FAIL ABUN
NP-239	2.025E-02	1.121E-01	1.125E-01	FAIL ABUN
PU-239	4.113E+01	1.549E+02	1.560E+02	NOT IDENT.
AM-241	1.483E-02	6.453E-02	6.488E-02	NOT IDENT.
AM-243	8.051E-03	2.111E-02	2.142E-02	NOT IDENT.
CM-243	-6.287E-03	4.247E-02	4.256E-02	FAIL ABUN
BK-247	1.080E-02	4.339E-02	4.367E-02	NOT IDENT.
CM-247	-2.373E-03	1.689E-02	1.693E-02	NOT IDENT.
CF-251	2.686E-02	5.936E-02	6.058E-02	FAIL ABUN

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	19.9845	85.43	28.6192	131.20	24.2473
45.60	23.0666	86.55	28.6821	133.02	20.0840
46.54	23.1306	86.79	28.6955	133.52	21.1563
49.72	19.1527	86.94	28.7040	136.00	27.6020
51.35	21.6445	87.09	28.7123	136.47	19.1220
51.87	19.8691	87.57	28.7392	140.51	19.2316
52.39	22.6105	88.03	28.7647	143.76	19.3189
52.97	17.2110	88.34	28.7819	144.24	20.4055
53.44	19.0467	88.47	13.7402	145.44	18.6462
54.07	27.2554	89.96	11.8110	152.43	18.4607
57.36	0.0000	90.64	5.9131	153.25	8.6969
57.53	22.9187	91.11	13.8096	154.21	18.5043
57.98	31.2050	92.59	13.8480	156.02	18.5481
59.27	22.0989	93.35	13.8676	158.56	22.9880
59.32	22.1017	94.56	13.8986	159.00	20.8102
59.54	23.9566	94.65	13.9009	162.33	25.2987
60.96	23.1165	94.67	13.9014	162.66	19.8073
61.17	23.1284	94.87	13.9065	163.33	12.1148
62.93	22.2986	97.43	13.3062	165.86	25.4114
63.29	19.5281	98.43	13.3301	176.31	17.9045
63.58	19.5417	98.44	13.3304	176.60	17.9109
64.28	24.2350	99.53	13.3563	177.52	13.4478
66.73	22.4998	100.11	16.0441	181.07	16.8805
67.24	22.5264	102.03	12.0738	181.52	18.0154
67.68	24.4284	103.18	22.1796	184.41	15.0635
67.75	24.4321	103.37	20.1700	185.72	21.4979
68.89	26.3803	105.21	13.1520	193.51	15.9814
69.67	19.8203	105.31	13.1543	197.03	22.9199
70.82	27.4413	106.12	27.3582	198.01	26.3863
70.83	27.4419	106.47	29.4022	201.83	24.1928
72.81	26.6120	109.28	17.3175	203.43	24.2348
72.87	26.6155	111.00	25.5398	205.31	21.9711
74.66	21.9478	111.76	21.4803	210.85	18.6111
74.82	17.1825	114.06	22.5878	215.65	18.7046
74.97	23.8724	116.30	18.5477	218.12	21.0962
77.11	26.8590	116.74	18.5607	222.11	18.8286
78.74	23.1008	119.76	29.0104	227.09	12.6154
79.69	28.9330	121.12	23.8805	227.38	11.0416
80.03	18.3368	121.22	23.8842	228.16	7.8930
80.12	18.3404	121.78	23.9051	228.18	7.8932
80.19	18.3430	122.06	19.7562	235.69	6.3612
80.57	20.2898	122.92	30.1943	235.96	6.3630
81.00	28.0437	123.07	30.2012	238.63	14.3535
81.07	28.0477	123.68	19.8055	238.98	14.3584
81.75	22.2756	125.81	21.9615	240.99	14.3860
82.47	36.2102	127.23	19.9124	242.00	17.6000
83.79	32.4163	127.91	19.9329	244.70	14.4368
84.00	29.8354	129.30	21.0254	252.40	19.3879

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.80	20.6072	351.06	12.2546	569.33	7.9736
254.15	0.0000	351.93	7.8829	569.50	7.9743
256.23	19.4561	355.39	0.0000	569.70	8.9722
260.90	0.0000	356.01	16.6903	583.19	10.0354
264.66	18.3792	364.49	15.0237	584.27	10.0407
264.80	15.9306	366.42	14.1589	595.83	6.0583
265.00	15.9334	372.51	5.3322	600.60	9.1084
269.46	14.7660	375.05	10.6829	602.52	0.0000
270.03	24.6228	377.52	8.0257	604.72	10.9512
271.23	14.7891	383.85	10.7471	607.14	12.1821
273.65	22.2303	388.16	5.3892	609.32	13.7192
276.40	11.1418	388.63	6.7386	610.33	12.2007
277.37	14.8682	391.69	10.8037	614.28	5.0930
277.60	14.8711	400.66	11.7733	618.01	13.7752
278.00	14.8762	401.81	10.8760	620.36	9.8063
279.20	13.6506	402.40	10.8801	621.93	9.2003
279.54	13.6547	404.85	9.0812	630.19	0.0000
279.70	8.6904	410.95	14.5872	631.29	8.2132
280.46	8.6962	413.71	7.3065	633.25	5.1379
283.69	16.1945	414.70	5.4833	634.78	8.2266
284.31	14.9564	423.72	9.1911	635.95	9.2596
285.41	13.7228	427.09	8.8420	636.99	3.0880
285.90	0.0000	427.87	9.6756	657.50	10.9084
287.50	14.9967	433.94	0.0000	657.76	10.9097
290.67	12.5302	439.40	8.3524	657.90	0.0000
293.27	0.0000	440.45	9.7506	661.66	9.3673
295.22	13.4160	453.88	8.4254	664.57	0.0000
295.96	7.5511	463.37	9.4141	666.33	4.1719
298.58	15.1348	468.07	9.4399	666.50	3.1292
299.98	15.1520	473.00	9.4668	667.71	0.0000
300.09	15.1531	475.06	5.6868	677.62	5.2407
300.13	15.1538	476.78	13.2822	685.70	4.2072
301.36	10.9553	477.60	9.4918	692.65	8.4395
302.85	15.1871	482.18	10.4683	695.00	9.5039
304.50	19.4315	487.02	8.5884	696.49	7.3965
304.85	17.7469	492.35	0.0000	696.51	7.3968
306.78	11.0031	497.08	13.4349	697.00	8.4551
308.46	16.9507	505.52	5.7845	697.30	9.5131
311.90	9.3482	507.63	0.0000	697.49	8.4567
316.51	13.6468	511.00	6.7688	702.65	9.5347
319.41	7.6937	514.00	6.7798	706.68	13.7956
320.08	12.8293	514.00	6.7798	711.68	12.7612
321.04	12.8391	520.40	6.8032	720.70	6.4045
323.87	11.1512	520.69	7.7764	721.93	0.0000
325.23	12.0216	522.65	0.0000	722.78	3.2051
328.76	13.7760	527.90	0.0000	722.91	3.2052
333.37	17.2799	528.26	4.8798	723.31	7.4799
333.97	13.8304	529.59	5.8599	724.19	6.4138
334.37	10.3757	529.87	0.0000	727.33	4.2814
338.28	14.7418	531.02	4.3982	733.00	5.3642
338.32	14.7425	537.26	4.9028	735.93	4.2964
340.48	15.6346	546.56	0.0000	737.46	4.2992
340.55	15.6354	552.55	5.9299	739.50	11.8325
344.28	13.9362	563.25	10.9306	744.23	11.8549
345.93	12.2090	564.24	7.1581	747.24	6.4741

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
748.06	6.4763	954.55	0.0000	1408.01	4.9515
752.31	3.2437	962.31	4.6654	1434.09	1.9928
753.82	8.6549	964.08	4.3762	1435.80	2.9905
756.73	9.7482	966.17	4.3793	1457.56	0.0000
756.80	9.7485	968.97	4.3832	1460.82	2.0054
763.94	7.6036	983.53	4.4040	1489.16	3.0276
765.81	7.6093	984.45	0.0000	1505.03	3.0386
766.42	9.7855	996.26	7.0752	1584.12	2.0615
766.84	8.6999	1001.03	8.5028	1596.21	4.1338
772.60	0.0000	1002.74	5.6717	1620.50	1.0388
776.52	5.4580	1004.73	7.0940	1621.92	3.1174
777.92	6.5532	1021.30	0.0000	1678.03	0.0000
778.90	6.5557	1025.87	0.0000	1690.97	2.1084
783.70	5.4732	1028.54	0.0000	1750.46	0.0000
788.74	3.2903	1037.84	3.5840	1764.49	5.3494
792.07	5.4909	1038.76	0.0000	1770.23	2.1422
795.86	4.3991	1046.59	3.5935	1771.35	2.1427
801.95	6.6138	1048.07	6.2916	1791.20	0.0000
810.06	4.4229	1049.04	8.9905	1808.65	1.0792
810.29	6.6348	1050.41	8.9941	1810.72	0.0000
810.45	6.6353	1063.66	3.6121	1836.06	1.0849
810.76	7.7420	1077.00	3.6267		
815.77	6.6484	1077.34	3.6270		
818.51	5.5461	1085.87	6.3634		
832.01	4.4591	1093.63	1.8223		
834.85	4.4637	1099.45	3.6509		
835.71	3.3489	1112.07	6.4125		
836.80	0.0000	1112.84	5.4976		
846.75	0.0000	1115.54	3.6680		
846.77	6.7249	1120.29	2.7548		
856.80	6.7493	1120.55	3.6733		
860.56	6.7583	1121.30	2.7556		
871.09	2.2612	1129.67	3.6831		
873.19	4.5259	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	4.5358	1173.23	1.8643		
880.51	3.4032	1177.95	1.8667		
881.60	1.1348	1189.05	2.8087		
883.24	5.6775	1204.77	2.8209		
884.68	6.8164	1221.41	2.8336		
889.28	7.9653	1231.02	2.8409		
894.76	6.8403	1235.36	4.7403		
898.04	7.9895	1238.28	2.8464		
900.72	4.5697	1260.41	0.0000		
903.28	5.7172	1271.87	4.7861		
911.20	6.8794	1274.44	4.7894		
912.08	6.8813	1274.54	3.8315		
923.98	0.0000	1291.59	3.8484		
926.50	9.2204	1298.22	0.0000		
929.11	5.7676	1312.11	2.9015		
935.54	9.2484	1332.49	1.9443		
937.49	6.9407	1362.66	0.0000		
944.13	4.6374	1365.19	1.9601		
946.00	10.4407	1368.63	0.0000		
949.00	4.6449	1384.29	2.9539		

VAX/VMS Nuclide Identification Report Generated 31-JUL-2024 17:20:35.63

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781347.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM28.CNF;655
Background date  : 28-JUL-2024 11:29:42
Sample date     : 26-JUN-2024 10:50:00 Acquisition date : 31-JUL-2024 16:15:47
Sample ID      : G1205781347 Sample quantity : 1.06540E+02 GRAM
Detector name   : GAM28 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.73 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : MXR1
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636543 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.09*	62	236	1.17	126.69	123	9	1.72E-02	47.5	
2	0	66.59*	35	179	1.36	133.69	131	7	9.82E-03	65.1	
3	3	74.79	229	191	0.76	150.07	146	13	6.37E-02	11.1	2.50E+00
4	3	77.05*	444	179	0.91	154.59	146	13	1.23E-01	6.6	
5	0	79.93	38	267	2.68	160.35	159	8	1.05E-02	76.8	
6	0	83.86*	45	151	0.89	168.20	166	5	1.25E-02	44.3	
7	0	87.12	125	186	1.06	174.72	172	6	3.48E-02	19.4	
8	4	89.93	90	118	1.07	180.34	178	17	2.50E-02	18.9	2.01E+00
9	4	92.62*	219	183	1.13	185.72	178	17	6.09E-02	12.9	
10	0	143.75*	60	136	0.89	287.92	285	7	1.67E-02	35.1	
11	0	185.94*	375	223	1.32	372.26	367	13	1.04E-01	10.0	
12	0	195.14	22	102	1.16	390.64	389	6	6.11E-03	75.0	
13	0	208.72	53	236	3.96	417.80	411	15	1.48E-02	64.6	
14	2	238.49*	285	125	0.98	477.31	473	16	7.91E-02	8.5	1.60E+00
15	2	241.81	298	111	1.15	483.95	473	16	8.29E-02	8.4	
16	0	259.43	33	111	1.60	519.17	512	10	9.24E-03	62.4	
17	0	270.19	74	140	1.61	540.68	535	11	2.05E-02	33.5	
18	0	295.02	731	111	1.21	590.33	585	10	2.03E-01	4.6	
19	0	303.59	33	60	1.05	607.45	604	8	9.17E-03	44.2	
20	0	338.21*	70	71	1.16	676.66	673	8	1.93E-02	24.6	
21	0	351.66*	1180	111	1.19	703.55	699	11	3.28E-01	3.4	
22	0	411.23	74	136	10.21	822.65	807	24	2.05E-02	43.6	
23	0	462.92	27	25	0.94	926.00	924	7	7.43E-03	38.1	
24	0	510.52*	58	57	1.69	1021.17	1013	17	1.60E-02	37.6	
25	0	583.06*	100	45	1.63	1166.20	1161	14	2.77E-02	18.5	
26	0	608.85*	781	74	1.20	1217.75	1211	14	2.17E-01	4.3	
27	0	664.84	33	28	1.63	1329.71	1321	16	9.22E-03	39.6	
28	0	702.54*	31	11	2.03	1405.09	1400	9	8.61E-03	27.7	
29	0	767.83	67	37	1.28	1535.64	1530	10	1.87E-02	18.8	
30	0	806.84	10	32	2.38	1613.66	1606	9	2.73E-03	110.4	
31	0	910.71*	61	36	1.14	1821.36	1815	13	1.70E-02	24.1	
32	0	934.03	35	32	1.51	1868.00	1859	16	9.72E-03	39.9	
33	0	964.08	24	10	1.16	1928.09	1924	7	6.67E-03	30.1	
34	0	968.37*	44	24	2.13	1936.67	1932	13	1.22E-02	28.5	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	995.41	11	12	0.96	1990.75	1987	9	3.16E-03	61.0	
36	0	1000.61*	22	14	1.96	2001.15	1996	12	6.22E-03	41.5	
37	0	1119.55	156	33	1.55	2239.01	2232	14	4.32E-02	11.3	
38	0	1132.82	9	13	2.46	2265.54	2258	11	2.37E-03	90.7	
39	0	1237.21	66	19	1.40	2474.33	2467	15	1.84E-02	18.8	
40	0	1280.17	24	9	3.04	2560.25	2553	12	6.67E-03	32.3	
41	0	1359.59	9	5	4.02	2719.11	2712	11	2.44E-03	61.4	
42	0	1376.91	68	6	1.79	2753.75	2747	17	1.88E-02	15.5	
43	0	1384.68	24	0	1.47	2769.29	2764	12	6.67E-03	20.4	
44	0	1400.84	14	11	2.04	2801.60	2797	9	3.77E-03	52.2	
45	0	1406.66*	22	9	0.77	2813.26	2806	13	6.21E-03	36.2	
46	0	1460.29*	73	7	2.05	2920.53	2913	19	2.02E-02	15.7	
47	0	1470.27	9	2	0.68	2940.49	2937	8	2.61E-03	41.2	
48	0	1507.68	35	10	2.44	3015.33	3006	20	9.72E-03	27.8	
49	0	1660.14*	4	3	1.04	3320.30	3316	9	1.07E-03	133.2	
50	0	1728.50	44	3	2.40	3457.06	3450	13	1.21E-02	17.4	
51	0	1763.05	135	3	2.18	3526.17	3519	14	3.74E-02	9.1	
52	0	1845.89	24	3	0.97	3691.90	3685	12	6.78E-03	24.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781347.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 26-JUN-2024 10:50:00	Acquisition date	: 31-JUL-2024 16:15:47
Sample ID	: G1205781347	Sample quantity	: 106.54 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA28	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.73 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	68	10.66*	1.226E+00	3.680E+00	3.680E+00	31.33
CD-109	88.03	127	3.70*	5.630E+00	4.304E+00	4.538E+00	38.73
SN-126	64.28	63	9.60	2.875E+00	1.618E+00	1.618E+00	94.95
	86.94	127	8.90	5.630E+00	1.789E+00	1.789E+00	38.73
	87.57	127	37.00*	5.630E+00	4.304E-01	4.304E-01	38.73
TL-208	277.37	-----	6.60	4.410E+00	-----	Line Not Found	-----
	583.19	96	85.00*	2.608E+00	3.052E-01	3.052E-01	37.04
	860.56	-----	12.50	1.916E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.216E+00	-----	Line Not Found	-----
	351.06	1152	12.92*	3.739E+00	1.681E+01	1.681E+01	6.79
PB-212	74.82	233	10.28	4.448E+00	3.597E+00	3.597E+00	22.24
	77.11	452	17.10	4.705E+00	3.955E+00	3.955E+00	13.24
	238.63	281	43.60*	4.891E+00	9.288E-01	9.288E-01	16.96
	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
BI-214	609.32	751	45.49*	2.524E+00	4.608E+00	4.609E+00	8.57
	1120.29	147	14.92	1.529E+00	4.546E+00	4.546E+00	22.68
	1764.49	126	15.30	1.079E+00	5.358E+00	5.358E+00	18.21
PB-214	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.501E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
RN-222	609.32	751	45.49*	2.524E+00	4.608E+00	4.609E+00	8.57
	1120.29	147	14.92	1.529E+00	4.546E+00	4.546E+00	22.68
	1764.49	126	15.30	1.079E+00	5.358E+00	5.358E+00	18.21
RA-223	81.07	38	15.00	5.007E+00	3.604E-01	3.604E-01	153.51
	83.79	46	24.70	5.370E+00	2.431E-01	2.431E-01	88.61
	94.56	-----	8.67	6.091E+00	-----	Line Not Found	-----
	144.24	60	3.27	6.469E+00	2.005E+00	2.005E+00	70.19
	154.21	-----	5.70	6.304E+00	-----	Line Not Found	-----
	269.46	72	13.90	4.490E+00	8.181E-01	8.181E-01	66.91
	323.87	-----	3.99*	3.959E+00	-----	Line Not Found	-----
	338.28	68	2.84	3.842E+00	4.398E+00	4.398E+00	49.13
RA-224	240.99	294	4.10*	4.845E+00	1.044E+01	1.044E+01	16.75
RA-226	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.501E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
AC-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
RA-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
	74.82	233	10.28	4.448E+00	3.597E+00	3.597E+00	22.24
	77.11	452	17.10	4.705E+00	3.955E+00	3.955E+00	13.24
	238.63	281	43.60*	4.891E+00	9.288E-01	9.288E-01	16.96
TH-230	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
TH-231	295.22	718	18.42	4.225E+00	6.500E+00	6.500E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
	81.07	38	15.00	5.007E+00	3.604E-01	3.604E-01	153.51
	83.79	46	24.70	5.370E+00	2.431E-01	2.431E-01	88.61
	94.87	-----	5.69	6.107E+00	-----	Line Not Found	-----
TH-232	144.24	60	3.27	6.469E+00	2.005E+00	2.005E+00	70.19
	154.21	-----	5.70	6.304E+00	-----	Line Not Found	-----
	269.46	72	13.90	4.490E+00	8.181E-01	8.181E-01	66.91
	323.87	-----	3.99*	3.959E+00	-----	Line Not Found	-----
	338.28	68	2.84	3.842E+00	4.398E+00	4.398E+00	49.13
PA-234M	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
TH-234	766.42	64	0.32	2.105E+00	6.742E+01	6.742E+01	37.54
	1001.03	21	0.84*	1.685E+00	1.057E+01	1.057E+01	82.91
U-234	63.29	63	3.70*	2.875E+00	4.198E+00	4.198E+00	94.95
	92.59	222	4.23	5.988E+00	6.178E+00	6.178E+00	25.76
U-235	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.500E+00	9.14
U-238	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
	89.96	91	3.47	5.825E+00	3.175E+00	3.175E+00	37.83
	93.35	222	5.60	5.988E+00	4.667E+00	4.667E+00	25.76
	143.76	60	10.96*	6.469E+00	5.981E-01	5.981E-01	70.19
	163.33	-----	5.08	6.144E+00	-----	Line Not Found	-----
AM-243	185.72	373	57.20	5.733E+00	8.018E-01	8.018E-01	19.90
	205.31	-----	5.01	5.397E+00	-----	Line Not Found	-----
ANH-511	63.29	63	3.70*	2.875E+00	4.198E+00	4.198E+00	94.95
	92.59	222	4.23	5.988E+00	6.178E+00	6.178E+00	25.76
ANH-511	43.53	-----	5.90	4.389E-01	-----	Line Not Found	-----
	74.66	233	67.20*	4.448E+00	5.503E-01	5.503E-01	22.24
ANH-511	511.00	56	100.00*	2.875E+00	1.364E-01	1.364E-01	75.30

Flag: "*" = Keyline

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781347.CNF;1 *
* Acquisition date : 31-JUL-2024 16:15:47 Sensitivity : 3.000 *
* Detector ID : GAM28 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.73 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:50:00 Analyst initials: MXR1 *
* Sample ID : G1205781347 Sample Quantity : 1.0654E+02 GRAM *
* Batch Number : 2636543 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 19-MAR-2024 04:24:53 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	3.680E+00	1.130E+00	8.465E-01
CD-109	4.538E+00	1.723E+00	1.894E+00
SN-126	4.304E-01	1.634E-01	1.806E-01
TL-208	3.052E-01	1.108E-01	8.912E-02
BI-211	1.681E+01	1.118E+00	5.241E-01
PB-212	9.288E-01	1.544E-01	1.599E-01
BI-214	4.609E+00	3.871E-01	1.594E-01
PB-214	6.101E+00	4.057E-01	1.906E-01
RN-222	4.609E+00	3.871E-01	1.594E-01
RA-223	-1.021E-01	9.185E-01	1.713E+00
RA-224	1.044E+01	1.715E+00	1.713E+00
RA-226	6.101E+00	4.057E-01	1.906E-01
AC-228	8.725E-01	4.124E-01	3.064E-01
RA-228	8.725E-01	4.124E-01	3.064E-01
TH-228	9.288E-01	1.544E-01	1.599E-01
TH-230	6.101E+00	4.057E-01	1.906E-01
TH-231	-1.021E-01	9.185E-01	1.713E+00
TH-232	8.725E-01	4.124E-01	3.064E-01
PA-234M	1.057E+01	8.588E+00	1.155E+01
TH-234	4.198E+00	3.906E+00	3.415E+00
U-234	6.101E+00	4.057E-01	1.906E-01
U-235	5.981E-01	4.114E-01	4.863E-01
U-238	4.198E+00	3.906E+00	3.415E+00
AM-243	5.503E-01	1.199E-01	1.473E-01
ANH-511	1.364E-01	1.006E-01	6.664E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.905E-01	6.068E-01	1.095E+00	NOT IDENT.
NA-22	2.246E-02	5.761E-02	1.084E-01	NOT IDENT.
NA-24	0.000E+00	5.055E+15	0.000E+00	SHORT HLIF
AL-26	-8.411E-03	3.574E-02	7.087E-02	NOT IDENT.
SC-46	1.528E-02	5.992E-02	1.152E-01	FAIL ABUN

V-48	-1.171E-01	1.918E-01	3.147E-01	NOT IDENT.
CR-51	-2.617E-01	8.624E-01	1.589E+00	NOT IDENT.
MN-52	-5.351E-01	3.959E+00	7.634E+00	NOT IDENT.
MN-54	-1.013E-02	5.290E-02	9.411E-02	NOT IDENT.
CO-56	-2.529E-02	7.128E-02	1.232E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-2.066E-02	3.620E-02	6.185E-02	NOT IDENT.
CO-58	-2.827E-02	6.337E-02	1.091E-01	NOT IDENT.
FE-59	2.775E-02	1.245E-01	2.596E-01	NOT IDENT.
CO-60	-3.919E-03	5.372E-02	1.038E-01	NOT IDENT.
ZN-65	3.750E-02	1.287E-01	2.331E-01	NOT IDENT.
GE-68	5.018E-01	1.393E+00	2.953E+00	NOT IDENT.
AS-73	2.024E-01	1.419E+00	2.673E+00	NOT IDENT.
AS-74	2.021E-01	2.904E-01	5.760E-01	NOT IDENT.
SE-75	-9.502E-03	7.292E-02	1.239E-01	NOT IDENT.
BR-77	0.000E+00	8.489E+03	0.000E+00	SHORT HLIF
SR-82	3.289E-01	6.333E-01	1.297E+00	NOT IDENT.
RB-83	-1.567E-04	1.024E-01	1.933E-01	NOT IDENT.
RB-84	9.447E-02	1.174E-01	2.514E-01	NOT IDENT.
KR-85	3.029E-01	8.668E+00	1.480E+01	NOT IDENT.
SR-85	2.006E-03	5.676E-02	9.691E-02	NOT IDENT.
RB-86	9.773E-01	1.694E+00	3.729E+00	NOT IDENT.
Y-88	2.966E-02	3.968E-02	1.062E-01	NOT IDENT.
Y-91	-6.873E+00	3.071E+01	5.791E+01	NOT IDENT.
NB-94	9.280E-02	5.035E-02	1.004E-01	FAIL ABUN
NB-95	9.100E-02	8.683E-02	1.618E-01	NOT IDENT.
NB-95M	5.927E-02	2.612E-01	4.194E-01	NOT IDENT.
ZR-95	3.366E-02	1.124E-01	2.177E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.985E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.544E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	7.400E+40	0.000E+00	SHORT HLIF
RH-101	-2.903E-02	4.556E-02	7.722E-02	NOT IDENT.
RH-102	-1.967E-02	6.722E-02	1.212E-01	FAIL ABUN
RU-103	-6.007E-02	6.808E-02	1.126E-01	FAIL ABUN
RH-106	-1.389E-01	3.974E-01	7.108E-01	NOT IDENT.
RU-106	-1.389E-01	3.974E-01	7.108E-01	NOT IDENT.
AG-108M	-9.011E-03	3.639E-02	6.714E-02	NOT IDENT.
AG-110	-3.462E-01	9.211E-01	1.550E+00	NOT IDENT.
AG-110M	8.995E-03	6.838E-02	1.289E-01	FAIL ABUN
SN-113	1.072E-02	6.494E-02	1.245E-01	NOT IDENT.
CD-115	0.000E+00	8.661E+03	0.000E+00	SHORT HLIF
SN-117M	1.966E-01	2.165E-01	4.035E-01	NOT IDENT.
SB-122	0.000E+00	4.671E+02	0.000E+00	SHORT HLIF
TE-123M	5.260E-02	4.568E-02	8.637E-02	NOT IDENT.
SB-124	-9.674E-03	9.566E-02	2.048E-01	NOT IDENT.
SB-125	-3.129E-02	1.239E-01	2.271E-01	FAIL ABUN
TE-125M	-6.671E-01	1.755E+01	3.123E+01	NOT IDENT.
I-126	0.000E+00	1.485E+00	1.677E+00	FAIL ABUN
SB-126	-1.800E-01	5.385E-01	9.554E-01	NOT IDENT.
SB-127	1.497E+00	5.599E+01	1.060E+02	NOT IDENT.
I-131	-1.750E-01	8.523E-01	1.584E+00	FAIL ABUN
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	8.403E+01	0.000E+00	SHORT HLIF
BA-133	2.315E-02	5.584E-02	1.007E-01	FAIL ABUN
I-133	0.000E+00	7.745E+10	0.000E+00	SHORT HLIF
CS-134	8.746E-02	5.108E-02	1.165E-01	NOT IDENT.
I-135	0.000E+00	8.486E+37	0.000E+00	SHORT HLIF
CS-136	1.125E-01	4.045E-01	8.168E-01	NOT IDENT.
BA-137M	-7.084E-03	4.722E-02	7.685E-02	NOT IDENT.
CS-137	-7.484E-03	4.988E-02	8.119E-02	NOT IDENT.
LA-138	6.084E-03	6.863E-02	1.405E-01	NOT IDENT.
CE-139	-3.589E-02	4.867E-02	8.048E-02	NOT IDENT.
BA-140	-4.208E-01	1.049E+00	1.872E+00	FAIL ABUN
LA-140	-4.462E-02	3.588E-01	6.940E-01	NOT IDENT.
CE-141	6.268E-02	1.401E-01	2.371E-01	NOT IDENT.
CE-143	0.000E+00	6.533E+06	0.000E+00	SHORT HLIF
CE-144	-2.014E-02	2.837E-01	5.002E-01	FAIL ABUN
PM-144	-3.466E-03	4.101E-02	7.595E-02	NOT IDENT.
PR-144	-2.823E-01	3.099E+00	5.733E+00	NOT IDENT.
PM-146	-5.435E-03	5.716E-02	1.005E-01	NOT IDENT.
ND-147	-9.902E-02	2.793E+00	5.185E+00	FAIL ABUN
PM-147	-4.995E+01	9.995E+02	1.776E+03	NOT IDENT.
PM-149	0.000E+00	7.213E+04	0.000E+00	SHORT HLIF
EU-150	-1.716E-02	4.163E-02	6.756E-02	FAIL ABUN
EU-152	-6.835E-02	1.380E-01	2.492E-01	FAIL ABUN
GD-153	-8.055E-02	1.266E-01	2.008E-01	NOT IDENT.
EU-154	6.003E-02	1.610E-01	3.023E-01	FAIL ABUN

EU-155	6.860E-02	1.392E-01	2.579E-01	FAIL ABUN
TB-160	-1.177E-01	1.984E-01	3.306E-01	FAIL ABUN
HO-166M	1.430E-02	6.730E-02	1.310E-01	FAIL ABUN
TM-171	-1.982E+01	2.642E+01	4.661E+01	FAIL ABUN
HF-172	5.740E-02	2.729E-01	4.907E-01	FAIL ABUN
LU-172	4.038E-02	7.173E-02	1.547E-01	FAIL ABUN
LU-176	-1.953E-02	3.920E-02	6.348E-02	FAIL ABUN
HF-181	-6.200E-02	8.198E-02	1.410E-01	NOT IDENT.
TA-182	1.407E-01	2.355E-01	5.004E-01	FAIL ABUN
RE-183	1.883E-01	3.365E-01	6.453E-01	FAIL ABUN
RE-184	1.745E-01	2.559E-01	5.141E-01	NOT IDENT.
W-188	-7.780E+00	1.471E+01	2.160E+01	FAIL ABUN
IR-192	4.567E-02	5.529E-02	1.115E-01	FAIL ABUN
HG-203	-1.373E-02	7.495E-02	1.262E-01	NOT IDENT.
TL-204	-2.271E+00	7.881E+00	1.298E+01	FAIL ABUN
BI-207	3.740E-02	5.385E-02	1.198E-01	FAIL ABUN
BI-210	-3.237E+00	6.080E+00	1.096E+01	NOT IDENT.
PB-210	-3.237E+00	6.080E+00	1.096E+01	NOT IDENT.
PB-211	6.934E-01	1.018E+00	2.012E+00	NOT IDENT.
BI-212	5.548E-01	6.988E-01	1.404E+00	NOT IDENT.
BI-213	-9.209E-03	1.405E-01	2.621E-01	NOT IDENT.
RN-219	5.943E-02	6.221E-01	1.062E+00	FAIL ABUN
AC-225	1.435E+00	3.531E+00	6.297E+00	NOT IDENT.
AC-227	4.050E-03	4.276E-01	6.750E-01	FAIL ABUN
TH-227	4.050E-03	4.276E-01	6.750E-01	FAIL ABUN
TH-229	-1.580E-01	7.862E-01	1.237E+00	FAIL ABUN
PA-231	-8.961E-01	8.280E-01	1.128E+00	NOT IDENT.
PA-233	1.549E-03	8.719E-02	1.653E-01	NOT IDENT.
PA-234	-3.291E-01	4.081E-01	6.446E-01	NOT IDENT.
NP-237	1.549E-03	8.719E-02	1.653E-01	NOT IDENT.
NP-238	0.000E+00	1.675E+04	0.000E+00	SHORT HLIF
NP-239	9.025E-02	3.622E-01	6.569E-01	NOT IDENT.
PU-239	2.980E+02	4.737E+02	8.734E+02	NOT IDENT.
AM-241	-1.446E-01	2.388E-01	3.887E-01	NOT IDENT.
CM-243	-1.686E-02	1.379E-01	2.458E-01	NOT IDENT.
BK-247	-6.579E-02	1.346E-01	2.003E-01	FAIL ABUN
CM-247	1.391E-02	5.435E-02	9.499E-02	NOT IDENT.
CF-249	-4.822E-03	5.435E-02	1.014E-01	NOT IDENT.
CF-251	-4.154E-02	1.813E-01	3.120E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	68	10.66*	1.226E+00	3.680E+00	3.680E+00	31.33
CD-109	88.03	127	3.70*	5.630E+00	4.304E+00	4.538E+00	38.73
SN-126	64.28	63	9.60	2.875E+00	1.618E+00	1.618E+00	94.95
	86.94	127	8.90	5.630E+00	1.789E+00	1.789E+00	38.73
	87.57	127	37.00*	5.630E+00	4.304E-01	4.304E-01	38.73
TL-208	277.37	-----	6.60	4.410E+00	-----	Line Not Found	-----
	583.19	96	85.00*	2.608E+00	3.052E-01	3.052E-01	37.04
	860.56	-----	12.50	1.916E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.216E+00	-----	Line Not Found	-----
	351.06	1152	12.92*	3.739E+00	1.681E+01	1.681E+01	6.79
PB-212	74.82	233	10.28	4.448E+00	3.597E+00	3.597E+00	22.24
	77.11	452	17.10	4.705E+00	3.955E+00	3.955E+00	13.24
	238.63	281	43.60*	4.891E+00	9.288E-01	9.288E-01	16.96
	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
BI-214	609.32	751	45.49*	2.524E+00	4.608E+00	4.609E+00	8.57
	1120.29	147	14.92	1.529E+00	4.546E+00	4.546E+00	22.68
	1764.49	126	15.30	1.079E+00	5.358E+00	5.358E+00	18.21
PB-214	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.501E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
RN-222	609.32	751	45.49*	2.524E+00	4.608E+00	4.609E+00	8.57
	1120.29	147	14.92	1.529E+00	4.546E+00	4.546E+00	22.68
	1764.49	126	15.30	1.079E+00	5.358E+00	5.358E+00	18.21
RA-223	81.07	38	15.00	5.007E+00	3.604E-01	3.604E-01	153.51
	83.79	46	24.70	5.370E+00	2.431E-01	2.431E-01	88.61
	94.56	-----	8.67	6.091E+00	-----	Line Not Found	-----
	144.24	60	3.27	6.469E+00	2.005E+00	2.005E+00	70.19
	154.21	-----	5.70	6.304E+00	-----	Line Not Found	-----
	269.46	72	13.90	4.490E+00	8.181E-01	8.181E-01	66.91
	323.87	-----	3.99*	3.959E+00	-----	Line Not Found	-----
	338.28	68	2.84	3.842E+00	4.398E+00	4.398E+00	49.13
RA-224	240.99	294	4.10*	4.845E+00	1.044E+01	1.044E+01	16.75
RA-226	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.501E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
AC-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
RA-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
TH-228	74.82	233	10.28	4.448E+00	3.597E+00	3.597E+00	22.24
	77.11	452	17.10	4.705E+00	3.955E+00	3.955E+00	13.24
	238.63	281	43.60*	4.891E+00	9.288E-01	9.288E-01	16.96
	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
TH-230	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.500E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
TH-231	81.07	38	15.00	5.007E+00	3.604E-01	3.604E-01	153.51
	83.79	46	24.70	5.370E+00	2.431E-01	2.431E-01	88.61
	94.87	-----	5.69	6.107E+00	-----	Line Not Found	-----
	144.24	60	3.27	6.469E+00	2.005E+00	2.005E+00	70.19
	154.21	-----	5.70	6.304E+00	-----	Line Not Found	-----
	269.46	72	13.90	4.490E+00	8.181E-01	8.181E-01	66.91
	323.87	-----	3.99*	3.959E+00	-----	Line Not Found	-----
	338.28	68	2.84	3.842E+00	4.398E+00	4.398E+00	49.13
TH-232	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	68	11.27	3.842E+00	1.108E+00	1.108E+00	49.13
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	58	25.80*	1.826E+00	8.725E-01	8.725E-01	48.23
	968.97	42	15.80	1.733E+00	1.070E+00	1.070E+00	56.95
PA-234M	766.42	64	0.32	2.105E+00	6.742E+01	6.742E+01	37.54
	1001.03	21	0.84*	1.685E+00	1.057E+01	1.057E+01	82.91
TH-234	63.29	63	3.70*	2.875E+00	4.198E+00	4.198E+00	94.95
	92.59	222	4.23	5.988E+00	6.178E+00	6.178E+00	25.76
U-234	74.82	233	5.80	4.448E+00	6.376E+00	6.376E+00	22.24
	77.11	452	9.70	4.705E+00	6.972E+00	6.972E+00	13.24
	87.09	127	3.41	5.630E+00	4.670E+00	4.670E+00	38.73
	242.00	294	7.25	4.845E+00	5.906E+00	5.906E+00	16.75
	295.22	718	18.42	4.225E+00	6.500E+00	6.500E+00	9.14
	351.93	1152	35.60*	3.739E+00	6.101E+00	6.101E+00	6.79
U-235	89.96	91	3.47	5.825E+00	3.175E+00	3.175E+00	37.83
	93.35	222	5.60	5.988E+00	4.667E+00	4.667E+00	25.76
	143.76	60	10.96*	6.469E+00	5.981E-01	5.981E-01	70.19
	163.33	-----	5.08	6.144E+00	-----	Line Not Found	-----
	185.72	373	57.20	5.733E+00	8.018E-01	8.018E-01	19.90
	205.31	-----	5.01	5.397E+00	-----	Line Not Found	-----
U-238	63.29	63	3.70*	2.875E+00	4.198E+00	4.198E+00	94.95
	92.59	222	4.23	5.988E+00	6.178E+00	6.178E+00	25.76
AM-243	43.53	-----	5.90	4.389E-01	-----	Line Not Found	-----
	74.66	233	67.20*	4.448E+00	5.503E-01	5.503E-01	22.24
ANH-511	511.00	56	100.00*	2.875E+00	1.364E-01	1.364E-01	75.30

Flag: "*" = Keyline

Total number of lines in spectrum 52
Number of unidentified lines 13
Number of lines tentatively identified by NID 39 75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.680E+00	3.680E+00	1.153E+00	31.33	
CD-109	461.40D	1.05	4.304E+00	4.538E+00	1.758E+00	38.73	
SN-126	2.30E+05Y	1.00	4.304E-01	4.304E-01	1.667E-01	38.73	
TL-208	1.41E+10Y	1.00	3.052E-01	3.052E-01	1.130E-01	37.04	
BI-211	7.04E+08Y	1.00	1.681E+01	1.681E+01	0.114E+01	6.79	
PB-212	1.41E+10Y	1.00	9.288E-01	9.288E-01	1.575E-01	16.96	
BI-214	1600.00Y	1.00	4.608E+00	4.609E+00	0.395E+00	8.57	
PB-214	1600.00Y	1.00	6.101E+00	6.101E+00	0.414E+00	6.79	
RN-222	1600.00Y	1.00	4.608E+00	4.609E+00	0.395E+00	8.57	
RA-223	7.04E+08Y	1.00	2.431E-01	2.431E-01	2.154E-01	88.61	K
RA-224	1.41E+10Y	1.00	1.044E+01	1.044E+01	0.175E+01	16.75	
RA-226	1600.00Y	1.00	6.101E+00	6.101E+00	0.414E+00	6.79	
AC-228	1.41E+10Y	1.00	8.725E-01	8.725E-01	4.208E-01	48.23	
RA-228	1.41E+10Y	1.00	8.725E-01	8.725E-01	4.208E-01	48.23	
TH-228	1.41E+10Y	1.00	9.288E-01	9.288E-01	1.575E-01	16.96	
TH-230	7.54E+04Y	1.00	6.101E+00	6.101E+00	0.414E+00	6.79	
TH-231	7.04E+08Y	1.00	2.431E-01	2.431E-01	2.154E-01	88.61	K
TH-232	1.41E+10Y	1.00	8.725E-01	8.725E-01	4.208E-01	48.23	
PA-234M	4.47E+09Y	1.00	1.057E+01	1.057E+01	0.876E+01	82.91	
TH-234	4.47E+09Y	1.00	4.198E+00	4.198E+00	3.986E+00	94.95	
U-234	2.45E+05Y	1.00	6.101E+00	6.101E+00	0.414E+00	6.79	
U-235	7.04E+08Y	1.00	5.981E-01	5.981E-01	4.198E-01	70.19	
U-238	4.47E+09Y	1.00	4.198E+00	4.198E+00	3.986E+00	94.95	
AM-243	7370.00Y	1.00	5.503E-01	5.503E-01	1.224E-01	22.24	
ANH-511	1.00E+09Y	1.00	1.364E-01	1.364E-01	1.027E-01	75.30	
Total Activity :			9.481E+01	9.504E+01			

Grand Total Activity : 9.481E+01 9.504E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	66.59	36	183	1.36	133.69	131	7	9.82E-03	****	3.38E+00	T
0	195.14	22	101	1.16	390.64	389	6	6.11E-03	****	5.57E+00	
0	208.72	53	233	3.96	417.80	411	15	1.48E-02	****	5.34E+00	
0	259.43	33	109	1.60	519.17	512	10	9.24E-03	****	4.62E+00	T
0	303.59	32	59	1.05	607.45	604	8	9.17E-03	88.5	4.14E+00	T
0	411.23	72	132	10.21	822.65	807	24	2.05E-02	87.2	3.35E+00	T
0	462.92	26	24	0.94	926.00	924	7	7.43E-03	76.2	3.08E+00	T
0	664.84	32	27	1.63	1329.71	1321	16	9.22E-03	79.3	2.36E+00	T
0	702.54	30	10	2.03	1405.09	1400	9	8.61E-03	55.4	2.26E+00	T
0	806.84	9	31	2.38	1613.66	1606	9	2.73E-03	****	2.02E+00	
0	934.03	33	30	1.51	1868.00	1859	16	9.72E-03	79.8	1.79E+00	
0	964.08	23	9	1.16	1928.09	1924	7	6.67E-03	60.2	1.74E+00	T
0	995.41	11	11	0.96	1990.75	1987	9	3.16E-03	****	1.69E+00	T
0	1132.82	8	13	2.46	2265.54	2258	11	2.37E-03	****	1.51E+00	T
0	1237.21	62	18	1.40	2474.33	2467	15	1.84E-02	37.7	1.40E+00	T
0	1280.17	23	8	3.04	2560.25	2553	12	6.67E-03	64.5	1.36E+00	
0	1359.59	8	5	4.02	2719.11	2712	11	2.44E-03	****	1.30E+00	
0	1376.91	63	6	1.79	2753.75	2747	17	1.88E-02	31.1	1.28E+00	
0	1384.68	23	0	1.47	2769.29	2764	12	6.67E-03	40.8	1.28E+00	T
0	1400.84	13	11	2.04	2801.60	2797	9	3.77E-03	****	1.27E+00	
0	1406.66	21	9	0.77	2813.26	2806	13	6.21E-03	72.5	1.26E+00	T
0	1470.27	9	1	0.68	2940.49	2937	8	2.61E-03	82.3	1.22E+00	
0	1507.68	33	9	2.44	3015.33	3006	20	9.72E-03	55.7	1.20E+00	
0	1660.14	4	3	1.04	3320.30	3316	9	1.07E-03	****	1.12E+00	
0	1728.50	41	3	2.40	3457.06	3450	13	1.21E-02	34.8	1.09E+00	
0	1845.89	23	2	0.97	3691.90	3685	12	6.78E-03	49.1	1.05E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781347.CNF;1 *
* Acquisition date : 31-JUL-2024 16:15:47 Sensitivity : 3.000 *
* Detector ID : GAM28 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.73 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:50:00 Nuclide Library : SOLID *
* Sample ID : G1205781347 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.0654E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 19-MAR-2024 04:24:53 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.509E-01
CD-109	8.994E-01
SN-126	8.576E-02
TL-208	4.028E-02
BI-211	2.424E-01
PB-212	7.550E-02
BI-214	7.145E-02
PB-214	8.817E-02
RN-222	7.145E-02
RA-223	7.966E-01
RA-224	8.091E-01
RA-226	8.817E-02
AC-228	1.331E-01
RA-228	1.331E-01
TH-228	7.550E-02
TH-230	8.816E-02
TH-231	7.966E-01
TH-232	1.331E-01
PA-234M	5.108E+00
TH-234	1.619E+00
U-234	8.816E-02
U-235	2.297E-01
U-238	1.619E+00
AM-243	7.047E-02
ANH-511	3.001E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.999E-01	NOT IDENT.
NA-22	4.712E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.653E-02	NOT IDENT.
SC-46	5.082E-02	FAIL ABUN
V-48	1.318E-01	NOT IDENT.

CR-51	7.363E-01	NOT IDENT.
MN-52	3.216E+00	NOT IDENT.
MN-54	4.184E-02	NOT IDENT.
CO-56	5.492E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.910E-02	NOT IDENT.
CO-58	4.787E-02	NOT IDENT.
FE-59	1.111E-01	NOT IDENT.
CO-60	4.464E-02	NOT IDENT.
ZN-65	1.031E-01	NOT IDENT.
GE-68	1.273E+00	NOT IDENT.
AS-73	1.252E+00	NOT IDENT.
AS-74	2.633E-01	NOT IDENT.
SE-75	5.761E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.693E-01	NOT IDENT.
RB-83	8.675E-02	NOT IDENT.
RB-84	1.103E-01	NOT IDENT.
KR-85	6.630E+00	NOT IDENT.
SR-85	4.342E-02	NOT IDENT.
RB-86	1.608E+00	NOT IDENT.
Y-88	4.177E-02	NOT IDENT.
Y-91	2.511E+01	NOT IDENT.
NB-94	4.602E-02	FAIL ABUN
NB-95	7.432E-02	NOT IDENT.
NB-95M	1.983E-01	NOT IDENT.
ZR-95	9.689E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.646E-02	NOT IDENT.
RH-102	5.357E-02	FAIL ABUN
RU-103	4.966E-02	FAIL ABUN
RH-106	3.143E-01	NOT IDENT.
RU-106	3.143E-01	NOT IDENT.
AG-108M	3.032E-02	NOT IDENT.
AG-110	6.772E-01	NOT IDENT.
AG-110M	5.680E-02	FAIL ABUN
SN-113	5.706E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.911E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.095E-02	NOT IDENT.
SB-124	7.544E-02	NOT IDENT.
SB-125	1.035E-01	FAIL ABUN
TE-125M	1.479E+01	NOT IDENT.
I-126	7.575E-01	FAIL ABUN
SB-126	4.202E-01	NOT IDENT.
SB-127	4.664E+01	NOT IDENT.
I-131	7.251E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.618E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	5.264E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.617E-01	NOT IDENT.
BA-137M	3.396E-02	NOT IDENT.
CS-137	3.588E-02	NOT IDENT.
LA-138	5.864E-02	NOT IDENT.
CE-139	3.791E-02	NOT IDENT.
BA-140	8.404E-01	FAIL ABUN
LA-140	2.884E-01	NOT IDENT.
CE-141	1.121E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.359E-01	FAIL ABUN
PM-144	3.350E-02	NOT IDENT.
PR-144	2.528E+00	NOT IDENT.
PM-146	4.553E-02	NOT IDENT.
ND-147	2.353E+00	FAIL ABUN
PM-147	8.367E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.122E-02	FAIL ABUN
EU-152	1.152E-01	FAIL ABUN
GD-153	9.454E-02	NOT IDENT.
EU-154	1.312E-01	FAIL ABUN
EU-155	1.219E-01	FAIL ABUN

TB-160	1.418E-01	FAIL ABUN
HO-166M	5.767E-02	FAIL ABUN
TM-171	2.175E+01	FAIL ABUN
HF-172	2.322E-01	FAIL ABUN
LU-172	6.737E-02	FAIL ABUN
LU-176	2.927E-02	FAIL ABUN
HF-181	6.350E-02	NOT IDENT.
TA-182	2.196E-01	FAIL ABUN
RE-183	3.040E-01	FAIL ABUN
RE-184	2.301E-01	NOT IDENT.
W-188	1.002E+01	FAIL ABUN
IR-192	5.178E-02	FAIL ABUN
HG-203	5.864E-02	NOT IDENT.
TL-204	6.180E+00	FAIL ABUN
BI-207	5.194E-02	FAIL ABUN
BI-210	5.153E+00	NOT IDENT.
PB-210	5.153E+00	NOT IDENT.
PB-211	9.320E-01	NOT IDENT.
BI-212	6.375E-01	NOT IDENT.
BI-213	1.196E-01	NOT IDENT.
RN-219	4.887E-01	FAIL ABUN
AC-225	2.964E+00	NOT IDENT.
AC-227	3.161E-01	FAIL ABUN
TH-227	3.161E-01	FAIL ABUN
TH-229	5.801E-01	FAIL ABUN
PA-231	5.213E-01	NOT IDENT.
PA-233	7.659E-02	NOT IDENT.
PA-234	2.777E-01	NOT IDENT.
NP-237	7.659E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	3.104E-01	NOT IDENT.
PU-239	4.139E+02	NOT IDENT.
AM-241	1.830E-01	NOT IDENT.
CM-243	1.158E-01	NOT IDENT.
BK-247	9.320E-02	FAIL ABUN
CM-247	4.362E-02	NOT IDENT.
CF-249	4.660E-02	NOT IDENT.
CF-251	1.466E-01	NOT IDENT.

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*                                     DETECTOR AND SAMPLE DATA                *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781347.CNF;1 *
* Acquisition date   : 31-JUL-2024 16:15:47 Sensitivity      : 3.000          *
* Detector ID        : GAM28 Energy tolerance: 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000          *
* Elapsed real time  : 0 01:00:00.73 Half life ratio : *****          *
* Sample date        : 26-JUN-2024 10:50:00 Nuclide Library : SOLID          *
* Sample ID          : G1205781347 Analyst initials: MXR1          *
* Batch Number       : 2636543 Sample Quantity : 1.0654E+02 GRAM          *
*                                     Quantity Err(%) : 1.8772E-03 %          *
* Wet wt corr        : 1.00000 Wet Weight : 0.00000          *
*                                     Dry Weight : 0.00000          *
*****
*                                     CALIBRATION INFORMATION                  *
*                                     *                                       *
* Eff. Cal. date     : 19-MAR-2024 04:24:53 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	3.680E+00	1.184E+00	1.184E+00
CD-109	4.538E+00	1.817E+00	1.817E+00
SN-126	4.304E-01	1.708E-01	1.708E-01
TL-208	3.052E-01	1.143E-01	1.143E-01
BI-211	1.681E+01	1.801E+00	1.801E+00
PB-212	9.288E-01	1.773E-01	1.773E-01
BI-214	4.609E+00	5.751E-01	5.751E-01
PB-214	6.101E+00	6.459E-01	6.459E-01
RN-222	4.609E+00	5.751E-01	5.751E-01
RA-223	-1.021E-01	9.186E-01	9.186E-01
RA-224	1.044E+01	1.973E+00	1.973E+00
RA-226	6.101E+00	6.459E-01	6.459E-01
AC-228	8.725E-01	4.213E-01	4.213E-01
RA-228	8.725E-01	4.213E-01	4.213E-01
TH-228	9.288E-01	1.773E-01	1.773E-01
TH-230	6.101E+00	6.459E-01	6.459E-01
TH-231	-1.021E-01	9.186E-01	9.186E-01
TH-232	8.725E-01	4.213E-01	4.213E-01
PA-234M	1.057E+01	8.643E+00	8.643E+00
TH-234	4.198E+00	4.032E+00	4.032E+00
U-234	6.101E+00	6.459E-01	6.459E-01
U-235	5.981E-01	4.146E-01	4.146E-01
U-238	4.198E+00	4.032E+00	4.032E+00
AM-243	5.503E-01	1.337E-01	1.337E-01
ANH-511	1.364E-01	1.013E-01	1.013E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.905E-01	6.070E-01	6.130E-01	NOT IDENT.
NA-22	2.246E-02	5.764E-02	5.852E-02	NOT IDENT.
NA-24	9.981E+14	5.056E+15	5.076E+15	SHORT HLIF
AL-26	-8.411E-03	3.575E-02	3.595E-02	NOT IDENT.
SC-46	1.528E-02	5.994E-02	6.033E-02	FAIL ABUN

V-48	-1.171E-01	1.921E-01	1.993E-01	NOT IDENT.
CR-51	-2.617E-01	8.626E-01	8.707E-01	NOT IDENT.
MN-52	-5.351E-01	3.959E+00	3.966E+00	NOT IDENT.
MN-54	-1.013E-02	5.291E-02	5.310E-02	NOT IDENT.
CO-56	-2.529E-02	7.132E-02	7.223E-02	FAIL ABUN
MN-56	-1.000E+41	2.844E+41	0.000E+00	SHORT HLIF
CO-57	-2.066E-02	3.623E-02	3.740E-02	NOT IDENT.
CO-58	-2.827E-02	6.343E-02	6.470E-02	NOT IDENT.
FE-59	2.775E-02	1.245E-01	1.252E-01	NOT IDENT.
CO-60	-3.919E-03	5.372E-02	5.375E-02	NOT IDENT.
ZN-65	3.750E-02	1.288E-01	1.299E-01	NOT IDENT.
GE-68	5.018E-01	1.394E+00	1.412E+00	NOT IDENT.
AS-73	2.024E-01	1.420E+00	1.423E+00	NOT IDENT.
AS-74	2.021E-01	2.913E-01	3.052E-01	NOT IDENT.
SE-75	-9.502E-03	7.292E-02	7.305E-02	NOT IDENT.
BR-77	5.108E+04	5.286E+04	5.765E+04	SHORT HLIF
SR-82	3.289E-01	6.341E-01	6.512E-01	NOT IDENT.
RB-83	-1.567E-04	1.024E-01	1.024E-01	NOT IDENT.
RB-84	9.447E-02	1.177E-01	1.252E-01	NOT IDENT.
KR-85	3.029E-01	8.668E+00	8.669E+00	NOT IDENT.
SR-85	2.006E-03	5.676E-02	5.677E-02	NOT IDENT.
RB-86	9.773E-01	1.696E+00	1.752E+00	NOT IDENT.
Y-88	2.966E-02	3.974E-02	4.193E-02	NOT IDENT.
Y-91	-6.873E+00	3.072E+01	3.087E+01	NOT IDENT.
NB-94	9.280E-02	5.110E-02	6.604E-02	FAIL ABUN
NB-95	9.100E-02	8.725E-02	9.642E-02	NOT IDENT.
NB-95M	5.927E-02	2.612E-01	2.626E-01	NOT IDENT.
ZR-95	3.366E-02	1.125E-01	1.135E-01	NOT IDENT.
NB-97	1.000E+41	3.729E+41	0.000E+00	SHORT HLIF
ZR-97	9.910E+14	9.028E+14	1.007E+15	SHORT HLIF
MO-99	1.095E+02	2.544E+03	2.545E+03	SHORT HLIF
TC-99M	3.054E+40	7.409E+40	0.000E+00	SHORT HLIF
RH-101	-2.903E-02	4.589E-02	4.772E-02	NOT IDENT.
RH-102	-1.967E-02	6.725E-02	6.784E-02	FAIL ABUN
RU-103	-6.007E-02	6.830E-02	7.347E-02	FAIL ABUN
RH-106	-1.389E-01	3.976E-01	4.025E-01	NOT IDENT.
RU-106	-1.389E-01	3.976E-01	4.025E-01	NOT IDENT.
AG-108M	-9.011E-03	3.640E-02	3.662E-02	NOT IDENT.
AG-110	-3.462E-01	9.216E-01	9.348E-01	NOT IDENT.
AG-110M	8.995E-03	6.839E-02	6.851E-02	FAIL ABUN
SN-113	1.072E-02	6.494E-02	6.512E-02	NOT IDENT.
CD-115	-3.239E+03	8.667E+03	8.789E+03	SHORT HLIF
SN-117M	1.966E-01	2.172E-01	2.346E-01	NOT IDENT.
SB-122	3.872E+00	4.671E+02	4.671E+02	SHORT HLIF
TE-123M	5.260E-02	4.595E-02	5.170E-02	NOT IDENT.
SB-124	-9.674E-03	9.567E-02	9.577E-02	NOT IDENT.
SB-125	-3.129E-02	1.239E-01	1.247E-01	FAIL ABUN
TE-125M	-6.671E-01	1.755E+01	1.755E+01	NOT IDENT.
I-126	1.912E+00	1.498E+00	1.728E+00	FAIL ABUN
SB-126	-1.800E-01	5.390E-01	5.451E-01	NOT IDENT.
SB-127	1.497E+00	5.599E+01	5.600E+01	NOT IDENT.
I-131	-1.750E-01	8.524E-01	8.561E-01	FAIL ABUN
I-132	1.000E+41	4.425E+41	0.000E+00	SHORT HLIF
TE-132	2.534E+01	8.409E+01	8.486E+01	SHORT HLIF
BA-133	2.315E-02	5.587E-02	5.684E-02	FAIL ABUN
I-133	1.274E+09	7.745E+10	7.745E+10	SHORT HLIF
CS-134	8.746E-02	5.176E-02	6.506E-02	NOT IDENT.
I-135	-2.270E+36	8.488E+37	0.000E+00	SHORT HLIF
CS-136	1.125E-01	4.047E-01	4.079E-01	NOT IDENT.
BA-137M	-7.084E-03	4.723E-02	4.733E-02	NOT IDENT.
CS-137	-7.484E-03	4.989E-02	5.000E-02	NOT IDENT.
LA-138	6.084E-03	6.863E-02	6.868E-02	NOT IDENT.
CE-139	-3.589E-02	4.930E-02	5.189E-02	NOT IDENT.
BA-140	-4.208E-01	1.049E+00	1.066E+00	FAIL ABUN
LA-140	-4.462E-02	3.588E-01	3.594E-01	NOT IDENT.
CE-141	6.268E-02	1.402E-01	1.430E-01	NOT IDENT.
CE-143	2.492E+07	6.867E+06	1.317E+07	SHORT HLIF
CE-144	-2.014E-02	2.837E-01	2.839E-01	FAIL ABUN
PM-144	-3.466E-03	4.101E-02	4.104E-02	NOT IDENT.
PR-144	-2.823E-01	3.099E+00	3.101E+00	NOT IDENT.
PM-146	-5.435E-03	5.716E-02	5.722E-02	NOT IDENT.
ND-147	-9.902E-02	2.793E+00	2.794E+00	FAIL ABUN
PM-147	-4.995E+01	9.995E+02	9.997E+02	NOT IDENT.
PM-149	1.238E+03	7.213E+04	7.213E+04	SHORT HLIF
EU-150	-1.716E-02	4.165E-02	4.236E-02	FAIL ABUN
EU-152	-6.835E-02	1.381E-01	1.415E-01	FAIL ABUN
GD-153	-8.055E-02	1.269E-01	1.320E-01	NOT IDENT.
EU-154	6.003E-02	1.611E-01	1.634E-01	FAIL ABUN

EU-155	6.860E-02	1.393E-01	1.427E-01	FAIL	ABUN
TB-160	-1.177E-01	1.987E-01	2.057E-01	FAIL	ABUN
HO-166M	1.430E-02	6.732E-02	6.762E-02	FAIL	ABUN
TM-171	-1.982E+01	2.653E+01	2.799E+01	FAIL	ABUN
HF-172	5.740E-02	2.731E-01	2.743E-01	FAIL	ABUN
LU-172	4.038E-02	7.191E-02	7.418E-02	FAIL	ABUN
LU-176	-1.953E-02	3.924E-02	4.021E-02	FAIL	ABUN
HF-181	-6.200E-02	8.216E-02	8.678E-02	NOT IDENT.	
TA-182	1.407E-01	2.358E-01	2.442E-01	FAIL	ABUN
RE-183	1.883E-01	3.374E-01	3.479E-01	FAIL	ABUN
RE-184	1.745E-01	2.567E-01	2.685E-01	NOT IDENT.	
W-188	-7.780E+00	1.475E+01	1.516E+01	FAIL	ABUN
IR-192	4.567E-02	5.541E-02	5.912E-02	FAIL	ABUN
HG-203	-1.373E-02	7.495E-02	7.521E-02	NOT IDENT.	
TL-204	-2.271E+00	7.886E+00	7.952E+00	FAIL	ABUN
BI-207	3.740E-02	5.394E-02	5.652E-02	FAIL	ABUN
BI-210	-3.237E+00	6.088E+00	6.261E+00	NOT IDENT.	
PB-210	-3.237E+00	6.088E+00	6.261E+00	NOT IDENT.	
PB-211	6.934E-01	1.020E+00	1.067E+00	NOT IDENT.	
BI-212	5.548E-01	7.010E-01	7.443E-01	NOT IDENT.	
BI-213	-9.209E-03	1.405E-01	1.406E-01	NOT IDENT.	
RN-219	5.943E-02	6.222E-01	6.228E-01	FAIL	ABUN
AC-225	1.435E+00	3.535E+00	3.593E+00	NOT IDENT.	
AC-227	4.050E-03	4.276E-01	4.276E-01	FAIL	ABUN
TH-227	4.050E-03	4.276E-01	4.276E-01	FAIL	ABUN
TH-229	-1.580E-01	7.864E-01	7.896E-01	FAIL	ABUN
PA-231	-8.961E-01	8.521E-01	9.430E-01	NOT IDENT.	
PA-233	1.549E-03	8.719E-02	8.720E-02	NOT IDENT.	
PA-234	-3.291E-01	5.560E-01	5.755E-01	NOT IDENT.	
NP-237	1.549E-03	8.719E-02	8.720E-02	NOT IDENT.	
NP-238	-9.884E+03	1.678E+04	1.736E+04	SHORT HLIF	
NP-239	9.025E-02	3.623E-01	3.646E-01	NOT IDENT.	
PU-239	2.980E+02	4.742E+02	4.928E+02	NOT IDENT.	
AM-241	-1.446E-01	2.394E-01	2.481E-01	NOT IDENT.	
CM-243	-1.686E-02	1.379E-01	1.381E-01	NOT IDENT.	
BK-247	-6.579E-02	1.354E-01	1.386E-01	FAIL	ABUN
CM-247	1.391E-02	5.441E-02	5.477E-02	NOT IDENT.	
CF-249	-4.822E-03	5.435E-02	5.440E-02	NOT IDENT.	
CF-251	-4.154E-02	1.814E-01	1.824E-01	NOT IDENT.	

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	77.4082	85.43	123.2393	131.20	95.7355
45.60	68.2661	86.55	121.5809	133.02	82.4271
46.54	87.7644	86.79	121.6376	133.52	93.9729
49.72	0.0000	86.94	121.6741	136.00	88.0234
51.35	78.2971	87.09	121.7097	136.47	76.5489
51.87	81.9733	87.57	117.9557	140.51	0.0000
52.39	82.0898	88.03	118.0609	143.76	97.4692
52.97	81.3253	88.34	118.1317	144.24	97.5338
53.44	69.7961	88.47	118.1614	145.44	86.3683
54.07	65.4322	89.96	88.0658	152.43	122.2052
57.36	0.0000	1093.63	88.1799	153.25	109.4614
57.53	78.6901	91.11	88.2587	323.87	101.0038
57.98	75.1583	92.59	88.5050	156.02	108.7827
59.27	87.2146	93.35	88.6302	158.56	82.1277
59.32	87.2256	94.56	88.8294	159.00	80.0116
59.54	104.2434	94.65	88.8439	162.33	94.4699
60.96	97.3140	94.67	88.8474	162.66	87.9918
61.17	97.3645	94.87	88.8806	163.33	97.8511
62.93	110.0063	97.43	101.1150	165.86	109.0714
63.29	110.1020	98.43	98.6664	176.31	92.8004
63.58	110.1791	98.44	98.6687	176.60	92.8325
64.28	110.3638	99.53	81.0660	177.52	82.9765
66.73	116.5533	100.11	87.0876	181.07	0.0000
67.24	116.6907	102.03	90.3620	181.52	69.6614
125.81	126.0806	103.18	91.5388	184.41	100.3835
67.75	126.1003	103.37	91.5690	143.76	100.5359
68.89	133.8673	105.21	85.8701	193.51	81.1450
69.67	121.6885	105.31	85.8845	197.03	89.0065
70.82	140.6764	106.12	101.0046	198.01	69.4707
70.83	140.6799	106.47	101.0647	201.83	75.0698
72.81	133.7968	109.28	108.5834	203.43	80.5179
72.87	133.8142	111.00	107.8866	205.31	95.9035
74.66	160.7031	111.76	0.0000	210.85	86.1351
74.82	160.7578	114.06	105.3893	215.65	86.5688
74.97	160.8099	116.30	0.0000	218.12	75.2177
77.11	161.5469	116.74	91.5971	222.11	75.5252
78.74	129.1747	119.76	84.8782	227.09	75.9051
79.69	129.4299	121.12	89.1585	227.38	87.6091
80.03	119.9957	121.22	89.1725	228.16	0.0000
80.12	120.0197	121.78	80.0174	228.18	74.8193
80.19	120.0370	122.06	99.5517	116.74	74.8193
80.57	120.1312	122.92	99.6849	235.69	94.2175
81.00	120.2370	123.07	87.3729	235.96	91.1005
81.07	120.2543	265.00	96.7145	238.63	95.6672
81.75	120.4216	125.81	98.0622	238.98	0.0000
82.47	91.8845	127.23	113.7891	240.99	95.8847
83.79	142.0313	127.91	111.8352	242.00	95.9774
84.00	126.7289	129.30	92.3516	244.70	71.2766

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	55.0405	344.28	59.3572	563.25	21.5972
252.80	51.4700	345.93	51.6772	564.24	0.0000
254.15	0.0000	351.06	51.0068	569.33	26.5869
256.23	72.0461	351.93	51.0392	946.00	26.5891
260.90	0.0000	355.39	0.0000	569.70	29.5459
264.66	61.7080	356.01	33.8370	583.19	29.7437
264.80	61.7158	364.49	42.7693	584.27	29.7595
265.00	72.6196	366.42	0.0000	595.83	26.9341
269.46	64.4013	372.51	34.2321	427.87	34.9943
270.03	64.4336	375.05	39.5682	602.52	0.0000
271.23	64.5016	377.52	50.2043	604.72	27.0494
273.65	61.7933	356.01	45.1137	607.14	25.0743
276.40	63.5702	388.16	44.3573	609.32	25.1007
277.37	55.0594	388.63	46.1464	610.33	25.1119
277.60	63.6368	391.69	37.3481	614.28	27.1714
278.00	64.8817	264.66	38.6437	618.01	19.1546
279.20	61.2732	401.81	42.9697	620.36	24.2217
279.54	42.9041	402.40	37.6130	621.93	24.2393
279.70	42.9094	404.85	40.3647	630.19	0.0000
280.46	62.5656	410.95	40.5240	631.29	23.3304
283.69	43.0557	413.71	40.5954	633.25	24.3662
284.31	55.3862	414.70	40.6210	634.78	9.1439
285.41	68.9900	423.72	44.4850	635.95	16.2643
285.90	0.0000	427.09	38.2103	636.99	14.2381
287.50	50.5994	427.87	40.0496	657.50	20.9396
290.67	67.6460	433.94	32.8909	657.76	18.4783
293.27	0.0000	439.40	42.1685	657.90	0.0000
351.93	64.5890	440.45	37.6092	661.66	21.5956
295.96	66.2858	453.88	30.5165	664.57	0.0000
879.38	48.1599	463.37	20.4585	666.33	19.5791
299.98	58.1909	468.07	21.2609	666.50	19.5806
300.09	58.1952	473.00	32.7306	667.71	0.0000
300.13	58.1980	475.06	32.7691	677.62	16.5697
301.36	74.9011	476.78	45.9225	685.70	17.6668
302.85	53.3268	477.60	42.1930	692.65	0.0000
256.23	41.3004	482.18	39.4835	695.00	23.9976
304.85	41.3114	487.02	33.9360	696.49	19.8365
306.78	57.6755	492.35	0.0000	696.51	19.8365
308.46	51.8937	497.08	30.3353	697.00	23.8094
311.90	52.8755	505.52	28.5718	697.30	18.7991
316.51	41.2750	507.63	0.0000	697.49	18.8005
319.41	67.5391	511.00	27.7023	702.65	27.2156
320.08	59.9727	514.00	24.3981	706.68	28.3107
321.04	51.5643	514.00	24.3981	711.68	15.7611
323.87	60.9961	520.40	25.9222	720.70	22.1484
325.23	64.4513	520.69	0.0000	721.93	0.0000
328.76	59.5239	522.65	0.0000	722.78	26.3906
333.37	65.5344	527.90	0.0000	722.91	24.2803
333.97	58.9052	528.26	36.6362	723.31	24.2840
334.37	49.9557	529.59	24.1201	724.19	24.2934
338.28	53.9561	529.87	0.0000	727.33	21.1515
338.32	53.9573	531.02	32.8282	733.00	22.2612
311.90	61.7651	537.26	31.9674	735.93	20.1651
340.48	61.7651	546.56	0.0000	333.97	25.4873
340.55	61.7681	552.55	22.4572	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	22.3629	949.00	16.0662	1384.29	1.5572
747.24	22.3903	667.71	0.0000	1408.01	12.5289
748.06	17.0645	962.31	25.9341	1434.09	10.8342
752.31	26.7090	964.08	6.9197	1435.80	7.8823
753.82	27.7943	966.17	0.0000	1457.56	0.0000
756.73	18.1939	911.20	12.1291	1460.82	7.9287
756.80	18.1946	983.53	15.0879	1489.16	7.9805
884.68	19.3198	984.45	0.0000	1505.03	6.0073
765.81	24.1672	1274.44	10.4879	1584.12	15.2838
766.42	23.6364	1001.03	19.6075	1596.21	9.1939
766.84	23.6400	1002.74	9.8089	1620.50	4.1077
772.60	0.0000	1004.73	15.4242	1621.92	9.2450
776.52	11.8647	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	3.1263
778.90	21.5926	1028.54	0.0000	1750.46	0.0000
783.70	23.7957	1037.84	24.7939	1764.49	1.6923
788.74	23.8423	1038.76	0.0000	1063.66	1.2102
792.07	19.5322	631.29	19.5333	1771.35	3.1772
795.86	8.6937	1048.07	16.8766	1791.20	0.0000
810.06	23.6004	1049.04	14.2168	1808.65	4.2676
810.29	24.9134	1050.41	12.4448	1810.72	0.0000
344.28	22.9474	1063.66	8.0321	1836.06	1.0725
810.76	22.9508	1077.00	8.0645		
815.77	16.4240	1077.34	9.8580		
1048.07	24.1135	1085.87	9.8828		
832.01	19.8281	1093.63	9.9056		
834.85	24.2603	1099.45	9.9224		
835.71	25.3706	1112.07	17.5905		
836.80	0.0000	1112.84	20.5264		
846.75	0.0000	1115.54	15.9511		
846.77	27.6886	1120.29	14.5205		
856.80	21.1199	1120.55	14.5215		
860.56	20.0354	1221.41	8.7152		
871.09	7.8209	1129.67	16.0166		
873.19	14.5356	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	19.0496	1173.23	11.0559		
880.51	22.4202	1177.95	12.9148		
881.60	8.9717	1189.05	8.3282		
883.24	13.4648	1204.77	16.7278		
884.68	16.8396	1221.41	11.2024		
889.28	15.7426	1231.02	7.4878		
894.76	15.7728	1235.36	14.0561		
898.04	18.0462	1238.28	14.0671		
900.72	15.8053	1260.41	0.0000		
903.28	15.8195	1271.87	9.4611		
911.20	14.7292	1274.44	10.6039		
912.08	10.2004	1274.54	10.6039		
923.98	0.0000	1291.59	8.5589		
926.50	13.6675	1298.22	0.0000		
929.11	18.8096	1312.11	7.6475		
935.54	12.5666	1332.49	13.4523		
937.49	18.8626	1362.66	0.0000		
944.13	12.6028	1365.19	11.0714		
946.00	22.9289	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 1-AUG-2024 10:35:57.88

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781348.CNF;2
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM07.CNF;884
Background date    : 28-JUL-2024 09:24:38
Sample date       : 9-JUL-2024 00:00:00. Acquisition date : 1-AUG-2024 10:05:23.
Sample ID        : G1205781348. Sample quantity : 1.15000E+02 GRAM
Detector name     : GAM07. Detector geometry: CAN
Elapsed live time : 0 00:30:00.00 Elapsed real time: 0 00:30:05.63 0.3%
Energy tolerance  : 1.50000 keV Analyst Initials : MXR1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636543 Detector SN# :
Matrix Spike ID   : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.49*	10906	7355	0.96	93.86	89	9	6.06E+00	1.7	
2	5	58.13	1097	5932	1.49	117.13	114	12	6.09E-01	17.9	2.13E+00
3	5	59.59	33291	3372	0.97	120.05	114	12	1.85E+01	0.6	
4	1	88.18	122	476	0.92	177.20	175	8	6.77E-02	24.5	2.49E+00
5	1	89.54	70	794	0.89	179.92	175	8	3.88E-02	63.1	
6	0	176.41	63	699	1.52	353.61	350	7	3.52E-02	70.3	
7	0	245.55	66	548	1.36	491.83	490	6	3.68E-02	57.3	
8	0	320.28	48	634	1.33	641.25	639	8	2.66E-02	91.9	
9	0	336.27	31	665	1.34	673.22	668	8	1.73E-02	145.5	
10	0	384.65	80	700	1.49	769.94	767	9	4.46E-02	60.4	
11	0	494.39	40	384	1.25	989.35	987	7	2.22E-02	83.0	
12	0	661.69	20972	423	1.58	1323.87	1316	16	1.17E+01	0.7	
13	0	828.41	22	294	4.15	1657.23	1652	12	1.22E-02	157.3	
14	0	837.70	69	300	0.64	1675.82	1666	16	3.85E-02	57.2	
15	4	851.24	41	180	1.71	1702.88	1699	15	2.27E-02	57.3	2.65E+00
16	4	854.33	69	195	1.73	1709.07	1699	15	3.82E-02	41.0	
17	0	1058.46	30	272	0.87	2117.26	2110	15	1.65E-02	123.7	
18	0	1069.10	254	504	9.85	2138.54	2124	34	1.41E-01	27.8	
19	0	1173.21	5754	200	1.96	2346.72	2337	19	3.20E+00	1.4	
20	0	1222.85	36	24	2.54	2446.00	2442	9	1.98E-02	30.8	
21	0	1332.46*	5276	39	1.98	2665.18	2654	22	2.93E+00	1.4	
22	0	1414.59	11	3	0.79	2829.44	2826	8	6.11E-03	42.6	
23	0	1448.45	5	10	1.45	2897.16	2889	10	2.87E-03	131.6	
24	0	1451.08	12	0	2.13	2902.42	2898	9	6.67E-03	28.9	
25	0	1455.02	8	2	0.78	2910.29	2906	8	4.53E-03	45.9	
26	4	1552.38	8	1	2.25	3105.01	3103	12	4.50E-03	26.3	1.36E+00
27	4	1555.23	19	2	2.56	3110.71	3103	12	1.04E-02	24.0	
28	0	1607.13	10	6	3.92	3214.50	3209	12	5.35E-03	60.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781348.CNF;2		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: MXR1		
Sample date	: 9-JUL-2024 00:00:00	Acquisition date	: 1-AUG-2024 10:05:23
Sample ID	: G1205781348	Sample quantity	: 115.00 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA7	Detector geometry	: CAN
Elapsed live time	: 0 00:30:00.00	Elapsed real time	: 0 00:30:05.63 0.3%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CR-51	320.08	48	9.91*	3.867E+00	1.642E+00	2.951E+00	183.87
CO-60	1173.23	5481	99.85	1.279E+00	5.604E+01	5.652E+01	2.89
	1332.49	4997	99.98*	1.136E+00	5.747E+01	5.796E+01	2.82
CD-109	88.03	129	3.70*	5.883E+00	7.760E+00	8.038E+00	48.98
SN-126	64.28	-----	9.60	3.275E+00	-----	Line Not Found	-----
	86.94	129	8.90	5.883E+00	3.226E+00	3.226E+00	48.98
	87.57	129	37.00*	5.883E+00	7.760E-01	7.760E-01	48.98
BA-137M	661.66	20483	89.90*	2.214E+00	1.344E+02	1.346E+02	1.45
CS-137	661.66	20483	85.10*	2.214E+00	1.420E+02	1.422E+02	1.45
BI-210	46.54	11874	4.25*	7.572E-01	4.818E+03	4.827E+03	3.43
PB-210	46.54	11874	4.25*	7.572E-01	4.818E+03	4.827E+03	3.43
AM-241	59.54	35898	35.90*	2.558E+00	5.103E+02	5.104E+02	1.25

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781348.CNF;2
Acquisition date : 1-AUG-2024 10:05:23 Sensitivity : 3.000
Detector ID : GAM07 Energy tolerance: 1.500
Elapsed live time: 0 00:30:00.00 Abundance limit : 75.000
Elapsed real time: 0 00:30:05.63 Half life ratio : *****
Sample date : 9-JUL-2024 00:00:00 Analyst initials: MXR1
Sample ID : G1205781348 Sample Quantity : 1.1500E+02 GRAM
Batch Number : 2636543 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
CR-51	2.951E+00	5.317E+00	5.870E+00
CO-60	5.796E+01	1.601E+00	2.962E-01
CD-109	8.038E+00	3.858E+00	7.719E+00
SN-126	7.760E-01	3.725E-01	7.635E-01
BA-137M	1.346E+02	1.911E+00	4.397E-01
CS-137	1.422E+02	2.019E+00	4.645E-01
BI-210	4.827E+03	1.621E+02	1.058E+02
PB-210	4.827E+03	1.621E+02	1.058E+02
AM-241	5.104E+02	6.231E+00	3.230E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-6.172E-01	3.713E+00	6.437E+00	NOT IDENT.
NA-22	-1.107E-02	1.629E-01	3.008E-01	NOT IDENT.
NA-24	0.000E+00	2.214E+10	0.000E+00	SHORT HLIF
AL-26	5.280E-02	1.105E-01	2.464E-01	NOT IDENT.
K-40	1.136E-01	1.095E+00	2.240E+00	NOT IDENT.
SC-46	-2.105E-02	3.481E-01	6.260E-01	NOT IDENT.
V-48	2.827E-02	8.604E-01	1.542E+00	NOT IDENT.
MN-52	-4.421E-01	2.215E+00	4.120E+00	NOT IDENT.
MN-54	-7.634E-02	2.983E-01	4.715E-01	NOT IDENT.
CO-56	-1.373E-01	4.050E-01	5.908E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.672E-02	1.600E-01	2.759E-01	NOT IDENT.
CO-58	1.422E-01	3.201E-01	5.578E-01	NOT IDENT.
FE-59	3.020E-01	9.241E-01	1.660E+00	NOT IDENT.
ZN-65	4.974E-01	7.302E-01	1.336E+00	NOT IDENT.
GE-68	-7.803E-01	1.193E+01	1.861E+01	NOT IDENT.
AS-73	-9.990E+00	1.441E+01	2.546E+01	NOT IDENT.
AS-74	4.689E-01	9.205E-01	1.636E+00	NOT IDENT.
SE-75	-6.018E-02	3.353E-01	6.074E-01	NOT IDENT.
BR-77	1.579E+02	7.541E+02	1.262E+03	NOT IDENT.
SR-82	6.916E-01	2.922E+00	5.065E+00	NOT IDENT.

RB-83	-1.745E-02	6.401E-01	1.114E+00	NOT IDENT.
RB-84	2.902E-01	7.113E-01	1.305E+00	NOT IDENT.
KR-85	1.515E+01	5.709E+01	1.004E+02	NOT IDENT.
SR-85	8.747E-02	3.301E-01	5.804E-01	NOT IDENT.
RB-86	1.693E+00	9.829E+00	1.561E+01	NOT IDENT.
Y-88	-7.021E-02	1.497E-01	2.798E-01	NOT IDENT.
Y-91	2.470E+01	1.078E+02	1.998E+02	NOT IDENT.
NB-94	1.128E-01	2.085E-01	3.712E-01	NOT IDENT.
NB-95	-5.542E-02	3.110E-01	5.254E-01	NOT IDENT.
NB-95M	1.805E-01	9.714E-01	1.617E+00	NOT IDENT.
ZR-95	2.636E-01	5.332E-01	9.406E-01	NOT IDENT.
NB-97	0.000E+00	1.460E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.747E+10	0.000E+00	SHORT HLIF
MO-99	1.447E+02	6.852E+02	1.190E+03	NOT IDENT.
TC-99M	0.000E+00	2.015E+27	0.000E+00	SHORT HLIF
RH-101	-1.828E-01	1.987E-01	3.333E-01	NOT IDENT.
RH-102	-1.045E-01	4.012E-01	6.847E-01	NOT IDENT.
RU-103	1.823E-02	4.203E-01	6.595E-01	NOT IDENT.
RH-106	8.886E-01	2.232E+00	3.948E+00	NOT IDENT.
RU-106	8.886E-01	2.232E+00	3.948E+00	NOT IDENT.
AG-108M	1.154E-01	2.952E-01	5.236E-01	NOT IDENT.
AG-110	2.445E+00	6.521E+00	1.023E+01	NOT IDENT.
AG-110M	-6.517E-02	4.393E-01	7.859E-01	NOT IDENT.
SN-113	-3.496E-01	4.157E-01	7.180E-01	NOT IDENT.
CD-115	0.000E+00	1.239E+03	0.000E+00	SHORT HLIF
SN-117M	-1.119E-01	5.359E-01	9.063E-01	NOT IDENT.
SB-122	1.408E+00	1.147E+02	2.002E+02	NOT IDENT.
TE-123M	-5.887E-02	1.912E-01	3.222E-01	NOT IDENT.
SB-124	9.397E-02	2.996E-01	6.291E-01	NOT IDENT.
SB-125	1.268E-02	8.902E-01	1.565E+00	FAIL ABUN
TE-125M	-5.045E-01	6.520E+01	1.135E+02	NOT IDENT.
I-126	2.468E-01	2.394E+00	3.726E+00	NOT IDENT.
SB-126	-1.473E+00	1.556E+00	2.522E+00	NOT IDENT.
SB-127	-1.632E+01	3.791E+01	6.383E+01	NOT IDENT.
I-131	2.408E+00	2.035E+00	3.744E+00	NOT IDENT.
I-132	0.000E+00	1.768E+41	0.000E+00	SHORT HLIF
TE-132	5.067E+00	3.262E+01	5.442E+01	NOT IDENT.
BA-133	1.089E-01	3.381E-01	6.091E-01	FAIL ABUN
I-133	0.000E+00	3.540E+07	0.000E+00	SHORT HLIF
CS-134	-1.245E-01	2.864E-01	4.751E-01	NOT IDENT.
I-135	0.000E+00	3.111E+25	0.000E+00	SHORT HLIF
CS-136	-3.851E-01	1.396E+00	2.453E+00	FAIL ABUN
LA-138	-5.051E-02	1.826E-01	3.353E-01	NOT IDENT.
CE-139	-9.664E-02	1.921E-01	3.209E-01	NOT IDENT.
BA-140	-2.498E+00	3.263E+00	5.504E+00	NOT IDENT.
LA-140	1.427E-02	4.154E-01	8.202E-01	NOT IDENT.
CE-141	2.348E-01	4.672E-01	8.118E-01	NOT IDENT.
CE-143	0.000E+00	5.741E+04	0.000E+00	SHORT HLIF
CE-144	7.708E-01	1.245E+00	2.183E+00	NOT IDENT.
PM-144	1.025E-01	2.200E-01	3.899E-01	NOT IDENT.
PR-144	7.605E+00	1.653E+01	2.929E+01	NOT IDENT.
PM-146	-2.644E-01	4.316E-01	7.415E-01	NOT IDENT.
ND-147	-4.714E+00	7.496E+00	1.273E+01	FAIL ABUN
PM-147	-2.152E+02	4.531E+03	7.836E+03	NOT IDENT.
PM-149	0.000E+00	9.146E+03	0.000E+00	SHORT HLIF
EU-150	-8.456E-02	2.348E-01	3.734E-01	NOT IDENT.
EU-152	4.273E-02	7.713E-01	1.382E+00	FAIL ABUN
GD-153	-1.601E-01	5.263E-01	9.136E-01	NOT IDENT.
EU-154	-3.123E-02	4.597E-01	8.487E-01	NOT IDENT.
EU-155	-3.876E-01	6.307E-01	1.081E+00	NOT IDENT.
TB-160	-6.394E-01	1.215E+00	2.141E+00	FAIL ABUN
HO-166M	5.226E-01	4.121E-01	7.578E-01	NOT IDENT.
TM-171	-2.035E+02	2.837E+02	5.019E+02	NOT IDENT.
HF-172	-1.145E+00	1.199E+00	2.011E+00	NOT IDENT.
LU-172	-2.444E-01	5.521E-01	9.583E-01	FAIL ABUN
LU-176	-1.642E-02	1.998E-01	3.594E-01	FAIL ABUN
HF-181	-5.540E-01	4.705E-01	7.895E-01	FAIL ABUN
TA-182	1.537E+00	9.286E-01	1.730E+00	FAIL ABUN
RE-183	0.000E+00	8.548E+00	7.978E+00	FAIL ABUN
RE-184	2.023E-01	1.315E+00	2.375E+00	NOT IDENT.
W-188	2.660E+00	5.752E+01	1.042E+02	NOT IDENT.
IR-192	7.778E-02	2.859E-01	4.974E-01	NOT IDENT.
HG-203	-5.617E-02	3.140E-01	5.667E-01	NOT IDENT.
TL-204	7.119E+00	2.708E+01	4.855E+01	NOT IDENT.
BI-207	1.862E-01	4.888E-01	7.867E-01	NOT IDENT.
TL-208	1.446E-01	2.552E-01	4.565E-01	NOT IDENT.
BI-211	3.188E-01	1.628E+00	2.925E+00	NOT IDENT.
PB-211	6.764E+00	6.461E+00	1.174E+01	NOT IDENT.

BI-212	2.995E-01	3.263E+00	5.655E+00	NOT IDENT.
PB-212	-3.261E-03	4.305E-01	7.152E-01	NOT IDENT.
BI-213	-2.197E-02	1.037E+00	1.816E+00	NOT IDENT.
BI-214	1.226E-01	4.896E-01	8.613E-01	NOT IDENT.
PB-214	4.173E-02	5.861E-01	1.050E+00	FAIL ABUN
RN-219	-2.027E+00	3.657E+00	6.357E+00	NOT IDENT.
RN-222	1.226E-01	4.896E-01	8.613E-01	NOT IDENT.
RA-223	7.336E-01	5.356E+00	8.713E+00	NOT IDENT.
RA-224	1.986E+00	4.591E+00	7.696E+00	NOT IDENT.
AC-225	-5.245E-01	8.112E+00	1.346E+01	NOT IDENT.
RA-226	4.173E-02	5.861E-01	1.050E+00	FAIL ABUN
AC-227	-1.046E+00	1.963E+00	3.170E+00	NOT IDENT.
TH-227	-1.046E+00	1.963E+00	3.170E+00	NOT IDENT.
AC-228	6.192E-01	1.246E+00	2.284E+00	NOT IDENT.
RA-228	6.192E-01	1.246E+00	2.284E+00	NOT IDENT.
TH-228	-3.261E-03	4.305E-01	7.152E-01	NOT IDENT.
TH-229	-5.211E-01	3.963E+00	6.616E+00	FAIL ABUN
TH-230	4.173E-02	5.861E-01	1.050E+00	FAIL ABUN
PA-231	7.303E-01	3.474E+00	6.309E+00	NOT IDENT.
TH-231	7.336E-01	5.356E+00	8.713E+00	NOT IDENT.
TH-232	6.192E-01	1.246E+00	2.284E+00	NOT IDENT.
PA-233	2.279E-01	4.906E-01	8.955E-01	NOT IDENT.
PA-234	-1.220E+00	2.955E+00	5.185E+00	NOT IDENT.
PA-234M	-2.257E+00	3.738E+01	6.662E+01	NOT IDENT.
TH-234	-1.218E-01	8.260E+00	1.374E+01	NOT IDENT.
U-234	4.173E-02	5.861E-01	1.050E+00	FAIL ABUN
U-235	4.479E-01	1.240E+00	2.149E+00	FAIL ABUN
NP-237	2.279E-01	4.906E-01	8.955E-01	NOT IDENT.
NP-238	0.000E+00	2.594E+03	0.000E+00	SHORT HLIF
U-238	-1.218E-01	8.260E+00	1.374E+01	NOT IDENT.
NP-239	-1.348E-01	1.693E+00	2.928E+00	NOT IDENT.
PU-239	1.752E+03	2.108E+03	3.722E+03	NOT IDENT.
AM-243	3.373E-02	2.898E-01	5.161E-01	NOT IDENT.
CM-243	3.931E-01	6.489E-01	1.152E+00	NOT IDENT.
BK-247	-8.329E-02	5.762E-01	1.045E+00	NOT IDENT.
CM-247	-2.708E-01	3.395E-01	5.859E-01	NOT IDENT.
CF-249	1.771E-01	3.862E-01	6.257E-01	NOT IDENT.
CF-251	8.587E-01	1.183E+00	1.409E+00	FAIL ABUN
ANH-511	-6.502E-02	2.482E-01	4.384E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CR-51	320.08	48	9.91*	3.867E+00	1.642E+00	2.951E+00	183.87
CO-60	1173.23	5481	99.85	1.279E+00	5.604E+01	5.652E+01	2.89
	1332.49	4997	99.98*	1.136E+00	5.747E+01	5.796E+01	2.82
CD-109	88.03	129	3.70*	5.883E+00	7.760E+00	8.038E+00	48.98
SN-126	64.28	-----	9.60	3.275E+00	-----	Line Not Found	-----
	86.94	129	8.90	5.883E+00	3.226E+00	3.226E+00	48.98
	87.57	129	37.00*	5.883E+00	7.760E-01	7.760E-01	48.98
BA-137M	661.66	20483	89.90*	2.214E+00	1.344E+02	1.346E+02	1.45
CS-137	661.66	20483	85.10*	2.214E+00	1.420E+02	1.422E+02	1.45
BI-210	46.54	11874	4.25*	7.572E-01	4.818E+03	4.827E+03	3.43
PB-210	46.54	11874	4.25*	7.572E-01	4.818E+03	4.827E+03	3.43
AM-241	59.54	35898	35.90*	2.558E+00	5.103E+02	5.104E+02	1.25

Flag: "*" = Keyline

Total number of lines in spectrum 28
Number of unidentified lines 14
Number of lines tentatively identified by NID 14 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CR-51	27.70D	1.80	1.642E+00	2.951E+00	5.425E+00	183.87	
CO-60	5.27Y	1.01	5.747E+01	5.796E+01	0.163E+01	2.82	
CD-109	461.40D	1.04	7.760E+00	8.038E+00	3.937E+00	48.98	
SN-126	2.30E+05Y	1.00	7.760E-01	7.760E-01	3.801E-01	48.98	
BA-137M	30.08Y	1.00	1.344E+02	1.346E+02	0.020E+02	1.45	
CS-137	30.08Y	1.00	1.420E+02	1.422E+02	0.021E+02	1.45	
BI-210	22.20Y	1.00	4.818E+03	4.827E+03	0.165E+03	3.43	
PB-210	22.20Y	1.00	4.818E+03	4.827E+03	0.165E+03	3.43	
AM-241	432.60Y	1.00	5.103E+02	5.104E+02	0.064E+02	1.25	
Total Activity :			1.049E+04	1.051E+04			

Grand Total Activity : 1.049E+04 1.051E+04

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	58.13	1184	6402	1.49	117.13	114	12	6.09E-01	35.8	2.33E+00	T
1	89.54	74	843	0.89	179.92	175	8	3.88E-02	****	5.97E+00	T
0	176.41	65	721	1.52	353.61	350	7	3.52E-02	****	5.75E+00	T
0	245.55	67	558	1.36	491.83	490	6	3.68E-02	****	4.65E+00	T
0	336.27	31	668	1.34	673.22	668	8	1.73E-02	****	3.74E+00	
0	384.65	80	699	1.49	769.94	767	9	4.46E-02	****	3.39E+00	T
0	494.39	40	380	1.25	989.35	987	7	2.22E-02	****	2.82E+00	
0	828.41	21	284	4.15	1657.23	1652	12	1.22E-02	****	1.80E+00	
0	837.70	67	290	0.64	1675.82	1666	16	3.85E-02	****	1.78E+00	T
4	851.24	39	174	1.71	1702.88	1699	15	2.27E-02	****	1.75E+00	
4	854.33	66	189	1.73	1709.07	1699	15	3.82E-02	81.9	1.75E+00	
0	1058.46	28	261	0.87	2117.26	2110	15	1.65E-02	****	1.41E+00	
0	1069.10	243	482	9.85	2138.54	2124	34	1.41E-01	55.7	1.40E+00	
0	1222.85	34	23	2.54	2446.00	2442	9	1.98E-02	61.6	1.23E+00	T
0	1414.59	10	3	0.79	2829.44	2826	8	6.11E-03	85.3	1.08E+00	
0	1448.45	5	9	1.45	2897.16	2889	10	2.87E-03	****	1.06E+00	
0	1451.08	11	0	2.13	2902.42	2898	9	6.67E-03	57.7	1.06E+00	
0	1455.02	8	2	0.78	2910.29	2906	8	4.53E-03	91.8	1.05E+00	
4	1552.38	8	1	2.25	3105.01	3103	12	4.50E-03	52.7	1.00E+00	
4	1555.23	18	2	2.56	3110.71	3103	12	1.04E-02	48.0	1.00E+00	
0	1607.13	9	6	3.92	3214.50	3209	12	5.35E-03	****	9.80E-01	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781348.CNF;2 *
* Acquisition date : 1-AUG-2024 10:05:23 Sensitivity : 3.000 *
* Detector ID : GAM07 Energy tolerance: 1.500 *
* Elapsed live time: 0 00:30:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 00:30:05.63 Half life ratio : ***** *
* Sample date : 9-JUL-2024 00:00:00 Nuclide Library : SOLID *
* Sample ID : G1205781348 Analyst initials: MXR1 *
* Batch Number : 2636543 Sample Quantity : 1.1500E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
CR-51	2.853E+00
CO-60	1.325E-01
CD-109	3.775E+00
SN-126	3.736E-01
BA-137M	2.110E-01
CS-137	2.229E-01
BI-210	5.239E+01
PB-210	5.239E+01
AM-241	1.596E+00

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.140E+00	NOT IDENT.
NA-22	1.353E-01	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.041E-01	NOT IDENT.
K-40	9.630E-01	NOT IDENT.
SC-46	3.004E-01	NOT IDENT.
V-48	7.393E-01	NOT IDENT.
MN-52	1.759E+00	NOT IDENT.
MN-54	2.254E-01	NOT IDENT.
CO-56	2.832E-01	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.347E-01	NOT IDENT.
CO-58	2.669E-01	NOT IDENT.
FE-59	7.972E-01	NOT IDENT.
ZN-65	6.408E-01	NOT IDENT.
GE-68	8.893E+00	NOT IDENT.
AS-73	1.261E+01	NOT IDENT.
AS-74	7.873E-01	NOT IDENT.
SE-75	2.960E-01	NOT IDENT.
BR-77	6.160E+02	NOT IDENT.
SR-82	2.418E+00	NOT IDENT.
RB-83	5.397E-01	NOT IDENT.

RB-84	6.278E-01	NOT IDENT.
KR-85	4.870E+01	NOT IDENT.
SR-85	2.817E-01	NOT IDENT.
RB-86	7.458E+00	NOT IDENT.
Y-88	1.174E-01	NOT IDENT.
Y-91	9.274E+01	NOT IDENT.
NB-94	1.772E-01	NOT IDENT.
NB-95	2.511E-01	NOT IDENT.
NB-95M	7.896E-01	NOT IDENT.
ZR-95	4.491E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	5.683E+02	NOT IDENT.
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.627E-01	NOT IDENT.
RH-102	3.286E-01	NOT IDENT.
RU-103	3.194E-01	NOT IDENT.
RH-106	1.895E+00	NOT IDENT.
RU-106	1.895E+00	NOT IDENT.
AG-108M	2.556E-01	NOT IDENT.
AG-110	4.927E+00	NOT IDENT.
AG-110M	3.778E-01	NOT IDENT.
SN-113	3.498E-01	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	4.421E-01	NOT IDENT.
SB-122	9.626E+01	NOT IDENT.
TE-123M	1.572E-01	NOT IDENT.
SB-124	2.637E-01	NOT IDENT.
SB-125	7.634E-01	FAIL ABUN
TE-125M	5.542E+01	NOT IDENT.
I-126	1.778E+00	NOT IDENT.
SB-126	1.202E+00	NOT IDENT.
SB-127	3.041E+01	NOT IDENT.
I-131	1.826E+00	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	2.656E+01	NOT IDENT.
BA-133	2.967E-01	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	2.264E-01	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	1.174E+00	FAIL ABUN
LA-138	1.425E-01	NOT IDENT.
CE-139	1.563E-01	NOT IDENT.
BA-140	2.655E+00	NOT IDENT.
LA-140	3.433E-01	NOT IDENT.
CE-141	3.964E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.066E+00	NOT IDENT.
PM-144	1.862E-01	NOT IDENT.
PR-144	1.399E+01	NOT IDENT.
PM-146	3.617E-01	NOT IDENT.
ND-147	6.145E+00	FAIL ABUN
PM-147	3.823E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.818E-01	NOT IDENT.
EU-152	6.730E-01	FAIL ABUN
GD-153	4.465E-01	NOT IDENT.
EU-154	3.817E-01	NOT IDENT.
EU-155	5.274E-01	NOT IDENT.
TB-160	1.028E+00	FAIL ABUN
HO-166M	3.633E-01	NOT IDENT.
TM-171	2.484E+02	NOT IDENT.
HF-172	9.812E-01	NOT IDENT.
LU-172	4.585E-01	FAIL ABUN
LU-176	1.750E-01	FAIL ABUN
HF-181	3.836E-01	FAIL ABUN
TA-182	8.044E-01	FAIL ABUN
RE-183	3.962E+00	FAIL ABUN
RE-184	1.144E+00	NOT IDENT.
W-188	5.078E+01	NOT IDENT.
IR-192	2.419E-01	NOT IDENT.
HG-203	2.762E-01	NOT IDENT.
TL-204	2.374E+01	NOT IDENT.
BI-207	3.767E-01	NOT IDENT.
TL-208	2.199E-01	NOT IDENT.
BI-211	1.425E+00	NOT IDENT.
PB-211	5.730E+00	NOT IDENT.
BI-212	2.698E+00	NOT IDENT.

PB-212	3.491E-01	NOT IDENT.
BI-213	8.864E-01	NOT IDENT.
BI-214	4.144E-01	NOT IDENT.
PB-214	5.112E-01	FAIL ABUN
RN-219	3.098E+00	NOT IDENT.
RN-222	4.144E-01	NOT IDENT.
RA-223	4.242E+00	NOT IDENT.
RA-224	3.758E+00	NOT IDENT.
AC-225	6.577E+00	NOT IDENT.
RA-226	5.112E-01	FAIL ABUN
AC-227	1.544E+00	NOT IDENT.
TH-227	1.544E+00	NOT IDENT.
AC-228	1.101E+00	NOT IDENT.
RA-228	1.101E+00	NOT IDENT.
TH-228	3.491E-01	NOT IDENT.
TH-229	3.235E+00	FAIL ABUN
TH-230	5.112E-01	FAIL ABUN
PA-231	3.074E+00	NOT IDENT.
TH-231	4.242E+00	NOT IDENT.
TH-232	1.101E+00	NOT IDENT.
PA-233	4.362E-01	NOT IDENT.
PA-234	2.501E+00	NOT IDENT.
PA-234M	3.192E+01	NOT IDENT.
TH-234	6.717E+00	NOT IDENT.
U-234	5.112E-01	FAIL ABUN
U-235	1.049E+00	FAIL ABUN
NP-237	4.362E-01	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
U-238	6.717E+00	NOT IDENT.
NP-239	1.431E+00	NOT IDENT.
PU-239	1.818E+03	NOT IDENT.
AM-243	2.524E-01	NOT IDENT.
CM-243	5.631E-01	NOT IDENT.
BK-247	5.091E-01	NOT IDENT.
CM-247	2.856E-01	NOT IDENT.
CF-249	3.050E-01	NOT IDENT.
CF-251	6.870E-01	FAIL ABUN
ANH-511	2.128E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781348.CNF;2
Acquisition date : 1-AUG-2024 10:05:23 Sensitivity : 3.000
Detector ID : GAM07 Energy tolerance: 1.500
Elapsed live time: 0 00:30:00.00 Abundance limit : 75.000
Elapsed real time: 0 00:30:05.63 Half life ratio : *****
Sample date : 9-JUL-2024 00:00:00 Nuclide Library : SOLID
Sample ID : G1205781348 Analyst initials: MXR1
Batch Number : 2636543 Sample Quantity : 1.1500E+02 GRAM
Quantity Err(%) : 1.7391E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
CR-51	2.951E+00	5.324E+00	5.324E+00
CO-60	5.796E+01	7.003E+00	7.003E+00
CD-109	8.038E+00	3.953E+00	3.953E+00
SN-126	7.760E-01	3.795E-01	3.795E-01
BA-137M	1.346E+02	1.105E+01	1.105E+01
CS-137	1.422E+02	1.167E+01	1.167E+01
BI-210	4.827E+03	5.424E+02	5.424E+02
PB-210	4.827E+03	5.424E+02	5.424E+02
AM-241	5.104E+02	6.101E+01	6.101E+01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-6.172E-01	3.713E+00	3.724E+00	NOT IDENT.
NA-22	-1.107E-02	1.629E-01	1.630E-01	NOT IDENT.
NA-24	-1.880E+10	2.226E+10	2.381E+10	SHORT HLIF
AL-26	5.280E-02	1.106E-01	1.131E-01	NOT IDENT.
K-40	1.136E-01	1.095E+00	1.096E+00	NOT IDENT.
SC-46	-2.105E-02	3.481E-01	3.483E-01	NOT IDENT.
V-48	2.827E-02	8.604E-01	8.605E-01	NOT IDENT.
MN-52	-4.421E-01	2.215E+00	2.224E+00	NOT IDENT.
MN-54	-7.634E-02	2.984E-01	3.004E-01	NOT IDENT.
CO-56	-1.373E-01	4.053E-01	4.100E-01	NOT IDENT.
MN-56	-1.000E+41	3.008E+41	0.000E+00	SHORT HLIF
CO-57	-1.672E-02	1.600E-01	1.601E-01	NOT IDENT.
CO-58	1.422E-01	3.204E-01	3.268E-01	NOT IDENT.
FE-59	3.020E-01	9.247E-01	9.347E-01	NOT IDENT.
ZN-65	4.974E-01	7.317E-01	7.653E-01	NOT IDENT.
GE-68	-7.803E-01	1.193E+01	1.194E+01	NOT IDENT.
AS-73	-9.990E+00	1.458E+01	1.526E+01	NOT IDENT.
AS-74	4.689E-01	9.218E-01	9.457E-01	NOT IDENT.
SE-75	-6.018E-02	3.354E-01	3.365E-01	NOT IDENT.
BR-77	1.579E+02	7.617E+02	7.651E+02	NOT IDENT.
SR-82	6.916E-01	2.923E+00	2.940E+00	NOT IDENT.

RB-83	-1.745E-02	6.401E-01	6.402E-01	NOT IDENT.
RB-84	2.902E-01	7.121E-01	7.240E-01	NOT IDENT.
KR-85	1.515E+01	5.710E+01	5.751E+01	NOT IDENT.
SR-85	8.747E-02	3.302E-01	3.326E-01	NOT IDENT.
RB-86	1.693E+00	9.830E+00	9.860E+00	NOT IDENT.
Y-88	-7.021E-02	1.498E-01	1.531E-01	NOT IDENT.
Y-91	2.470E+01	1.079E+02	1.084E+02	NOT IDENT.
NB-94	1.128E-01	2.087E-01	2.148E-01	NOT IDENT.
NB-95	-5.542E-02	3.110E-01	3.120E-01	NOT IDENT.
NB-95M	1.805E-01	9.716E-01	9.750E-01	NOT IDENT.
ZR-95	2.636E-01	5.338E-01	5.469E-01	NOT IDENT.
NB-97	1.000E+41	1.462E+41	0.000E+00	SHORT HLIF
ZR-97	1.019E+10	4.748E+10	4.770E+10	SHORT HLIF
MO-99	1.447E+02	6.854E+02	6.885E+02	NOT IDENT.
TC-99M	2.182E+26	2.016E+27	0.000E+00	SHORT HLIF
RH-101	-1.828E-01	2.017E-01	2.179E-01	NOT IDENT.
RH-102	-1.045E-01	4.014E-01	4.041E-01	NOT IDENT.
RU-103	1.823E-02	4.203E-01	4.204E-01	NOT IDENT.
RH-106	8.886E-01	2.234E+00	2.270E+00	NOT IDENT.
RU-106	8.886E-01	2.234E+00	2.270E+00	NOT IDENT.
AG-108M	1.154E-01	2.953E-01	2.999E-01	NOT IDENT.
AG-110	2.445E+00	6.524E+00	6.616E+00	NOT IDENT.
AG-110M	-6.517E-02	4.393E-01	4.403E-01	NOT IDENT.
SN-113	-3.496E-01	4.167E-01	4.455E-01	NOT IDENT.
CD-115	-2.706E+02	1.239E+03	1.245E+03	SHORT HLIF
SN-117M	-1.119E-01	5.360E-01	5.383E-01	NOT IDENT.
SB-122	1.408E+00	1.147E+02	1.147E+02	NOT IDENT.
TE-123M	-5.887E-02	1.912E-01	1.930E-01	NOT IDENT.
SB-124	9.397E-02	2.998E-01	3.027E-01	NOT IDENT.
SB-125	1.268E-02	8.902E-01	8.902E-01	FAIL ABUN
TE-125M	-5.045E-01	6.520E+01	6.520E+01	NOT IDENT.
I-126	2.468E-01	2.394E+00	2.397E+00	NOT IDENT.
SB-126	-1.473E+00	1.567E+00	1.702E+00	NOT IDENT.
SB-127	-1.632E+01	3.797E+01	3.868E+01	NOT IDENT.
I-131	2.408E+00	2.046E+00	2.316E+00	NOT IDENT.
I-132	1.000E+41	2.284E+41	0.000E+00	SHORT HLIF
TE-132	5.067E+00	3.263E+01	3.271E+01	NOT IDENT.
BA-133	1.089E-01	3.382E-01	3.418E-01	FAIL ABUN
I-133	-1.041E+07	3.544E+07	3.575E+07	SHORT HLIF
CS-134	-1.245E-01	2.867E-01	2.921E-01	NOT IDENT.
I-135	1.181E+25	3.177E+25	0.000E+00	SHORT HLIF
CS-136	-3.851E-01	1.397E+00	1.408E+00	FAIL ABUN
LA-138	-5.051E-02	1.827E-01	1.841E-01	NOT IDENT.
CE-139	-9.664E-02	1.931E-01	1.980E-01	NOT IDENT.
BA-140	-2.498E+00	3.270E+00	3.458E+00	NOT IDENT.
LA-140	1.427E-02	4.154E-01	4.154E-01	NOT IDENT.
CE-141	2.348E-01	4.675E-01	4.793E-01	NOT IDENT.
CE-143	-4.545E+04	5.758E+04	6.111E+04	SHORT HLIF
CE-144	7.708E-01	1.246E+00	1.294E+00	NOT IDENT.
PM-144	1.025E-01	2.201E-01	2.249E-01	NOT IDENT.
PR-144	7.605E+00	1.654E+01	1.689E+01	NOT IDENT.
PM-146	-2.644E-01	4.325E-01	4.486E-01	NOT IDENT.
ND-147	-4.714E+00	7.506E+00	7.801E+00	FAIL ABUN
PM-147	-2.152E+02	4.531E+03	4.532E+03	NOT IDENT.
PM-149	-5.106E+03	9.181E+03	9.466E+03	SHORT HLIF
EU-150	-8.456E-02	2.349E-01	2.380E-01	NOT IDENT.
EU-152	4.273E-02	7.713E-01	7.715E-01	FAIL ABUN
GD-153	-1.601E-01	5.265E-01	5.314E-01	NOT IDENT.
EU-154	-3.123E-02	4.597E-01	4.600E-01	NOT IDENT.
EU-155	-3.876E-01	6.317E-01	6.555E-01	NOT IDENT.
TB-160	-6.394E-01	1.218E+00	1.251E+00	FAIL ABUN
HO-166M	5.226E-01	4.150E-01	4.772E-01	NOT IDENT.
TM-171	-2.035E+02	2.849E+02	2.993E+02	NOT IDENT.
HF-172	-1.145E+00	1.216E+00	1.321E+00	NOT IDENT.
LU-172	-2.444E-01	5.531E-01	5.640E-01	FAIL ABUN
LU-176	-1.642E-02	1.998E-01	1.999E-01	FAIL ABUN
HF-181	-5.540E-01	4.728E-01	5.347E-01	FAIL ABUN
TA-182	1.537E+00	9.398E-01	1.168E+00	FAIL ABUN
RE-183	2.436E+01	9.200E+00	1.432E+01	FAIL ABUN
RE-184	2.023E-01	1.315E+00	1.318E+00	NOT IDENT.
W-188	2.660E+00	5.753E+01	5.754E+01	NOT IDENT.
IR-192	7.778E-02	2.860E-01	2.881E-01	NOT IDENT.
HG-203	-5.617E-02	3.141E-01	3.151E-01	NOT IDENT.
TL-204	7.119E+00	2.709E+01	2.728E+01	NOT IDENT.
BI-207	1.862E-01	4.892E-01	4.963E-01	NOT IDENT.
TL-208	1.446E-01	2.554E-01	2.636E-01	NOT IDENT.
BI-211	3.188E-01	1.628E+00	1.634E+00	NOT IDENT.
PB-211	6.764E+00	6.488E+00	7.169E+00	NOT IDENT.

BI-212	2.995E-01	3.263E+00	3.266E+00	NOT IDENT.
PB-212	-3.261E-03	4.305E-01	4.305E-01	NOT IDENT.
BI-213	-2.197E-02	1.037E+00	1.037E+00	NOT IDENT.
BI-214	1.226E-01	4.897E-01	4.928E-01	NOT IDENT.
PB-214	4.173E-02	5.861E-01	5.865E-01	FAIL ABUN
RN-219	-2.027E+00	3.668E+00	3.780E+00	NOT IDENT.
RN-222	1.226E-01	4.897E-01	4.928E-01	NOT IDENT.
RA-223	7.336E-01	5.356E+00	5.367E+00	NOT IDENT.
RA-224	1.986E+00	4.595E+00	4.681E+00	NOT IDENT.
AC-225	-5.245E-01	8.112E+00	8.116E+00	NOT IDENT.
RA-226	4.173E-02	5.861E-01	5.865E-01	FAIL ABUN
AC-227	-1.046E+00	1.970E+00	2.025E+00	NOT IDENT.
TH-227	-1.046E+00	1.970E+00	2.025E+00	NOT IDENT.
AC-228	6.192E-01	1.248E+00	1.279E+00	NOT IDENT.
RA-228	6.192E-01	1.248E+00	1.279E+00	NOT IDENT.
TH-228	-3.261E-03	4.305E-01	4.305E-01	NOT IDENT.
TH-229	-5.211E-01	3.964E+00	3.971E+00	FAIL ABUN
TH-230	4.173E-02	5.861E-01	5.864E-01	FAIL ABUN
PA-231	7.303E-01	3.478E+00	3.494E+00	NOT IDENT.
TH-231	7.336E-01	5.356E+00	5.367E+00	NOT IDENT.
TH-232	6.192E-01	1.248E+00	1.279E+00	NOT IDENT.
PA-233	2.279E-01	4.911E-01	5.017E-01	NOT IDENT.
PA-234	-1.220E+00	3.271E+00	3.317E+00	NOT IDENT.
PA-234M	-2.257E+00	3.738E+01	3.739E+01	NOT IDENT.
TH-234	-1.218E-01	8.260E+00	8.260E+00	NOT IDENT.
U-234	4.173E-02	5.861E-01	5.864E-01	FAIL ABUN
U-235	4.479E-01	1.240E+00	1.257E+00	FAIL ABUN
NP-237	2.279E-01	4.911E-01	5.017E-01	NOT IDENT.
NP-238	3.642E+02	2.594E+03	2.599E+03	SHORT HLIF
U-238	-1.218E-01	8.260E+00	8.260E+00	NOT IDENT.
NP-239	-1.348E-01	1.693E+00	1.695E+00	NOT IDENT.
PU-239	1.752E+03	2.112E+03	2.255E+03	NOT IDENT.
AM-243	3.373E-02	2.898E-01	2.902E-01	NOT IDENT.
CM-243	3.931E-01	6.503E-01	6.740E-01	NOT IDENT.
BK-247	-8.329E-02	5.765E-01	5.777E-01	NOT IDENT.
CM-247	-2.708E-01	3.431E-01	3.642E-01	NOT IDENT.
CF-249	1.771E-01	3.867E-01	3.948E-01	NOT IDENT.
CF-251	8.587E-01	1.188E+00	1.250E+00	FAIL ABUN
ANH-511	-6.502E-02	2.482E-01	2.499E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	3213.2332	85.43	570.2078	131.20	554.0267
45.60	2928.2998	86.55	622.8959	133.02	524.4871
46.54	2936.9668	86.79	623.2039	133.52	512.0093
49.72	2772.0308	86.94	649.7556	136.00	541.9592
51.35	2922.9023	87.09	649.9612	136.47	540.1865
51.87	2994.5134	87.57	675.6771	140.51	555.3984
52.39	3040.8489	88.03	649.8940	143.76	531.8959
52.97	3147.0161	88.34	650.3094	144.24	537.7142
53.44	3175.8672	88.47	650.4796	145.44	532.0989
54.07	3319.4990	89.96	637.8593	152.43	523.0592
57.36	0.0000	90.64	642.7189	153.25	528.0786
57.53	2183.9575	91.11	644.6537	154.21	517.7164
57.98	2186.6133	92.59	585.2306	156.02	533.4332
59.27	2194.2012	93.35	610.8098	158.56	534.1772
59.32	2194.4993	94.56	655.4163	159.00	534.4922
59.54	2195.7820	94.65	655.5309	162.33	561.5022
60.96	2204.0293	94.67	655.5558	162.66	527.0577
61.17	2205.2397	94.87	634.7243	163.33	467.0443
62.93	632.4091	97.43	631.8076	165.86	489.9611
63.29	616.7626	98.43	571.3280	176.31	466.9806
63.58	594.7289	98.44	571.3409	176.60	467.1495
64.28	613.9346	99.53	603.9302	177.52	486.6992
66.73	592.2039	100.11	632.9930	181.07	517.8799
67.24	575.9230	102.03	555.8517	181.52	507.8520
67.68	588.8528	103.18	583.5559	184.41	570.6240
67.75	588.9525	103.37	566.4115	185.72	579.5982
68.89	614.3223	105.21	581.6245	193.51	643.1697
69.67	613.5748	105.31	581.7328	197.03	611.9517
70.82	604.7601	106.12	596.9417	198.01	581.0796
70.83	604.7795	106.47	565.5031	201.83	571.8921
72.81	624.8499	109.28	576.5924	203.43	562.3444
72.87	616.3081	111.00	549.3682	205.31	544.6772
74.66	638.1082	111.76	589.4597	210.85	597.8771
74.82	653.7457	114.06	577.2429	215.65	577.1797
74.97	687.6837	116.30	602.4181	218.12	588.2889
77.11	654.2407	116.74	597.6386	222.11	569.1964
78.74	699.3512	119.76	588.0615	227.09	584.2622
79.69	630.7361	121.12	528.3386	227.38	538.5537
80.03	608.7923	121.22	528.4267	228.16	526.9109
80.12	608.9211	121.78	552.0926	228.18	563.1734
80.19	609.0117	122.06	546.0199	235.69	544.4130
80.57	648.5262	125.81	580.5649	235.96	544.5562
81.00	713.5549	123.07	580.7076	238.63	538.7069
81.07	713.6664	123.68	552.7468	238.98	530.3414
81.75	664.8511	125.81	596.0016	240.99	526.5164
82.47	606.1498	127.23	600.5388	242.00	524.5965
83.79	605.8860	127.91	519.2577	244.70	478.4863
84.00	657.2402	129.30	536.3870	252.40	484.1680

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.80	516.5605	351.06	459.6875	569.33	226.1231
254.15	0.0000	351.93	454.5991	569.50	213.8145
256.23	498.3834	355.39	0.0000	569.70	212.8033
260.90	0.0000	356.01	441.5702	583.19	200.8203
264.66	488.5831	364.49	443.4448	584.27	205.0737
1093.63	488.6545	366.42	473.1314	595.83	197.9398
265.00	488.7378	372.51	450.5921	600.60	213.0313
269.46	511.7462	375.05	487.0544	602.52	0.0000
270.03	481.7900	377.52	444.8969	604.72	212.4165
271.23	467.2020	383.85	420.6874	607.14	193.8149
273.65	486.7585	388.16	460.7001	609.32	201.3594
276.40	461.8094	388.63	469.1562	610.33	221.3972
277.37	467.2800	391.69	515.9161	614.28	192.3898
277.60	467.3813	400.66	506.0820	618.01	195.8994
278.00	501.3693	401.81	515.7908	620.36	186.6293
279.20	495.1291	402.40	535.5530	621.93	175.1659
279.54	495.2838	404.85	471.1360	630.19	0.0000
279.70	474.1862	410.95	515.2333	631.29	199.2681
280.46	475.3525	413.71	510.5534	633.25	190.9680
283.69	492.0181	414.70	503.3724	634.78	182.6100
284.31	488.0378	423.72	514.8738	635.95	181.6527
285.41	500.4316	427.09	519.7919	636.99	206.1881
285.90	0.0000	427.87	526.6797	657.50	212.4617
287.50	476.6262	433.94	526.8365	657.76	204.4371
290.67	471.9604	439.40	545.8508	657.90	0.0000
293.27	0.0000	440.45	534.7640	661.66	189.2201
295.22	469.5328	453.88	564.3135	664.57	0.0000
295.96	477.5636	463.37	615.0659	666.33	140.5997
298.58	493.2729	468.07	610.0232	666.50	138.9941
299.98	479.2039	473.00	605.9919	667.71	0.0000
300.09	479.2491	475.06	535.5297	677.62	121.2878
300.13	482.7083	476.78	523.3830	685.70	148.8961
301.36	454.7455	477.60	532.4261	692.65	130.8252
302.85	449.2659	482.18	457.4704	695.00	151.6975
304.50	463.7329	487.02	402.7763	696.49	135.4131
304.85	457.8166	492.35	0.0000	696.51	135.4181
306.78	456.8148	497.08	308.2930	697.00	148.5508
308.46	465.2705	505.52	337.5928	697.30	149.6654
311.90	437.8736	507.63	0.0000	697.49	149.6765
316.51	400.5591	511.00	340.6328	702.65	130.3064
319.41	402.0359	514.00	340.2091	706.68	149.1816
320.08	393.0489	514.00	340.2091	711.68	134.1176
321.04	417.4684	520.40	318.4011	720.70	169.9539
323.87	439.0848	520.69	313.4458	721.93	0.0000
325.23	439.5624	522.65	0.0000	722.78	141.3854
328.76	448.3034	527.90	0.0000	722.91	153.5470
333.37	464.9933	528.26	285.5947	723.31	148.0456
333.97	478.4985	529.59	277.7520	724.19	139.2634
334.37	489.2891	529.87	0.0000	727.33	139.4480
323.87	452.1069	531.02	284.0081	733.00	155.3125
338.32	452.1172	537.26	278.9087	735.93	135.5125
340.48	441.7399	546.56	0.0000	737.46	168.9466
340.55	441.7601	552.55	240.4461	739.50	143.5031
344.28	453.7501	563.25	227.4651	744.23	138.2134
345.93	444.4910	564.24	207.0796	747.24	139.5060

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
748.06	147.3667	954.55	0.0000	1434.09	13.4872
752.31	137.5592	962.31	245.8419	1435.80	13.4927
753.82	130.9299	964.08	226.0210	1457.56	0.0000
756.73	132.2074	879.38	207.1051	1460.82	9.3977
756.80	132.2122	968.97	203.6631	1489.16	14.7169
763.94	168.5608	983.53	178.1589	1505.03	10.5511
765.81	159.6922	984.45	0.0000	1584.12	10.7428
766.42	167.6068	996.26	188.0835	1596.21	8.6172
766.84	162.0117	1001.03	176.4316	1620.50	5.4144
772.60	0.0000	1002.74	182.9673	1621.92	6.4995
776.52	137.7961	1004.73	159.1676	1678.03	0.0000
777.92	140.1357	1021.30	0.0000	1690.97	6.5962
778.90	139.0607	1025.87	0.0000	507.63	0.0000
783.70	135.9277	1028.54	0.0000	1764.49	7.8135
788.74	157.7720	1037.84	172.0261	1770.23	5.5875
792.07	126.1532	1038.76	0.0000	1771.35	5.5887
795.86	150.2456	1046.59	173.4441	1260.41	0.0000
801.95	147.1879	1048.07	175.3894	1808.65	6.3065
810.06	187.7165	1049.04	167.0368	1810.72	0.0000
810.29	163.6913	1050.41	161.5117	1836.06	12.6813
810.45	148.8208	1063.66	154.5000		
810.76	146.5469	1077.00	146.0968		
815.77	144.5391	1077.34	155.1538		
818.51	172.2534	1085.87	185.9500		
832.01	176.6074	1093.63	177.8794		
834.85	167.7871	1099.45	184.8239		
835.71	167.8402	344.28	175.0605		
836.80	0.0000	1112.84	179.8638		
846.75	0.0000	1115.54	156.2024		
846.77	191.5265	1120.29	163.0992		
856.80	160.7922	1120.55	163.1096		
860.56	175.0183	1121.30	141.1980		
871.09	184.4806	1129.67	130.0732		
873.19	174.9509	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	210.5910	1173.23	92.9883		
880.51	200.1006	1177.95	66.7340		
881.60	198.4200	1189.05	72.9767		
946.00	181.7714	1204.77	51.7999		
884.68	210.1166	1221.41	51.8461		
889.28	189.2419	1235.36	28.5858		
894.76	209.1072	1238.28	38.4739		
898.04	220.0046	1260.41	0.0000		
900.72	219.3286	1271.87	22.8961		
903.28	218.6358	1274.44	27.8940		
911.20	212.1213	1274.54	27.8940		
912.08	209.5120	1291.59	25.0183		
923.98	0.0000	1298.22	0.0000		
926.50	210.5734	1312.11	24.1479		
929.11	242.1579	1332.49	24.2754		
935.54	226.5216	1362.66	0.0000		
937.49	240.1680	1365.19	9.1796		
944.13	233.5015	1368.63	0.0000		
946.00	261.6177	884.68	10.2484		
949.00	241.1213	1408.01	9.2780		

Batch 2636542 Check-list

This check-list was completed on 30-JUL-24 by Michael Hilton

This batch was reviewed by Michael Hilton on 30-JUL-24 and Spencer Collins on 31-JUL-24.

Batch ID: 2636542

Product: GSCGAMMS

Description: Gamma Spec Solid RAD A-013

#	Criteria	Yes	No	Comments
Preparation Information				
1	Did any sample(s) require dilution?		No	
2	Were all of the samples homogenous? Include sample description if not homogenous	Yes		
3	Was the preservation correct for this analysis?	Yes		
Internal Checklist Information				
4	Are instrument source checks within limits?	Yes		
5	Have sample historical results been reviewed for this batch?	Yes		
Technical Information				
6	Were any additional radionuclides added that were not requested by the client?		No	
7	Were all the samples prepared/analyzed within the required holding time period?	Yes		
Quality Control (QC) Information				
8	Was the method blank (MB) within the acceptance criteria?	Yes		
9	Were the laboratory control sample (LCS/LCSD) recoveries within the acceptance limits?	Yes		
10	Were the relative percent differences and/or error (RPD/RER) between the sample and its duplicate within acceptable limits?	Yes		
11	Has the method required detection limit been met?	Yes		
Miscellaneous Information				
12	Are sample-specific MDA/MDC calculated and reported?	Yes		

Prep Logbook

Gamma Spectroscopy

Batch ID: 2636542
Analyst: Rebekah Futch (RXF2)
Method: DOE HASL 300, 4.5.2.3/Ga-01-R
Lab SOP: GL-RAD-A-013 REV# 29
Instrument: No instrument-manual method

Due Dates for Lab: 31-JUL-2024	Hold: 08-JUL-2024	Package: 01-AUG-2024	SDG: 02-AU
Type	Sample Id	Description	Serial Number
LCS	1205781345	84680-278	1556
			Spike Amount
			Spike Units
			1
			mL

#	Sample ID	Prep Date	Min RDL (pCi/g)	Dry or Wet	Unadjusted Aliquot (g)	Aliquot (g)	Adjusted Aliquot (g)
1	674299001	10-JUL-2024	.1	Dry to Dry	118.84	118.84	118.84
2	674299002	10-JUL-2024	.1	Dry to Dry	113.58	113.58	113.58
3	674299003	10-JUL-2024	.1	Dry to Dry	118.58	118.58	118.58
4	674299004	10-JUL-2024	.1	Dry to Dry	103.65	103.65	103.65
5	674299005	10-JUL-2024	.1	Dry to Dry	99.94	99.94	99.94
6	674299006	10-JUL-2024	.1	Dry to Dry	149.98	149.98	149.98
7	674299007	10-JUL-2024	.1	Dry to Dry	100.47	100.47	100.47
8	674299008	10-JUL-2024	.1	Dry to Dry	89.44	89.44	89.44
9	674299009	10-JUL-2024	.1	Dry to Dry	113.77	113.77	113.77
10	674299010	10-JUL-2024	.1	Dry to Dry	107.75	107.75	107.75
11	674299011	10-JUL-2024	.1	Dry to Dry	107.06	107.06	107.06
12	674299012	10-JUL-2024	.1	Dry to Dry	101.65	101.65	101.65
13	674299013	10-JUL-2024	.1	Dry to Dry	132.04	132.04	132.04
14	674299014	10-JUL-2024	.1	Dry to Dry	77.79	77.79	77.79
15	674299015	10-JUL-2024	.1	Dry to Dry	89.51	89.51	89.51
16	674299016	10-JUL-2024	.1	Dry to Dry	127.25	127.25	127.25
17	674299017	10-JUL-2024	.1	Dry to Dry	84.75	84.75	84.75
18	674299018	10-JUL-2024	.1	Dry to Dry	94.87	94.87	94.87
19	674299019	10-JUL-2024	.1	Dry to Dry	79.26	79.26	79.26
20	674299020	10-JUL-2024	.1	Dry to Dry	121.04	121.04	121.04
21	1205781343 MB	10-JUL-2024	.1	Dry to Wet	149.98	149.98	149.98
22	1205781344 DUP (674299001)	10-JUL-2024	.1	Dry to Dry	118.84	118.84	118.84
23	1205781345 LCS	10-JUL-2024	.1	Dry to Wet	115	115	115

Reagent/Solvent Lot ID	Description	Amount	Comments:

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:13:44.49

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*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299001.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM07.CNF;884
Background date    : 28-JUL-2024 09:24:38
Sample date       : 26-JUN-2024 09:03:00 Acquisition date : 30-JUL-2024 11:13:06
Sample ID        : G674299001 Sample quantity : 1.18840E+02 GRAM
Detector name    : GAM07 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.59 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
*****

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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.55*	55	192	0.62	127.96	124	8	1.53E-02	46.6	
2	1	74.98*	161	165	1.06	150.81	145	21	4.48E-02	15.1	2.91E+00
3	1	77.17*	333	141	1.06	155.19	145	21	9.25E-02	8.2	
4	1	79.17	53	121	1.07	159.19	145	21	1.48E-02	42.3	
5	0	86.22	201	265	1.32	173.29	166	13	5.57E-02	18.2	
6	3	89.96	84	89	1.00	180.77	179	13	2.32E-02	19.2	7.23E-01
7	3	92.65*	193	165	1.33	186.14	179	13	5.36E-02	14.2	
8	0	104.86	42	109	1.50	210.55	206	9	1.18E-02	46.8	
9	0	128.64	27	112	1.75	258.09	256	7	7.44E-03	68.0	
10	0	144.57*	30	128	2.24	289.94	286	8	8.25E-03	69.4	
11	0	186.24*	142	235	1.20	373.26	368	12	3.94E-02	23.6	
12	0	195.04	26	55	1.46	390.85	389	5	7.13E-03	47.4	
13	0	202.29	23	85	0.82	405.35	402	7	6.35E-03	70.7	
14	1	238.73*	162	129	1.15	478.21	474	17	4.49E-02	13.6	2.48E+00
15	1	242.07	201	90	1.35	484.88	474	17	5.58E-02	11.4	
16	1	269.27	37	56	1.38	539.25	532	16	1.03E-02	38.4	8.28E-01
17	1	271.52	29	56	1.39	543.75	532	16	7.96E-03	51.1	
18	0	295.33*	442	52	1.26	591.35	586	11	1.23E-01	5.7	
19	0	300.93	14	59	1.33	602.56	599	8	3.77E-03	101.4	
20	0	338.32	32	47	1.09	677.31	673	9	8.89E-03	42.5	
21	0	352.03*	704	100	1.19	704.73	699	13	1.96E-01	4.8	
22	0	392.76	15	37	0.98	786.16	780	8	4.05E-03	78.7	
23	1	401.71	19	41	1.54	804.06	798	16	5.29E-03	65.2	1.23E+00
24	1	404.80	16	32	1.54	810.23	798	16	4.49E-03	59.7	
25	0	411.24	26	49	0.60	823.10	816	13	7.35E-03	57.7	
26	0	511.68*	20	63	2.59	1023.94	1017	15	5.47E-03	106.5	
27	0	583.74*	58	45	1.22	1168.00	1162	13	1.62E-02	27.7	
28	0	602.62	11	23	3.26	1205.75	1197	10	3.16E-03	83.6	
29	0	609.30*	529	33	1.44	1219.12	1213	14	1.47E-01	4.9	
30	0	662.59	13	5	0.67	1325.68	1322	7	3.59E-03	40.4	
31	0	668.13	40	19	4.05	1336.75	1329	18	1.11E-02	29.6	
32	0	697.83	18	20	1.52	1396.14	1391	10	4.99E-03	52.3	
33	0	727.05*	20	18	0.66	1454.56	1449	12	5.66E-03	48.5	
34	1	768.61	46	8	1.78	1537.66	1530	20	1.28E-02	20.6	2.29E+00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	1	772.35	16	12	1.86	1545.14	1530	20	4.51E-03	35.0	
36	0	786.26	21	23	1.09	1572.96	1567	13	5.82E-03	51.8	
37	0	795.39	11	8	0.93	1591.20	1588	6	3.10E-03	51.1	
38	0	911.09*	32	17	1.32	1822.56	1817	13	8.93E-03	32.7	
39	0	934.96	35	15	1.47	1870.29	1862	16	9.64E-03	30.8	
40	0	969.56	13	25	0.62	1939.48	1930	13	3.60E-03	85.3	
41	0	972.32	7	7	1.41	1945.00	1942	7	1.94E-03	73.2	
42	0	1050.61	10	7	0.89	2101.56	2095	10	2.74E-03	60.7	
43	0	1075.93	5	8	3.33	2152.19	2145	9	1.47E-03	108.6	
44	0	1120.21	112	10	1.51	2240.75	2234	14	3.10E-02	11.3	
45	0	1196.06	7	3	0.85	2392.42	2389	6	2.00E-03	52.9	
46	0	1202.54	13	0	1.00	2405.38	2400	10	3.61E-03	27.7	
47	0	1207.08	9	2	0.89	2414.46	2411	7	2.55E-03	40.8	
48	0	1238.44	33	11	1.96	2477.18	2472	12	9.22E-03	26.9	
49	0	1281.48	19	5	0.92	2563.24	2558	10	5.28E-03	31.8	
50	0	1378.67	19	15	2.51	2757.60	2749	12	5.18E-03	47.7	
51	0	1407.54	24	3	0.77	2815.35	2809	13	6.58E-03	25.9	
52	0	1460.49*	63	8	3.24	2921.24	2912	15	1.75E-02	16.3	
53	0	1495.21	5	9	0.65	2990.68	2984	8	1.38E-03	117.5	
54	0	1511.62	6	10	2.18	3023.50	3015	10	1.62E-03	117.6	
55	0	1730.09	25	6	1.88	3460.43	3454	12	7.03E-03	27.7	
56	0	1764.98	74	9	2.29	3530.20	3524	13	2.06E-02	14.4	
57	0	1849.19*	9	9	2.34	3698.63	3689	12	2.49E-03	75.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299001.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:03:00 Acquisition date : 30-JUL-2024 11:13:06
Sample ID : G674299001 Sample quantity : 118.84 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA7 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.59 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.051E+00	3.351E+00	3.351E+00	32.60	OK
GE-68	1077.34	3.22*	1.392E+00	7.187E-01	7.842E-01	217.28	OK
RB-86	1077.00	8.64*	1.392E+00	2.678E-01	9.523E-01	217.28	OK
SN-113	391.69	64.94*	3.344E+00	4.289E-02	5.267E-02	157.43	OK
SN-126	64.28	9.60	3.164E+00	1.256E+00	1.256E+00	93.13	OK
	86.94	8.90	5.751E+00	2.685E+00	2.685E+00	36.40	OK
	87.57	37.00*	5.751E+00	6.458E-01	6.458E-01	36.40	OK
BA-137M	661.66	89.90*	2.211E+00	4.041E-02	4.050E-02	80.74	OK
CS-137	661.66	85.10*	2.211E+00	4.269E-02	4.278E-02	80.74	OK
PR-144	696.51	1.34*	2.111E+00	3.935E+00	4.275E+00	104.54	OK
	1489.16	0.28	1.035E+00	----- Line	Not Found	-----	Absent
EU-155	86.55	30.70	5.751E+00	7.783E-01	7.890E-01	36.40	OK
	105.31	21.10*	6.537E+00	2.088E-01	2.116E-01	93.62	OK
TL-208	277.37	6.60	4.276E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.464E+00	1.746E-01	1.746E-01	55.46	OK
	860.56	12.50	1.735E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	4.457E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.617E+00	9.665E+00	9.665E+00	9.59	OK
BI-212	727.33	6.67*	2.034E+00	9.294E-01	9.294E-01	96.93	OK
	1620.50	1.47	9.748E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.708E+00	2.299E+00	2.299E+00	30.11	OK
	77.11	17.10	4.951E+00	2.707E+00	2.707E+00	16.48	OK
	238.63	43.60*	4.741E+00	5.110E-01	5.110E-01	27.17	OK
	300.09	3.30	4.040E+00	6.575E-01	6.575E-01	202.74	OK
BI-214	609.32	45.49*	2.377E+00	3.055E+00	3.055E+00	9.89	OK
	1120.29	14.92	1.338E+00	3.390E+00	3.390E+00	22.56	OK
	1764.49	15.30	9.298E-01	3.088E+00	3.088E+00	28.84	OK
PB-214	74.82	5.80	4.708E+00	4.075E+00	4.075E+00	30.11	OK
	77.11	9.70	4.951E+00	4.773E+00	4.773E+00	16.48	OK
	87.09	3.41	5.751E+00	7.007E+00	7.008E+00	36.40	OK
	242.00	7.25	4.696E+00	3.856E+00	3.857E+00	22.88	OK
	295.22	18.42	4.093E+00	3.791E+00	3.791E+00	11.48	OK
	351.93	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59	OK
RN-219	271.23	10.80	4.340E+00	3.971E-01	3.971E-01	102.12	OK
	401.81	6.60*	3.290E+00	5.592E-01	5.592E-01	130.34	OK
RN-222	609.32	45.49*	2.377E+00	3.055E+00	3.055E+00	9.89	OK
	1120.29	14.92	1.338E+00	3.390E+00	3.390E+00	22.56	OK
	1764.49	15.30	9.298E-01	3.088E+00	3.088E+00	28.84	OK
RA-224	240.99	4.10*	4.696E+00	6.819E+00	6.819E+00	22.88	OK
RA-226	74.82	5.80	4.708E+00	4.075E+00	4.075E+00	30.11	OK
	77.11	9.70	4.951E+00	4.773E+00	4.773E+00	16.48	OK
	87.09	3.41	5.751E+00	7.007E+00	7.008E+00	36.40	OK
	242.00	7.25	4.696E+00	3.856E+00	3.857E+00	22.88	OK
	295.22	18.42	4.093E+00	3.791E+00	3.791E+00	11.48	OK
	351.93	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59	OK
AC-228	105.21	1.10	6.537E+00	4.005E+00	4.005E+00	93.62	OK
	338.32	11.27	3.721E+00	4.907E-01	4.907E-01	85.05	OK
	835.71	1.61	1.784E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
RA-228	968.97	15.80	1.543E+00	3.246E-01	3.246E-01	170.62	OK
	105.21	1.10	6.537E+00	4.005E+00	4.005E+00	93.62	OK
	338.32	11.27	3.721E+00	4.907E-01	4.907E-01	85.05	OK
	835.71	1.61	1.784E+00	----- Line	Not Found	-----	Absent
TH-228	911.20	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34	OK
	968.97	15.80	1.543E+00	3.246E-01	3.246E-01	170.62	OK
	74.82	10.28	4.708E+00	2.299E+00	2.299E+00	30.11	OK
	77.11	17.10	4.951E+00	2.707E+00	2.707E+00	16.48	OK
TH-229	238.63	43.60*	4.741E+00	5.110E-01	5.110E-01	27.17	OK
	300.09	3.30	4.040E+00	6.575E-01	6.575E-01	202.74	OK
	85.43	14.70	5.751E+00	1.625E+00	1.626E+00	36.40	OK
	88.47	24.00	5.991E+00	3.977E-01	3.977E-01	38.34	OK
TH-230	193.51	4.41*	5.442E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	5.151E+00	----- Line	Not Found	-----	Absent
	74.82	5.80	4.708E+00	4.075E+00	4.075E+00	30.11	OK
	77.11	9.70	4.951E+00	4.773E+00	4.773E+00	16.48	OK
PA-231	87.09	3.41	5.751E+00	7.007E+00	7.007E+00	36.40	OK
	242.00	7.25	4.696E+00	3.856E+00	3.856E+00	22.88	OK
	295.22	18.42	4.093E+00	3.791E+00	3.791E+00	11.48	OK
	351.93	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59	OK
TH-232	283.69	1.70	4.209E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	4.040E+00	4.056E-01	4.056E-01	202.74	OK
	105.21	1.10	6.537E+00	4.005E+00	4.005E+00	93.62	OK
	338.32	11.27	3.721E+00	4.907E-01	4.907E-01	85.05	OK
TH-234	835.71	1.61	1.784E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34	OK
	968.97	15.80	1.543E+00	3.246E-01	3.246E-01	170.62	OK
	63.29	3.70*	3.164E+00	3.258E+00	3.258E+00	93.13	OK
U-234	92.59	4.23	6.135E+00	5.081E+00	5.081E+00	28.35	OK
	74.82	5.80	4.708E+00	4.075E+00	4.075E+00	30.11	OK
	77.11	9.70	4.951E+00	4.773E+00	4.773E+00	16.48	OK
	87.09	3.41	5.751E+00	7.007E+00	7.007E+00	36.40	OK
U-235	242.00	7.25	4.696E+00	3.856E+00	3.856E+00	22.88	OK
	295.22	18.42	4.093E+00	3.791E+00	3.791E+00	11.48	OK
	351.93	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59	OK
	89.96	3.47	5.991E+00	2.751E+00	2.751E+00	38.34	OK
U-238	93.35	5.60	6.135E+00	3.838E+00	3.838E+00	28.35	OK
	143.76	10.96*	6.345E+00	2.858E-01	2.858E-01	138.88	OK
	163.33	5.08	6.002E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.572E+00	2.939E-01	2.939E-01	47.22	OK
AM-243	205.31	5.01	5.241E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	3.164E+00	3.258E+00	3.258E+00	93.13	OK
	92.59	4.23	6.135E+00	5.081E+00	5.081E+00	28.35	OK
	43.53	5.90	4.826E-01	----- Line	Not Found	-----	Absent
CM-247	74.66	67.20*	4.708E+00	3.517E-01	3.517E-01	30.11	OK
	278.00	3.40	4.269E+00	----- Line	Not Found	-----	Absent
	287.50	2.00	4.171E+00	----- Line	Not Found	-----	Absent
	402.40	72.00*	3.290E+00	5.126E-02	5.126E-02	130.34	OK
ANH-511	511.00	100.00*	2.741E+00	4.527E-02	4.527E-02	213.04	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299001.CNF;1
Acquisition date : 30-JUL-2024 11:13:06 Sensitivity : 3.000
Detector ID : GAM07 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.59 Half life ratio : *****
Sample date : 26-JUN-2024 09:03:00 Analyst initials: RXF2
Sample ID : G674299001 Sample Quantity : 1.1884E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	3.351E+00	1.070E+00	9.085E-01
GE-68	7.842E-01	1.670E+00	2.745E+00
RB-86	9.523E-01	2.028E+00	3.332E+00
SN-113	5.267E-02	8.125E-02	1.011E-01
SN-126	6.458E-01	2.303E-01	1.401E-01
BA-137M	4.050E-02	3.204E-02	4.142E-02
CS-137	4.278E-02	3.385E-02	4.375E-02
PR-144	4.275E+00	4.380E+00	5.887E+00
EU-155	2.116E-01	1.942E-01	1.791E-01
TL-208	1.746E-01	9.488E-02	7.714E-02
BI-211	9.665E+00	9.083E-01	5.037E-01
BI-212	9.294E-01	8.829E-01	1.043E+00
PB-212	5.110E-01	1.361E-01	1.312E-01
BI-214	3.055E+00	2.961E-01	1.245E-01
PB-214	3.508E+00	3.297E-01	1.832E-01
RN-219	5.592E-01	7.143E-01	8.725E-01
RN-222	3.055E+00	2.961E-01	1.245E-01
RA-224	6.819E+00	1.529E+00	1.406E+00
RA-226	3.508E+00	3.297E-01	1.832E-01
AC-228	4.646E-01	2.975E-01	3.033E-01
RA-228	4.646E-01	2.975E-01	3.033E-01
TH-228	5.110E-01	1.361E-01	1.312E-01
TH-229	-5.603E-02	6.364E-01	1.027E+00
TH-230	3.508E+00	3.297E-01	1.832E-01
PA-231	4.056E-01	8.058E-01	1.013E+00
TH-232	4.646E-01	2.975E-01	3.033E-01
TH-234	3.258E+00	2.973E+00	2.627E+00
U-234	3.508E+00	3.297E-01	1.832E-01
U-235	2.858E-01	3.891E-01	4.100E-01
U-238	3.258E+00	2.973E+00	2.627E+00
AM-243	3.517E-01	1.038E-01	1.070E-01
CM-247	5.126E-02	6.548E-02	8.008E-02
ANH-511	4.527E-02	9.451E-02	6.128E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.238E-01	4.706E-01	8.634E-01	NOT IDENT.
NA-22	4.925E-02	4.422E-02	1.065E-01	NOT IDENT.
NA-24	0.000E+00	1.008E+15	0.000E+00	SHORT HLIF
AL-26	-1.104E-02	3.090E-02	6.358E-02	NOT IDENT.
SC-46	-1.113E-02	4.489E-02	8.764E-02	FAIL ABUN
V-48	1.468E-01	1.679E-01	3.827E-01	NOT IDENT.
CR-51	2.186E-01	6.259E-01	1.245E+00	NOT IDENT.
MN-52	6.615E-01	3.806E+00	7.639E+00	FAIL ABUN
MN-54	-1.467E-02	4.641E-02	8.116E-02	NOT IDENT.
CO-56	-2.027E-02	5.093E-02	8.841E-02	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.109E-02	2.843E-02	4.998E-02	NOT IDENT.
CO-58	-5.184E-02	5.474E-02	8.393E-02	NOT IDENT.
FE-59	-3.229E-02	1.100E-01	2.117E-01	NOT IDENT.
CO-60	-1.836E-02	4.648E-02	8.726E-02	NOT IDENT.
ZN-65	6.298E-03	1.191E-01	2.081E-01	NOT IDENT.
AS-73	5.755E-01	1.266E+00	2.460E+00	NOT IDENT.
AS-74	-1.549E-02	2.605E-01	4.301E-01	NOT IDENT.
SE-75	-6.796E-03	5.526E-02	9.553E-02	FAIL ABUN
BR-77	0.000E+00	5.373E+03	0.000E+00	SHORT HLIF
SR-82	-3.285E-02	6.536E-01	1.087E+00	NOT IDENT.
RB-83	7.617E-02	8.164E-02	1.762E-01	NOT IDENT.
RB-84	-8.699E-02	9.887E-02	1.774E-01	NOT IDENT.
KR-85	6.241E+00	7.357E+00	1.444E+01	NOT IDENT.
SR-85	4.027E-02	4.759E-02	9.342E-02	NOT IDENT.
Y-88	-3.789E-02	3.552E-02	5.610E-02	NOT IDENT.
Y-91	2.511E+01	1.678E+01	4.770E+01	NOT IDENT.
NB-94	2.030E-02	3.385E-02	6.566E-02	NOT IDENT.
NB-95	3.957E-02	5.158E-02	1.033E-01	NOT IDENT.
NB-95M	-1.899E-02	2.214E-01	3.482E-01	NOT IDENT.
ZR-95	-3.342E-02	9.814E-02	1.734E-01	NOT IDENT.
NB-97	0.000E+00	1.624E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.106E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.513E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.574E+39	0.000E+00	SHORT HLIF
RH-101	4.110E-02	5.482E-02	6.358E-02	FAIL ABUN
RH-102	-1.227E-02	4.967E-02	9.196E-02	FAIL ABUN
RU-103	-3.907E-03	5.900E-02	1.116E-01	FAIL ABUN
RH-106	-7.247E-02	3.732E-01	6.819E-01	FAIL ABUN
RU-106	-7.247E-02	3.732E-01	6.819E-01	FAIL ABUN
AG-108M	-6.927E-03	3.410E-02	6.326E-02	NOT IDENT.
CD-109	0.000E+00	1.151E+00	2.091E+00	NOT IDENT.
AG-110	3.148E-01	7.572E-01	1.492E+00	NOT IDENT.
AG-110M	1.643E-02	4.686E-02	1.023E-01	NOT IDENT.
CD-115	0.000E+00	4.983E+03	0.000E+00	SHORT HLIF
SN-117M	-9.777E-02	1.740E-01	2.953E-01	NOT IDENT.
SB-122	0.000E+00	2.760E+02	0.000E+00	SHORT HLIF
TE-123M	1.827E-03	3.697E-02	6.612E-02	NOT IDENT.
SB-124	8.239E-02	1.017E-01	2.718E-01	NOT IDENT.
SB-125	2.938E-02	9.611E-02	1.906E-01	NOT IDENT.
TE-125M	1.005E+00	1.214E+01	2.238E+01	NOT IDENT.
I-126	5.522E-01	7.063E-01	1.370E+00	NOT IDENT.
SB-126	1.207E-02	3.506E-01	6.870E-01	FAIL ABUN
SB-127	5.695E+00	4.483E+01	8.581E+01	NOT IDENT.
I-131	6.792E-02	6.713E-01	1.296E+00	FAIL ABUN
I-132	0.000E+00	5.805E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	5.276E+01	0.000E+00	SHORT HLIF
BA-133	6.847E-03	5.622E-02	9.737E-02	NOT IDENT.
I-133	0.000E+00	2.598E+10	0.000E+00	SHORT HLIF
CS-134	4.437E-02	4.443E-02	8.977E-02	FAIL ABUN
I-135	0.000E+00	3.874E+36	0.000E+00	SHORT HLIF
CS-136	-1.241E-01	3.564E-01	5.740E-01	NOT IDENT.
LA-138	8.099E-02	7.403E-02	1.764E-01	NOT IDENT.
CE-139	2.050E-02	3.739E-02	6.959E-02	NOT IDENT.
BA-140	2.930E-01	7.898E-01	1.579E+00	NOT IDENT.
LA-140	-4.960E-02	3.880E-01	7.333E-01	NOT IDENT.
CE-141	1.343E-01	1.827E-01	2.046E-01	FAIL ABUN
CE-143	0.000E+00	2.208E+06	0.000E+00	SHORT HLIF
CE-144	2.871E-01	2.367E-01	4.641E-01	FAIL ABUN
PM-144	5.656E-02	5.795E-02	8.016E-02	FAIL ABUN
PM-146	2.748E-02	4.534E-02	9.258E-02	NOT IDENT.
ND-147	2.838E-01	2.081E+00	4.011E+00	FAIL ABUN
PM-147	-6.855E+01	7.843E+02	1.417E+03	NOT IDENT.
PM-149	0.000E+00	3.913E+04	0.000E+00	SHORT HLIF
EU-150	-3.246E-03	3.338E-02	5.676E-02	FAIL ABUN

EU-152	-5.597E-02	1.121E-01	2.039E-01	FAIL ABUN
GD-153	2.279E-02	9.346E-02	1.744E-01	NOT IDENT.
EU-154	1.382E-01	1.241E-01	2.989E-01	NOT IDENT.
TB-160	-4.074E-03	1.610E-01	3.246E-01	FAIL ABUN
HO-166M	4.359E-02	5.649E-02	1.224E-01	FAIL ABUN
TM-171	-8.649E-02	2.314E+01	4.374E+01	NOT IDENT.
HF-172	3.693E-02	2.206E-01	3.758E-01	FAIL ABUN
LU-172	-5.885E-02	7.485E-02	1.279E-01	FAIL ABUN
LU-176	1.318E-02	2.980E-02	5.933E-02	FAIL ABUN
HF-181	3.626E-02	5.817E-02	1.212E-01	NOT IDENT.
TA-182	1.759E-02	1.738E-01	3.633E-01	FAIL ABUN
RE-183	-2.376E-01	2.739E-01	4.843E-01	NOT IDENT.
RE-184	-8.900E-02	2.122E-01	3.954E-01	NOT IDENT.
W-188	6.464E-01	1.001E+01	1.757E+01	FAIL ABUN
IR-192	-3.839E-02	4.349E-02	7.652E-02	FAIL ABUN
HG-203	4.738E-03	5.543E-02	1.074E-01	NOT IDENT.
TL-204	6.604E-01	6.003E+00	1.037E+01	FAIL ABUN
BI-207	5.092E-03	5.622E-02	1.139E-01	FAIL ABUN
BI-210	-1.477E-01	4.735E+00	9.141E+00	NOT IDENT.
PB-210	-1.477E-01	4.735E+00	9.141E+00	NOT IDENT.
PB-211	8.322E-01	9.745E-01	1.524E+00	FAIL ABUN
BI-213	-9.513E-02	1.114E-01	1.901E-01	NOT IDENT.
RA-223	2.100E-01	6.743E-01	1.335E+00	FAIL ABUN
AC-225	-4.687E-01	2.692E+00	4.638E+00	NOT IDENT.
AC-227	1.329E-01	3.311E-01	5.963E-01	FAIL ABUN
TH-227	1.329E-01	3.311E-01	5.963E-01	FAIL ABUN
TH-231	2.100E-01	6.743E-01	1.335E+00	FAIL ABUN
PA-233	-1.228E-03	6.816E-02	1.312E-01	FAIL ABUN
PA-234	3.136E-02	2.777E-01	5.802E-01	NOT IDENT.
PA-234M	3.152E+00	5.164E+00	1.111E+01	NOT IDENT.
NP-237	-1.228E-03	6.816E-02	1.312E-01	FAIL ABUN
NP-238	0.000E+00	1.078E+04	0.000E+00	SHORT HLIF
NP-239	1.991E-01	2.827E-01	5.425E-01	FAIL ABUN
PU-239	4.343E+02	5.793E+02	7.508E+02	FAIL ABUN
AM-241	8.576E-02	1.902E-01	3.430E-01	NOT IDENT.
CM-243	0.000E+00	1.938E-01	1.862E-01	FAIL ABUN
BK-247	-1.421E-02	8.883E-02	1.529E-01	NOT IDENT.
CF-249	-9.822E-03	5.799E-02	9.599E-02	NOT IDENT.
CF-251	-7.125E-02	1.590E-01	2.704E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	59	10.66*	1.051E+00	3.351E+00	3.351E+00	32.60
GE-68	1077.34	5	3.22*	1.392E+00	7.187E-01	7.842E-01	217.28
RB-86	1077.00	5	8.64*	1.392E+00	2.678E-01	9.523E-01	217.28
SN-113	391.69	15	64.94*	3.344E+00	4.289E-02	5.267E-02	157.43
SN-126	64.28	60	9.60	3.164E+00	1.256E+00	1.256E+00	93.13
	86.94	218	8.90	5.751E+00	2.685E+00	2.685E+00	36.40
	87.57	218	37.00*	5.751E+00	6.458E-01	6.458E-01	36.40
BA-137M	661.66	13	89.90*	2.211E+00	4.041E-02	4.050E-02	80.74
CS-137	661.66	13	85.10*	2.211E+00	4.269E-02	4.278E-02	80.74
CE-141	145.44	31	48.29*	6.345E+00	6.488E-02	1.343E-01	138.88
PR-144	696.51	18	1.34*	2.111E+00	3.935E+00	4.275E+00	104.54
	1489.16	-----	0.28	1.035E+00	-----	Line Not Found	-----
EU-155	86.55	218	30.70	5.751E+00	7.783E-01	7.890E-01	36.40
	105.31	46	21.10*	6.537E+00	2.088E-01	2.116E-01	93.62
TL-208	277.37	-----	6.60	4.276E+00	-----	Line Not Found	-----
	583.19	58	85.00*	2.464E+00	1.746E-01	1.746E-01	55.46
	860.56	-----	12.50	1.735E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.457E+00	-----	Line Not Found	-----
	351.06	715	12.92*	3.617E+00	9.665E+00	9.665E+00	9.59
BI-212	727.33	20	6.67*	2.034E+00	9.294E-01	9.294E-01	96.93
	1620.50	-----	1.47	9.748E-01	-----	Line Not Found	-----
PB-212	74.82	176	10.28	4.708E+00	2.299E+00	2.299E+00	30.11
	77.11	363	17.10	4.951E+00	2.707E+00	2.707E+00	16.48
	238.63	167	43.60*	4.741E+00	5.110E-01	5.110E-01	27.17
	300.09	14	3.30	4.040E+00	6.575E-01	6.575E-01	202.74
BI-214	609.32	523	45.49*	2.377E+00	3.055E+00	3.055E+00	9.89
	1120.29	107	14.92	1.338E+00	3.390E+00	3.390E+00	22.56
	1764.49	70	15.30	9.298E-01	3.088E+00	3.088E+00	28.84
PB-214	74.82	176	5.80	4.708E+00	4.075E+00	4.075E+00	30.11
	77.11	363	9.70	4.951E+00	4.773E+00	4.773E+00	16.48
	87.09	218	3.41	5.751E+00	7.007E+00	7.008E+00	36.40
	242.00	208	7.25	4.696E+00	3.856E+00	3.857E+00	22.88
	295.22	452	18.42	4.093E+00	3.791E+00	3.791E+00	11.48
	351.93	715	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59
RN-219	271.23	29	10.80	4.340E+00	3.971E-01	3.971E-01	102.12
	401.81	19	6.60*	3.290E+00	5.592E-01	5.592E-01	130.34
RN-222	609.32	523	45.49*	2.377E+00	3.055E+00	3.055E+00	9.89
	1120.29	107	14.92	1.338E+00	3.390E+00	3.390E+00	22.56
	1764.49	70	15.30	9.298E-01	3.088E+00	3.088E+00	28.84
RA-224	240.99	208	4.10*	4.696E+00	6.819E+00	6.819E+00	22.88
RA-226	74.82	176	5.80	4.708E+00	4.075E+00	4.075E+00	30.11
	77.11	363	9.70	4.951E+00	4.773E+00	4.773E+00	16.48
	87.09	218	3.41	5.751E+00	7.007E+00	7.008E+00	36.40
	242.00	208	7.25	4.696E+00	3.856E+00	3.857E+00	22.88
	295.22	452	18.42	4.093E+00	3.791E+00	3.791E+00	11.48
	351.93	715	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59
AC-228	105.21	46	1.10	6.537E+00	4.005E+00	4.005E+00	93.62

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	338.32	33	11.27	3.721E+00	4.907E-01	4.907E-01	85.05
	835.71	-----	1.61	1.784E+00	-----	Line Not Found	-----
	911.20	31	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34
RA-228	968.97	13	15.80	1.543E+00	3.246E-01	3.246E-01	170.62
	105.21	46	1.10	6.537E+00	4.005E+00	4.005E+00	93.62
	338.32	33	11.27	3.721E+00	4.907E-01	4.907E-01	85.05
	835.71	-----	1.61	1.784E+00	-----	Line Not Found	-----
	911.20	31	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34
TH-228	968.97	13	15.80	1.543E+00	3.246E-01	3.246E-01	170.62
	74.82	176	10.28	4.708E+00	2.299E+00	2.299E+00	30.11
	77.11	363	17.10	4.951E+00	2.707E+00	2.707E+00	16.48
	238.63	167	43.60*	4.741E+00	5.110E-01	5.110E-01	27.17
TH-229	300.09	14	3.30	4.040E+00	6.575E-01	6.575E-01	202.74
	85.43	218	14.70	5.751E+00	1.625E+00	1.626E+00	36.40
	88.47	91	24.00	5.991E+00	3.977E-01	3.977E-01	38.34
	193.51	-----	4.41*	5.442E+00	-----	Line Not Found	-----
TH-230	210.85	-----	2.80	5.151E+00	-----	Line Not Found	-----
	74.82	176	5.80	4.708E+00	4.075E+00	4.075E+00	30.11
	77.11	363	9.70	4.951E+00	4.773E+00	4.773E+00	16.48
	87.09	218	3.41	5.751E+00	7.007E+00	7.007E+00	36.40
	242.00	208	7.25	4.696E+00	3.856E+00	3.856E+00	22.88
	295.22	452	18.42	4.093E+00	3.791E+00	3.791E+00	11.48
PA-231	351.93	715	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59
	283.69	-----	1.70	4.209E+00	-----	Line Not Found	-----
TH-232	301.36	14	5.35*	4.040E+00	4.056E-01	4.056E-01	202.74
	105.21	46	1.10	6.537E+00	4.005E+00	4.005E+00	93.62
	338.32	33	11.27	3.721E+00	4.907E-01	4.907E-01	85.05
	835.71	-----	1.61	1.784E+00	-----	Line Not Found	-----
	911.20	31	25.80*	1.641E+00	4.646E-01	4.646E-01	65.34
TH-234	968.97	13	15.80	1.543E+00	3.246E-01	3.246E-01	170.62
	63.29	60	3.70*	3.164E+00	3.258E+00	3.258E+00	93.13
U-234	92.59	209	4.23	6.135E+00	5.081E+00	5.081E+00	28.35
	74.82	176	5.80	4.708E+00	4.075E+00	4.075E+00	30.11
	77.11	363	9.70	4.951E+00	4.773E+00	4.773E+00	16.48
	87.09	218	3.41	5.751E+00	7.007E+00	7.007E+00	36.40
	242.00	208	7.25	4.696E+00	3.856E+00	3.856E+00	22.88
	295.22	452	18.42	4.093E+00	3.791E+00	3.791E+00	11.48
U-235	351.93	715	35.60*	3.617E+00	3.508E+00	3.508E+00	9.59
	89.96	91	3.47	5.991E+00	2.751E+00	2.751E+00	38.34
	93.35	209	5.60	6.135E+00	3.838E+00	3.838E+00	28.35
	143.76	31	10.96*	6.345E+00	2.858E-01	2.858E-01	138.88
	163.33	-----	5.08	6.002E+00	-----	Line Not Found	-----
	185.72	148	57.20	5.572E+00	2.939E-01	2.939E-01	47.22
	205.31	-----	5.01	5.241E+00	-----	Line Not Found	-----
U-238	63.29	60	3.70*	3.164E+00	3.258E+00	3.258E+00	93.13
	92.59	209	4.23	6.135E+00	5.081E+00	5.081E+00	28.35
AM-243	43.53	-----	5.90	4.826E-01	-----	Line Not Found	-----
	74.66	176	67.20*	4.708E+00	3.517E-01	3.517E-01	30.11
CM-247	278.00	-----	3.40	4.269E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	287.50	-----	2.00	4.171E+00	-----	Line Not Found	-----
	402.40	19	72.00*	3.290E+00	5.126E-02	5.126E-02	130.34
ANH-511	511.00	20	100.00*	2.741E+00	4.527E-02	4.527E-02	213.04

Flag: "*" = Keyline

Total number of lines in spectrum 57
Number of unidentified lines 13
Number of lines tentatively identified by NID 44 77.19%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.351E+00	3.351E+00	1.092E+00	32.60	
GE-68	270.95D	1.09	7.187E-01	7.842E-01	17.04E-01	217.28	
RB-86	18.64D	3.56	2.678E-01	9.523E-01	20.69E-01	217.28	
SN-113	115.09D	1.23	4.289E-02	5.267E-02	8.291E-02	157.43	
SN-126	2.30E+05Y	1.00	6.458E-01	6.458E-01	2.350E-01	36.40	
BA-137M	30.08Y	1.00	4.041E-02	4.050E-02	3.270E-02	80.74	
CS-137	30.08Y	1.00	4.269E-02	4.278E-02	3.454E-02	80.74	
CE-141	32.51D	2.07	6.488E-02	1.343E-01	1.865E-01	138.88	
PR-144	284.91D	1.09	3.935E+00	4.275E+00	4.469E+00	104.54	
EU-155	4.75Y	1.01	2.088E-01	2.116E-01	1.981E-01	93.62	
TL-208	1.41E+10Y	1.00	1.746E-01	1.746E-01	0.968E-01	55.46	
BI-211	7.04E+08Y	1.00	9.665E+00	9.665E+00	0.927E+00	9.59	
BI-212	1.41E+10Y	1.00	9.294E-01	9.294E-01	9.009E-01	96.93	
PB-212	1.41E+10Y	1.00	5.110E-01	5.110E-01	1.389E-01	27.17	
BI-214	1600.00Y	1.00	3.055E+00	3.055E+00	0.302E+00	9.89	
PB-214	1600.00Y	1.00	3.508E+00	3.508E+00	0.336E+00	9.59	
RN-219	7.04E+08Y	1.00	5.592E-01	5.592E-01	7.289E-01	130.34	
RN-222	1600.00Y	1.00	3.055E+00	3.055E+00	0.302E+00	9.89	
RA-224	1.41E+10Y	1.00	6.819E+00	6.819E+00	1.560E+00	22.88	
RA-226	1600.00Y	1.00	3.508E+00	3.508E+00	0.336E+00	9.59	
AC-228	1.41E+10Y	1.00	4.646E-01	4.646E-01	3.036E-01	65.34	
RA-228	1.41E+10Y	1.00	4.646E-01	4.646E-01	3.036E-01	65.34	
TH-228	1.41E+10Y	1.00	5.110E-01	5.110E-01	1.389E-01	27.17	
TH-229	7340.00Y	1.00	3.977E-01	3.977E-01	1.525E-01	38.34	K
TH-230	7.54E+04Y	1.00	3.508E+00	3.508E+00	0.336E+00	9.59	
PA-231	7.04E+08Y	1.00	4.056E-01	4.056E-01	8.223E-01	202.74	
TH-232	1.41E+10Y	1.00	4.646E-01	4.646E-01	3.036E-01	65.34	
TH-234	4.47E+09Y	1.00	3.258E+00	3.258E+00	3.034E+00	93.13	
U-234	2.45E+05Y	1.00	3.508E+00	3.508E+00	0.336E+00	9.59	
U-235	7.04E+08Y	1.00	2.858E-01	2.858E-01	3.970E-01	138.88	
U-238	4.47E+09Y	1.00	3.258E+00	3.258E+00	3.034E+00	93.13	
AM-243	7370.00Y	1.00	3.517E-01	3.517E-01	1.059E-01	30.11	
CM-247	1.56E+07Y	1.00	5.126E-02	5.126E-02	6.681E-02	130.34	
ANH-511	1.00E+09Y	1.00	4.527E-02	4.527E-02	9.644E-02	213.04	
Total Activity :			5.807E+01	5.925E+01			

Grand Total Activity : 5.807E+01 5.925E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	79.17	58	132	1.07	159.19	145	21	1.48E-02	84.5	5.16E+00	T
0	128.64	29	120	1.75	258.09	256	7	7.44E-03	****	6.57E+00	T
0	195.04	27	58	1.46	390.85	389	5	7.13E-03	94.8	5.42E+00	
0	202.29	24	89	0.82	405.35	402	7	6.35E-03	****	5.29E+00	T
1	269.27	38	58	1.38	539.25	532	16	1.03E-02	76.7	4.36E+00	T
1	404.80	16	32	1.54	810.23	798	16	4.49E-03	****	3.27E+00	T
0	411.24	27	49	0.60	823.10	816	13	7.35E-03	****	3.23E+00	T
0	602.62	11	22	3.26	1205.75	1197	10	3.16E-03	****	2.40E+00	T
0	668.13	39	19	4.05	1336.75	1329	18	1.11E-02	59.2	2.19E+00	T
1	768.61	45	8	1.78	1537.66	1530	20	1.28E-02	41.2	1.93E+00	
1	772.35	16	12	1.86	1545.14	1530	20	4.51E-03	70.0	1.92E+00	T
0	786.26	20	22	1.09	1572.96	1567	13	5.82E-03	****	1.89E+00	
0	795.39	11	8	0.93	1591.20	1588	6	3.10E-03	****	1.87E+00	T
0	934.96	34	15	1.47	1870.29	1862	16	9.64E-03	61.5	1.60E+00	T
0	972.32	7	7	1.41	1945.00	1942	7	1.94E-03	****	1.54E+00	
0	1050.61	9	7	0.89	2101.56	2095	10	2.74E-03	****	1.42E+00	T
0	1196.06	7	3	0.85	2392.42	2389	6	2.00E-03	****	1.26E+00	
0	1202.54	12	0	1.00	2405.38	2400	10	3.61E-03	55.5	1.25E+00	
0	1207.08	9	2	0.89	2414.46	2411	7	2.55E-03	81.7	1.24E+00	
0	1238.44	32	10	1.96	2477.18	2472	12	9.22E-03	53.9	1.21E+00	T
0	1281.48	18	5	0.92	2563.24	2558	10	5.28E-03	63.6	1.18E+00	
0	1378.67	18	15	2.51	2757.60	2749	12	5.18E-03	95.3	1.10E+00	
0	1407.54	22	3	0.77	2815.35	2809	13	6.58E-03	51.7	1.08E+00	T
0	1495.21	5	9	0.65	2990.68	2984	8	1.38E-03	****	1.03E+00	
0	1511.62	6	10	2.18	3023.50	3015	10	1.62E-03	****	1.02E+00	
0	1730.09	24	5	1.88	3460.43	3454	12	7.03E-03	55.4	9.39E-01	
0	1849.19	8	9	2.34	3698.63	3689	12	2.49E-03	****	9.12E-01	

Flags: "T" = Tentatively associated

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299001.CNF;1
Acquisition date : 30-JUL-2024 11:13:06 Sensitivity : 3.000
Detector ID : GAM07 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.59 Half life ratio : *****
Sample date : 26-JUN-2024 09:03:00 Nuclide Library : SOLID
Sample ID : G674299001 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1884E+02 GRAM
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.782E-01
GE-68	1.164E+00
RB-86	1.413E+00
SN-113	4.567E-02
SN-126	6.602E-02
BA-137M	1.638E-02
CS-137	1.730E-02
PR-144	2.615E+00
EU-155	8.316E-02
TL-208	3.448E-02
BI-211	2.335E-01
BI-212	4.584E-01
PB-212	6.142E-02
BI-214	5.430E-02
PB-214	8.490E-02
RN-219	3.966E-01
RN-222	5.430E-02
RA-224	6.583E-01
RA-226	8.490E-02
AC-228	1.315E-01
RA-228	1.315E-01
TH-228	6.142E-02
TH-229	4.772E-01
TH-230	8.490E-02
PA-231	4.664E-01
TH-232	1.315E-01
TH-234	1.238E+00
U-234	8.490E-02
U-235	1.925E-01
U-238	1.238E+00
AM-243	5.070E-02
CM-247	3.640E-02
ANH-511	2.751E-02

---- Non-Identified Nuclides ----

Lc

Nuclide	(pCi/GRAM)	
BE-7	3.873E-01	NOT IDENT.
NA-22	4.587E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.253E-02	NOT IDENT.
SC-46	3.707E-02	FAIL ABUN
V-48	1.667E-01	NOT IDENT.
CR-51	5.699E-01	NOT IDENT.
MN-52	3.271E+00	FAIL ABUN
MN-54	3.541E-02	NOT IDENT.
CO-56	3.760E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.331E-02	NOT IDENT.
CO-58	3.542E-02	NOT IDENT.
FE-59	8.698E-02	NOT IDENT.
CO-60	3.603E-02	NOT IDENT.
ZN-65	9.022E-02	NOT IDENT.
AS-73	1.160E+00	NOT IDENT.
AS-74	1.923E-01	NOT IDENT.
SE-75	4.372E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	4.681E-01	NOT IDENT.
RB-83	7.880E-02	NOT IDENT.
RB-84	7.365E-02	NOT IDENT.
KR-85	6.493E+00	NOT IDENT.
SR-85	4.199E-02	NOT IDENT.
Y-88	1.635E-02	NOT IDENT.
Y-91	1.991E+01	NOT IDENT.
NB-94	2.874E-02	NOT IDENT.
NB-95	4.526E-02	NOT IDENT.
NB-95M	1.636E-01	NOT IDENT.
ZR-95	7.505E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.981E-02	FAIL ABUN
RH-102	3.921E-02	FAIL ABUN
RU-103	4.965E-02	FAIL ABUN
RH-106	3.015E-01	FAIL ABUN
RU-106	3.015E-01	FAIL ABUN
AG-108M	2.857E-02	NOT IDENT.
CD-109	1.003E+00	NOT IDENT.
AG-110	6.519E-01	NOT IDENT.
AG-110M	4.348E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.383E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.099E-02	NOT IDENT.
SB-124	1.080E-01	NOT IDENT.
SB-125	8.591E-02	NOT IDENT.
TE-125M	1.045E+01	NOT IDENT.
I-126	6.112E-01	NOT IDENT.
SB-126	2.908E-01	FAIL ABUN
SB-127	3.786E+01	NOT IDENT.
I-131	5.909E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.479E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.936E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.419E-01	NOT IDENT.
LA-138	7.603E-02	NOT IDENT.
CE-139	3.263E-02	NOT IDENT.
BA-140	7.040E-01	NOT IDENT.
LA-140	3.088E-01	NOT IDENT.
CE-141	9.643E-02	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.190E-01	FAIL ABUN
PM-144	3.574E-02	FAIL ABUN
PM-146	4.184E-02	NOT IDENT.
ND-147	1.793E+00	FAIL ABUN
PM-147	6.611E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.598E-02	FAIL ABUN
EU-152	9.307E-02	FAIL ABUN

GD-153	8.197E-02	NOT IDENT.
EU-154	1.287E-01	NOT IDENT.
TB-160	1.391E-01	FAIL ABUN
HO-166M	5.356E-02	FAIL ABUN
TM-171	2.057E+01	NOT IDENT.
HF-172	1.758E-01	FAIL ABUN
LU-172	5.371E-02	FAIL ABUN
LU-176	2.735E-02	FAIL ABUN
HF-181	5.412E-02	NOT IDENT.
TA-182	1.501E-01	FAIL ABUN
RE-183	2.266E-01	NOT IDENT.
RE-184	1.712E-01	NOT IDENT.
W-188	8.058E+00	FAIL ABUN
IR-192	3.457E-02	FAIL ABUN
HG-203	4.956E-02	NOT IDENT.
TL-204	4.918E+00	FAIL ABUN
BI-207	4.881E-02	FAIL ABUN
BI-210	4.299E+00	NOT IDENT.
PB-210	4.299E+00	NOT IDENT.
PB-211	6.926E-01	FAIL ABUN
BI-213	8.427E-02	NOT IDENT.
RA-223	6.110E-01	FAIL ABUN
AC-225	2.159E+00	NOT IDENT.
AC-227	2.781E-01	FAIL ABUN
TH-227	2.781E-01	FAIL ABUN
TH-231	6.110E-01	FAIL ABUN
PA-233	5.992E-02	FAIL ABUN
PA-234	2.450E-01	NOT IDENT.
PA-234M	4.874E+00	NOT IDENT.
NP-237	5.992E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.547E-01	FAIL ABUN
PU-239	3.544E+02	FAIL ABUN
AM-241	1.619E-01	NOT IDENT.
CM-243	8.667E-02	FAIL ABUN
BK-247	6.992E-02	NOT IDENT.
CF-249	4.413E-02	NOT IDENT.
CF-251	1.264E-01	NOT IDENT.

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299001.CNF;1 *
* Acquisition date : 30-JUL-2024 11:13:06 Sensitivity : 3.000 *
* Detector ID : GAM07 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.59 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:03:00 Nuclide Library : SOLID *
* Sample ID : G674299001 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.1884E+02 GRAM *
* Quantity Err(%) : 1.6829E-03 % *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	3.351E+00	1.140E+00	1.140E+00
GE-68	7.842E-01	1.672E+00	1.672E+00
RB-86	9.523E-01	2.030E+00	2.030E+00
SN-113	5.267E-02	8.137E-02	8.137E-02
SN-126	6.458E-01	2.380E-01	2.380E-01
BA-137M	4.050E-02	3.221E-02	3.221E-02
CS-137	4.278E-02	3.403E-02	3.403E-02
PR-144	4.275E+00	4.395E+00	4.395E+00
EU-155	2.116E-01	1.952E-01	1.952E-01
TL-208	1.746E-01	9.600E-02	9.600E-02
BI-211	9.665E+00	1.251E+00	1.251E+00
BI-212	9.294E-01	8.872E-01	8.872E-01
PB-212	5.110E-01	1.436E-01	1.436E-01
BI-214	3.055E+00	3.899E-01	3.899E-01
PB-214	3.508E+00	4.504E-01	4.504E-01
RN-219	5.592E-01	7.188E-01	7.188E-01
RN-222	3.055E+00	3.899E-01	3.899E-01
RA-224	6.819E+00	1.650E+00	1.650E+00
RA-226	3.508E+00	4.504E-01	4.504E-01
AC-228	4.646E-01	3.028E-01	3.028E-01
RA-228	4.646E-01	3.028E-01	3.028E-01
TH-228	5.110E-01	1.436E-01	1.436E-01
TH-229	-5.603E-02	6.364E-01	6.364E-01
TH-230	3.508E+00	4.504E-01	4.504E-01
PA-231	4.056E-01	8.111E-01	8.111E-01
TH-232	4.646E-01	3.028E-01	3.028E-01
TH-234	3.258E+00	3.072E+00	3.072E+00
U-234	3.508E+00	4.504E-01	4.504E-01
U-235	2.858E-01	3.897E-01	3.897E-01
U-238	3.258E+00	3.072E+00	3.072E+00
AM-243	3.517E-01	1.087E-01	1.087E-01
CM-247	5.126E-02	6.614E-02	6.614E-02
ANH-511	4.527E-02	9.459E-02	9.459E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.238E-01	4.707E-01	4.740E-01	NOT IDENT.
NA-22	4.925E-02	4.452E-02	4.975E-02	NOT IDENT.
NA-24	4.636E+14	1.010E+15	1.031E+15	SHORT HLIF
AL-26	-1.104E-02	3.091E-02	3.131E-02	NOT IDENT.
SC-46	-1.113E-02	4.491E-02	4.519E-02	FAIL ABUN
V-48	1.468E-01	1.687E-01	1.812E-01	NOT IDENT.
CR-51	2.186E-01	6.262E-01	6.339E-01	NOT IDENT.
MN-52	6.615E-01	3.807E+00	3.818E+00	FAIL ABUN
MN-54	-1.467E-02	4.643E-02	4.690E-02	NOT IDENT.
CO-56	-2.027E-02	5.098E-02	5.179E-02	FAIL ABUN
MN-56	-1.000E+41	2.515E+41	0.000E+00	SHORT HLIF
CO-57	-1.109E-02	2.844E-02	2.888E-02	NOT IDENT.
CO-58	-5.184E-02	5.500E-02	5.976E-02	NOT IDENT.
FE-59	-3.229E-02	1.100E-01	1.110E-01	NOT IDENT.
CO-60	-1.836E-02	4.653E-02	4.726E-02	NOT IDENT.
ZN-65	6.298E-03	1.191E-01	1.192E-01	NOT IDENT.
AS-73	5.755E-01	1.273E+00	1.299E+00	NOT IDENT.
AS-74	-1.549E-02	2.605E-01	2.606E-01	NOT IDENT.
SE-75	-6.796E-03	5.526E-02	5.535E-02	FAIL ABUN
BR-77	2.018E+04	2.065E+04	2.257E+04	SHORT HLIF
SR-82	-3.285E-02	6.536E-01	6.538E-01	NOT IDENT.
RB-83	7.617E-02	8.249E-02	8.935E-02	NOT IDENT.
RB-84	-8.699E-02	9.937E-02	1.068E-01	NOT IDENT.
KR-85	6.241E+00	7.376E+00	7.894E+00	NOT IDENT.
SR-85	4.027E-02	4.771E-02	5.104E-02	NOT IDENT.
Y-88	-3.789E-02	3.565E-02	3.953E-02	NOT IDENT.
Y-91	2.511E+01	1.693E+01	2.037E+01	NOT IDENT.
NB-94	2.030E-02	3.389E-02	3.511E-02	NOT IDENT.
NB-95	3.957E-02	5.172E-02	5.471E-02	NOT IDENT.
NB-95M	-1.899E-02	2.214E-01	2.216E-01	NOT IDENT.
ZR-95	-3.342E-02	9.819E-02	9.934E-02	NOT IDENT.
NB-97	-1.000E+41	1.626E+41	0.000E+00	SHORT HLIF
ZR-97	-7.598E+13	3.107E+14	3.125E+14	SHORT HLIF
MO-99	8.541E+02	1.515E+03	1.563E+03	SHORT HLIF
TC-99M	-1.290E+39	2.579E+39	0.000E+00	SHORT HLIF
RH-101	4.110E-02	5.536E-02	5.838E-02	FAIL ABUN
RH-102	-1.227E-02	4.968E-02	4.999E-02	FAIL ABUN
RU-103	-3.907E-03	5.900E-02	5.903E-02	FAIL ABUN
RH-106	-7.247E-02	3.733E-01	3.747E-01	FAIL ABUN
RU-106	-7.247E-02	3.733E-01	3.747E-01	FAIL ABUN
AG-108M	-6.927E-03	3.410E-02	3.425E-02	NOT IDENT.
CD-109	2.951E+00	1.194E+00	1.787E+00	NOT IDENT.
AG-110	3.148E-01	7.577E-01	7.708E-01	NOT IDENT.
AG-110M	1.643E-02	4.690E-02	4.748E-02	NOT IDENT.
CD-115	-1.276E+03	4.985E+03	5.018E+03	SHORT HLIF
SN-117M	-9.777E-02	1.742E-01	1.797E-01	NOT IDENT.
SB-122	-6.021E+01	2.761E+02	2.774E+02	SHORT HLIF
TE-123M	1.827E-03	3.697E-02	3.698E-02	NOT IDENT.
SB-124	8.239E-02	1.020E-01	1.086E-01	NOT IDENT.
SB-125	2.938E-02	9.614E-02	9.705E-02	NOT IDENT.
TE-125M	1.005E+00	1.214E+01	1.215E+01	NOT IDENT.
I-126	5.522E-01	7.082E-01	7.506E-01	NOT IDENT.
SB-126	1.207E-02	3.506E-01	3.507E-01	FAIL ABUN
SB-127	5.695E+00	4.484E+01	4.492E+01	NOT IDENT.
I-131	6.792E-02	6.713E-01	6.720E-01	FAIL ABUN
I-132	1.000E+41	2.183E+41	0.000E+00	SHORT HLIF
TE-132	6.926E+00	5.276E+01	5.286E+01	SHORT HLIF
BA-133	6.847E-03	5.622E-02	5.630E-02	NOT IDENT.
I-133	1.392E+10	2.617E+10	2.691E+10	SHORT HLIF
CS-134	4.437E-02	4.466E-02	4.893E-02	FAIL ABUN
I-135	1.260E+36	3.997E+36	0.000E+00	SHORT HLIF
CS-136	-1.241E-01	3.568E-01	3.611E-01	NOT IDENT.
LA-138	8.099E-02	7.460E-02	8.306E-02	NOT IDENT.
CE-139	2.050E-02	3.763E-02	3.875E-02	NOT IDENT.
BA-140	2.930E-01	7.902E-01	8.012E-01	NOT IDENT.
LA-140	-4.960E-02	3.880E-01	3.886E-01	NOT IDENT.
CE-141	1.343E-01	1.830E-01	1.927E-01	FAIL ABUN
CE-143	2.889E+06	2.225E+06	2.578E+06	SHORT HLIF
CE-144	2.871E-01	2.378E-01	2.708E-01	FAIL ABUN
PM-144	5.656E-02	5.815E-02	6.350E-02	FAIL ABUN
PM-146	2.748E-02	4.542E-02	4.708E-02	NOT IDENT.
ND-147	2.838E-01	2.081E+00	2.085E+00	FAIL ABUN
PM-147	-6.855E+01	7.843E+02	7.849E+02	NOT IDENT.
PM-149	2.448E+04	3.932E+04	4.084E+04	SHORT HLIF
EU-150	-3.246E-03	3.339E-02	3.342E-02	FAIL ABUN

EU-152	-5.597E-02	1.123E-01	1.151E-01	FAIL ABUN
GD-153	2.279E-02	9.348E-02	9.404E-02	NOT IDENT.
EU-154	1.382E-01	1.249E-01	1.396E-01	NOT IDENT.
TB-160	-4.074E-03	1.610E-01	1.610E-01	FAIL ABUN
HO-166M	4.359E-02	5.664E-02	5.995E-02	FAIL ABUN
TM-171	-8.649E-02	2.314E+01	2.314E+01	NOT IDENT.
HF-172	3.693E-02	2.207E-01	2.213E-01	FAIL ABUN
LU-172	-5.885E-02	7.526E-02	7.980E-02	FAIL ABUN
LU-176	1.318E-02	2.982E-02	3.041E-02	FAIL ABUN
HF-181	3.626E-02	5.825E-02	6.050E-02	NOT IDENT.
TA-182	1.759E-02	1.738E-01	1.739E-01	FAIL ABUN
RE-183	-2.376E-01	2.759E-01	2.960E-01	NOT IDENT.
RE-184	-8.900E-02	2.126E-01	2.163E-01	NOT IDENT.
W-188	6.464E-01	1.002E+01	1.002E+01	FAIL ABUN
IR-192	-3.839E-02	4.363E-02	4.694E-02	FAIL ABUN
HG-203	4.738E-03	5.543E-02	5.547E-02	NOT IDENT.
TL-204	6.604E-01	6.003E+00	6.010E+00	FAIL ABUN
BI-207	5.092E-03	5.622E-02	5.627E-02	FAIL ABUN
BI-210	-1.477E-01	4.735E+00	4.736E+00	NOT IDENT.
PB-210	-1.477E-01	4.735E+00	4.736E+00	NOT IDENT.
PB-211	8.322E-01	9.772E-01	1.047E+00	FAIL ABUN
BI-213	-9.513E-02	1.117E-01	1.196E-01	NOT IDENT.
RA-223	2.100E-01	6.746E-01	6.812E-01	FAIL ABUN
AC-225	-4.687E-01	2.693E+00	2.701E+00	NOT IDENT.
AC-227	1.329E-01	3.318E-01	3.371E-01	FAIL ABUN
TH-227	1.329E-01	3.318E-01	3.371E-01	FAIL ABUN
TH-231	2.100E-01	6.746E-01	6.812E-01	FAIL ABUN
PA-233	-1.228E-03	6.816E-02	6.816E-02	FAIL ABUN
PA-234	3.136E-02	2.800E-01	2.804E-01	NOT IDENT.
PA-234M	3.152E+00	5.176E+00	5.367E+00	NOT IDENT.
NP-237	-1.228E-03	6.816E-02	6.816E-02	FAIL ABUN
NP-238	-3.911E+03	1.079E+04	1.093E+04	SHORT HLIF
NP-239	1.991E-01	2.834E-01	2.973E-01	FAIL ABUN
PU-239	4.343E+02	5.802E+02	6.124E+02	FAIL ABUN
AM-241	8.576E-02	1.904E-01	1.943E-01	NOT IDENT.
CM-243	2.112E-01	1.952E-01	2.172E-01	FAIL ABUN
BK-247	-1.421E-02	8.888E-02	8.911E-02	NOT IDENT.
CF-249	-9.822E-03	5.800E-02	5.817E-02	NOT IDENT.
CF-251	-7.125E-02	1.593E-01	1.625E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	76.9690	85.43	88.6844	131.20	88.4161
45.60	74.8106	86.55	88.8911	133.02	82.5880
46.54	73.2455	86.79	88.9350	133.52	63.3303
49.72	0.0000	86.94	88.9625	136.00	91.5836
51.35	87.9137	87.09	88.9906	136.47	85.1791
51.87	75.3394	87.57	89.0785	140.51	0.0000
52.39	78.1803	88.03	91.1437	143.76	79.5664
52.97	74.6688	88.34	91.2019	144.24	79.6210
53.44	74.7692	88.47	91.2258	145.44	71.3836
54.07	78.5572	89.96	79.5667	152.43	101.5220
57.36	0.0000	1093.63	79.6759	153.25	62.9717
57.53	88.5388	91.11	79.7510	323.87	81.8611
57.98	92.3401	92.59	79.9860	156.02	94.2657
59.27	83.3945	93.35	80.1062	158.56	86.8038
59.32	83.4058	94.56	81.6343	159.00	73.4927
59.54	82.8364	94.65	81.6486	162.33	71.5859
60.96	103.0036	94.67	81.6517	162.66	62.6650
61.17	103.0602	94.87	68.2931	163.33	71.6807
62.93	88.8741	97.43	75.6958	165.86	62.9308
63.29	88.9561	98.43	66.7392	176.31	61.5048
63.58	89.0219	98.44	66.7407	176.60	66.0846
64.28	89.1801	99.53	80.0511	177.52	80.9898
66.73	102.0064	100.11	73.0377	181.07	0.0000
67.24	89.5250	102.03	65.1548	181.52	87.1259
125.81	93.7242	103.18	54.4108	184.41	87.4343
67.75	93.7400	103.37	56.1309	143.76	89.8781
68.89	100.6463	105.21	56.3193	193.51	60.4789
69.67	113.2022	105.31	56.3298	197.03	71.6279
70.82	108.1064	106.12	58.8052	198.01	59.2382
70.83	108.1099	106.47	54.7371	201.83	66.9360
72.81	109.8918	109.28	64.9827	203.43	54.9011
72.87	109.9067	111.00	93.1133	205.31	59.7337
74.66	110.3616	111.76	0.0000	210.85	88.9698
74.82	110.4018	114.06	87.3665	215.65	73.9362
74.97	110.4403	116.30	0.0000	218.12	64.5683
77.11	110.9757	116.74	62.6894	222.11	48.0334
78.74	111.3782	119.76	63.0066	227.09	63.9791
79.69	111.6117	121.12	67.3579	227.38	59.1685
80.03	111.6931	121.22	67.3691	228.16	0.0000
80.12	111.7167	121.78	73.7528	228.18	61.6349
80.19	111.7333	122.06	73.7865	116.74	61.6349
80.57	111.8261	122.92	64.3899	235.69	82.8190
81.00	111.9302	123.07	64.4057	235.96	82.8408
81.07	111.9477	265.00	65.5264	238.63	72.0719
81.75	70.3960	125.81	66.4581	238.98	0.0000
82.47	70.5053	127.23	65.1912	240.99	72.2430
83.79	88.3788	127.91	76.6118	242.00	72.3159
84.00	88.4180	129.30	79.9782	244.70	40.9663

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	45.8164	344.28	45.5536	563.25	22.5416
252.80	47.0727	345.93	43.8231	564.24	0.0000
254.15	0.0000	351.06	53.8696	569.33	31.8628
256.23	54.6855	351.93	53.9050	946.00	30.8386
260.90	0.0000	355.39	0.0000	569.70	35.9812
264.66	41.3416	356.01	41.9041	583.19	23.8086
264.80	41.3477	364.49	34.4599	584.27	23.8217
265.00	41.3547	366.42	0.0000	595.83	25.0029
269.46	48.6578	372.51	31.9245	427.87	22.9740
270.03	48.6826	375.05	22.8449	602.52	0.0000
271.23	48.7369	377.52	36.6170	604.72	9.4175
273.65	41.6861	356.01	41.3791	607.14	20.4291
276.40	55.7211	388.16	47.0385	609.32	15.7312
277.37	48.1645	388.63	48.4380	610.33	15.7391
277.60	48.1749	391.69	29.5866	614.28	20.5005
278.00	41.4285	264.66	33.4907	618.01	22.1177
279.20	46.5506	401.81	33.5171	620.36	20.0337
279.54	46.5651	402.40	33.5303	621.93	22.1595
279.70	44.8783	404.85	33.5859	630.19	0.0000
280.46	43.2139	410.95	33.7244	631.29	13.7792
283.69	50.1366	413.71	26.7477	633.25	12.7312
284.31	49.3139	414.70	35.2173	634.78	12.7402
285.41	45.9580	423.72	32.1206	635.95	11.6853
285.90	0.0000	427.09	25.5635	636.99	10.6283
287.50	43.4847	427.87	23.6816	657.50	11.5888
290.67	39.7575	433.94	32.3329	657.76	16.7413
293.27	0.0000	439.40	33.4000	657.90	0.0000
351.93	38.1120	440.45	32.4678	661.66	4.8380
295.96	38.1364	453.88	21.1858	664.57	0.0000
879.38	33.5735	463.37	22.2780	666.33	12.9287
299.98	33.6132	468.07	19.4275	666.50	12.9297
300.09	33.6164	473.00	27.2794	667.71	0.0000
300.13	33.6172	475.06	23.4111	677.62	10.8293
301.36	45.5608	476.78	19.5292	685.70	17.3893
302.85	51.8384	477.60	29.3079	692.65	0.0000
256.23	41.5283	482.18	15.6735	695.00	14.7332
304.85	48.0318	487.02	14.7357	696.49	21.2948
306.78	39.0070	492.35	0.0000	696.51	21.2956
308.46	44.2701	497.08	22.7267	697.00	17.4766
311.90	37.4325	505.52	28.2982	697.30	17.4792
316.51	43.6910	507.63	0.0000	697.49	17.4805
319.41	30.6563	511.00	25.8961	702.65	9.8551
320.08	33.3018	514.00	14.9652	706.68	7.6785
321.04	42.9747	514.00	14.9652	711.68	8.7946
323.87	34.2829	520.40	13.0164	720.70	9.9324
325.23	38.7202	520.69	0.0000	721.93	0.0000
328.76	37.9469	522.65	0.0000	722.78	8.2843
333.37	37.1995	527.90	0.0000	722.91	8.2849
333.97	41.2040	528.26	23.1292	723.31	11.6006
334.37	41.2173	529.59	20.1270	724.19	13.2632
338.28	34.6749	529.87	0.0000	727.33	17.7077
338.32	34.6757	531.02	22.1567	733.00	17.3062
311.90	40.0772	537.26	18.1897	735.93	14.4399
340.48	40.0772	546.56	0.0000	333.97	14.4494
340.55	40.0790	552.55	14.2638	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	22.2925	949.00	11.7400	1384.29	4.0994
747.24	12.2765	667.71	0.0000	1408.01	8.2471
748.06	16.7462	962.31	13.0632	1434.09	10.3748
752.31	14.5388	964.08	8.7141	1435.80	4.1516
753.82	13.4287	966.17	14.5337	1457.56	0.0000
756.73	17.9264	911.20	18.9116	1460.82	8.3535
756.80	17.9271	983.53	7.3091	1489.16	6.7277
884.68	8.4280	984.45	0.0000	1505.03	13.5055
765.81	8.4344	1274.44	14.6797	1584.12	6.4457
766.42	8.9990	1001.03	11.0270	1596.21	10.7715
766.84	9.0007	1002.74	9.1943	1620.50	4.3315
772.60	0.0000	1004.73	12.8806	1621.92	5.4163
776.52	13.5537	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.0994
778.90	14.6975	1028.54	0.0000	1750.46	0.0000
783.70	8.4955	1037.84	6.5091	1764.49	6.6973
788.74	8.5129	1038.76	0.0000	1063.66	1.7880
792.07	17.0477	631.29	10.4439	1771.35	3.5768
795.86	10.2440	1048.07	13.4341	1791.20	0.0000
810.06	16.0246	1049.04	11.1980	1808.65	3.6037
810.29	14.8810	1050.41	10.4563	1810.72	0.0000
344.28	17.1716	1063.66	11.2500	1836.06	3.6232
810.76	20.6082	1077.00	10.5431		
815.77	12.6185	1077.34	10.5444		
1048.07	11.4836	1085.87	9.4391		
832.01	16.1602	1093.63	17.0310		
834.85	19.6445	1099.45	9.4781		
835.71	21.9626	1112.07	15.2227		
836.80	0.0000	1112.84	17.4018		
846.75	0.0000	1115.54	13.7153		
846.77	15.0900	1120.29	11.4456		
856.80	18.6426	1120.55	11.4463		
860.56	9.6260	1221.41	11.4485		
871.09	11.4202	1129.67	12.4335		
873.19	13.1873	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	12.3359	1173.23	10.6549		
880.51	10.5780	1177.95	6.7898		
881.60	12.3461	1189.05	10.7032		
883.24	12.3534	1204.77	0.0000		
884.68	7.9456	1221.41	6.8735		
889.28	12.3803	1231.02	8.8605		
894.76	20.3791	1235.36	14.1943		
898.04	15.0810	1238.28	11.8381		
900.72	21.3113	1260.41	0.0000		
903.28	18.6640	1271.87	8.9594		
911.20	14.2603	1274.44	3.9849		
912.08	14.2646	1274.54	3.9849		
923.98	0.0000	1291.59	4.0029		
926.50	11.6487	1298.22	0.0000		
929.11	12.9151	1312.11	4.0247		
935.54	8.0901	1332.49	9.1033		
937.49	10.0745	1362.66	0.0000		
944.13	9.9171	1365.19	6.1198		
946.00	9.0213	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:15:08.34

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299002.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM08.CNF;726
Background date    : 29-JUL-2024 05:38:49
Sample date       : 26-JUN-2024 09:06:00 Acquisition date : 30-JUL-2024 11:13:34
Sample ID        : G674299002 Sample quantity : 1.13580E+02 GRAM
Detector name    : GAM08 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.73 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.38*	38	223	1.16	126.96	123	8	1.05E-02	71.5	1.58E+00
2	3	73.59	55	172	1.46	147.38	144	15	1.54E-02	45.8	
3	3	75.08	178	151	1.08	150.38	144	15	4.94E-02	13.9	
4	3	77.20*	302	185	1.21	154.62	144	15	8.40E-02	9.9	
5	0	83.93	64	217	1.08	168.08	165	7	1.77E-02	40.3	1.71E+00
6	0	87.36	88	235	1.18	174.93	172	7	2.43E-02	30.9	
7	0	93.22*	85	332	0.95	186.67	181	10	2.36E-02	43.6	
8	0	144.22*	34	160	1.78	288.70	285	8	9.57E-03	66.8	
9	0	186.21*	242	185	1.33	372.70	368	10	6.71E-02	12.7	1.30E+00
10	0	210.81	32	180	2.93	421.91	412	13	8.91E-03	88.9	
11	1	238.87*	172	118	1.37	478.04	474	15	4.77E-02	13.6	
12	1	241.98	244	95	1.34	484.28	474	15	6.78E-02	9.8	
13	0	270.79	57	133	3.26	541.90	533	14	1.58E-02	44.9	1.30E+00
14	0	295.48*	496	149	1.40	591.30	584	15	1.38E-01	7.0	
15	0	338.70*	29	70	1.49	677.77	673	9	8.07E-03	56.2	
16	0	352.05*	820	98	1.40	704.48	697	14	2.28E-01	4.3	
17	0	413.36	23	55	4.86	827.12	818	12	6.32E-03	69.4	1.30E+00
18	0	424.35	11	28	1.28	849.11	846	6	3.08E-03	82.7	
19	0	431.36	22	48	3.86	863.12	855	13	6.00E-03	71.6	
20	0	475.20	16	48	0.95	950.83	942	12	4.45E-03	90.1	
21	0	509.20	153	68	3.88	1018.84	999	31	4.24E-02	18.1	1.30E+00
22	0	533.82	24	24	2.00	1068.08	1063	9	6.55E-03	44.2	
23	4	543.06	24	5	2.49	1086.58	1082	23	6.64E-03	29.0	
24	4	548.12	22	8	2.50	1096.70	1082	23	6.24E-03	41.3	
25	0	584.09*	45	47	1.11	1168.65	1162	12	1.25E-02	35.3	1.30E+00
26	0	609.58*	551	71	1.66	1219.64	1213	12	1.53E-01	5.3	
27	0	730.48	61	11	7.98	1461.46	1450	22	1.70E-02	18.8	
28	0	742.95*	24	8	1.33	1486.39	1480	11	6.57E-03	32.1	
29	0	759.98	12	10	0.70	1520.46	1513	10	3.30E-03	57.8	1.30E+00
30	0	768.13	91	8	1.90	1536.76	1529	16	2.53E-02	12.6	
31	0	786.08	33	21	1.88	1572.67	1567	12	9.08E-03	33.1	
32	0	819.78	18	20	1.33	1640.07	1634	11	4.93E-03	58.0	
33	0	832.12	22	7	1.31	1664.76	1661	9	6.07E-03	30.4	1.30E+00
34	0	853.16	7	11	0.97	1706.83	1703	9	2.05E-03	89.1	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	911.05*	34	10	1.42	1822.62	1817	10	9.52E-03	25.4	
36	0	934.57	50	5	2.31	1869.65	1863	17	1.39E-02	17.1	
37	0	969.43*	30	21	2.09	1939.37	1932	13	8.24E-03	38.7	
38	0	1079.95	16	13	3.57	2160.41	2154	16	4.55E-03	53.6	
39	0	1120.24	114	25	1.49	2240.97	2234	14	3.18E-02	13.1	
40	0	1148.26	13	11	2.82	2297.01	2292	13	3.72E-03	55.8	
41	0	1157.11	7	11	0.90	2314.71	2306	11	1.98E-03	97.7	
42	0	1186.18	5	19	3.31	2372.85	2360	14	1.42E-03	180.2	
43	0	1238.04	70	5	0.90	2476.55	2470	16	1.95E-02	13.6	
44	0	1261.54	12	6	1.16	2523.55	2519	11	3.43E-03	46.7	
45	0	1281.31*	20	13	2.53	2563.07	2556	13	5.62E-03	43.5	
46	0	1378.26	27	16	0.81	2756.95	2752	10	7.41E-03	34.9	
47	0	1386.83	18	8	5.97	2774.08	2767	16	5.00E-03	42.3	
48	0	1407.90*	22	11	1.38	2816.22	2809	15	6.08E-03	40.0	
49	0	1461.43*	43	18	2.42	2923.25	2915	14	1.19E-02	26.4	
50	0	1508.55	26	7	1.81	3017.47	3010	15	7.13E-03	30.5	
51	0	1531.10	9	0	1.87	3062.56	3059	8	2.50E-03	33.3	
52	0	1731.01	19	8	3.79	3462.26	3450	16	5.28E-03	40.4	
53	0	1764.61*	97	4	2.20	3529.44	3520	17	2.69E-02	11.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299002.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:06:00 Acquisition date : 30-JUL-2024 11:13:34
Sample ID : G674299002 Sample quantity : 113.58 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA8 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.73 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.535E-01	2.624E+00	2.624E+00	52.76	OK
CD-109	88.03	3.70*	4.596E+00	3.585E+00	3.774E+00	61.86	OK
SN-126	64.28	9.60	2.151E+00	1.293E+00	1.293E+00	143.09	OK
	86.94	8.90	4.596E+00	1.490E+00	1.490E+00	61.86	OK
	87.57	37.00*	4.596E+00	3.585E-01	3.585E-01	61.86	OK
TL-208	277.37	6.60	3.683E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.100E+00	1.633E-01	1.633E-01	70.66	OK
	860.56	12.50	1.517E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	3.356E+00	9.423E+00	9.423E+00	91.53	OK
	351.06	12.92*	3.086E+00	1.358E+01	1.358E+01	8.70	OK
PB-212	74.82	10.28	3.517E+00	3.445E+00	3.445E+00	27.81	OK
	77.11	17.10	3.734E+00	3.316E+00	3.316E+00	19.87	OK
	238.63	43.60*	4.107E+00	6.433E-01	6.433E-01	27.25	OK
	300.09	3.30	3.475E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	2.030E+00	3.852E+00	3.852E+00	10.50	OK
	1120.29	14.92	1.196E+00	4.039E+00	4.039E+00	26.19	OK
	1764.49	15.30	8.411E-01	4.653E+00	4.653E+00	22.76	OK
PB-214	74.82	5.80	3.517E+00	6.106E+00	6.106E+00	27.81	OK
	77.11	9.70	3.734E+00	5.846E+00	5.846E+00	19.87	OK
	87.09	3.41	4.596E+00	3.890E+00	3.890E+00	61.86	OK
	242.00	7.25	4.069E+00	5.546E+00	5.547E+00	19.59	OK
	295.22	18.42	3.515E+00	5.097E+00	5.097E+00	14.07	OK
	351.93	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70	OK
RN-222	609.32	45.49*	2.030E+00	3.852E+00	3.852E+00	10.50	OK
	1120.29	14.92	1.196E+00	4.039E+00	4.039E+00	26.19	OK
	1764.49	15.30	8.411E-01	4.653E+00	4.653E+00	22.76	OK
RA-224	240.99	4.10*	4.069E+00	9.808E+00	9.808E+00	19.59	OK
RA-226	74.82	5.80	3.517E+00	6.106E+00	6.106E+00	27.81	OK
	77.11	9.70	3.734E+00	5.846E+00	5.846E+00	19.87	OK
	87.09	3.41	4.596E+00	3.890E+00	3.890E+00	61.86	OK
	242.00	7.25	4.069E+00	5.546E+00	5.547E+00	19.59	OK
	295.22	18.42	3.515E+00	5.097E+00	5.097E+00	14.07	OK
	351.93	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70	OK
AC-228	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.176E+00	5.368E-01	5.368E-01	112.33	OK
	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89	OK
	968.97	15.80	1.363E+00	8.724E-01	8.724E-01	77.50	OK
RA-228	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.176E+00	5.368E-01	5.368E-01	112.33	OK
	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89	OK
	968.97	15.80	1.363E+00	8.724E-01	8.724E-01	77.50	OK
TH-228	74.82	10.28	3.517E+00	3.445E+00	3.445E+00	27.81	OK
	77.11	17.10	3.734E+00	3.316E+00	3.316E+00	19.87	OK
	238.63	43.60*	4.107E+00	6.433E-01	6.433E-01	27.25	OK
	300.09	3.30	3.475E+00	----- Line	Not Found	-----	Absent
TH-229	85.43	14.70	4.340E+00	6.954E-01	6.954E-01	80.69	OK
	88.47	24.00	4.596E+00	5.527E-01	5.527E-01	61.86	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-230	193.51	4.41*	4.743E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	4.483E+00	1.722E+00	1.722E+00	177.86	OK
	74.82	5.80	3.517E+00	6.106E+00	6.106E+00	27.81	OK
	77.11	9.70	3.734E+00	5.846E+00	5.846E+00	19.87	OK
	87.09	3.41	4.596E+00	3.890E+00	3.890E+00	61.86	OK
	242.00	7.25	4.069E+00	5.546E+00	5.546E+00	19.59	OK
TH-232	295.22	18.42	3.515E+00	5.097E+00	5.097E+00	14.07	OK
	351.93	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70	OK
	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.176E+00	5.368E-01	5.368E-01	112.33	OK
	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89	OK
TH-234	968.97	15.80	1.363E+00	8.724E-01	8.724E-01	77.50	OK
	63.29	3.70*	2.151E+00	3.356E+00	3.356E+00	143.09	OK
	92.59	4.23	4.956E+00	2.816E+00	2.816E+00	87.10	OK
U-234	74.82	5.80	3.517E+00	6.106E+00	6.106E+00	27.81	OK
	77.11	9.70	3.734E+00	5.846E+00	5.846E+00	19.87	OK
	87.09	3.41	4.596E+00	3.890E+00	3.890E+00	61.86	OK
	242.00	7.25	4.069E+00	5.546E+00	5.546E+00	19.59	OK
	295.22	18.42	3.515E+00	5.097E+00	5.097E+00	14.07	OK
	351.93	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70	OK
U-235	89.96	3.47	4.768E+00	----- Line	Not Found	-----	Absent
	93.35	5.60	4.956E+00	2.127E+00	2.127E+00	87.10	OK
	143.76	10.96*	5.494E+00	3.910E-01	3.910E-01	133.66	OK
	163.33	5.08	5.223E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	4.858E+00	5.885E-01	5.885E-01	25.47	OK
U-238	205.31	5.01	4.563E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.151E+00	3.356E+00	3.356E+00	143.09	OK
	92.59	4.23	4.956E+00	2.816E+00	2.816E+00	87.10	OK
AM-243	43.53	5.90	2.524E-01	----- Line	Not Found	-----	Absent
	74.66	67.20*	3.517E+00	5.270E-01	5.270E-01	27.81	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299002.CNF;1
Acquisition date : 30-JUL-2024 11:13:34 Sensitivity : 3.000
Detector ID : GAM08 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.73 Half life ratio : *****
Sample date : 26-JUN-2024 09:06:00 Analyst initials: RXF2
Sample ID : G674299002 Sample Quantity : 1.1358E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.624E+00	1.357E+00	1.297E+00
CD-109	3.774E+00	2.288E+00	2.765E+00
SN-126	3.585E-01	2.173E-01	2.583E-01
TL-208	1.633E-01	1.131E-01	1.119E-01
BI-211	1.358E+01	1.158E+00	5.969E-01
PB-212	6.433E-01	1.718E-01	1.682E-01
BI-214	3.852E+00	3.964E-01	1.911E-01
PB-214	4.929E+00	4.202E-01	2.171E-01
RN-222	3.852E+00	3.964E-01	1.911E-01
RA-224	9.808E+00	1.883E+00	1.803E+00
RA-226	4.929E+00	4.202E-01	2.171E-01
AC-228	5.853E-01	2.919E-01	4.091E-01
RA-228	5.853E-01	2.919E-01	4.091E-01
TH-228	6.433E-01	1.718E-01	1.682E-01
TH-229	1.592E-01	8.508E-01	1.596E+00
TH-230	4.929E+00	4.202E-01	2.171E-01
TH-232	5.853E-01	2.919E-01	4.091E-01
TH-234	3.356E+00	4.706E+00	4.573E+00
U-234	4.929E+00	4.202E-01	2.171E-01
U-235	3.910E-01	5.122E-01	5.780E-01
U-238	3.356E+00	4.706E+00	4.573E+00
AM-243	5.270E-01	1.436E-01	1.673E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.219E-01	7.110E-01	1.184E+00	NOT IDENT.
NA-22	1.861E-02	4.445E-02	9.207E-02	NOT IDENT.
NA-24	0.000E+00	9.045E+14	0.000E+00	SHORT HLIF
AL-26	-1.620E-02	5.396E-02	1.035E-01	NOT IDENT.
SC-46	-4.905E-02	6.487E-02	1.099E-01	FAIL ABUN
V-48	1.152E-01	2.395E-01	4.907E-01	NOT IDENT.
CR-51	-2.922E-01	8.894E-01	1.588E+00	NOT IDENT.
MN-52	-4.776E+00	3.914E+00	5.901E+00	FAIL ABUN

MN-54	-1.259E-02	6.249E-02	1.012E-01	NOT IDENT.
CO-56	-6.006E-03	6.023E-02	1.158E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	6.147E-03	4.281E-02	7.458E-02	NOT IDENT.
CO-58	-5.436E-02	6.798E-02	1.155E-01	NOT IDENT.
FE-59	-7.793E-02	1.621E-01	2.843E-01	NOT IDENT.
CO-60	3.055E-02	5.903E-02	1.245E-01	NOT IDENT.
ZN-65	8.579E-02	1.287E-01	2.523E-01	NOT IDENT.
GE-68	3.891E-01	2.052E+00	3.616E+00	NOT IDENT.
AS-73	2.565E+00	2.377E+00	4.581E+00	NOT IDENT.
AS-74	-1.689E-01	2.818E-01	5.085E-01	NOT IDENT.
SE-75	4.819E-02	8.306E-02	1.450E-01	NOT IDENT.
BR-77	0.000E+00	6.780E+03	0.000E+00	SHORT HLIF
SR-82	2.577E-01	6.935E-01	1.438E+00	NOT IDENT.
RB-83	3.369E-02	1.264E-01	2.374E-01	NOT IDENT.
RB-84	6.346E-02	1.723E-01	3.414E-01	NOT IDENT.
KR-85	9.115E+00	1.260E+01	2.227E+01	NOT IDENT.
SR-85	5.854E-02	8.146E-02	1.439E-01	NOT IDENT.
RB-86	9.487E-01	2.404E+00	4.456E+00	NOT IDENT.
Y-88	-4.052E-02	6.262E-02	1.078E-01	NOT IDENT.
Y-91	2.532E+00	3.659E+01	6.992E+01	NOT IDENT.
NB-94	3.740E-02	5.377E-02	1.097E-01	NOT IDENT.
NB-95	5.545E-02	8.579E-02	1.593E-01	NOT IDENT.
NB-95M	7.863E-02	2.505E-01	4.272E-01	NOT IDENT.
ZR-95	1.656E-02	1.272E-01	2.249E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.267E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.685E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.847E+39	0.000E+00	SHORT HLIF
RH-101	-6.911E-03	5.008E-02	8.520E-02	NOT IDENT.
RH-102	-3.523E-02	7.508E-02	1.378E-01	FAIL ABUN
RU-103	4.638E-02	7.920E-02	1.452E-01	FAIL ABUN
RH-106	1.470E-01	4.170E-01	8.554E-01	NOT IDENT.
RU-106	1.470E-01	4.170E-01	8.554E-01	NOT IDENT.
AG-108M	-7.518E-03	4.049E-02	6.507E-02	NOT IDENT.
AG-110	-6.298E-02	9.836E-01	1.911E+00	NOT IDENT.
AG-110M	2.702E-02	8.689E-02	1.712E-01	NOT IDENT.
SN-113	-1.966E-02	8.392E-02	1.489E-01	NOT IDENT.
CD-115	0.000E+00	6.118E+03	0.000E+00	SHORT HLIF
SN-117M	5.507E-03	2.223E-01	4.176E-01	NOT IDENT.
SB-122	0.000E+00	4.216E+02	0.000E+00	SHORT HLIF
TE-123M	-3.476E-03	4.936E-02	9.218E-02	NOT IDENT.
SB-124	2.757E-02	1.668E-01	3.565E-01	NOT IDENT.
SB-125	-2.783E-03	2.113E-01	2.688E-01	NOT IDENT.
TE-125M	1.003E+01	1.784E+01	3.244E+01	NOT IDENT.
I-126	1.178E+00	9.381E-01	2.029E+00	NOT IDENT.
SB-126	5.601E-01	5.528E-01	1.193E+00	FAIL ABUN
SB-127	2.206E+00	5.770E+01	1.121E+02	NOT IDENT.
I-131	1.286E-01	8.441E-01	1.585E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.926E+01	0.000E+00	SHORT HLIF
BA-133	-1.760E-02	7.208E-02	1.143E-01	NOT IDENT.
I-133	0.000E+00	3.788E+10	0.000E+00	SHORT HLIF
CS-134	2.528E-02	6.130E-02	1.236E-01	NOT IDENT.
I-135	0.000E+00	6.468E+36	0.000E+00	SHORT HLIF
CS-136	4.040E-01	4.011E-01	8.915E-01	FAIL ABUN
BA-137M	-2.843E-02	5.054E-02	9.092E-02	NOT IDENT.
CS-137	-3.003E-02	5.339E-02	9.605E-02	NOT IDENT.
LA-138	-9.616E-03	8.811E-02	1.749E-01	NOT IDENT.
CE-139	-2.477E-02	4.722E-02	8.583E-02	NOT IDENT.
BA-140	6.097E-01	9.570E-01	1.814E+00	FAIL ABUN
LA-140	8.678E-02	3.231E-01	7.184E-01	NOT IDENT.
CE-141	1.837E-01	2.406E-01	2.895E-01	FAIL ABUN
CE-143	0.000E+00	3.436E+06	0.000E+00	SHORT HLIF
CE-144	8.810E-02	3.298E-01	5.772E-01	NOT IDENT.
PM-144	3.021E-03	4.225E-02	8.400E-02	NOT IDENT.
PR-144	2.165E-01	3.191E+00	6.342E+00	NOT IDENT.
PM-146	4.151E-02	6.768E-02	1.312E-01	NOT IDENT.
ND-147	3.891E-01	3.160E+00	5.222E+00	NOT IDENT.
PM-147	2.497E+02	1.190E+03	2.086E+03	NOT IDENT.
PM-149	0.000E+00	5.454E+04	0.000E+00	SHORT HLIF
EU-150	-1.780E-02	4.668E-02	7.288E-02	FAIL ABUN
EU-152	2.245E-02	1.558E-01	2.886E-01	FAIL ABUN
GD-153	-4.512E-02	1.419E-01	2.404E-01	NOT IDENT.
EU-154	4.866E-02	1.237E-01	2.551E-01	NOT IDENT.
EU-155	2.069E-01	1.625E-01	3.090E-01	FAIL ABUN
TB-160	1.048E-02	2.701E-01	5.132E-01	FAIL ABUN
HO-166M	-1.110E-03	8.536E-02	1.647E-01	NOT IDENT.

TM-171	-3.008E+01	4.572E+01	7.850E+01	NOT IDENT.
HF-172	4.434E-02	2.934E-01	5.121E-01	FAIL ABUN
LU-172	1.451E-02	9.143E-02	1.798E-01	FAIL ABUN
LU-176	-3.826E-02	4.079E-02	6.861E-02	FAIL ABUN
HF-181	4.329E-02	9.534E-02	1.811E-01	NOT IDENT.
TA-182	1.112E-01	2.386E-01	5.050E-01	FAIL ABUN
RE-183	2.997E-02	5.159E-01	9.267E-01	NOT IDENT.
RE-184	-2.456E-02	2.680E-01	5.067E-01	NOT IDENT.
W-188	-8.922E+00	1.554E+01	2.392E+01	FAIL ABUN
IR-192	-6.757E-02	5.964E-02	9.752E-02	FAIL ABUN
HG-203	-1.095E-02	7.779E-02	1.417E-01	FAIL ABUN
TL-204	3.800E-01	9.770E+00	1.594E+01	FAIL ABUN
BI-207	3.325E-02	6.474E-02	1.379E-01	FAIL ABUN
BI-210	-6.125E+00	1.014E+01	1.739E+01	NOT IDENT.
PB-210	-6.125E+00	1.014E+01	1.739E+01	NOT IDENT.
PB-211	-4.523E-01	1.124E+00	1.960E+00	FAIL ABUN
BI-212	9.776E-01	7.050E-01	1.579E+00	NOT IDENT.
BI-213	7.086E-04	1.590E-01	2.904E-01	NOT IDENT.
RN-219	-1.305E-01	6.526E-01	1.163E+00	FAIL ABUN
RA-223	-1.469E-02	1.075E+00	1.959E+00	FAIL ABUN
AC-225	6.709E-01	3.391E+00	6.374E+00	NOT IDENT.
AC-227	-9.908E-02	3.764E-01	6.828E-01	NOT IDENT.
TH-227	-9.908E-02	3.764E-01	6.828E-01	NOT IDENT.
PA-231	3.567E-02	9.212E-01	1.510E+00	NOT IDENT.
TH-231	-1.469E-02	1.075E+00	1.959E+00	FAIL ABUN
PA-233	-3.592E-02	1.016E-01	1.808E-01	NOT IDENT.
PA-234	5.016E-03	4.269E-01	8.234E-01	FAIL ABUN
PA-234M	4.430E+00	7.408E+00	1.556E+01	NOT IDENT.
NP-237	-3.592E-02	1.016E-01	1.808E-01	FAIL ABUN
NP-238	0.000E+00	1.553E+04	0.000E+00	SHORT HLIF
NP-239	-3.058E-02	4.214E-01	7.243E-01	NOT IDENT.
PU-239	1.756E+02	5.606E+02	9.821E+02	FAIL ABUN
AM-241	-1.613E-01	3.547E-01	5.626E-01	NOT IDENT.
CM-243	-9.581E-02	1.731E-01	2.883E-01	NOT IDENT.
BK-247	8.192E-02	1.327E-01	2.328E-01	FAIL ABUN
CM-247	1.571E-02	5.680E-02	1.068E-01	NOT IDENT.
CF-249	4.059E-02	6.786E-02	1.299E-01	NOT IDENT.
CF-251	-5.737E-02	1.980E-01	3.634E-01	NOT IDENT.
ANH-511	9.543E-04	6.775E-02	1.416E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	40	10.66*	9.535E-01	2.624E+00	2.624E+00	52.76
CD-109	88.03	92	3.70*	4.596E+00	3.585E+00	3.774E+00	61.86
SN-126	64.28	40	9.60	2.151E+00	1.293E+00	1.293E+00	143.09
	86.94	92	8.90	4.596E+00	1.490E+00	1.490E+00	61.86
	87.57	92	37.00*	4.596E+00	3.585E-01	3.585E-01	61.86
CE-141	145.44	36	48.29*	5.494E+00	8.875E-02	1.837E-01	133.66
TL-208	277.37	-----	6.60	3.683E+00	-----	Line Not Found	-----
	583.19	44	85.00*	2.100E+00	1.633E-01	1.633E-01	70.66
	860.56	-----	12.50	1.517E+00	-----	Line Not Found	-----
BI-211	72.87	59	1.23	3.356E+00	9.423E+00	9.423E+00	91.53
	351.06	819	12.92*	3.086E+00	1.358E+01	1.358E+01	8.70
PB-212	74.82	188	10.28	3.517E+00	3.445E+00	3.445E+00	27.81
	77.11	320	17.10	3.734E+00	3.316E+00	3.316E+00	19.87
	238.63	174	43.60*	4.107E+00	6.433E-01	6.433E-01	27.25
	300.09	-----	3.30	3.475E+00	-----	Line Not Found	-----
BI-214	609.32	538	45.49*	2.030E+00	3.852E+00	3.852E+00	10.50
	1120.29	109	14.92	1.196E+00	4.039E+00	4.039E+00	26.19
	1764.49	91	15.30	8.411E-01	4.653E+00	4.653E+00	22.76
PB-214	74.82	188	5.80	3.517E+00	6.106E+00	6.106E+00	27.81
	77.11	320	9.70	3.734E+00	5.846E+00	5.846E+00	19.87
	87.09	92	3.41	4.596E+00	3.890E+00	3.890E+00	61.86
	242.00	248	7.25	4.069E+00	5.546E+00	5.547E+00	19.59
	295.22	499	18.42	3.515E+00	5.097E+00	5.097E+00	14.07
	351.93	819	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70
RN-222	609.32	538	45.49*	2.030E+00	3.852E+00	3.852E+00	10.50
	1120.29	109	14.92	1.196E+00	4.039E+00	4.039E+00	26.19
	1764.49	91	15.30	8.411E-01	4.653E+00	4.653E+00	22.76
RA-224	240.99	248	4.10*	4.069E+00	9.808E+00	9.808E+00	19.59
RA-226	74.82	188	5.80	3.517E+00	6.106E+00	6.106E+00	27.81
	77.11	320	9.70	3.734E+00	5.846E+00	5.846E+00	19.87
	87.09	92	3.41	4.596E+00	3.890E+00	3.890E+00	61.86
	242.00	248	7.25	4.069E+00	5.546E+00	5.547E+00	19.59
	295.22	499	18.42	3.515E+00	5.097E+00	5.097E+00	14.07
	351.93	819	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70
AC-228	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	29	11.27	3.176E+00	5.368E-01	5.368E-01	112.33
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	33	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89
	968.97	28	15.80	1.363E+00	8.724E-01	8.724E-01	77.50
RA-228	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	29	11.27	3.176E+00	5.368E-01	5.368E-01	112.33
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	33	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89
	968.97	28	15.80	1.363E+00	8.724E-01	8.724E-01	77.50
TH-228	74.82	188	10.28	3.517E+00	3.445E+00	3.445E+00	27.81
	77.11	320	17.10	3.734E+00	3.316E+00	3.316E+00	19.87
	238.63	174	43.60*	4.107E+00	6.433E-01	6.433E-01	27.25

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-229	300.09	-----	3.30	3.475E+00	-----	Line Not Found	-----
	85.43	67	14.70	4.340E+00	6.954E-01	6.954E-01	80.69
	88.47	92	24.00	4.596E+00	5.527E-01	5.527E-01	61.86
	193.51	-----	4.41*	4.743E+00	-----	Line Not Found	-----
TH-230	210.85	33	2.80	4.483E+00	1.722E+00	1.722E+00	177.86
	74.82	188	5.80	3.517E+00	6.106E+00	6.106E+00	27.81
	77.11	320	9.70	3.734E+00	5.846E+00	5.846E+00	19.87
	87.09	92	3.41	4.596E+00	3.890E+00	3.890E+00	61.86
	242.00	248	7.25	4.069E+00	5.546E+00	5.546E+00	19.59
	295.22	499	18.42	3.515E+00	5.097E+00	5.097E+00	14.07
TH-232	351.93	819	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70
	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	29	11.27	3.176E+00	5.368E-01	5.368E-01	112.33
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	33	25.80*	1.442E+00	5.853E-01	5.853E-01	50.89
TH-234	968.97	28	15.80	1.363E+00	8.724E-01	8.724E-01	77.50
	63.29	40	3.70*	2.151E+00	3.356E+00	3.356E+00	143.09
	92.59	89	4.23	4.956E+00	2.816E+00	2.816E+00	87.10
U-234	74.82	188	5.80	3.517E+00	6.106E+00	6.106E+00	27.81
	77.11	320	9.70	3.734E+00	5.846E+00	5.846E+00	19.87
	87.09	92	3.41	4.596E+00	3.890E+00	3.890E+00	61.86
	242.00	248	7.25	4.069E+00	5.546E+00	5.546E+00	19.59
	295.22	499	18.42	3.515E+00	5.097E+00	5.097E+00	14.07
U-235	351.93	819	35.60*	3.086E+00	4.929E+00	4.929E+00	8.70
	89.96	-----	3.47	4.768E+00	-----	Line Not Found	-----
	93.35	89	5.60	4.956E+00	2.127E+00	2.127E+00	87.10
	143.76	36	10.96*	5.494E+00	3.910E-01	3.910E-01	133.66
	163.33	-----	5.08	5.223E+00	-----	Line Not Found	-----
U-238	185.72	247	57.20	4.858E+00	5.885E-01	5.885E-01	25.47
	205.31	-----	5.01	4.563E+00	-----	Line Not Found	-----
	63.29	40	3.70*	2.151E+00	3.356E+00	3.356E+00	143.09
	92.59	89	4.23	4.956E+00	2.816E+00	2.816E+00	87.10
AM-243	43.53	-----	5.90	2.524E-01	-----	Line Not Found	-----
	74.66	188	67.20*	3.517E+00	5.270E-01	5.270E-01	27.81

Flag: "*" = Keyline

Total number of lines in spectrum 53
Number of unidentified lines 18
Number of lines tentatively identified by NID 35 66.04%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.624E+00	2.624E+00	1.384E+00	52.76	
CD-109	461.40D	1.05	3.585E+00	3.774E+00	2.334E+00	61.86	
SN-126	2.30E+05Y	1.00	3.585E-01	3.585E-01	2.218E-01	61.86	
CE-141	32.51D	2.07	8.875E-02	1.837E-01	2.455E-01	133.66	
TL-208	1.41E+10Y	1.00	1.633E-01	1.633E-01	1.154E-01	70.66	
BI-211	7.04E+08Y	1.00	1.358E+01	1.358E+01	0.118E+01	8.70	
PB-212	1.41E+10Y	1.00	6.433E-01	6.433E-01	1.753E-01	27.25	
BI-214	1600.00Y	1.00	3.852E+00	3.852E+00	0.405E+00	10.50	
PB-214	1600.00Y	1.00	4.929E+00	4.929E+00	0.429E+00	8.70	
RN-222	1600.00Y	1.00	3.852E+00	3.852E+00	0.405E+00	10.50	
RA-224	1.41E+10Y	1.00	9.808E+00	9.808E+00	1.921E+00	19.59	
RA-226	1600.00Y	1.00	4.929E+00	4.929E+00	0.429E+00	8.70	
AC-228	1.41E+10Y	1.00	5.853E-01	5.853E-01	2.979E-01	50.89	
RA-228	1.41E+10Y	1.00	5.853E-01	5.853E-01	2.979E-01	50.89	
TH-228	1.41E+10Y	1.00	6.433E-01	6.433E-01	1.753E-01	27.25	
TH-229	7340.00Y	1.00	5.527E-01	5.527E-01	3.419E-01	61.86	K
TH-230	7.54E+04Y	1.00	4.929E+00	4.929E+00	0.429E+00	8.70	
TH-232	1.41E+10Y	1.00	5.853E-01	5.853E-01	2.979E-01	50.89	
TH-234	4.47E+09Y	1.00	3.356E+00	3.356E+00	4.802E+00	143.09	
U-234	2.45E+05Y	1.00	4.929E+00	4.929E+00	0.429E+00	8.70	
U-235	7.04E+08Y	1.00	3.910E-01	3.910E-01	5.226E-01	133.66	
U-238	4.47E+09Y	1.00	3.356E+00	3.356E+00	4.802E+00	143.09	
AM-243	7370.00Y	1.00	5.270E-01	5.270E-01	1.466E-01	27.81	
Total Activity :			6.885E+01	6.914E+01			

Grand Total Activity : 6.885E+01 6.914E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	270.79	58	134	3.26	541.90	533	14	1.58E-02	89.8	3.75E+00	T
0	413.36	23	55	4.86	827.12	818	12	6.32E-03	****	2.74E+00	T
0	424.35	11	28	1.28	849.11	846	6	3.08E-03	****	2.68E+00	T
0	431.36	21	48	3.86	863.12	855	13	6.00E-03	****	2.65E+00	
0	475.20	16	47	0.95	950.83	942	12	4.45E-03	****	2.46E+00	T
0	509.20	150	67	3.88	1018.84	999	31	4.24E-02	36.1	2.34E+00	
0	533.82	23	24	2.00	1068.08	1063	9	6.55E-03	88.4	2.25E+00	
4	543.06	23	4	2.49	1086.58	1082	23	6.64E-03	58.0	2.22E+00	
4	548.12	22	7	2.50	1096.70	1082	23	6.24E-03	82.6	2.21E+00	
0	730.48	59	10	7.98	1461.46	1450	22	1.70E-02	37.5	1.75E+00	
0	742.95	23	8	1.33	1486.39	1480	11	6.57E-03	64.1	1.72E+00	T
0	759.98	11	10	0.70	1520.46	1513	10	3.30E-03	****	1.69E+00	
0	768.13	88	8	1.90	1536.76	1529	16	2.53E-02	25.1	1.67E+00	T
0	786.08	32	21	1.88	1572.67	1567	12	9.08E-03	66.2	1.64E+00	
0	819.78	17	20	1.33	1640.07	1634	11	4.93E-03	****	1.58E+00	T
0	832.12	21	7	1.31	1664.76	1661	9	6.07E-03	60.9	1.56E+00	T
0	853.16	7	10	0.97	1706.83	1703	9	2.05E-03	****	1.53E+00	
0	934.57	48	5	2.31	1869.65	1863	17	1.39E-02	34.2	1.41E+00	T
0	1079.95	16	12	3.57	2160.41	2154	16	4.55E-03	****	1.24E+00	
0	1148.26	13	10	2.82	2297.01	2292	13	3.72E-03	****	1.17E+00	T
0	1157.11	7	10	0.90	2314.71	2306	11	1.98E-03	****	1.16E+00	
0	1186.18	5	18	3.31	2372.85	2360	14	1.42E-03	****	1.14E+00	
0	1238.04	67	4	0.90	2476.55	2470	16	1.95E-02	27.1	1.09E+00	T
0	1261.54	12	5	1.16	2523.55	2519	11	3.43E-03	93.3	1.08E+00	T
0	1281.31	19	12	2.53	2563.07	2556	13	5.62E-03	87.0	1.06E+00	
0	1378.26	25	15	0.81	2756.95	2752	10	7.41E-03	69.8	9.99E-01	
0	1386.83	17	8	5.97	2774.08	2767	16	5.00E-03	84.6	9.94E-01	
0	1407.90	21	10	1.38	2816.22	2809	15	6.08E-03	80.0	9.82E-01	T
0	1508.55	24	7	1.81	3017.47	3010	15	7.13E-03	60.9	9.31E-01	
0	1531.10	8	0	1.87	3062.56	3059	8	2.50E-03	66.7	9.21E-01	
0	1731.01	18	7	3.79	3462.26	3450	16	5.28E-03	80.9	8.50E-01	

Flags: "T" = Tentatively associated

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299002.CNF;1
Acquisition date : 30-JUL-2024 11:13:34 Sensitivity : 3.000
Detector ID : GAM08 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.73 Half life ratio : *****
Sample date : 26-JUN-2024 09:06:00 Nuclide Library : SOLID
Sample ID : G674299002 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1358E+02 GRAM
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	5.613E-01
CD-109	1.328E+00
SN-126	1.239E-01
TL-208	5.094E-02
BI-211	2.760E-01
PB-212	7.908E-02
BI-214	8.587E-02
PB-214	1.004E-01
RN-222	8.587E-02
RA-224	8.478E-01
RA-226	1.004E-01
AC-228	1.806E-01
RA-228	1.806E-01
TH-228	7.908E-02
TH-229	7.553E-01
TH-230	1.004E-01
TH-232	1.806E-01
TH-234	2.172E+00
U-234	1.004E-01
U-235	2.740E-01
U-238	2.172E+00
AM-243	7.976E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.375E-01	NOT IDENT.
NA-22	3.748E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	4.103E-02	NOT IDENT.
SC-46	4.691E-02	FAIL ABUN
V-48	2.163E-01	NOT IDENT.
CR-51	7.300E-01	NOT IDENT.
MN-52	2.319E+00	FAIL ABUN
MN-54	4.441E-02	NOT IDENT.

CO-56	5.001E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.525E-02	NOT IDENT.
CO-58	4.993E-02	NOT IDENT.
FE-59	1.201E-01	NOT IDENT.
CO-60	5.349E-02	NOT IDENT.
ZN-65	1.100E-01	NOT IDENT.
GE-68	1.564E+00	NOT IDENT.
AS-73	2.173E+00	NOT IDENT.
AS-74	2.265E-01	NOT IDENT.
SE-75	6.765E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.282E-01	NOT IDENT.
RB-83	1.073E-01	NOT IDENT.
RB-84	1.528E-01	NOT IDENT.
KR-85	1.024E+01	NOT IDENT.
SR-85	6.619E-02	NOT IDENT.
RB-86	1.932E+00	NOT IDENT.
Y-88	4.037E-02	NOT IDENT.
Y-91	3.039E+01	NOT IDENT.
NB-94	4.989E-02	NOT IDENT.
NB-95	7.196E-02	NOT IDENT.
NB-95M	2.010E-01	NOT IDENT.
ZR-95	9.845E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.020E-02	NOT IDENT.
RH-102	6.065E-02	FAIL ABUN
RU-103	6.508E-02	FAIL ABUN
RH-106	3.796E-01	NOT IDENT.
RU-106	3.796E-01	NOT IDENT.
AG-108M	2.878E-02	NOT IDENT.
AG-110	8.411E-01	NOT IDENT.
AG-110M	7.649E-02	NOT IDENT.
SN-113	6.850E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.976E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.362E-02	NOT IDENT.
SB-124	1.462E-01	NOT IDENT.
SB-125	1.229E-01	NOT IDENT.
TE-125M	1.530E+01	NOT IDENT.
I-126	9.253E-01	NOT IDENT.
SB-126	5.327E-01	FAIL ABUN
SB-127	4.991E+01	NOT IDENT.
I-131	7.230E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.238E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.518E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.929E-01	FAIL ABUN
BA-137M	4.021E-02	NOT IDENT.
CS-137	4.248E-02	NOT IDENT.
LA-138	7.339E-02	NOT IDENT.
CE-139	4.034E-02	NOT IDENT.
BA-140	8.026E-01	FAIL ABUN
LA-140	2.927E-01	NOT IDENT.
CE-141	1.377E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.728E-01	NOT IDENT.
PM-144	3.673E-02	NOT IDENT.
PR-144	2.773E+00	NOT IDENT.
PM-146	6.012E-02	NOT IDENT.
ND-147	2.351E+00	NOT IDENT.
PM-147	9.854E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.352E-02	FAIL ABUN
EU-152	1.335E-01	FAIL ABUN
GD-153	1.135E-01	NOT IDENT.
EU-154	1.035E-01	NOT IDENT.
EU-155	1.465E-01	FAIL ABUN
TB-160	2.290E-01	FAIL ABUN
HO-166M	7.310E-02	NOT IDENT.
TM-171	3.703E+01	NOT IDENT.

HF-172	2.414E-01	FAIL ABUN
LU-172	7.792E-02	FAIL ABUN
LU-176	3.150E-02	FAIL ABUN
HF-181	8.258E-02	NOT IDENT.
TA-182	2.159E-01	FAIL ABUN
RE-183	4.386E-01	NOT IDENT.
RE-184	2.219E-01	NOT IDENT.
W-188	1.108E+01	FAIL ABUN
IR-192	4.428E-02	FAIL ABUN
HG-203	6.588E-02	FAIL ABUN
TL-204	7.584E+00	FAIL ABUN
BI-207	5.940E-02	FAIL ABUN
BI-210	8.185E+00	NOT IDENT.
PB-210	8.185E+00	NOT IDENT.
PB-211	8.948E-01	FAIL ABUN
BI-212	7.134E-01	NOT IDENT.
BI-213	1.320E-01	NOT IDENT.
RN-219	5.330E-01	FAIL ABUN
RA-223	9.113E-01	FAIL ABUN
AC-225	2.996E+00	NOT IDENT.
AC-227	3.172E-01	NOT IDENT.
TH-227	3.172E-01	NOT IDENT.
PA-231	7.067E-01	NOT IDENT.
TH-231	9.113E-01	FAIL ABUN
PA-233	8.352E-02	NOT IDENT.
PA-234	3.584E-01	FAIL ABUN
PA-234M	6.982E+00	NOT IDENT.
NP-237	8.352E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.419E-01	NOT IDENT.
PU-239	4.657E+02	FAIL ABUN
AM-241	2.663E-01	NOT IDENT.
CM-243	1.361E-01	NOT IDENT.
BK-247	1.086E-01	FAIL ABUN
CM-247	4.895E-02	NOT IDENT.
CF-249	6.023E-02	NOT IDENT.
CF-251	1.713E-01	NOT IDENT.
ANH-511	6.696E-02	NOT IDENT.

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299002.CNF;1 *
* Acquisition date : 30-JUL-2024 11:13:34 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.73 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:06:00 Nuclide Library : SOLID *
* Sample ID : G674299002 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.1358E+02 GRAM *
* Quantity Err(%) : 1.7609E-03 % *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.624E+00	1.379E+00	1.379E+00
CD-109	3.774E+00	2.336E+00	2.336E+00
SN-126	3.585E-01	2.211E-01	2.211E-01
TL-208	1.633E-01	1.140E-01	1.140E-01
BI-211	1.358E+01	1.763E+00	1.763E+00
PB-212	6.433E-01	1.842E-01	1.842E-01
BI-214	3.852E+00	5.180E-01	5.180E-01
PB-214	4.929E+00	6.350E-01	6.350E-01
RN-222	3.852E+00	5.180E-01	5.180E-01
RA-224	9.808E+00	2.142E+00	2.142E+00
RA-226	4.929E+00	6.350E-01	6.350E-01
AC-228	5.853E-01	2.974E-01	2.974E-01
RA-228	5.853E-01	2.974E-01	2.974E-01
TH-228	6.433E-01	1.842E-01	1.842E-01
TH-229	1.592E-01	8.509E-01	8.509E-01
TH-230	4.929E+00	6.349E-01	6.349E-01
TH-232	5.853E-01	2.974E-01	2.974E-01
TH-234	3.356E+00	4.776E+00	4.776E+00
U-234	4.929E+00	6.349E-01	6.349E-01
U-235	3.910E-01	5.133E-01	5.133E-01
U-238	3.356E+00	4.776E+00	4.776E+00
AM-243	5.270E-01	1.548E-01	1.548E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.219E-01	7.111E-01	7.132E-01	NOT IDENT.
NA-22	1.861E-02	4.448E-02	4.526E-02	NOT IDENT.
NA-24	-3.189E+14	9.051E+14	9.164E+14	SHORT HLIF
AL-26	-1.620E-02	5.398E-02	5.447E-02	NOT IDENT.
SC-46	-4.905E-02	6.503E-02	6.868E-02	FAIL ABUN
V-48	1.152E-01	2.398E-01	2.453E-01	NOT IDENT.
CR-51	-2.922E-01	8.899E-01	8.996E-01	NOT IDENT.
MN-52	-4.776E+00	3.938E+00	4.488E+00	FAIL ABUN

MN-54	-1.259E-02	6.250E-02	6.276E-02	NOT IDENT.
CO-56	-6.006E-03	6.023E-02	6.029E-02	FAIL ABUN
MN-56	-1.000E+41	1.003E+42	0.000E+00	SHORT HLIF
CO-57	6.147E-03	4.282E-02	4.291E-02	NOT IDENT.
CO-58	-5.436E-02	6.816E-02	7.243E-02	NOT IDENT.
FE-59	-7.793E-02	1.623E-01	1.661E-01	NOT IDENT.
CO-60	3.055E-02	5.910E-02	6.068E-02	NOT IDENT.
ZN-65	8.579E-02	1.289E-01	1.345E-01	NOT IDENT.
GE-68	3.891E-01	2.053E+00	2.060E+00	NOT IDENT.
AS-73	2.565E+00	2.450E+00	2.710E+00	NOT IDENT.
AS-74	-1.689E-01	2.825E-01	2.925E-01	NOT IDENT.
SE-75	4.819E-02	8.321E-02	8.600E-02	NOT IDENT.
BR-77	2.539E+04	2.602E+04	2.843E+04	SHORT HLIF
SR-82	2.577E-01	6.938E-01	7.035E-01	NOT IDENT.
RB-83	3.369E-02	1.265E-01	1.274E-01	NOT IDENT.
RB-84	6.346E-02	1.724E-01	1.747E-01	NOT IDENT.
KR-85	9.115E+00	1.262E+01	1.328E+01	NOT IDENT.
SR-85	5.854E-02	8.163E-02	8.579E-02	NOT IDENT.
RB-86	9.487E-01	2.405E+00	2.443E+00	NOT IDENT.
Y-88	-4.052E-02	6.269E-02	6.530E-02	NOT IDENT.
Y-91	2.532E+00	3.659E+01	3.661E+01	NOT IDENT.
NB-94	3.740E-02	5.386E-02	5.644E-02	NOT IDENT.
NB-95	5.545E-02	8.593E-02	8.949E-02	NOT IDENT.
NB-95M	7.863E-02	2.506E-01	2.531E-01	NOT IDENT.
ZR-95	1.656E-02	1.272E-01	1.274E-01	NOT IDENT.
NB-97	-1.000E+41	4.269E+41	0.000E+00	SHORT HLIF
ZR-97	1.691E+14	3.270E+14	3.358E+14	SHORT HLIF
MO-99	4.636E+02	1.686E+03	1.699E+03	SHORT HLIF
TC-99M	6.172E+38	3.847E+39	0.000E+00	SHORT HLIF
RH-101	-6.911E-03	5.009E-02	5.019E-02	NOT IDENT.
RH-102	-3.523E-02	7.518E-02	7.684E-02	FAIL ABUN
RU-103	4.638E-02	7.932E-02	8.203E-02	FAIL ABUN
RH-106	1.470E-01	4.173E-01	4.225E-01	NOT IDENT.
RU-106	1.470E-01	4.173E-01	4.225E-01	NOT IDENT.
AG-108M	-7.518E-03	4.049E-02	4.064E-02	NOT IDENT.
AG-110	-6.298E-02	9.836E-01	9.840E-01	NOT IDENT.
AG-110M	2.702E-02	8.693E-02	8.777E-02	NOT IDENT.
SN-113	-1.966E-02	8.394E-02	8.440E-02	NOT IDENT.
CD-115	7.205E+02	6.118E+03	6.127E+03	SHORT HLIF
SN-117M	5.507E-03	2.223E-01	2.223E-01	NOT IDENT.
SB-122	3.272E+02	4.226E+02	4.476E+02	SHORT HLIF
TE-123M	-3.476E-03	4.936E-02	4.939E-02	NOT IDENT.
SB-124	2.757E-02	1.668E-01	1.673E-01	NOT IDENT.
SB-125	-2.783E-03	2.113E-01	2.114E-01	NOT IDENT.
TE-125M	1.003E+01	1.787E+01	1.843E+01	NOT IDENT.
I-126	1.178E+00	9.446E-01	1.084E+00	NOT IDENT.
SB-126	5.601E-01	5.571E-01	6.117E-01	FAIL ABUN
SB-127	2.206E+00	5.770E+01	5.771E+01	NOT IDENT.
I-131	1.286E-01	8.441E-01	8.461E-01	NOT IDENT.
I-132	1.000E+41	3.396E+41	0.000E+00	SHORT HLIF
TE-132	1.588E+00	6.926E+01	6.926E+01	SHORT HLIF
BA-133	-1.760E-02	7.210E-02	7.253E-02	NOT IDENT.
I-133	7.638E+09	3.792E+10	3.808E+10	SHORT HLIF
CS-134	2.528E-02	6.134E-02	6.239E-02	NOT IDENT.
I-135	7.071E+36	8.490E+36	0.000E+00	SHORT HLIF
CS-136	4.040E-01	4.038E-01	4.429E-01	FAIL ABUN
BA-137M	-2.843E-02	5.059E-02	5.219E-02	NOT IDENT.
CS-137	-3.003E-02	5.345E-02	5.513E-02	NOT IDENT.
LA-138	-9.616E-03	8.811E-02	8.822E-02	NOT IDENT.
CE-139	-2.477E-02	4.751E-02	4.881E-02	NOT IDENT.
BA-140	6.097E-01	9.586E-01	9.972E-01	FAIL ABUN
LA-140	8.678E-02	3.232E-01	3.255E-01	NOT IDENT.
CE-141	1.837E-01	2.410E-01	2.549E-01	FAIL ABUN
CE-143	7.249E+06	3.523E+06	4.806E+06	SHORT HLIF
CE-144	8.810E-02	3.299E-01	3.323E-01	NOT IDENT.
PM-144	3.021E-03	4.225E-02	4.227E-02	NOT IDENT.
PR-144	2.165E-01	3.191E+00	3.193E+00	NOT IDENT.
PM-146	4.151E-02	6.783E-02	7.036E-02	NOT IDENT.
ND-147	3.891E-01	3.160E+00	3.165E+00	NOT IDENT.
PM-147	2.497E+02	1.190E+03	1.195E+03	NOT IDENT.
PM-149	-6.371E+03	5.455E+04	5.462E+04	SHORT HLIF
EU-150	-1.780E-02	4.671E-02	4.739E-02	FAIL ABUN
EU-152	2.245E-02	1.558E-01	1.562E-01	FAIL ABUN
GD-153	-4.512E-02	1.419E-01	1.434E-01	NOT IDENT.
EU-154	4.866E-02	1.238E-01	1.257E-01	NOT IDENT.
EU-155	2.069E-01	1.638E-01	1.885E-01	FAIL ABUN
TB-160	1.048E-02	2.701E-01	2.702E-01	FAIL ABUN
HO-166M	-1.110E-03	8.536E-02	8.536E-02	NOT IDENT.

TM-171	-3.008E+01	4.592E+01	4.788E+01	NOT IDENT.
HF-172	4.434E-02	2.935E-01	2.941E-01	FAIL ABUN
LU-172	1.451E-02	9.144E-02	9.168E-02	FAIL ABUN
LU-176	-3.826E-02	4.098E-02	4.447E-02	FAIL ABUN
HF-181	4.329E-02	9.542E-02	9.739E-02	NOT IDENT.
TA-182	1.112E-01	2.388E-01	2.440E-01	FAIL ABUN
RE-183	2.997E-02	5.159E-01	5.161E-01	NOT IDENT.
RE-184	-2.456E-02	2.680E-01	2.682E-01	NOT IDENT.
W-188	-8.922E+00	1.559E+01	1.610E+01	FAIL ABUN
IR-192	-6.757E-02	6.004E-02	6.732E-02	FAIL ABUN
HG-203	-1.095E-02	7.780E-02	7.795E-02	FAIL ABUN
TL-204	3.800E-01	9.770E+00	9.771E+00	FAIL ABUN
BI-207	3.325E-02	6.480E-02	6.651E-02	FAIL ABUN
BI-210	-6.125E+00	1.016E+01	1.053E+01	NOT IDENT.
PB-210	-6.125E+00	1.016E+01	1.053E+01	NOT IDENT.
PB-211	-4.523E-01	1.125E+00	1.143E+00	FAIL ABUN
BI-212	9.776E-01	7.105E-01	8.360E-01	NOT IDENT.
BI-213	7.086E-04	1.590E-01	1.590E-01	NOT IDENT.
RN-219	-1.305E-01	6.529E-01	6.555E-01	FAIL ABUN
RA-223	-1.469E-02	1.075E+00	1.075E+00	FAIL ABUN
AC-225	6.709E-01	3.392E+00	3.405E+00	NOT IDENT.
AC-227	-9.908E-02	3.767E-01	3.794E-01	NOT IDENT.
TH-227	-9.908E-02	3.767E-01	3.794E-01	NOT IDENT.
PA-231	3.567E-02	9.212E-01	9.214E-01	NOT IDENT.
TH-231	-1.469E-02	1.075E+00	1.075E+00	FAIL ABUN
PA-233	-3.592E-02	1.017E-01	1.030E-01	NOT IDENT.
PA-234	5.016E-03	4.269E-01	4.269E-01	FAIL ABUN
PA-234M	4.430E+00	7.419E+00	7.683E+00	NOT IDENT.
NP-237	-3.592E-02	1.017E-01	1.030E-01	FAIL ABUN
NP-238	1.380E+03	1.553E+04	1.554E+04	SHORT HLIF
NP-239	-3.058E-02	4.214E-01	4.216E-01	NOT IDENT.
PU-239	1.756E+02	5.608E+02	5.664E+02	FAIL ABUN
AM-241	-1.613E-01	3.553E-01	3.627E-01	NOT IDENT.
CM-243	-9.581E-02	1.734E-01	1.787E-01	NOT IDENT.
BK-247	8.192E-02	1.340E-01	1.390E-01	FAIL ABUN
CM-247	1.571E-02	5.687E-02	5.731E-02	NOT IDENT.
CF-249	4.059E-02	6.802E-02	7.043E-02	NOT IDENT.
CF-251	-5.737E-02	1.981E-01	1.998E-01	NOT IDENT.
ANH-511	9.543E-04	6.775E-02	6.775E-02	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	86.6974	85.43	151.2111	131.20	108.5027
45.60	91.3433	86.55	151.5423	133.02	101.4564
46.54	99.8296	86.79	181.0303	133.52	91.7439
49.72	0.0000	86.94	181.0840	136.00	94.5287
51.35	107.4568	87.09	181.1365	136.47	108.1053
51.87	101.3411	87.57	181.3049	140.51	0.0000
52.39	110.9004	88.03	190.5394	143.76	111.6980
52.97	98.4998	88.34	190.6534	144.24	111.7722
53.44	82.8861	88.47	190.7009	145.44	96.1994
54.07	83.0253	89.96	191.2443	152.43	116.3622
57.36	0.0000	1093.63	180.0922	153.25	103.9174
57.53	96.5014	91.11	191.6609	323.87	114.1178
57.98	102.9815	92.59	148.7206	156.02	121.1162
59.27	119.2935	93.35	148.9309	158.56	102.9512
59.32	119.3083	94.56	96.4470	159.00	105.5412
59.54	119.3738	94.65	96.4630	162.33	91.5754
60.96	111.2371	94.67	96.4668	162.66	83.1311
61.17	111.2946	94.87	96.5021	163.33	78.9569
62.93	119.2942	97.43	101.5681	165.86	94.5381
63.29	119.3971	98.43	94.8131	176.31	87.9862
63.58	119.4801	98.44	94.8150	176.60	89.7432
64.28	130.8206	99.53	90.3648	177.52	97.6152
66.73	134.4651	100.11	106.6937	181.07	0.0000
67.24	132.4527	102.03	98.9083	181.52	95.0395
125.81	127.1529	103.18	109.5997	184.41	107.1158
67.75	132.6072	103.37	110.8027	143.76	109.8937
68.89	134.0423	105.21	79.5625	193.51	97.6693
69.67	112.0817	105.31	76.0653	197.03	107.7689
70.82	128.4220	106.12	91.4045	198.01	99.9256
70.83	128.4255	106.47	111.3919	201.83	90.5760
72.81	139.6145	109.28	77.7541	203.43	94.7356
72.87	139.6329	111.00	103.9683	205.31	97.6003
74.66	140.1756	111.76	0.0000	210.85	79.3470
74.82	140.2240	114.06	85.4907	215.65	92.8104
74.97	140.2686	116.30	0.0000	218.12	76.7857
77.11	140.9081	116.74	96.5910	222.11	71.6564
78.74	141.0175	119.76	100.6472	227.09	75.6612
79.69	141.2949	121.12	91.2549	227.38	77.5068
80.03	141.3925	121.22	91.2688	228.16	0.0000
80.12	138.4423	121.78	92.5502	228.18	79.3933
80.19	138.4622	122.06	94.9950	116.74	79.3933
80.57	109.5150	122.92	102.3454	235.69	75.8432
81.00	147.6400	123.07	96.3470	235.96	75.8633
81.07	138.7119	265.00	98.8483	238.63	82.9733
81.75	132.9287	125.81	85.8655	238.98	0.0000
82.47	127.1403	127.23	96.9562	240.99	83.1601
83.79	134.9744	127.91	105.5480	242.00	83.2407
84.00	135.0302	129.30	102.1187	244.70	66.7625

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	67.2437	344.28	48.3291	563.25	34.4531
252.80	71.0049	345.93	51.4119	564.24	0.0000
254.15	0.0000	351.06	50.5920	569.33	26.4936
256.23	62.7934	351.93	50.6236	946.00	26.4964
260.90	0.0000	355.39	0.0000	569.70	26.4992
264.66	49.5787	356.01	45.6949	583.19	34.7937
264.80	48.1684	364.49	33.7110	584.27	34.8120
265.00	48.1767	366.42	0.0000	595.83	30.6314
269.46	70.1790	372.51	28.7628	427.87	23.6843
270.03	70.2151	375.05	37.0459	602.52	0.0000
271.23	70.2889	377.52	36.0774	604.72	49.2188
273.65	58.5384	356.01	49.6904	607.14	36.6044
276.40	66.7885	388.16	42.5674	609.32	26.4249
277.37	73.5285	388.63	47.7735	610.33	9.8701
277.60	64.9467	391.69	48.9115	614.28	21.1890
278.00	64.0134	264.66	40.8265	618.01	22.1107
279.20	61.2109	401.81	43.9995	620.36	23.0206
279.54	57.4011	402.40	35.6325	621.93	16.8349
279.70	52.6255	404.85	44.0867	630.19	0.0000
280.46	47.8719	410.95	35.8296	631.29	24.0263
283.69	59.5239	413.71	42.7544	633.25	15.1411
284.31	60.5160	414.70	39.6126	634.78	21.3911
285.41	53.8421	423.72	38.2449	635.95	14.2681
285.90	0.0000	427.09	38.3247	636.99	16.9514
287.50	56.8261	427.87	38.3438	657.50	18.9095
290.67	66.6332	433.94	22.4509	657.76	22.5143
293.27	0.0000	439.40	35.3982	657.90	0.0000
351.93	69.7925	440.45	33.2737	661.66	27.0639
295.96	69.8350	453.88	30.2969	664.57	0.0000
879.38	74.3584	463.37	34.8190	666.33	18.0792
299.98	67.1442	468.07	36.0051	666.50	18.0811
300.09	67.1498	473.00	36.1078	667.71	0.0000
300.13	68.6124	475.06	34.5076	677.62	19.9858
301.36	70.1426	476.78	24.6721	685.70	21.8789
302.85	72.1768	477.60	29.6208	692.65	0.0000
256.23	48.8332	482.18	27.4979	695.00	18.3051
304.85	51.7772	487.02	23.1614	696.49	15.5692
306.78	60.6629	492.35	0.0000	696.51	15.5692
308.46	50.9473	497.08	16.6370	697.00	18.3203
311.90	55.9980	505.52	27.8570	697.30	18.3228
316.51	53.2430	507.63	0.0000	697.49	18.3240
319.41	45.4572	511.00	27.9399	702.65	23.8735
320.08	49.4354	514.00	30.2245	706.68	30.3524
321.04	48.4826	514.00	30.2245	711.68	21.1989
323.87	59.4958	520.40	25.8348	720.70	11.6303
325.23	52.6097	520.69	0.0000	721.93	0.0000
328.76	56.7321	522.65	0.0000	722.78	23.7039
333.37	46.7419	527.90	0.0000	722.91	20.7423
333.97	52.4583	528.26	25.7168	723.31	20.7457
334.37	44.9780	529.59	25.3967	724.19	13.3414
338.28	44.1065	529.87	0.0000	727.33	12.0598
338.32	44.1083	531.02	25.4160	733.00	12.0875
311.90	57.2308	537.26	11.8992	735.93	7.4475
340.48	57.2308	546.56	0.0000	333.97	0.0000
340.55	57.2343	552.55	22.2731	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	22.4172	949.00	14.0889	1384.29	15.1676
747.24	13.4666	667.71	0.0000	1408.01	8.2375
748.06	13.7205	962.31	17.5195	1434.09	14.7352
752.31	21.4188	964.08	21.0361	1435.80	10.1342
753.82	13.5022	966.17	25.9078	1457.56	0.0000
756.73	15.0200	911.20	14.1812	1460.82	13.9006
756.80	15.0200	983.53	13.2305	1489.16	8.3949
884.68	7.5313	984.45	0.0000	1505.03	9.3613
765.81	19.5958	1274.44	21.4595	1584.12	11.4316
766.42	18.8464	1001.03	13.3047	1596.21	4.7756
766.84	18.8501	1002.74	17.4078	1620.50	3.8402
772.60	0.0000	1004.73	24.5911	1621.92	1.9207
776.52	12.2990	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	5.8456
778.90	19.8855	1028.54	0.0000	1750.46	0.0000
783.70	19.7330	1037.84	21.7396	1764.49	4.9438
788.74	13.6876	1038.76	0.0000	1063.66	4.9495
792.07	25.3800	631.29	17.6464	1771.35	3.3005
795.86	18.1094	1048.07	8.3081	1791.20	0.0000
810.06	22.0405	1049.04	11.4270	1808.65	6.9815
810.29	24.9169	1050.41	20.7849	1810.72	0.0000
344.28	23.9601	1063.66	8.3472	1836.06	7.0185
810.76	23.0046	1077.00	10.0570		
815.77	16.9018	1077.34	11.7339		
1048.07	17.3035	1085.87	15.1251		
832.01	19.3225	1093.63	12.6328		
834.85	20.1164	1099.45	14.7639		
835.71	23.2185	1112.07	12.7017		
836.80	0.0000	1112.84	14.5195		
846.75	0.0000	1115.54	8.4761		
846.77	14.5702	1120.29	19.0975		
856.80	28.0767	1120.55	19.0986		
860.56	17.5715	1221.41	19.1030		
871.09	16.6576	1129.67	21.2769		
873.19	20.5924	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	22.6027	1173.23	10.7703		
880.51	21.6287	1177.95	5.1765		
881.60	19.6698	1189.05	3.4615		
883.24	24.6017	1204.77	14.1227		
884.68	19.6912	1221.41	7.6392		
889.28	19.7229	1231.02	10.2118		
894.76	14.8206	1235.36	8.7627		
898.04	15.8262	1238.28	7.6733		
900.72	15.8408	1260.41	0.0000		
903.28	17.8369	1271.87	11.0596		
911.20	19.0775	1274.44	3.5414		
912.08	14.3125	1274.54	3.5414		
923.98	0.0000	1291.59	7.7810		
926.50	13.9833	1298.22	0.0000		
929.11	6.3980	1312.11	11.1743		
935.54	15.0275	1332.49	7.8622		
937.49	19.2480	1362.66	0.0000		
944.13	19.0899	1365.19	8.1523		
946.00	15.0801	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:16:28.62

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299003.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM10.CNF;712
Background date  : 29-JUL-2024 05:36:52
Sample date     : 26-JUN-2024 09:08:00 Acquisition date : 30-JUL-2024 11:14:02
Sample ID      : G674299003 Sample quantity : 1.18580E+02 GRAM
Detector name   : GAM10 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.80 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	75.18	184	296	1.19	149.92	146	14	5.11E-02	17.1	1.20E+00
2	3	77.52	294	301	1.23	154.61	146	14	8.18E-02	11.6	
3	0	83.69*	84	336	1.38	166.95	162	10	2.33E-02	42.5	
4	0	88.35	191	377	1.45	176.27	172	11	5.31E-02	20.9	
5	0	93.34*	59	335	1.30	186.24	182	8	1.63E-02	57.3	
6	0	186.38*	342	244	1.39	372.36	367	11	9.50E-02	10.5	
7	2	238.97*	264	173	1.57	477.56	473	17	7.34E-02	10.7	2.78E+00
8	2	242.43	361	128	1.51	484.48	473	17	1.00E-01	8.0	
9	0	270.86	70	153	2.10	541.34	535	12	1.95E-02	37.2	
10	2	295.62	687	98	1.35	590.86	585	19	1.91E-01	4.5	7.96E-01
11	2	300.15	56	64	1.71	599.93	585	19	1.56E-02	31.3	
12	0	323.76	20	85	0.93	647.16	644	8	5.50E-03	83.4	
13	0	352.26*	1248	96	1.39	704.18	696	14	3.47E-01	3.3	
14	0	452.57	23	25	1.45	904.84	902	6	6.32E-03	40.8	
15	0	456.03	29	38	1.48	911.75	908	8	7.92E-03	41.9	
16	0	511.40*	22	75	1.90	1022.52	1016	16	6.12E-03	100.0	
17	0	583.34*	65	45	2.07	1166.45	1163	9	1.79E-02	22.8	
18	0	609.65*	876	55	1.48	1219.07	1212	15	2.43E-01	3.9	
19	0	727.53	24	20	1.64	1454.90	1450	9	6.75E-03	39.0	
20	0	742.01	17	24	0.92	1483.88	1477	10	4.58E-03	61.4	
21	0	768.80	79	66	1.48	1537.47	1530	17	2.19E-02	25.9	
22	0	786.82	29	22	2.64	1573.52	1568	10	7.97E-03	36.1	
23	5	803.24	14	6	2.16	1606.38	1605	34	3.78E-03	29.3	1.04E+00
24	5	806.38	34	22	1.92	1612.65	1605	34	9.36E-03	33.2	
25	0	911.47*	60	33	2.13	1822.90	1817	13	1.66E-02	24.0	
26	0	934.61	33	36	1.18	1869.22	1863	13	9.11E-03	41.5	
27	0	969.65*	47	18	1.33	1939.31	1934	13	1.31E-02	23.6	
28	0	1058.43	12	12	3.76	2116.96	2111	11	3.28E-03	66.6	
29	0	1069.97	17	6	3.82	2140.03	2135	10	4.60E-03	39.1	
30	3	1120.46*	174	13	2.07	2241.07	2234	28	4.83E-02	8.8	1.02E+00
31	3	1125.24*	15	3	2.53	2250.64	2234	28	4.05E-03	76.0	
32	0	1132.55*	7	6	1.30	2265.26	2261	6	1.85E-03	71.4	
33	0	1156.06	15	22	2.33	2312.31	2306	11	4.12E-03	66.6	
34	0	1201.79	17	16	0.63	2403.81	2398	13	4.83E-03	53.3	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1238.41	88	4	2.55	2477.07	2469	16	2.45E-02	11.8	
36	0	1280.63	18	18	1.85	2561.56	2555	12	5.00E-03	52.7	
37	0	1285.11	11	4	2.24	2570.52	2567	7	3.00E-03	45.5	
38	0	1377.82	61	13	1.23	2756.05	2749	13	1.69E-02	17.7	
39	0	1401.40	27	3	2.99	2803.23	2798	11	7.51E-03	22.7	
40	0	1408.42	31	3	1.66	2817.27	2811	12	8.62E-03	21.1	
41	0	1460.91*	87	15	2.14	2922.30	2914	15	2.42E-02	14.7	
42	0	1491.34	5	6	3.81	2983.20	2974	12	1.39E-03	107.7	
43	0	1509.82	35	4	1.58	3020.19	3014	15	9.66E-03	20.9	
44	0	1593.60	16	5	2.33	3187.85	3182	11	4.46E-03	37.5	
45	0	1661.09*	25	0	0.63	3322.92	3315	14	6.81E-03	20.5	
46	0	1685.34*	4	5	0.95	3371.43	3365	10	1.18E-03	133.6	
47	0	1729.72	38	0	2.58	3460.26	3454	11	1.06E-02	16.2	
48	0	1764.48*	133	8	1.68	3529.82	3522	16	3.68E-02	10.0	
49	0	1847.03	27	0	0.62	3695.04	3686	15	7.50E-03	19.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299003.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:08:00	Acquisition date	: 30-JUL-2024 11:14:02
Sample ID	: G674299003	Sample quantity	: 118.58 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA10	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.80 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	82	10.66*	1.031E+00	4.737E+00	4.737E+00	29.33
CD-109	88.03	207	3.70*	4.566E+00	7.756E+00	8.164E+00	41.77
SN-126	64.28	-----	9.60	1.756E+00	-----	Line Not Found	-----
	86.94	207	8.90	4.566E+00	3.224E+00	3.224E+00	41.77
	87.57	207	37.00*	4.566E+00	7.756E-01	7.756E-01	41.77
TL-208	277.37	-----	6.60	4.212E+00	-----	Line Not Found	-----
	583.19	64	85.00*	2.441E+00	1.950E-01	1.950E-01	45.52
	860.56	-----	12.50	1.716E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	2.854E+00	-----	Line Not Found	-----
	351.06	1266	12.92*	3.564E+00	1.741E+01	1.741E+01	6.58
BI-212	727.33	24	6.67*	2.014E+00	1.121E+00	1.121E+00	77.91
	1620.50	-----	1.47	9.584E-01	-----	Line Not Found	-----
PB-212	74.82	200	10.28	3.143E+00	3.928E+00	3.928E+00	34.27
	77.11	320	17.10	3.428E+00	3.460E+00	3.460E+00	23.14
	238.63	273	43.60*	4.664E+00	8.505E-01	8.505E-01	21.46
	300.09	57	3.30	3.987E+00	2.763E+00	2.763E+00	62.50
BI-214	609.32	865	45.49*	2.353E+00	5.118E+00	5.118E+00	7.75
	1120.29	167	14.92	1.317E+00	5.373E+00	5.373E+00	17.58
	1764.49	124	15.30	9.178E-01	5.593E+00	5.593E+00	20.03
PB-214	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.100E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.416E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
RN-222	609.32	865	45.49*	2.353E+00	5.118E+00	5.118E+00	7.75
	1120.29	167	14.92	1.317E+00	5.373E+00	5.373E+00	17.58
	1764.49	124	15.30	9.178E-01	5.593E+00	5.593E+00	20.03
RA-224	240.99	373	4.10*	4.619E+00	1.246E+01	1.246E+01	16.01
RA-226	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.100E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.416E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
TH-228	74.82	200	10.28	3.143E+00	3.928E+00	3.928E+00	34.27
	77.11	320	17.10	3.428E+00	3.460E+00	3.460E+00	23.14
	238.63	273	43.60*	4.664E+00	8.505E-01	8.505E-01	21.46
	300.09	57	3.30	3.987E+00	2.763E+00	2.763E+00	62.50
TH-230	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.099E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.415E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
PA-231	283.69	-----	1.70	4.147E+00	-----	Line Not Found	-----
	301.36	57	5.35*	3.987E+00	1.704E+00	1.704E+00	62.50
U-234	74.82	200	5.80	3.143E+00	6.962E+00	6.962E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.099E+00	23.14

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	87.09	207	3.41	4.566E+00	8.415E+00	8.415E+00	41.77
	242.00	373	7.25	4.619E+00	7.045E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
AM-243	43.53	-----	5.90	1.019E-01	-----	Line Not Found	-----
	74.66	200	67.20*	3.143E+00	6.009E-01	6.009E-01	34.27
ANH-511	511.00	22	100.00*	2.711E+00	5.127E-02	5.127E-02	200.06

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299003.CNF;1
Acquisition date : 30-JUL-2024 11:14:02 Sensitivity : 3.000
Detector ID : GAM10 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.80 Half life ratio : *****
Sample date : 26-JUN-2024 09:08:00 Analyst initials: RXF2
Sample ID : G674299003 Sample Quantity : 1.1858E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	4.737E+00	1.361E+00	1.200E+00
CD-109	8.164E+00	3.342E+00	2.460E+00
SN-126	7.756E-01	3.175E-01	2.358E-01
TL-208	1.950E-01	8.699E-02	1.034E-01
BI-211	1.741E+01	1.123E+00	4.789E-01
BI-212	1.121E+00	8.562E-01	1.229E+00
PB-212	8.505E-01	1.789E-01	1.633E-01
BI-214	5.118E+00	3.886E-01	1.635E-01
PB-214	6.319E+00	4.076E-01	1.742E-01
RN-222	5.118E+00	3.886E-01	1.635E-01
RA-224	1.246E+01	1.955E+00	1.749E+00
RA-226	6.319E+00	4.076E-01	1.742E-01
TH-228	8.505E-01	1.789E-01	1.633E-01
TH-230	6.319E+00	4.076E-01	1.741E-01
PA-231	1.704E+00	1.044E+00	1.275E+00
U-234	6.319E+00	4.076E-01	1.741E-01
AM-243	6.009E-01	2.018E-01	2.134E-01
ANH-511	5.127E-02	1.005E-01	6.674E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-4.463E-01	5.113E-01	8.472E-01	NOT IDENT.
NA-22	-9.393E-03	6.451E-02	1.068E-01	NOT IDENT.
NA-24	0.000E+00	1.502E+15	0.000E+00	SHORT HLIF
AL-26	-5.418E-03	4.885E-02	9.601E-02	NOT IDENT.
SC-46	8.729E-03	5.765E-02	1.156E-01	FAIL ABUN
V-48	-1.649E-01	2.254E-01	3.938E-01	NOT IDENT.
CR-51	4.317E-01	9.880E-01	1.704E+00	NOT IDENT.
MN-52	-1.526E+00	3.894E+00	7.063E+00	FAIL ABUN
MN-54	-1.559E-02	4.999E-02	9.452E-02	NOT IDENT.
CO-56	-4.231E-02	5.828E-02	1.034E-01	FAIL ABUN
MN-56	0.000E+00	1.407E+41	0.000E+00	SHORT HLIF
CO-57	-3.579E-02	4.313E-02	6.960E-02	NOT IDENT.

CO-58	-2.718E-02	6.044E-02	1.028E-01	NOT IDENT.
FE-59	-7.076E-02	1.474E-01	2.674E-01	NOT IDENT.
CO-60	-1.055E-02	5.278E-02	1.003E-01	NOT IDENT.
ZN-65	7.864E-02	1.195E-01	2.348E-01	NOT IDENT.
GE-68	9.869E-01	1.779E+00	3.714E+00	NOT IDENT.
AS-73	-3.921E+00	4.619E+00	7.749E+00	NOT IDENT.
AS-74	-2.863E-01	2.708E-01	4.280E-01	NOT IDENT.
SE-75	1.856E-03	7.276E-02	1.294E-01	NOT IDENT.
BR-77	0.000E+00	7.057E+03	0.000E+00	SHORT HLIF
SR-82	-3.476E-01	8.761E-01	1.411E+00	NOT IDENT.
RB-83	7.800E-02	1.059E-01	2.122E-01	NOT IDENT.
RB-84	1.016E-01	1.356E-01	2.890E-01	NOT IDENT.
KR-85	7.836E+00	9.334E+00	1.856E+01	NOT IDENT.
SR-85	5.046E-02	6.036E-02	1.200E-01	NOT IDENT.
RB-86	1.494E+00	2.265E+00	4.746E+00	NOT IDENT.
Y-88	-2.504E-02	6.231E-02	1.126E-01	NOT IDENT.
Y-91	-2.614E+01	3.971E+01	5.766E+01	NOT IDENT.
NB-94	4.277E-02	5.055E-02	9.970E-02	NOT IDENT.
NB-95	-7.722E-03	8.229E-02	1.302E-01	NOT IDENT.
NB-95M	5.185E-02	2.505E-01	4.222E-01	NOT IDENT.
ZR-95	-6.312E-03	1.089E-01	1.990E-01	NOT IDENT.
NB-97	0.000E+00	1.100E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.224E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.445E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.175E+39	0.000E+00	SHORT HLIF
RH-101	3.556E-02	5.120E-02	9.165E-02	FAIL ABUN
RH-102	-1.035E-02	6.884E-02	1.246E-01	NOT IDENT.
RU-103	7.469E-02	7.256E-02	1.490E-01	FAIL ABUN
RH-106	-2.861E-01	4.336E-01	7.250E-01	NOT IDENT.
RU-106	-2.861E-01	4.336E-01	7.250E-01	NOT IDENT.
AG-108M	2.292E-03	4.051E-02	7.547E-02	NOT IDENT.
AG-110	1.026E+00	9.915E-01	2.058E+00	NOT IDENT.
AG-110M	-2.461E-02	7.221E-02	1.345E-01	NOT IDENT.
SN-113	2.686E-02	7.453E-02	1.409E-01	NOT IDENT.
CD-115	0.000E+00	5.449E+03	0.000E+00	SHORT HLIF
SN-117M	6.795E-02	2.209E-01	4.199E-01	NOT IDENT.
SB-122	0.000E+00	2.967E+02	0.000E+00	SHORT HLIF
TE-123M	-5.450E-03	4.903E-02	9.125E-02	NOT IDENT.
SB-124	-3.866E-03	1.159E-01	2.381E-01	NOT IDENT.
SB-125	3.771E-02	1.408E-01	2.635E-01	NOT IDENT.
TE-125M	-7.591E+00	2.171E+01	3.643E+01	NOT IDENT.
I-126	2.985E-01	8.467E-01	1.607E+00	NOT IDENT.
SB-126	3.724E-01	5.975E-01	1.166E+00	NOT IDENT.
SB-127	-1.565E+01	4.849E+01	8.532E+01	NOT IDENT.
I-131	1.462E-01	7.825E-01	1.478E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.144E+01	0.000E+00	SHORT HLIF
BA-133	-1.744E-02	6.036E-02	9.678E-02	NOT IDENT.
I-133	0.000E+00	2.930E+10	0.000E+00	SHORT HLIF
CS-134	3.683E-03	6.055E-02	1.103E-01	FAIL ABUN
I-135	0.000E+00	5.245E+36	0.000E+00	SHORT HLIF
CS-136	6.455E-02	3.679E-01	7.383E-01	NOT IDENT.
BA-137M	-4.934E-02	4.575E-02	7.060E-02	NOT IDENT.
CS-137	-5.213E-02	4.833E-02	7.458E-02	NOT IDENT.
LA-138	1.914E-02	8.976E-02	1.809E-01	NOT IDENT.
CE-139	2.324E-02	4.869E-02	9.340E-02	NOT IDENT.
BA-140	-1.137E+00	1.038E+00	1.649E+00	NOT IDENT.
LA-140	9.641E-02	3.392E-01	6.634E-01	NOT IDENT.
CE-141	1.631E-02	1.484E-01	2.777E-01	NOT IDENT.
CE-143	0.000E+00	3.238E+06	0.000E+00	SHORT HLIF
CE-144	1.564E-01	3.554E-01	6.218E-01	NOT IDENT.
PM-144	-2.864E-02	5.489E-02	9.251E-02	NOT IDENT.
PR-144	-2.204E+00	4.145E+00	6.976E+00	NOT IDENT.
PM-146	7.551E-02	6.045E-02	1.133E-01	FAIL ABUN
ND-147	-1.457E+00	2.407E+00	4.110E+00	NOT IDENT.
PM-147	-7.600E+02	1.209E+03	1.981E+03	NOT IDENT.
PM-149	0.000E+00	5.517E+04	0.000E+00	SHORT HLIF
EU-150	2.222E-03	3.651E-02	6.793E-02	FAIL ABUN
EU-152	4.927E-02	1.450E-01	2.737E-01	FAIL ABUN
GD-153	3.811E-02	1.667E-01	2.920E-01	NOT IDENT.
EU-154	-3.265E-02	1.800E-01	2.954E-01	NOT IDENT.
EU-155	-1.549E-02	1.911E-01	3.268E-01	NOT IDENT.
TB-160	-1.868E-02	2.089E-01	4.040E-01	NOT IDENT.
HO-166M	-5.151E-03	8.048E-02	1.458E-01	NOT IDENT.
TM-171	-1.350E+01	8.610E+01	1.512E+02	NOT IDENT.
HF-172	1.067E-01	3.185E-01	5.568E-01	NOT IDENT.
LU-172	2.403E-02	7.567E-02	1.571E-01	FAIL ABUN
LU-176	-1.756E-03	3.764E-02	6.943E-02	FAIL ABUN

HF-181	5.174E-02	8.159E-02	1.601E-01	NOT IDENT.
TA-182	-9.653E-02	2.492E-01	4.552E-01	FAIL ABUN
RE-183	-6.072E-01	8.536E-01	1.439E+00	NOT IDENT.
RE-184	-1.107E-01	2.897E-01	5.310E-01	NOT IDENT.
W-188	-7.496E+00	1.408E+01	2.211E+01	NOT IDENT.
IR-192	-6.197E-02	6.041E-02	1.023E-01	FAIL ABUN
HG-203	-3.737E-02	7.460E-02	1.330E-01	NOT IDENT.
TL-204	-8.528E+00	1.239E+01	2.073E+01	FAIL ABUN
BI-207	-2.547E-02	7.300E-02	1.167E-01	FAIL ABUN
BI-210	5.888E+00	2.409E+01	4.360E+01	NOT IDENT.
PB-210	5.888E+00	2.409E+01	4.360E+01	NOT IDENT.
PB-211	2.521E-01	1.010E+00	1.899E+00	NOT IDENT.
BI-213	-8.293E-02	1.529E-01	2.655E-01	NOT IDENT.
RN-219	2.002E-01	5.919E-01	1.118E+00	FAIL ABUN
RA-223	8.463E-01	1.384E+00	1.887E+00	FAIL ABUN
AC-225	7.549E-01	3.337E+00	6.272E+00	NOT IDENT.
AC-227	2.740E-01	4.053E-01	7.779E-01	FAIL ABUN
TH-227	2.740E-01	4.053E-01	7.779E-01	FAIL ABUN
AC-228	0.000E+00	4.120E-01	6.565E-01	FAIL ABUN
RA-228	0.000E+00	4.120E-01	6.565E-01	FAIL ABUN
TH-229	-9.735E-02	8.135E-01	1.502E+00	FAIL ABUN
TH-231	8.463E-01	1.384E+00	1.887E+00	FAIL ABUN
TH-232	0.000E+00	4.120E-01	6.565E-01	FAIL ABUN
PA-233	-6.645E-02	9.632E-02	1.660E-01	FAIL ABUN
PA-234	-1.337E-01	3.965E-01	7.391E-01	FAIL ABUN
PA-234M	5.045E+00	6.852E+00	1.426E+01	NOT IDENT.
TH-234	2.545E+00	3.838E+00	6.993E+00	FAIL ABUN
U-235	2.093E-01	3.224E-01	6.176E-01	FAIL ABUN
NP-237	-6.645E-02	9.632E-02	1.660E-01	FAIL ABUN
NP-238	0.000E+00	1.504E+04	0.000E+00	SHORT HLIF
U-238	2.545E+00	3.838E+00	6.993E+00	FAIL ABUN
NP-239	1.075E-01	4.250E-01	7.437E-01	NOT IDENT.
PU-239	-6.015E+01	5.708E+02	9.663E+02	NOT IDENT.
AM-241	-1.147E-01	4.996E-01	8.680E-01	NOT IDENT.
CM-243	4.098E-02	1.940E-01	3.381E-01	NOT IDENT.
BK-247	2.523E-02	1.174E-01	2.120E-01	FAIL ABUN
CM-247	4.068E-02	5.174E-02	1.020E-01	NOT IDENT.
CF-249	1.813E-03	6.464E-02	1.182E-01	NOT IDENT.
CF-251	-1.209E-01	2.199E-01	3.975E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	82	10.66*	1.031E+00	4.737E+00	4.737E+00	29.33
CD-109	88.03	207	3.70*	4.566E+00	7.756E+00	8.164E+00	41.77
SN-126	64.28	-----	9.60	1.756E+00	-----	Line Not Found	-----
	86.94	207	8.90	4.566E+00	3.224E+00	3.224E+00	41.77
	87.57	207	37.00*	4.566E+00	7.756E-01	7.756E-01	41.77
TL-208	277.37	-----	6.60	4.212E+00	-----	Line Not Found	-----
	583.19	64	85.00*	2.441E+00	1.950E-01	1.950E-01	45.52
	860.56	-----	12.50	1.716E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	2.854E+00	-----	Line Not Found	-----
	351.06	1266	12.92*	3.564E+00	1.741E+01	1.741E+01	6.58
BI-212	727.33	24	6.67*	2.014E+00	1.121E+00	1.121E+00	77.91
	1620.50	-----	1.47	9.584E-01	-----	Line Not Found	-----
PB-212	74.82	200	10.28	3.143E+00	3.928E+00	3.928E+00	34.27
	77.11	320	17.10	3.428E+00	3.460E+00	3.460E+00	23.14
	238.63	273	43.60*	4.664E+00	8.505E-01	8.505E-01	21.46
	300.09	57	3.30	3.987E+00	2.763E+00	2.763E+00	62.50
BI-214	609.32	865	45.49*	2.353E+00	5.118E+00	5.118E+00	7.75
	1120.29	167	14.92	1.317E+00	5.373E+00	5.373E+00	17.58
	1764.49	124	15.30	9.178E-01	5.593E+00	5.593E+00	20.03
PB-214	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.100E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.416E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
RN-222	609.32	865	45.49*	2.353E+00	5.118E+00	5.118E+00	7.75
	1120.29	167	14.92	1.317E+00	5.373E+00	5.373E+00	17.58
	1764.49	124	15.30	9.178E-01	5.593E+00	5.593E+00	20.03
RA-224	240.99	373	4.10*	4.619E+00	1.246E+01	1.246E+01	16.01
RA-226	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.100E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.416E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
TH-228	74.82	200	10.28	3.143E+00	3.928E+00	3.928E+00	34.27
	77.11	320	17.10	3.428E+00	3.460E+00	3.460E+00	23.14
	238.63	273	43.60*	4.664E+00	8.505E-01	8.505E-01	21.46
	300.09	57	3.30	3.987E+00	2.763E+00	2.763E+00	62.50
TH-230	74.82	200	5.80	3.143E+00	6.962E+00	6.963E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.099E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.415E+00	41.77
	242.00	373	7.25	4.619E+00	7.044E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
PA-231	283.69	-----	1.70	4.147E+00	-----	Line Not Found	-----
	301.36	57	5.35*	3.987E+00	1.704E+00	1.704E+00	62.50

Nuclide Type:							
Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-234	74.82	200	5.80	3.143E+00	6.962E+00	6.962E+00	34.27
	77.11	320	9.70	3.428E+00	6.099E+00	6.099E+00	23.14
	87.09	207	3.41	4.566E+00	8.415E+00	8.415E+00	41.77
	242.00	373	7.25	4.619E+00	7.045E+00	7.045E+00	16.01
	295.22	703	18.42	4.030E+00	5.997E+00	5.997E+00	9.08
	351.93	1266	35.60*	3.564E+00	6.319E+00	6.319E+00	6.58
AM-243	43.53	-----	5.90	1.019E-01	-----	Line Not Found	-----
	74.66	200	67.20*	3.143E+00	6.009E-01	6.009E-01	34.27
ANH-511	511.00	22	100.00*	2.711E+00	5.127E-02	5.127E-02	200.06

Flag: "*" = Keyline

Total number of lines in spectrum 49
Number of unidentified lines 21
Number of lines tentatively identified by NID 28 57.14%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	4.737E+00	4.737E+00	1.389E+00	29.33	
CD-109	461.40D	1.05	7.756E+00	8.164E+00	3.410E+00	41.77	
SN-126	2.30E+05Y	1.00	7.756E-01	7.756E-01	3.240E-01	41.77	
TL-208	1.41E+10Y	1.00	1.950E-01	1.950E-01	0.888E-01	45.52	
BI-211	7.04E+08Y	1.00	1.741E+01	1.741E+01	0.115E+01	6.58	
BI-212	1.41E+10Y	1.00	1.121E+00	1.121E+00	0.874E+00	77.91	
PB-212	1.41E+10Y	1.00	8.505E-01	8.505E-01	1.825E-01	21.46	
BI-214	1600.00Y	1.00	5.118E+00	5.118E+00	0.396E+00	7.75	
PB-214	1600.00Y	1.00	6.319E+00	6.319E+00	0.416E+00	6.58	
RN-222	1600.00Y	1.00	5.118E+00	5.118E+00	0.396E+00	7.75	
RA-224	1.41E+10Y	1.00	1.246E+01	1.246E+01	0.199E+01	16.01	
RA-226	1600.00Y	1.00	6.319E+00	6.319E+00	0.416E+00	6.58	
TH-228	1.41E+10Y	1.00	8.505E-01	8.505E-01	1.825E-01	21.46	
TH-230	7.54E+04Y	1.00	6.319E+00	6.319E+00	0.416E+00	6.58	
PA-231	7.04E+08Y	1.00	1.704E+00	1.704E+00	1.065E+00	62.50	
U-234	2.45E+05Y	1.00	6.319E+00	6.319E+00	0.416E+00	6.58	
AM-243	7370.00Y	1.00	6.009E-01	6.009E-01	2.059E-01	34.27	
ANH-511	1.00E+09Y	1.00	5.127E-02	5.127E-02	10.26E-02	200.06	
Total Activity :			8.402E+01	8.443E+01			

Grand Total Activity : 8.402E+01 8.443E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.69	91	364	1.38	166.95	162	10	2.33E-02	84.9	4.12E+00	T
0	93.34	63	362	1.30	186.24	182	8	1.63E-02	****	4.97E+00	T
0	186.38	357	255	1.39	372.36	367	11	9.50E-02	21.0	5.45E+00	T
0	270.86	72	157	2.10	541.34	535	12	1.95E-02	74.5	4.28E+00	T
0	323.76	20	87	0.93	647.16	644	8	5.50E-03	****	3.78E+00	T
0	452.57	23	25	1.45	904.84	902	6	6.32E-03	81.7	2.97E+00	T
0	456.03	29	39	1.48	911.75	908	8	7.92E-03	83.8	2.96E+00	
0	742.01	16	23	0.92	1483.88	1477	10	4.58E-03	****	1.98E+00	
0	768.80	77	65	1.48	1537.47	1530	17	2.19E-02	51.8	1.91E+00	
0	786.82	28	22	2.64	1573.52	1568	10	7.97E-03	72.2	1.87E+00	
5	803.24	13	6	2.16	1606.38	1605	34	3.78E-03	58.7	1.84E+00	T
5	806.38	33	21	1.92	1612.65	1605	34	9.36E-03	66.4	1.83E+00	
0	911.47	58	32	2.13	1822.90	1817	13	1.66E-02	48.0	1.62E+00	T
0	934.61	32	35	1.18	1869.22	1863	13	9.11E-03	83.0	1.58E+00	T
0	969.65	45	17	1.33	1939.31	1934	13	1.31E-02	47.2	1.52E+00	T
0	1058.43	11	12	3.76	2116.96	2111	11	3.28E-03	****	1.39E+00	
0	1069.97	16	6	3.82	2140.03	2135	10	4.60E-03	78.1	1.38E+00	
3	1125.24	14	3	2.53	2250.64	2234	28	4.05E-03	****	1.31E+00	
0	1132.55	6	6	1.30	2265.26	2261	6	1.85E-03	****	1.30E+00	T
0	1156.06	14	21	2.33	2312.31	2306	11	4.12E-03	****	1.28E+00	
0	1201.79	17	15	0.63	2403.81	2398	13	4.83E-03	****	1.23E+00	
0	1238.41	84	4	2.55	2477.07	2469	16	2.45E-02	23.6	1.19E+00	T
0	1280.63	17	17	1.85	2561.56	2555	12	5.00E-03	****	1.16E+00	
0	1285.11	10	4	2.24	2570.52	2567	7	3.00E-03	91.1	1.15E+00	
0	1377.82	58	12	1.23	2756.05	2749	13	1.69E-02	35.4	1.08E+00	
0	1401.40	26	3	2.99	2803.23	2798	11	7.51E-03	45.3	1.07E+00	
0	1408.42	29	3	1.66	2817.27	2811	12	8.62E-03	42.3	1.06E+00	T
0	1491.34	5	6	3.81	2983.20	2974	12	1.39E-03	****	1.01E+00	
0	1509.82	33	4	1.58	3020.19	3014	15	9.66E-03	41.9	1.01E+00	
0	1593.60	15	5	2.33	3187.85	3182	11	4.46E-03	74.9	9.68E-01	
0	1661.09	23	0	0.63	3322.92	3315	14	6.81E-03	40.9	9.45E-01	
0	1685.34	4	5	0.95	3371.43	3365	10	1.18E-03	****	9.37E-01	
0	1729.72	36	0	2.58	3460.26	3454	11	1.06E-02	32.4	9.26E-01	
0	1847.03	25	0	0.62	3695.04	3686	15	7.50E-03	38.5	9.04E-01	

Flags: "T" = Tentatively associated

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*
*               GEL Laboratories LLC
*             2040 Savage Road
*             Charleston, SC 29407
*
*****
*
*               DETECTOR AND SAMPLE DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299003.CNF;1
* Acquisition date   : 30-JUL-2024 11:14:02 Sensitivity      : 3.000
* Detector ID        : GAM10 Energy tolerance: 1.500
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 01:00:00.80 Half life ratio  : *****
* Sample date        : 26-JUN-2024 09:08:00 Nuclide Library : SOLID
* Sample ID          : G674299003 Analyst initials: RXF2
* Batch Number       : 2636542 Sample Quantity  : 1.1858E+02 GRAM
* Wet wt corr        : 1.00000 Wet Weight       : 0.00000
*                               Dry Weight        : 0.00000
*****
*
*               CALIBRATION INFORMATION
*
* Eff. Cal. date     : 14-JUN-2024 04:03:20 Eff. Geometry   : CAN
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5
*****
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	5.224E-01
CD-109	1.175E+00
SN-126	1.127E-01
TL-208	4.756E-02
BI-211	2.208E-01
BI-212	5.505E-01
PB-212	7.740E-02
BI-214	7.372E-02
PB-214	8.028E-02
RN-222	7.372E-02
RA-224	8.292E-01
RA-226	8.028E-02
TH-228	7.740E-02
TH-230	8.027E-02
PA-231	5.971E-01
U-234	8.027E-02
AM-243	1.025E-01
ANH-511	3.020E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.785E-01	NOT IDENT.
NA-22	4.584E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.862E-02	NOT IDENT.
SC-46	5.099E-02	FAIL ABUN
V-48	1.719E-01	NOT IDENT.
CR-51	7.984E-01	NOT IDENT.
MN-52	2.972E+00	FAIL ABUN
MN-54	4.203E-02	NOT IDENT.
CO-56	4.500E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.297E-02	NOT IDENT.
CO-58	4.479E-02	NOT IDENT.

FE-59	1.145E-01	NOT IDENT.
CO-60	4.241E-02	NOT IDENT.
ZN-65	1.033E-01	NOT IDENT.
GE-68	1.646E+00	NOT IDENT.
AS-73	3.687E+00	NOT IDENT.
AS-74	1.910E-01	NOT IDENT.
SE-75	6.061E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.290E-01	NOT IDENT.
RB-83	9.672E-02	NOT IDENT.
RB-84	1.293E-01	NOT IDENT.
KR-85	8.542E+00	NOT IDENT.
SR-85	5.523E-02	NOT IDENT.
RB-86	2.116E+00	NOT IDENT.
Y-88	4.446E-02	NOT IDENT.
Y-91	2.481E+01	NOT IDENT.
NB-94	4.572E-02	NOT IDENT.
NB-95	5.864E-02	NOT IDENT.
NB-95M	2.004E-01	NOT IDENT.
ZR-95	8.777E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.369E-02	FAIL ABUN
RH-102	5.545E-02	NOT IDENT.
RU-103	6.829E-02	FAIL ABUN
RH-106	3.226E-01	NOT IDENT.
RU-106	3.226E-01	NOT IDENT.
AG-108M	3.463E-02	NOT IDENT.
AG-110	9.339E-01	NOT IDENT.
AG-110M	5.951E-02	NOT IDENT.
SN-113	6.551E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.002E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.348E-02	NOT IDENT.
SB-124	9.071E-02	NOT IDENT.
SB-125	1.222E-01	NOT IDENT.
TE-125M	1.738E+01	NOT IDENT.
I-126	7.289E-01	NOT IDENT.
SB-126	5.299E-01	NOT IDENT.
SB-127	3.756E+01	NOT IDENT.
I-131	6.814E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.443E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.955E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.234E-01	NOT IDENT.
BA-137M	3.093E-02	NOT IDENT.
CS-137	3.267E-02	NOT IDENT.
LA-138	7.801E-02	NOT IDENT.
CE-139	4.447E-02	NOT IDENT.
BA-140	7.380E-01	NOT IDENT.
LA-140	2.727E-01	NOT IDENT.
CE-141	1.327E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.970E-01	NOT IDENT.
PM-144	4.186E-02	NOT IDENT.
PR-144	3.156E+00	NOT IDENT.
PM-146	5.216E-02	FAIL ABUN
ND-147	1.840E+00	NOT IDENT.
PM-147	9.391E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.153E-02	FAIL ABUN
EU-152	1.279E-01	FAIL ABUN
GD-153	1.397E-01	NOT IDENT.
EU-154	1.266E-01	NOT IDENT.
EU-155	1.560E-01	NOT IDENT.
TB-160	1.785E-01	NOT IDENT.
HO-166M	6.517E-02	NOT IDENT.
TM-171	7.196E+01	NOT IDENT.
HF-172	2.653E-01	NOT IDENT.
LU-172	6.815E-02	FAIL ABUN
LU-176	3.237E-02	FAIL ABUN
HF-181	7.349E-02	NOT IDENT.

TA-182	1.954E-01	FAIL ABUN
RE-183	6.849E-01	NOT IDENT.
RE-184	2.388E-01	NOT IDENT.
W-188	1.032E+01	NOT IDENT.
IR-192	4.741E-02	FAIL ABUN
HG-203	6.229E-02	NOT IDENT.
TL-204	9.933E+00	FAIL ABUN
BI-207	5.005E-02	FAIL ABUN
BI-210	2.076E+01	NOT IDENT.
PB-210	2.076E+01	NOT IDENT.
PB-211	8.790E-01	NOT IDENT.
BI-213	1.218E-01	NOT IDENT.
RN-219	5.190E-01	FAIL ABUN
RA-223	8.863E-01	FAIL ABUN
AC-225	2.973E+00	NOT IDENT.
AC-227	3.685E-01	FAIL ABUN
TH-227	3.685E-01	FAIL ABUN
AC-228	3.079E-01	FAIL ABUN
RA-228	3.079E-01	FAIL ABUN
TH-229	7.143E-01	FAIL ABUN
TH-231	8.863E-01	FAIL ABUN
TH-232	3.079E-01	FAIL ABUN
PA-233	7.721E-02	FAIL ABUN
PA-234	3.239E-01	FAIL ABUN
PA-234M	6.443E+00	NOT IDENT.
TH-234	3.352E+00	FAIL ABUN
U-235	2.958E-01	FAIL ABUN
NP-237	7.721E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	3.352E+00	FAIL ABUN
NP-239	3.536E-01	NOT IDENT.
PU-239	4.607E+02	NOT IDENT.
AM-241	4.136E-01	NOT IDENT.
CM-243	1.615E-01	NOT IDENT.
BK-247	9.937E-02	FAIL ABUN
CM-247	4.730E-02	NOT IDENT.
CF-249	5.517E-02	NOT IDENT.
CF-251	1.898E-01	NOT IDENT.

GEL Laboratories LLC
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DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299003.CNF;1
Acquisition date : 30-JUL-2024 11:14:02 Sensitivity : 3.000
Detector ID : GAM10 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.80 Half life ratio : *****
Sample date : 26-JUN-2024 09:08:00 Nuclide Library : SOLID
Sample ID : G674299003 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1858E+02 GRAM
Quantity Err(%) : 1.6866E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	4.737E+00	1.487E+00	1.487E+00
CD-109	8.164E+00	3.441E+00	3.441E+00
SN-126	7.756E-01	3.243E-01	3.243E-01
TL-208	1.950E-01	8.852E-02	8.852E-02
BI-211	1.741E+01	1.977E+00	1.977E+00
BI-212	1.121E+00	8.632E-01	8.632E-01
PB-212	8.505E-01	1.965E-01	1.965E-01
BI-214	5.118E+00	5.776E-01	5.776E-01
PB-214	6.319E+00	7.101E-01	7.101E-01
RN-222	5.118E+00	5.776E-01	5.776E-01
RA-224	1.246E+01	2.298E+00	2.298E+00
RA-226	6.319E+00	7.101E-01	7.101E-01
TH-228	8.505E-01	1.965E-01	1.965E-01
TH-230	6.319E+00	7.101E-01	7.101E-01
PA-231	1.704E+00	1.116E+00	1.116E+00
U-234	6.319E+00	7.101E-01	7.101E-01
AM-243	6.009E-01	2.089E-01	2.089E-01
ANH-511	5.127E-02	1.006E-01	1.006E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-4.463E-01	5.127E-01	5.507E-01	NOT IDENT.
NA-22	-9.393E-03	6.452E-02	6.466E-02	NOT IDENT.
NA-24	3.347E+14	1.503E+15	1.510E+15	SHORT HLIF
AL-26	-5.418E-03	4.886E-02	4.892E-02	NOT IDENT.
SC-46	8.729E-03	5.766E-02	5.780E-02	FAIL ABUN
V-48	-1.649E-01	2.264E-01	2.383E-01	NOT IDENT.
CR-51	4.317E-01	9.889E-01	1.008E+00	NOT IDENT.
MN-52	-1.526E+00	3.898E+00	3.959E+00	FAIL ABUN
MN-54	-1.559E-02	5.002E-02	5.051E-02	NOT IDENT.
CO-56	-4.231E-02	5.850E-02	6.153E-02	FAIL ABUN
MN-56	-1.000E+41	1.412E+41	0.000E+00	SHORT HLIF
CO-57	-3.579E-02	4.325E-02	4.616E-02	NOT IDENT.

CO-58	-2.718E-02	6.052E-02	6.175E-02	NOT IDENT.
FE-59	-7.076E-02	1.476E-01	1.510E-01	NOT IDENT.
CO-60	-1.055E-02	5.279E-02	5.301E-02	NOT IDENT.
ZN-65	7.864E-02	1.198E-01	1.249E-01	NOT IDENT.
GE-68	9.869E-01	1.782E+00	1.837E+00	NOT IDENT.
AS-73	-3.921E+00	4.718E+00	5.039E+00	NOT IDENT.
AS-74	-2.863E-01	2.726E-01	3.016E-01	NOT IDENT.
SE-75	1.856E-03	7.276E-02	7.276E-02	NOT IDENT.
BR-77	3.355E+04	3.392E+04	3.714E+04	SHORT HLIF
SR-82	-3.476E-01	8.769E-01	8.908E-01	NOT IDENT.
RB-83	7.800E-02	1.066E-01	1.122E-01	NOT IDENT.
RB-84	1.016E-01	1.362E-01	1.437E-01	NOT IDENT.
KR-85	7.836E+00	9.357E+00	1.000E+01	NOT IDENT.
SR-85	5.046E-02	6.051E-02	6.465E-02	NOT IDENT.
RB-86	1.494E+00	2.271E+00	2.369E+00	NOT IDENT.
Y-88	-2.504E-02	6.234E-02	6.336E-02	NOT IDENT.
Y-91	-2.614E+01	3.979E+01	4.150E+01	NOT IDENT.
NB-94	4.277E-02	5.070E-02	5.424E-02	NOT IDENT.
NB-95	-7.722E-03	8.229E-02	8.236E-02	NOT IDENT.
NB-95M	5.185E-02	2.505E-01	2.516E-01	NOT IDENT.
ZR-95	-6.312E-03	1.089E-01	1.090E-01	NOT IDENT.
NB-97	1.000E+41	1.103E+41	0.000E+00	SHORT HLIF
ZR-97	-6.401E+13	3.225E+14	3.238E+14	SHORT HLIF
MO-99	-4.665E+02	2.446E+03	2.455E+03	SHORT HLIF
TC-99M	1.227E+39	3.178E+39	0.000E+00	SHORT HLIF
RH-101	3.556E-02	5.167E-02	5.410E-02	FAIL ABUN
RH-102	-1.035E-02	6.885E-02	6.901E-02	NOT IDENT.
RU-103	7.469E-02	7.286E-02	8.026E-02	FAIL ABUN
RH-106	-2.861E-01	4.344E-01	4.532E-01	NOT IDENT.
RU-106	-2.861E-01	4.344E-01	4.532E-01	NOT IDENT.
AG-108M	2.292E-03	4.051E-02	4.053E-02	NOT IDENT.
AG-110	1.026E+00	9.950E-01	1.097E+00	NOT IDENT.
AG-110M	-2.461E-02	7.229E-02	7.313E-02	NOT IDENT.
SN-113	2.686E-02	7.456E-02	7.554E-02	NOT IDENT.
CD-115	1.080E+03	5.450E+03	5.472E+03	SHORT HLIF
SN-117M	6.795E-02	2.210E-01	2.231E-01	NOT IDENT.
SB-122	-5.476E+01	2.967E+02	2.978E+02	SHORT HLIF
TE-123M	-5.450E-03	4.903E-02	4.909E-02	NOT IDENT.
SB-124	-3.866E-03	1.159E-01	1.159E-01	NOT IDENT.
SB-125	3.771E-02	1.408E-01	1.418E-01	NOT IDENT.
TE-125M	-7.591E+00	2.172E+01	2.199E+01	NOT IDENT.
I-126	2.985E-01	8.472E-01	8.578E-01	NOT IDENT.
SB-126	3.724E-01	5.994E-01	6.225E-01	NOT IDENT.
SB-127	-1.565E+01	4.857E+01	4.908E+01	NOT IDENT.
I-131	1.462E-01	7.826E-01	7.854E-01	NOT IDENT.
I-132	-1.000E+41	4.474E+41	0.000E+00	SHORT HLIF
TE-132	-1.058E+01	6.146E+01	6.164E+01	SHORT HLIF
BA-133	-1.744E-02	6.038E-02	6.089E-02	NOT IDENT.
I-133	1.311E+09	2.930E+10	2.931E+10	SHORT HLIF
CS-134	3.683E-03	6.055E-02	6.057E-02	FAIL ABUN
I-135	-1.874E+36	5.445E+36	0.000E+00	SHORT HLIF
CS-136	6.455E-02	3.680E-01	3.692E-01	NOT IDENT.
BA-137M	-4.934E-02	4.592E-02	5.103E-02	NOT IDENT.
CS-137	-5.213E-02	4.851E-02	5.391E-02	NOT IDENT.
LA-138	1.914E-02	8.979E-02	9.020E-02	NOT IDENT.
CE-139	2.324E-02	4.893E-02	5.004E-02	NOT IDENT.
BA-140	-1.137E+00	1.042E+00	1.161E+00	NOT IDENT.
LA-140	9.641E-02	3.393E-01	3.421E-01	NOT IDENT.
CE-141	1.631E-02	1.485E-01	1.486E-01	NOT IDENT.
CE-143	6.099E+06	3.301E+06	4.296E+06	SHORT HLIF
CE-144	1.564E-01	3.557E-01	3.626E-01	NOT IDENT.
PM-144	-2.864E-02	5.495E-02	5.645E-02	NOT IDENT.
PR-144	-2.204E+00	4.149E+00	4.267E+00	NOT IDENT.
PM-146	7.551E-02	6.094E-02	6.980E-02	FAIL ABUN
ND-147	-1.457E+00	2.410E+00	2.498E+00	NOT IDENT.
PM-147	-7.600E+02	1.211E+03	1.258E+03	NOT IDENT.
PM-149	-1.290E+04	5.522E+04	5.552E+04	SHORT HLIF
EU-150	2.222E-03	3.651E-02	3.652E-02	FAIL ABUN
EU-152	4.927E-02	1.451E-01	1.468E-01	FAIL ABUN
GD-153	3.811E-02	1.667E-01	1.676E-01	NOT IDENT.
EU-154	-3.265E-02	1.800E-01	1.806E-01	NOT IDENT.
EU-155	-1.549E-02	1.911E-01	1.912E-01	NOT IDENT.
TB-160	-1.868E-02	2.089E-01	2.091E-01	NOT IDENT.
HO-166M	-5.151E-03	8.049E-02	8.052E-02	NOT IDENT.
TM-171	-1.350E+01	8.613E+01	8.635E+01	NOT IDENT.
HF-172	1.067E-01	3.191E-01	3.227E-01	NOT IDENT.
LU-172	2.403E-02	7.575E-02	7.652E-02	FAIL ABUN
LU-176	-1.756E-03	3.764E-02	3.765E-02	FAIL ABUN

HF-181	5.174E-02	8.171E-02	8.497E-02	NOT IDENT.
TA-182	-9.653E-02	2.494E-01	2.531E-01	FAIL ABUN
RE-183	-6.072E-01	8.587E-01	9.013E-01	NOT IDENT.
RE-184	-1.107E-01	2.902E-01	2.944E-01	NOT IDENT.
W-188	-7.496E+00	1.412E+01	1.452E+01	NOT IDENT.
IR-192	-6.197E-02	6.073E-02	6.685E-02	FAIL ABUN
HG-203	-3.737E-02	7.470E-02	7.658E-02	NOT IDENT.
TL-204	-8.528E+00	1.242E+01	1.300E+01	FAIL ABUN
BI-207	-2.547E-02	7.306E-02	7.396E-02	FAIL ABUN
BI-210	5.888E+00	2.411E+01	2.426E+01	NOT IDENT.
PB-210	5.888E+00	2.411E+01	2.426E+01	NOT IDENT.
PB-211	2.521E-01	1.011E+00	1.017E+00	NOT IDENT.
BI-213	-8.293E-02	1.531E-01	1.576E-01	NOT IDENT.
RN-219	2.002E-01	5.926E-01	5.994E-01	FAIL ABUN
RA-223	8.463E-01	1.387E+00	1.439E+00	FAIL ABUN
AC-225	7.549E-01	3.338E+00	3.356E+00	NOT IDENT.
AC-227	2.740E-01	4.076E-01	4.259E-01	FAIL ABUN
TH-227	2.740E-01	4.076E-01	4.259E-01	FAIL ABUN
AC-228	8.756E-01	4.288E-01	5.828E-01	FAIL ABUN
RA-228	8.756E-01	4.288E-01	5.828E-01	FAIL ABUN
TH-229	-9.735E-02	8.135E-01	8.147E-01	FAIL ABUN
TH-231	8.463E-01	1.387E+00	1.439E+00	FAIL ABUN
TH-232	8.756E-01	4.288E-01	5.828E-01	FAIL ABUN
PA-233	-6.645E-02	9.656E-02	1.011E-01	FAIL ABUN
PA-234	-1.337E-01	4.252E-01	4.295E-01	FAIL ABUN
PA-234M	5.045E+00	6.880E+00	7.246E+00	NOT IDENT.
TH-234	2.545E+00	3.887E+00	4.052E+00	FAIL ABUN
U-235	2.093E-01	3.229E-01	3.364E-01	FAIL ABUN
NP-237	-6.645E-02	9.656E-02	1.011E-01	FAIL ABUN
NP-238	-8.446E+02	1.504E+04	1.505E+04	SHORT HLIF
U-238	2.545E+00	3.887E+00	4.052E+00	FAIL ABUN
NP-239	1.075E-01	4.252E-01	4.279E-01	NOT IDENT.
PU-239	-6.015E+01	5.708E+02	5.715E+02	NOT IDENT.
AM-241	-1.147E-01	4.998E-01	5.025E-01	NOT IDENT.
CM-243	4.098E-02	1.941E-01	1.949E-01	NOT IDENT.
BK-247	2.523E-02	1.175E-01	1.180E-01	FAIL ABUN
CM-247	4.068E-02	5.227E-02	5.539E-02	NOT IDENT.
CF-249	1.813E-03	6.464E-02	6.464E-02	NOT IDENT.
CF-251	-1.209E-01	2.204E-01	2.271E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	147.7670	85.43	150.2041	131.20	142.5357
45.60	138.4984	86.55	150.4355	133.02	137.8405
46.54	123.3412	86.79	150.4839	133.52	135.4267
49.72	0.0000	86.94	150.5146	136.00	114.5985
51.35	124.4901	87.09	150.5459	136.47	128.3618
51.87	130.1740	87.57	152.9974	140.51	0.0000
52.39	134.7541	88.03	153.0926	143.76	143.1175
52.97	139.3580	88.34	153.1570	144.24	142.3480
53.44	152.8681	88.47	153.1838	145.44	145.8708
54.07	138.5211	89.96	153.4893	152.43	164.5868
57.36	0.0000	1093.63	174.8997	153.25	138.5302
57.53	155.1147	91.11	175.0081	323.87	131.0461
57.98	152.9860	92.59	169.0303	156.02	149.9019
59.27	135.2893	93.35	199.2424	158.56	131.5822
59.32	135.3008	94.56	167.8797	159.00	140.1285
59.54	144.3755	94.65	167.9002	162.33	128.6335
60.96	154.9006	94.67	167.9045	162.66	128.6720
61.17	166.2661	94.87	166.3632	163.33	153.4790
62.93	136.1275	97.43	150.2172	165.86	117.9382
63.29	145.2893	98.43	153.9886	176.31	154.3999
63.58	146.4940	98.44	153.9906	176.60	154.4381
64.28	153.4841	99.53	149.4198	177.52	167.5131
66.73	164.3665	100.11	151.9200	181.07	0.0000
67.24	167.9276	102.03	157.0787	181.52	148.1603
125.81	146.3252	103.18	128.4813	184.41	125.0728
67.75	146.3408	103.37	146.5271	143.76	127.8190
68.89	170.6568	105.21	139.6324	193.51	128.6459
69.67	180.0400	105.31	150.4841	197.03	143.9354
70.82	199.8892	106.12	139.7860	198.01	131.7520
70.83	196.0638	106.47	126.5837	201.83	139.2031
72.81	181.2949	109.28	154.8281	203.43	128.7941
72.87	181.3105	111.00	135.7480	205.31	113.9655
74.66	195.2812	111.76	0.0000	210.85	113.5716
74.82	195.3276	114.06	133.7973	215.65	86.3827
74.97	195.3714	116.30	0.0000	218.12	104.3888
77.11	195.9903	116.74	115.9059	222.11	106.4916
78.74	196.4558	119.76	102.8332	227.09	88.0229
79.69	214.1847	121.12	122.6051	227.38	94.3295
80.03	184.0081	121.22	129.9760	228.16	0.0000
80.12	184.0328	121.78	134.9638	228.18	90.7895
80.19	184.0521	122.06	135.0058	116.74	90.7895
80.57	184.1509	122.92	126.5340	235.69	109.8127
81.00	184.2642	123.07	126.5544	235.96	98.9860
81.07	184.2823	265.00	109.4255	238.63	110.4967
81.75	184.4595	125.81	125.6992	238.98	0.0000
82.47	176.0774	127.23	116.0173	240.99	110.6816
83.79	176.4027	127.91	155.6259	242.00	110.7598
84.00	176.4545	129.30	142.2497	244.70	94.1422

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	85.9582	344.28	59.9856	563.25	20.3390
252.80	96.0428	345.93	58.1030	564.24	0.0000
254.15	0.0000	351.06	46.6133	569.33	24.6790
256.23	89.8498	351.93	46.6357	946.00	26.8270
260.90	0.0000	355.39	0.0000	569.70	26.8290
264.66	71.9189	356.01	48.1999	583.19	44.2298
264.80	71.9253	364.49	43.0395	584.27	46.9445
265.00	69.7214	366.42	0.0000	595.83	40.1059
269.46	80.4704	372.51	48.1337	427.87	29.3181
270.03	80.5005	375.05	60.0022	602.52	0.0000
271.23	80.5642	377.52	45.3056	604.72	40.7822
273.65	77.9075	356.01	49.4059	607.14	24.4913
276.40	74.3294	388.16	65.3608	609.32	28.3243
277.37	84.6034	388.63	63.3945	610.33	28.3349
277.60	86.4761	391.69	51.5885	614.28	29.4675
278.00	85.5668	264.66	54.8109	618.01	29.5082
279.20	85.6342	401.81	48.8594	620.36	21.8766
279.54	94.0320	402.40	39.8975	621.93	31.7388
279.70	94.0402	404.85	46.9359	630.19	0.0000
280.46	84.7700	410.95	48.0791	631.29	24.1601
283.69	87.7444	413.71	53.1585	633.25	19.7813
284.31	91.5141	414.70	49.1705	634.78	24.1901
285.41	82.2332	423.72	60.4712	635.95	33.0005
285.90	0.0000	427.09	50.4740	636.99	30.8118
287.50	61.7568	427.87	49.4835	657.50	17.7350
290.67	78.7551	433.94	38.4855	657.76	18.8448
293.27	0.0000	439.40	43.6605	657.90	0.0000
351.93	83.6783	440.45	51.8093	661.66	32.1919
295.96	83.7163	453.88	24.5322	664.57	0.0000
879.38	83.8503	463.37	23.6116	666.33	26.6846
299.98	83.9210	468.07	33.9487	666.50	26.6855
300.09	83.9282	473.00	31.9612	667.71	0.0000
300.13	83.9300	475.06	26.8310	677.62	25.6719
301.36	72.1950	476.78	38.2112	685.70	22.3853
302.85	76.5110	477.60	37.1917	692.65	0.0000
256.23	61.2708	482.18	31.0559	695.00	21.3325
304.85	60.1478	487.02	35.2707	696.49	39.3166
306.78	64.3836	492.35	0.0000	696.51	39.3166
308.46	65.3964	497.08	23.9635	697.00	37.0767
311.90	74.0787	505.52	40.7797	697.30	37.0807
316.51	76.1849	507.63	0.0000	697.49	37.0820
319.41	49.2222	511.00	30.3933	702.65	27.0156
320.08	62.9828	514.00	30.4314	706.68	33.8147
321.04	74.4771	514.00	30.4314	711.68	24.8386
323.87	64.0788	520.40	24.1998	720.70	23.7797
325.23	87.5795	520.69	0.0000	721.93	0.0000
328.76	63.2997	522.65	0.0000	722.78	32.2944
333.37	61.5430	527.90	0.0000	722.91	32.2968
333.97	54.8303	528.26	32.7231	723.31	32.3002
334.37	54.8430	529.59	24.2915	724.19	25.5075
338.28	66.5349	529.87	0.0000	727.33	24.9666
338.32	66.5363	531.02	33.8164	733.00	22.7384
311.90	91.7181	537.26	42.3779	735.93	23.8976
340.48	91.7181	546.56	0.0000	333.97	25.6174
340.55	91.7220	552.55	31.9788	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	23.9617	949.00	15.4420	1384.29	8.0303
747.24	20.5583	667.71	0.0000	1408.01	10.7578
748.06	18.2786	962.31	20.0543	1434.09	13.1785
752.31	19.4473	964.08	14.5918	1435.80	11.1544
753.82	17.1674	966.17	8.7598	1457.56	0.0000
756.73	19.4743	911.20	15.5235	1460.82	15.2838
756.80	19.4750	983.53	24.7489	1489.16	9.2203
884.68	18.9445	984.45	0.0000	1505.03	8.2202
765.81	27.5723	1274.44	20.2322	1584.12	13.5530
766.42	27.5771	1001.03	17.4948	1596.21	5.0150
766.84	24.1334	1002.74	25.7928	1620.50	12.5918
772.60	0.0000	1004.73	20.2766	1621.92	7.3469
776.52	29.0473	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	3.6418
778.90	19.6099	1028.54	0.0000	1750.46	0.0000
783.70	24.2599	1037.84	13.9407	1764.49	2.1508
788.74	26.0330	1038.76	0.0000	1063.66	1.7223
792.07	18.5313	631.29	15.8337	1771.35	5.1677
795.86	25.5100	1048.07	14.9082	1791.20	0.0000
810.06	20.9612	1049.04	19.5709	1808.65	6.4991
810.29	20.9626	1050.41	20.5095	1810.72	0.0000
344.28	20.9634	1063.66	16.4613	1836.06	7.6157
810.76	20.9656	1077.00	15.0137		
815.77	20.9971	1077.34	14.0762		
1048.07	22.4148	1085.87	16.9266		
832.01	20.2191	1093.63	11.3057		
834.85	22.8754	1099.45	16.9816		
835.71	27.2820	1112.07	19.8721		
836.80	0.0000	1112.84	18.3874		
846.75	0.0000	1115.54	10.6066		
846.77	23.8384	1120.29	13.6529		
856.80	18.5948	1120.55	13.6538		
860.56	12.4098	1221.41	13.6556		
871.09	28.4512	1129.67	0.0000		
873.19	14.2339	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	20.4970	1173.23	12.4771		
880.51	25.8520	1177.95	13.4506		
881.60	15.1593	1189.05	10.5952		
883.24	17.8430	1204.77	21.6508		
884.68	24.0980	1221.41	16.4926		
889.28	16.9793	1231.02	11.6660		
894.76	21.4805	1235.36	12.4555		
898.04	19.7086	1238.28	9.7375		
900.72	29.5850	1260.41	0.0000		
903.28	32.2976	1271.87	12.7501		
911.20	18.8813	1274.44	14.1311		
912.08	18.8858	1274.54	14.1319		
923.98	0.0000	1291.59	16.7437		
926.50	18.9601	1298.22	0.0000		
929.11	23.1297	1312.11	10.8805		
935.54	19.0069	1332.49	11.9202		
937.49	21.7332	1362.66	0.0000		
944.13	24.4935	1365.19	11.9993		
946.00	20.8753	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:17:13.75

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299004.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM12.CNF;1051
Background date : 29-JUL-2024 06:18:59
Sample date     : 26-JUN-2024 09:11:00 Acquisition date : 30-JUL-2024 11:14:26
Sample ID      : G674299004 Sample quantity : 1.03650E+02 GRAM
Detector name   : GAM12 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.63 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	38.00*	151	138	5.40	75.96	69	16	4.20E-02	20.0	
2	0	63.42*	38	215	1.24	126.77	123	10	1.04E-02	76.4	
3	2	75.09	179	228	2.06	150.08	144	18	4.98E-02	20.1	1.52E+00
4	2	77.21	240	238	1.96	154.31	144	18	6.68E-02	15.2	
5	5	87.84	56	333	2.77	175.56	170	24	1.55E-02	58.7	1.57E+00
6	5	92.89*	138	300	2.60	185.64	170	24	3.84E-02	32.9	
7	0	113.06	46	126	1.02	225.96	223	9	1.27E-02	46.5	
8	0	185.83*	241	170	2.02	371.40	366	14	6.70E-02	13.4	
9	1	238.35*	257	124	2.06	476.37	470	20	7.14E-02	10.8	2.05E+00
10	1	241.63	206	102	2.06	482.93	470	20	5.72E-02	13.6	
11	0	257.17	58	116	3.51	513.99	506	15	1.60E-02	42.8	
12	0	265.63*	22	81	1.37	530.91	525	9	6.15E-03	78.8	
13	6	294.96	353	68	1.70	589.53	581	23	9.79E-02	6.9	9.49E-01
14	6	299.02	30	63	3.36	597.65	581	23	8.20E-03	65.0	
15	0	338.59*	63	50	1.49	676.76	671	10	1.76E-02	24.7	
16	0	351.58*	597	67	1.68	702.71	697	14	1.66E-01	5.1	
17	0	372.06	14	64	0.63	743.66	734	12	3.78E-03	122.0	
18	0	404.38	30	75	5.19	808.26	799	15	8.44E-03	64.7	
19	0	510.81*	44	51	2.26	1021.04	1013	17	1.22E-02	45.5	
20	0	567.87	24	42	3.69	1135.14	1128	12	6.56E-03	60.1	
21	0	583.18*	67	41	1.50	1165.74	1158	15	1.87E-02	24.5	
22	1	608.97	470	20	2.08	1217.31	1208	32	1.31E-01	4.9	1.82E+00
23	1	616.60	31	1	2.31	1232.58	1208	32	8.48E-03	35.7	
24	0	668.12	19	47	5.80	1335.60	1320	19	5.26E-03	90.2	
25	0	767.97	22	44	3.31	1535.28	1527	14	6.21E-03	67.2	
26	0	888.39	9	8	0.56	1776.11	1772	8	2.50E-03	63.8	
27	7	911.00	49	16	3.07	1821.34	1815	21	1.36E-02	21.2	1.02E+00
28	7	916.35	14	8	2.68	1832.05	1815	21	3.81E-03	45.6	
29	0	948.84	12	5	0.94	1897.04	1893	8	3.35E-03	44.7	
30	0	952.88	6	7	1.39	1905.11	1900	9	1.59E-03	92.6	
31	0	979.18	13	6	2.10	1957.73	1952	12	3.61E-03	46.8	
32	0	1077.32	8	10	0.56	2154.06	2147	11	2.15E-03	90.0	
33	0	1100.41	19	10	6.29	2200.24	2189	19	5.14E-03	46.2	
34	0	1119.65	91	26	2.06	2238.74	2231	19	2.52E-02	16.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1133.90	10	13	1.42	2267.24	2260	11	2.85E-03	76.0	
36	0	1209.09	4	10	0.54	2417.67	2411	8	1.22E-03	132.7	
37	0	1237.72	39	26	2.31	2474.96	2464	18	1.07E-02	35.3	
38	0	1377.37	30	7	1.77	2754.42	2746	14	8.24E-03	26.5	
39	0	1383.97	5	7	1.32	2767.61	2761	10	1.42E-03	108.2	
40	0	1407.26	19	7	1.37	2814.23	2809	10	5.21E-03	35.7	
41	0	1426.10	6	4	0.53	2851.94	2841	12	1.53E-03	77.1	
42	0	1428.71	10	6	1.50	2857.16	2852	12	2.74E-03	59.0	
43	0	1460.21*	124	8	1.87	2920.20	2912	15	3.43E-02	10.3	
44	0	1668.05	8	8	1.31	3336.20	3324	15	2.08E-03	87.6	
45	0	1728.79	24	0	3.32	3457.79	3451	14	6.67E-03	20.4	
46	0	1763.90	76	0	2.33	3528.09	3520	15	2.11E-02	11.5	
47	0	1846.86	15	4	2.31	3694.18	3686	12	4.28E-03	34.3	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299004.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:11:00	Acquisition date	: 30-JUL-2024 11:14:26
Sample ID	: G674299004	Sample quantity	: 103.65 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA12	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.63 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	116	10.66*	1.082E+00	7.266E+00	7.266E+00	20.65
SC-46	889.28	9	99.98*	1.626E+00	3.799E-02	5.037E-02	127.66
	1120.55	86	99.99	1.344E+00	4.613E-01	6.117E-01	33.37
GE-68	1077.34	7	3.22*	1.387E+00	1.181E+00	1.288E+00	179.90
RB-86	1077.00	7	8.64*	1.387E+00	4.400E-01	1.564E+00	179.90
CD-109	88.03	56	3.70*	4.377E+00	2.497E+00	2.628E+00	117.40
SN-126	64.28	38	9.60	1.996E+00	1.428E+00	1.428E+00	152.70
	86.94	56	8.90	4.377E+00	1.038E+00	1.038E+00	117.40
	87.57	56	37.00*	4.377E+00	2.497E-01	2.497E-01	117.40
TL-208	277.37	-----	6.60	4.130E+00	-----	Line Not Found	-----
	583.19	64	85.00*	2.287E+00	2.402E-01	2.402E-01	49.07
	860.56	-----	12.50	1.669E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.022E+00	-----	Line Not Found	-----
	351.06	578	12.92*	3.435E+00	9.431E+00	9.431E+00	10.15
PB-212	74.82	180	10.28	3.250E+00	3.895E+00	3.895E+00	40.23
	77.11	241	17.10	3.460E+00	2.946E+00	2.946E+00	30.39
	238.63	251	43.60*	4.608E+00	9.047E-01	9.047E-01	21.54
	300.09	29	3.30	3.900E+00	1.613E+00	1.613E+00	129.98
BI-214	609.32	449	45.49*	2.209E+00	3.239E+00	3.240E+00	9.89
	1120.29	86	14.92	1.344E+00	3.092E+00	3.092E+00	33.37
	1764.49	71	15.30	9.361E-01	3.583E+00	3.583E+00	22.94
PB-214	74.82	180	5.80	3.250E+00	6.903E+00	6.904E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.710E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.396E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
RN-222	609.32	449	45.49*	2.209E+00	3.239E+00	3.240E+00	9.89
	1120.29	86	14.92	1.344E+00	3.092E+00	3.092E+00	33.37
	1764.49	71	15.30	9.361E-01	3.583E+00	3.583E+00	22.94
RA-224	240.99	201	4.10*	4.565E+00	7.772E+00	7.772E+00	27.19
RA-226	74.82	180	5.80	3.250E+00	6.903E+00	6.904E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.710E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.396E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
TH-228	74.82	180	10.28	3.250E+00	3.895E+00	3.895E+00	40.23
	77.11	241	17.10	3.460E+00	2.946E+00	2.946E+00	30.39
	238.63	251	43.60*	4.608E+00	9.047E-01	9.047E-01	21.54
	300.09	29	3.30	3.900E+00	1.613E+00	1.613E+00	129.98
TH-230	74.82	180	5.80	3.250E+00	6.903E+00	6.903E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.709E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.395E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
TH-234	63.29	38	3.70*	1.996E+00	3.705E+00	3.705E+00	152.70
	92.59	138	4.23	4.722E+00	4.996E+00	4.996E+00	65.78

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-234	74.82	180	5.80	3.250E+00	6.903E+00	6.903E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.709E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.395E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
U-238	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
	63.29	38	3.70*	1.996E+00	3.705E+00	3.705E+00	152.70
	92.59	138	4.23	4.722E+00	4.996E+00	4.996E+00	65.78
AM-243	43.53	-----	5.90	2.847E-01	-----	Line Not Found	-----
	74.66	180	67.20*	3.250E+00	5.958E-01	5.958E-01	40.23
ANH-511	511.00	42	100.00*	2.545E+00	1.202E-01	1.202E-01	91.01

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299004.CNF;1
Acquisition date : 30-JUL-2024 11:14:26 Sensitivity : 3.000
Detector ID : GAM12 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.63 Half life ratio : *****
Sample date : 26-JUN-2024 09:11:00 Analyst initials: RXF2
Sample ID : G674299004 Sample Quantity : 1.0365E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 11-OCT-2023 07:18:34 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	7.266E+00	1.470E+00	9.769E-01
SC-46	5.037E-02	6.302E-02	1.053E-01
GE-68	1.288E+00	2.271E+00	3.338E+00
RB-86	1.564E+00	2.758E+00	4.461E+00
CD-109	2.628E+00	3.024E+00	2.876E+00
SN-126	2.497E-01	2.873E-01	2.753E-01
TL-208	2.402E-01	1.155E-01	9.637E-02
BI-211	9.431E+00	9.383E-01	6.328E-01
PB-212	9.047E-01	1.910E-01	1.558E-01
BI-214	3.240E+00	3.140E-01	1.905E-01
PB-214	3.423E+00	3.406E-01	2.301E-01
RN-222	3.240E+00	3.140E-01	1.905E-01
RA-224	7.772E+00	2.071E+00	1.669E+00
RA-226	3.423E+00	3.406E-01	2.301E-01
TH-228	9.047E-01	1.910E-01	1.558E-01
TH-230	3.423E+00	3.405E-01	2.301E-01
TH-234	3.705E+00	5.545E+00	6.190E+00
U-234	3.423E+00	3.405E-01	2.301E-01
U-238	3.705E+00	5.545E+00	6.190E+00
AM-243	5.958E-01	2.349E-01	2.051E-01
ANH-511	1.202E-01	1.072E-01	8.888E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	5.779E-02	6.349E-01	1.179E+00	NOT IDENT.
NA-22	-1.188E-03	6.100E-02	1.192E-01	NOT IDENT.
NA-24	0.000E+00	1.409E+15	0.000E+00	SHORT HLIF
AL-26	7.347E-03	5.167E-02	1.104E-01	NOT IDENT.
V-48	-3.209E-02	2.084E-01	3.533E-01	NOT IDENT.
CR-51	-2.566E-01	8.860E-01	1.581E+00	NOT IDENT.
MN-52	5.705E-01	3.311E+00	6.381E+00	NOT IDENT.
MN-54	-3.061E-02	5.111E-02	8.554E-02	NOT IDENT.
CO-56	4.490E-03	6.344E-02	1.204E-01	FAIL ABUN

MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	6.903E-03	4.525E-02	8.361E-02	NOT IDENT.
CO-58	-5.507E-04	7.095E-02	1.312E-01	NOT IDENT.
FE-59	2.789E-01	2.527E-01	3.271E-01	FAIL ABUN
CO-60	2.568E-02	5.637E-02	1.204E-01	NOT IDENT.
ZN-65	1.010E-01	1.299E-01	2.600E-01	NOT IDENT.
AS-73	-9.184E-01	3.507E+00	5.937E+00	NOT IDENT.
AS-74	-5.837E-02	3.169E-01	5.668E-01	NOT IDENT.
SE-75	7.566E-02	1.169E-01	1.674E-01	FAIL ABUN
BR-77	0.000E+00	7.530E+03	0.000E+00	SHORT HLIF
SR-82	-2.698E-01	9.153E-01	1.608E+00	NOT IDENT.
RB-83	4.723E-02	1.322E-01	2.521E-01	NOT IDENT.
RB-84	5.906E-02	1.722E-01	3.307E-01	NOT IDENT.
KR-85	3.627E+00	1.303E+01	2.160E+01	NOT IDENT.
SR-85	2.321E-02	8.428E-02	1.396E-01	NOT IDENT.
Y-88	-2.090E-02	5.616E-02	1.070E-01	NOT IDENT.
Y-91	-1.401E+01	3.866E+01	6.024E+01	NOT IDENT.
NB-94	2.888E-02	5.438E-02	1.056E-01	NOT IDENT.
NB-95	8.847E-02	8.737E-02	1.768E-01	NOT IDENT.
NB-95M	1.850E-01	2.930E-01	4.891E-01	NOT IDENT.
ZR-95	-4.156E-02	1.307E-01	2.303E-01	NOT IDENT.
NB-97	0.000E+00	1.663E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.078E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.117E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.503E+39	0.000E+00	SHORT HLIF
RH-101	-1.056E-02	5.268E-02	9.532E-02	NOT IDENT.
RH-102	7.724E-02	8.810E-02	1.788E-01	FAIL ABUN
RU-103	-3.891E-02	7.950E-02	1.382E-01	FAIL ABUN
RH-106	2.654E-01	4.628E-01	8.541E-01	NOT IDENT.
RU-106	2.654E-01	4.628E-01	8.541E-01	NOT IDENT.
AG-108M	1.417E-02	4.752E-02	8.957E-02	NOT IDENT.
AG-110	3.920E-01	1.238E+00	2.133E+00	NOT IDENT.
AG-110M	-1.980E-02	1.070E-01	1.635E-01	FAIL ABUN
SN-113	-2.387E-02	7.667E-02	1.361E-01	NOT IDENT.
CD-115	0.000E+00	5.889E+03	0.000E+00	SHORT HLIF
SN-117M	-1.865E-01	2.480E-01	4.313E-01	NOT IDENT.
SB-122	0.000E+00	5.370E+02	0.000E+00	SHORT HLIF
TE-123M	-4.317E-02	5.400E-02	9.363E-02	NOT IDENT.
SB-124	9.338E-02	1.121E-01	3.035E-01	NOT IDENT.
SB-125	2.379E-03	1.450E-01	2.662E-01	NOT IDENT.
TE-125M	1.358E+01	2.616E+01	4.141E+01	NOT IDENT.
I-126	1.014E+00	1.076E+00	2.150E+00	NOT IDENT.
SB-126	-9.953E-02	6.800E-01	1.219E+00	NOT IDENT.
SB-127	-2.887E+00	5.577E+01	1.031E+02	NOT IDENT.
I-131	-2.188E-01	1.106E+00	1.726E+00	NOT IDENT.
I-132	0.000E+00	1.769E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.342E+01	0.000E+00	SHORT HLIF
BA-133	-3.070E-02	7.875E-02	1.197E-01	NOT IDENT.
I-133	0.000E+00	3.261E+10	0.000E+00	SHORT HLIF
CS-134	7.006E-02	6.820E-02	1.383E-01	FAIL ABUN
I-135	0.000E+00	5.068E+36	0.000E+00	SHORT HLIF
CS-136	-5.534E-02	3.620E-01	7.026E-01	NOT IDENT.
BA-137M	-1.757E-02	6.353E-02	9.672E-02	NOT IDENT.
CS-137	-1.856E-02	6.712E-02	1.022E-01	NOT IDENT.
LA-138	-1.591E-02	7.517E-02	1.380E-01	NOT IDENT.
CE-139	8.740E-03	5.354E-02	9.836E-02	NOT IDENT.
BA-140	-2.641E-01	1.271E+00	2.265E+00	NOT IDENT.
LA-140	6.594E-01	4.171E-01	1.035E+00	NOT IDENT.
CE-141	1.933E-01	1.693E-01	3.247E-01	NOT IDENT.
CE-143	0.000E+00	4.372E+06	0.000E+00	SHORT HLIF
CE-144	2.225E-01	3.600E-01	6.784E-01	NOT IDENT.
PM-144	-3.528E-03	6.322E-02	1.137E-01	FAIL ABUN
PR-144	-3.260E-01	4.772E+00	8.567E+00	NOT IDENT.
PM-146	6.631E-02	7.022E-02	1.399E-01	NOT IDENT.
ND-147	-7.472E-01	2.684E+00	4.799E+00	NOT IDENT.
PM-147	3.927E+02	1.302E+03	2.424E+03	NOT IDENT.
PM-149	0.000E+00	5.774E+04	0.000E+00	SHORT HLIF
EU-150	-7.973E-03	4.946E-02	7.758E-02	FAIL ABUN
EU-152	-8.280E-02	1.570E-01	2.623E-01	FAIL ABUN
GD-153	-2.609E-02	1.930E-01	2.896E-01	NOT IDENT.
EU-154	1.197E-04	1.718E-01	3.366E-01	NOT IDENT.
EU-155	-3.325E-03	2.112E-01	3.594E-01	FAIL ABUN
TB-160	-4.846E-02	2.588E-01	4.620E-01	FAIL ABUN
HO-166M	-2.923E-02	9.444E-02	1.661E-01	FAIL ABUN
TM-171	2.083E+01	6.401E+01	1.122E+02	NOT IDENT.
HF-172	1.239E-01	3.208E-01	6.004E-01	FAIL ABUN
LU-172	-4.094E-02	8.751E-02	1.338E-01	FAIL ABUN
LU-176	5.664E-03	4.504E-02	8.253E-02	FAIL ABUN

HF-181	6.014E-03	1.051E-01	1.923E-01	NOT IDENT.
TA-182	3.940E-02	2.774E-01	5.517E-01	NOT IDENT.
RE-183	-4.261E-01	7.348E-01	1.219E+00	NOT IDENT.
RE-184	-5.475E-02	2.867E-01	5.119E-01	NOT IDENT.
W-188	-1.490E+01	1.673E+01	2.406E+01	FAIL ABUN
IR-192	-4.173E-04	6.691E-02	1.219E-01	FAIL ABUN
HG-203	-4.597E-02	8.732E-02	1.520E-01	NOT IDENT.
TL-204	7.333E+00	1.348E+01	2.125E+01	NOT IDENT.
BI-207	-5.723E-02	6.575E-02	1.108E-01	FAIL ABUN
BI-210	-7.928E+00	1.289E+01	2.143E+01	NOT IDENT.
PB-210	-7.928E+00	1.289E+01	2.143E+01	NOT IDENT.
PB-211	1.828E+00	2.318E+00	2.382E+00	FAIL ABUN
BI-212	7.332E-01	8.443E-01	1.695E+00	NOT IDENT.
BI-213	7.192E-02	1.570E-01	3.029E-01	NOT IDENT.
RN-219	1.323E-01	7.052E-01	1.301E+00	NOT IDENT.
RA-223	1.290E-01	1.040E+00	1.910E+00	FAIL ABUN
AC-225	-7.763E-02	3.650E+00	6.609E+00	NOT IDENT.
AC-227	0.000E+00	8.234E-01	7.992E-01	FAIL ABUN
TH-227	0.000E+00	8.234E-01	7.992E-01	FAIL ABUN
AC-228	0.000E+00	3.383E-01	6.661E-01	FAIL ABUN
RA-228	0.000E+00	3.383E-01	6.661E-01	FAIL ABUN
TH-229	-4.516E-01	9.086E-01	1.541E+00	FAIL ABUN
PA-231	3.268E-01	8.786E-01	1.459E+00	NOT IDENT.
TH-231	1.290E-01	1.040E+00	1.910E+00	FAIL ABUN
TH-232	0.000E+00	3.383E-01	6.661E-01	FAIL ABUN
PA-233	1.094E-04	1.099E-01	1.994E-01	FAIL ABUN
PA-234	-8.901E-02	5.307E-01	8.213E-01	FAIL ABUN
PA-234M	4.661E+00	7.625E+00	1.577E+01	NOT IDENT.
U-235	3.384E-01	3.617E-01	6.856E-01	FAIL ABUN
NP-237	1.094E-04	1.099E-01	1.994E-01	FAIL ABUN
NP-238	0.000E+00	1.244E+04	0.000E+00	SHORT HLIF
NP-239	1.249E-02	5.298E-01	8.586E-01	NOT IDENT.
PU-239	-1.700E+02	5.697E+02	1.024E+03	NOT IDENT.
AM-241	3.565E-01	4.913E-01	7.938E-01	NOT IDENT.
CM-243	-5.055E-02	2.167E-01	3.634E-01	NOT IDENT.
BK-247	1.219E-01	1.884E-01	2.635E-01	FAIL ABUN
CM-247	1.985E-02	6.547E-02	1.218E-01	NOT IDENT.
CF-249	4.375E-02	6.540E-02	1.264E-01	NOT IDENT.
CF-251	-2.385E-01	2.244E-01	3.815E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	116	10.66*	1.082E+00	7.266E+00	7.266E+00	20.65
SC-46	889.28	9	99.98*	1.626E+00	3.799E-02	5.037E-02	127.66
	1120.55	86	99.99	1.344E+00	4.613E-01	6.117E-01	33.37
GE-68	1077.34	7	3.22*	1.387E+00	1.181E+00	1.288E+00	179.90
RB-86	1077.00	7	8.64*	1.387E+00	4.400E-01	1.564E+00	179.90
CD-109	88.03	56	3.70*	4.377E+00	2.497E+00	2.628E+00	117.40
SN-126	64.28	38	9.60	1.996E+00	1.428E+00	1.428E+00	152.70
	86.94	56	8.90	4.377E+00	1.038E+00	1.038E+00	117.40
	87.57	56	37.00*	4.377E+00	2.497E-01	2.497E-01	117.40
TL-208	277.37	-----	6.60	4.130E+00	-----	Line Not Found	-----
	583.19	64	85.00*	2.287E+00	2.402E-01	2.402E-01	49.07
	860.56	-----	12.50	1.669E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.022E+00	-----	Line Not Found	-----
	351.06	578	12.92*	3.435E+00	9.431E+00	9.431E+00	10.15
PB-212	74.82	180	10.28	3.250E+00	3.895E+00	3.895E+00	40.23
	77.11	241	17.10	3.460E+00	2.946E+00	2.946E+00	30.39
	238.63	251	43.60*	4.608E+00	9.047E-01	9.047E-01	21.54
	300.09	29	3.30	3.900E+00	1.613E+00	1.613E+00	129.98
BI-214	609.32	449	45.49*	2.209E+00	3.239E+00	3.240E+00	9.89
	1120.29	86	14.92	1.344E+00	3.092E+00	3.092E+00	33.37
	1764.49	71	15.30	9.361E-01	3.583E+00	3.583E+00	22.94
PB-214	74.82	180	5.80	3.250E+00	6.903E+00	6.904E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.710E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.396E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
RN-222	609.32	449	45.49*	2.209E+00	3.239E+00	3.240E+00	9.89
	1120.29	86	14.92	1.344E+00	3.092E+00	3.092E+00	33.37
	1764.49	71	15.30	9.361E-01	3.583E+00	3.583E+00	22.94
RA-224	240.99	201	4.10*	4.565E+00	7.772E+00	7.772E+00	27.19
RA-226	74.82	180	5.80	3.250E+00	6.903E+00	6.904E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.710E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.396E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
TH-228	74.82	180	10.28	3.250E+00	3.895E+00	3.895E+00	40.23
	77.11	241	17.10	3.460E+00	2.946E+00	2.946E+00	30.39
	238.63	251	43.60*	4.608E+00	9.047E-01	9.047E-01	21.54
	300.09	29	3.30	3.900E+00	1.613E+00	1.613E+00	129.98
TH-230	74.82	180	5.80	3.250E+00	6.903E+00	6.903E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.709E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.395E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-234	63.29	38	3.70*	1.996E+00	3.705E+00	3.705E+00	152.70
	92.59	138	4.23	4.722E+00	4.996E+00	4.996E+00	65.78
U-234	74.82	180	5.80	3.250E+00	6.903E+00	6.903E+00	40.23
	77.11	241	9.70	3.460E+00	5.193E+00	5.193E+00	30.39
	87.09	56	3.41	4.377E+00	2.709E+00	2.709E+00	117.40
	242.00	201	7.25	4.565E+00	4.395E+00	4.395E+00	27.19
	295.22	343	18.42	3.941E+00	3.417E+00	3.417E+00	13.70
U-238	351.93	578	35.60*	3.435E+00	3.423E+00	3.423E+00	10.15
	63.29	38	3.70*	1.996E+00	3.705E+00	3.705E+00	152.70
	92.59	138	4.23	4.722E+00	4.996E+00	4.996E+00	65.78
AM-243	43.53	-----	5.90	2.847E-01	-----	Line Not Found	-----
	74.66	180	67.20*	3.250E+00	5.958E-01	5.958E-01	40.23
ANH-511	511.00	42	100.00*	2.545E+00	1.202E-01	1.202E-01	91.01

Flag: "*" = Keyline

Total number of lines in spectrum 47
Number of unidentified lines 12
Number of lines tentatively identified by NID 35 74.47%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	7.266E+00	7.266E+00	1.500E+00	20.65	
SC-46	83.79D	1.33	3.799E-02	5.037E-02	6.430E-02	127.66	
GE-68	270.95D	1.09	1.181E+00	1.288E+00	2.318E+00	179.90	
RB-86	18.64D	3.55	4.400E-01	1.564E+00	2.814E+00	179.90	
CD-109	461.40D	1.05	2.497E+00	2.628E+00	3.086E+00	117.40	
SN-126	2.30E+05Y	1.00	2.497E-01	2.497E-01	2.932E-01	117.40	
TL-208	1.41E+10Y	1.00	2.402E-01	2.402E-01	1.179E-01	49.07	
BI-211	7.04E+08Y	1.00	9.431E+00	9.431E+00	0.957E+00	10.15	
PB-212	1.41E+10Y	1.00	9.047E-01	9.047E-01	1.949E-01	21.54	
BI-214	1600.00Y	1.00	3.239E+00	3.240E+00	0.320E+00	9.89	
PB-214	1600.00Y	1.00	3.423E+00	3.423E+00	0.348E+00	10.15	
RN-222	1600.00Y	1.00	3.239E+00	3.240E+00	0.320E+00	9.89	
RA-224	1.41E+10Y	1.00	7.772E+00	7.772E+00	2.113E+00	27.19	
RA-226	1600.00Y	1.00	3.423E+00	3.423E+00	0.348E+00	10.15	
TH-228	1.41E+10Y	1.00	9.047E-01	9.047E-01	1.949E-01	21.54	
TH-230	7.54E+04Y	1.00	3.423E+00	3.423E+00	0.347E+00	10.15	
TH-234	4.47E+09Y	1.00	3.705E+00	3.705E+00	5.658E+00	152.70	
U-234	2.45E+05Y	1.00	3.423E+00	3.423E+00	0.347E+00	10.15	
U-238	4.47E+09Y	1.00	3.705E+00	3.705E+00	5.658E+00	152.70	
AM-243	7370.00Y	1.00	5.958E-01	5.958E-01	2.397E-01	40.23	
ANH-511	1.00E+09Y	1.00	1.202E-01	1.202E-01	1.094E-01	91.01	

Total Activity : 5.922E+01 6.060E+01

Grand Total Activity : 5.922E+01 6.060E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	38.00	154	140	5.40	75.96	69	16	4.20E-02	40.1	9.60E-02	
0	113.06	45	125	1.02	225.96	223	9	1.27E-02	93.1	5.58E+00	T
0	185.83	237	167	2.02	371.40	366	14	6.70E-02	26.9	5.36E+00	T
0	257.17	56	113	3.51	513.99	506	15	1.60E-02	85.7	4.37E+00	T
0	265.63	22	79	1.37	530.91	525	9	6.15E-03	****	4.26E+00	T
0	338.59	61	48	1.49	676.76	671	10	1.76E-02	49.3	3.54E+00	T
0	372.06	13	62	0.63	743.66	734	12	3.78E-03	****	3.28E+00	T
0	404.38	29	72	5.19	808.26	799	15	8.44E-03	****	3.07E+00	T
0	567.87	23	41	3.69	1135.14	1128	12	6.56E-03	****	2.34E+00	T
1	616.60	29	1	2.31	1232.58	1208	32	8.48E-03	71.3	2.19E+00	T
0	668.12	18	45	5.80	1335.60	1320	19	5.26E-03	****	2.05E+00	T
0	767.97	21	41	3.31	1535.28	1527	14	6.21E-03	****	1.83E+00	T
7	911.00	46	15	3.07	1821.34	1815	21	1.36E-02	42.4	1.59E+00	T
7	916.35	13	8	2.68	1832.05	1815	21	3.81E-03	91.2	1.58E+00	
0	948.84	11	5	0.94	1897.04	1893	8	3.35E-03	89.3	1.54E+00	T
0	952.88	5	7	1.39	1905.11	1900	9	1.59E-03	****	1.53E+00	
0	979.18	12	6	2.10	1957.73	1952	12	3.61E-03	93.6	1.50E+00	
0	1100.41	17	9	6.29	2200.24	2189	19	5.14E-03	92.4	1.36E+00	T
0	1133.90	10	12	1.42	2267.24	2260	11	2.85E-03	****	1.33E+00	
0	1209.09	4	9	0.54	2417.67	2411	8	1.22E-03	****	1.26E+00	
0	1237.72	36	25	2.31	2474.96	2464	18	1.07E-02	70.6	1.24E+00	T
0	1377.37	28	7	1.77	2754.42	2746	14	8.24E-03	52.9	1.13E+00	
0	1383.97	5	6	1.32	2767.61	2761	10	1.42E-03	****	1.13E+00	T
0	1407.26	18	7	1.37	2814.23	2809	10	5.21E-03	71.4	1.11E+00	T
0	1426.10	5	3	0.53	2851.94	2841	12	1.53E-03	****	1.10E+00	
0	1428.71	9	6	1.50	2857.16	2852	12	2.74E-03	****	1.10E+00	
0	1668.05	7	7	1.31	3336.20	3324	15	2.08E-03	****	9.76E-01	
0	1728.79	22	0	3.32	3457.79	3451	14	6.67E-03	40.8	9.50E-01	
0	1846.86	14	3	2.31	3694.18	3686	12	4.28E-03	68.6	9.06E-01	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29407                           *
*****
*                                     DETECTOR AND SAMPLE DATA                       *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299004.CNF;1        *
* Acquisition date   : 30-JUL-2024 11:14:26 Sensitivity      : 3.000                *
* Detector ID        : GAM12 Energy tolerance: 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:00.63 Half life ratio  : *****          *
* Sample date        : 26-JUN-2024 09:11:00 Nuclide Library : SOLID          *
* Sample ID          : G674299004 Analyst initials:  RXF2          *
* Batch Number       : 2636542 Sample Quantity  : 1.0365E+02 GRAM      *
* Wet wt corr        : 1.00000 Wet Weight       : 0.00000          *
*                                     Dry Weight    : 0.00000          *
*****
*                                     CALIBRATION INFORMATION                       *
*
* Eff. Cal. date     : 11-OCT-2023 07:18:34 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20          *
*****
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.042E-01
SC-46	4.470E-02
GE-68	1.432E+00
RB-86	1.943E+00
CD-109	1.375E+00
SN-126	1.316E-01
TL-208	4.318E-02
BI-211	2.945E-01
PB-212	7.306E-02
BI-214	8.557E-02
PB-214	1.071E-01
RN-222	8.557E-02
RA-224	7.826E-01
RA-226	1.071E-01
TH-228	7.306E-02
TH-230	1.071E-01
TH-234	2.962E+00
U-234	1.071E-01
U-238	2.962E+00
AM-243	9.803E-02
ANH-511	4.062E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.355E-01	NOT IDENT.
NA-22	5.135E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	4.463E-02	NOT IDENT.
V-48	1.481E-01	NOT IDENT.
CR-51	7.281E-01	NOT IDENT.
MN-52	2.583E+00	NOT IDENT.
MN-54	3.663E-02	NOT IDENT.
CO-56	5.236E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF

CO-57	3.964E-02	NOT IDENT.
CO-58	5.781E-02	NOT IDENT.
FE-59	1.421E-01	FAIL ABUN
CO-60	5.176E-02	NOT IDENT.
ZN-65	1.143E-01	NOT IDENT.
AS-73	2.838E+00	NOT IDENT.
AS-74	2.557E-01	NOT IDENT.
SE-75	7.900E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	7.136E-01	NOT IDENT.
RB-83	1.147E-01	NOT IDENT.
RB-84	1.476E-01	NOT IDENT.
KR-85	9.908E+00	NOT IDENT.
SR-85	6.406E-02	NOT IDENT.
Y-88	4.004E-02	NOT IDENT.
Y-91	2.570E+01	NOT IDENT.
NB-94	4.785E-02	NOT IDENT.
NB-95	8.075E-02	NOT IDENT.
NB-95M	2.323E-01	NOT IDENT.
ZR-95	1.012E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.514E-02	NOT IDENT.
RH-102	8.116E-02	FAIL ABUN
RU-103	6.160E-02	FAIL ABUN
RH-106	3.790E-01	NOT IDENT.
RU-106	3.790E-01	NOT IDENT.
AG-108M	4.108E-02	NOT IDENT.
AG-110	9.521E-01	NOT IDENT.
AG-110M	7.274E-02	FAIL ABUN
SN-113	6.222E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.044E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.433E-02	NOT IDENT.
SB-124	1.205E-01	NOT IDENT.
SB-125	1.217E-01	NOT IDENT.
TE-125M	1.971E+01	NOT IDENT.
I-126	9.858E-01	NOT IDENT.
SB-126	5.459E-01	NOT IDENT.
SB-127	4.545E+01	NOT IDENT.
I-131	7.953E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.523E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	6.255E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.997E-01	NOT IDENT.
BA-137M	4.311E-02	NOT IDENT.
CS-137	4.554E-02	NOT IDENT.
LA-138	5.549E-02	NOT IDENT.
CE-139	4.661E-02	NOT IDENT.
BA-140	1.028E+00	NOT IDENT.
LA-140	4.530E-01	NOT IDENT.
CE-141	1.552E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	3.228E-01	NOT IDENT.
PM-144	5.157E-02	FAIL ABUN
PR-144	3.886E+00	NOT IDENT.
PM-146	6.454E-02	NOT IDENT.
ND-147	2.140E+00	NOT IDENT.
PM-147	1.151E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.595E-02	FAIL ABUN
EU-152	1.206E-01	FAIL ABUN
GD-153	1.373E-01	NOT IDENT.
EU-154	1.452E-01	NOT IDENT.
EU-155	1.709E-01	FAIL ABUN
TB-160	2.037E-01	FAIL ABUN
HO-166M	7.382E-02	FAIL ABUN
TM-171	5.366E+01	NOT IDENT.
HF-172	2.848E-01	FAIL ABUN
LU-172	5.524E-02	FAIL ABUN
LU-176	3.855E-02	FAIL ABUN
HF-181	8.822E-02	NOT IDENT.

TA-182	2.405E-01	NOT IDENT.
RE-183	5.813E-01	NOT IDENT.
RE-184	2.249E-01	NOT IDENT.
W-188	1.118E+01	FAIL ABUN
IR-192	5.659E-02	FAIL ABUN
HG-203	7.119E-02	NOT IDENT.
TL-204	1.018E+01	NOT IDENT.
BI-207	4.608E-02	FAIL ABUN
BI-210	1.020E+01	NOT IDENT.
PB-210	1.020E+01	NOT IDENT.
PB-211	1.107E+00	FAIL ABUN
BI-212	7.714E-01	NOT IDENT.
BI-213	1.384E-01	NOT IDENT.
RN-219	6.025E-01	NOT IDENT.
RA-223	8.887E-01	FAIL ABUN
AC-225	3.119E+00	NOT IDENT.
AC-227	3.762E-01	FAIL ABUN
TH-227	3.762E-01	FAIL ABUN
AC-228	3.095E-01	FAIL ABUN
RA-228	3.095E-01	FAIL ABUN
TH-229	7.282E-01	FAIL ABUN
PA-231	6.826E-01	NOT IDENT.
TH-231	8.887E-01	FAIL ABUN
TH-232	3.095E-01	FAIL ABUN
PA-233	9.303E-02	FAIL ABUN
PA-234	3.582E-01	FAIL ABUN
PA-234M	7.101E+00	NOT IDENT.
U-235	3.276E-01	FAIL ABUN
NP-237	9.303E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	4.076E-01	NOT IDENT.
PU-239	4.852E+02	NOT IDENT.
AM-241	3.797E-01	NOT IDENT.
CM-243	1.728E-01	NOT IDENT.
BK-247	1.242E-01	FAIL ABUN
CM-247	5.652E-02	NOT IDENT.
CF-249	5.854E-02	NOT IDENT.
CF-251	1.805E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299004.CNF;1
Acquisition date : 30-JUL-2024 11:14:26 Sensitivity : 3.000
Detector ID : GAM12 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.63 Half life ratio : *****
Sample date : 26-JUN-2024 09:11:00 Nuclide Library : SOLID
Sample ID : G674299004 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0365E+02 GRAM
Quantity Err(%) : 1.9296E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 11-OCT-2023 07:18:34 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM12_CAN.CNF;20

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	7.266E+00	1.592E+00	1.592E+00
SC-46	5.037E-02	6.314E-02	6.314E-02
GE-68	1.288E+00	2.274E+00	2.274E+00
RB-86	1.564E+00	2.760E+00	2.760E+00
CD-109	2.628E+00	3.035E+00	3.035E+00
SN-126	2.497E-01	2.880E-01	2.880E-01
TL-208	2.402E-01	1.182E-01	1.182E-01
BI-211	9.431E+00	1.231E+00	1.231E+00
PB-212	9.047E-01	2.040E-01	2.040E-01
BI-214	3.240E+00	4.682E-01	4.682E-01
PB-214	3.423E+00	4.433E-01	4.433E-01
RN-222	3.240E+00	4.682E-01	4.682E-01
RA-224	7.772E+00	2.162E+00	2.162E+00
RA-226	3.423E+00	4.433E-01	4.433E-01
TH-228	9.047E-01	2.040E-01	2.040E-01
TH-230	3.423E+00	4.433E-01	4.433E-01
TH-234	3.705E+00	5.608E+00	5.608E+00
U-234	3.423E+00	4.433E-01	4.433E-01
U-238	3.705E+00	5.608E+00	5.608E+00
AM-243	5.958E-01	2.395E-01	2.395E-01
ANH-511	1.202E-01	1.079E-01	1.079E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	5.779E-02	6.349E-01	6.354E-01	NOT IDENT.
NA-22	-1.188E-03	6.100E-02	6.101E-02	NOT IDENT.
NA-24	-5.470E+14	1.410E+15	1.431E+15	SHORT HLIF
AL-26	7.347E-03	5.168E-02	5.178E-02	NOT IDENT.
V-48	-3.209E-02	2.084E-01	2.089E-01	NOT IDENT.
CR-51	-2.566E-01	8.862E-01	8.937E-01	NOT IDENT.
MN-52	5.705E-01	3.311E+00	3.321E+00	NOT IDENT.
MN-54	-3.061E-02	5.118E-02	5.301E-02	NOT IDENT.
CO-56	4.490E-03	6.344E-02	6.347E-02	FAIL ABUN

MN-56	1.000E+41	1.225E+42	0.000E+00	SHORT HLIF
CO-57	6.903E-03	4.525E-02	4.536E-02	NOT IDENT.
CO-58	-5.507E-04	7.095E-02	7.095E-02	NOT IDENT.
FE-59	2.789E-01	2.542E-01	2.836E-01	FAIL ABUN
CO-60	2.568E-02	5.640E-02	5.758E-02	NOT IDENT.
ZN-65	1.010E-01	1.302E-01	1.379E-01	NOT IDENT.
AS-73	-9.184E-01	3.513E+00	3.537E+00	NOT IDENT.
AS-74	-5.837E-02	3.170E-01	3.181E-01	NOT IDENT.
SE-75	7.566E-02	1.170E-01	1.219E-01	FAIL ABUN
BR-77	3.567E+04	3.602E+04	3.944E+04	SHORT HLIF
SR-82	-2.698E-01	9.157E-01	9.237E-01	NOT IDENT.
RB-83	4.723E-02	1.324E-01	1.341E-01	NOT IDENT.
RB-84	5.906E-02	1.723E-01	1.743E-01	NOT IDENT.
KR-85	3.627E+00	1.304E+01	1.314E+01	NOT IDENT.
SR-85	2.321E-02	8.431E-02	8.496E-02	NOT IDENT.
Y-88	-2.090E-02	5.618E-02	5.696E-02	NOT IDENT.
Y-91	-1.401E+01	3.867E+01	3.919E+01	NOT IDENT.
NB-94	2.888E-02	5.447E-02	5.601E-02	NOT IDENT.
NB-95	8.847E-02	8.781E-02	9.644E-02	NOT IDENT.
NB-95M	1.850E-01	2.936E-01	3.052E-01	NOT IDENT.
ZR-95	-4.156E-02	1.308E-01	1.321E-01	NOT IDENT.
NB-97	1.000E+41	1.666E+41	0.000E+00	SHORT HLIF
ZR-97	3.771E+14	4.095E+14	4.434E+14	SHORT HLIF
MO-99	2.116E+03	2.130E+03	2.334E+03	SHORT HLIF
TC-99M	-3.371E+39	3.523E+39	0.000E+00	SHORT HLIF
RH-101	-1.056E-02	5.272E-02	5.293E-02	NOT IDENT.
RH-102	7.724E-02	8.866E-02	9.526E-02	FAIL ABUN
RU-103	-3.891E-02	7.959E-02	8.150E-02	FAIL ABUN
RH-106	2.654E-01	4.638E-01	4.790E-01	NOT IDENT.
RU-106	2.654E-01	4.638E-01	4.790E-01	NOT IDENT.
AG-108M	1.417E-02	4.753E-02	4.796E-02	NOT IDENT.
AG-110	3.920E-01	1.238E+00	1.251E+00	NOT IDENT.
AG-110M	-1.980E-02	1.070E-01	1.074E-01	FAIL ABUN
SN-113	-2.387E-02	7.669E-02	7.744E-02	NOT IDENT.
CD-115	-3.417E+03	5.901E+03	6.099E+03	SHORT HLIF
SN-117M	-1.865E-01	2.484E-01	2.622E-01	NOT IDENT.
SB-122	-8.817E+01	5.371E+02	5.386E+02	SHORT HLIF
TE-123M	-4.317E-02	5.409E-02	5.748E-02	NOT IDENT.
SB-124	9.338E-02	1.123E-01	1.199E-01	NOT IDENT.
SB-125	2.379E-03	1.450E-01	1.450E-01	NOT IDENT.
TE-125M	1.358E+01	2.618E+01	2.689E+01	NOT IDENT.
I-126	1.014E+00	1.083E+00	1.175E+00	NOT IDENT.
SB-126	-9.953E-02	6.801E-01	6.816E-01	NOT IDENT.
SB-127	-2.887E+00	5.577E+01	5.578E+01	NOT IDENT.
I-131	-2.188E-01	1.106E+00	1.110E+00	NOT IDENT.
I-132	1.000E+41	2.749E+41	0.000E+00	SHORT HLIF
TE-132	2.288E+00	7.342E+01	7.343E+01	SHORT HLIF
BA-133	-3.070E-02	7.879E-02	8.000E-02	NOT IDENT.
I-133	-1.622E+10	3.284E+10	3.364E+10	SHORT HLIF
CS-134	7.006E-02	6.853E-02	7.546E-02	FAIL ABUN
I-135	-3.440E+36	5.729E+36	0.000E+00	SHORT HLIF
CS-136	-5.534E-02	3.620E-01	3.629E-01	NOT IDENT.
BA-137M	-1.757E-02	6.356E-02	6.406E-02	NOT IDENT.
CS-137	-1.856E-02	6.715E-02	6.767E-02	NOT IDENT.
LA-138	-1.591E-02	7.518E-02	7.552E-02	NOT IDENT.
CE-139	8.740E-03	5.357E-02	5.372E-02	NOT IDENT.
BA-140	-2.641E-01	1.271E+00	1.276E+00	NOT IDENT.
LA-140	6.594E-01	4.202E-01	5.147E-01	NOT IDENT.
CE-141	1.933E-01	1.699E-01	1.909E-01	NOT IDENT.
CE-143	2.679E+07	4.874E+06	1.302E+07	SHORT HLIF
CE-144	2.225E-01	3.604E-01	3.741E-01	NOT IDENT.
PM-144	-3.528E-03	6.323E-02	6.325E-02	FAIL ABUN
PR-144	-3.260E-01	4.772E+00	4.774E+00	NOT IDENT.
PM-146	6.631E-02	7.060E-02	7.667E-02	NOT IDENT.
ND-147	-7.472E-01	2.686E+00	2.707E+00	NOT IDENT.
PM-147	3.927E+02	1.303E+03	1.315E+03	NOT IDENT.
PM-149	2.503E+04	5.786E+04	5.895E+04	SHORT HLIF
EU-150	-7.973E-03	4.947E-02	4.960E-02	FAIL ABUN
EU-152	-8.280E-02	1.572E-01	1.615E-01	FAIL ABUN
GD-153	-2.609E-02	1.930E-01	1.934E-01	NOT IDENT.
EU-154	1.197E-04	1.718E-01	1.718E-01	NOT IDENT.
EU-155	-3.325E-03	2.112E-01	2.112E-01	FAIL ABUN
TB-160	-4.846E-02	2.589E-01	2.598E-01	FAIL ABUN
HO-166M	-2.923E-02	9.449E-02	9.541E-02	FAIL ABUN
TM-171	2.083E+01	6.405E+01	6.473E+01	NOT IDENT.
HF-172	1.239E-01	3.215E-01	3.263E-01	FAIL ABUN
LU-172	-4.094E-02	8.765E-02	8.957E-02	FAIL ABUN
LU-176	5.664E-03	4.504E-02	4.512E-02	FAIL ABUN

HF-181	6.014E-03	1.051E-01	1.052E-01	NOT IDENT.
TA-182	3.940E-02	2.774E-01	2.780E-01	NOT IDENT.
RE-183	-4.261E-01	7.363E-01	7.610E-01	NOT IDENT.
RE-184	-5.475E-02	2.867E-01	2.878E-01	NOT IDENT.
W-188	-1.490E+01	1.684E+01	1.813E+01	FAIL ABUN
IR-192	-4.173E-04	6.691E-02	6.691E-02	FAIL ABUN
HG-203	-4.597E-02	8.739E-02	8.981E-02	NOT IDENT.
TL-204	7.333E+00	1.350E+01	1.390E+01	NOT IDENT.
BI-207	-5.723E-02	6.591E-02	7.078E-02	FAIL ABUN
BI-210	-7.928E+00	1.291E+01	1.340E+01	NOT IDENT.
PB-210	-7.928E+00	1.291E+01	1.340E+01	NOT IDENT.
PB-211	1.828E+00	2.324E+00	2.466E+00	FAIL ABUN
BI-212	7.332E-01	8.480E-01	9.102E-01	NOT IDENT.
BI-213	7.192E-02	1.571E-01	1.604E-01	NOT IDENT.
RN-219	1.323E-01	7.055E-01	7.080E-01	NOT IDENT.
RA-223	1.290E-01	1.040E+00	1.041E+00	FAIL ABUN
AC-225	-7.763E-02	3.650E+00	3.650E+00	NOT IDENT.
AC-227	9.807E-01	8.357E-01	9.454E-01	FAIL ABUN
TH-227	9.807E-01	8.357E-01	9.454E-01	FAIL ABUN
AC-228	8.143E-01	3.452E-01	5.039E-01	FAIL ABUN
RA-228	8.143E-01	3.452E-01	5.039E-01	FAIL ABUN
TH-229	-4.516E-01	9.092E-01	9.318E-01	FAIL ABUN
PA-231	3.268E-01	8.816E-01	8.938E-01	NOT IDENT.
TH-231	1.290E-01	1.040E+00	1.041E+00	FAIL ABUN
TH-232	8.143E-01	3.452E-01	5.039E-01	FAIL ABUN
PA-233	1.094E-04	1.099E-01	1.099E-01	FAIL ABUN
PA-234	-8.901E-02	5.404E-01	5.419E-01	FAIL ABUN
PA-234M	4.661E+00	7.634E+00	7.918E+00	NOT IDENT.
U-235	3.384E-01	3.626E-01	3.934E-01	FAIL ABUN
NP-237	1.094E-04	1.099E-01	1.099E-01	FAIL ABUN
NP-238	4.701E+03	1.244E+04	1.262E+04	SHORT HLIF
NP-239	1.249E-02	5.298E-01	5.298E-01	NOT IDENT.
PU-239	-1.700E+02	5.699E+02	5.750E+02	NOT IDENT.
AM-241	3.565E-01	4.922E-01	5.177E-01	NOT IDENT.
CM-243	-5.055E-02	2.167E-01	2.179E-01	NOT IDENT.
BK-247	1.219E-01	1.901E-01	1.979E-01	FAIL ABUN
CM-247	1.985E-02	6.557E-02	6.618E-02	NOT IDENT.
CF-249	4.375E-02	6.558E-02	6.848E-02	NOT IDENT.
CF-251	-2.385E-01	2.264E-01	2.506E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	156.9824	85.43	164.8718	131.20	116.9341
45.60	132.5003	86.55	156.9924	133.02	117.9498
46.54	150.3213	86.79	157.0217	133.52	110.8885
49.72	0.0000	86.94	157.0398	136.00	112.8284
51.35	148.8652	87.09	157.0579	136.47	118.1923
51.87	153.3907	87.57	157.1151	140.51	0.0000
52.39	149.0236	88.03	157.1701	143.76	117.8032
52.97	159.1261	88.34	157.2077	144.24	111.5866
53.44	165.8816	88.47	157.2231	145.44	118.8093
54.07	149.2761	89.96	157.4001	152.43	123.7612
57.36	0.0000	1093.63	157.4802	153.25	116.6392
57.53	152.0205	91.11	157.5352	323.87	114.9063
57.98	161.0321	92.59	157.7087	156.02	126.7023
59.27	144.4361	93.35	157.7972	158.56	132.2767
59.32	144.4430	94.56	157.9373	159.00	129.6079
59.54	132.7137	94.65	157.9478	162.33	106.3964
60.96	173.2632	94.67	157.9498	162.66	107.3172
61.17	166.5670	94.87	157.9728	163.33	110.0617
62.93	160.0976	97.43	117.8327	165.86	104.7896
63.29	164.0840	98.43	102.3106	176.31	127.1570
63.58	164.1277	98.44	102.3115	176.60	127.1762
64.28	164.2322	99.53	112.8033	177.52	133.5967
66.73	172.4853	100.11	122.6876	181.07	0.0000
67.24	172.5639	102.03	121.6946	181.52	106.3651
125.81	160.7836	103.18	133.3911	184.41	116.7324
67.75	160.7938	103.37	133.4092	143.76	109.5071
68.89	140.0588	105.21	126.6095	193.51	114.1113
69.67	147.5008	105.31	126.6178	197.03	111.0271
70.82	145.9498	106.12	140.6355	198.01	104.6528
70.83	145.9511	106.47	140.6694	201.83	100.2440
72.81	176.7973	109.28	111.8179	203.43	86.5135
72.87	176.8068	111.00	104.9501	205.31	94.8800
74.66	155.5061	111.76	0.0000	210.85	95.1229
74.82	155.5270	114.06	127.0714	215.65	90.7034
74.97	155.5465	116.30	0.0000	218.12	94.5106
77.11	155.8218	116.74	116.5835	222.11	82.6118
78.74	156.0287	119.76	116.1063	227.09	106.9807
79.69	138.4821	121.12	109.1641	227.38	98.6205
80.03	138.5192	121.22	109.1707	228.16	0.0000
80.12	152.2117	121.78	107.4481	228.18	92.1403
80.19	152.2205	122.06	107.4672	116.74	92.1403
80.57	152.2666	122.92	113.6948	235.69	100.0968
81.00	164.2991	123.07	113.7057	235.96	92.6375
81.07	164.3086	265.00	116.3943	238.63	75.7274
81.75	210.0631	125.81	102.4217	238.98	0.0000
82.47	236.4568	127.23	112.2322	240.99	75.8034
83.79	214.9749	127.91	117.5840	242.00	75.8355
84.00	215.0103	129.30	119.4537	244.70	61.4875

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	51.1527	344.28	54.4918	563.25	34.8315
252.80	51.1610	345.93	37.3869	564.24	0.0000
254.15	0.0000	351.06	60.4684	569.33	29.9013
256.23	77.2257	351.93	60.4863	946.00	26.5797
260.90	0.0000	355.39	0.0000	569.70	26.5813
264.66	77.4893	356.01	56.2702	583.19	25.0027
264.80	77.4931	364.49	50.1586	584.27	25.0093
265.00	77.4994	366.42	0.0000	595.83	31.3495
269.46	69.6839	372.51	59.7192	427.87	26.5031
270.03	61.8711	375.05	39.3213	602.52	0.0000
271.23	71.0587	377.52	44.2715	604.72	21.7820
273.65	98.6283	356.01	46.3330	607.14	26.1948
276.40	58.8610	388.16	40.4732	609.32	26.2085
277.37	66.4806	388.63	47.3906	610.33	26.2146
277.60	73.1357	391.69	43.4830	614.28	26.2390
278.00	81.6971	264.66	55.4967	618.01	21.8505
279.20	85.5368	401.81	49.5682	620.36	13.4539
279.54	85.5478	402.40	49.5773	621.93	13.4586
279.70	85.5533	404.85	49.6147	630.19	0.0000
280.46	94.1358	410.95	38.6301	631.29	20.0217
283.69	69.4990	413.71	50.7448	633.25	30.5727
284.31	79.0385	414.70	45.7831	634.78	36.9119
285.41	76.2134	423.72	44.9094	635.95	35.8666
285.90	0.0000	427.09	35.9637	636.99	24.2683
287.50	53.3921	427.87	37.9704	657.50	18.6576
290.67	80.9479	433.94	36.0368	657.76	16.9624
293.27	0.0000	439.40	38.0997	657.90	0.0000
351.93	57.3724	440.45	30.0879	661.66	27.1641
295.96	57.3880	453.88	31.2119	664.57	0.0000
879.38	57.4438	463.37	34.3248	666.33	25.4927
299.98	57.4741	468.07	41.4467	666.50	25.4941
300.09	61.3086	473.00	31.3808	667.71	0.0000
300.13	61.3096	475.06	41.5274	677.62	23.4274
301.36	61.3369	476.78	34.4539	685.70	19.2019
302.85	55.2340	477.60	31.4210	692.65	0.0000
256.23	72.1546	482.18	40.5945	695.00	17.1035
304.85	64.4868	487.02	42.6812	696.49	33.1485
306.78	64.3399	492.35	0.0000	696.51	33.1485
308.46	57.6535	497.08	29.5509	697.00	35.2911
311.90	64.4595	505.52	42.4868	697.30	39.5711
316.51	56.8574	507.63	0.0000	697.49	42.7820
319.41	58.8452	511.00	37.8440	702.65	23.5563
320.08	51.1400	514.00	36.0314	706.68	20.3615
321.04	51.1577	514.00	36.0314	711.68	25.7476
323.87	57.0059	520.40	28.7101	720.70	26.8723
325.23	67.6672	520.69	0.0000	721.93	0.0000
328.76	68.7184	522.65	0.0000	722.78	33.3367
333.37	43.4301	527.90	0.0000	722.91	33.3367
333.97	57.4024	528.26	23.6317	723.31	35.4905
334.37	57.4096	529.59	28.7784	724.19	27.9678
338.28	36.9006	529.87	0.0000	727.33	21.5283
338.32	36.9012	531.02	26.7332	733.00	16.1655
311.90	46.6465	537.26	36.0446	735.93	22.6454
340.48	46.6465	546.56	0.0000	333.97	25.8889
340.55	48.2029	552.55	32.0501	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	21.6046	949.00	10.7859	1384.29	12.8229
747.24	20.5371	667.71	0.0000	1408.01	6.4320
748.06	17.2974	962.31	18.9195	1434.09	4.8411
752.31	10.8203	964.08	21.6293	1435.80	7.2634
753.82	21.6473	966.17	20.7354	1457.56	0.0000
756.73	21.6608	911.20	16.2356	1460.82	7.7734
756.80	21.6608	983.53	10.5498	1489.16	6.8271
884.68	22.5602	984.45	0.0000	1505.03	11.7275
765.81	21.7010	1274.44	20.8438	1584.12	8.8849
766.42	21.7035	1001.03	16.3261	1596.21	2.9660
766.84	21.7053	1002.74	15.4237	1620.50	3.9666
772.60	0.0000	1004.73	20.8741	1621.92	5.9511
776.52	25.0110	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.0001
778.90	19.5831	1028.54	0.0000	1750.46	0.0000
783.70	20.6908	1037.84	9.1265	1764.49	2.0177
788.74	19.6216	1038.76	0.0000	1063.66	1.6825
792.07	19.6348	631.29	14.6242	1771.35	1.2621
795.86	15.2830	1048.07	12.7989	1791.20	0.0000
810.06	21.8945	1049.04	17.3728	1808.65	5.0698
810.29	17.5166	1050.41	16.4628	1810.72	0.0000
344.28	18.6119	1063.66	16.4988	1836.06	5.0857
810.76	18.6129	1077.00	15.3101		
815.77	23.0149	1077.34	12.2487		
1048.07	20.8346	1085.87	14.7188		
832.01	21.9885	1093.63	12.2806		
834.85	18.7006	1099.45	14.7508		
835.71	15.4031	1112.07	11.8772		
836.80	0.0000	1112.84	12.3190		
846.75	0.0000	1115.54	9.2432		
846.77	14.3334	1120.29	14.8000		
856.80	17.6748	1120.55	14.8008		
860.56	15.4766	1221.41	14.8023		
871.09	14.3997	1129.67	16.6746		
873.19	26.5942	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	21.0781	1173.23	14.9227		
880.51	25.5212	1177.95	14.0002		
881.60	18.8672	1189.05	17.7643		
883.24	19.5390	1204.77	15.6193		
884.68	24.8746	1221.41	14.0925		
889.28	10.6696	1231.02	12.5449		
894.76	18.9133	1235.36	13.1804		
898.04	12.2454	1238.28	13.1865		
900.72	17.8203	1260.41	0.0000		
903.28	20.0572	1271.87	17.0376		
911.20	20.0863	1274.44	13.2562		
912.08	20.0896	1274.54	13.2569		
923.98	0.0000	1291.59	11.3912		
926.50	22.3804	1298.22	0.0000		
929.11	25.7494	1312.11	10.4726		
935.54	23.5372	1332.49	8.5931		
937.49	26.9092	1362.66	0.0000		
944.13	14.3688	1365.19	6.7143		
946.00	17.9668	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:17:58.02

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
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Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299005.CNF;1
Background file  : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM16.CNF;887
Background date  : 28-JUL-2024 11:23:57
Sample date     : 26-JUN-2024 09:15:00 Acquisition date : 30-JUL-2024 11:14:57
Sample ID      : G674299005 Sample quantity : 9.99400E+01 GRAM
Detector name   : GAM16 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.58 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	54.11	19	144	0.83	108.80	105	7	5.20E-03	109.5	
2	0	63.74*	36	201	0.89	128.04	124	8	9.94E-03	72.2	
3	1	75.15*	163	190	0.96	150.85	145	13	4.52E-02	15.8	3.47E+00
4	1	77.25	339	168	0.96	155.05	145	13	9.42E-02	8.4	
5	0	83.88*	58	133	0.99	168.30	166	6	1.61E-02	34.6	
6	6	87.42	141	150	1.08	175.36	172	21	3.91E-02	16.6	1.29E+00
7	6	90.04	103	170	1.41	180.61	172	21	2.87E-02	25.0	
8	6	92.85*	194	169	1.38	186.22	172	21	5.39E-02	14.4	
9	0	144.30*	33	164	0.63	289.06	285	8	9.19E-03	70.8	
10	0	186.13*	264	199	1.18	372.66	367	12	7.33E-02	12.6	
11	2	236.70	35	70	1.44	473.74	471	23	9.75E-03	36.3	3.24E+00
12	2	238.90*	336	86	1.23	478.15	471	23	9.33E-02	7.1	
13	2	242.19	234	80	1.45	484.72	471	23	6.51E-02	10.2	
14	0	270.54	79	120	2.74	541.37	535	14	2.20E-02	31.3	
15	0	275.89	58	122	3.29	552.09	548	12	1.62E-02	39.8	
16	2	295.49*	506	70	1.21	591.26	586	32	1.41E-01	5.2	1.84E+00
17	2	300.14	27	63	1.55	600.54	586	32	7.46E-03	63.3	
18	0	313.70	59	112	3.85	627.64	619	16	1.64E-02	42.2	
19	0	328.38	26	108	3.47	656.99	649	12	7.34E-03	81.0	
20	0	338.10*	94	119	1.42	676.43	669	15	2.61E-02	27.7	
21	0	352.13*	734	143	1.33	704.46	699	13	2.04E-01	5.0	
22	0	381.97	27	69	3.89	764.11	758	12	7.59E-03	63.7	
23	0	463.62	39	35	1.27	927.33	923	10	1.09E-02	33.0	
24	0	511.24*	43	53	1.90	1022.53	1015	15	1.19E-02	45.9	
25	0	548.66	17	42	0.88	1097.33	1089	12	4.77E-03	79.2	
26	0	562.93	18	10	1.58	1125.85	1123	6	5.05E-03	36.3	
27	0	583.45*	102	42	1.52	1166.87	1158	15	2.83E-02	17.4	
28	0	609.50*	560	57	1.54	1218.95	1212	15	1.56E-01	5.2	
29	0	661.66	11	16	0.93	1323.24	1319	7	3.09E-03	66.4	
30	0	665.69	20	37	1.86	1331.30	1327	9	5.64E-03	57.8	
31	0	701.57	27	15	2.31	1403.02	1398	10	7.38E-03	34.8	
32	0	732.37	22	9	4.04	1464.59	1459	12	6.24E-03	33.9	
33	0	748.28	16	5	2.38	1496.39	1493	7	4.44E-03	34.4	
34	0	753.51	42	11	3.47	1506.86	1501	14	1.17E-02	22.6	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	769.12	50	51	1.38	1538.07	1531	15	1.39E-02	33.7	
36	0	835.77	11	39	0.88	1671.31	1662	12	3.16E-03	113.8	
37	0	860.84	17	12	0.95	1721.44	1717	8	4.72E-03	42.8	
38	0	911.36*	81	34	1.59	1822.46	1814	17	2.25E-02	20.5	
39	0	934.61	31	15	1.34	1868.94	1864	10	8.55E-03	30.8	
40	0	965.61*	12	13	1.26	1930.91	1926	9	3.27E-03	66.9	
41	0	969.32*	34	11	0.68	1938.34	1934	10	9.31E-03	26.3	
42	0	1002.20	10	20	3.00	2004.08	1994	12	2.69E-03	99.4	
43	0	1059.62	20	19	2.59	2118.88	2111	15	5.65E-03	51.4	
44	0	1088.40	13	11	0.77	2176.43	2171	9	3.54E-03	55.2	
45	0	1120.46*	118	25	2.04	2240.54	2234	14	3.29E-02	13.0	
46	0	1155.76	49	9	1.18	2311.12	2304	16	1.37E-02	19.2	
47	0	1162.86	12	17	1.65	2325.32	2320	13	3.36E-03	74.8	
48	0	1238.86	80	10	2.16	2477.29	2470	19	2.21E-02	14.6	
49	0	1266.66	15	5	1.43	2532.88	2527	10	4.19E-03	37.8	
50	0	1272.68	18	20	2.01	2544.93	2538	18	5.13E-03	59.1	
51	0	1378.10	26	18	2.84	2755.75	2750	15	7.27E-03	40.9	
52	0	1386.51	13	6	2.22	2772.55	2765	11	3.68E-03	44.0	
53	0	1400.81	30	4	6.59	2801.16	2792	17	8.26E-03	24.3	
54	0	1461.11*	202	7	2.19	2921.76	2915	16	5.60E-02	7.9	
55	0	1579.55	9	7	3.60	3158.61	3149	14	2.50E-03	70.7	
56	0	1729.60	32	8	2.47	3458.73	3450	14	8.97E-03	24.9	
57	0	1764.81*	108	0	2.47	3529.16	3521	15	2.99E-02	10.0	
58	0	1848.41*	16	5	3.29	3696.37	3690	12	4.52E-03	40.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299005.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:15:00 Acquisition date : 30-JUL-2024 11:14:57
Sample ID : G674299005 Sample quantity : 99.940 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA16 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.58 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.208E+00	1.099E+01	1.099E+01	15.82	OK
MN-54	834.85	99.98*	1.975E+00	4.073E-02	4.393E-02	227.51	OK
AS-73	53.44	10.30*	1.560E+00	8.610E-01	1.156E+00	219.08	OK
NB-95M	235.69	24.80*	5.180E+00	1.973E-01	2.854E-01	72.59	OK
CD-109	88.03	3.70*	5.840E+00	4.783E+00	5.034E+00	33.22	OK
SN-126	64.28	9.60	2.991E+00	9.193E-01	9.193E-01	144.48	OK
	86.94	8.90	5.840E+00	1.988E+00	1.988E+00	33.22	OK
	87.57	37.00*	5.840E+00	4.783E-01	4.783E-01	33.22	OK
BA-137M	661.66	89.90*	2.414E+00	3.645E-02	3.652E-02	132.74	OK
CS-137	661.66	85.10*	2.414E+00	3.850E-02	3.858E-02	132.74	OK
TL-208	277.37	6.60	4.656E+00	1.369E+00	1.369E+00	79.61	OK
	583.19	85.00*	2.674E+00	3.187E-01	3.187E-01	34.85	OK
	860.56	12.50	1.924E+00	5.003E-01	5.003E-01	85.65	OK
BI-211	72.87	1.23	4.302E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.910E+00	1.043E+01	1.043E+01	10.04	OK
PB-212	74.82	10.28	4.593E+00	2.536E+00	2.536E+00	31.59	OK
	77.11	17.10	4.846E+00	3.011E+00	3.011E+00	16.81	OK
	238.63	43.60*	5.148E+00	1.081E+00	1.081E+00	14.16	OK
	300.09	3.30	4.386E+00	1.336E+00	1.336E+00	126.67	OK
BI-214	609.32	45.49*	2.582E+00	3.394E+00	3.394E+00	10.35	OK
	1120.29	14.92	1.515E+00	3.687E+00	3.687E+00	26.05	OK
	1764.49	15.30	1.067E+00	4.610E+00	4.611E+00	20.10	OK
PB-214	74.82	5.80	4.593E+00	4.495E+00	4.496E+00	31.59	OK
	77.11	9.70	4.846E+00	5.307E+00	5.308E+00	16.81	OK
	87.09	3.41	5.840E+00	5.190E+00	5.190E+00	33.22	OK
	242.00	7.25	5.100E+00	4.576E+00	4.576E+00	20.33	OK
	295.22	18.42	4.435E+00	4.460E+00	4.460E+00	10.38	OK
	351.93	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04	OK
RN-222	609.32	45.49*	2.582E+00	3.394E+00	3.394E+00	10.35	OK
	1120.29	14.92	1.515E+00	3.687E+00	3.687E+00	26.05	OK
	1764.49	15.30	1.067E+00	4.610E+00	4.611E+00	20.10	OK
RA-224	240.99	4.10*	5.100E+00	8.091E+00	8.091E+00	20.33	OK
RA-226	74.82	5.80	4.593E+00	4.495E+00	4.496E+00	31.59	OK
	77.11	9.70	4.846E+00	5.307E+00	5.308E+00	16.81	OK
	87.09	3.41	5.840E+00	5.190E+00	5.190E+00	33.22	OK
	242.00	7.25	5.100E+00	4.576E+00	4.576E+00	20.33	OK
	295.22	18.42	4.435E+00	4.460E+00	4.460E+00	10.38	OK
	351.93	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04	OK
AC-228	105.21	1.10	6.758E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.026E+00	1.486E+00	1.486E+00	55.32	OK
	835.71	1.61	1.975E+00	2.529E+00	2.529E+00	227.51	OK
	911.20	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92	OK
	968.97	15.80	1.729E+00	8.669E-01	8.669E-01	52.62	OK
RA-228	105.21	1.10	6.758E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.026E+00	1.486E+00	1.486E+00	55.32	OK
	835.71	1.61	1.975E+00	2.529E+00	2.529E+00	227.51	OK
	911.20	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92	OK
	968.97	15.80	1.729E+00	8.669E-01	8.669E-01	52.62	OK
TH-228	74.82	10.28	4.593E+00	2.536E+00	2.536E+00	31.59	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-230	77.11	17.10	4.846E+00	3.011E+00	3.011E+00	16.81	OK
	238.63	43.60*	5.148E+00	1.081E+00	1.081E+00	14.16	OK
	300.09	3.30	4.386E+00	1.336E+00	1.336E+00	126.67	OK
	74.82	5.80	4.593E+00	4.495E+00	4.495E+00	31.59	OK
	77.11	9.70	4.846E+00	5.307E+00	5.307E+00	16.81	OK
	87.09	3.41	5.840E+00	5.190E+00	5.190E+00	33.22	OK
	242.00	7.25	5.100E+00	4.576E+00	4.576E+00	20.33	OK
PA-231	295.22	18.42	4.435E+00	4.460E+00	4.460E+00	10.38	OK
	351.93	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04	OK
	283.69	1.70	4.565E+00	----- Line	Not Found	-----	Absent
TH-232	301.36	5.35*	4.386E+00	8.239E-01	8.239E-01	126.67	OK
	105.21	1.10	6.758E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.026E+00	1.486E+00	1.486E+00	55.32	OK
	835.71	1.61	1.975E+00	2.529E+00	2.529E+00	227.51	OK
TH-234	911.20	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92	OK
	968.97	15.80	1.729E+00	8.669E-01	8.669E-01	52.62	OK
	63.29	3.70*	2.991E+00	2.385E+00	2.385E+00	144.48	OK
	92.59	4.23	6.221E+00	5.402E+00	5.402E+00	28.84	OK
U-234	74.82	5.80	4.593E+00	4.495E+00	4.495E+00	31.59	OK
	77.11	9.70	4.846E+00	5.307E+00	5.307E+00	16.81	OK
	87.09	3.41	5.840E+00	5.190E+00	5.190E+00	33.22	OK
	242.00	7.25	5.100E+00	4.576E+00	4.576E+00	20.33	OK
U-235	295.22	18.42	4.435E+00	4.460E+00	4.460E+00	10.38	OK
	351.93	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04	OK
	89.96	3.47	6.036E+00	3.624E+00	3.624E+00	49.96	OK
	93.35	5.60	6.221E+00	4.081E+00	4.081E+00	28.84	OK
	143.76	10.96*	6.794E+00	3.234E-01	3.234E-01	141.63	OK
U-238	163.33	5.08	6.472E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	6.041E+00	5.537E-01	5.537E-01	25.19	OK
	205.31	5.01	5.691E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.991E+00	2.385E+00	2.385E+00	144.48	OK
AM-243	92.59	4.23	6.221E+00	5.402E+00	5.402E+00	28.84	OK
	43.53	5.90	4.169E-01	----- Line	Not Found	-----	Absent
ANH-511	74.66	67.20*	4.593E+00	3.880E-01	3.880E-01	31.59	OK
	511.00	100.00*	2.965E+00	1.031E-01	1.031E-01	91.80	OK

Flag: "*" = Keyline

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299005.CNF;1 *
* Acquisition date : 30-JUL-2024 11:14:57 Sensitivity : 3.000 *
* Detector ID : GAM16 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.58 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:15:00 Analyst initials: RXF2 *
* Sample ID : G674299005 Sample Quantity : 9.9940E+01 GRAM *
* Batch Number : 2636542 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.099E+01	1.704E+00	9.285E-01
MN-54	4.393E-02	9.796E-02	1.071E-01
AS-73	1.156E+00	2.481E+00	2.858E+00
NB-95M	2.854E-01	2.031E-01	3.706E-01
CD-109	5.034E+00	1.639E+00	1.565E+00
SN-126	4.783E-01	1.557E-01	1.495E-01
BA-137M	3.652E-02	4.751E-02	8.723E-02
CS-137	3.858E-02	5.019E-02	9.215E-02
TL-208	3.187E-01	1.088E-01	7.789E-02
BI-211	1.043E+01	1.027E+00	5.491E-01
PB-212	1.081E+00	1.501E-01	1.322E-01
BI-214	3.394E+00	3.443E-01	2.075E-01
PB-214	3.785E+00	3.726E-01	1.997E-01
RN-222	3.394E+00	3.443E-01	2.075E-01
RA-224	8.091E+00	1.612E+00	1.418E+00
RA-226	3.785E+00	3.726E-01	1.997E-01
AC-228	1.216E+00	4.879E-01	3.941E-01
RA-228	1.216E+00	4.879E-01	3.941E-01
TH-228	1.081E+00	1.501E-01	1.322E-01
TH-230	3.785E+00	3.725E-01	1.997E-01
PA-231	8.239E-01	1.023E+00	1.230E+00
TH-232	1.216E+00	4.879E-01	3.941E-01
TH-234	2.385E+00	3.377E+00	3.222E+00
U-234	3.785E+00	3.725E-01	1.997E-01
U-235	3.234E-01	4.489E-01	4.320E-01
U-238	2.385E+00	3.377E+00	3.222E+00
AM-243	3.880E-01	1.201E-01	1.297E-01
ANH-511	1.031E-01	9.272E-02	6.727E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	2.268E-01	6.158E-01	1.165E+00	NOT IDENT.
NA-22	6.448E-02	6.150E-02	1.276E-01	NOT IDENT.

NA-24	0.000E+00	1.331E+15	0.000E+00	SHORT HLIF
AL-26	2.853E-02	4.847E-02	1.122E-01	NOT IDENT.
SC-46	-8.834E-03	6.495E-02	1.218E-01	FAIL ABUN
V-48	9.143E-02	2.446E-01	4.835E-01	NOT IDENT.
CR-51	5.138E-01	8.162E-01	1.589E+00	NOT IDENT.
MN-52	4.592E+00	4.247E+00	9.604E+00	FAIL ABUN
CO-56	-7.133E-03	5.679E-02	1.085E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.917E-02	3.577E-02	6.146E-02	NOT IDENT.
CO-58	-2.697E-02	6.583E-02	1.196E-01	NOT IDENT.
FE-59	1.323E-02	1.626E-01	3.123E-01	NOT IDENT.
CO-60	1.333E-02	5.515E-02	1.099E-01	NOT IDENT.
ZN-65	-3.995E-02	1.255E-01	1.941E-01	NOT IDENT.
GE-68	1.687E+00	2.087E+00	4.297E+00	NOT IDENT.
AS-74	5.265E-02	2.545E-01	4.776E-01	NOT IDENT.
SE-75	-5.995E-02	7.172E-02	1.115E-01	NOT IDENT.
BR-77	0.000E+00	5.915E+03	0.000E+00	SHORT HLIF
SR-82	-1.575E-01	8.428E-01	1.520E+00	NOT IDENT.
RB-83	2.376E-02	1.177E-01	2.199E-01	NOT IDENT.
RB-84	2.390E-02	1.223E-01	2.458E-01	NOT IDENT.
KR-85	6.661E+00	9.676E+00	1.758E+01	NOT IDENT.
SR-85	4.289E-02	6.258E-02	1.137E-01	NOT IDENT.
RB-86	1.378E+00	2.431E+00	4.905E+00	NOT IDENT.
Y-88	2.573E-02	5.279E-02	1.250E-01	NOT IDENT.
Y-91	1.728E+01	3.704E+01	7.348E+01	NOT IDENT.
NB-94	8.227E-02	5.617E-02	8.896E-02	FAIL ABUN
NB-95	5.041E-02	7.781E-02	1.448E-01	NOT IDENT.
ZR-95	-6.362E-02	1.260E-01	1.954E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.827E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.577E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.941E+39	0.000E+00	SHORT HLIF
RH-101	3.120E-02	4.178E-02	7.816E-02	NOT IDENT.
RH-102	-5.046E-02	7.282E-02	1.191E-01	NOT IDENT.
RU-103	-1.715E-02	8.108E-02	1.445E-01	FAIL ABUN
RH-106	1.232E-01	4.504E-01	8.472E-01	NOT IDENT.
RU-106	1.232E-01	4.504E-01	8.472E-01	NOT IDENT.
AG-108M	-6.779E-03	4.369E-02	7.892E-02	NOT IDENT.
AG-110	-4.521E-01	1.122E+00	1.669E+00	NOT IDENT.
AG-110M	-3.259E-02	6.995E-02	1.256E-01	NOT IDENT.
SN-113	-4.405E-02	7.452E-02	1.297E-01	NOT IDENT.
CD-115	0.000E+00	5.457E+03	0.000E+00	SHORT HLIF
SN-117M	-6.645E-02	2.031E-01	3.470E-01	NOT IDENT.
SB-122	0.000E+00	2.826E+02	0.000E+00	SHORT HLIF
TE-123M	-4.898E-03	4.454E-02	7.732E-02	NOT IDENT.
SB-124	-8.079E-02	1.426E-01	2.547E-01	NOT IDENT.
SB-125	-2.593E-02	1.334E-01	2.403E-01	FAIL ABUN
TE-125M	-4.736E-01	1.577E+01	2.832E+01	NOT IDENT.
I-126	1.137E+00	1.288E+00	2.056E+00	FAIL ABUN
SB-126	4.208E-01	5.849E-01	1.154E+00	FAIL ABUN
SB-127	-3.737E+01	5.701E+01	9.283E+01	NOT IDENT.
I-131	-2.299E-01	8.334E-01	1.508E+00	NOT IDENT.
I-132	0.000E+00	1.015E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.580E+01	0.000E+00	SHORT HLIF
BA-133	-3.361E-02	7.281E-02	1.144E-01	FAIL ABUN
I-133	0.000E+00	2.944E+10	0.000E+00	SHORT HLIF
CS-134	3.705E-02	5.755E-02	1.181E-01	FAIL ABUN
I-135	0.000E+00	7.373E+36	0.000E+00	SHORT HLIF
CS-136	-2.267E-01	3.631E-01	6.231E-01	NOT IDENT.
LA-138	6.648E-02	9.703E-02	2.084E-01	NOT IDENT.
CE-139	6.978E-03	4.799E-02	8.442E-02	NOT IDENT.
BA-140	2.150E-02	9.896E-01	1.823E+00	NOT IDENT.
LA-140	-5.498E-02	4.478E-01	8.565E-01	FAIL ABUN
CE-141	1.519E-01	2.108E-01	2.305E-01	FAIL ABUN
CE-143	0.000E+00	2.585E+06	0.000E+00	SHORT HLIF
CE-144	1.925E-01	2.777E-01	5.159E-01	NOT IDENT.
PM-144	-4.390E-02	6.492E-02	9.024E-02	NOT IDENT.
PR-144	-3.297E+00	4.909E+00	6.830E+00	NOT IDENT.
PM-146	-1.198E-02	6.027E-02	1.083E-01	FAIL ABUN
ND-147	-2.153E+00	2.499E+00	4.068E+00	FAIL ABUN
PM-147	3.579E+02	9.329E+02	1.720E+03	NOT IDENT.
PM-149	0.000E+00	5.015E+04	0.000E+00	SHORT HLIF
EU-150	-1.613E-02	4.121E-02	6.588E-02	FAIL ABUN
EU-152	1.432E-01	1.386E-01	2.702E-01	NOT IDENT.
GD-153	6.019E-02	1.228E-01	2.145E-01	NOT IDENT.
EU-154	1.905E-01	1.743E-01	3.633E-01	NOT IDENT.
EU-155	4.250E-02	1.348E-01	2.484E-01	FAIL ABUN
TB-160	-2.064E-01	2.046E-01	3.335E-01	FAIL ABUN

HO-166M	-4.957E-03	8.604E-02	1.532E-01	FAIL ABUN
TM-171	5.746E+00	2.962E+01	5.306E+01	NOT IDENT.
HF-172	-5.658E-02	2.635E-01	4.619E-01	FAIL ABUN
LU-172	-1.012E-01	9.287E-02	1.346E-01	FAIL ABUN
LU-176	-1.832E-02	4.100E-02	6.564E-02	FAIL ABUN
HF-181	5.713E-02	8.701E-02	1.698E-01	NOT IDENT.
TA-182	-1.716E-02	2.897E-01	5.349E-01	FAIL ABUN
RE-183	-1.798E-01	3.456E-01	6.260E-01	NOT IDENT.
RE-184	2.772E-02	2.921E-01	5.393E-01	NOT IDENT.
W-188	-1.037E+01	1.346E+01	2.088E+01	FAIL ABUN
IR-192	1.976E-02	5.811E-02	1.022E-01	FAIL ABUN
HG-203	-3.853E-03	7.506E-02	1.252E-01	NOT IDENT.
TL-204	9.354E-01	7.244E+00	1.250E+01	FAIL ABUN
BI-207	-3.977E-02	8.688E-02	1.296E-01	FAIL ABUN
BI-210	-2.825E+00	6.030E+00	1.109E+01	NOT IDENT.
PB-210	-2.825E+00	6.030E+00	1.109E+01	NOT IDENT.
PB-211	-5.079E-01	1.080E+00	1.895E+00	NOT IDENT.
BI-212	5.395E-01	7.533E-01	1.412E+00	NOT IDENT.
BI-213	-1.310E-01	1.407E-01	2.327E-01	NOT IDENT.
RN-219	1.786E-01	6.078E-01	1.144E+00	FAIL ABUN
RA-223	5.891E-02	9.495E-01	1.606E+00	FAIL ABUN
AC-225	-6.710E-01	3.348E+00	5.635E+00	NOT IDENT.
AC-227	3.468E-02	3.745E-01	6.427E-01	FAIL ABUN
TH-227	3.468E-02	3.745E-01	6.427E-01	FAIL ABUN
TH-229	9.486E-02	7.207E-01	1.261E+00	FAIL ABUN
TH-231	5.891E-02	9.495E-01	1.606E+00	FAIL ABUN
PA-233	1.458E-01	9.764E-02	1.889E-01	FAIL ABUN
PA-234	-1.379E-01	3.441E-01	6.272E-01	FAIL ABUN
PA-234M	4.862E+00	9.473E+00	1.298E+01	FAIL ABUN
NP-237	1.458E-01	9.764E-02	1.889E-01	FAIL ABUN
NP-238	0.000E+00	1.575E+04	0.000E+00	SHORT HLIF
NP-239	-4.666E-02	3.219E-01	5.734E-01	NOT IDENT.
PU-239	2.039E+02	4.340E+02	7.983E+02	NOT IDENT.
AM-241	1.630E-01	2.179E-01	4.248E-01	NOT IDENT.
CM-243	1.337E-02	1.283E-01	2.344E-01	NOT IDENT.
BK-247	-6.652E-02	1.248E-01	1.821E-01	FAIL ABUN
CM-247	9.363E-03	5.452E-02	1.017E-01	NOT IDENT.
CF-249	2.435E-02	5.834E-02	1.114E-01	NOT IDENT.
CF-251	4.200E-02	1.885E-01	3.324E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	188	10.66*	1.208E+00	1.099E+01	1.099E+01	15.82
MN-54	834.85	11	99.98*	1.975E+00	4.073E-02	4.393E-02	227.51
AS-73	53.44	18	10.30*	1.560E+00	8.610E-01	1.156E+00	219.08
NB-95M	235.69	34	24.80*	5.180E+00	1.973E-01	2.854E-01	72.59
CD-109	88.03	138	3.70*	5.840E+00	4.783E+00	5.034E+00	33.22
SN-126	64.28	35	9.60	2.991E+00	9.193E-01	9.193E-01	144.48
	86.94	138	8.90	5.840E+00	1.988E+00	1.988E+00	33.22
	87.57	138	37.00*	5.840E+00	4.783E-01	4.783E-01	33.22
BA-137M	661.66	11	89.90*	2.414E+00	3.645E-02	3.652E-02	132.74
CS-137	661.66	11	85.10*	2.414E+00	3.850E-02	3.858E-02	132.74
CE-141	145.44	32	48.29*	6.794E+00	7.340E-02	1.519E-01	141.63
TL-208	277.37	56	6.60	4.656E+00	1.369E+00	1.369E+00	79.61
	583.19	96	85.00*	2.674E+00	3.187E-01	3.187E-01	34.85
	860.56	16	12.50	1.924E+00	5.003E-01	5.003E-01	85.65
BI-211	72.87	-----	1.23	4.302E+00	-----	Line Not Found	-----
	351.06	701	12.92*	3.910E+00	1.043E+01	1.043E+01	10.04
PB-212	74.82	159	10.28	4.593E+00	2.536E+00	2.536E+00	31.59
	77.11	332	17.10	4.846E+00	3.011E+00	3.011E+00	16.81
	238.63	323	43.60*	5.148E+00	1.081E+00	1.081E+00	14.16
	300.09	26	3.30	4.386E+00	1.336E+00	1.336E+00	126.67
BI-214	609.32	531	45.49*	2.582E+00	3.394E+00	3.394E+00	10.35
	1120.29	111	14.92	1.515E+00	3.687E+00	3.687E+00	26.05
	1764.49	100	15.30	1.067E+00	4.610E+00	4.611E+00	20.10
PB-214	74.82	159	5.80	4.593E+00	4.495E+00	4.496E+00	31.59
	77.11	332	9.70	4.846E+00	5.307E+00	5.308E+00	16.81
	87.09	138	3.41	5.840E+00	5.190E+00	5.190E+00	33.22
	242.00	225	7.25	5.100E+00	4.576E+00	4.576E+00	20.33
	295.22	485	18.42	4.435E+00	4.460E+00	4.460E+00	10.38
	351.93	701	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04
RN-222	609.32	531	45.49*	2.582E+00	3.394E+00	3.394E+00	10.35
	1120.29	111	14.92	1.515E+00	3.687E+00	3.687E+00	26.05
	1764.49	100	15.30	1.067E+00	4.610E+00	4.611E+00	20.10
RA-224	240.99	225	4.10*	5.100E+00	8.091E+00	8.091E+00	20.33
RA-226	74.82	159	5.80	4.593E+00	4.495E+00	4.496E+00	31.59
	77.11	332	9.70	4.846E+00	5.307E+00	5.308E+00	16.81
	87.09	138	3.41	5.840E+00	5.190E+00	5.190E+00	33.22
	242.00	225	7.25	5.100E+00	4.576E+00	4.576E+00	20.33
	295.22	485	18.42	4.435E+00	4.460E+00	4.460E+00	10.38
	351.93	701	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04
AC-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	90	11.27	4.026E+00	1.486E+00	1.486E+00	55.32
	835.71	11	1.61	1.975E+00	2.529E+00	2.529E+00	227.51
	911.20	76	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92
	968.97	32	15.80	1.729E+00	8.669E-01	8.669E-01	52.62
RA-228	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
	338.32	90	11.27	4.026E+00	1.486E+00	1.486E+00	55.32
	835.71	11	1.61	1.975E+00	2.529E+00	2.529E+00	227.51

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	911.20	76	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92
	968.97	32	15.80	1.729E+00	8.669E-01	8.669E-01	52.62
	74.82	159	10.28	4.593E+00	2.536E+00	2.536E+00	31.59
	77.11	332	17.10	4.846E+00	3.011E+00	3.011E+00	16.81
	238.63	323	43.60*	5.148E+00	1.081E+00	1.081E+00	14.16
TH-230	300.09	26	3.30	4.386E+00	1.336E+00	1.336E+00	126.67
	74.82	159	5.80	4.593E+00	4.495E+00	4.495E+00	31.59
	77.11	332	9.70	4.846E+00	5.307E+00	5.307E+00	16.81
	87.09	138	3.41	5.840E+00	5.190E+00	5.190E+00	33.22
	242.00	225	7.25	5.100E+00	4.576E+00	4.576E+00	20.33
PA-231	295.22	485	18.42	4.435E+00	4.460E+00	4.460E+00	10.38
	351.93	701	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04
	283.69	-----	1.70	4.565E+00	-----	Line Not Found	-----
	301.36	26	5.35*	4.386E+00	8.239E-01	8.239E-01	126.67
	105.21	-----	1.10	6.758E+00	-----	Line Not Found	-----
TH-232	338.32	90	11.27	4.026E+00	1.486E+00	1.486E+00	55.32
	835.71	11	1.61	1.975E+00	2.529E+00	2.529E+00	227.51
	911.20	76	25.80*	1.828E+00	1.216E+00	1.216E+00	40.92
	968.97	32	15.80	1.729E+00	8.669E-01	8.669E-01	52.62
	63.29	35	3.70*	2.991E+00	2.385E+00	2.385E+00	144.48
U-234	92.59	189	4.23	6.221E+00	5.402E+00	5.402E+00	28.84
	74.82	159	5.80	4.593E+00	4.495E+00	4.495E+00	31.59
	77.11	332	9.70	4.846E+00	5.307E+00	5.307E+00	16.81
	87.09	138	3.41	5.840E+00	5.190E+00	5.190E+00	33.22
	242.00	225	7.25	5.100E+00	4.576E+00	4.576E+00	20.33
U-235	295.22	485	18.42	4.435E+00	4.460E+00	4.460E+00	10.38
	351.93	701	35.60*	3.910E+00	3.785E+00	3.785E+00	10.04
	89.96	101	3.47	6.036E+00	3.624E+00	3.624E+00	49.96
	93.35	189	5.60	6.221E+00	4.081E+00	4.081E+00	28.84
	143.76	32	10.96*	6.794E+00	3.234E-01	3.234E-01	141.63
U-238	163.33	-----	5.08	6.472E+00	-----	Line Not Found	-----
	185.72	255	57.20	6.041E+00	5.537E-01	5.537E-01	25.19
	205.31	-----	5.01	5.691E+00	-----	Line Not Found	-----
	63.29	35	3.70*	2.991E+00	2.385E+00	2.385E+00	144.48
	92.59	189	4.23	6.221E+00	5.402E+00	5.402E+00	28.84
AM-243	43.53	-----	5.90	4.169E-01	-----	Line Not Found	-----
ANH-511	74.66	159	67.20*	4.593E+00	3.880E-01	3.880E-01	31.59
	511.00	41	100.00*	2.965E+00	1.031E-01	1.031E-01	91.80

Flag: "*" = Keyline

Total number of lines in spectrum 58
Number of unidentified lines 15
Number of lines tentatively identified by NID 43 74.14%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.099E+01	1.099E+01	0.174E+01	15.82	
MN-54	312.05D	1.08	4.073E-02	4.393E-02	9.996E-02	227.51	
AS-73	80.30D	1.34	8.610E-01	1.156E+00	2.532E+00	219.08	
NB-95M	64.03D	1.45	1.973E-01	2.854E-01	2.072E-01	72.59	
CD-109	461.40D	1.05	4.783E+00	5.034E+00	1.673E+00	33.22	
SN-126	2.30E+05Y	1.00	4.783E-01	4.783E-01	1.589E-01	33.22	
BA-137M	30.08Y	1.00	3.645E-02	3.652E-02	4.848E-02	132.74	
CS-137	30.08Y	1.00	3.850E-02	3.858E-02	5.122E-02	132.74	
CE-141	32.51D	2.07	7.340E-02	1.519E-01	2.151E-01	141.63	
TL-208	1.41E+10Y	1.00	3.187E-01	3.187E-01	1.110E-01	34.85	
BI-211	7.04E+08Y	1.00	1.043E+01	1.043E+01	0.105E+01	10.04	
PB-212	1.41E+10Y	1.00	1.081E+00	1.081E+00	0.153E+00	14.16	
BI-214	1600.00Y	1.00	3.394E+00	3.394E+00	0.351E+00	10.35	
PB-214	1600.00Y	1.00	3.785E+00	3.785E+00	0.380E+00	10.04	
RN-222	1600.00Y	1.00	3.394E+00	3.394E+00	0.351E+00	10.35	
RA-224	1.41E+10Y	1.00	8.091E+00	8.091E+00	1.645E+00	20.33	
RA-226	1600.00Y	1.00	3.785E+00	3.785E+00	0.380E+00	10.04	
AC-228	1.41E+10Y	1.00	1.216E+00	1.216E+00	0.498E+00	40.92	
RA-228	1.41E+10Y	1.00	1.216E+00	1.216E+00	0.498E+00	40.92	
TH-228	1.41E+10Y	1.00	1.081E+00	1.081E+00	0.153E+00	14.16	
TH-230	7.54E+04Y	1.00	3.785E+00	3.785E+00	0.380E+00	10.04	
PA-231	7.04E+08Y	1.00	8.239E-01	8.239E-01	10.44E-01	126.67	
TH-232	1.41E+10Y	1.00	1.216E+00	1.216E+00	0.498E+00	40.92	
TH-234	4.47E+09Y	1.00	2.385E+00	2.385E+00	3.446E+00	144.48	
U-234	2.45E+05Y	1.00	3.785E+00	3.785E+00	0.380E+00	10.04	
U-235	7.04E+08Y	1.00	3.234E-01	3.234E-01	4.580E-01	141.63	
U-238	4.47E+09Y	1.00	2.385E+00	2.385E+00	3.446E+00	144.48	
AM-243	7370.00Y	1.00	3.880E-01	3.880E-01	1.226E-01	31.59	
ANH-511	1.00E+09Y	1.00	1.031E-01	1.031E-01	0.946E-01	91.80	
Total Activity :			7.049E+01	7.121E+01			

Grand Total Activity : 7.049E+01 7.121E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.88	57	130	0.99	168.30	166	6	1.61E-02	69.2	5.54E+00	T
0	270.54	76	115	2.74	541.37	535	14	2.20E-02	62.5	4.72E+00	T
0	313.70	56	107	3.85	627.64	619	16	1.64E-02	84.3	4.25E+00	
0	328.38	25	103	3.47	656.99	649	12	7.34E-03	****	4.11E+00	T
0	381.97	26	66	3.89	764.11	758	12	7.59E-03	****	3.69E+00	
0	463.62	37	33	1.27	927.33	923	10	1.09E-02	66.0	3.19E+00	T
0	548.66	16	40	0.88	1097.33	1089	12	4.77E-03	****	2.81E+00	
0	562.93	17	9	1.58	1125.85	1123	6	5.05E-03	72.7	2.75E+00	T
0	665.69	19	35	1.86	1331.30	1327	9	5.64E-03	****	2.40E+00	T
0	701.57	25	15	2.31	1403.02	1398	10	7.38E-03	69.7	2.30E+00	T
0	732.37	21	8	4.04	1464.59	1459	12	6.24E-03	67.8	2.22E+00	T
0	748.28	15	5	2.38	1496.39	1493	7	4.44E-03	68.8	2.18E+00	T
0	753.51	40	10	3.47	1506.86	1501	14	1.17E-02	45.2	2.16E+00	T
0	769.12	47	48	1.38	1538.07	1531	15	1.39E-02	67.5	2.12E+00	
0	934.61	29	14	1.34	1868.94	1864	10	8.55E-03	61.6	1.79E+00	T
0	965.61	11	12	1.26	1930.91	1926	9	3.27E-03	****	1.73E+00	T
0	1002.20	9	19	3.00	2004.08	1994	12	2.69E-03	****	1.68E+00	T
0	1059.62	19	18	2.59	2118.88	2111	15	5.65E-03	****	1.59E+00	
0	1088.40	12	11	0.77	2176.43	2171	9	3.54E-03	****	1.56E+00	
0	1155.76	46	8	1.18	2311.12	2304	16	1.37E-02	38.4	1.47E+00	
0	1162.86	11	16	1.65	2325.32	2320	13	3.36E-03	****	1.47E+00	
0	1238.86	74	9	2.16	2477.29	2470	19	2.21E-02	29.1	1.39E+00	T
0	1266.66	14	5	1.43	2532.88	2527	10	4.19E-03	75.5	1.36E+00	
0	1272.68	17	18	2.01	2544.93	2538	18	5.13E-03	****	1.35E+00	T
0	1378.10	24	17	2.84	2755.75	2750	15	7.27E-03	81.7	1.27E+00	
0	1386.51	12	5	2.22	2772.55	2765	11	3.68E-03	88.1	1.26E+00	
0	1400.81	28	4	6.59	2801.16	2792	17	8.26E-03	48.6	1.25E+00	
0	1579.55	8	7	3.60	3158.61	3149	14	2.50E-03	****	1.14E+00	
0	1729.60	30	7	2.47	3458.73	3450	14	8.97E-03	49.7	1.08E+00	
0	1848.41	15	5	3.29	3696.37	3690	12	4.52E-03	81.2	1.04E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299005.CNF;1 *
* Acquisition date : 30-JUL-2024 11:14:57 Sensitivity : 3.000 *
* Detector ID : GAM16 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.58 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:15:00 Nuclide Library : SOLID *
* Sample ID : G674299005 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 9.9940E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.862E-01
MN-54	4.806E-02
AS-73	1.339E+00
NB-95M	1.740E-01
CD-109	7.339E-01
SN-126	7.011E-02
BA-137M	3.897E-02
CS-137	4.117E-02
TL-208	3.452E-02
BI-211	2.547E-01
PB-212	6.164E-02
BI-214	9.522E-02
PB-214	9.265E-02
RN-222	9.522E-02
RA-224	6.610E-01
RA-226	9.265E-02
AC-228	1.757E-01
RA-228	1.757E-01
TH-228	6.164E-02
TH-230	9.265E-02
PA-231	5.719E-01
TH-232	1.757E-01
TH-234	1.518E+00
U-234	9.265E-02
U-235	2.025E-01
U-238	1.518E+00
AM-243	6.153E-02
ANH-511	3.024E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.344E-01	NOT IDENT.
NA-22	5.619E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF

AL-26	4.654E-02	NOT IDENT.
SC-46	5.378E-02	FAIL ABUN
V-48	2.159E-01	NOT IDENT.
CR-51	7.375E-01	NOT IDENT.
MN-52	4.240E+00	FAIL ABUN
CO-56	4.722E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	2.889E-02	NOT IDENT.
CO-58	5.286E-02	NOT IDENT.
FE-59	1.365E-01	NOT IDENT.
CO-60	4.712E-02	NOT IDENT.
ZN-65	8.267E-02	NOT IDENT.
GE-68	1.931E+00	NOT IDENT.
AS-74	2.143E-01	NOT IDENT.
SE-75	5.139E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.797E-01	NOT IDENT.
RB-83	9.989E-02	NOT IDENT.
RB-84	1.070E-01	NOT IDENT.
KR-85	8.001E+00	NOT IDENT.
SR-85	5.172E-02	NOT IDENT.
RB-86	2.189E+00	NOT IDENT.
Y-88	5.040E-02	NOT IDENT.
Y-91	3.267E+01	NOT IDENT.
NB-94	4.009E-02	FAIL ABUN
NB-95	6.558E-02	NOT IDENT.
ZR-95	8.529E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.692E-02	NOT IDENT.
RH-102	5.225E-02	NOT IDENT.
RU-103	6.560E-02	FAIL ABUN
RH-106	3.811E-01	NOT IDENT.
RU-106	3.811E-01	NOT IDENT.
AG-108M	3.615E-02	NOT IDENT.
AG-110	7.331E-01	NOT IDENT.
AG-110M	5.467E-02	NOT IDENT.
SN-113	5.960E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.634E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.643E-02	NOT IDENT.
SB-124	9.869E-02	NOT IDENT.
SB-125	1.100E-01	FAIL ABUN
TE-125M	1.334E+01	NOT IDENT.
I-126	9.490E-01	FAIL ABUN
SB-126	5.204E-01	FAIL ABUN
SB-127	4.100E+01	NOT IDENT.
I-131	6.923E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.300E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	5.318E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.645E-01	NOT IDENT.
LA-138	9.167E-02	NOT IDENT.
CE-139	3.989E-02	NOT IDENT.
BA-140	8.190E-01	NOT IDENT.
LA-140	3.689E-01	FAIL ABUN
CE-141	1.089E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.437E-01	NOT IDENT.
PM-144	4.045E-02	NOT IDENT.
PR-144	3.063E+00	NOT IDENT.
PM-146	4.935E-02	FAIL ABUN
ND-147	1.804E+00	FAIL ABUN
PM-147	8.081E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.036E-02	FAIL ABUN
EU-152	1.255E-01	NOT IDENT.
GD-153	1.013E-01	NOT IDENT.
EU-154	1.602E-01	NOT IDENT.
EU-155	1.170E-01	FAIL ABUN
TB-160	1.422E-01	FAIL ABUN
HO-166M	6.844E-02	FAIL ABUN

TM-171	2.486E+01	NOT IDENT.
HF-172	2.177E-01	FAIL ABUN
LU-172	5.662E-02	FAIL ABUN
LU-176	3.033E-02	FAIL ABUN
HF-181	7.786E-02	NOT IDENT.
TA-182	2.348E-01	FAIL ABUN
RE-183	2.935E-01	NOT IDENT.
RE-184	2.417E-01	NOT IDENT.
W-188	9.655E+00	FAIL ABUN
IR-192	4.712E-02	FAIL ABUN
HG-203	5.816E-02	NOT IDENT.
TL-204	5.926E+00	FAIL ABUN
BI-207	5.630E-02	FAIL ABUN
BI-210	5.189E+00	NOT IDENT.
PB-210	5.189E+00	NOT IDENT.
PB-211	8.724E-01	NOT IDENT.
BI-212	6.383E-01	NOT IDENT.
BI-213	1.046E-01	NOT IDENT.
RN-219	5.289E-01	FAIL ABUN
RA-223	7.423E-01	FAIL ABUN
AC-225	2.646E+00	NOT IDENT.
AC-227	2.998E-01	FAIL ABUN
TH-227	2.998E-01	FAIL ABUN
TH-229	5.920E-01	FAIL ABUN
TH-231	7.423E-01	FAIL ABUN
PA-233	8.834E-02	FAIL ABUN
PA-234	2.661E-01	FAIL ABUN
PA-234M	5.778E+00	FAIL ABUN
NP-237	8.834E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.685E-01	NOT IDENT.
PU-239	3.762E+02	NOT IDENT.
AM-241	2.005E-01	NOT IDENT.
CM-243	1.100E-01	NOT IDENT.
BK-247	8.403E-02	FAIL ABUN
CM-247	4.693E-02	NOT IDENT.
CF-249	5.149E-02	NOT IDENT.
CF-251	1.568E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299005.CNF;1
Acquisition date : 30-JUL-2024 11:14:57 Sensitivity : 3.000
Detector ID : GAM16 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.58 Half life ratio : *****
Sample date : 26-JUN-2024 09:15:00 Nuclide Library : SOLID
Sample ID : G674299005 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 9.9940E+01 GRAM
Quantity Err(%) : 1.0006E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 14-NOV-2023 11:06:02 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM16_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.099E+01	1.971E+00	1.971E+00
MN-54	4.393E-02	9.805E-02	9.805E-02
AS-73	1.156E+00	2.495E+00	2.495E+00
NB-95M	2.854E-01	2.053E-01	2.053E-01
CD-109	5.034E+00	1.763E+00	1.763E+00
SN-126	4.783E-01	1.656E-01	1.656E-01
BA-137M	3.652E-02	4.765E-02	4.765E-02
CS-137	3.858E-02	5.033E-02	5.033E-02
TL-208	3.187E-01	1.131E-01	1.131E-01
BI-211	1.043E+01	1.355E+00	1.355E+00
PB-212	1.081E+00	1.772E-01	1.772E-01
BI-214	3.394E+00	4.782E-01	4.782E-01
PB-214	3.785E+00	4.881E-01	4.881E-01
RN-222	3.394E+00	4.782E-01	4.782E-01
RA-224	8.091E+00	1.758E+00	1.758E+00
RA-226	3.785E+00	4.881E-01	4.881E-01
AC-228	1.216E+00	5.028E-01	5.028E-01
RA-228	1.216E+00	5.028E-01	5.028E-01
TH-228	1.081E+00	1.772E-01	1.772E-01
TH-230	3.785E+00	4.881E-01	4.881E-01
PA-231	8.239E-01	1.039E+00	1.039E+00
TH-232	1.216E+00	5.028E-01	5.028E-01
TH-234	2.385E+00	3.425E+00	3.425E+00
U-234	3.785E+00	4.881E-01	4.881E-01
U-235	3.234E-01	4.497E-01	4.497E-01
U-238	2.385E+00	3.425E+00	3.425E+00
AM-243	3.880E-01	1.274E-01	1.274E-01
ANH-511	1.031E-01	9.322E-02	9.322E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	2.268E-01	6.161E-01	6.246E-01	NOT IDENT.
NA-22	6.448E-02	6.173E-02	6.823E-02	NOT IDENT.

NA-24	-7.865E+14	1.333E+15	1.380E+15	SHORT HLIF
AL-26	2.853E-02	4.851E-02	5.019E-02	NOT IDENT.
SC-46	-8.834E-03	6.496E-02	6.508E-02	FAIL ABUN
V-48	9.143E-02	2.448E-01	2.482E-01	NOT IDENT.
CR-51	5.138E-01	8.173E-01	8.495E-01	NOT IDENT.
MN-52	4.592E+00	4.265E+00	4.741E+00	FAIL ABUN
CO-56	-7.133E-03	5.679E-02	5.689E-02	FAIL ABUN
MN-56	-1.000E+41	8.208E+41	0.000E+00	SHORT HLIF
CO-57	-1.917E-02	3.580E-02	3.682E-02	NOT IDENT.
CO-58	-2.697E-02	6.589E-02	6.700E-02	NOT IDENT.
FE-59	1.323E-02	1.626E-01	1.627E-01	NOT IDENT.
CO-60	1.333E-02	5.516E-02	5.549E-02	NOT IDENT.
ZN-65	-3.995E-02	1.256E-01	1.269E-01	NOT IDENT.
GE-68	1.687E+00	2.092E+00	2.226E+00	NOT IDENT.
AS-74	5.265E-02	2.546E-01	2.557E-01	NOT IDENT.
SE-75	-5.995E-02	7.188E-02	7.679E-02	NOT IDENT.
BR-77	4.261E+04	4.251E+04	4.665E+04	SHORT HLIF
SR-82	-1.575E-01	8.430E-01	8.459E-01	NOT IDENT.
RB-83	2.376E-02	1.178E-01	1.183E-01	NOT IDENT.
RB-84	2.390E-02	1.224E-01	1.228E-01	NOT IDENT.
KR-85	6.661E+00	9.697E+00	1.015E+01	NOT IDENT.
SR-85	4.289E-02	6.271E-02	6.562E-02	NOT IDENT.
RB-86	1.378E+00	2.434E+00	2.512E+00	NOT IDENT.
Y-88	2.573E-02	5.282E-02	5.408E-02	NOT IDENT.
Y-91	1.728E+01	3.707E+01	3.788E+01	NOT IDENT.
NB-94	8.227E-02	5.675E-02	6.780E-02	FAIL ABUN
NB-95	5.041E-02	7.797E-02	8.121E-02	NOT IDENT.
ZR-95	-6.362E-02	1.262E-01	1.294E-01	NOT IDENT.
NB-97	-1.000E+41	3.623E+41	0.000E+00	SHORT HLIF
ZR-97	1.691E+14	2.831E+14	2.932E+14	SHORT HLIF
MO-99	-1.373E+03	1.584E+03	1.701E+03	SHORT HLIF
TC-99M	2.028E+39	2.951E+39	0.000E+00	SHORT HLIF
RH-101	3.120E-02	4.219E-02	4.447E-02	NOT IDENT.
RH-102	-5.046E-02	7.307E-02	7.653E-02	NOT IDENT.
RU-103	-1.715E-02	8.109E-02	8.146E-02	FAIL ABUN
RH-106	1.232E-01	4.506E-01	4.540E-01	NOT IDENT.
RU-106	1.232E-01	4.506E-01	4.540E-01	NOT IDENT.
AG-108M	-6.779E-03	4.370E-02	4.381E-02	NOT IDENT.
AG-110	-4.521E-01	1.123E+00	1.141E+00	NOT IDENT.
AG-110M	-3.259E-02	7.002E-02	7.155E-02	NOT IDENT.
SN-113	-4.405E-02	7.462E-02	7.721E-02	NOT IDENT.
CD-115	3.161E+03	5.467E+03	5.649E+03	SHORT HLIF
SN-117M	-6.645E-02	2.032E-01	2.054E-01	NOT IDENT.
SB-122	3.967E+02	2.852E+02	3.366E+02	SHORT HLIF
TE-123M	-4.898E-03	4.454E-02	4.460E-02	NOT IDENT.
SB-124	-8.079E-02	1.428E-01	1.473E-01	NOT IDENT.
SB-125	-2.593E-02	1.334E-01	1.339E-01	FAIL ABUN
TE-125M	-4.736E-01	1.577E+01	1.577E+01	NOT IDENT.
I-126	1.137E+00	1.294E+00	1.392E+00	FAIL ABUN
SB-126	4.208E-01	5.876E-01	6.175E-01	FAIL ABUN
SB-127	-3.737E+01	5.743E+01	5.985E+01	NOT IDENT.
I-131	-2.299E-01	8.336E-01	8.400E-01	NOT IDENT.
I-132	1.000E+41	2.336E+41	0.000E+00	SHORT HLIF
TE-132	2.795E+01	6.588E+01	6.707E+01	SHORT HLIF
BA-133	-3.361E-02	7.287E-02	7.442E-02	FAIL ABUN
I-133	1.414E+10	2.962E+10	3.030E+10	SHORT HLIF
CS-134	3.705E-02	5.766E-02	6.003E-02	FAIL ABUN
I-135	-3.793E+36	7.940E+36	0.000E+00	SHORT HLIF
CS-136	-2.267E-01	3.640E-01	3.781E-01	NOT IDENT.
LA-138	6.648E-02	9.719E-02	1.017E-01	NOT IDENT.
CE-139	6.978E-03	4.802E-02	4.812E-02	NOT IDENT.
BA-140	2.150E-02	9.896E-01	9.897E-01	NOT IDENT.
LA-140	-5.498E-02	4.479E-01	4.486E-01	FAIL ABUN
CE-141	1.519E-01	2.111E-01	2.220E-01	FAIL ABUN
CE-143	2.324E+06	2.592E+06	2.796E+06	SHORT HLIF
CE-144	1.925E-01	2.782E-01	2.914E-01	NOT IDENT.
PM-144	-4.390E-02	6.507E-02	6.801E-02	NOT IDENT.
PR-144	-3.297E+00	4.920E+00	5.140E+00	NOT IDENT.
PM-146	-1.198E-02	6.028E-02	6.052E-02	FAIL ABUN
ND-147	-2.153E+00	2.508E+00	2.689E+00	FAIL ABUN
PM-147	3.579E+02	9.332E+02	9.471E+02	NOT IDENT.
PM-149	-7.455E+03	5.016E+04	5.027E+04	SHORT HLIF
EU-150	-1.613E-02	4.123E-02	4.187E-02	FAIL ABUN
EU-152	1.432E-01	1.392E-01	1.535E-01	NOT IDENT.
GD-153	6.019E-02	1.230E-01	1.259E-01	NOT IDENT.
EU-154	1.905E-01	1.750E-01	1.950E-01	NOT IDENT.
EU-155	4.250E-02	1.348E-01	1.362E-01	FAIL ABUN
TB-160	-2.064E-01	2.058E-01	2.258E-01	FAIL ABUN

HO-166M	-4.957E-03	8.604E-02	8.607E-02	FAIL ABUN
TM-171	5.746E+00	2.962E+01	2.974E+01	NOT IDENT.
HF-172	-5.658E-02	2.637E-01	2.649E-01	FAIL ABUN
LU-172	-1.012E-01	9.375E-02	1.043E-01	FAIL ABUN
LU-176	-1.832E-02	4.102E-02	4.185E-02	FAIL ABUN
HF-181	5.713E-02	8.717E-02	9.090E-02	NOT IDENT.
TA-182	-1.716E-02	2.897E-01	2.898E-01	FAIL ABUN
RE-183	-1.798E-01	3.464E-01	3.558E-01	NOT IDENT.
RE-184	2.772E-02	2.921E-01	2.924E-01	NOT IDENT.
W-188	-1.037E+01	1.353E+01	1.431E+01	FAIL ABUN
IR-192	1.976E-02	5.813E-02	5.881E-02	FAIL ABUN
HG-203	-3.853E-03	7.506E-02	7.508E-02	NOT IDENT.
TL-204	9.354E-01	7.245E+00	7.257E+00	FAIL ABUN
BI-207	-3.977E-02	8.695E-02	8.878E-02	FAIL ABUN
BI-210	-2.825E+00	6.037E+00	6.170E+00	NOT IDENT.
PB-210	-2.825E+00	6.037E+00	6.170E+00	NOT IDENT.
PB-211	-5.079E-01	1.081E+00	1.105E+00	NOT IDENT.
BI-212	5.395E-01	7.553E-01	7.935E-01	NOT IDENT.
BI-213	-1.310E-01	1.412E-01	1.530E-01	NOT IDENT.
RN-219	1.786E-01	6.083E-01	6.136E-01	FAIL ABUN
RA-223	5.891E-02	9.495E-01	9.498E-01	FAIL ABUN
AC-225	-6.710E-01	3.349E+00	3.363E+00	NOT IDENT.
AC-227	3.468E-02	3.746E-01	3.749E-01	FAIL ABUN
TH-227	3.468E-02	3.746E-01	3.749E-01	FAIL ABUN
TH-229	9.486E-02	7.208E-01	7.221E-01	FAIL ABUN
TH-231	5.891E-02	9.495E-01	9.498E-01	FAIL ABUN
PA-233	1.458E-01	9.836E-02	1.183E-01	FAIL ABUN
PA-234	-1.379E-01	3.787E-01	3.838E-01	FAIL ABUN
PA-234M	4.862E+00	9.484E+00	9.734E+00	FAIL ABUN
NP-237	1.458E-01	9.836E-02	1.183E-01	FAIL ABUN
NP-238	-6.065E+03	1.576E+04	1.600E+04	SHORT HLIF
NP-239	-4.666E-02	3.220E-01	3.226E-01	NOT IDENT.
PU-239	2.039E+02	4.343E+02	4.439E+02	NOT IDENT.
AM-241	1.630E-01	2.187E-01	2.307E-01	NOT IDENT.
CM-243	1.337E-02	1.283E-01	1.285E-01	NOT IDENT.
BK-247	-6.652E-02	1.256E-01	1.291E-01	FAIL ABUN
CM-247	9.363E-03	5.454E-02	5.471E-02	NOT IDENT.
CF-249	2.435E-02	5.840E-02	5.943E-02	NOT IDENT.
CF-251	4.200E-02	1.886E-01	1.895E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	70.6807	85.43	77.0163	131.20	87.1686
45.60	61.2824	86.55	75.4694	133.02	82.4717
46.54	72.4526	86.79	75.5213	133.52	79.5364
49.72	0.0000	86.94	75.5540	136.00	95.1216
51.35	80.6213	87.09	75.5867	136.47	95.2134
51.87	78.6717	87.57	75.6905	140.51	0.0000
52.39	69.2536	88.03	75.7898	143.76	75.0239
52.97	74.4932	88.34	75.8565	144.24	75.0941
53.44	74.6373	88.47	75.8840	145.44	71.4884
54.07	74.8296	89.96	76.2032	152.43	109.7104
57.36	0.0000	1093.63	76.3474	153.25	102.5534
57.53	87.2873	91.11	76.4474	323.87	101.6875
57.98	88.2563	92.59	76.7595	156.02	107.2855
59.27	71.4482	93.35	76.9184	158.56	96.1599
59.32	75.5688	94.56	77.1709	159.00	92.0047
59.54	75.6319	94.65	77.1895	162.33	93.6195
60.96	92.5663	94.67	77.1940	162.66	78.7707
61.17	92.6389	94.87	77.2350	163.33	87.3903
62.93	88.2457	97.43	83.9347	165.86	94.2023
63.29	88.3613	98.43	93.7459	176.31	81.7280
63.58	88.4541	98.44	93.7482	176.60	78.4962
64.28	88.6775	99.53	96.8073	177.52	87.3511
66.73	88.8871	100.11	81.1045	181.07	0.0000
67.24	91.2989	102.03	93.6829	181.52	83.5297
125.81	99.0580	103.18	75.1648	184.41	75.0868
67.75	99.0821	103.37	75.2008	143.76	75.2445
68.89	105.4216	105.21	81.2135	193.51	75.0499
69.67	109.9638	105.31	81.2339	197.03	90.0964
70.82	108.3913	106.12	81.3973	198.01	75.5682
70.83	109.5371	106.47	78.6256	201.83	86.2132
72.81	124.0389	109.28	88.7038	203.43	94.3781
72.87	114.5861	111.00	86.1974	205.31	82.0975
74.66	115.2527	111.76	0.0000	210.85	97.7067
74.82	115.3116	114.06	70.4219	215.65	74.0732
74.97	115.3674	116.30	0.0000	218.12	84.7850
77.11	116.1528	116.74	75.7137	222.11	74.7461
78.74	94.7991	119.76	81.1218	227.09	71.7292
79.69	112.6836	121.12	71.5653	227.38	76.4635
80.03	113.9738	121.22	71.5815	228.16	0.0000
80.12	95.2020	121.78	85.4156	228.18	71.8353
80.19	95.2218	122.06	96.2751	116.74	71.8353
80.57	101.5112	122.92	82.6785	235.69	79.2999
81.00	100.1705	123.07	84.6753	235.96	74.5687
81.07	100.1913	265.00	87.7465	238.63	63.2869
81.75	92.1291	125.81	96.0786	238.98	0.0000
82.47	99.4304	127.23	77.4954	240.99	63.4810
83.79	93.8784	127.91	79.5993	242.00	63.5643
84.00	93.9363	129.30	77.8381	244.70	63.7850

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	58.3315	344.28	37.6207	563.25	25.4834
252.80	58.3601	345.93	51.1379	564.24	0.0000
254.15	0.0000	351.06	54.9958	569.33	30.9116
256.23	62.2714	351.93	55.0405	946.00	26.6510
260.90	0.0000	355.39	0.0000	569.70	30.9187
264.66	65.3798	356.01	63.8576	583.19	20.4287
264.80	65.3911	364.49	47.4731	584.27	20.4419
265.00	60.8808	366.42	0.0000	595.83	22.7543
269.46	59.5518	372.51	45.9829	427.87	24.9934
270.03	59.5913	375.05	35.9484	602.52	0.0000
271.23	59.6748	377.52	40.1856	604.72	32.6807
273.65	29.9224	356.01	30.6569	607.14	45.8196
276.40	66.2904	388.16	42.8957	609.32	41.5099
277.37	66.3648	388.63	35.4503	610.33	41.5347
277.60	66.3826	391.69	54.2523	614.28	23.0072
278.00	66.4117	264.66	38.6469	618.01	24.1556
279.20	56.4656	401.81	45.2900	620.36	24.1887
279.54	38.9137	402.40	44.3685	621.93	23.1106
279.70	38.9212	404.85	53.9199	630.19	0.0000
280.46	50.2637	410.95	46.5895	631.29	26.5557
283.69	56.3350	413.71	53.3670	633.25	13.2930
284.31	51.3260	414.70	46.7350	634.78	22.1745
285.41	58.1289	423.72	49.0026	635.95	23.2986
285.90	0.0000	427.09	35.6480	636.99	25.5334
287.50	48.1332	427.87	42.4191	657.50	23.5840
290.67	68.6420	433.94	42.6250	657.76	20.2178
293.27	0.0000	439.40	41.8365	657.90	0.0000
351.93	58.7662	440.45	41.8706	661.66	23.6387
295.96	58.8140	453.88	38.3732	664.57	0.0000
879.38	58.9824	463.37	32.7046	666.33	33.8574
299.98	59.0723	468.07	25.3604	666.50	33.8599
300.09	59.0793	473.00	32.9396	667.71	0.0000
300.13	59.0821	475.06	39.9878	677.62	28.3885
301.36	59.1607	476.78	40.0382	685.70	28.5126
302.85	59.2548	477.60	35.0548	692.65	0.0000
256.23	59.3600	482.18	30.1477	695.00	26.3626
304.85	59.3825	487.02	22.1858	696.49	37.8541
306.78	59.5046	492.35	0.0000	696.51	37.8541
308.46	41.4678	497.08	33.5183	697.00	36.1437
311.90	37.7165	505.52	15.3265	697.30	29.2634
316.51	40.5115	507.63	0.0000	697.49	29.2665
319.41	36.7004	511.00	26.6673	702.65	22.4413
320.08	39.3494	514.00	23.1253	706.68	29.0626
321.04	46.3901	514.00	23.1253	711.68	24.2821
323.87	48.7183	520.40	29.9369	720.70	18.5872
325.23	48.7861	520.69	0.0000	721.93	0.0000
328.76	54.6940	522.65	0.0000	722.78	23.2585
333.37	51.8445	527.90	0.0000	722.91	23.2601
333.97	54.5345	528.26	22.8316	723.31	24.4282
334.37	54.5570	529.59	24.9297	724.19	33.7496
338.28	53.4314	529.87	0.0000	727.33	13.9878
338.32	53.4338	531.02	33.2708	733.00	22.7952
311.90	52.2075	537.26	26.1017	735.93	8.4293
340.48	52.2075	546.56	0.0000	333.97	11.2477
340.55	52.2111	552.55	25.3096	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	14.1074	949.00	11.5983	1384.29	8.9639
747.24	14.1289	667.71	0.0000	1408.01	7.7360
748.06	11.3078	962.31	21.7663	1434.09	8.1826
752.31	12.7481	964.08	20.2262	1435.80	10.9154
753.82	12.7573	966.17	0.0000	1457.56	0.0000
756.73	22.7125	911.20	18.7066	1460.82	8.2433
756.80	22.7133	983.53	18.6179	1489.16	6.4613
884.68	27.0667	984.45	0.0000	1505.03	19.4670
765.81	19.9623	1274.44	14.1807	1584.12	12.6178
766.42	19.9685	1001.03	12.6281	1596.21	14.2390
766.84	24.2516	1002.74	18.9545	1620.50	5.7305
772.60	0.0000	1004.73	18.9691	1621.92	1.9108
776.52	26.6184	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	7.7742
778.90	26.0078	1028.54	0.0000	1750.46	0.0000
783.70	26.0680	1037.84	13.0056	1764.49	4.9438
788.74	27.9329	1038.76	0.0000	1063.66	0.0000
792.07	29.7824	631.29	19.0707	1771.35	0.0000
795.86	18.9864	1048.07	17.0726	1791.20	0.0000
810.06	23.6633	1049.04	9.0417	1808.65	3.9953
810.29	25.4861	1050.41	10.0513	1810.72	0.0000
344.28	25.4886	1063.66	21.0082	1836.06	3.0151
810.76	24.5816	1077.00	16.2393		
815.77	12.7755	1077.34	16.2412		
1048.07	21.0150	1085.87	17.9201		
832.01	17.6514	1093.63	22.1702		
834.85	25.7749	1099.45	15.3470		
835.71	22.1016	1112.07	11.3048		
836.80	0.0000	1112.84	14.3914		
846.75	0.0000	1115.54	14.8166		
846.77	16.6586	1120.29	16.4902		
856.80	20.8229	1120.55	16.4922		
860.56	19.5542	1221.41	16.4961		
871.09	21.5155	1129.67	17.5779		
873.19	17.7899	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	22.5322	1173.23	12.5933		
880.51	20.6646	1177.95	14.7152		
881.60	13.1562	1189.05	18.9899		
883.24	12.2252	1204.77	15.9064		
884.68	20.7015	1221.41	18.1258		
889.28	20.7425	1231.02	11.0008		
894.76	21.7359	1235.36	20.5629		
898.04	19.8734	1238.28	12.8635		
900.72	23.6862	1260.41	0.0000		
903.28	23.8469	1271.87	6.9336		
911.20	22.8391	1274.44	6.9395		
912.08	22.8472	1274.54	6.9395		
923.98	0.0000	1291.59	9.8102		
926.50	15.3232	1298.22	0.0000		
929.11	18.4072	1312.11	15.3561		
935.54	13.8419	1332.49	9.9322		
937.49	15.3926	1362.66	0.0000		
944.13	17.3633	1365.19	7.8002		
946.00	14.4804	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:18:41.60

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299006.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM19.CNF;964
Background date : 28-JUL-2024 11:25:05
Sample date     : 26-JUN-2024 09:17:00 Acquisition date : 30-JUL-2024 11:15:37
Sample ID      : G674299006 Sample quantity : 1.49980E+02 GRAM
Detector name   : GAM19 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.45 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.73	38	83	1.16	149.60	146	16	1.06E-02	43.9	1.80E+00
2	2	77.23	58	87	1.17	154.59	146	16	1.60E-02	30.2	
3	5	87.65	32	100	1.58	175.43	169	23	8.82E-03	61.5	2.22E+00
4	5	92.78*	38	83	1.60	185.69	169	23	1.06E-02	54.0	
5	0	129.87	29	83	1.31	259.86	254	11	7.92E-03	64.5	
6	0	185.62*	40	70	0.75	371.34	367	9	1.12E-02	43.3	
7	0	205.39	18	32	0.87	410.88	408	5	4.92E-03	54.2	
8	2	238.71*	119	52	1.23	477.50	473	17	3.31E-02	13.8	3.04E+00
9	2	241.79	50	54	1.44	483.66	473	17	1.39E-02	31.6	
10	0	295.56*	58	47	1.12	591.19	585	12	1.62E-02	27.5	
11	0	314.43	16	16	1.32	628.92	626	7	4.44E-03	51.8	
12	0	352.10*	79	50	1.44	704.26	699	12	2.19E-02	21.8	
13	0	371.77	22	21	1.36	743.60	740	9	6.22E-03	42.0	
14	0	439.48*	21	23	2.84	879.01	874	10	5.93E-03	48.3	
15	0	443.38	13	19	0.89	886.81	884	8	3.66E-03	64.3	
16	0	503.48	12	14	1.70	1006.98	1000	9	3.45E-03	60.4	
17	0	569.83*	5	23	1.14	1139.68	1135	12	1.34E-03	305.9	
18	0	583.52*	36	23	1.17	1167.04	1160	13	9.95E-03	33.7	
19	0	589.25	16	16	0.69	1178.51	1173	13	4.57E-03	56.0	
20	0	602.83	11	17	1.67	1205.66	1201	9	3.03E-03	76.0	
21	0	609.17*	69	23	1.21	1218.36	1211	12	1.90E-02	19.3	
22	0	662.19	14	10	1.70	1324.37	1320	8	3.95E-03	46.7	
23	0	696.12	37	17	9.88	1392.24	1383	22	1.02E-02	32.7	
24	0	728.07	10	10	0.50	1456.12	1451	7	2.68E-03	64.2	
25	0	801.18	10	5	0.97	1602.34	1598	8	2.75E-03	52.5	
26	0	821.03	9	13	1.39	1642.04	1635	11	2.39E-03	90.0	
27	0	844.61	6	31	3.89	1689.19	1678	15	1.57E-03	215.9	
28	0	911.77*	21	15	2.32	1823.51	1817	10	5.87E-03	42.9	
29	0	969.95*	20	14	2.48	1939.86	1931	14	5.54E-03	47.3	
30	0	1020.25	12	2	0.99	2040.46	2036	8	3.32E-03	35.5	
31	0	1063.83*	0	10	1.85	2127.62	2120	13	9.56E-05	*****	
32	0	1121.25	8	8	1.03	2242.46	2236	11	2.14E-03	80.9	
33	0	1207.28	11	2	2.33	2414.51	2409	9	2.95E-03	40.0	
34	0	1224.32	13	5	1.35	2448.60	2443	11	3.72E-03	43.0	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1239.56	4	18	1.09	2479.08	2473	10	1.09E-03	207.4	
36	0	1461.05*	251	4	1.88	2922.06	2914	16	6.97E-02	6.6	
37	0	1765.47	7	6	1.16	3530.93	3527	8	1.88E-03	73.9	
38	0	1770.40*	6	5	1.15	3540.79	3535	10	1.72E-03	93.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299006.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:17:00	Acquisition date	: 30-JUL-2024 11:15:37
Sample ID	: G674299006	Sample quantity	: 149.98 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA19	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.45 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	242	10.66*	1.182E+00	9.611E+00	9.611E+00	13.30
CD-109	88.03	40	3.70*	6.037E+00	8.964E-01	9.435E-01	122.97
SN-126	64.28	-----	9.60	3.461E+00	-----	Line Not Found	-----
	86.94	40	8.90	6.037E+00	3.727E-01	3.727E-01	122.97
	87.57	40	37.00*	6.037E+00	8.964E-02	8.964E-02	122.97
BA-137M	661.66	15	89.90*	2.333E+00	3.552E-02	3.559E-02	93.37
CS-137	661.66	15	85.10*	2.333E+00	3.752E-02	3.760E-02	93.37
PR-144	696.51	38	1.34*	2.239E+00	6.401E+00	6.955E+00	65.36
	1489.16	-----	0.28	1.164E+00	-----	Line Not Found	-----
BI-207	72.81	-----	21.40	4.627E+00	-----	Line Not Found	-----
	74.97	49	35.70	4.856E+00	1.411E-01	1.413E-01	87.74
	569.70	5	97.76	2.631E+00	1.002E-02	1.004E-02	611.80
	1063.66	0	74.60*	1.550E+00	1.486E-03	1.489E-03	7083.12
	1770.23	6	6.87	1.034E+00	4.109E-01	4.117E-01	186.04
TL-208	277.37	-----	6.60	4.498E+00	-----	Line Not Found	-----
	583.19	38	85.00*	2.583E+00	8.662E-02	8.662E-02	67.45
	860.56	-----	12.50	1.870E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.634E+00	-----	Line Not Found	-----
	351.06	88	12.92*	3.782E+00	8.982E-01	8.982E-01	43.70
BI-212	727.33	10	6.67*	2.157E+00	3.483E-01	3.483E-01	128.39
	1620.50	-----	1.47	1.094E+00	-----	Line Not Found	-----
PB-212	74.82	49	10.28	4.856E+00	4.899E-01	4.899E-01	87.74
	77.11	74	17.10	5.134E+00	4.191E-01	4.191E-01	60.49
	238.63	138	43.60*	5.003E+00	3.159E-01	3.159E-01	27.53
	300.09	-----	3.30	4.250E+00	-----	Line Not Found	-----
BI-213	440.45	23	25.94*	3.210E+00	1.398E-01	1.398E-01	96.68
BI-214	609.32	72	45.49*	2.496E+00	3.191E-01	3.191E-01	38.62
	1120.29	8	14.92	1.479E+00	1.730E-01	1.730E-01	161.82
	1764.49	6	15.30	1.036E+00	2.020E-01	2.020E-01	147.73
PB-214	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.727E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
RN-222	609.32	72	45.49*	2.496E+00	3.191E-01	3.191E-01	38.62
	1120.29	8	14.92	1.479E+00	1.730E-01	1.730E-01	161.82
	1764.49	6	15.30	1.036E+00	2.020E-01	2.020E-01	147.73
RA-224	240.99	58	4.10*	4.959E+00	1.417E+00	1.417E+00	63.21
RA-226	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.727E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
TH-228	74.82	49	10.28	4.856E+00	4.899E-01	4.899E-01	87.74
	77.11	74	17.10	5.134E+00	4.191E-01	4.191E-01	60.49
	238.63	138	43.60*	5.003E+00	3.159E-01	3.159E-01	27.53
	300.09	-----	3.30	4.250E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.726E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
U-234	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.726E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
U-235	89.96	-----	3.47	6.185E+00	-----	Line Not Found	-----
	93.35	48	5.60	6.343E+00	6.732E-01	6.732E-01	107.97
	143.76	-----	10.96*	6.677E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.327E+00	-----	Line Not Found	-----
	185.72	47	57.20	5.898E+00	7.046E-02	7.046E-02	86.50
	205.31	21	5.01	5.538E+00	3.741E-01	3.741E-01	108.37
AM-243	43.53	-----	5.90	6.010E-01	-----	Line Not Found	-----
	74.66	49	67.20*	4.856E+00	7.494E-02	7.494E-02	87.74

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299006.CNF;1
Acquisition date : 30-JUL-2024 11:15:37 Sensitivity : 3.000
Detector ID : GAM19 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.45 Half life ratio : *****
Sample date : 26-JUN-2024 09:17:00 Analyst initials: RXF2
Sample ID : G674299006 Sample Quantity : 1.4998E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	9.611E+00	1.252E+00	5.179E-01
CD-109	9.435E-01	1.137E+00	8.692E-01
SN-126	8.964E-02	1.080E-01	8.298E-02
BA-137M	3.559E-02	3.257E-02	4.482E-02
CS-137	3.760E-02	3.441E-02	4.735E-02
PR-144	6.955E+00	4.455E+00	3.418E+00
BI-207	1.489E-03	1.033E-01	8.101E-02
TL-208	8.662E-02	5.726E-02	4.385E-02
BI-211	8.982E-01	3.846E-01	2.637E-01
BI-212	3.483E-01	4.383E-01	6.828E-01
PB-212	3.159E-01	8.521E-02	7.008E-02
BI-213	1.398E-01	1.325E-01	1.346E-01
BI-214	3.191E-01	1.208E-01	8.960E-02
PB-214	3.260E-01	1.396E-01	9.590E-02
RN-222	3.191E-01	1.208E-01	8.960E-02
RA-224	1.417E+00	8.776E-01	7.509E-01
RA-226	3.260E-01	1.396E-01	9.590E-02
TH-228	3.159E-01	8.521E-02	7.008E-02
TH-230	3.260E-01	1.396E-01	9.590E-02
U-234	3.260E-01	1.396E-01	9.590E-02
U-235	9.829E-03	1.310E-01	2.506E-01
AM-243	7.494E-02	6.444E-02	5.963E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.471E-01	2.936E-01	6.265E-01	NOT IDENT.
NA-22	1.417E-03	2.320E-02	5.142E-02	NOT IDENT.
NA-24	0.000E+00	6.457E+14	0.000E+00	SHORT HLIF
AL-26	-5.303E-03	1.712E-02	3.620E-02	NOT IDENT.
SC-46	-2.752E-02	3.048E-02	4.741E-02	FAIL ABUN
V-48	-4.320E-02	1.122E-01	2.021E-01	NOT IDENT.
CR-51	-1.398E-01	4.164E-01	8.139E-01	NOT IDENT.
MN-52	-6.616E-01	1.241E+00	2.418E+00	NOT IDENT.

MN-54	-2.579E-02	3.210E-02	5.304E-02	NOT IDENT.
CO-56	-1.494E-02	4.625E-02	7.327E-02	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-3.028E-03	1.676E-02	3.186E-02	NOT IDENT.
CO-58	-2.773E-02	3.552E-02	5.900E-02	NOT IDENT.
FE-59	1.621E-03	8.443E-02	1.761E-01	NOT IDENT.
CO-60	-8.730E-03	2.537E-02	5.001E-02	NOT IDENT.
ZN-65	-2.578E-02	5.955E-02	9.762E-02	NOT IDENT.
GE-68	-4.027E-01	8.273E-01	1.587E+00	NOT IDENT.
AS-73	4.931E-02	5.662E-01	1.174E+00	NOT IDENT.
AS-74	2.023E-02	1.422E-01	2.876E-01	NOT IDENT.
SE-75	-3.148E-02	3.692E-02	6.029E-02	NOT IDENT.
BR-77	0.000E+00	3.357E+03	0.000E+00	SHORT HLIF
SR-82	-1.966E-01	3.759E-01	6.701E-01	NOT IDENT.
RB-83	-2.545E-02	5.933E-02	1.112E-01	NOT IDENT.
RB-84	3.798E-03	5.555E-02	1.172E-01	NOT IDENT.
KR-85	-1.123E+01	7.602E+00	1.241E+01	NOT IDENT.
SR-85	-7.276E-02	4.918E-02	8.022E-02	NOT IDENT.
RB-86	-8.397E-01	1.082E+00	1.930E+00	NOT IDENT.
Y-88	-2.800E-04	1.762E-02	4.580E-02	NOT IDENT.
Y-91	-8.128E+00	1.872E+01	3.019E+01	NOT IDENT.
NB-94	-1.422E-02	2.550E-02	3.893E-02	NOT IDENT.
NB-95	-2.561E-02	3.754E-02	6.440E-02	NOT IDENT.
NB-95M	-8.599E-02	1.216E-01	1.854E-01	NOT IDENT.
ZR-95	-2.976E-02	5.778E-02	1.036E-01	NOT IDENT.
NB-97	0.000E+00	5.330E+40	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.790E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	9.933E+02	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.297E+39	0.000E+00	SHORT HLIF
RH-101	-2.360E-03	1.931E-02	3.418E-02	NOT IDENT.
RH-102	-1.816E-02	3.840E-02	7.048E-02	FAIL ABUN
RU-103	1.635E-02	3.760E-02	7.810E-02	FAIL ABUN
RH-106	1.311E-01	2.100E-01	4.662E-01	NOT IDENT.
RU-106	1.311E-01	2.100E-01	4.662E-01	NOT IDENT.
AG-108M	3.907E-03	2.189E-02	4.278E-02	NOT IDENT.
AG-110	2.097E-01	4.920E-01	9.941E-01	NOT IDENT.
AG-110M	8.906E-04	2.631E-02	5.274E-02	NOT IDENT.
SN-113	-2.525E-02	3.719E-02	6.860E-02	NOT IDENT.
CD-115	0.000E+00	3.035E+03	0.000E+00	SHORT HLIF
SN-117M	-7.641E-03	1.035E-01	1.938E-01	NOT IDENT.
SB-122	0.000E+00	1.591E+02	0.000E+00	SHORT HLIF
TE-123M	1.330E-02	2.179E-02	4.372E-02	NOT IDENT.
SB-124	2.883E-02	7.074E-02	1.765E-01	NOT IDENT.
SB-125	-3.536E-02	6.060E-02	1.129E-01	NOT IDENT.
TE-125M	-3.511E+00	6.976E+00	1.293E+01	NOT IDENT.
I-126	-1.268E-01	3.920E-01	7.014E-01	NOT IDENT.
SB-126	-2.763E-02	3.160E-01	6.098E-01	FAIL ABUN
SB-127	-3.884E+01	2.644E+01	3.600E+01	NOT IDENT.
I-131	-1.698E-01	4.087E-01	7.874E-01	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	3.300E+01	0.000E+00	SHORT HLIF
BA-133	-1.416E-02	3.002E-02	5.078E-02	NOT IDENT.
I-133	0.000E+00	1.636E+10	0.000E+00	SHORT HLIF
CS-134	3.931E-02	3.116E-02	7.171E-02	FAIL ABUN
I-135	0.000E+00	2.560E+36	0.000E+00	SHORT HLIF
CS-136	1.735E-01	2.094E-01	4.755E-01	NOT IDENT.
LA-138	-1.820E-02	2.714E-02	4.730E-02	NOT IDENT.
CE-139	6.098E-03	2.032E-02	4.002E-02	NOT IDENT.
BA-140	-1.028E-01	4.929E-01	9.629E-01	NOT IDENT.
LA-140	-1.244E-01	1.862E-01	3.224E-01	NOT IDENT.
CE-141	-2.034E-02	6.266E-02	1.154E-01	NOT IDENT.
CE-143	0.000E+00	1.261E+06	0.000E+00	SHORT HLIF
CE-144	-1.986E-02	1.402E-01	2.451E-01	NOT IDENT.
PM-144	0.000E+00	5.894E-02	5.146E-02	FAIL ABUN
PM-146	2.131E-02	3.354E-02	7.131E-02	NOT IDENT.
ND-147	7.765E-01	1.366E+00	2.931E+00	NOT IDENT.
PM-147	2.178E+02	4.754E+02	9.618E+02	NOT IDENT.
PM-149	0.000E+00	2.351E+04	0.000E+00	SHORT HLIF
EU-150	5.733E-03	1.900E-02	3.954E-02	FAIL ABUN
EU-152	-1.944E-03	6.641E-02	1.341E-01	NOT IDENT.
GD-153	3.082E-02	5.359E-02	1.048E-01	NOT IDENT.
EU-154	3.980E-03	6.511E-02	1.443E-01	NOT IDENT.
EU-155	9.609E-05	6.587E-02	1.285E-01	FAIL ABUN
TB-160	4.805E-02	8.917E-02	2.058E-01	FAIL ABUN
HO-166M	1.495E-02	4.436E-02	9.197E-02	FAIL ABUN
TM-171	2.751E+00	1.036E+01	2.188E+01	NOT IDENT.
HF-172	1.276E-01	1.136E-01	2.358E-01	NOT IDENT.
LU-172	2.102E-02	4.627E-02	1.031E-01	FAIL ABUN

LU-176	-5.945E-03	1.782E-02	3.501E-02	FAIL ABUN
HF-181	-2.900E-02	3.770E-02	6.725E-02	NOT IDENT.
TA-182	9.951E-02	1.711E-01	3.458E-01	FAIL ABUN
RE-183	-1.293E-01	1.407E-01	2.595E-01	NOT IDENT.
RE-184	4.805E-02	1.387E-01	2.872E-01	NOT IDENT.
W-188	-1.310E+00	6.433E+00	1.056E+01	NOT IDENT.
IR-192	-3.040E-02	3.004E-02	4.624E-02	FAIL ABUN
HG-203	3.289E-02	3.782E-02	7.690E-02	NOT IDENT.
TL-204	-3.897E+00	2.917E+00	4.583E+00	NOT IDENT.
BI-210	-3.861E-01	2.015E+00	4.021E+00	NOT IDENT.
PB-210	-3.861E-01	2.015E+00	4.021E+00	NOT IDENT.
PB-211	-7.309E-02	4.833E-01	9.576E-01	NOT IDENT.
RN-219	3.592E-02	2.513E-01	5.227E-01	NOT IDENT.
RA-223	-1.663E-02	4.092E-01	8.315E-01	NOT IDENT.
AC-225	-1.255E+00	1.525E+00	2.557E+00	NOT IDENT.
AC-227	1.110E-01	1.960E-01	3.843E-01	NOT IDENT.
TH-227	1.110E-01	1.960E-01	3.843E-01	NOT IDENT.
AC-228	2.340E-01	1.970E-01	3.488E-01	FAIL ABUN
RA-228	2.340E-01	1.970E-01	3.488E-01	FAIL ABUN
TH-229	-1.099E-01	3.389E-01	6.144E-01	FAIL ABUN
PA-231	2.178E-01	3.440E-01	6.858E-01	NOT IDENT.
TH-231	-1.663E-02	4.092E-01	8.315E-01	NOT IDENT.
TH-232	2.340E-01	1.970E-01	3.488E-01	FAIL ABUN
PA-233	-1.850E-02	4.523E-02	7.830E-02	NOT IDENT.
PA-234	1.263E-01	1.674E-01	4.034E-01	FAIL ABUN
PA-234M	-2.277E+00	3.147E+00	5.208E+00	NOT IDENT.
TH-234	9.651E-02	8.167E-01	1.669E+00	FAIL ABUN
NP-237	-1.850E-02	4.523E-02	7.830E-02	NOT IDENT.
NP-238	0.000E+00	6.832E+03	0.000E+00	SHORT HLIF
U-238	9.651E-02	8.167E-01	1.669E+00	FAIL ABUN
NP-239	2.498E-02	1.644E-01	3.242E-01	NOT IDENT.
PU-239	4.016E+02	5.077E+02	4.526E+02	FAIL ABUN
AM-241	8.651E-02	8.393E-02	1.873E-01	NOT IDENT.
CM-243	4.762E-02	6.417E-02	1.345E-01	NOT IDENT.
BK-247	-2.889E-02	5.406E-02	9.296E-02	NOT IDENT.
CM-247	-5.034E-03	2.557E-02	5.033E-02	NOT IDENT.
CF-249	-3.122E-03	2.890E-02	5.736E-02	NOT IDENT.
CF-251	-7.077E-02	8.718E-02	1.494E-01	NOT IDENT.
ANH-511	-2.781E-02	3.810E-02	8.225E-02	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	242	10.66*	1.182E+00	9.611E+00	9.611E+00	13.30
CD-109	88.03	40	3.70*	6.037E+00	8.964E-01	9.435E-01	122.97
SN-126	64.28	-----	9.60	3.461E+00	-----	Line Not Found	-----
	86.94	40	8.90	6.037E+00	3.727E-01	3.727E-01	122.97
	87.57	40	37.00*	6.037E+00	8.964E-02	8.964E-02	122.97
BA-137M	661.66	15	89.90*	2.333E+00	3.552E-02	3.559E-02	93.37
CS-137	661.66	15	85.10*	2.333E+00	3.752E-02	3.760E-02	93.37
PR-144	696.51	38	1.34*	2.239E+00	6.401E+00	6.955E+00	65.36
	1489.16	-----	0.28	1.164E+00	-----	Line Not Found	-----
BI-207	72.81	-----	21.40	4.627E+00	-----	Line Not Found	-----
	74.97	49	35.70	4.856E+00	1.411E-01	1.413E-01	87.74
	569.70	5	97.76	2.631E+00	1.002E-02	1.004E-02	611.80
	1063.66	0	74.60*	1.550E+00	1.486E-03	1.489E-03	7083.12
	1770.23	6	6.87	1.034E+00	4.109E-01	4.117E-01	186.04
TL-208	277.37	-----	6.60	4.498E+00	-----	Line Not Found	-----
	583.19	38	85.00*	2.583E+00	8.662E-02	8.662E-02	67.45
	860.56	-----	12.50	1.870E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.634E+00	-----	Line Not Found	-----
	351.06	88	12.92*	3.782E+00	8.982E-01	8.982E-01	43.70
BI-212	727.33	10	6.67*	2.157E+00	3.483E-01	3.483E-01	128.39
	1620.50	-----	1.47	1.094E+00	-----	Line Not Found	-----
PB-212	74.82	49	10.28	4.856E+00	4.899E-01	4.899E-01	87.74
	77.11	74	17.10	5.134E+00	4.191E-01	4.191E-01	60.49
	238.63	138	43.60*	5.003E+00	3.159E-01	3.159E-01	27.53
	300.09	-----	3.30	4.250E+00	-----	Line Not Found	-----
BI-213	440.45	23	25.94*	3.210E+00	1.398E-01	1.398E-01	96.68
BI-214	609.32	72	45.49*	2.496E+00	3.191E-01	3.191E-01	38.62
	1120.29	8	14.92	1.479E+00	1.730E-01	1.730E-01	161.82
	1764.49	6	15.30	1.036E+00	2.020E-01	2.020E-01	147.73
PB-214	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.727E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
RN-222	609.32	72	45.49*	2.496E+00	3.191E-01	3.191E-01	38.62
	1120.29	8	14.92	1.479E+00	1.730E-01	1.730E-01	161.82
	1764.49	6	15.30	1.036E+00	2.020E-01	2.020E-01	147.73
RA-224	240.99	58	4.10*	4.959E+00	1.417E+00	1.417E+00	63.21
RA-226	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.727E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
TH-228	74.82	49	10.28	4.856E+00	4.899E-01	4.899E-01	87.74
	77.11	74	17.10	5.134E+00	4.191E-01	4.191E-01	60.49

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	238.63	138	43.60*	5.003E+00	3.159E-01	3.159E-01	27.53
	300.09	-----	3.30	4.250E+00	-----	Line Not Found	-----
	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
	87.09	40	3.41	6.037E+00	9.726E-01	9.726E-01	122.97
U-234	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
	74.82	49	5.80	4.856E+00	8.683E-01	8.683E-01	87.74
	77.11	74	9.70	5.134E+00	7.389E-01	7.389E-01	60.49
U-235	87.09	40	3.41	6.037E+00	9.726E-01	9.726E-01	122.97
	242.00	58	7.25	4.959E+00	8.013E-01	8.013E-01	63.21
	295.22	66	18.42	4.297E+00	4.175E-01	4.175E-01	55.03
	351.93	88	35.60*	3.782E+00	3.260E-01	3.260E-01	43.70
	89.96	-----	3.47	6.185E+00	-----	Line Not Found	-----
AM-243	93.35	48	5.60	6.343E+00	6.732E-01	6.732E-01	107.97
	143.76	-----	10.96*	6.677E+00	-----	Line Not Found	-----
	163.33	-----	5.08	6.327E+00	-----	Line Not Found	-----
	185.72	47	57.20	5.898E+00	7.046E-02	7.046E-02	86.50
	205.31	21	5.01	5.538E+00	3.741E-01	3.741E-01	108.37
	43.53	-----	5.90	6.010E-01	-----	Line Not Found	-----
	74.66	49	67.20*	4.856E+00	7.494E-02	7.494E-02	87.74

Flag: "*" = Keyline

Total number of lines in spectrum 38
Number of unidentified lines 8
Number of lines tentatively identified by NID 30 78.95%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	9.611E+00	9.611E+00	1.278E+00	13.30	
CD-109	461.40D	1.05	8.964E-01	9.435E-01	11.60E-01	122.97	
SN-126	2.30E+05Y	1.00	8.964E-02	8.964E-02	11.02E-02	122.97	
BA-137M	30.08Y	1.00	3.552E-02	3.559E-02	3.323E-02	93.37	
CS-137	30.08Y	1.00	3.752E-02	3.760E-02	3.511E-02	93.37	
PR-144	284.91D	1.09	6.401E+00	6.955E+00	4.546E+00	65.36	
BI-207	32.90Y	1.00	1.486E-03	1.489E-03	105.5E-03	7083.12	
TL-208	1.41E+10Y	1.00	8.662E-02	8.662E-02	5.843E-02	67.45	
BI-211	7.04E+08Y	1.00	8.982E-01	8.982E-01	3.925E-01	43.70	
BI-212	1.41E+10Y	1.00	3.483E-01	3.483E-01	4.472E-01	128.39	
PB-212	1.41E+10Y	1.00	3.159E-01	3.159E-01	0.870E-01	27.53	
BI-213	7340.00Y	1.00	1.398E-01	1.398E-01	1.352E-01	96.68	
BI-214	1600.00Y	1.00	3.191E-01	3.191E-01	1.232E-01	38.62	
PB-214	1600.00Y	1.00	3.260E-01	3.260E-01	1.425E-01	43.70	
RN-222	1600.00Y	1.00	3.191E-01	3.191E-01	1.232E-01	38.62	
RA-224	1.41E+10Y	1.00	1.417E+00	1.417E+00	0.896E+00	63.21	
RA-226	1600.00Y	1.00	3.260E-01	3.260E-01	1.425E-01	43.70	
TH-228	1.41E+10Y	1.00	3.159E-01	3.159E-01	0.870E-01	27.53	
TH-230	7.54E+04Y	1.00	3.260E-01	3.260E-01	1.424E-01	43.70	
U-234	2.45E+05Y	1.00	3.260E-01	3.260E-01	1.424E-01	43.70	
U-235	7.04E+08Y	1.00	7.046E-02	7.046E-02	6.095E-02	86.50	K
AM-243	7370.00Y	1.00	7.494E-02	7.494E-02	6.576E-02	87.74	
Total Activity :			2.268E+01	2.328E+01			

Grand Total Activity : 2.268E+01 2.328E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.87	35	101	1.31	259.86	254	11	7.92E-03	****	6.86E+00	T
0	314.43	18	18	1.32	628.92	626	7	4.44E-03	****	4.11E+00	
0	371.77	25	23	1.36	743.60	740	9	6.22E-03	84.0	3.63E+00	T
0	443.38	14	20	0.89	886.81	884	8	3.66E-03	****	3.19E+00	
0	503.48	13	15	1.70	1006.98	1000	9	3.45E-03	****	2.90E+00	
0	589.25	17	16	0.69	1178.51	1173	13	4.57E-03	****	2.56E+00	
0	602.83	12	18	1.67	1205.66	1201	9	3.03E-03	****	2.52E+00	T
0	801.18	10	5	0.97	1602.34	1598	8	2.75E-03	****	1.99E+00	T
0	821.03	9	14	1.39	1642.04	1635	11	2.39E-03	****	1.95E+00	
0	844.61	6	32	3.89	1689.19	1678	15	1.57E-03	****	1.90E+00	
0	911.77	21	15	2.32	1823.51	1817	10	5.87E-03	85.9	1.78E+00	T
0	969.95	20	14	2.48	1939.86	1931	14	5.54E-03	94.5	1.68E+00	T
0	1020.25	12	2	0.99	2040.46	2036	8	3.32E-03	70.9	1.61E+00	T
0	1207.28	10	2	2.33	2414.51	2409	9	2.95E-03	80.1	1.39E+00	
0	1224.32	13	5	1.35	2448.60	2443	11	3.72E-03	86.0	1.37E+00	
0	1239.56	4	18	1.09	2479.08	2473	10	1.09E-03	****	1.35E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299006.CNF;1 *
* Acquisition date : 30-JUL-2024 11:15:37 Sensitivity : 3.000 *
* Detector ID : GAM19 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.45 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:17:00 Nuclide Library : SOLID *
* Sample ID : G674299006 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.4998E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.048E-01
CD-109	4.005E-01
SN-126	3.824E-02
BA-137M	1.910E-02
CS-137	2.017E-02
PR-144	1.458E+00
BI-207	3.456E-02
TL-208	1.875E-02
BI-211	1.175E-01
BI-212	2.933E-01
PB-212	3.179E-02
BI-213	5.889E-02
BI-214	3.867E-02
PB-214	4.272E-02
RN-222	3.867E-02
RA-224	3.406E-01
RA-226	4.272E-02
TH-228	3.179E-02
TH-230	4.272E-02
U-234	4.272E-02
U-235	1.155E-01
AM-243	2.758E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	2.786E-01	NOT IDENT.
NA-22	2.041E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.144E-02	NOT IDENT.
SC-46	1.867E-02	FAIL ABUN
V-48	8.286E-02	NOT IDENT.
CR-51	3.657E-01	NOT IDENT.
MN-52	8.185E-01	NOT IDENT.
MN-54	2.264E-02	NOT IDENT.

CO-56	3.169E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	1.460E-02	NOT IDENT.
CO-58	2.457E-02	NOT IDENT.
FE-59	7.431E-02	NOT IDENT.
CO-60	1.957E-02	NOT IDENT.
ZN-65	3.876E-02	NOT IDENT.
GE-68	6.419E-01	NOT IDENT.
AS-73	5.340E-01	NOT IDENT.
AS-74	1.262E-01	NOT IDENT.
SE-75	2.699E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	2.780E-01	NOT IDENT.
RB-83	4.838E-02	NOT IDENT.
RB-84	4.734E-02	NOT IDENT.
KR-85	5.636E+00	NOT IDENT.
SR-85	3.644E-02	NOT IDENT.
RB-86	7.805E-01	NOT IDENT.
Y-88	1.448E-02	NOT IDENT.
Y-91	1.226E+01	NOT IDENT.
NB-94	1.634E-02	NOT IDENT.
NB-95	2.735E-02	NOT IDENT.
NB-95M	8.451E-02	NOT IDENT.
ZR-95	4.296E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.552E-02	NOT IDENT.
RH-102	3.003E-02	FAIL ABUN
RU-103	3.426E-02	FAIL ABUN
RH-106	2.027E-01	NOT IDENT.
RU-106	2.027E-01	NOT IDENT.
AG-108M	1.900E-02	NOT IDENT.
AG-110	4.248E-01	NOT IDENT.
AG-110M	2.065E-02	NOT IDENT.
SN-113	3.050E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	8.958E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.024E-02	NOT IDENT.
SB-124	6.839E-02	NOT IDENT.
SB-125	4.911E-02	NOT IDENT.
TE-125M	5.874E+00	NOT IDENT.
I-126	2.941E-01	NOT IDENT.
SB-126	2.648E-01	FAIL ABUN
SB-127	1.414E+01	NOT IDENT.
I-131	3.493E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.234E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.169E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.048E-01	NOT IDENT.
LA-138	1.495E-02	NOT IDENT.
CE-139	1.832E-02	NOT IDENT.
BA-140	4.151E-01	NOT IDENT.
LA-140	1.200E-01	NOT IDENT.
CE-141	5.309E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.122E-01	NOT IDENT.
PM-144	2.241E-02	FAIL ABUN
PM-146	3.218E-02	NOT IDENT.
ND-147	1.300E+00	NOT IDENT.
PM-147	4.434E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.790E-02	FAIL ABUN
EU-152	6.013E-02	NOT IDENT.
GD-153	4.820E-02	NOT IDENT.
EU-154	5.727E-02	NOT IDENT.
EU-155	5.913E-02	FAIL ABUN
TB-160	8.559E-02	FAIL ABUN
HO-166M	4.016E-02	FAIL ABUN
TM-171	9.969E+00	NOT IDENT.
HF-172	1.083E-01	NOT IDENT.
LU-172	4.412E-02	FAIL ABUN
LU-176	1.570E-02	FAIL ABUN

HF-181	2.855E-02	NOT IDENT.
TA-182	1.502E-01	FAIL ABUN
RE-183	1.178E-01	NOT IDENT.
RE-184	1.239E-01	NOT IDENT.
W-188	4.713E+00	NOT IDENT.
IR-192	2.024E-02	FAIL ABUN
HG-203	3.523E-02	NOT IDENT.
TL-204	2.077E+00	NOT IDENT.
BI-210	1.819E+00	NOT IDENT.
PB-210	1.819E+00	NOT IDENT.
PB-211	4.244E-01	NOT IDENT.
RN-219	2.303E-01	NOT IDENT.
RA-223	3.718E-01	NOT IDENT.
AC-225	1.154E+00	NOT IDENT.
AC-227	1.765E-01	NOT IDENT.
TH-227	1.765E-01	NOT IDENT.
AC-228	1.595E-01	FAIL ABUN
RA-228	1.595E-01	FAIL ABUN
TH-229	2.791E-01	FAIL ABUN
PA-231	3.117E-01	NOT IDENT.
TH-231	3.718E-01	NOT IDENT.
TH-232	1.595E-01	FAIL ABUN
PA-233	3.471E-02	NOT IDENT.
PA-234	1.683E-01	FAIL ABUN
PA-234M	2.103E+00	NOT IDENT.
TH-234	7.748E-01	FAIL ABUN
NP-237	3.471E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
U-238	7.748E-01	FAIL ABUN
NP-239	1.490E-01	NOT IDENT.
PU-239	2.097E+02	FAIL ABUN
AM-241	8.621E-02	NOT IDENT.
CM-243	6.211E-02	NOT IDENT.
BK-247	4.139E-02	NOT IDENT.
CM-247	2.232E-02	NOT IDENT.
CF-249	2.565E-02	NOT IDENT.
CF-251	6.787E-02	NOT IDENT.
ANH-511	3.870E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299006.CNF;1
Acquisition date : 30-JUL-2024 11:15:37 Sensitivity : 3.000
Detector ID : GAM19 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.45 Half life ratio : *****
Sample date : 26-JUN-2024 09:17:00 Nuclide Library : SOLID
Sample ID : G674299006 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.4998E+02 GRAM
Quantity Err(%) : 1.3335E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 4-DEC-2023 10:59:51 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM19_CAN.CNF;25

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	9.611E+00	1.523E+00	1.523E+00
CD-109	9.435E-01	1.143E+00	1.143E+00
SN-126	8.964E-02	1.085E-01	1.085E-01
BA-137M	3.559E-02	3.274E-02	3.274E-02
CS-137	3.760E-02	3.459E-02	3.459E-02
PR-144	6.955E+00	4.503E+00	4.503E+00
BI-207	1.489E-03	1.033E-01	1.033E-01
TL-208	8.662E-02	5.782E-02	5.782E-02
BI-211	8.982E-01	3.919E-01	3.919E-01
BI-212	3.483E-01	4.396E-01	4.396E-01
PB-212	3.159E-01	8.980E-02	8.980E-02
BI-213	1.398E-01	1.330E-01	1.330E-01
BI-214	3.191E-01	1.244E-01	1.244E-01
PB-214	3.260E-01	1.421E-01	1.421E-01
RN-222	3.191E-01	1.244E-01	1.244E-01
RA-224	1.417E+00	8.868E-01	8.868E-01
RA-226	3.260E-01	1.421E-01	1.421E-01
TH-228	3.159E-01	8.980E-02	8.980E-02
TH-230	3.260E-01	1.421E-01	1.421E-01
U-234	3.260E-01	1.421E-01	1.421E-01
U-235	9.829E-03	1.310E-01	1.310E-01
AM-243	7.494E-02	6.489E-02	6.489E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.471E-01	2.939E-01	3.013E-01	NOT IDENT.
NA-22	1.417E-03	2.320E-02	2.321E-02	NOT IDENT.
NA-24	6.675E+13	6.457E+14	6.464E+14	SHORT HLIF
AL-26	-5.303E-03	1.713E-02	1.729E-02	NOT IDENT.
SC-46	-2.752E-02	3.058E-02	3.300E-02	FAIL ABUN
V-48	-4.320E-02	1.123E-01	1.139E-01	NOT IDENT.
CR-51	-1.398E-01	4.165E-01	4.213E-01	NOT IDENT.
MN-52	-6.616E-01	1.242E+00	1.277E+00	NOT IDENT.

MN-54	-2.579E-02	3.219E-02	3.423E-02	NOT IDENT.
CO-56	-1.494E-02	4.628E-02	4.676E-02	FAIL ABUN
MN-56	-1.000E+41	3.067E+41	0.000E+00	SHORT HLIF
CO-57	-3.028E-03	1.677E-02	1.682E-02	NOT IDENT.
CO-58	-2.773E-02	3.561E-02	3.774E-02	NOT IDENT.
FE-59	1.621E-03	8.443E-02	8.443E-02	NOT IDENT.
CO-60	-8.730E-03	2.538E-02	2.568E-02	NOT IDENT.
ZN-65	-2.578E-02	5.958E-02	6.071E-02	NOT IDENT.
GE-68	-4.027E-01	8.279E-01	8.476E-01	NOT IDENT.
AS-73	4.931E-02	5.663E-01	5.667E-01	NOT IDENT.
AS-74	2.023E-02	1.422E-01	1.425E-01	NOT IDENT.
SE-75	-3.148E-02	3.702E-02	3.964E-02	NOT IDENT.
BR-77	1.244E+04	1.274E+04	1.392E+04	SHORT HLIF
SR-82	-1.966E-01	3.763E-01	3.866E-01	NOT IDENT.
RB-83	-2.545E-02	5.947E-02	6.057E-02	NOT IDENT.
RB-84	3.798E-03	5.555E-02	5.557E-02	NOT IDENT.
KR-85	-1.123E+01	7.668E+00	9.188E+00	NOT IDENT.
SR-85	-7.276E-02	4.960E-02	5.947E-02	NOT IDENT.
RB-86	-8.397E-01	1.084E+00	1.148E+00	NOT IDENT.
Y-88	-2.800E-04	1.762E-02	1.763E-02	NOT IDENT.
Y-91	-8.128E+00	1.873E+01	1.908E+01	NOT IDENT.
NB-94	-1.422E-02	2.554E-02	2.633E-02	NOT IDENT.
NB-95	-2.561E-02	3.762E-02	3.935E-02	NOT IDENT.
NB-95M	-8.599E-02	1.219E-01	1.280E-01	NOT IDENT.
ZR-95	-2.976E-02	5.785E-02	5.939E-02	NOT IDENT.
NB-97	1.000E+41	5.413E+40	0.000E+00	SHORT HLIF
ZR-97	-2.004E+14	1.799E+14	2.013E+14	SHORT HLIF
MO-99	-7.477E+02	9.962E+02	1.052E+03	SHORT HLIF
TC-99M	-1.981E+38	1.297E+39	0.000E+00	SHORT HLIF
RH-101	-2.360E-03	1.931E-02	1.934E-02	NOT IDENT.
RH-102	-1.816E-02	3.846E-02	3.932E-02	FAIL ABUN
RU-103	1.635E-02	3.763E-02	3.834E-02	FAIL ABUN
RH-106	1.311E-01	2.104E-01	2.185E-01	NOT IDENT.
RU-106	1.311E-01	2.104E-01	2.185E-01	NOT IDENT.
AG-108M	3.907E-03	2.189E-02	2.196E-02	NOT IDENT.
AG-110	2.097E-01	4.924E-01	5.014E-01	NOT IDENT.
AG-110M	8.906E-04	2.631E-02	2.632E-02	NOT IDENT.
SN-113	-2.525E-02	3.724E-02	3.894E-02	NOT IDENT.
CD-115	-8.447E+02	3.036E+03	3.060E+03	SHORT HLIF
SN-117M	-7.641E-03	1.035E-01	1.035E-01	NOT IDENT.
SB-122	-4.255E+01	1.591E+02	1.603E+02	SHORT HLIF
TE-123M	1.330E-02	2.182E-02	2.263E-02	NOT IDENT.
SB-124	2.883E-02	7.078E-02	7.196E-02	NOT IDENT.
SB-125	-3.536E-02	6.067E-02	6.273E-02	NOT IDENT.
TE-125M	-3.511E+00	6.982E+00	7.159E+00	NOT IDENT.
I-126	-1.268E-01	3.922E-01	3.963E-01	NOT IDENT.
SB-126	-2.763E-02	3.161E-01	3.163E-01	FAIL ABUN
SB-127	-3.884E+01	2.738E+01	3.250E+01	NOT IDENT.
I-131	-1.698E-01	4.089E-01	4.160E-01	NOT IDENT.
I-132	-1.000E+41	4.415E+41	0.000E+00	SHORT HLIF
TE-132	-1.324E+01	3.304E+01	3.357E+01	SHORT HLIF
BA-133	-1.416E-02	3.005E-02	3.072E-02	NOT IDENT.
I-133	4.793E+09	1.640E+10	1.654E+10	SHORT HLIF
CS-134	3.931E-02	3.138E-02	3.604E-02	FAIL ABUN
I-135	1.707E+35	2.563E+36	0.000E+00	SHORT HLIF
CS-136	1.735E-01	2.103E-01	2.244E-01	NOT IDENT.
LA-138	-1.820E-02	2.718E-02	2.839E-02	NOT IDENT.
CE-139	6.098E-03	2.037E-02	2.055E-02	NOT IDENT.
BA-140	-1.028E-01	4.930E-01	4.952E-01	NOT IDENT.
LA-140	-1.244E-01	1.865E-01	1.948E-01	NOT IDENT.
CE-141	-2.034E-02	6.268E-02	6.335E-02	NOT IDENT.
CE-143	2.273E+05	1.261E+06	1.265E+06	SHORT HLIF
CE-144	-1.986E-02	1.403E-01	1.405E-01	NOT IDENT.
PM-144	9.201E-02	5.958E-02	7.260E-02	FAIL ABUN
PM-146	2.131E-02	3.362E-02	3.496E-02	NOT IDENT.
ND-147	7.765E-01	1.367E+00	1.412E+00	NOT IDENT.
PM-147	2.178E+02	4.756E+02	4.857E+02	NOT IDENT.
PM-149	3.191E+04	2.400E+04	2.798E+04	SHORT HLIF
EU-150	5.733E-03	1.901E-02	1.918E-02	FAIL ABUN
EU-152	-1.944E-03	6.641E-02	6.641E-02	NOT IDENT.
GD-153	3.082E-02	5.367E-02	5.544E-02	NOT IDENT.
EU-154	3.980E-03	6.511E-02	6.514E-02	NOT IDENT.
EU-155	9.609E-05	6.587E-02	6.587E-02	FAIL ABUN
TB-160	4.805E-02	8.930E-02	9.189E-02	FAIL ABUN
HO-166M	1.495E-02	4.438E-02	4.489E-02	FAIL ABUN
TM-171	2.751E+00	1.036E+01	1.043E+01	NOT IDENT.
HF-172	1.276E-01	1.157E-01	1.292E-01	NOT IDENT.
LU-172	2.102E-02	4.635E-02	4.731E-02	FAIL ABUN

LU-176	-5.945E-03	1.783E-02	1.803E-02	FAIL ABUN
HF-181	-2.900E-02	3.778E-02	3.998E-02	NOT IDENT.
TA-182	9.951E-02	1.713E-01	1.771E-01	FAIL ABUN
RE-183	-1.293E-01	1.416E-01	1.532E-01	NOT IDENT.
RE-184	4.805E-02	1.388E-01	1.404E-01	NOT IDENT.
W-188	-1.310E+00	6.435E+00	6.462E+00	NOT IDENT.
IR-192	-3.040E-02	3.014E-02	3.311E-02	FAIL ABUN
HG-203	3.289E-02	3.791E-02	4.070E-02	NOT IDENT.
TL-204	-3.897E+00	2.952E+00	3.435E+00	NOT IDENT.
BI-210	-3.861E-01	2.016E+00	2.023E+00	NOT IDENT.
PB-210	-3.861E-01	2.016E+00	2.023E+00	NOT IDENT.
PB-211	-7.309E-02	4.833E-01	4.845E-01	NOT IDENT.
RN-219	3.592E-02	2.514E-01	2.519E-01	NOT IDENT.
RA-223	-1.663E-02	4.092E-01	4.093E-01	NOT IDENT.
AC-225	-1.255E+00	1.532E+00	1.633E+00	NOT IDENT.
AC-227	1.110E-01	1.967E-01	2.030E-01	NOT IDENT.
TH-227	1.110E-01	1.967E-01	2.030E-01	NOT IDENT.
AC-228	2.340E-01	1.983E-01	2.246E-01	FAIL ABUN
RA-228	2.340E-01	1.983E-01	2.246E-01	FAIL ABUN
TH-229	-1.099E-01	3.390E-01	3.426E-01	FAIL ABUN
PA-231	2.178E-01	3.475E-01	3.611E-01	NOT IDENT.
TH-231	-1.663E-02	4.092E-01	4.093E-01	NOT IDENT.
TH-232	2.340E-01	1.983E-01	2.246E-01	FAIL ABUN
PA-233	-1.850E-02	4.525E-02	4.601E-02	NOT IDENT.
PA-234	1.263E-01	2.214E-01	2.286E-01	FAIL ABUN
PA-234M	-2.277E+00	3.153E+00	3.316E+00	NOT IDENT.
TH-234	9.651E-02	8.170E-01	8.182E-01	FAIL ABUN
NP-237	-1.850E-02	4.525E-02	4.601E-02	NOT IDENT.
NP-238	-1.673E+03	6.834E+03	6.875E+03	SHORT HLIF
U-238	9.651E-02	8.170E-01	8.182E-01	FAIL ABUN
NP-239	2.498E-02	1.644E-01	1.648E-01	NOT IDENT.
PU-239	4.016E+02	5.085E+02	5.398E+02	FAIL ABUN
AM-241	8.651E-02	8.439E-02	9.297E-02	NOT IDENT.
CM-243	4.762E-02	6.441E-02	6.789E-02	NOT IDENT.
BK-247	-2.889E-02	5.441E-02	5.594E-02	NOT IDENT.
CM-247	-5.034E-03	2.558E-02	2.569E-02	NOT IDENT.
CF-249	-3.122E-03	2.890E-02	2.894E-02	NOT IDENT.
CF-251	-7.077E-02	8.772E-02	9.334E-02	NOT IDENT.
ANH-511	-2.781E-02	3.818E-02	4.019E-02	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	36.6007	85.43	46.0634	131.20	33.6997
45.60	29.6282	86.55	46.1570	133.02	33.7832
46.54	28.8036	86.79	46.1767	133.52	42.2577
49.72	0.0000	86.94	46.1896	136.00	37.0988
51.35	27.3441	87.09	46.2022	136.47	36.0617
51.87	23.7292	87.57	46.2420	140.51	0.0000
52.39	31.0710	88.03	46.2800	143.76	36.4072
52.97	32.0310	88.34	46.3054	144.24	47.1448
53.44	32.9845	88.47	46.3162	145.44	50.4366
54.07	34.8709	89.96	46.4388	152.43	46.5510
57.36	0.0000	1093.63	46.4944	153.25	42.2629
57.53	38.8631	91.11	46.5324	323.87	60.7570
57.98	48.1668	92.59	46.6525	156.02	44.5810
59.27	27.8720	93.35	46.7135	158.56	51.2628
59.32	27.8752	94.56	46.8107	159.00	40.3767
59.54	27.8894	94.65	46.8178	162.33	40.5376
60.96	47.5660	94.67	46.8193	162.66	39.4574
61.17	56.9197	94.87	39.8599	163.33	44.9733
62.93	30.9145	97.43	33.3603	165.86	34.1049
63.29	41.2521	98.43	52.1285	176.31	36.7408
63.58	41.2785	98.44	52.1297	176.60	43.4346
64.28	58.2550	99.53	33.1420	177.52	47.9387
66.73	38.7284	100.11	39.2050	181.07	0.0000
67.24	50.1181	102.03	53.4460	181.52	38.8191
125.81	55.8441	103.18	39.4011	184.41	37.0696
67.75	49.2257	103.37	35.3709	143.76	37.1220
68.89	31.3147	105.21	44.5972	193.51	38.5644
69.67	32.3162	105.31	44.6042	197.03	44.3981
70.82	50.8126	106.12	40.6015	198.01	52.4196
70.83	50.8138	106.47	34.5302	201.83	47.2865
72.81	31.8873	109.28	41.8227	203.43	33.6123
72.87	31.8911	111.00	39.8882	205.31	41.3300
74.66	50.8893	111.76	0.0000	210.85	28.8597
74.82	50.9054	114.06	48.2941	215.65	22.0366
74.97	50.9208	116.30	0.0000	218.12	43.0161
77.11	51.1355	116.74	40.2345	222.11	26.8419
78.74	51.2972	119.76	47.6670	227.09	30.4854
79.69	51.3907	121.12	40.4931	227.38	34.0123
80.03	43.9848	121.22	38.4222	228.16	0.0000
80.12	43.9928	121.78	43.6496	228.18	44.6014
80.19	43.9986	122.06	43.6672	116.74	44.6014
80.57	41.4404	122.92	37.4752	235.69	50.4258
81.00	41.4740	123.07	37.4832	235.96	50.4382
81.07	41.4795	265.00	45.8527	238.63	31.9953
81.75	50.6178	125.81	23.6925	238.98	0.0000
82.47	52.6359	127.23	34.9113	240.99	32.0633
83.79	40.3879	127.91	42.9818	242.00	32.0922
84.00	40.4034	129.30	43.0645	244.70	41.3042

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	29.9881	344.28	25.7526	563.25	12.6419
252.80	23.9987	345.93	22.3443	564.24	0.0000
254.15	0.0000	351.06	22.4231	569.33	17.5547
256.23	32.4943	351.93	22.4363	946.00	17.5562
260.90	0.0000	355.39	0.0000	569.70	17.5576
264.66	38.7881	356.01	24.6621	583.19	11.7793
264.80	38.7920	364.49	26.1072	584.27	11.7852
265.00	30.3116	366.42	0.0000	595.83	15.7975
269.46	21.9056	372.51	16.6223	427.87	17.8110
270.03	36.5263	375.05	35.4902	602.52	0.0000
271.23	35.3438	377.52	19.3095	604.72	11.8960
273.65	25.6444	356.01	26.4380	607.14	13.3978
276.40	39.1650	388.16	25.6269	609.32	13.4110
277.37	37.9714	388.63	25.6346	610.33	19.3802
277.60	34.3027	391.69	30.9981	614.28	15.9297
278.00	29.4119	264.66	17.8121	618.01	18.9482
279.20	25.7604	401.81	16.9335	620.36	18.9675
279.54	26.9944	402.40	23.1806	621.93	8.9908
279.70	26.9978	404.85	22.3226	630.19	0.0000
280.46	35.6101	410.95	24.1985	631.29	16.0495
283.69	25.8533	413.71	16.1591	633.25	8.0319
284.31	30.7930	414.70	19.7620	634.78	15.0696
285.41	20.9574	423.72	13.5468	635.95	19.0982
285.90	0.0000	427.09	23.5281	636.99	18.1011
287.50	23.4618	427.87	21.7280	657.50	7.6086
290.67	26.4089	433.94	16.3539	657.76	3.0438
293.27	0.0000	439.40	20.5074	657.90	0.0000
351.93	26.0885	440.45	16.4158	661.66	11.1790
295.96	26.1032	453.88	20.2172	664.57	0.0000
879.38	29.8923	463.37	13.8577	666.33	12.2192
299.98	21.6122	468.07	20.3775	666.50	12.2202
300.09	21.6138	473.00	19.5038	667.71	0.0000
300.13	21.6148	475.06	19.5256	677.62	12.2769
301.36	23.7152	476.78	16.7520	685.70	18.4761
302.85	34.9880	477.60	15.8282	692.65	0.0000
256.23	23.3550	482.18	18.6674	695.00	11.3339
304.85	23.3607	487.02	18.7158	696.49	11.3406
306.78	30.0791	492.35	0.0000	696.51	11.3411
308.46	29.2806	497.08	12.4185	697.00	11.3433
311.90	26.4205	505.52	14.1742	697.30	11.3446
316.51	31.5598	507.63	0.0000	697.49	11.3455
319.41	19.3978	511.00	25.5858	702.65	15.5029
320.08	31.2210	514.00	60.7396	706.68	11.3872
321.04	32.9316	514.00	60.7422	711.68	12.4473
323.87	24.5378	520.40	19.9960	720.70	15.6146
325.23	29.6438	520.69	0.0000	721.93	0.0000
328.76	29.7192	522.65	0.0000	722.78	9.3765
333.37	32.3725	527.90	0.0000	722.91	10.9401
333.97	26.4199	528.26	17.2075	723.31	10.9418
334.37	28.9849	529.59	15.3053	724.19	14.0729
338.28	25.6458	529.87	0.0000	727.33	12.5244
338.32	25.6464	531.02	14.3591	733.00	12.5522
311.90	33.3903	537.26	15.3639	735.93	9.4248
340.48	33.3903	546.56	0.0000	333.97	13.6215
340.55	35.9604	552.55	15.4792	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	9.4552	949.00	12.4099	1384.29	7.6147
747.24	12.6216	667.71	0.0000	1408.01	2.8713
748.06	13.6776	962.31	12.2357	1434.09	2.8883
752.31	14.7537	964.08	11.9022	1435.80	3.8528
753.82	5.2722	966.17	8.5074	1457.56	0.0000
756.73	12.6670	911.20	11.3529	1460.82	4.8431
756.80	12.6675	983.53	10.2638	1489.16	5.8480
884.68	11.6432	984.45	0.0000	1505.03	3.9124
765.81	18.0065	1274.44	9.1592	1584.12	2.9841
766.42	22.2484	1001.03	10.3187	1596.21	6.9803
766.84	19.0730	1002.74	2.2943	1620.50	4.0088
772.60	0.0000	1004.73	9.1826	1621.92	3.0075
776.52	12.7617	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	2.0330
778.90	9.5797	1028.54	0.0000	1750.46	0.0000
783.70	10.6628	1037.84	2.3185	1764.49	4.9494
788.74	12.8193	1038.76	0.0000	1063.66	1.6516
792.07	17.1133	631.29	12.7841	1771.35	1.6520
795.86	6.4263	1048.07	5.8138	1791.20	0.0000
810.06	13.9955	1049.04	9.3047	1808.65	2.0795
810.29	17.2266	1050.41	5.8175	1810.72	0.0000
344.28	17.2279	1063.66	11.3877	1836.06	1.0450
810.76	16.1523	1077.00	12.3115		
815.77	16.1816	1077.34	9.6740		
1048.07	8.0988	1085.87	7.9343		
832.01	13.0200	1093.63	7.9519		
834.85	20.6359	1099.45	9.7351		
835.71	13.0371	1112.07	6.2169		
836.80	0.0000	1112.84	7.1064		
846.75	0.0000	1115.54	8.5342		
846.77	17.9952	1120.29	10.6816		
856.80	9.8496	1120.55	10.6824		
860.56	10.9583	1221.41	10.6846		
871.09	6.5984	1129.67	8.0321		
873.19	15.4076	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	4.4113	1173.23	9.0308		
880.51	8.8262	1177.95	9.0417		
881.60	5.5184	1189.05	14.5098		
883.24	9.9386	1204.77	10.1992		
884.68	3.3145	1221.41	8.7797		
889.28	12.1713	1231.02	11.9185		
894.76	15.5193	1235.36	7.3428		
898.04	9.9877	1238.28	9.1852		
900.72	17.7715	1260.41	0.0000		
903.28	10.0049	1271.87	3.7056		
911.20	8.9163	1274.44	4.6347		
912.08	6.6892	1274.54	4.6350		
923.98	0.0000	1291.59	3.7236		
926.50	8.9609	1298.22	0.0000		
929.11	8.9684	1312.11	6.5493		
935.54	6.7402	1332.49	6.5817		
937.49	5.6203	1362.66	0.0000		
944.13	9.0117	1365.19	5.6854		
946.00	3.3813	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:19:25.33

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299007.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM20.CNF;970
Background date    : 28-JUL-2024 11:27:01
Sample date       : 26-JUN-2024 09:20:00 Acquisition date : 30-JUL-2024 11:16:04
Sample ID        : G674299007 Sample quantity : 1.00470E+02 GRAM
Detector name     : GAM20 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:13.81 0.4%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.56*	3	87	2.25	61.22	57	9	8.32E-04	582.3	
2	0	46.46*	31	94	1.43	92.99	88	12	8.67E-03	66.6	
3	0	63.77*	29	85	0.95	127.57	124	8	7.98E-03	63.1	
4	2	74.88*	71	88	1.26	149.78	142	23	1.97E-02	27.4	1.43E+00
5	2	77.21	155	67	1.18	154.43	142	23	4.32E-02	12.4	
6	2	79.72	28	67	1.27	159.44	142	23	7.65E-03	60.4	
7	0	87.43	41	68	0.93	174.86	172	6	1.13E-02	35.9	
8	2	92.78*	57	69	1.07	185.55	181	11	1.59E-02	29.7	2.04E+00
9	2	94.53	23	28	1.13	189.04	181	11	6.30E-03	49.7	
10	0	112.72	25	45	1.01	225.38	222	7	6.92E-03	49.1	
11	7	115.63	19	17	1.58	231.21	229	11	5.24E-03	33.2	2.60E+00
12	7	118.48	14	22	1.43	236.90	229	11	3.95E-03	58.1	
13	3	185.71*	79	46	1.47	371.25	367	16	2.20E-02	20.8	2.88E+00
14	3	188.49	23	47	1.63	376.81	367	16	6.49E-03	66.8	
15	0	197.39*	25	39	1.56	394.58	390	10	6.86E-03	55.7	
16	3	238.42*	106	44	1.40	476.59	471	17	2.94E-02	15.8	2.19E+00
17	3	241.64	46	58	1.37	483.02	471	17	1.27E-02	31.8	
18	0	270.01	30	42	1.33	539.72	534	11	8.47E-03	44.7	
19	0	295.21	118	36	1.35	590.10	584	12	3.28E-02	13.7	
20	0	308.59	32	18	2.96	616.83	611	14	8.91E-03	32.9	
21	0	328.29	10	28	1.44	656.20	652	8	2.78E-03	97.0	
22	0	338.15*	32	25	2.75	675.91	670	9	8.89E-03	34.9	
23	0	351.83*	184	52	1.58	703.26	697	15	5.10E-02	11.3	
24	0	402.17	20	40	4.82	803.90	791	20	5.56E-03	80.6	
25	0	407.25	12	16	2.10	814.05	810	9	3.33E-03	66.5	
26	0	451.10	15	12	1.43	901.72	896	10	4.08E-03	51.9	
27	3	463.24	14	16	1.99	925.99	918	29	3.96E-03	65.5	1.56E+00
28	3	470.38	21	13	2.00	940.25	918	29	5.94E-03	41.5	
29	0	511.03*	23	43	2.09	1021.53	1013	17	6.40E-03	80.5	
30	0	583.43	27	16	0.91	1166.29	1160	11	7.41E-03	35.2	
31	0	601.85	24	0	3.59	1203.13	1198	11	6.67E-03	20.4	
32	0	609.00*	149	7	1.66	1217.43	1210	13	4.15E-02	9.2	
33	0	661.35	9	17	1.95	1322.12	1318	9	2.57E-03	84.6	
34	0	664.46	10	5	0.87	1328.34	1326	6	2.78E-03	49.0	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	727.25	11	3	1.44	1453.91	1451	6	3.06E-03	39.1	
36	0	753.20	19	11	3.39	1505.82	1496	17	5.22E-03	48.8	
37	0	775.98	5	6	0.53	1551.38	1545	8	1.38E-03	96.8	
38	0	788.90	6	1	1.04	1577.23	1574	6	1.57E-03	53.9	
39	0	795.53	11	3	1.00	1590.48	1587	7	3.06E-03	40.8	
40	0	814.59	6	4	1.31	1628.61	1622	9	1.58E-03	78.7	
41	0	899.87	15	0	1.75	1799.20	1794	10	4.17E-03	25.8	
42	0	911.34*	28	7	1.19	1822.15	1815	14	7.91E-03	28.7	
43	0	981.87	9	1	0.64	1963.27	1960	7	2.37E-03	42.3	
44	0	1000.86*	3	5	0.55	2001.26	1997	7	7.69E-04	176.4	
45	0	1120.12	31	3	2.52	2239.91	2234	12	8.66E-03	21.0	
46	0	1239.08*	5	8	0.67	2478.00	2474	8	1.27E-03	121.1	
47	0	1290.58	7	4	0.91	2581.07	2577	7	1.88E-03	66.3	
48	0	1460.51*	31	3	3.09	2921.27	2915	12	8.63E-03	22.5	
49	0	1764.10	27	0	2.24	3529.30	3523	11	7.50E-03	19.2	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 30-JUL-2024 12:19:26

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299007.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:20:00	Acquisition date	: 30-JUL-2024 11:16:04
Sample ID	: G674299007	Sample quantity	: 100.47 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA20	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:13.81 0.4%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	29	10.66*	1.267E+00	1.606E+00	1.606E+00	44.97
SR-82	776.52	5	15.08*	2.234E+00	1.038E-01	2.637E-01	193.59
CD-109	88.03	40	3.70*	7.138E+00	1.132E+00	1.191E+00	71.81
SN-126	64.28	28	9.60	4.791E+00	4.596E-01	4.596E-01	126.21
	86.94	40	8.90	7.138E+00	4.704E-01	4.704E-01	71.81
	87.57	40	37.00*	7.138E+00	1.132E-01	1.132E-01	71.81
BA-137M	661.66	9	89.90*	2.572E+00	2.837E-02	2.844E-02	169.12
CS-137	661.66	9	85.10*	2.572E+00	2.998E-02	3.004E-02	169.12
TL-208	277.37	-----	6.60	4.980E+00	-----	Line Not Found	-----
	583.19	25	85.00*	2.859E+00	7.787E-02	7.787E-02	70.49
	860.56	-----	12.50	2.034E+00	-----	Line Not Found	-----
BI-210	46.54	31	4.25*	1.807E+00	3.005E+00	3.014E+00	133.25
PB-210	46.54	31	4.25*	1.807E+00	3.005E+00	3.014E+00	133.25
BI-211	72.87	-----	1.23	5.985E+00	-----	Line Not Found	-----
	351.06	176	12.92*	4.215E+00	2.412E+00	2.412E+00	22.52
BI-212	727.33	10	6.67*	2.367E+00	4.923E-01	4.923E-01	78.20
	1620.50	-----	1.47	1.174E+00	-----	Line Not Found	-----
PB-212	74.82	70	10.28	6.197E+00	8.181E-01	8.181E-01	54.73
	77.11	153	17.10	6.420E+00	1.039E+00	1.039E+00	24.74
	238.63	102	43.60*	5.511E+00	3.168E-01	3.168E-01	31.67
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
BI-214	609.32	142	45.49*	2.758E+00	8.431E-01	8.431E-01	18.48
	1120.29	29	14.92	1.594E+00	9.197E-01	9.197E-01	42.07
	1764.49	25	15.30	1.115E+00	1.102E+00	1.102E+00	38.49
PB-214	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.315E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
RN-219	271.23	29	10.80	5.072E+00	4.001E-01	4.001E-01	89.32
	401.81	19	6.60*	3.823E+00	5.659E-01	5.659E-01	161.25
RN-222	609.32	142	45.49*	2.758E+00	8.431E-01	8.431E-01	18.48
	1120.29	29	14.92	1.594E+00	9.197E-01	9.197E-01	42.07
	1764.49	25	15.30	1.115E+00	1.102E+00	1.102E+00	38.49
RA-224	240.99	44	4.10*	5.463E+00	1.470E+00	1.470E+00	63.67
RA-226	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.315E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
TH-228	74.82	70	10.28	6.197E+00	8.181E-01	8.181E-01	54.73
	77.11	153	17.10	6.420E+00	1.039E+00	1.039E+00	24.74
	238.63	102	43.60*	5.511E+00	3.168E-01	3.168E-01	31.67
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
TH-230	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	242.00	44	7.25	5.463E+00	8.314E-01	8.314E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
TH-234	63.29	28	3.70*	4.791E+00	1.192E+00	1.192E+00	126.21
	92.59	56	4.23	7.371E+00	1.343E+00	1.343E+00	59.30
U-234	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.314E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
U-238	63.29	28	3.70*	4.791E+00	1.192E+00	1.192E+00	126.21
	92.59	56	4.23	7.371E+00	1.343E+00	1.343E+00	59.30
AM-243	43.53	-----	5.90	1.338E+00	-----	Line Not Found	-----
	74.66	70	67.20*	6.197E+00	1.252E-01	1.252E-01	54.73
CM-247	278.00	-----	3.40	4.972E+00	-----	Line Not Found	-----
	287.50	-----	2.00	4.858E+00	-----	Line Not Found	-----
	402.40	19	72.00*	3.823E+00	5.187E-02	5.187E-02	161.25
ANH-511	511.00	22	100.00*	3.182E+00	5.146E-02	5.146E-02	161.09

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299007.CNF;1
Acquisition date : 30-JUL-2024 11:16:04 Sensitivity : 3.000
Detector ID : GAM20 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:13.81 Half life ratio : *****
Sample date : 26-JUN-2024 09:20:00 Analyst initials: RXF2
Sample ID : G674299007 Sample Quantity : 1.0047E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.606E+00	7.079E-01	5.996E-01
SR-82	2.637E-01	5.003E-01	7.431E-01
CD-109	1.191E+00	8.382E-01	1.243E+00
SN-126	1.132E-01	7.964E-02	1.196E-01
BA-137M	2.844E-02	4.713E-02	6.301E-02
CS-137	3.004E-02	4.979E-02	6.657E-02
TL-208	7.787E-02	5.379E-02	4.410E-02
BI-210	3.014E+00	3.936E+00	2.938E+00
PB-210	3.014E+00	3.936E+00	2.938E+00
BI-211	2.412E+00	5.321E-01	3.369E-01
BI-212	4.923E-01	3.773E-01	7.409E-01
PB-212	3.168E-01	9.834E-02	9.166E-02
BI-214	8.431E-01	1.527E-01	1.370E-01
PB-214	8.752E-01	1.931E-01	1.225E-01
RN-219	5.659E-01	8.942E-01	5.735E-01
RN-222	8.431E-01	1.527E-01	1.370E-01
RA-224	1.470E+00	9.174E-01	9.819E-01
RA-226	8.752E-01	1.931E-01	1.225E-01
TH-228	3.168E-01	9.834E-02	9.166E-02
TH-230	8.752E-01	1.931E-01	1.225E-01
TH-234	1.192E+00	1.475E+00	1.579E+00
U-234	8.752E-01	1.931E-01	1.225E-01
U-238	1.192E+00	1.475E+00	1.579E+00
AM-243	1.252E-01	6.713E-02	6.411E-02
CM-247	5.187E-02	8.197E-02	5.264E-02
ANH-511	5.146E-02	8.124E-02	5.160E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	9.944E-02	3.641E-01	7.249E-01	NOT IDENT.
NA-22	2.957E-02	4.159E-02	9.509E-02	NOT IDENT.
NA-24	0.000E+00	5.923E+14	0.000E+00	SHORT HLIF
AL-26	-9.209E-03	3.199E-02	6.265E-02	NOT IDENT.

SC-46	1.447E-02	3.554E-02	8.008E-02	FAIL ABUN
V-48	1.570E-01	1.427E-01	3.356E-01	NOT IDENT.
CR-51	-2.284E-02	5.535E-01	1.047E+00	NOT IDENT.
MN-52	8.303E-01	2.777E+00	6.026E+00	NOT IDENT.
MN-54	-2.085E-02	3.176E-02	5.706E-02	NOT IDENT.
CO-56	-2.190E-02	3.987E-02	7.336E-02	FAIL ABUN
MN-56	0.000E+00	1.352E+41	0.000E+00	SHORT HLIF
CO-57	1.142E-02	2.108E-02	3.993E-02	NOT IDENT.
CO-58	1.139E-02	2.551E-02	5.866E-02	NOT IDENT.
FE-59	-1.519E-02	8.629E-02	1.749E-01	FAIL ABUN
CO-60	2.840E-03	3.549E-02	7.518E-02	NOT IDENT.
ZN-65	3.658E-02	8.711E-02	1.736E-01	NOT IDENT.
GE-68	-2.258E-01	1.016E+00	2.018E+00	NOT IDENT.
AS-73	4.122E-01	5.265E-01	1.049E+00	NOT IDENT.
AS-74	-5.476E-02	1.609E-01	2.897E-01	NOT IDENT.
SE-75	1.495E-03	3.994E-02	7.065E-02	NOT IDENT.
BR-77	0.000E+00	3.872E+03	0.000E+00	SHORT HLIF
RB-83	-4.250E-03	6.447E-02	1.241E-01	NOT IDENT.
RB-84	-1.849E-02	8.566E-02	1.696E-01	NOT IDENT.
KR-85	4.176E-01	7.686E+00	1.299E+01	NOT IDENT.
SR-85	2.617E-03	4.971E-02	8.399E-02	NOT IDENT.
RB-86	-5.581E-01	1.249E+00	2.336E+00	NOT IDENT.
Y-88	1.497E-02	4.305E-02	1.023E-01	NOT IDENT.
Y-91	-4.847E+00	1.785E+01	3.504E+01	NOT IDENT.
NB-94	6.720E-03	2.758E-02	5.549E-02	NOT IDENT.
NB-95	3.680E-03	5.744E-02	1.065E-01	NOT IDENT.
NB-95M	3.798E-03	1.291E-01	2.243E-01	NOT IDENT.
ZR-95	5.811E-03	5.365E-02	1.046E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.198E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.166E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.844E+39	0.000E+00	SHORT HLIF
RH-101	-1.138E-02	2.750E-02	4.636E-02	FAIL ABUN
RH-102	2.363E-02	5.184E-02	1.059E-01	NOT IDENT.
RU-103	-2.590E-02	4.880E-02	8.516E-02	FAIL ABUN
RH-106	1.261E-01	2.589E-01	5.495E-01	NOT IDENT.
RU-106	1.261E-01	2.589E-01	5.495E-01	NOT IDENT.
AG-108M	-2.679E-02	2.574E-02	4.101E-02	NOT IDENT.
AG-110	1.672E-01	6.143E-01	1.165E+00	NOT IDENT.
AG-110M	4.012E-02	4.629E-02	1.080E-01	NOT IDENT.
SN-113	3.384E-03	3.827E-02	7.535E-02	NOT IDENT.
CD-115	0.000E+00	3.417E+03	0.000E+00	SHORT HLIF
SN-117M	-3.139E-03	1.231E-01	2.156E-01	NOT IDENT.
SB-122	0.000E+00	2.130E+02	0.000E+00	SHORT HLIF
TE-123M	1.071E-02	2.622E-02	4.848E-02	NOT IDENT.
SB-124	-4.695E-02	1.044E-01	1.895E-01	NOT IDENT.
SB-125	-5.405E-02	8.995E-02	1.560E-01	FAIL ABUN
TE-125M	-4.773E+00	1.092E+01	1.688E+01	NOT IDENT.
I-126	-5.066E-01	6.360E-01	8.396E-01	FAIL ABUN
SB-126	-6.130E-02	3.839E-01	7.050E-01	NOT IDENT.
SB-127	-3.639E+00	3.114E+01	5.921E+01	NOT IDENT.
I-131	5.503E-02	4.720E-01	9.295E-01	FAIL ABUN
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	3.055E+01	0.000E+00	SHORT HLIF
BA-133	3.716E-02	4.276E-02	8.261E-02	FAIL ABUN
I-133	0.000E+00	1.759E+10	0.000E+00	SHORT HLIF
CS-134	4.289E-02	3.428E-02	8.185E-02	FAIL ABUN
I-135	0.000E+00	3.258E+36	0.000E+00	SHORT HLIF
CS-136	-5.373E-02	2.172E-01	4.306E-01	NOT IDENT.
LA-138	-2.315E-03	6.190E-02	1.279E-01	FAIL ABUN
CE-139	2.254E-02	3.183E-02	5.932E-02	NOT IDENT.
BA-140	3.674E-01	6.236E-01	1.321E+00	NOT IDENT.
LA-140	-2.694E-02	2.028E-01	4.251E-01	FAIL ABUN
CE-141	-3.676E-02	7.974E-02	1.328E-01	NOT IDENT.
CE-143	0.000E+00	1.435E+06	0.000E+00	SHORT HLIF
CE-144	6.685E-03	1.766E-01	3.134E-01	FAIL ABUN
PM-144	3.623E-03	3.315E-02	6.378E-02	NOT IDENT.
PR-144	2.738E-01	2.506E+00	4.821E+00	NOT IDENT.
PM-146	3.175E-03	3.612E-02	6.426E-02	NOT IDENT.
ND-147	6.106E-01	1.417E+00	2.988E+00	NOT IDENT.
PM-147	-6.687E+01	6.213E+02	1.009E+03	NOT IDENT.
PM-149	0.000E+00	3.199E+04	0.000E+00	SHORT HLIF
EU-150	-1.412E-02	2.581E-02	4.014E-02	FAIL ABUN
EU-152	-5.301E-02	7.825E-02	1.366E-01	NOT IDENT.
GD-153	-7.808E-03	6.577E-02	1.111E-01	NOT IDENT.
EU-154	7.993E-02	1.159E-01	2.647E-01	NOT IDENT.
EU-155	-3.636E-02	8.590E-02	1.462E-01	FAIL ABUN
TB-160	-1.759E-02	1.273E-01	2.574E-01	FAIL ABUN

HO-166M	-2.320E-02	5.262E-02	9.135E-02	FAIL ABUN
TM-171	-7.245E+00	1.000E+01	1.699E+01	NOT IDENT.
HF-172	1.041E-01	1.602E-01	3.042E-01	FAIL ABUN
LU-172	5.169E-03	5.078E-02	1.082E-01	FAIL ABUN
LU-176	6.458E-03	1.935E-02	3.944E-02	FAIL ABUN
HF-181	6.632E-03	5.017E-02	9.871E-02	NOT IDENT.
TA-182	-7.001E-02	1.334E-01	2.426E-01	FAIL ABUN
RE-183	-1.561E-02	1.432E-01	2.587E-01	NOT IDENT.
RE-184	-2.695E-02	1.708E-01	2.973E-01	NOT IDENT.
W-188	-5.415E-01	6.938E+00	1.201E+01	FAIL ABUN
IR-192	-2.246E-02	3.413E-02	6.009E-02	FAIL ABUN
HG-203	-1.613E-02	4.650E-02	8.516E-02	NOT IDENT.
TL-204	1.403E+00	3.548E+00	6.174E+00	FAIL ABUN
BI-207	-3.953E-03	3.784E-02	7.810E-02	FAIL ABUN
PB-211	8.390E-01	4.093E-01	1.106E+00	NOT IDENT.
BI-213	-3.268E-02	8.540E-02	1.547E-01	NOT IDENT.
RA-223	4.830E-03	6.112E-01	1.052E+00	FAIL ABUN
AC-225	-1.333E+00	1.689E+00	2.990E+00	NOT IDENT.
AC-227	1.133E-02	2.161E-01	4.165E-01	FAIL ABUN
TH-227	1.133E-02	2.161E-01	4.165E-01	FAIL ABUN
AC-228	4.025E-01	2.263E-01	4.443E-01	FAIL ABUN
RA-228	4.025E-01	2.263E-01	4.443E-01	FAIL ABUN
TH-229	3.045E-01	6.034E-01	9.186E-01	FAIL ABUN
PA-231	-2.792E-02	4.467E-01	8.403E-01	NOT IDENT.
TH-231	4.830E-03	6.112E-01	1.052E+00	FAIL ABUN
TH-232	4.025E-01	2.263E-01	4.443E-01	FAIL ABUN
PA-233	-7.151E-03	5.243E-02	8.968E-02	NOT IDENT.
PA-234	-2.421E-02	2.216E-01	4.565E-01	FAIL ABUN
PA-234M	1.310E+00	4.529E+00	9.329E+00	FAIL ABUN
U-235	9.843E-02	1.839E-01	3.398E-01	FAIL ABUN
NP-237	-7.151E-03	5.243E-02	8.968E-02	FAIL ABUN
NP-238	0.000E+00	9.023E+03	0.000E+00	SHORT HLIF
NP-239	2.263E-01	1.473E-01	3.820E-01	FAIL ABUN
PU-239	9.339E+01	3.024E+02	5.493E+02	NOT IDENT.
AM-241	1.831E-02	9.560E-02	1.769E-01	NOT IDENT.
CM-243	2.477E-02	7.820E-02	1.458E-01	NOT IDENT.
BK-247	-4.850E-03	6.551E-02	1.135E-01	FAIL ABUN
CF-249	-1.574E-02	3.547E-02	6.357E-02	NOT IDENT.
CF-251	-2.261E-02	1.180E-01	2.010E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	29	10.66*	1.267E+00	1.606E+00	1.606E+00	44.97
SR-82	776.52	5	15.08*	2.234E+00	1.038E-01	2.637E-01	193.59
CD-109	88.03	40	3.70*	7.138E+00	1.132E+00	1.191E+00	71.81
SN-126	64.28	28	9.60	4.791E+00	4.596E-01	4.596E-01	126.21
	86.94	40	8.90	7.138E+00	4.704E-01	4.704E-01	71.81
	87.57	40	37.00*	7.138E+00	1.132E-01	1.132E-01	71.81
BA-137M	661.66	9	89.90*	2.572E+00	2.837E-02	2.844E-02	169.12
CS-137	661.66	9	85.10*	2.572E+00	2.998E-02	3.004E-02	169.12
TL-208	277.37	-----	6.60	4.980E+00	-----	Line Not Found	-----
	583.19	25	85.00*	2.859E+00	7.787E-02	7.787E-02	70.49
	860.56	-----	12.50	2.034E+00	-----	Line Not Found	-----
BI-210	46.54	31	4.25*	1.807E+00	3.005E+00	3.014E+00	133.25
PB-210	46.54	31	4.25*	1.807E+00	3.005E+00	3.014E+00	133.25
BI-211	72.87	-----	1.23	5.985E+00	-----	Line Not Found	-----
	351.06	176	12.92*	4.215E+00	2.412E+00	2.412E+00	22.52
BI-212	727.33	10	6.67*	2.367E+00	4.923E-01	4.923E-01	78.20
	1620.50	-----	1.47	1.174E+00	-----	Line Not Found	-----
PB-212	74.82	70	10.28	6.197E+00	8.181E-01	8.181E-01	54.73
	77.11	153	17.10	6.420E+00	1.039E+00	1.039E+00	24.74
	238.63	102	43.60*	5.511E+00	3.168E-01	3.168E-01	31.67
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
BI-214	609.32	142	45.49*	2.758E+00	8.431E-01	8.431E-01	18.48
	1120.29	29	14.92	1.594E+00	9.197E-01	9.197E-01	42.07
	1764.49	25	15.30	1.115E+00	1.102E+00	1.102E+00	38.49
PB-214	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.315E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
RN-219	271.23	29	10.80	5.072E+00	4.001E-01	4.001E-01	89.32
	401.81	19	6.60*	3.823E+00	5.659E-01	5.659E-01	161.25
RN-222	609.32	142	45.49*	2.758E+00	8.431E-01	8.431E-01	18.48
	1120.29	29	14.92	1.594E+00	9.197E-01	9.197E-01	42.07
	1764.49	25	15.30	1.115E+00	1.102E+00	1.102E+00	38.49
RA-224	240.99	44	4.10*	5.463E+00	1.470E+00	1.470E+00	63.67
RA-226	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.315E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
TH-228	74.82	70	10.28	6.197E+00	8.181E-01	8.181E-01	54.73
	77.11	153	17.10	6.420E+00	1.039E+00	1.039E+00	24.74
	238.63	102	43.60*	5.511E+00	3.168E-01	3.168E-01	31.67
	300.09	-----	3.30	4.716E+00	-----	Line Not Found	-----
TH-230	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.314E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
TH-234	63.29	28	3.70*	4.791E+00	1.192E+00	1.192E+00	126.21
	92.59	56	4.23	7.371E+00	1.343E+00	1.343E+00	59.30
U-234	74.82	70	5.80	6.197E+00	1.450E+00	1.450E+00	54.73
	77.11	153	9.70	6.420E+00	1.831E+00	1.831E+00	24.74
	87.09	40	3.41	7.138E+00	1.228E+00	1.228E+00	71.81
	242.00	44	7.25	5.463E+00	8.314E-01	8.314E-01	63.67
	295.22	113	18.42	4.770E+00	9.640E-01	9.640E-01	27.42
	351.93	176	35.60*	4.215E+00	8.752E-01	8.752E-01	22.52
U-238	63.29	28	3.70*	4.791E+00	1.192E+00	1.192E+00	126.21
	92.59	56	4.23	7.371E+00	1.343E+00	1.343E+00	59.30
AM-243	43.53	-----	5.90	1.338E+00	-----	Line Not Found	-----
	74.66	70	67.20*	6.197E+00	1.252E-01	1.252E-01	54.73
CM-247	278.00	-----	3.40	4.972E+00	-----	Line Not Found	-----
	287.50	-----	2.00	4.858E+00	-----	Line Not Found	-----
	402.40	19	72.00*	3.823E+00	5.187E-02	5.187E-02	161.25
ANH-511	511.00	22	100.00*	3.182E+00	5.146E-02	5.146E-02	161.09

Flag: "*" = Keyline

Total number of lines in spectrum 49
Number of unidentified lines 6
Number of lines tentatively identified by NID 43 87.76%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.606E+00	1.606E+00	0.722E+00	44.97	
SR-82	25.35D	2.54	1.038E-01	2.637E-01	5.105E-01	193.59	
CD-109	461.40D	1.05	1.132E+00	1.191E+00	0.855E+00	71.81	
SN-126	2.30E+05Y	1.00	1.132E-01	1.132E-01	0.813E-01	71.81	
BA-137M	30.08Y	1.00	2.837E-02	2.844E-02	4.809E-02	169.12	
CS-137	30.08Y	1.00	2.998E-02	3.004E-02	5.080E-02	169.12	
TL-208	1.41E+10Y	1.00	7.787E-02	7.787E-02	5.488E-02	70.49	
BI-210	22.20Y	1.00	3.005E+00	3.014E+00	4.017E+00	133.25	
PB-210	22.20Y	1.00	3.005E+00	3.014E+00	4.017E+00	133.25	
BI-211	7.04E+08Y	1.00	2.412E+00	2.412E+00	0.543E+00	22.52	
BI-212	1.41E+10Y	1.00	4.923E-01	4.923E-01	3.850E-01	78.20	
PB-212	1.41E+10Y	1.00	3.168E-01	3.168E-01	1.003E-01	31.67	
BI-214	1600.00Y	1.00	8.431E-01	8.431E-01	1.558E-01	18.48	
PB-214	1600.00Y	1.00	8.752E-01	8.752E-01	1.971E-01	22.52	
RN-219	7.04E+08Y	1.00	5.659E-01	5.659E-01	9.124E-01	161.25	
RN-222	1600.00Y	1.00	8.431E-01	8.431E-01	1.558E-01	18.48	
RA-224	1.41E+10Y	1.00	1.470E+00	1.470E+00	0.936E+00	63.67	
RA-226	1600.00Y	1.00	8.752E-01	8.752E-01	1.971E-01	22.52	
TH-228	1.41E+10Y	1.00	3.168E-01	3.168E-01	1.003E-01	31.67	
TH-230	7.54E+04Y	1.00	8.752E-01	8.752E-01	1.971E-01	22.52	
TH-234	4.47E+09Y	1.00	1.192E+00	1.192E+00	1.505E+00	126.21	
U-234	2.45E+05Y	1.00	8.752E-01	8.752E-01	1.971E-01	22.52	
U-238	4.47E+09Y	1.00	1.192E+00	1.192E+00	1.505E+00	126.21	
AM-243	7370.00Y	1.00	1.252E-01	1.252E-01	0.685E-01	54.73	
CM-247	1.56E+07Y	1.00	5.187E-02	5.187E-02	8.364E-02	161.25	
ANH-511	1.00E+09Y	1.00	5.146E-02	5.146E-02	8.290E-02	161.09	

Total Activity : 2.248E+01 2.271E+01

Grand Total Activity : 2.248E+01 2.271E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.56	3	86	2.25	61.22	57	9	8.32E-04	****	1.14E-01	
2	79.72	27	66	1.27	159.44	142	23	7.65E-03	****	6.63E+00	T
2	94.53	22	27	1.13	189.04	181	11	6.30E-03	99.4	7.43E+00	T
0	112.72	24	44	1.01	225.38	222	7	6.92E-03	98.1	7.66E+00	T
7	115.63	18	16	1.58	231.21	229	11	5.24E-03	66.4	7.66E+00	T
7	118.48	14	21	1.43	236.90	229	11	3.95E-03	****	7.64E+00	T
3	185.71	77	44	1.47	371.25	367	16	2.20E-02	41.6	6.43E+00	T
3	188.49	23	45	1.63	376.81	367	16	6.49E-03	****	6.37E+00	
0	197.39	24	38	1.56	394.58	390	10	6.86E-03	****	6.21E+00	T
0	308.59	31	17	2.96	616.83	611	14	8.91E-03	65.8	4.63E+00	T
0	328.29	10	27	1.44	656.20	652	8	2.78E-03	****	4.43E+00	T
0	338.15	31	24	2.75	675.91	670	9	8.89E-03	69.9	4.34E+00	T
0	407.25	11	15	2.10	814.05	810	9	3.33E-03	****	3.79E+00	
0	451.10	14	12	1.43	901.72	896	10	4.08E-03	****	3.51E+00	
3	463.24	14	15	1.99	925.99	918	29	3.96E-03	****	3.44E+00	T
3	470.38	20	13	2.00	940.25	918	29	5.94E-03	83.1	3.40E+00	
0	601.85	23	0	3.59	1203.13	1198	11	6.67E-03	40.8	2.79E+00	T
0	664.46	9	5	0.87	1328.34	1326	6	2.78E-03	98.0	2.56E+00	T
0	753.20	18	11	3.39	1505.82	1496	17	5.22E-03	97.6	2.29E+00	T
0	788.90	5	1	1.04	1577.23	1574	6	1.57E-03	****	2.20E+00	T
0	795.53	10	3	1.00	1590.48	1587	7	3.06E-03	81.6	2.18E+00	T
0	814.59	5	4	1.31	1628.61	1622	9	1.58E-03	****	2.14E+00	T
0	899.87	14	0	1.75	1799.20	1794	10	4.17E-03	51.6	1.95E+00	T
0	911.34	27	7	1.19	1822.15	1815	14	7.91E-03	57.4	1.93E+00	T
0	981.87	8	1	0.64	1963.27	1960	7	2.37E-03	84.5	1.80E+00	
0	1000.86	3	5	0.55	2001.26	1997	7	7.69E-04	****	1.77E+00	T
0	1239.08	4	7	0.67	2478.00	2474	8	1.27E-03	****	1.45E+00	T
0	1290.58	6	4	0.91	2581.07	2577	7	1.88E-03	****	1.40E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299007.CNF;1 *
* Acquisition date : 30-JUL-2024 11:16:04 Sensitivity : 3.000 *
* Detector ID : GAM20 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:13.81 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:20:00 Nuclide Library : SOLID *
* Sample ID : G674299007 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.0047E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.256E-01
SR-82	2.958E-01
CD-109	5.819E-01
SN-126	5.599E-02
BA-137M	2.716E-02
CS-137	2.869E-02
TL-208	1.792E-02
BI-210	1.338E+00
PB-210	1.338E+00
BI-211	1.501E-01
BI-212	3.069E-01
PB-212	4.165E-02
BI-214	6.050E-02
PB-214	5.457E-02
RN-219	2.470E-01
RN-222	6.050E-02
RA-224	4.463E-01
RA-226	5.457E-02
TH-228	4.165E-02
TH-230	5.457E-02
TH-234	7.317E-01
U-234	5.457E-02
U-238	7.317E-01
AM-243	2.963E-02
CM-247	2.267E-02
ANH-511	2.265E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.178E-01	NOT IDENT.
NA-22	4.031E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.220E-02	NOT IDENT.
SC-46	3.331E-02	FAIL ABUN

V-48	1.433E-01	NOT IDENT.
CR-51	4.707E-01	NOT IDENT.
MN-52	2.479E+00	NOT IDENT.
MN-54	2.336E-02	NOT IDENT.
CO-56	3.008E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	1.828E-02	NOT IDENT.
CO-58	2.277E-02	NOT IDENT.
FE-59	6.886E-02	FAIL ABUN
CO-60	3.016E-02	NOT IDENT.
ZN-65	7.319E-02	NOT IDENT.
GE-68	8.034E-01	NOT IDENT.
AS-73	4.813E-01	NOT IDENT.
AS-74	1.219E-01	NOT IDENT.
SE-75	3.128E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
RB-83	5.268E-02	NOT IDENT.
RB-84	6.976E-02	NOT IDENT.
KR-85	5.761E+00	NOT IDENT.
SR-85	3.725E-02	NOT IDENT.
RB-86	9.184E-01	NOT IDENT.
Y-88	3.962E-02	NOT IDENT.
Y-91	1.365E+01	NOT IDENT.
NB-94	2.363E-02	NOT IDENT.
NB-95	4.681E-02	NOT IDENT.
NB-95M	1.016E-01	NOT IDENT.
ZR-95	4.060E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.118E-02	FAIL ABUN
RH-102	4.614E-02	NOT IDENT.
RU-103	3.639E-02	FAIL ABUN
RH-106	2.351E-01	NOT IDENT.
RU-106	2.351E-01	NOT IDENT.
AG-108M	1.743E-02	NOT IDENT.
AG-110	4.879E-01	NOT IDENT.
AG-110M	4.634E-02	NOT IDENT.
SN-113	3.281E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	9.835E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.215E-02	NOT IDENT.
SB-124	6.744E-02	NOT IDENT.
SB-125	6.855E-02	FAIL ABUN
TE-125M	7.705E+00	NOT IDENT.
I-126	3.456E-01	FAIL ABUN
SB-126	2.996E-01	NOT IDENT.
SB-127	2.453E+01	NOT IDENT.
I-131	4.078E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.741E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	3.539E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	1.707E-01	NOT IDENT.
LA-138	5.204E-02	FAIL ABUN
CE-139	2.748E-02	NOT IDENT.
BA-140	5.744E-01	NOT IDENT.
LA-140	1.560E-01	FAIL ABUN
CE-141	6.045E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.435E-01	FAIL ABUN
PM-144	2.752E-02	NOT IDENT.
PR-144	2.080E+00	NOT IDENT.
PM-146	2.766E-02	NOT IDENT.
ND-147	1.280E+00	NOT IDENT.
PM-147	4.572E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.767E-02	FAIL ABUN
EU-152	5.944E-02	NOT IDENT.
GD-153	5.047E-02	NOT IDENT.
EU-154	1.120E-01	NOT IDENT.
EU-155	6.676E-02	FAIL ABUN
TB-160	1.055E-01	FAIL ABUN
HO-166M	3.799E-02	FAIL ABUN

TM-171	7.718E+00	NOT IDENT.
HF-172	1.400E-01	FAIL ABUN
LU-172	4.399E-02	FAIL ABUN
LU-176	1.741E-02	FAIL ABUN
HF-181	4.282E-02	NOT IDENT.
TA-182	9.032E-02	FAIL ABUN
RE-183	1.187E-01	NOT IDENT.
RE-184	1.223E-01	NOT IDENT.
W-188	5.279E+00	FAIL ABUN
IR-192	2.636E-02	FAIL ABUN
HG-203	3.846E-02	NOT IDENT.
TL-204	2.862E+00	FAIL ABUN
BI-207	3.100E-02	FAIL ABUN
PB-211	4.834E-01	NOT IDENT.
BI-213	6.651E-02	NOT IDENT.
RA-223	4.697E-01	FAIL ABUN
AC-225	1.334E+00	NOT IDENT.
AC-227	1.881E-01	FAIL ABUN
TH-227	1.881E-01	FAIL ABUN
AC-228	2.021E-01	FAIL ABUN
RA-228	2.021E-01	FAIL ABUN
TH-229	4.231E-01	FAIL ABUN
PA-231	3.803E-01	NOT IDENT.
TH-231	4.697E-01	FAIL ABUN
TH-232	2.021E-01	FAIL ABUN
PA-233	3.916E-02	NOT IDENT.
PA-234	1.834E-01	FAIL ABUN
PA-234M	3.990E+00	FAIL ABUN
U-235	1.573E-01	FAIL ABUN
NP-237	3.916E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	1.745E-01	FAIL ABUN
PU-239	2.535E+02	NOT IDENT.
AM-241	8.163E-02	NOT IDENT.
CM-243	6.655E-02	NOT IDENT.
BK-247	5.024E-02	FAIL ABUN
CF-249	2.791E-02	NOT IDENT.
CF-251	9.171E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299007.CNF;1
Acquisition date : 30-JUL-2024 11:16:04 Sensitivity : 3.000
Detector ID : GAM20 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:13.81 Half life ratio : *****
Sample date : 26-JUN-2024 09:20:00 Nuclide Library : SOLID
Sample ID : G674299007 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0047E+02 GRAM
Quantity Err(%) : 1.9906E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 19-JUN-2024 07:41:41 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM20_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.606E+00	7.257E-01	7.257E-01
SR-82	2.637E-01	5.010E-01	5.010E-01
CD-109	1.191E+00	8.463E-01	8.463E-01
SN-126	1.132E-01	8.018E-02	8.018E-02
BA-137M	2.844E-02	4.720E-02	4.720E-02
CS-137	3.004E-02	4.986E-02	4.986E-02
TL-208	7.787E-02	5.422E-02	5.422E-02
BI-210	3.014E+00	3.946E+00	3.946E+00
PB-210	3.014E+00	3.946E+00	3.946E+00
BI-211	2.412E+00	5.690E-01	5.690E-01
BI-212	4.923E-01	3.803E-01	3.803E-01
PB-212	3.168E-01	1.021E-01	1.021E-01
BI-214	8.431E-01	1.698E-01	1.698E-01
PB-214	8.752E-01	2.060E-01	2.060E-01
RN-219	5.659E-01	8.979E-01	8.979E-01
RN-222	8.431E-01	1.698E-01	1.698E-01
RA-224	1.470E+00	9.263E-01	9.263E-01
RA-226	8.752E-01	2.060E-01	2.060E-01
TH-228	3.168E-01	1.021E-01	1.021E-01
TH-230	8.752E-01	2.060E-01	2.060E-01
TH-234	1.192E+00	1.499E+00	1.499E+00
U-234	8.752E-01	2.060E-01	2.060E-01
U-238	1.192E+00	1.499E+00	1.499E+00
AM-243	1.252E-01	6.778E-02	6.778E-02
CM-247	5.187E-02	8.251E-02	8.251E-02
ANH-511	5.146E-02	8.136E-02	8.136E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	9.944E-02	3.642E-01	3.669E-01	NOT IDENT.
NA-22	2.957E-02	4.168E-02	4.376E-02	NOT IDENT.
NA-24	-3.067E+14	5.932E+14	6.091E+14	SHORT HLIF
AL-26	-9.209E-03	3.200E-02	3.227E-02	NOT IDENT.

SC-46	1.447E-02	3.558E-02	3.617E-02	FAIL ABUN
V-48	1.570E-01	1.436E-01	1.601E-01	NOT IDENT.
CR-51	-2.284E-02	5.535E-01	5.536E-01	NOT IDENT.
MN-52	8.303E-01	2.778E+00	2.803E+00	NOT IDENT.
MN-54	-2.085E-02	3.183E-02	3.319E-02	NOT IDENT.
CO-56	-2.190E-02	3.994E-02	4.114E-02	FAIL ABUN
MN-56	-1.000E+41	1.356E+41	0.000E+00	SHORT HLIF
CO-57	1.142E-02	2.110E-02	2.172E-02	NOT IDENT.
CO-58	1.139E-02	2.554E-02	2.605E-02	NOT IDENT.
FE-59	-1.519E-02	8.630E-02	8.657E-02	FAIL ABUN
CO-60	2.840E-03	3.549E-02	3.552E-02	NOT IDENT.
ZN-65	3.658E-02	8.717E-02	8.871E-02	NOT IDENT.
GE-68	-2.258E-01	1.016E+00	1.021E+00	NOT IDENT.
AS-73	4.122E-01	5.333E-01	5.648E-01	NOT IDENT.
AS-74	-5.476E-02	1.610E-01	1.629E-01	NOT IDENT.
SE-75	1.495E-03	3.994E-02	3.994E-02	NOT IDENT.
BR-77	1.247E+04	1.292E+04	1.409E+04	SHORT HLIF
RB-83	-4.250E-03	6.447E-02	6.450E-02	NOT IDENT.
RB-84	-1.849E-02	8.568E-02	8.609E-02	NOT IDENT.
KR-85	4.176E-01	7.686E+00	7.688E+00	NOT IDENT.
SR-85	2.617E-03	4.971E-02	4.973E-02	NOT IDENT.
RB-86	-5.581E-01	1.251E+00	1.276E+00	NOT IDENT.
Y-88	1.497E-02	4.307E-02	4.359E-02	NOT IDENT.
Y-91	-4.847E+00	1.786E+01	1.799E+01	NOT IDENT.
NB-94	6.720E-03	2.759E-02	2.775E-02	NOT IDENT.
NB-95	3.680E-03	5.744E-02	5.746E-02	NOT IDENT.
NB-95M	3.798E-03	1.291E-01	1.291E-01	NOT IDENT.
ZR-95	5.811E-03	5.366E-02	5.372E-02	NOT IDENT.
NB-97	-1.000E+41	7.602E+41	0.000E+00	SHORT HLIF
ZR-97	1.062E+14	2.199E+14	2.251E+14	SHORT HLIF
MO-99	-1.008E+03	1.170E+03	1.255E+03	SHORT HLIF
TC-99M	-1.441E+38	1.845E+39	0.000E+00	SHORT HLIF
RH-101	-1.138E-02	2.758E-02	2.805E-02	FAIL ABUN
RH-102	2.363E-02	5.190E-02	5.298E-02	NOT IDENT.
RU-103	-2.590E-02	4.885E-02	5.023E-02	FAIL ABUN
RH-106	1.261E-01	2.592E-01	2.654E-01	NOT IDENT.
RU-106	1.261E-01	2.592E-01	2.654E-01	NOT IDENT.
AG-108M	-2.679E-02	2.584E-02	2.852E-02	NOT IDENT.
AG-110	1.672E-01	6.145E-01	6.191E-01	NOT IDENT.
AG-110M	4.012E-02	4.650E-02	4.990E-02	NOT IDENT.
SN-113	3.384E-03	3.827E-02	3.830E-02	NOT IDENT.
CD-115	-1.145E+03	3.419E+03	3.458E+03	SHORT HLIF
SN-117M	-3.139E-03	1.231E-01	1.231E-01	NOT IDENT.
SB-122	0.000E+00	2.130E+02	0.000E+00	SHORT HLIF
TE-123M	1.071E-02	2.624E-02	2.668E-02	NOT IDENT.
SB-124	-4.695E-02	1.044E-01	1.066E-01	NOT IDENT.
SB-125	-5.405E-02	9.006E-02	9.330E-02	FAIL ABUN
TE-125M	-4.773E+00	1.093E+01	1.114E+01	NOT IDENT.
I-126	-5.066E-01	6.379E-01	6.776E-01	FAIL ABUN
SB-126	-6.130E-02	3.840E-01	3.850E-01	NOT IDENT.
SB-127	-3.639E+00	3.115E+01	3.119E+01	NOT IDENT.
I-131	5.503E-02	4.720E-01	4.727E-01	FAIL ABUN
I-132	1.000E+41	1.615E+42	0.000E+00	SHORT HLIF
TE-132	9.766E+00	3.057E+01	3.088E+01	SHORT HLIF
BA-133	3.716E-02	4.287E-02	4.603E-02	FAIL ABUN
I-133	8.796E+09	1.770E+10	1.814E+10	SHORT HLIF
CS-134	4.289E-02	3.455E-02	3.959E-02	FAIL ABUN
I-135	1.498E+36	3.460E+36	0.000E+00	SHORT HLIF
CS-136	-5.373E-02	2.173E-01	2.186E-01	NOT IDENT.
LA-138	-2.315E-03	6.190E-02	6.191E-02	FAIL ABUN
CE-139	2.254E-02	3.219E-02	3.376E-02	NOT IDENT.
BA-140	3.674E-01	6.244E-01	6.460E-01	NOT IDENT.
LA-140	-2.694E-02	2.028E-01	2.031E-01	FAIL ABUN
CE-141	-3.676E-02	7.979E-02	8.150E-02	NOT IDENT.
CE-143	1.608E+06	1.442E+06	1.614E+06	SHORT HLIF
CE-144	6.685E-03	1.766E-01	1.766E-01	FAIL ABUN
PM-144	3.623E-03	3.315E-02	3.319E-02	NOT IDENT.
PR-144	2.738E-01	2.506E+00	2.509E+00	NOT IDENT.
PM-146	3.175E-03	3.612E-02	3.615E-02	NOT IDENT.
ND-147	6.106E-01	1.418E+00	1.444E+00	NOT IDENT.
PM-147	-6.687E+01	6.213E+02	6.220E+02	NOT IDENT.
PM-149	3.052E+03	3.199E+04	3.202E+04	SHORT HLIF
EU-150	-1.412E-02	2.584E-02	2.661E-02	FAIL ABUN
EU-152	-5.301E-02	7.840E-02	8.196E-02	NOT IDENT.
GD-153	-7.808E-03	6.578E-02	6.587E-02	NOT IDENT.
EU-154	7.993E-02	1.162E-01	1.216E-01	NOT IDENT.
EU-155	-3.636E-02	8.596E-02	8.751E-02	FAIL ABUN
TB-160	-1.759E-02	1.273E-01	1.275E-01	FAIL ABUN

HO-166M	-2.320E-02	5.267E-02	5.370E-02	FAIL ABUN
TM-171	-7.245E+00	1.003E+01	1.054E+01	NOT IDENT.
HF-172	1.041E-01	1.612E-01	1.679E-01	FAIL ABUN
LU-172	5.169E-03	5.079E-02	5.084E-02	FAIL ABUN
LU-176	6.458E-03	1.936E-02	1.957E-02	FAIL ABUN
HF-181	6.632E-03	5.017E-02	5.026E-02	NOT IDENT.
TA-182	-7.001E-02	1.335E-01	1.372E-01	FAIL ABUN
RE-183	-1.561E-02	1.433E-01	1.434E-01	NOT IDENT.
RE-184	-2.695E-02	1.708E-01	1.712E-01	NOT IDENT.
W-188	-5.415E-01	6.938E+00	6.942E+00	FAIL ABUN
IR-192	-2.246E-02	3.418E-02	3.565E-02	FAIL ABUN
HG-203	-1.613E-02	4.652E-02	4.708E-02	NOT IDENT.
TL-204	1.403E+00	3.550E+00	3.606E+00	FAIL ABUN
BI-207	-3.953E-03	3.784E-02	3.788E-02	FAIL ABUN
PB-211	8.390E-01	4.158E-01	5.621E-01	NOT IDENT.
BI-213	-3.268E-02	8.545E-02	8.671E-02	NOT IDENT.
RA-223	4.830E-03	6.112E-01	6.112E-01	FAIL ABUN
AC-225	-1.333E+00	1.695E+00	1.798E+00	NOT IDENT.
AC-227	1.133E-02	2.161E-01	2.162E-01	FAIL ABUN
TH-227	1.133E-02	2.161E-01	2.162E-01	FAIL ABUN
AC-228	4.025E-01	2.308E-01	2.936E-01	FAIL ABUN
RA-228	4.025E-01	2.308E-01	2.936E-01	FAIL ABUN
TH-229	3.045E-01	6.039E-01	6.193E-01	FAIL ABUN
PA-231	-2.792E-02	4.467E-01	4.469E-01	NOT IDENT.
TH-231	4.830E-03	6.112E-01	6.112E-01	FAIL ABUN
TH-232	4.025E-01	2.308E-01	2.936E-01	FAIL ABUN
PA-233	-7.151E-03	5.243E-02	5.253E-02	NOT IDENT.
PA-234	-2.421E-02	2.233E-01	2.236E-01	FAIL ABUN
PA-234M	1.310E+00	4.531E+00	4.569E+00	FAIL ABUN
U-235	9.843E-02	1.840E-01	1.893E-01	FAIL ABUN
NP-237	-7.151E-03	5.243E-02	5.253E-02	FAIL ABUN
NP-238	1.693E+03	9.025E+03	9.057E+03	SHORT HLIF
NP-239	2.263E-01	1.489E-01	1.805E-01	FAIL ABUN
PU-239	9.339E+01	3.025E+02	3.054E+02	NOT IDENT.
AM-241	1.831E-02	9.561E-02	9.597E-02	NOT IDENT.
CM-243	2.477E-02	7.824E-02	7.903E-02	NOT IDENT.
BK-247	-4.850E-03	6.551E-02	6.555E-02	FAIL ABUN
CF-249	-1.574E-02	3.551E-02	3.621E-02	NOT IDENT.
CF-251	-2.261E-02	1.181E-01	1.185E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	31.0621	85.43	70.9173	131.20	43.3797
45.60	35.1413	86.55	72.4803	133.02	36.6196
46.54	35.2290	86.79	72.5110	133.52	38.9343
49.72	0.0000	86.94	72.5302	136.00	35.6153
51.35	39.6272	87.09	72.5493	136.47	25.2908
51.87	45.6299	87.57	72.6111	140.51	0.0000
52.39	45.6882	88.03	71.2448	143.76	35.9729
52.97	30.8335	88.34	66.2936	144.24	37.1563
53.44	28.8771	88.47	66.3088	145.44	43.0263
54.07	36.8991	89.96	49.3246	152.43	31.6699
57.36	0.0000	1093.63	66.5590	153.25	55.1835
57.53	48.2606	91.11	71.6268	323.87	30.5628
57.98	43.2780	92.59	49.5474	156.02	42.4094
59.27	44.4149	93.35	49.6109	158.56	36.6299
59.32	44.4200	94.56	49.7120	159.00	30.7377
59.54	44.4421	94.65	49.7197	162.33	34.4185
60.96	48.6367	94.67	49.7211	162.66	39.1810
61.17	48.6594	94.87	23.0669	163.33	42.7758
62.93	53.9365	97.43	27.5083	165.86	39.3260
63.29	53.9786	98.43	31.5413	176.31	34.9667
63.58	54.0126	98.44	31.5417	176.60	41.0085
64.28	54.0942	99.53	34.8665	177.52	39.8426
66.73	43.7747	100.11	30.5368	181.07	0.0000
67.24	36.9745	102.03	35.0066	181.52	35.5696
125.81	45.2323	103.18	31.7827	184.41	37.3015
67.75	49.3517	103.37	31.7922	143.76	37.9775
68.89	54.9646	105.21	45.0774	193.51	34.3843
69.67	66.0635	105.31	45.0846	197.03	36.9731
70.82	45.5244	106.12	35.2324	198.01	37.0097
70.83	45.5254	106.47	34.1499	201.83	21.4659
72.81	49.8615	109.28	45.7299	203.43	43.4141
72.87	49.8673	111.00	35.4961	205.31	34.7958
74.66	50.0435	111.76	0.0000	210.85	39.9829
74.82	50.0592	114.06	26.7438	215.65	31.7996
74.97	50.0739	116.30	0.0000	218.12	34.3906
77.11	50.2808	116.74	26.8491	222.11	30.3102
78.74	50.4368	119.76	23.9701	227.09	23.6840
79.69	50.5269	121.12	42.0291	227.38	16.9216
80.03	50.5587	121.22	33.0275	228.16	0.0000
80.12	50.5675	121.78	28.5464	228.18	20.3208
80.19	50.5741	122.06	30.4366	116.74	20.3208
80.57	50.6100	122.92	33.8594	235.69	30.6892
81.00	50.6503	123.07	33.8665	235.96	30.6969
81.07	50.6569	265.00	33.8956	238.63	33.3343
81.75	60.5829	125.81	32.8631	238.98	0.0000
82.47	63.4850	127.23	45.4167	240.99	33.4037
83.79	48.7887	127.91	42.0501	242.00	33.4335
84.00	53.0514	129.30	42.1297	244.70	37.3797

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	21.6258	344.28	23.1903	563.25	12.5889
252.80	22.4985	345.93	12.2582	564.24	0.0000
254.15	0.0000	351.06	22.3647	569.33	13.6771
256.23	28.6388	351.93	22.3779	946.00	14.7303
260.90	0.0000	355.39	0.0000	569.70	13.6792
264.66	19.6646	356.01	18.2317	583.19	6.3530
264.80	20.9775	364.49	15.9835	584.27	11.1234
265.00	20.9814	366.42	0.0000	595.83	12.7793
269.46	29.8323	372.51	13.2312	427.87	14.4075
270.03	29.8461	375.05	18.9327	602.52	0.0000
271.23	32.9506	377.52	14.2221	604.72	0.0000
273.65	38.2970	356.01	19.0389	607.14	19.2664
276.40	26.4703	388.16	22.9082	609.32	19.2847
277.37	31.7893	388.63	21.0055	610.33	20.9012
277.60	29.1456	391.69	14.3491	614.28	20.6156
278.00	29.1543	264.66	12.9856	618.01	12.9063
279.20	34.4884	401.81	12.9946	620.36	8.6130
279.54	36.2671	402.40	12.9993	621.93	7.5415
279.70	37.1559	404.85	0.0000	630.19	0.0000
280.46	30.9818	410.95	15.9699	631.29	10.8175
283.69	30.1733	413.71	13.5728	633.25	15.1570
284.31	31.9636	414.70	13.5807	634.78	14.0839
285.41	25.7709	423.72	25.3557	635.95	15.1746
285.90	0.0000	427.09	23.4512	636.99	7.5907
287.50	25.8128	427.87	25.4171	657.50	6.5630
290.67	18.7382	433.94	22.5629	657.76	9.8456
293.27	0.0000	439.40	16.7292	657.90	0.0000
351.93	17.9081	440.45	16.7392	661.66	13.1489
295.96	17.9183	453.88	11.9053	664.57	0.0000
879.38	26.9305	463.37	8.9756	666.33	16.4679
299.98	26.9592	468.07	8.9987	666.50	19.7629
300.09	24.2655	473.00	12.0303	667.71	0.0000
300.13	24.2661	475.06	16.5601	677.62	12.1329
301.36	31.4852	476.78	13.0592	685.70	8.8529
302.85	22.6945	477.60	14.0701	692.65	0.0000
256.23	22.9932	482.18	13.0968	695.00	12.2183
304.85	20.2931	487.02	11.1103	696.49	12.2255
306.78	15.3547	492.35	0.0000	696.51	12.2260
308.46	15.3737	497.08	17.2608	697.00	12.2282
311.90	17.6794	505.52	16.8263	697.30	12.2295
316.51	25.4713	507.63	0.0000	697.49	8.8949
319.41	25.5248	511.00	17.3846	702.65	8.9131
320.08	27.3608	514.00	19.9713	706.68	10.0433
321.04	30.1177	514.00	19.9713	711.68	12.2994
323.87	23.3200	520.40	11.3021	720.70	12.3428
325.23	23.3423	520.69	0.0000	721.93	0.0000
328.76	23.4009	522.65	0.0000	722.78	5.3904
333.37	17.9528	527.90	0.0000	722.91	3.3691
333.97	26.2497	528.26	12.3779	723.31	11.7937
334.37	27.6392	529.59	8.2575	724.19	11.7980
338.28	22.1709	529.87	0.0000	727.33	7.8750
338.32	22.1719	531.02	8.2633	733.00	7.8921
311.90	22.2046	537.26	9.3248	735.93	5.6435
340.48	22.2046	546.56	0.0000	333.97	7.9055
340.55	22.2056	552.55	14.6124	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	11.3228	949.00	5.4673	1384.29	2.0476
747.24	6.8015	667.71	0.0000	1408.01	6.1765
748.06	3.4019	962.31	8.2351	1434.09	5.1776
752.31	9.0859	964.08	9.1553	1435.80	5.1794
753.82	9.0911	966.17	17.4060	1457.56	0.0000
756.73	3.4130	911.20	6.4183	1460.82	3.1251
756.80	3.4130	983.53	2.9473	1489.16	5.2408
884.68	15.9699	984.45	0.0000	1505.03	5.2588
765.81	17.1222	1274.44	5.9172	1584.12	5.3473
766.42	12.5594	1001.03	10.3701	1596.21	3.2164
766.84	15.9870	1002.74	7.4109	1620.50	3.2324
772.60	0.0000	1004.73	7.4153	1621.92	5.3891
776.52	5.1572	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	4.3708
778.90	3.4410	1028.54	0.0000	1750.46	0.0000
783.70	3.4471	1037.84	9.3604	1764.49	1.7732
788.74	11.5116	1038.76	0.0000	1063.66	0.0000
792.07	6.9153	631.29	6.5689	1771.35	1.1097
795.86	5.1934	1048.07	6.5719	1791.20	0.0000
810.06	5.2200	1049.04	5.6345	1808.65	3.3525
810.29	1.7401	1050.41	5.6367	1810.72	0.0000
344.28	1.7402	1063.66	5.6583	1836.06	2.2462
810.76	1.7404	1077.00	7.5732		
815.77	3.4871	1077.34	6.6270		
1048.07	4.1884	1085.87	8.5408		
832.01	11.3976	1093.63	5.7063		
834.85	12.2863	1099.45	5.7158		
835.71	11.4123	1112.07	4.7797		
836.80	0.0000	1112.84	5.7371		
846.75	0.0000	1115.54	6.1238		
846.77	11.4559	1120.29	8.6232		
856.80	10.6110	1120.55	8.6237		
860.56	11.5099	1221.41	6.1336		
871.09	6.2196	1129.67	9.6057		
873.19	8.8913	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	8.0189	1173.23	4.8593		
880.51	9.8046	1177.95	3.8923		
881.60	8.9163	1189.05	7.8071		
883.24	8.0291	1204.77	5.8795		
884.68	5.3553	1221.41	5.9048		
889.28	5.3633	1231.02	4.9326		
894.76	7.1641	1235.36	11.0612		
898.04	8.6063	1238.28	6.3254		
900.72	8.6139	1260.41	0.0000		
903.28	8.6209	1271.87	7.9736		
911.20	8.1030	1274.44	4.9866		
912.08	8.1052	1274.54	4.9869		
923.98	0.0000	1291.59	1.6024		
926.50	10.8574	1298.22	0.0000		
929.11	11.7717	1312.11	6.0392		
935.54	9.9812	1332.49	5.0574		
937.49	9.9872	1362.66	0.0000		
944.13	7.2788	1365.19	4.0771		
946.00	6.3726	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:20:10.45

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299008.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM21.CNF;850
Background date    : 28-JUL-2024 11:27:08
Sample date       : 26-JUN-2024 09:25:00 Acquisition date : 30-JUL-2024 11:16:32
Sample ID        : G674299008 Sample quantity : 8.94400E+01 GRAM
Detector name     : GAM21 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.25 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.80	39	57	1.74	93.93	90	9	1.07E-02	38.6	4.44E+00
2	10	68.02	272	344	2.18	136.34	122	27	7.57E-02	16.8	
3	10	70.10	270	353	2.20	140.49	122	27	7.49E-02	16.8	
4	0	77.39	67	87	0.96	155.06	152	7	1.85E-02	27.0	
5	0	87.26	37	38	1.01	174.77	172	7	1.04E-02	31.2	
6	0	93.25	22	58	1.16	186.74	182	7	5.98E-03	63.6	
7	0	149.51*	15	22	1.35	299.18	297	7	4.24E-03	60.5	
8	0	186.44*	33	34	0.94	372.99	367	10	9.04E-03	39.1	
9	0	238.42	85	32	1.12	476.87	470	11	2.36E-02	17.0	
10	0	242.97	9	36	0.95	485.96	483	7	2.39E-03	123.1	
11	0	278.37	23	21	2.10	556.70	550	12	6.45E-03	44.5	
12	0	295.68	37	29	1.04	591.30	587	8	1.03E-02	30.1	
13	0	316.34	22	12	3.82	632.60	628	11	6.20E-03	38.0	
14	0	337.95	25	4	1.20	675.78	672	7	6.81E-03	23.8	
15	0	347.18	11	12	1.65	694.23	690	7	3.01E-03	61.5	
16	0	352.12*	62	15	1.44	704.11	700	9	1.73E-02	17.6	
17	0	583.52	18	9	0.80	1166.66	1159	10	5.09E-03	36.9	
18	0	597.71	9	7	1.08	1195.03	1189	10	2.42E-03	67.6	
19	0	608.93*	43	9	0.99	1217.47	1211	12	1.19E-02	21.6	
20	0	726.71	18	3	1.19	1452.93	1446	12	4.97E-03	30.6	
21	0	903.92	7	3	1.34	1807.28	1799	11	1.92E-03	60.7	
22	0	911.34	13	7	1.12	1822.12	1816	10	3.47E-03	49.8	
23	0	995.44	17	0	5.41	1990.29	1984	13	4.72E-03	24.3	
24	0	1000.46	6	0	0.50	2000.33	1997	6	1.67E-03	40.8	
25	0	1460.48*	26	4	2.23	2920.51	2913	13	7.28E-03	25.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299008.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:25:00 Acquisition date : 30-JUL-2024 11:16:32
Sample ID : G674299008 Sample quantity : 89.440 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA21 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.25 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
TL-208	277.37	HG-203	279.20

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.377E-01	2.041E+00	2.041E+00	50.86	OK
CD-109	88.03	3.70*	1.131E+01	6.885E-01	7.247E-01	62.40	OK
SN-126	64.28	9.60	1.178E+01	----- Line	Not Found	-----	Absent
	86.94	8.90	1.131E+01	2.862E-01	2.862E-01	62.40	OK
	87.57	37.00*	1.131E+01	6.885E-02	6.885E-02	62.40	OK
HG-203	70.83	3.69	1.174E+01	4.789E+00	7.954E+00	33.60	OK
	72.87	6.19	1.170E+01	----- Line	Not Found	-----	Absent
	279.20	81.56*	5.319E+00	3.597E-02	5.973E-02	103.19	OK
TL-204	68.89	0.47	1.177E+01	3.798E+01	3.864E+01	33.67	OK
	70.82	0.79*	1.174E+01	2.240E+01	2.279E+01	33.60	OK
	80.03	0.28	1.154E+01	----- Line	Not Found	-----	Absent
	82.47	0.07	1.147E+01	----- Line	Not Found	-----	Absent
TL-208	277.37	6.60	5.337E+00	----- Line	Not Found	-----	<<INT Reject
	583.19	85.00*	2.482E+00	6.743E-02	6.743E-02	73.79	OK
	860.56	12.50	1.626E+00	----- Line	Not Found	-----	Absent
BI-210	46.54	4.25*	1.113E+01	6.271E-01	6.290E-01	77.26	OK
PB-210	46.54	4.25*	1.113E+01	6.271E-01	6.290E-01	77.26	OK
BI-211	72.87	1.23	1.170E+01	----- Line	Not Found	-----	Absent
	351.06	12.92*	4.230E+00	8.805E-01	8.805E-01	35.12	OK
BI-212	727.33	6.67*	1.954E+00	1.066E+00	1.066E+00	61.26	OK
	1620.50	1.47	8.483E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	17.10	1.161E+01	2.588E-01	2.588E-01	54.09	OK
	238.63	43.60*	6.126E+00	2.456E-01	2.456E-01	33.98	OK
	300.09	3.30	4.953E+00	----- Line	Not Found	-----	Absent
PB-214	74.82	5.80	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	9.70	1.161E+01	4.562E-01	4.562E-01	54.09	OK
	87.09	3.41	1.131E+01	7.471E-01	7.471E-01	62.40	OK
	242.00	7.25	6.024E+00	1.525E-01	1.525E-01	246.21	OK
	295.22	18.42	5.023E+00	3.115E-01	3.116E-01	60.27	OK
	351.93	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12	OK
RA-226	74.82	5.80	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	9.70	1.161E+01	4.562E-01	4.562E-01	54.09	OK
	87.09	3.41	1.131E+01	7.471E-01	7.471E-01	62.40	OK
	242.00	7.25	6.024E+00	1.525E-01	1.525E-01	246.21	OK
	295.22	18.42	5.023E+00	3.115E-01	3.116E-01	60.27	OK
	351.93	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12	OK
TH-228	74.82	10.28	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	17.10	1.161E+01	2.588E-01	2.588E-01	54.09	OK
	238.63	43.60*	6.126E+00	2.456E-01	2.456E-01	33.98	OK
	300.09	3.30	4.953E+00	----- Line	Not Found	-----	Absent
TH-230	74.82	5.80	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	9.70	1.161E+01	4.562E-01	4.562E-01	54.09	OK
	87.09	3.41	1.131E+01	7.471E-01	7.471E-01	62.40	OK
	242.00	7.25	6.024E+00	1.525E-01	1.525E-01	246.21	OK
	295.22	18.42	5.023E+00	3.115E-01	3.115E-01	60.27	OK
	351.93	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12	OK
U-234	74.82	5.80	1.167E+01	----- Line	Not Found	-----	Absent
	77.11	9.70	1.161E+01	4.562E-01	4.562E-01	54.09	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
	87.09	3.41	1.131E+01	7.471E-01	7.471E-01	62.40	OK
	242.00	7.25	6.024E+00	1.525E-01	1.525E-01	246.21	OK
	295.22	18.42	5.023E+00	3.115E-01	3.115E-01	60.27	OK
	351.93	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12	OK

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*                                     DETECTOR AND SAMPLE DATA                *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299008.CNF;1 *
* Acquisition date   : 30-JUL-2024 11:16:32 Sensitivity      : 3.000          *
* Detector ID       : GAM21 Energy tolerance: 1.500          *
* Elapsed live time : 0 01:00:00.00 Abundance limit : 75.000          *
* Elapsed real time : 0 01:00:00.25 Half life ratio : *****          *
* Sample date       : 26-JUN-2024 09:25:00 Analyst initials: RXF2          *
* Sample ID        : G674299008 Sample Quantity : 8.9440E+01 GRAM          *
* Batch Number     : 2636542 Wet Weight : 0.00000          *
* Wet wt corr      : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library  : SOLID.NLB;17                                           *
*****
*                                     CALIBRATION INFORMATION                  *
*                                     *                                       *
* Eff. Cal. date    : 8-JUL-2024 06:28:17 Eff. Geometry   : CAN          *
* Eff. File        : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.041E+00	1.017E+00	8.961E-01
CD-109	7.247E-01	4.432E-01	6.044E-01
SN-126	6.885E-02	4.210E-02	5.731E-02
HG-203	5.973E-02	6.041E-02	7.438E-02
TL-204	2.279E+01	7.502E+00	4.365E+00
TL-208	6.743E-02	4.876E-02	3.367E-02
BI-210	6.290E-01	4.762E-01	4.385E-01
PB-210	6.290E-01	4.762E-01	4.385E-01
BI-211	8.805E-01	3.031E-01	3.221E-01
BI-212	1.066E+00	6.398E-01	5.616E-01
PB-212	2.456E-01	8.180E-02	7.481E-02
PB-214	3.196E-01	1.100E-01	1.019E-01
RA-226	3.196E-01	1.100E-01	1.019E-01
TH-228	2.456E-01	8.180E-02	7.481E-02
TH-230	3.196E-01	1.100E-01	1.019E-01
U-234	3.196E-01	1.100E-01	1.019E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.886E-01	3.792E-01	6.296E-01	NOT IDENT.
NA-22	1.483E-02	3.945E-02	9.506E-02	NOT IDENT.
NA-24	0.000E+00	1.324E+15	0.000E+00	SHORT HLIF
AL-26	3.060E-03	4.421E-02	1.053E-01	NOT IDENT.
SC-46	6.961E-03	3.985E-02	8.969E-02	NOT IDENT.
V-48	2.723E-02	1.817E-01	3.850E-01	NOT IDENT.
CR-51	-2.832E-01	4.761E-01	7.415E-01	NOT IDENT.
MN-52	-5.223E-02	2.160E+00	5.243E+00	NOT IDENT.
MN-54	-9.559E-03	3.414E-02	6.754E-02	NOT IDENT.
CO-56	-3.738E-02	3.547E-02	5.007E-02	NOT IDENT.
MN-56	0.000E+00	9.490E+40	0.000E+00	SHORT HLIF
CO-57	4.050E-03	1.468E-02	2.812E-02	NOT IDENT.
CO-58	-1.953E-02	4.388E-02	8.313E-02	NOT IDENT.
FE-59	6.254E-02	8.970E-02	2.419E-01	NOT IDENT.

CO-60	-1.614E-02	3.597E-02	6.597E-02	NOT IDENT.
ZN-65	-9.066E-02	1.106E-01	1.772E-01	NOT IDENT.
GE-68	5.921E-01	9.431E-01	2.551E+00	NOT IDENT.
AS-73	3.775E-02	1.291E-01	2.563E-01	NOT IDENT.
AS-74	1.106E-01	2.030E-01	4.029E-01	NOT IDENT.
SE-75	-3.276E-04	3.482E-02	6.269E-02	FAIL ABUN
BR-77	0.000E+00	3.217E+03	0.000E+00	SHORT HLIF
SR-82	6.263E-03	4.436E-01	9.668E-01	NOT IDENT.
RB-83	-6.995E-02	7.843E-02	1.240E-01	NOT IDENT.
RB-84	3.053E-02	1.181E-01	2.531E-01	NOT IDENT.
KR-85	-5.538E+00	8.820E+00	1.488E+01	NOT IDENT.
SR-85	-3.599E-02	5.703E-02	9.619E-02	NOT IDENT.
RB-86	-2.927E-01	1.398E+00	2.846E+00	NOT IDENT.
Y-88	2.807E-02	6.700E-02	1.659E-01	NOT IDENT.
Y-91	-6.250E+00	2.227E+01	4.362E+01	NOT IDENT.
NB-94	-7.874E-03	3.171E-02	5.804E-02	NOT IDENT.
NB-95	-4.062E-03	5.172E-02	1.043E-01	NOT IDENT.
NB-95M	2.001E-02	9.681E-02	1.689E-01	NOT IDENT.
ZR-95	8.993E-02	8.273E-02	2.066E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.384E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.326E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.229E+39	0.000E+00	SHORT HLIF
RH-101	1.649E-03	1.975E-02	3.644E-02	NOT IDENT.
RH-102	-1.719E-02	5.222E-02	9.436E-02	NOT IDENT.
RU-103	-1.162E-02	5.027E-02	9.387E-02	FAIL ABUN
RH-106	-2.085E-03	3.253E-01	6.292E-01	NOT IDENT.
RU-106	-2.085E-03	3.253E-01	6.292E-01	NOT IDENT.
AG-108M	-2.224E-02	2.499E-02	4.069E-02	NOT IDENT.
AG-110	3.657E-02	6.429E-01	1.304E+00	NOT IDENT.
AG-110M	-1.926E-02	5.863E-02	1.119E-01	NOT IDENT.
SN-113	-1.391E-02	3.660E-02	6.778E-02	NOT IDENT.
CD-115	0.000E+00	3.776E+03	0.000E+00	SHORT HLIF
SN-117M	4.747E-02	7.672E-02	1.553E-01	NOT IDENT.
SB-122	0.000E+00	2.062E+02	0.000E+00	SHORT HLIF
TE-123M	-1.172E-02	1.882E-02	3.145E-02	NOT IDENT.
SB-124	3.224E-02	6.302E-02	2.336E-01	NOT IDENT.
SB-125	1.672E-02	6.727E-02	1.408E-01	NOT IDENT.
TE-125M	-5.488E+00	5.783E+00	9.453E+00	NOT IDENT.
I-126	2.429E-01	6.061E-01	1.269E+00	NOT IDENT.
SB-126	4.387E-02	4.066E-01	7.460E-01	NOT IDENT.
SB-127	-6.015E+00	3.943E+01	7.401E+01	NOT IDENT.
I-131	3.056E-01	4.724E-01	1.014E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	3.182E+01	0.000E+00	SHORT HLIF
BA-133	1.452E-02	2.638E-02	5.544E-02	NOT IDENT.
I-133	0.000E+00	2.278E+10	0.000E+00	SHORT HLIF
CS-134	4.246E-02	4.232E-02	1.024E-01	NOT IDENT.
I-135	0.000E+00	3.303E+36	0.000E+00	SHORT HLIF
CS-136	-1.905E-01	2.967E-01	5.103E-01	NOT IDENT.
BA-137M	-1.130E-02	2.569E-02	4.569E-02	NOT IDENT.
CS-137	-1.194E-02	2.714E-02	4.827E-02	NOT IDENT.
LA-138	1.309E-02	4.318E-02	1.205E-01	NOT IDENT.
CE-139	-5.777E-03	2.083E-02	3.644E-02	NOT IDENT.
BA-140	-1.192E-01	6.634E-01	1.255E+00	NOT IDENT.
LA-140	-5.365E-02	2.760E-01	5.990E-01	NOT IDENT.
CE-141	-4.455E-02	5.397E-02	8.770E-02	NOT IDENT.
CE-143	0.000E+00	1.353E+06	0.000E+00	SHORT HLIF
CE-144	6.302E-03	1.218E-01	2.254E-01	NOT IDENT.
PM-144	-1.984E-02	4.066E-02	6.883E-02	NOT IDENT.
PR-144	-1.500E+00	3.073E+00	5.203E+00	NOT IDENT.
PM-146	-2.395E-02	4.078E-02	7.074E-02	NOT IDENT.
ND-147	1.058E+00	1.756E+00	3.785E+00	NOT IDENT.
PM-147	3.544E+02	4.374E+02	8.789E+02	NOT IDENT.
PM-149	0.000E+00	2.608E+04	0.000E+00	SHORT HLIF
EU-150	1.567E-02	1.975E-02	4.108E-02	FAIL ABUN
EU-152	-2.684E-02	7.082E-02	1.164E-01	NOT IDENT.
GD-153	3.218E-03	3.617E-02	6.933E-02	FAIL ABUN
EU-154	4.162E-02	1.107E-01	2.667E-01	FAIL ABUN
EU-155	-4.997E-02	5.131E-02	8.108E-02	FAIL ABUN
TB-160	-1.041E-01	1.766E-01	3.157E-01	FAIL ABUN
HO-166M	3.826E-02	6.751E-02	1.431E-01	NOT IDENT.
TM-171	-1.008E+00	2.363E+00	4.343E+00	FAIL ABUN
HF-172	3.852E-02	1.070E-01	2.066E-01	FAIL ABUN
LU-172	-2.622E-04	4.321E-02	1.005E-01	FAIL ABUN
LU-176	8.365E-03	1.760E-02	3.749E-02	FAIL ABUN
HF-181	-1.036E-02	6.206E-02	1.154E-01	FAIL ABUN
TA-182	-2.634E-02	1.878E-01	3.818E-01	FAIL ABUN

RE-183	9.515E-05	4.928E-02	9.293E-02	FAIL ABUN
RE-184	1.780E-01	2.119E-01	4.577E-01	FAIL ABUN
W-188	-7.261E-01	6.069E+00	1.131E+01	NOT IDENT.
IR-192	6.116E-02	4.551E-02	6.570E-02	FAIL ABUN
BI-207	2.818E-02	3.069E-02	9.515E-02	NOT IDENT.
PB-211	3.107E-01	6.565E-01	1.347E+00	NOT IDENT.
BI-213	-1.813E-03	1.038E-01	1.983E-01	NOT IDENT.
BI-214	0.000E+00	1.306E-01	2.644E-01	FAIL ABUN
RN-219	9.849E-02	2.953E-01	6.213E-01	NOT IDENT.
RN-222	0.000E+00	1.306E-01	2.644E-01	FAIL ABUN
RA-223	5.980E-02	4.963E-01	9.850E-01	FAIL ABUN
RA-224	-1.022E-01	6.914E-01	9.385E-01	NOT IDENT.
AC-225	8.572E-02	1.519E+00	2.753E+00	NOT IDENT.
AC-227	-5.985E-02	1.748E-01	2.954E-01	NOT IDENT.
TH-227	-5.985E-02	1.748E-01	2.954E-01	NOT IDENT.
AC-228	2.464E-01	2.405E-01	4.763E-01	FAIL ABUN
RA-228	2.464E-01	2.405E-01	4.763E-01	FAIL ABUN
TH-229	6.996E-02	4.156E-01	7.515E-01	FAIL ABUN
PA-231	9.108E-03	3.684E-01	7.193E-01	NOT IDENT.
TH-231	5.980E-02	4.963E-01	9.850E-01	FAIL ABUN
TH-232	2.464E-01	2.405E-01	4.763E-01	FAIL ABUN
PA-233	-5.961E-04	4.572E-02	8.488E-02	NOT IDENT.
PA-234	4.895E-02	2.407E-01	5.591E-01	FAIL ABUN
PA-234M	4.016E+00	3.213E+00	1.006E+01	FAIL ABUN
TH-234	7.035E-01	5.440E-01	1.053E+00	FAIL ABUN
U-235	1.186E-01	1.116E-01	2.326E-01	FAIL ABUN
NP-237	-5.961E-04	4.572E-02	8.488E-02	FAIL ABUN
NP-238	0.000E+00	1.093E+04	0.000E+00	SHORT HLIF
U-238	7.035E-01	5.440E-01	1.053E+00	FAIL ABUN
NP-239	2.402E-02	1.202E-01	2.338E-01	FAIL ABUN
PU-239	4.524E+01	2.180E+02	4.059E+02	NOT IDENT.
AM-241	-1.977E-02	4.192E-02	6.950E-02	NOT IDENT.
AM-243	3.940E-02	3.301E-02	5.502E-02	NOT IDENT.
CM-243	1.098E-02	4.502E-02	8.812E-02	FAIL ABUN
BK-247	-6.670E-03	5.748E-02	1.012E-01	NOT IDENT.
CM-247	-6.069E-04	3.108E-02	6.044E-02	FAIL ABUN
CF-249	7.008E-03	3.154E-02	6.414E-02	NOT IDENT.
CF-251	5.483E-02	8.581E-02	1.680E-01	NOT IDENT.
ANH-511	-6.095E-02	4.623E-02	9.378E-02	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	24	10.66*	9.377E-01	2.041E+00	2.041E+00	50.86
CD-109	88.03	34	3.70*	1.131E+01	6.885E-01	7.247E-01	62.40
SN-126	64.28	-----	9.60	1.178E+01	-----	Line Not Found	-----
	86.94	34	8.90	1.131E+01	2.862E-01	2.862E-01	62.40
	87.57	34	37.00*	1.131E+01	6.885E-02	6.885E-02	62.40
HG-203	70.83	247	3.69	1.174E+01	4.789E+00	7.954E+00	33.60
	72.87	-----	6.19	1.170E+01	-----	Line Not Found	-----
	279.20	21	81.56*	5.319E+00	4.142E-02	6.880E-02	89.07
TL-204	68.89	250	0.47	1.177E+01	3.798E+01	3.864E+01	33.67
	70.82	247	0.79*	1.174E+01	2.240E+01	2.279E+01	33.60
	80.03	-----	0.28	1.154E+01	-----	Line Not Found	-----
	82.47	-----	0.07	1.147E+01	-----	Line Not Found	-----
TL-208	277.37	21	6.60	5.319E+00	5.119E-01	5.119E-01	89.07
	583.19	17	85.00*	2.482E+00	6.743E-02	6.743E-02	73.79
	860.56	-----	12.50	1.626E+00	-----	Line Not Found	-----
BI-210	46.54	35	4.25*	1.113E+01	6.271E-01	6.290E-01	77.26
PB-210	46.54	35	4.25*	1.113E+01	6.271E-01	6.290E-01	77.26
BI-211	72.87	-----	1.23	1.170E+01	-----	Line Not Found	-----
	351.06	57	12.92*	4.230E+00	8.805E-01	8.805E-01	35.12
BI-212	727.33	17	6.67*	1.954E+00	1.066E+00	1.066E+00	61.26
	1620.50	-----	1.47	8.483E-01	-----	Line Not Found	-----
PB-212	74.82	-----	10.28	1.167E+01	-----	Line Not Found	-----
	77.11	61	17.10	1.161E+01	2.588E-01	2.588E-01	54.09
	238.63	78	43.60*	6.126E+00	2.456E-01	2.456E-01	33.98
	300.09	-----	3.30	4.953E+00	-----	Line Not Found	-----
PB-214	74.82	-----	5.80	1.167E+01	-----	Line Not Found	-----
	77.11	61	9.70	1.161E+01	4.562E-01	4.562E-01	54.09
	87.09	34	3.41	1.131E+01	7.471E-01	7.471E-01	62.40
	242.00	8	7.25	6.024E+00	1.525E-01	1.525E-01	246.21
	295.22	34	18.42	5.023E+00	3.115E-01	3.116E-01	60.27
	351.93	57	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12
RA-226	74.82	-----	5.80	1.167E+01	-----	Line Not Found	-----
	77.11	61	9.70	1.161E+01	4.562E-01	4.562E-01	54.09
	87.09	34	3.41	1.131E+01	7.471E-01	7.471E-01	62.40
	242.00	8	7.25	6.024E+00	1.525E-01	1.525E-01	246.21
	295.22	34	18.42	5.023E+00	3.115E-01	3.116E-01	60.27
	351.93	57	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12
TH-228	74.82	-----	10.28	1.167E+01	-----	Line Not Found	-----
	77.11	61	17.10	1.161E+01	2.588E-01	2.588E-01	54.09
	238.63	78	43.60*	6.126E+00	2.456E-01	2.456E-01	33.98
	300.09	-----	3.30	4.953E+00	-----	Line Not Found	-----
TH-230	74.82	-----	5.80	1.167E+01	-----	Line Not Found	-----
	77.11	61	9.70	1.161E+01	4.562E-01	4.562E-01	54.09
	87.09	34	3.41	1.131E+01	7.471E-01	7.471E-01	62.40
	242.00	8	7.25	6.024E+00	1.525E-01	1.525E-01	246.21
	295.22	34	18.42	5.023E+00	3.115E-01	3.115E-01	60.27
	351.93	57	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-234	74.82	-----	5.80	1.167E+01	-----	Line Not Found	-----
	77.11	61	9.70	1.161E+01	4.562E-01	4.562E-01	54.09
	87.09	34	3.41	1.131E+01	7.471E-01	7.471E-01	62.40
	242.00	8	7.25	6.024E+00	1.525E-01	1.525E-01	246.21
	295.22	34	18.42	5.023E+00	3.115E-01	3.115E-01	60.27
	351.93	57	35.60*	4.230E+00	3.196E-01	3.196E-01	35.12

Flag: "*" = Keyline

Total number of lines in spectrum 25
Number of unidentified lines 2
Number of lines tentatively identified by NID 23 92.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.041E+00	2.041E+00	1.038E+00	50.86	
CD-109	461.40D	1.05	6.885E-01	7.247E-01	4.522E-01	62.40	
SN-126	2.30E+05Y	1.00	6.885E-02	6.885E-02	4.296E-02	62.40	
HG-203	46.59D	1.66	4.142E-02	6.880E-02	6.128E-02	89.07	
TL-204	3.78Y	1.02	2.240E+01	2.279E+01	0.766E+01	33.60	
TL-208	1.41E+10Y	1.00	6.743E-02	6.743E-02	4.976E-02	73.79	
BI-210	22.20Y	1.00	6.271E-01	6.290E-01	4.859E-01	77.26	
PB-210	22.20Y	1.00	6.271E-01	6.290E-01	4.859E-01	77.26	
BI-211	7.04E+08Y	1.00	8.805E-01	8.805E-01	3.092E-01	35.12	
BI-212	1.41E+10Y	1.00	1.066E+00	1.066E+00	0.653E+00	61.26	
PB-212	1.41E+10Y	1.00	2.456E-01	2.456E-01	0.835E-01	33.98	
PB-214	1600.00Y	1.00	3.196E-01	3.196E-01	1.122E-01	35.12	
RA-226	1600.00Y	1.00	3.196E-01	3.196E-01	1.122E-01	35.12	
TH-228	1.41E+10Y	1.00	2.456E-01	2.456E-01	0.835E-01	33.98	
TH-230	7.54E+04Y	1.00	3.196E-01	3.196E-01	1.122E-01	35.12	
U-234	2.45E+05Y	1.00	3.196E-01	3.196E-01	1.122E-01	35.12	

Total Activity : 3.028E+01 3.073E+01

Grand Total Activity : 3.028E+01 3.073E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	93.25	20	54	1.16	186.74	182	7	5.98E-03	****	1.11E+01	T
0	149.51	14	20	1.35	299.18	297	7	4.24E-03	****	8.79E+00	
0	186.44	30	32	0.94	372.99	367	10	9.04E-03	78.2	7.51E+00	T
0	316.34	21	11	3.82	632.60	628	11	6.20E-03	75.9	4.71E+00	T
0	337.95	23	3	1.20	675.78	672	7	6.81E-03	47.7	4.41E+00	T
0	347.18	10	11	1.65	694.23	690	7	3.01E-03	****	4.29E+00	T
0	597.71	8	7	1.08	1195.03	1189	10	2.42E-03	****	2.42E+00	
0	608.93	40	8	0.99	1217.47	1211	12	1.19E-02	43.2	2.37E+00	T
0	903.92	6	3	1.34	1807.28	1799	11	1.92E-03	****	1.54E+00	T
0	911.34	12	7	1.12	1822.12	1816	10	3.47E-03	99.6	1.53E+00	T
0	995.44	16	0	5.41	1990.29	1984	13	4.72E-03	48.5	1.39E+00	T
0	1000.46	6	0	0.50	2000.33	1997	6	1.67E-03	81.6	1.38E+00	T

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299008.CNF;1 *
* Acquisition date : 30-JUL-2024 11:16:32 Sensitivity : 3.000 *
* Detector ID : GAM21 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.25 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:25:00 Nuclide Library : SOLID *
* Sample ID : G674299008 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 8.9440E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 8-JUL-2024 06:28:17 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.358E-01
CD-109	2.742E-01
SN-126	2.600E-02
HG-203	3.292E-02
TL-204	2.061E+00
TL-208	1.153E-02
BI-210	1.957E-01
PB-210	1.957E-01
BI-211	1.407E-01
BI-212	1.948E-01
PB-212	3.323E-02
PB-214	4.353E-02
RA-226	4.353E-02
TH-228	3.323E-02
TH-230	4.352E-02
U-234	4.352E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	2.606E-01	NOT IDENT.
NA-22	3.683E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.796E-02	NOT IDENT.
SC-46	3.538E-02	NOT IDENT.
V-48	1.576E-01	NOT IDENT.
CR-51	3.139E-01	NOT IDENT.
MN-52	1.815E+00	NOT IDENT.
MN-54	2.658E-02	NOT IDENT.
CO-56	1.582E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.263E-02	NOT IDENT.
CO-58	3.250E-02	NOT IDENT.
FE-59	9.402E-02	NOT IDENT.
CO-60	2.193E-02	NOT IDENT.

ZN-65	6.879E-02	NOT IDENT.
GE-68	9.784E-01	NOT IDENT.
AS-73	1.157E-01	NOT IDENT.
AS-74	1.719E-01	NOT IDENT.
SE-75	2.721E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	3.796E-01	NOT IDENT.
RB-83	5.035E-02	NOT IDENT.
RB-84	1.055E-01	NOT IDENT.
KR-85	6.532E+00	NOT IDENT.
SR-85	4.221E-02	NOT IDENT.
RB-86	1.063E+00	NOT IDENT.
Y-88	6.428E-02	NOT IDENT.
Y-91	1.613E+01	NOT IDENT.
NB-94	2.349E-02	NOT IDENT.
NB-95	4.337E-02	NOT IDENT.
NB-95M	7.396E-02	NOT IDENT.
ZR-95	8.740E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.650E-02	NOT IDENT.
RH-102	3.826E-02	NOT IDENT.
RU-103	3.934E-02	FAIL ABUN
RH-106	2.628E-01	NOT IDENT.
RU-106	2.628E-01	NOT IDENT.
AG-108M	1.672E-02	NOT IDENT.
AG-110	5.267E-01	NOT IDENT.
AG-110M	4.523E-02	NOT IDENT.
SN-113	2.833E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	6.897E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	1.381E-02	NOT IDENT.
SB-124	7.393E-02	NOT IDENT.
SB-125	5.933E-02	NOT IDENT.
TE-125M	4.131E+00	NOT IDENT.
I-126	5.361E-01	NOT IDENT.
SB-126	3.015E-01	NOT IDENT.
SB-127	3.023E+01	NOT IDENT.
I-131	4.432E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.339E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.359E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	1.910E-01	NOT IDENT.
BA-137M	1.708E-02	NOT IDENT.
CS-137	1.804E-02	NOT IDENT.
LA-138	4.230E-02	NOT IDENT.
CE-139	1.620E-02	NOT IDENT.
BA-140	5.197E-01	NOT IDENT.
LA-140	2.122E-01	NOT IDENT.
CE-141	3.852E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.011E-01	NOT IDENT.
PM-144	2.855E-02	NOT IDENT.
PR-144	2.158E+00	NOT IDENT.
PM-146	3.002E-02	NOT IDENT.
ND-147	1.626E+00	NOT IDENT.
PM-147	3.992E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.793E-02	FAIL ABUN
EU-152	4.844E-02	NOT IDENT.
GD-153	3.080E-02	FAIL ABUN
EU-154	1.033E-01	FAIL ABUN
EU-155	3.551E-02	FAIL ABUN
TB-160	1.253E-01	FAIL ABUN
HO-166M	6.120E-02	NOT IDENT.
TM-171	1.959E+00	FAIL ABUN
HF-172	9.286E-02	FAIL ABUN
LU-172	3.559E-02	FAIL ABUN
LU-176	1.629E-02	FAIL ABUN
HF-181	4.976E-02	FAIL ABUN
TA-182	1.454E-01	FAIL ABUN
RE-183	4.260E-02	FAIL ABUN

RE-184	1.917E-01	FAIL ABUN
W-188	4.891E+00	NOT IDENT.
IR-192	2.890E-02	FAIL ABUN
BI-207	3.596E-02	NOT IDENT.
PB-211	5.931E-01	NOT IDENT.
BI-213	8.631E-02	NOT IDENT.
BI-214	1.219E-01	FAIL ABUN
RN-219	2.649E-01	NOT IDENT.
RN-222	1.219E-01	FAIL ABUN
RA-223	4.317E-01	FAIL ABUN
RA-224	4.245E-01	NOT IDENT.
AC-225	1.220E+00	NOT IDENT.
AC-227	1.273E-01	NOT IDENT.
TH-227	1.273E-01	NOT IDENT.
AC-228	2.098E-01	FAIL ABUN
RA-228	2.098E-01	FAIL ABUN
TH-229	3.412E-01	FAIL ABUN
PA-231	3.174E-01	NOT IDENT.
TH-231	4.317E-01	FAIL ABUN
TH-232	2.098E-01	FAIL ABUN
PA-233	3.637E-02	NOT IDENT.
PA-234	2.160E-01	FAIL ABUN
PA-234M	4.067E+00	FAIL ABUN
TH-234	5.012E-01	FAIL ABUN
U-235	1.051E-01	FAIL ABUN
NP-237	3.637E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
U-238	5.012E-01	FAIL ABUN
NP-239	1.031E-01	FAIL ABUN
PU-239	1.846E+02	NOT IDENT.
AM-241	3.212E-02	NOT IDENT.
AM-243	2.610E-02	NOT IDENT.
CM-243	3.907E-02	FAIL ABUN
BK-247	4.392E-02	NOT IDENT.
CM-247	2.602E-02	FAIL ABUN
CF-249	2.765E-02	NOT IDENT.
CF-251	7.574E-02	NOT IDENT.
ANH-511	4.300E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299008.CNF;1
Acquisition date : 30-JUL-2024 11:16:32 Sensitivity : 3.000
Detector ID : GAM21 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.25 Half life ratio : *****
Sample date : 26-JUN-2024 09:25:00 Nuclide Library : SOLID
Sample ID : G674299008 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 8.9440E+01 GRAM
Quantity Err(%) : 1.1181E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 8-JUL-2024 06:28:17 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM21_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.041E+00	1.037E+00	1.037E+00
CD-109	7.247E-01	4.490E-01	4.490E-01
SN-126	6.885E-02	4.250E-02	4.250E-02
HG-203	5.973E-02	6.067E-02	6.067E-02
TL-204	2.279E+01	7.859E+00	7.859E+00
TL-208	6.743E-02	4.928E-02	4.928E-02
BI-210	6.290E-01	4.800E-01	4.800E-01
PB-210	6.290E-01	4.800E-01	4.800E-01
BI-211	8.805E-01	3.128E-01	3.128E-01
BI-212	1.066E+00	6.529E-01	6.529E-01
PB-212	2.456E-01	8.824E-02	8.824E-02
PB-214	3.196E-01	1.134E-01	1.134E-01
RA-226	3.196E-01	1.134E-01	1.134E-01
TH-228	2.456E-01	8.824E-02	8.824E-02
TH-230	3.196E-01	1.134E-01	1.134E-01
U-234	3.196E-01	1.134E-01	1.134E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.886E-01	3.802E-01	4.018E-01	NOT IDENT.
NA-22	1.483E-02	3.948E-02	4.004E-02	NOT IDENT.
NA-24	-1.863E+13	1.324E+15	1.324E+15	SHORT HLIF
AL-26	3.060E-03	4.421E-02	4.423E-02	NOT IDENT.
SC-46	6.961E-03	3.986E-02	3.998E-02	NOT IDENT.
V-48	2.723E-02	1.817E-01	1.821E-01	NOT IDENT.
CR-51	-2.832E-01	4.767E-01	4.935E-01	NOT IDENT.
MN-52	-5.223E-02	2.160E+00	2.160E+00	NOT IDENT.
MN-54	-9.559E-03	3.416E-02	3.443E-02	NOT IDENT.
CO-56	-3.738E-02	3.580E-02	3.957E-02	NOT IDENT.
MN-56	-1.000E+41	9.578E+40	0.000E+00	SHORT HLIF
CO-57	4.050E-03	1.469E-02	1.481E-02	NOT IDENT.
CO-58	-1.953E-02	4.395E-02	4.483E-02	NOT IDENT.
FE-59	6.254E-02	9.001E-02	9.433E-02	NOT IDENT.

CO-60	-1.614E-02	3.600E-02	3.673E-02	NOT IDENT.
ZN-65	-9.066E-02	1.109E-01	1.182E-01	NOT IDENT.
GE-68	5.921E-01	9.452E-01	9.822E-01	NOT IDENT.
AS-73	3.775E-02	1.294E-01	1.305E-01	NOT IDENT.
AS-74	1.106E-01	2.035E-01	2.095E-01	NOT IDENT.
SE-75	-3.276E-04	3.482E-02	3.482E-02	FAIL ABUN
BR-77	9.662E+03	1.012E+04	1.102E+04	SHORT HLIF
SR-82	6.263E-03	4.436E-01	4.436E-01	NOT IDENT.
RB-83	-6.995E-02	7.926E-02	8.531E-02	NOT IDENT.
RB-84	3.053E-02	1.181E-01	1.189E-01	NOT IDENT.
KR-85	-5.538E+00	8.836E+00	9.182E+00	NOT IDENT.
SR-85	-3.599E-02	5.714E-02	5.940E-02	NOT IDENT.
RB-86	-2.927E-01	1.399E+00	1.405E+00	NOT IDENT.
Y-88	2.807E-02	6.704E-02	6.822E-02	NOT IDENT.
Y-91	-6.250E+00	2.227E+01	2.245E+01	NOT IDENT.
NB-94	-7.874E-03	3.172E-02	3.192E-02	NOT IDENT.
NB-95	-4.062E-03	5.172E-02	5.176E-02	NOT IDENT.
NB-95M	2.001E-02	9.685E-02	9.727E-02	NOT IDENT.
ZR-95	8.993E-02	8.346E-02	9.279E-02	NOT IDENT.
NB-97	-1.000E+41	1.611E+42	0.000E+00	SHORT HLIF
ZR-97	-2.605E+14	2.397E+14	2.669E+14	SHORT HLIF
MO-99	1.835E+03	1.346E+03	1.580E+03	SHORT HLIF
TC-99M	-3.585E+38	1.230E+39	0.000E+00	SHORT HLIF
RH-101	1.649E-03	1.975E-02	1.976E-02	NOT IDENT.
RH-102	-1.719E-02	5.226E-02	5.284E-02	NOT IDENT.
RU-103	-1.162E-02	5.028E-02	5.056E-02	FAIL ABUN
RH-106	-2.085E-03	3.253E-01	3.253E-01	NOT IDENT.
RU-106	-2.085E-03	3.253E-01	3.253E-01	NOT IDENT.
AG-108M	-2.224E-02	2.507E-02	2.700E-02	NOT IDENT.
AG-110	3.657E-02	6.430E-01	6.432E-01	NOT IDENT.
AG-110M	-1.926E-02	5.869E-02	5.932E-02	NOT IDENT.
SN-113	-1.391E-02	3.662E-02	3.715E-02	NOT IDENT.
CD-115	8.188E+02	3.777E+03	3.795E+03	SHORT HLIF
SN-117M	4.747E-02	7.713E-02	8.004E-02	NOT IDENT.
SB-122	-7.034E+01	2.064E+02	2.088E+02	SHORT HLIF
TE-123M	-1.172E-02	1.892E-02	1.964E-02	NOT IDENT.
SB-124	3.224E-02	6.307E-02	6.473E-02	NOT IDENT.
SB-125	1.672E-02	6.729E-02	6.771E-02	NOT IDENT.
TE-125M	-5.488E+00	5.819E+00	6.323E+00	NOT IDENT.
I-126	2.429E-01	6.068E-01	6.166E-01	NOT IDENT.
SB-126	4.387E-02	4.066E-01	4.071E-01	NOT IDENT.
SB-127	-6.015E+00	3.944E+01	3.954E+01	NOT IDENT.
I-131	3.056E-01	4.732E-01	4.928E-01	NOT IDENT.
I-132	1.000E+41	2.906E+41	0.000E+00	SHORT HLIF
TE-132	-1.231E+00	3.182E+01	3.182E+01	SHORT HLIF
BA-133	1.452E-02	2.641E-02	2.721E-02	NOT IDENT.
I-133	4.164E+09	2.280E+10	2.288E+10	SHORT HLIF
CS-134	4.246E-02	4.265E-02	4.675E-02	NOT IDENT.
I-135	2.202E+36	3.721E+36	0.000E+00	SHORT HLIF
CS-136	-1.905E-01	2.978E-01	3.099E-01	NOT IDENT.
BA-137M	-1.130E-02	2.572E-02	2.622E-02	NOT IDENT.
CS-137	-1.194E-02	2.718E-02	2.770E-02	NOT IDENT.
LA-138	1.309E-02	4.320E-02	4.360E-02	NOT IDENT.
CE-139	-5.777E-03	2.088E-02	2.104E-02	NOT IDENT.
BA-140	-1.192E-01	6.636E-01	6.657E-01	NOT IDENT.
LA-140	-5.365E-02	2.760E-01	2.771E-01	NOT IDENT.
CE-141	-4.455E-02	5.441E-02	5.800E-02	NOT IDENT.
CE-143	4.996E+05	1.354E+06	1.372E+06	SHORT HLIF
CE-144	6.302E-03	1.218E-01	1.218E-01	NOT IDENT.
PM-144	-1.984E-02	4.072E-02	4.170E-02	NOT IDENT.
PR-144	-1.500E+00	3.078E+00	3.152E+00	NOT IDENT.
PM-146	-2.395E-02	4.086E-02	4.226E-02	NOT IDENT.
ND-147	1.058E+00	1.759E+00	1.822E+00	NOT IDENT.
PM-147	3.544E+02	4.400E+02	4.682E+02	NOT IDENT.
PM-149	1.436E+04	2.617E+04	2.696E+04	SHORT HLIF
EU-150	1.567E-02	1.980E-02	2.102E-02	FAIL ABUN
EU-152	-2.684E-02	7.087E-02	7.190E-02	NOT IDENT.
GD-153	3.218E-03	3.618E-02	3.620E-02	FAIL ABUN
EU-154	4.162E-02	1.108E-01	1.124E-01	FAIL ABUN
EU-155	-4.997E-02	5.165E-02	5.635E-02	FAIL ABUN
TB-160	-1.041E-01	1.772E-01	1.833E-01	FAIL ABUN
HO-166M	3.826E-02	6.768E-02	6.984E-02	NOT IDENT.
TM-171	-1.008E+00	2.365E+00	2.409E+00	FAIL ABUN
HF-172	3.852E-02	1.073E-01	1.087E-01	FAIL ABUN
LU-172	-2.622E-04	4.321E-02	4.321E-02	FAIL ABUN
LU-176	8.365E-03	1.762E-02	1.802E-02	FAIL ABUN
HF-181	-1.036E-02	6.207E-02	6.225E-02	FAIL ABUN
TA-182	-2.634E-02	1.879E-01	1.882E-01	FAIL ABUN

RE-183	9.515E-05	4.928E-02	4.928E-02	FAIL ABUN
RE-184	1.780E-01	2.135E-01	2.281E-01	FAIL ABUN
W-188	-7.261E-01	6.070E+00	6.079E+00	NOT IDENT.
IR-192	6.116E-02	4.583E-02	5.349E-02	FAIL ABUN
BI-207	2.818E-02	3.084E-02	3.336E-02	NOT IDENT.
PB-211	3.107E-01	6.571E-01	6.719E-01	NOT IDENT.
BI-213	-1.813E-03	1.038E-01	1.038E-01	NOT IDENT.
BI-214	3.088E-01	1.348E-01	1.938E-01	FAIL ABUN
RN-219	9.849E-02	2.957E-01	2.990E-01	NOT IDENT.
RN-222	3.088E-01	1.348E-01	1.938E-01	FAIL ABUN
RA-223	5.980E-02	4.963E-01	4.971E-01	FAIL ABUN
RA-224	-1.022E-01	6.915E-01	6.931E-01	NOT IDENT.
AC-225	8.572E-02	1.519E+00	1.519E+00	NOT IDENT.
AC-227	-5.985E-02	1.751E-01	1.772E-01	NOT IDENT.
TH-227	-5.985E-02	1.751E-01	1.772E-01	NOT IDENT.
AC-228	2.464E-01	2.428E-01	2.670E-01	FAIL ABUN
RA-228	2.464E-01	2.428E-01	2.670E-01	FAIL ABUN
TH-229	6.996E-02	4.158E-01	4.170E-01	FAIL ABUN
PA-231	9.108E-03	3.684E-01	3.684E-01	NOT IDENT.
TH-231	5.980E-02	4.963E-01	4.971E-01	FAIL ABUN
TH-232	2.464E-01	2.428E-01	2.670E-01	FAIL ABUN
PA-233	-5.961E-04	4.572E-02	4.572E-02	NOT IDENT.
PA-234	4.895E-02	2.472E-01	2.482E-01	FAIL ABUN
PA-234M	4.016E+00	3.250E+00	3.720E+00	FAIL ABUN
TH-234	7.035E-01	5.672E-01	6.499E-01	FAIL ABUN
U-235	1.186E-01	1.131E-01	1.251E-01	FAIL ABUN
NP-237	-5.961E-04	4.572E-02	4.572E-02	FAIL ABUN
NP-238	3.150E+03	1.094E+04	1.103E+04	SHORT HLIF
U-238	7.035E-01	5.672E-01	6.499E-01	FAIL ABUN
NP-239	2.402E-02	1.202E-01	1.207E-01	FAIL ABUN
PU-239	4.524E+01	2.181E+02	2.191E+02	NOT IDENT.
AM-241	-1.977E-02	4.196E-02	4.289E-02	NOT IDENT.
AM-243	3.940E-02	3.317E-02	3.762E-02	NOT IDENT.
CM-243	1.098E-02	4.504E-02	4.531E-02	FAIL ABUN
BK-247	-6.670E-03	5.750E-02	5.758E-02	NOT IDENT.
CM-247	-6.069E-04	3.108E-02	3.108E-02	FAIL ABUN
CF-249	7.008E-03	3.155E-02	3.171E-02	NOT IDENT.
CF-251	5.483E-02	8.649E-02	8.995E-02	NOT IDENT.
ANH-511	-6.095E-02	4.661E-02	5.411E-02	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	25.4378	85.43	27.2659	131.20	26.8496
45.60	23.1156	86.55	32.1114	133.02	27.9496
46.54	23.2145	86.79	32.1334	133.52	24.9805
49.72	0.0000	86.94	32.1474	136.00	29.1252
51.35	20.5450	87.09	32.1611	136.47	25.1318
51.87	22.9656	87.57	32.2050	140.51	0.0000
52.39	34.9198	88.03	32.2471	143.76	15.2991
52.97	21.4794	88.34	34.6661	144.24	22.4596
53.44	24.7092	88.47	34.6788	145.44	28.6516
54.07	25.5717	89.96	36.0251	152.43	24.8859
57.36	0.0000	1093.63	36.0931	153.25	8.3079
57.53	32.4060	91.11	34.9355	323.87	12.4839
57.98	40.5777	92.59	31.7513	156.02	30.2700
59.27	47.8466	93.35	31.5140	158.56	10.4861
59.32	50.0310	94.56	13.3765	159.00	22.0382
59.54	59.8695	94.65	13.3797	162.33	24.2810
60.96	59.0946	94.67	13.3804	162.66	22.1827
61.17	59.1405	94.87	13.3876	163.33	24.3241
62.93	93.4191	97.43	20.2181	165.86	25.4941
63.29	93.5413	98.43	17.5068	176.31	28.1134
63.58	93.6391	98.44	17.5072	176.60	28.1269
64.28	93.8747	99.53	23.1010	177.52	19.5021
66.73	94.6894	100.11	16.6577	181.07	0.0000
67.24	94.8567	102.03	25.1094	181.52	24.7194
125.81	95.0006	103.18	17.7209	184.41	23.0088
67.75	95.0239	103.37	17.7293	143.76	23.0569
68.89	95.3946	105.21	26.2477	193.51	30.0083
69.67	95.6481	105.31	26.2541	197.03	27.9354
70.82	96.0153	106.12	24.4276	198.01	30.2151
70.83	96.0197	106.47	21.6276	201.83	36.0161
72.81	96.6481	109.28	28.4031	203.43	18.0510
72.87	96.6671	111.00	27.5696	205.31	19.2324
74.66	77.4385	111.76	0.0000	210.85	27.3710
74.82	99.8601	114.06	17.2358	215.65	28.7071
74.97	99.9079	116.30	0.0000	218.12	19.5888
77.11	80.6421	116.74	16.3793	222.11	18.5391
78.74	29.0507	119.76	23.2824	227.09	13.9991
79.69	30.3008	121.12	16.5419	227.38	14.0046
80.03	33.8316	121.22	21.4119	228.16	0.0000
80.12	33.8413	121.78	22.4129	228.18	21.0298
80.19	33.8484	122.06	22.4269	116.74	21.0298
80.57	36.2247	122.92	26.3771	235.69	14.1608
81.00	28.0813	123.07	26.3857	235.96	21.2487
81.07	28.0872	265.00	24.4640	238.63	21.3228
81.75	29.9038	125.81	21.6282	238.98	0.0000
82.47	22.0356	127.23	29.5830	240.99	33.2705
83.79	24.7760	127.91	33.5763	242.00	33.3141
84.00	24.7914	129.30	30.7039	244.70	22.2863

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	12.0554	344.28	11.9932	563.25	3.1583
252.80	14.4736	345.93	8.0081	564.24	0.0000
254.15	0.0000	351.06	16.0950	569.33	7.3979
256.23	16.9575	351.93	11.6337	946.00	9.5127
260.90	0.0000	355.39	0.0000	569.70	8.4567
264.66	14.6843	356.01	5.3900	583.19	1.5990
264.80	14.6869	364.49	9.9598	584.27	1.6001
265.00	15.9144	366.42	0.0000	595.83	6.4456
269.46	20.9216	372.51	9.1207	427.87	1.6161
270.03	20.9356	375.05	13.7125	602.52	0.0000
271.23	18.4987	377.52	9.1618	604.72	3.2401
273.65	21.4371	356.01	14.7412	607.14	2.1632
276.40	19.8511	388.16	11.0977	609.32	2.1660
277.37	19.8730	388.63	15.7283	610.33	1.6255
277.60	19.8784	391.69	12.0595	614.28	6.5171
278.00	19.8877	264.66	14.9567	618.01	11.9744
279.20	19.9150	401.81	8.4214	620.36	9.8108
279.54	23.2433	402.40	13.1065	621.93	8.7285
279.70	23.2473	404.85	13.1335	630.19	0.0000
280.46	16.6199	410.95	12.2579	631.29	8.7760
283.69	21.6852	413.71	12.2859	633.25	4.3929
284.31	24.2044	414.70	9.4584	634.78	4.3968
285.41	18.3844	423.72	12.3869	635.95	10.9993
285.90	0.0000	427.09	8.5988	636.99	8.8047
287.50	17.5901	427.87	7.6481	657.50	5.5670
290.67	15.1304	433.94	15.3708	657.76	5.5678
293.27	0.0000	439.40	12.5426	657.90	0.0000
351.93	17.7410	440.45	15.4499	661.66	5.5798
295.96	17.7551	453.88	16.5867	664.57	0.0000
879.38	15.2622	463.37	7.8618	666.33	6.7131
299.98	18.3423	468.07	4.9309	666.50	6.7136
300.09	18.6842	473.00	4.9489	667.71	0.0000
300.13	18.6851	475.06	5.9478	677.62	10.1320
301.36	18.7098	476.78	7.9404	685.70	7.9146
302.85	16.1843	477.60	14.8972	692.65	0.0000
256.23	18.7729	482.18	14.9469	695.00	6.8179
304.85	16.2191	487.02	13.9994	696.49	12.5093
306.78	10.2646	492.35	0.0000	696.51	12.5093
308.46	11.9965	497.08	11.0786	697.00	9.0999
311.90	9.0301	505.52	9.1183	697.30	6.8262
316.51	15.5544	507.63	0.0000	697.49	6.8267
319.41	10.4006	511.00	14.2380	702.65	7.9861
320.08	16.9125	514.00	25.4771	706.68	6.8599
321.04	18.2314	514.00	25.4771	711.68	6.8777
323.87	15.6720	520.40	14.3298	720.70	5.1823
325.23	21.7967	520.69	0.0000	721.93	0.0000
328.76	16.6242	522.65	0.0000	722.78	3.4586
333.37	8.4383	527.90	0.0000	722.91	3.4589
333.97	7.9155	528.26	8.2321	723.31	0.0000
334.37	10.5581	529.59	12.3594	724.19	3.4611
338.28	13.2486	529.87	0.0000	727.33	1.7333
338.32	13.2489	531.02	7.2165	733.00	4.6354
311.90	9.2939	537.26	9.3168	735.93	4.6424
340.48	9.2939	546.56	0.0000	333.97	10.4535
340.55	6.6389	552.55	5.2281	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	2.3309	949.00	3.8320	1384.29	1.1104
747.24	2.6262	667.71	0.0000	1408.01	2.2360
748.06	0.8757	962.31	6.7419	1434.09	1.8020
752.31	9.6535	964.08	2.8915	1435.80	0.9014
753.82	7.9041	966.17	4.8232	1457.56	0.0000
756.73	2.6385	911.20	2.8971	1460.82	3.0256
756.80	5.2773	983.53	5.8275	1489.16	2.7441
884.68	7.0610	984.45	0.0000	1505.03	2.7558
765.81	8.8342	1274.44	4.6852	1584.12	0.9378
766.42	8.8370	1001.03	3.1291	1596.21	2.8220
766.84	12.3743	1002.74	0.0000	1620.50	1.8929
772.60	0.0000	1004.73	3.9170	1621.92	1.8936
776.52	4.4400	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	0.0000
778.90	6.2233	1028.54	0.0000	1750.46	0.0000
783.70	5.3465	1037.84	4.9579	1764.49	1.9596
788.74	8.0390	1038.76	0.0000	1063.66	2.9432
792.07	5.3677	631.29	0.9948	1771.35	3.9254
795.86	3.5850	1048.07	6.9675	1791.20	0.0000
810.06	6.3153	1049.04	5.9744	1808.65	1.9795
810.29	6.3160	1050.41	2.9886	1810.72	0.0000
344.28	7.2188	1063.66	0.0000	1836.06	1.9917
810.76	7.2200	1077.00	4.0237		
815.77	5.4274	1077.34	1.0060		
1048.07	5.4344	1085.87	2.0183		
832.01	6.3792	1093.63	2.0239		
834.85	6.3873	1099.45	1.0140		
835.71	8.2156	1112.07	4.0742		
836.80	0.0000	1112.84	0.0000		
846.75	0.0000	1115.54	10.1978		
846.77	6.4217	1120.29	3.0645		
856.80	3.6859	1120.55	3.0646		
860.56	4.6150	1221.41	8.1748		
871.09	11.1271	1129.67	7.1735		
873.19	8.3529	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	9.3060	1173.23	3.1203		
880.51	8.3795	1177.95	3.1252		
881.60	6.5204	1189.05	5.2280		
883.24	3.7286	1204.77	4.2039		
884.68	8.3944	1221.41	4.2266		
889.28	3.7383	1231.02	5.2997		
894.76	9.3674	1235.36	7.4298		
898.04	4.5026	1238.28	5.3119		
900.72	4.5078	1260.41	0.0000		
903.28	9.0252	1271.87	3.2210		
911.20	9.0554	1274.44	2.1490		
912.08	9.0586	1274.54	2.1492		
923.98	0.0000	1291.59	2.1605		
926.50	4.7464	1298.22	0.0000		
929.11	4.7514	1312.11	6.5222		
935.54	4.7639	1332.49	3.2811		
937.49	6.6749	1362.66	0.0000		
944.13	5.7369	1365.19	4.4172		
946.00	2.8705	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:20:55.26

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299009.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM22.CNF;678
Background date  : 28-JUL-2024 11:28:18
Sample date     : 26-JUN-2024 09:28:00 Acquisition date : 30-JUL-2024 11:17:17
Sample ID      : G674299009 Sample quantity : 1.13770E+02 GRAM
Detector name   : GAM22 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:04.85 0.1%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID       : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	41.65	41	757	1.52	83.82	81	7	1.13E-02	113.2	
2	0	63.44*	131	658	1.26	127.39	123	9	3.65E-02	36.7	
3	5	74.72	312	591	1.23	149.95	146	15	8.68E-02	14.3	1.10E+00
4	5	77.06	825	831	1.61	154.63	146	15	2.29E-01	7.6	
5	0	83.52	104	704	0.86	167.56	162	9	2.90E-02	46.9	
6	0	87.13	234	480	1.36	174.77	172	6	6.49E-02	16.2	
7	0	93.14*	326	974	1.38	186.80	181	13	9.05E-02	21.3	
8	0	143.79*	137	504	3.06	288.07	283	10	3.80E-02	32.0	
9	0	153.72	34	433	1.26	307.92	305	8	9.57E-03	105.8	
10	0	185.90*	813	644	1.56	372.28	365	14	2.26E-01	7.6	
11	0	220.49	77	285	1.25	441.45	437	9	2.14E-02	41.2	
12	1	238.67*	626	393	1.80	477.81	469	23	1.74E-01	7.5	2.13E+00
13	1	242.10	797	346	1.62	484.66	469	23	2.21E-01	5.7	
14	0	259.21	78	223	1.87	518.88	516	8	2.18E-02	35.0	
15	0	270.17	136	317	2.44	540.79	536	11	3.79E-02	26.6	
16	0	295.29*	1702	431	1.65	591.04	584	15	4.73E-01	3.6	
17	0	299.91	38	222	1.65	600.28	598	8	1.06E-02	69.2	
18	0	332.29	14	182	1.44	665.03	665	8	3.89E-03	168.3	
19	0	338.40*	171	235	1.72	677.25	672	12	4.74E-02	19.6	
20	0	352.02*	2989	411	1.68	704.48	695	18	8.30E-01	2.4	
21	0	374.99	18	171	0.43	750.41	743	10	4.92E-03	141.4	
22	0	418.42	17	99	0.71	837.27	836	7	4.75E-03	98.6	
23	0	455.27	39	105	1.49	910.97	906	10	1.08E-02	52.0	
24	0	487.80	85	100	1.14	976.01	970	13	2.37E-02	26.5	
25	0	511.04*	29	163	1.98	1022.49	1017	12	7.93E-03	102.2	
26	0	521.77	27	61	0.74	1043.96	1041	8	7.59E-03	52.8	
27	0	535.97	48	92	4.31	1072.36	1066	13	1.33E-02	44.0	
28	0	541.00	23	56	1.57	1082.42	1079	7	6.51E-03	56.3	
29	0	583.59*	156	133	1.47	1167.60	1162	13	4.33E-02	17.9	
30	0	609.40*	2264	112	1.68	1219.21	1211	16	6.29E-01	2.4	
31	0	617.25	32	71	3.52	1234.92	1228	11	8.82E-03	51.7	
32	0	628.82	43	73	3.14	1258.05	1251	14	1.21E-02	44.4	
33	0	665.63	75	101	2.73	1331.67	1323	13	2.08E-02	29.9	
34	0	702.78	37	116	4.94	1405.97	1397	17	1.04E-02	67.6	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	727.81	42	97	1.01	1456.03	1447	14	1.17E-02	52.1	
36	0	768.63*	265	117	2.09	1537.67	1529	20	7.37E-02	11.9	
37	0	785.99	66	87	2.79	1572.39	1565	15	1.84E-02	32.9	
38	0	796.06	68	46	5.05	1592.53	1586	14	1.89E-02	24.9	
39	0	807.13	49	83	1.81	1614.69	1608	14	1.35E-02	42.5	
40	0	833.86	12	73	4.27	1668.15	1659	12	3.46E-03	141.2	
41	0	841.53	40	139	0.80	1683.49	1673	19	1.11E-02	74.3	
42	0	861.51	48	70	1.51	1723.44	1717	14	1.33E-02	39.7	
43	0	874.95	101	88	11.24	1750.32	1737	27	2.82E-02	27.5	
44	0	887.13	20	102	2.84	1774.69	1764	18	5.47E-03	121.0	
45	5	911.27*	126	60	2.49	1822.97	1817	35	3.50E-02	15.0	1.12E+00
46	5	917.68	36	96	3.53	1835.80	1817	35	1.01E-02	74.2	
47	0	934.51	127	30	1.70	1869.46	1862	15	3.54E-02	12.9	
48	0	941.15	16	33	1.78	1882.73	1878	9	4.56E-03	66.7	
49	2	964.25	41	82	2.68	1928.93	1921	25	1.14E-02	53.9	1.38E+00
50	2	968.94*	78	80	2.58	1938.32	1921	25	2.16E-02	28.2	
51	0	1001.22*	51	45	2.79	2002.89	1993	15	1.42E-02	32.5	
52	0	1077.67	14	22	0.85	2155.80	2151	9	3.90E-03	66.3	
53	0	1120.34*	481	56	1.88	2241.15	2233	17	1.34E-01	5.8	
54	0	1156.81	65	64	2.56	2314.10	2302	25	1.82E-02	36.1	
55	0	1232.56	29	14	3.74	2465.63	2460	11	8.18E-03	30.5	
56	0	1238.40	227	35	2.51	2477.32	2471	18	6.31E-02	8.8	
57	0	1275.98	15	26	1.30	2552.49	2543	15	4.09E-03	80.2	
58	0	1281.31	66	21	2.01	2563.15	2557	12	1.84E-02	18.4	
59	0	1312.53	46	115	14.73	2625.61	2598	51	1.28E-02	87.2	
60	0	1377.68	131	55	1.72	2755.92	2748	18	3.64E-02	15.8	
61	0	1387.09	21	50	1.87	2774.76	2766	17	5.92E-03	79.6	
62	0	1394.68	9	25	0.75	2789.94	2783	10	2.50E-03	109.1	
63	3	1401.59	39	30	3.24	2803.76	2797	50	1.08E-02	31.4	1.30E+00
64	3	1408.63	69	33	3.24	2817.84	2797	50	1.91E-02	24.3	
65	0	1460.99*	126	34	2.65	2922.58	2915	21	3.49E-02	14.7	
66	0	1509.48*	62	53	1.63	3019.58	3011	15	1.73E-02	28.5	
67	0	1661.19	28	18	2.19	3323.08	3318	14	7.71E-03	37.3	
68	0	1730.24	107	30	2.28	3461.23	3449	19	2.97E-02	15.4	
69	0	1748.94	10	9	2.10	3498.66	3490	11	2.89E-03	62.1	
70	0	1764.75*	451	29	2.56	3530.29	3522	21	1.25E-01	5.7	
71	0	1847.98	67	25	0.82	3696.80	3688	14	1.85E-02	20.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299009.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:28:00 Acquisition date : 30-JUL-2024 11:17:17
Sample ID : G674299009 Sample quantity : 113.77 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:04.85 0.1%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
RA-223	94.56	U-238	92.59
RA-223	94.56	TH-234	92.59
RA-223	94.56	U-235	93.35
RA-223	144.24	U-235	143.76

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
NA-22	1274.54	99.94*	2.017E+00	4.571E-02	4.686E-02	160.31	OK
K-40	1460.82	10.66*	1.821E+00	4.030E+00	4.030E+00	29.40	OK
MN-54	834.85	99.98*	2.877E+00	2.760E-02	2.977E-02	282.37	OK
GE-68	1077.34	3.22*	2.323E+00	1.181E+00	1.289E+00	132.70	OK
RB-86	1077.00	8.64*	2.323E+00	4.402E-01	1.564E+00	132.70	OK
CD-109	88.03	3.70*	5.948E+00	7.393E+00	7.781E+00	32.31	OK
SN-126	64.28	9.60	2.506E+00	3.850E+00	3.850E+00	73.38	OK
	86.94	8.90	5.948E+00	3.073E+00	3.073E+00	32.31	OK
	87.57	37.00*	5.948E+00	7.393E-01	7.393E-01	32.31	OK
TL-208	277.37	6.60	5.729E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	3.729E+00	3.181E-01	3.181E-01	35.70	OK
	860.56	12.50	2.803E+00	8.712E-01	8.712E-01	79.39	OK
BI-211	72.87	1.23	4.039E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	5.020E+00	3.039E+01	3.039E+01	4.85	OK
BI-212	727.33	6.67*	3.196E+00	1.264E+00	1.264E+00	104.30	OK
	1620.50	1.47	1.707E+00	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.324E+00	4.921E+00	4.921E+00	28.53	OK
	77.11	17.10	4.672E+00	7.222E+00	7.222E+00	15.26	OK
	238.63	43.60*	6.225E+00	1.545E+00	1.545E+00	15.06	OK
	300.09	3.30	5.486E+00	1.397E+00	1.397E+00	138.47	OK
BI-214	609.32	45.49*	3.624E+00	8.859E+00	8.859E+00	4.73	OK
	1120.29	14.92	2.248E+00	9.021E+00	9.021E+00	11.63	OK
	1764.49	15.30	1.641E+00	1.107E+01	1.107E+01	11.37	OK
PB-214	74.82	5.80	4.324E+00	8.722E+00	8.722E+00	28.53	OK
	77.11	9.70	4.672E+00	1.273E+01	1.273E+01	15.26	OK
	87.09	3.41	5.948E+00	8.022E+00	8.022E+00	32.31	OK
	242.00	7.25	6.176E+00	1.192E+01	1.192E+01	11.48	OK
	295.22	18.42	5.534E+00	1.109E+01	1.109E+01	7.24	OK
	351.93	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85	OK
RN-222	609.32	45.49*	3.624E+00	8.859E+00	8.859E+00	4.73	OK
	1120.29	14.92	2.248E+00	9.021E+00	9.021E+00	11.63	OK
	1764.49	15.30	1.641E+00	1.107E+01	1.107E+01	11.37	OK
RA-223	81.07	15.00	5.226E+00	----- Line	Not Found	-----	Absent
	83.79	24.70	5.535E+00	5.327E-01	5.327E-01	93.79	OK
	94.56	8.67	6.642E+00	----- Line	Not Found	-----	<<INT Reject
	144.24	3.27	7.729E+00	----- Line	Not Found	-----	<<INT Reject
	154.21	5.70	7.614E+00	5.412E-01	5.412E-01	211.69	OK
	269.46	13.90	5.813E+00	1.126E+00	1.126E+00	53.30	OK
	323.87	3.99*	5.257E+00	----- Line	Not Found	-----	Absent
	338.28	2.84	5.131E+00	7.743E+00	7.743E+00	39.27	OK
RA-224	240.99	4.10*	6.176E+00	2.107E+01	2.107E+01	11.48	OK
RA-226	74.82	5.80	4.324E+00	8.722E+00	8.722E+00	28.53	OK
	77.11	9.70	4.672E+00	1.273E+01	1.273E+01	15.26	OK
	87.09	3.41	5.948E+00	8.022E+00	8.022E+00	32.31	OK
	242.00	7.25	6.176E+00	1.192E+01	1.192E+01	11.48	OK
	295.22	18.42	5.534E+00	1.109E+01	1.109E+01	7.24	OK
	351.93	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85	OK
AC-228	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	5.131E+00	1.951E+00	1.951E+00	39.27	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
RA-228	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01	OK
	968.97	15.80	2.543E+00	1.223E+00	1.223E+00	56.32	OK
	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	5.131E+00	1.951E+00	1.951E+00	39.27	OK
TH-228	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01	OK
	968.97	15.80	2.543E+00	1.223E+00	1.223E+00	56.32	OK
	74.82	10.28	4.324E+00	4.921E+00	4.921E+00	28.53	OK
	77.11	17.10	4.672E+00	7.222E+00	7.222E+00	15.26	OK
TH-230	238.63	43.60*	6.225E+00	1.545E+00	1.545E+00	15.06	OK
	300.09	3.30	5.486E+00	1.397E+00	1.397E+00	138.47	OK
	74.82	5.80	4.324E+00	8.722E+00	8.722E+00	28.53	OK
	77.11	9.70	4.672E+00	1.273E+01	1.273E+01	15.26	OK
	87.09	3.41	5.948E+00	8.022E+00	8.022E+00	32.31	OK
PA-231	242.00	7.25	6.176E+00	1.192E+01	1.192E+01	11.48	OK
	295.22	18.42	5.534E+00	1.109E+01	1.109E+01	7.24	OK
	351.93	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85	OK
	283.69	1.70	5.658E+00	----- Line	Not Found	-----	Absent
	301.36	5.35*	5.486E+00	8.617E-01	8.617E-01	138.47	OK
TH-232	105.21	1.10	7.303E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	5.131E+00	1.951E+00	1.951E+00	39.27	OK
	835.71	1.61	2.872E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01	OK
	968.97	15.80	2.543E+00	1.223E+00	1.223E+00	56.32	OK
TH-234	63.29	3.70*	2.506E+00	9.990E+00	9.990E+00	73.38	OK
	92.59	4.23	6.526E+00	6.659E+00	6.659E+00	53.56	OK
	74.82	5.80	4.324E+00	8.722E+00	8.722E+00	28.53	OK
	77.11	9.70	4.672E+00	1.273E+01	1.273E+01	15.26	OK
	87.09	3.41	5.948E+00	8.022E+00	8.022E+00	32.31	OK
U-234	242.00	7.25	6.176E+00	1.192E+01	1.192E+01	11.48	OK
	295.22	18.42	5.534E+00	1.109E+01	1.109E+01	7.24	OK
	351.93	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85	OK
	89.96	3.47	6.237E+00	----- Line	Not Found	-----	Absent
	93.35	5.60	6.526E+00	5.030E+00	5.030E+00	53.56	OK
U-235	143.76	10.96*	7.733E+00	8.788E-01	8.788E-01	81.26	OK
	163.33	5.08	7.469E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	7.080E+00	1.358E+00	1.358E+00	15.13	OK
	205.31	5.01	6.744E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.506E+00	9.990E+00	9.990E+00	73.38	OK
U-238	92.59	4.23	6.526E+00	6.659E+00	6.659E+00	53.56	OK
	43.53	5.90	2.160E-01	----- Line	Not Found	-----	Absent
AM-243	74.66	67.20*	4.324E+00	7.528E-01	7.528E-01	28.53	OK
ANH-511	511.00	100.00*	4.054E+00	4.572E-02	4.572E-02	204.36	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299009.CNF;1
Acquisition date : 30-JUL-2024 11:17:17 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:04.85 Half life ratio : *****
Sample date : 26-JUN-2024 09:28:00 Analyst initials: RXF2
Sample ID : G674299009 Sample Quantity : 1.1377E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
NA-22	4.686E-02	7.362E-02	7.957E-02
K-40	4.030E+00	1.161E+00	9.609E-01
MN-54	2.977E-02	8.239E-02	1.080E-01
GE-68	1.289E+00	1.676E+00	3.215E+00
RB-86	1.564E+00	2.034E+00	3.863E+00
CD-109	7.781E+00	2.464E+00	3.700E+00
SN-126	7.393E-01	2.341E-01	3.473E-01
TL-208	3.181E-01	1.113E-01	9.900E-02
BI-211	3.039E+01	1.446E+00	6.191E-01
BI-212	1.264E+00	1.292E+00	1.184E+00
PB-212	1.545E+00	2.281E-01	1.864E-01
BI-214	8.859E+00	4.105E-01	1.956E-01
PB-214	1.103E+01	5.247E-01	2.251E-01
RN-222	8.859E+00	4.105E-01	1.956E-01
RA-223	2.478E-01	1.140E+00	2.092E+00
RA-224	2.107E+01	2.372E+00	1.995E+00
RA-226	1.103E+01	5.247E-01	2.251E-01
AC-228	1.157E+00	3.404E-01	3.342E-01
RA-228	1.157E+00	3.404E-01	3.342E-01
TH-228	1.545E+00	2.281E-01	1.864E-01
TH-230	1.103E+01	5.247E-01	2.250E-01
PA-231	8.617E-01	1.169E+00	1.598E+00
TH-232	1.157E+00	3.404E-01	3.342E-01
TH-234	9.990E+00	7.184E+00	7.217E+00
U-234	1.103E+01	5.247E-01	2.250E-01
U-235	8.788E-01	6.999E-01	7.379E-01
U-238	9.990E+00	7.184E+00	7.217E+00
AM-243	7.528E-01	2.105E-01	2.481E-01
ANH-511	4.572E-02	9.157E-02	8.215E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-3.027E-01	6.580E-01	1.153E+00	NOT IDENT.

NA-24	0.000E+00	1.444E+15	0.000E+00	SHORT HLIF
AL-26	-2.087E-02	2.746E-02	4.454E-02	NOT IDENT.
SC-46	-4.735E-02	8.556E-02	1.225E-01	FAIL ABUN
V-48	2.144E-03	2.115E-01	3.765E-01	FAIL ABUN
CR-51	-6.289E-01	1.025E+00	1.813E+00	NOT IDENT.
MN-52	-1.328E+00	3.617E+00	6.445E+00	FAIL ABUN
CO-56	-6.052E-02	7.560E-02	1.046E-01	FAIL ABUN
MN-56	0.000E+00	1.260E+41	0.000E+00	SHORT HLIF
CO-57	-1.692E-02	5.514E-02	9.537E-02	NOT IDENT.
CO-58	-2.127E-02	7.672E-02	1.151E-01	NOT IDENT.
FE-59	1.295E-01	1.364E-01	2.805E-01	NOT IDENT.
CO-60	-1.637E-02	5.645E-02	1.014E-01	NOT IDENT.
ZN-65	-3.431E-02	1.142E-01	1.787E-01	NOT IDENT.
AS-73	-1.776E+00	4.892E+00	8.667E+00	NOT IDENT.
AS-74	-5.063E-02	2.962E-01	5.240E-01	NOT IDENT.
SE-75	-3.881E-03	1.085E-01	1.637E-01	NOT IDENT.
BR-77	0.000E+00	8.967E+03	0.000E+00	SHORT HLIF
SR-82	1.570E-03	8.215E-01	1.290E+00	NOT IDENT.
RB-83	1.295E-01	1.340E-01	2.278E-01	FAIL ABUN
RB-84	1.668E-01	2.027E-01	2.729E-01	NOT IDENT.
KR-85	5.357E+00	1.185E+01	1.947E+01	NOT IDENT.
SR-85	3.445E-02	7.663E-02	1.259E-01	NOT IDENT.
Y-88	4.860E-02	5.956E-02	1.249E-01	NOT IDENT.
Y-91	-1.089E+01	3.171E+01	5.686E+01	NOT IDENT.
NB-94	7.332E-02	9.718E-02	9.386E-02	FAIL ABUN
NB-95	0.000E+00	9.583E-02	1.795E-01	NOT IDENT.
NB-95M	4.438E-01	3.400E-01	5.516E-01	NOT IDENT.
ZR-95	-2.050E-02	1.293E-01	2.270E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.781E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.084E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	4.657E+39	0.000E+00	SHORT HLIF
RH-101	-3.364E-02	6.698E-02	1.147E-01	NOT IDENT.
RH-102	-2.374E-03	8.503E-02	1.339E-01	NOT IDENT.
RU-103	2.012E-02	8.742E-02	1.599E-01	FAIL ABUN
RH-106	3.319E-01	5.940E-01	8.585E-01	NOT IDENT.
RU-106	3.319E-01	5.940E-01	8.585E-01	NOT IDENT.
AG-108M	3.450E-03	4.805E-02	8.727E-02	NOT IDENT.
AG-110	-1.740E-01	1.066E+00	1.824E+00	NOT IDENT.
AG-110M	2.893E-02	9.293E-02	1.484E-01	NOT IDENT.
SN-113	-4.630E-02	8.153E-02	1.433E-01	NOT IDENT.
CD-115	0.000E+00	6.613E+03	0.000E+00	SHORT HLIF
SN-117M	3.546E-02	3.369E-01	5.226E-01	NOT IDENT.
SB-122	0.000E+00	3.595E+02	0.000E+00	SHORT HLIF
TE-123M	-2.774E-02	7.073E-02	1.145E-01	NOT IDENT.
SB-124	7.715E-02	1.388E-01	2.846E-01	NOT IDENT.
SB-125	-2.740E-02	1.587E-01	2.836E-01	NOT IDENT.
TE-125M	-2.220E+01	2.554E+01	4.340E+01	NOT IDENT.
I-126	0.000E+00	1.567E+00	2.088E+00	FAIL ABUN
SB-126	1.578E-01	7.087E-01	1.129E+00	FAIL ABUN
SB-127	5.398E+01	5.561E+01	1.073E+02	NOT IDENT.
I-131	-6.818E-04	9.851E-01	1.791E+00	NOT IDENT.
I-132	0.000E+00	8.705E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	8.846E+01	0.000E+00	SHORT HLIF
BA-133	-1.949E-02	7.880E-02	1.242E-01	NOT IDENT.
I-133	0.000E+00	3.925E+10	0.000E+00	SHORT HLIF
CS-134	0.000E+00	8.545E-02	1.209E-01	FAIL ABUN
I-135	0.000E+00	4.752E+36	0.000E+00	SHORT HLIF
CS-136	-2.615E-01	3.829E-01	6.698E-01	FAIL ABUN
BA-137M	-8.780E-03	5.517E-02	8.519E-02	NOT IDENT.
CS-137	-9.275E-03	5.828E-02	8.999E-02	NOT IDENT.
LA-138	1.596E-02	7.823E-02	1.496E-01	NOT IDENT.
CE-139	-6.824E-02	7.014E-02	1.166E-01	NOT IDENT.
BA-140	0.000E+00	1.785E+00	1.955E+00	FAIL ABUN
LA-140	-2.429E-01	3.870E-01	6.597E-01	FAIL ABUN
CE-141	1.645E-01	2.238E-01	3.583E-01	NOT IDENT.
CE-143	0.000E+00	5.318E+06	0.000E+00	SHORT HLIF
CE-144	-7.649E-02	4.400E-01	7.615E-01	NOT IDENT.
PM-144	3.133E-02	5.221E-02	8.785E-02	FAIL ABUN
PR-144	2.355E+00	3.945E+00	6.636E+00	NOT IDENT.
PM-146	9.137E-02	9.317E-02	1.269E-01	FAIL ABUN
ND-147	-2.893E+00	3.410E+00	4.948E+00	NOT IDENT.
PM-147	-4.842E+02	1.552E+03	2.685E+03	NOT IDENT.
PM-149	0.000E+00	6.972E+04	0.000E+00	SHORT HLIF
EU-150	-1.895E-02	5.588E-02	8.754E-02	FAIL ABUN
EU-152	-1.012E-01	2.781E-01	3.099E-01	FAIL ABUN
GD-153	1.721E-02	2.094E-01	3.317E-01	NOT IDENT.
EU-154	8.536E-02	1.455E-01	2.629E-01	NOT IDENT.

EU-155	-7.632E-02	2.129E-01	3.698E-01	FAIL ABUN
TB-160	3.270E-01	3.171E-01	4.415E-01	FAIL ABUN
HO-166M	9.194E-03	8.419E-02	1.519E-01	FAIL ABUN
TM-171	1.791E+01	9.550E+01	1.720E+02	NOT IDENT.
HF-172	7.909E-02	4.010E-01	7.023E-01	FAIL ABUN
LU-172	5.712E-02	7.545E-02	1.523E-01	FAIL ABUN
LU-176	-8.332E-04	4.864E-02	8.846E-02	FAIL ABUN
HF-181	-2.930E-03	1.049E-01	1.663E-01	NOT IDENT.
TA-182	9.369E-02	2.362E-01	4.573E-01	FAIL ABUN
RE-183	2.823E-01	9.304E-01	1.680E+00	NOT IDENT.
RE-184	-1.375E-01	2.381E-01	3.988E-01	NOT IDENT.
W-188	-9.663E-02	1.939E+01	2.916E+01	FAIL ABUN
IR-192	-5.332E-03	7.077E-02	1.286E-01	FAIL ABUN
HG-203	-6.598E-02	1.089E-01	1.791E-01	NOT IDENT.
TL-204	7.468E+00	1.532E+01	2.484E+01	FAIL ABUN
BI-207	3.980E-02	6.609E-02	1.301E-01	FAIL ABUN
BI-210	-5.005E+00	2.715E+01	4.843E+01	NOT IDENT.
PB-210	-5.005E+00	2.715E+01	4.843E+01	NOT IDENT.
PB-211	8.757E-01	1.274E+00	2.375E+00	NOT IDENT.
BI-213	8.928E-02	1.683E-01	3.116E-01	NOT IDENT.
RN-219	2.017E-01	7.435E-01	1.357E+00	FAIL ABUN
AC-225	-2.292E+00	4.855E+00	7.187E+00	NOT IDENT.
AC-227	3.994E-01	5.634E-01	8.915E-01	FAIL ABUN
TH-227	3.994E-01	5.634E-01	8.915E-01	FAIL ABUN
TH-229	1.826E-01	1.081E+00	1.870E+00	FAIL ABUN
TH-231	2.478E-01	1.140E+00	2.092E+00	FAIL ABUN
PA-233	1.297E-02	1.125E-01	2.062E-01	FAIL ABUN
PA-234	1.572E-01	4.817E-01	7.769E-01	NOT IDENT.
PA-234M	0.000E+00	9.888E+00	1.434E+01	FAIL ABUN
NP-237	1.297E-02	1.125E-01	2.062E-01	FAIL ABUN
NP-238	0.000E+00	1.336E+04	0.000E+00	SHORT HLIF
NP-239	2.843E-01	5.401E-01	9.662E-01	NOT IDENT.
PU-239	7.980E+02	6.998E+02	1.271E+03	FAIL ABUN
AM-241	-3.115E-01	6.225E-01	9.764E-01	NOT IDENT.
CM-243	-1.041E-01	2.124E-01	3.675E-01	NOT IDENT.
BK-247	1.401E-01	1.687E-01	2.701E-01	FAIL ABUN
CM-247	1.876E-02	6.862E-02	1.252E-01	NOT IDENT.
CF-249	1.006E-01	6.920E-02	1.342E-01	FAIL ABUN
CF-251	-3.109E-01	2.763E-01	4.548E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NA-22	1274.54	14	99.94*	2.017E+00	4.571E-02	4.686E-02	160.31
K-40	1460.82	119	10.66*	1.821E+00	4.030E+00	4.030E+00	29.40
MN-54	834.85	12	99.98*	2.877E+00	2.760E-02	2.977E-02	282.37
GE-68	1077.34	13	3.22*	2.323E+00	1.181E+00	1.289E+00	132.70
RB-86	1077.00	13	8.64*	2.323E+00	4.402E-01	1.564E+00	132.70
CD-109	88.03	247	3.70*	5.948E+00	7.393E+00	7.781E+00	32.31
SN-126	64.28	140	9.60	2.506E+00	3.850E+00	3.850E+00	73.38
	86.94	247	8.90	5.948E+00	3.073E+00	3.073E+00	32.31
	87.57	247	37.00*	5.948E+00	7.393E-01	7.393E-01	32.31
TL-208	277.37	-----	6.60	5.729E+00	-----	Line Not Found	-----
	583.19	153	85.00*	3.729E+00	3.181E-01	3.181E-01	35.70
	860.56	46	12.50	2.803E+00	8.712E-01	8.712E-01	79.39
BI-211	72.87	-----	1.23	4.039E+00	-----	Line Not Found	-----
	351.06	2987	12.92*	5.020E+00	3.039E+01	3.039E+01	4.85
BI-212	727.33	41	6.67*	3.196E+00	1.264E+00	1.264E+00	104.30
	1620.50	-----	1.47	1.707E+00	-----	Line Not Found	-----
PB-212	74.82	332	10.28	4.324E+00	4.921E+00	4.921E+00	28.53
	77.11	874	17.10	4.672E+00	7.222E+00	7.222E+00	15.26
	238.63	636	43.60*	6.225E+00	1.545E+00	1.545E+00	15.06
	300.09	38	3.30	5.486E+00	1.397E+00	1.397E+00	138.47
BI-214	609.32	2213	45.49*	3.624E+00	8.859E+00	8.859E+00	4.73
	1120.29	458	14.92	2.248E+00	9.021E+00	9.021E+00	11.63
	1764.49	421	15.30	1.641E+00	1.107E+01	1.107E+01	11.37
PB-214	74.82	332	5.80	4.324E+00	8.722E+00	8.722E+00	28.53
	77.11	874	9.70	4.672E+00	1.273E+01	1.273E+01	15.26
	87.09	247	3.41	5.948E+00	8.022E+00	8.022E+00	32.31
	242.00	809	7.25	6.176E+00	1.192E+01	1.192E+01	11.48
	295.22	1713	18.42	5.534E+00	1.109E+01	1.109E+01	7.24
	351.93	2987	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85
RN-222	609.32	2213	45.49*	3.624E+00	8.859E+00	8.859E+00	4.73
	1120.29	458	14.92	2.248E+00	9.021E+00	9.021E+00	11.63
	1764.49	421	15.30	1.641E+00	1.107E+01	1.107E+01	11.37
RA-223	81.07	-----	15.00	5.226E+00	-----	Line Not Found	-----
	83.79	110	24.70	5.535E+00	5.327E-01	5.327E-01	93.79
	94.56	343	8.67	6.526E+00	4.001E+00	4.001E+00	42.53
	144.24	142	3.27	7.733E+00	3.697E+00	3.697E+00	63.99
	154.21	36	5.70	7.614E+00	5.412E-01	5.412E-01	211.69
	269.46	138	13.90	5.813E+00	1.126E+00	1.126E+00	53.30
	323.87	-----	3.99*	5.257E+00	-----	Line Not Found	-----
	338.28	171	2.84	5.131E+00	7.743E+00	7.743E+00	39.27
RA-224	240.99	809	4.10*	6.176E+00	2.107E+01	2.107E+01	11.48
RA-226	74.82	332	5.80	4.324E+00	8.722E+00	8.722E+00	28.53
	77.11	874	9.70	4.672E+00	1.273E+01	1.273E+01	15.26
	87.09	247	3.41	5.948E+00	8.022E+00	8.022E+00	32.31
	242.00	809	7.25	6.176E+00	1.192E+01	1.192E+01	11.48
	295.22	1713	18.42	5.534E+00	1.109E+01	1.109E+01	7.24
	351.93	2987	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AC-228	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	171	11.27	5.131E+00	1.951E+00	1.951E+00	39.27
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
	911.20	121	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01
	968.97	74	15.80	2.543E+00	1.223E+00	1.223E+00	56.32
RA-228	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	171	11.27	5.131E+00	1.951E+00	1.951E+00	39.27
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
	911.20	121	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01
	968.97	74	15.80	2.543E+00	1.223E+00	1.223E+00	56.32
TH-228	74.82	332	10.28	4.324E+00	4.921E+00	4.921E+00	28.53
	77.11	874	17.10	4.672E+00	7.222E+00	7.222E+00	15.26
	238.63	636	43.60*	6.225E+00	1.545E+00	1.545E+00	15.06
	300.09	38	3.30	5.486E+00	1.397E+00	1.397E+00	138.47
	74.82	332	5.80	4.324E+00	8.722E+00	8.722E+00	28.53
TH-230	77.11	874	9.70	4.672E+00	1.273E+01	1.273E+01	15.26
	87.09	247	3.41	5.948E+00	8.022E+00	8.022E+00	32.31
	242.00	809	7.25	6.176E+00	1.192E+01	1.192E+01	11.48
	295.22	1713	18.42	5.534E+00	1.109E+01	1.109E+01	7.24
	351.93	2987	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85
PA-231	283.69	-----	1.70	5.658E+00	-----	Line Not Found	-----
	301.36	38	5.35*	5.486E+00	8.617E-01	8.617E-01	138.47
TH-232	105.21	-----	1.10	7.303E+00	-----	Line Not Found	-----
	338.32	171	11.27	5.131E+00	1.951E+00	1.951E+00	39.27
	835.71	-----	1.61	2.872E+00	-----	Line Not Found	-----
	911.20	121	25.80*	2.677E+00	1.157E+00	1.157E+00	30.01
	968.97	74	15.80	2.543E+00	1.223E+00	1.223E+00	56.32
TH-234	63.29	140	3.70*	2.506E+00	9.990E+00	9.990E+00	73.38
	92.59	343	4.23	6.526E+00	8.200E+00	8.200E+00	42.53
U-234	74.82	332	5.80	4.324E+00	8.722E+00	8.722E+00	28.53
	77.11	874	9.70	4.672E+00	1.273E+01	1.273E+01	15.26
	87.09	247	3.41	5.948E+00	8.022E+00	8.022E+00	32.31
	242.00	809	7.25	6.176E+00	1.192E+01	1.192E+01	11.48
	295.22	1713	18.42	5.534E+00	1.109E+01	1.109E+01	7.24
	351.93	2987	35.60*	5.020E+00	1.103E+01	1.103E+01	4.85
U-235	89.96	-----	3.47	6.237E+00	-----	Line Not Found	-----
	93.35	343	5.60	6.526E+00	6.194E+00	6.194E+00	42.53
	143.76	142	10.96*	7.733E+00	1.103E+00	1.103E+00	63.99
	163.33	-----	5.08	7.469E+00	-----	Line Not Found	-----
	185.72	834	57.20	7.080E+00	1.358E+00	1.358E+00	15.13
	205.31	-----	5.01	6.744E+00	-----	Line Not Found	-----
U-238	63.29	140	3.70*	2.506E+00	9.990E+00	9.990E+00	73.38
	92.59	343	4.23	6.526E+00	8.200E+00	8.200E+00	42.53
AM-243	43.53	-----	5.90	2.160E-01	-----	Line Not Found	-----
	74.66	332	67.20*	4.324E+00	7.528E-01	7.528E-01	28.53
ANH-511	511.00	28	100.00*	4.054E+00	4.572E-02	4.572E-02	204.36

Flag: "*" = Keyline

Total number of lines in spectrum 71
Number of unidentified lines 24
Number of lines tentatively identified by NID 47 66.20%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
NA-22	2.60Y	1.03	4.571E-02	4.686E-02	7.512E-02	160.31	
K-40	1.25E+09Y	1.00	4.030E+00	4.030E+00	1.185E+00	29.40	
MN-54	312.05D	1.08	2.760E-02	2.977E-02	8.407E-02	282.37	
GE-68	270.95D	1.09	1.181E+00	1.289E+00	1.710E+00	132.70	
RB-86	18.64D	3.55	4.402E-01	1.564E+00	2.076E+00	132.70	
CD-109	461.40D	1.05	7.393E+00	7.781E+00	2.514E+00	32.31	
SN-126	2.30E+05Y	1.00	7.393E-01	7.393E-01	2.389E-01	32.31	
TL-208	1.41E+10Y	1.00	3.181E-01	3.181E-01	1.136E-01	35.70	
BI-211	7.04E+08Y	1.00	3.039E+01	3.039E+01	0.148E+01	4.85	
BI-212	1.41E+10Y	1.00	1.264E+00	1.264E+00	1.319E+00	104.30	
PB-212	1.41E+10Y	1.00	1.545E+00	1.545E+00	0.233E+00	15.06	
BI-214	1600.00Y	1.00	8.859E+00	8.859E+00	0.419E+00	4.73	
PB-214	1600.00Y	1.00	1.103E+01	1.103E+01	0.054E+01	4.85	
RN-222	1600.00Y	1.00	8.859E+00	8.859E+00	0.419E+00	4.73	
RA-223	7.04E+08Y	1.00	5.327E-01	5.327E-01	4.996E-01	93.79	K
RA-224	1.41E+10Y	1.00	2.107E+01	2.107E+01	0.242E+01	11.48	
RA-226	1600.00Y	1.00	1.103E+01	1.103E+01	0.054E+01	4.85	
AC-228	1.41E+10Y	1.00	1.157E+00	1.157E+00	0.347E+00	30.01	
RA-228	1.41E+10Y	1.00	1.157E+00	1.157E+00	0.347E+00	30.01	
TH-228	1.41E+10Y	1.00	1.545E+00	1.545E+00	0.233E+00	15.06	
TH-230	7.54E+04Y	1.00	1.103E+01	1.103E+01	0.054E+01	4.85	
PA-231	7.04E+08Y	1.00	8.617E-01	8.617E-01	11.93E-01	138.47	
TH-232	1.41E+10Y	1.00	1.157E+00	1.157E+00	0.347E+00	30.01	
TH-234	4.47E+09Y	1.00	9.990E+00	9.990E+00	7.330E+00	73.38	
U-234	2.45E+05Y	1.00	1.103E+01	1.103E+01	0.054E+01	4.85	
U-235	7.04E+08Y	1.00	1.103E+00	1.103E+00	0.706E+00	63.99	
U-238	4.47E+09Y	1.00	9.990E+00	9.990E+00	7.330E+00	73.38	
AM-243	7370.00Y	1.00	7.528E-01	7.528E-01	2.148E-01	28.53	
ANH-511	1.00E+09Y	1.00	4.572E-02	4.572E-02	9.344E-02	204.36	
Total Activity :			1.586E+02	1.602E+02			

Grand Total Activity : 1.586E+02 1.602E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	41.65	44	822	1.52	83.82	81	7	1.13E-02	****	1.40E-01	
0	220.49	78	290	1.25	441.45	437	9	2.14E-02	82.4	6.50E+00	
0	259.21	79	225	1.87	518.88	516	8	2.18E-02	70.0	5.95E+00	
0	332.29	14	182	1.44	665.03	665	8	3.89E-03	****	5.18E+00	T
0	374.99	18	171	0.43	750.41	743	10	4.92E-03	****	4.85E+00	T
0	418.42	17	98	0.71	837.27	836	7	4.75E-03	****	4.56E+00	
0	455.27	39	104	1.49	910.97	906	10	1.08E-02	****	4.34E+00	T
0	487.80	84	98	1.14	976.01	970	13	2.37E-02	53.0	4.17E+00	T
0	521.77	27	60	0.74	1043.96	1041	8	7.59E-03	****	4.00E+00	T
0	535.97	47	90	4.31	1072.36	1066	13	1.33E-02	88.0	3.94E+00	T
0	541.00	23	55	1.57	1082.42	1079	7	6.51E-03	****	3.91E+00	
0	617.25	31	70	3.52	1234.92	1228	11	8.82E-03	****	3.59E+00	T
0	628.82	42	71	3.14	1258.05	1251	14	1.21E-02	88.9	3.55E+00	T
0	665.63	73	98	2.73	1331.67	1323	13	2.08E-02	59.8	3.41E+00	T
0	702.78	36	112	4.94	1405.97	1397	17	1.04E-02	****	3.28E+00	T
0	768.63	257	113	2.09	1537.67	1529	20	7.37E-02	23.7	3.07E+00	
0	785.99	64	84	2.79	1572.39	1565	15	1.84E-02	65.9	3.01E+00	
0	796.06	66	45	5.05	1592.53	1586	14	1.89E-02	49.8	2.99E+00	T
0	807.13	47	81	1.81	1614.69	1608	14	1.35E-02	84.9	2.95E+00	
0	841.53	38	134	0.80	1683.49	1673	19	1.11E-02	****	2.86E+00	
0	874.95	98	84	11.24	1750.32	1737	27	2.82E-02	55.1	2.77E+00	T
0	887.13	19	98	2.84	1774.69	1764	18	5.47E-03	****	2.74E+00	
5	917.68	35	92	3.53	1835.80	1817	35	1.01E-02	****	2.66E+00	
0	934.51	122	28	1.70	1869.46	1862	15	3.54E-02	25.8	2.62E+00	T
0	941.15	16	31	1.78	1882.73	1878	9	4.56E-03	****	2.61E+00	
2	964.25	39	79	2.68	1928.93	1921	25	1.14E-02	****	2.55E+00	T
0	1001.22	49	43	2.79	2002.89	1993	15	1.42E-02	65.0	2.47E+00	T
0	1156.81	62	60	2.56	2314.10	2302	25	1.82E-02	72.2	2.19E+00	
0	1232.56	28	13	3.74	2465.63	2460	11	8.18E-03	61.0	2.07E+00	
0	1238.40	215	33	2.51	2477.32	2471	18	6.31E-02	17.7	2.07E+00	T
0	1281.31	63	20	2.01	2563.15	2557	12	1.84E-02	36.9	2.01E+00	
0	1312.53	44	109	14.73	2625.61	2598	51	1.28E-02	****	1.97E+00	T
0	1377.68	124	52	1.72	2755.92	2748	18	3.64E-02	31.6	1.90E+00	
0	1387.09	20	47	1.87	2774.76	2766	17	5.92E-03	****	1.89E+00	
0	1394.68	8	24	0.75	2789.94	2783	10	2.50E-03	****	1.88E+00	
3	1401.59	37	28	3.24	2803.76	2797	50	1.08E-02	62.8	1.88E+00	
3	1408.63	65	31	3.24	2817.84	2797	50	1.91E-02	48.5	1.87E+00	T
0	1509.48	59	49	1.63	3019.58	3011	15	1.73E-02	57.0	1.78E+00	
0	1661.19	26	17	2.19	3323.08	3318	14	7.71E-03	74.6	1.69E+00	
0	1730.24	100	28	2.28	3461.23	3449	19	2.97E-02	30.8	1.65E+00	
0	1748.94	10	8	2.10	3498.66	3490	11	2.89E-03	****	1.65E+00	
0	1847.98	62	24	0.82	3696.80	3688	14	1.85E-02	40.0	1.62E+00	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299009.CNF;1 *
* Acquisition date : 30-JUL-2024 11:17:17 Sensitivity : 3.000 *
* Detector ID : GAM22 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:04.85 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:28:00 Nuclide Library : SOLID *
* Sample ID : G674299009 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.1377E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* *
* Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
NA-22	3.527E-02
K-40	4.349E-01
MN-54	5.066E-02
GE-68	1.478E+00
RB-86	1.775E+00
CD-109	1.808E+00
SN-126	1.696E-01
TL-208	4.670E-02
BI-211	2.959E-01
BI-212	5.503E-01
PB-212	8.994E-02
BI-214	9.240E-02
PB-214	1.075E-01
RN-222	9.240E-02
RA-223	1.004E+00
RA-224	9.623E-01
RA-226	1.075E-01
AC-228	1.542E-01
RA-228	1.542E-01
TH-228	8.994E-02
TH-230	1.075E-01
PA-231	7.688E-01
TH-232	1.542E-01
TH-234	3.511E+00
U-234	1.075E-01
U-235	3.584E-01
U-238	3.511E+00
AM-243	1.210E-01
ANH-511	3.888E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.449E-01	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF

AL-26	1.681E-02	NOT IDENT.
SC-46	5.694E-02	FAIL ABUN
V-48	1.727E-01	FAIL ABUN
CR-51	8.664E-01	NOT IDENT.
MN-52	2.893E+00	FAIL ABUN
CO-56	4.804E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	4.622E-02	NOT IDENT.
CO-58	5.332E-02	NOT IDENT.
FE-59	1.286E-01	NOT IDENT.
CO-60	4.610E-02	NOT IDENT.
ZN-65	8.077E-02	NOT IDENT.
AS-73	4.222E+00	NOT IDENT.
AS-74	2.465E-01	NOT IDENT.
SE-75	7.874E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.957E-01	NOT IDENT.
RB-83	1.074E-01	FAIL ABUN
RB-84	1.268E-01	NOT IDENT.
KR-85	9.226E+00	NOT IDENT.
SR-85	5.966E-02	NOT IDENT.
Y-88	5.559E-02	NOT IDENT.
Y-91	2.602E+01	NOT IDENT.
NB-94	4.422E-02	FAIL ABUN
NB-95	8.560E-02	NOT IDENT.
NB-95M	2.675E-01	NOT IDENT.
ZR-95	1.059E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	5.564E-02	NOT IDENT.
RH-102	6.240E-02	NOT IDENT.
RU-103	7.564E-02	FAIL ABUN
RH-106	4.025E-01	NOT IDENT.
RU-106	4.025E-01	NOT IDENT.
AG-108M	4.143E-02	NOT IDENT.
AG-110	8.487E-01	NOT IDENT.
AG-110M	6.932E-02	NOT IDENT.
SN-113	6.807E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.535E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	5.553E-02	NOT IDENT.
SB-124	1.258E-01	NOT IDENT.
SB-125	1.350E-01	NOT IDENT.
TE-125M	2.103E+01	NOT IDENT.
I-126	9.949E-01	FAIL ABUN
SB-126	5.300E-01	FAIL ABUN
SB-127	5.030E+01	NOT IDENT.
I-131	8.536E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.918E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.686E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.068E-01	FAIL ABUN
BA-137M	3.970E-02	NOT IDENT.
CS-137	4.194E-02	NOT IDENT.
LA-138	6.746E-02	NOT IDENT.
CE-139	5.650E-02	NOT IDENT.
BA-140	9.181E-01	FAIL ABUN
LA-140	2.955E-01	FAIL ABUN
CE-141	1.742E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	3.695E-01	NOT IDENT.
PM-144	4.104E-02	FAIL ABUN
PR-144	3.100E+00	NOT IDENT.
PM-146	6.024E-02	FAIL ABUN
ND-147	2.326E+00	NOT IDENT.
PM-147	1.301E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	4.197E-02	FAIL ABUN
EU-152	1.484E-01	FAIL ABUN
GD-153	1.609E-01	NOT IDENT.
EU-154	1.188E-01	NOT IDENT.
EU-155	1.790E-01	FAIL ABUN

TB-160	2.059E-01	FAIL ABUN
HO-166M	7.087E-02	FAIL ABUN
TM-171	8.386E+01	NOT IDENT.
HF-172	3.406E-01	FAIL ABUN
LU-172	6.979E-02	FAIL ABUN
LU-176	4.247E-02	FAIL ABUN
HF-181	7.856E-02	NOT IDENT.
TA-182	2.093E-01	FAIL ABUN
RE-183	8.178E-01	NOT IDENT.
RE-184	1.825E-01	NOT IDENT.
W-188	1.403E+01	FAIL ABUN
IR-192	6.152E-02	FAIL ABUN
HG-203	8.638E-02	NOT IDENT.
TL-204	1.211E+01	FAIL ABUN
BI-207	6.000E-02	FAIL ABUN
BI-210	2.367E+01	NOT IDENT.
PB-210	2.367E+01	NOT IDENT.
PB-211	1.137E+00	NOT IDENT.
BI-213	1.481E-01	NOT IDENT.
RN-219	6.498E-01	FAIL ABUN
AC-225	3.466E+00	NOT IDENT.
AC-227	4.301E-01	FAIL ABUN
TH-227	4.301E-01	FAIL ABUN
TH-229	9.058E-01	FAIL ABUN
TH-231	1.004E+00	FAIL ABUN
PA-233	9.880E-02	FAIL ABUN
PA-234	3.600E-01	NOT IDENT.
PA-234M	6.742E+00	FAIL ABUN
NP-237	9.880E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	4.684E-01	NOT IDENT.
PU-239	6.175E+02	FAIL ABUN
AM-241	4.750E-01	NOT IDENT.
CM-243	1.778E-01	NOT IDENT.
BK-247	1.300E-01	FAIL ABUN
CM-247	5.997E-02	NOT IDENT.
CF-249	6.426E-02	FAIL ABUN
CF-251	2.203E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299009.CNF;1
Acquisition date : 30-JUL-2024 11:17:17 Sensitivity : 3.000
Detector ID : GAM22 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:04.85 Half life ratio : *****
Sample date : 26-JUN-2024 09:28:00 Nuclide Library : SOLID
Sample ID : G674299009 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1377E+02 GRAM
Quantity Err(%) : 1.7579E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-JAN-2024 07:21:39 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM22_CAN.CNF;26

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
NA-22	4.686E-02	7.374E-02	7.374E-02
K-40	4.030E+00	1.228E+00	1.228E+00
MN-54	2.977E-02	8.246E-02	8.246E-02
GE-68	1.289E+00	1.681E+00	1.681E+00
RB-86	1.564E+00	2.040E+00	2.040E+00
CD-109	7.781E+00	2.687E+00	2.687E+00
SN-126	7.393E-01	2.523E-01	2.523E-01
TL-208	3.181E-01	1.156E-01	1.156E-01
BI-211	3.039E+01	3.200E+00	3.200E+00
BI-212	1.264E+00	1.300E+00	1.300E+00
PB-212	1.545E+00	2.899E-01	2.899E-01
BI-214	8.859E+00	9.824E-01	9.824E-01
PB-214	1.103E+01	1.147E+00	1.147E+00
RN-222	8.859E+00	9.824E-01	9.824E-01
RA-223	2.478E-01	1.140E+00	1.140E+00
RA-224	2.107E+01	3.400E+00	3.400E+00
RA-226	1.103E+01	1.147E+00	1.147E+00
AC-228	1.157E+00	3.673E-01	3.673E-01
RA-228	1.157E+00	3.673E-01	3.673E-01
TH-228	1.545E+00	2.899E-01	2.899E-01
TH-230	1.103E+01	1.147E+00	1.147E+00
PA-231	8.617E-01	1.186E+00	1.186E+00
TH-232	1.157E+00	3.673E-01	3.673E-01
TH-234	9.990E+00	7.591E+00	7.591E+00
U-234	1.103E+01	1.147E+00	1.147E+00
U-235	8.801E-01	7.059E-01	7.059E-01
U-238	9.990E+00	7.591E+00	7.591E+00
AM-243	7.528E-01	2.293E-01	2.293E-01
ANH-511	4.572E-02	9.167E-02	9.167E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)
BE-7	-3.027E-01	6.586E-01	6.726E-01 NOT IDENT.

NA-24	-1.199E+15	1.450E+15	1.548E+15	SHORT HLIF
AL-26	-2.087E-02	2.751E-02	2.907E-02	NOT IDENT.
SC-46	-4.735E-02	8.574E-02	8.836E-02	FAIL ABUN
V-48	2.144E-03	2.115E-01	2.115E-01	FAIL ABUN
CR-51	-6.289E-01	1.027E+00	1.065E+00	NOT IDENT.
MN-52	-1.328E+00	3.619E+00	3.668E+00	FAIL ABUN
CO-56	-6.052E-02	7.592E-02	8.067E-02	FAIL ABUN
MN-56	-1.000E+41	1.266E+41	0.000E+00	SHORT HLIF
CO-57	-1.692E-02	5.516E-02	5.568E-02	NOT IDENT.
CO-58	-2.127E-02	7.675E-02	7.735E-02	NOT IDENT.
FE-59	1.295E-01	1.371E-01	1.490E-01	NOT IDENT.
CO-60	-1.637E-02	5.647E-02	5.695E-02	NOT IDENT.
ZN-65	-3.431E-02	1.143E-01	1.153E-01	NOT IDENT.
AS-73	-1.776E+00	4.910E+00	4.975E+00	NOT IDENT.
AS-74	-5.063E-02	2.962E-01	2.971E-01	NOT IDENT.
SE-75	-3.881E-03	1.085E-01	1.085E-01	NOT IDENT.
BR-77	6.075E+04	6.085E+04	6.673E+04	SHORT HLIF
SR-82	1.570E-03	8.215E-01	8.215E-01	NOT IDENT.
RB-83	1.295E-01	1.356E-01	1.476E-01	FAIL ABUN
RB-84	1.668E-01	2.036E-01	2.171E-01	NOT IDENT.
KR-85	5.357E+00	1.186E+01	1.210E+01	NOT IDENT.
SR-85	3.445E-02	7.669E-02	7.825E-02	NOT IDENT.
Y-88	4.860E-02	5.967E-02	6.356E-02	NOT IDENT.
Y-91	-1.089E+01	3.173E+01	3.210E+01	NOT IDENT.
NB-94	7.332E-02	9.750E-02	1.029E-01	FAIL ABUN
NB-95	2.354E-01	9.929E-02	1.453E-01	NOT IDENT.
NB-95M	4.438E-01	3.449E-01	3.988E-01	NOT IDENT.
ZR-95	-2.050E-02	1.293E-01	1.297E-01	NOT IDENT.
NB-97	-1.000E+41	2.502E+41	0.000E+00	SHORT HLIF
ZR-97	5.631E+13	3.781E+14	3.789E+14	SHORT HLIF
MO-99	-1.387E+02	2.084E+03	2.085E+03	SHORT HLIF
TC-99M	4.351E+39	4.690E+39	0.000E+00	SHORT HLIF
RH-101	-3.364E-02	6.728E-02	6.897E-02	NOT IDENT.
RH-102	-2.374E-03	8.503E-02	8.503E-02	NOT IDENT.
RU-103	2.012E-02	8.744E-02	8.791E-02	FAIL ABUN
RH-106	3.319E-01	5.952E-01	6.137E-01	NOT IDENT.
RU-106	3.319E-01	5.952E-01	6.137E-01	NOT IDENT.
AG-108M	3.450E-03	4.805E-02	4.807E-02	NOT IDENT.
AG-110	-1.740E-01	1.066E+00	1.069E+00	NOT IDENT.
AG-110M	2.893E-02	9.300E-02	9.391E-02	NOT IDENT.
SN-113	-4.630E-02	8.162E-02	8.425E-02	NOT IDENT.
CD-115	2.827E+03	6.619E+03	6.741E+03	SHORT HLIF
SN-117M	3.546E-02	3.369E-01	3.373E-01	NOT IDENT.
SB-122	-2.214E+01	3.595E+02	3.597E+02	SHORT HLIF
TE-123M	-2.774E-02	7.080E-02	7.189E-02	NOT IDENT.
SB-124	7.715E-02	1.390E-01	1.432E-01	NOT IDENT.
SB-125	-2.740E-02	1.587E-01	1.592E-01	NOT IDENT.
TE-125M	-2.220E+01	2.561E+01	2.750E+01	NOT IDENT.
I-126	2.674E+00	1.596E+00	2.000E+00	FAIL ABUN
SB-126	1.578E-01	7.091E-01	7.126E-01	FAIL ABUN
SB-127	5.398E+01	5.653E+01	6.155E+01	NOT IDENT.
I-131	-6.818E-04	9.851E-01	9.851E-01	NOT IDENT.
I-132	1.000E+41	2.277E+41	0.000E+00	SHORT HLIF
TE-132	-9.127E-01	8.846E+01	8.846E+01	SHORT HLIF
BA-133	-1.949E-02	7.883E-02	7.931E-02	NOT IDENT.
I-133	1.403E+10	3.939E+10	3.989E+10	SHORT HLIF
CS-134	1.751E-01	8.767E-02	1.180E-01	FAIL ABUN
I-135	2.129E+35	4.755E+36	0.000E+00	SHORT HLIF
CS-136	-2.615E-01	3.843E-01	4.020E-01	FAIL ABUN
BA-137M	-8.780E-03	5.518E-02	5.532E-02	NOT IDENT.
CS-137	-9.275E-03	5.829E-02	5.844E-02	NOT IDENT.
LA-138	1.596E-02	7.825E-02	7.858E-02	NOT IDENT.
CE-139	-6.824E-02	7.187E-02	7.818E-02	NOT IDENT.
BA-140	2.070E+00	1.796E+00	2.024E+00	FAIL ABUN
LA-140	-2.429E-01	3.876E-01	4.028E-01	FAIL ABUN
CE-141	1.645E-01	2.244E-01	2.363E-01	NOT IDENT.
CE-143	4.414E+07	7.082E+06	2.112E+07	SHORT HLIF
CE-144	-7.649E-02	4.401E-01	4.414E-01	NOT IDENT.
PM-144	3.133E-02	5.231E-02	5.419E-02	FAIL ABUN
PR-144	2.355E+00	3.953E+00	4.093E+00	NOT IDENT.
PM-146	9.137E-02	9.367E-02	1.023E-01	FAIL ABUN
ND-147	-2.893E+00	3.421E+00	3.662E+00	NOT IDENT.
PM-147	-4.842E+02	1.552E+03	1.568E+03	NOT IDENT.
PM-149	-3.410E+04	6.995E+04	7.162E+04	SHORT HLIF
EU-150	-1.895E-02	5.591E-02	5.656E-02	FAIL ABUN
EU-152	-1.012E-01	2.783E-01	2.820E-01	FAIL ABUN
GD-153	1.721E-02	2.094E-01	2.095E-01	NOT IDENT.
EU-154	8.536E-02	1.457E-01	1.507E-01	NOT IDENT.

EU-155	-7.632E-02	2.130E-01	2.158E-01	FAIL ABUN
TB-160	3.270E-01	3.196E-01	3.520E-01	FAIL ABUN
HO-166M	9.194E-03	8.419E-02	8.430E-02	FAIL ABUN
TM-171	1.791E+01	9.553E+01	9.587E+01	NOT IDENT.
HF-172	7.909E-02	4.012E-01	4.028E-01	FAIL ABUN
LU-172	5.712E-02	7.583E-02	8.008E-02	FAIL ABUN
LU-176	-8.332E-04	4.864E-02	4.864E-02	FAIL ABUN
HF-181	-2.930E-03	1.049E-01	1.050E-01	NOT IDENT.
TA-182	9.369E-02	2.364E-01	2.401E-01	FAIL ABUN
RE-183	2.823E-01	9.313E-01	9.400E-01	NOT IDENT.
RE-184	-1.375E-01	2.388E-01	2.468E-01	NOT IDENT.
W-188	-9.663E-02	1.939E+01	1.939E+01	FAIL ABUN
IR-192	-5.332E-03	7.077E-02	7.081E-02	FAIL ABUN
HG-203	-6.598E-02	1.092E-01	1.131E-01	NOT IDENT.
TL-204	7.468E+00	1.535E+01	1.572E+01	FAIL ABUN
BI-207	3.980E-02	6.620E-02	6.859E-02	FAIL ABUN
BI-210	-5.005E+00	2.715E+01	2.725E+01	NOT IDENT.
PB-210	-5.005E+00	2.715E+01	2.725E+01	NOT IDENT.
PB-211	8.757E-01	1.277E+00	1.336E+00	NOT IDENT.
BI-213	8.928E-02	1.685E-01	1.732E-01	NOT IDENT.
RN-219	2.017E-01	7.441E-01	7.496E-01	FAIL ABUN
AC-225	-2.292E+00	4.865E+00	4.973E+00	NOT IDENT.
AC-227	3.994E-01	5.673E-01	5.952E-01	FAIL ABUN
TH-227	3.994E-01	5.673E-01	5.952E-01	FAIL ABUN
TH-229	1.826E-01	1.081E+00	1.085E+00	FAIL ABUN
TH-231	2.478E-01	1.140E+00	1.146E+00	FAIL ABUN
PA-233	1.297E-02	1.125E-01	1.127E-01	FAIL ABUN
PA-234	1.572E-01	5.144E-01	5.193E-01	NOT IDENT.
PA-234M	1.552E+01	1.003E+01	1.223E+01	FAIL ABUN
NP-237	1.297E-02	1.125E-01	1.127E-01	FAIL ABUN
NP-238	2.602E+03	1.336E+04	1.342E+04	SHORT HLIF
NP-239	2.843E-01	5.409E-01	5.559E-01	NOT IDENT.
PU-239	7.980E+02	7.028E+02	7.895E+02	FAIL ABUN
AM-241	-3.115E-01	6.238E-01	6.394E-01	NOT IDENT.
CM-243	-1.041E-01	2.128E-01	2.179E-01	NOT IDENT.
BK-247	1.401E-01	1.716E-01	1.828E-01	FAIL ABUN
CM-247	1.876E-02	6.871E-02	6.923E-02	NOT IDENT.
CF-249	1.006E-01	7.007E-02	8.347E-02	FAIL ABUN
CF-251	-3.109E-01	2.806E-01	3.137E-01	NOT IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	637.8182	82.47	437.0219	125.81	330.3418
45.60	619.2458	323.87	408.1672	127.23	369.0424
46.54	626.3492	84.00	408.2746	127.91	365.1480
49.72	0.00000	85.43	414.9243	129.30	319.0224
51.35	523.3031	86.55	554.9822	131.20	359.0334
51.87	510.5675	879.38	555.1448	482.18	379.3989
52.39	489.3211	87.57	555.2476	133.52	363.9781
52.97	485.0697	87.09	546.4381	264.66	363.7760
53.44	486.3867	87.57	576.4733	122.06	352.4615
125.81	479.3211	88.03	600.5814	140.51	0.00000
57.36	0.00000	88.34	600.8064	143.76	378.9501
57.53	433.4827	193.51	600.8989	144.24	379.1117
57.98	427.1264	89.96	578.1340	145.44	359.5411
1093.63	433.2196	90.64	578.6017	152.43	336.3578
57.98	433.2531	91.11	586.8821	153.25	350.8867
59.54	451.9934	63.29	463.3515	154.21	348.5250
60.96	430.0335	143.76	463.7631	156.02	367.6311
61.17	430.1697	94.56	464.4158	158.56	341.3074
62.93	420.7574	94.65	464.4655	159.00	363.7716
63.29	420.9818	94.67	464.4749	162.33	311.4500
63.58	421.1610	94.87	464.5837	162.66	314.7369
64.28	436.4785	97.43	338.1884	163.33	320.2484
66.73	438.0268	311.90	325.0300	165.86	380.8176
67.24	455.7060	946.00	325.0333	176.31	345.1823
67.68	463.2275	99.53	331.4586	1048.07	349.5778
67.75	463.2739	1221.41	340.7208	177.52	371.4244
68.89	469.8188	265.00	334.3979	739.50	0.00000
69.67	480.7848	103.18	315.6602	181.52	324.9237
70.82	460.9018	103.37	315.7255	711.68	326.7294
70.83	460.9091	116.74	315.7255	185.72	327.0570
72.81	489.8599	105.21	320.4037	193.51	309.2981
279.20	489.9009	105.31	320.4375	197.03	350.6445
72.87	489.9009	106.12	283.2855	127.23	313.6126
74.66	499.8520	106.47	283.3923	306.78	321.0800
74.82	499.9564	109.28	367.4868	203.43	309.3390
1063.66	500.0581	111.00	301.0315	205.31	325.1860
351.93	501.4749	228.16	0.00000	210.85	287.7287
238.63	501.4749	114.06	335.6600	215.65	263.1533
351.93	501.4749	116.30	0.00000	218.12	268.6044
78.74	484.9066	116.74	306.9153	222.11	235.8764
79.69	459.0189	119.76	326.3233	290.67	286.4636
80.03	459.2164	121.12	337.0422	177.52	264.1340
80.12	459.2712	121.22	337.0755	228.16	0.00000
80.19	459.3140	121.78	335.2076	228.18	267.6351
80.57	459.5354	122.06	339.4145	235.69	270.0854
81.00	459.7877	122.92	329.4092	256.23	246.4975
81.07	459.8282	123.07	331.5171	238.63	246.9230
81.75	483.8270	123.68	334.8058	238.98	0.00000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
240.99	247.2995	340.48	169.2246	546.56	0.0000
242.00	247.4599	340.55	169.2303	552.55	72.6382
344.28	215.6264	344.28	186.7957	563.25	77.8476
252.40	244.5389	345.93	182.6369	564.24	0.0000
252.80	229.8103	351.06	154.0920	795.86	85.9194
254.15	0.0000	351.93	154.1599	569.50	85.9247
256.23	213.7680	507.63	0.0000	569.70	77.0407
260.90	0.0000	356.01	147.4244	583.19	92.2990
264.66	209.7136	364.49	136.0657	584.27	92.3330
264.80	199.4139	366.42	0.0000	595.83	88.7175
265.00	180.5264	372.51	129.6736	600.60	100.8459
269.46	224.1080	129.30	110.8680	602.52	0.0000
270.03	224.1833	377.52	127.0633	604.72	75.1931
271.23	224.3460	383.85	144.6581	607.14	97.6715
273.65	279.9701	388.16	122.0148	609.32	97.7430
356.01	238.8763	388.63	122.9587	497.08	97.7787
277.37	248.2525	391.69	138.7561	433.94	48.1523
277.60	248.2832	400.66	153.1706	696.49	75.5328
278.00	251.8053	401.81	157.8676	620.36	67.5507
279.20	271.6327	402.40	159.7563	621.93	59.0050
279.54	270.5292	404.85	143.2951	667.71	0.0000
279.70	270.5577	410.95	135.3467	631.29	62.9561
280.46	268.3633	413.71	105.0166	453.88	53.3060
283.69	202.8066	414.70	102.5162	595.83	63.0303
364.49	213.3115	423.72	137.2341	635.95	66.9796
285.41	220.4104	404.85	128.8486	636.99	68.7367
285.90	0.0000	427.87	136.3626	657.50	63.9659
402.40	212.5432	433.94	115.1849	884.68	69.2036
290.67	209.4360	333.97	93.8675	657.90	0.0000
293.27	0.0000	440.45	103.2996	661.66	66.8452
295.22	232.7216	453.88	89.1554	664.57	0.0000
295.96	229.6681	463.37	105.2481	666.33	48.9858
298.58	147.2589	468.07	106.4031	720.70	48.9873
299.98	207.0222	685.70	114.2322	667.71	0.0000
300.09	207.0366	475.06	108.6128	677.62	51.2100
300.13	207.0402	476.78	105.8274	685.70	53.3949
301.36	210.6921	477.60	112.5390	564.24	0.0000
302.85	205.2448	482.18	97.8422	695.00	51.0773
304.50	180.1031	1596.21	75.6296	696.49	52.7500
537.26	195.6181	527.90	0.0000	696.51	52.7500
306.78	193.7119	497.08	95.1555	697.00	64.2986
316.51	193.0085	505.52	97.2055	697.30	67.6020
311.90	169.5293	507.63	0.0000	697.49	67.6060
316.51	163.7550	511.00	104.3704	702.65	65.0303
531.02	173.7610	514.00	94.4279	706.68	62.8373
320.08	177.3682	514.00	94.4309	711.68	63.1408
427.87	177.4597	520.40	90.0048	720.70	71.4098
323.87	176.8366	238.98	0.0000	721.93	0.0000
325.23	176.9641	522.65	0.0000	722.78	94.7207
328.76	174.6193	527.90	0.0000	722.91	94.7235
388.16	188.6124	528.26	78.7950	1274.44	96.3967
333.97	194.3877	520.40	85.6475	724.19	79.7977
334.37	114.3691	529.87	0.0000	727.33	58.2422
338.28	160.4395	531.02	109.0640	733.00	46.6730
911.20	160.4422	537.26	46.8516	735.93	43.7932

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
737.46	52.1591	937.49	17.6255	1362.66	0.0000
739.50	0.0000	944.13	49.4334	1365.19	29.9677
744.23	67.9437	946.00	45.9240	1368.63	0.0000
747.24	60.6798	949.00	54.1336	1384.29	33.9575
748.06	70.1140	954.55	0.0000	1408.01	24.9029
752.31	69.1522	962.31	47.6611	1434.09	31.3328
753.82	42.9782	964.08	47.6821	1435.80	25.4655
756.73	68.1937	966.17	47.7057	1457.56	0.0000
756.80	68.1956	968.97	47.7386	1460.82	30.5005
763.94	58.8745	983.53	41.2230	696.51	27.6883
765.81	63.9562	984.45	0.0000	1505.03	26.4440
766.42	54.7089	996.26	48.2783	1584.12	38.1985
766.84	54.7152	1001.03	41.3958	1596.21	34.2474
772.60	0.0000	1002.74	46.5613	727.33	19.2162
776.52	48.9587	1004.73	48.3759	1621.92	23.2673
777.92	0.0000	1021.30	0.0000	1678.03	0.0000
778.90	49.2743	1025.87	0.0000	1690.97	13.2996
783.70	57.5194	1028.54	0.0000	1750.46	0.0000
788.74	65.6479	846.77	41.5303	1764.49	16.5602
792.07	42.3938	1038.76	0.0000	1770.23	17.2648
795.86	50.9268	1046.59	46.1391	1771.35	25.9021
801.95	46.7634	1048.07	52.4889	1791.20	0.0000
810.06	59.6521	1049.04	56.1209	1808.65	8.3363
810.29	59.6555	621.93	41.6516	846.75	0.0000
810.45	59.6572	1063.66	36.3281	1836.06	12.5566
810.76	59.6624	1077.00	42.8164		
815.77	54.4116	1077.34	43.7297		
818.51	54.4536	1085.87	37.4245		
832.01	70.0148	1093.63	28.3450		
834.85	77.2207	1099.45	25.6361		
835.71	77.2383	1112.07	19.5099		
1260.41	0.0000	1112.84	22.9565		
846.75	0.0000	1115.54	35.2206		
846.77	61.9752	609.32	34.9515		
856.80	43.1543	889.28	34.9533		
860.56	48.5980	1121.30	34.9589		
702.65	43.3191	1129.67	52.5357		
873.19	43.3423	1131.51	0.0000		
529.87	0.0000	1147.95	0.0000		
879.38	34.7305	1173.23	46.5161		
880.51	34.7412	1177.95	42.8375		
881.60	34.7510	1189.05	29.8703		
883.24	34.7656	1204.77	44.9531		
884.68	59.1231	1221.41	32.8911		
889.28	73.1227	1231.02	31.3867		
903.28	54.4846	1235.36	9.4243		
898.04	35.9900	1238.28	31.4323		
900.72	43.6548	1260.41	0.0000		
903.28	50.2353	1271.87	15.8228		
911.20	48.1492	1274.44	20.5802		
912.08	48.1599	1274.54	20.5812		
923.98	0.0000	1099.45	24.7800		
926.50	41.7457	1298.22	0.0000		
929.11	41.0396	1312.11	26.7941		
1434.09	42.2813	1332.49	38.4277		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:21:41.43

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299010.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM23.CNF;911
Background date    : 28-JUL-2024 11:28:24
Sample date       : 26-JUN-2024 09:30:00 Acquisition date : 30-JUL-2024 11:17:40
Sample ID        : G674299010 Sample quantity : 1.07750E+02 GRAM
Detector name    : GAM23 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.57 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.60*	99	324	0.86	127.20	123	9	2.74E-02	34.7	
2	0	68.02	74	392	1.41	136.02	133	10	2.05E-02	51.3	
3	3	74.99	326	315	0.95	149.97	146	27	9.07E-02	10.2	4.26E+00
4	3	77.26	560	304	0.95	154.50	146	27	1.56E-01	6.4	
5	3	84.16*	83	339	1.11	168.30	146	27	2.31E-02	38.1	
6	0	87.23	221	220	1.14	174.45	172	6	6.13E-02	12.5	
7	3	90.08	135	190	1.13	180.14	178	14	3.75E-02	17.3	2.17E+00
8	3	92.77*	304	218	1.07	185.52	178	14	8.45E-02	9.8	
9	0	112.58	67	186	1.94	225.13	222	7	1.85E-02	36.0	
10	0	128.63	49	246	0.92	257.23	254	8	1.35E-02	57.6	
11	0	144.14*	78	226	1.83	288.24	285	8	2.17E-02	35.3	
12	1	183.92	37	142	1.18	367.79	365	14	1.02E-02	49.5	2.67E+00
13	1	186.11*	453	169	1.18	372.17	365	14	1.26E-01	7.0	
14	0	208.40	58	189	1.39	416.74	413	9	1.61E-02	44.8	
15	0	238.73*	353	218	1.13	477.39	472	9	9.81E-02	9.3	
16	0	241.99	471	144	0.96	483.90	481	8	1.31E-01	6.4	
17	0	258.91	23	131	1.33	517.75	514	7	6.39E-03	85.5	
18	0	270.25	49	170	1.34	540.42	537	9	1.37E-02	49.7	
19	0	295.29*	996	175	1.18	590.48	584	13	2.77E-01	4.2	
20	0	299.99	35	68	0.88	599.88	597	6	9.69E-03	41.2	
21	0	329.08	51	192	5.67	658.07	652	17	1.43E-02	63.3	
22	0	337.91	69	147	1.12	675.72	672	10	1.91E-02	35.0	
23	0	351.95*	1747	166	1.23	703.80	697	13	4.85E-01	2.8	
24	0	357.35	46	84	1.46	714.58	711	10	1.27E-02	40.3	
25	0	429.40	12	88	1.52	858.67	851	9	3.24E-03	148.9	
26	0	487.65	32	64	1.74	975.16	971	11	8.97E-03	50.9	
27	0	511.46*	90	53	2.58	1022.77	1014	18	2.49E-02	24.1	
28	0	582.81	136	71	1.48	1165.45	1157	15	3.79E-02	16.0	
29	0	596.33	34	29	3.22	1192.49	1186	13	9.34E-03	37.4	
30	0	609.22*	1201	53	1.55	1218.26	1209	18	3.33E-01	3.2	
31	0	665.96	39	34	0.93	1331.73	1327	10	1.09E-02	32.2	
32	0	727.26	60	19	2.65	1454.32	1448	13	1.67E-02	19.8	
33	0	768.36	115	70	1.78	1536.52	1529	18	3.21E-02	19.1	
34	0	786.37	53	21	1.55	1572.53	1564	17	1.47E-02	24.2	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	806.21	28	24	2.03	1612.20	1607	11	7.91E-03	38.5	
36	0	815.94	20	15	2.27	1631.67	1627	9	5.63E-03	41.4	
37	0	841.42	24	49	4.73	1682.63	1672	18	6.61E-03	74.7	
38	0	910.99*	74	35	1.41	1821.77	1814	14	2.07E-02	20.6	
39	0	934.04	55	23	1.41	1867.87	1863	13	1.52E-02	22.6	
40	0	940.12	7	8	1.15	1880.03	1876	6	1.81E-03	81.7	
41	3	964.29*	29	12	2.47	1928.36	1924	20	8.12E-03	28.6	4.91E-01
42	3	968.68	72	12	2.68	1937.13	1924	20	2.00E-02	17.0	
43	0	991.32	15	26	4.81	1982.43	1969	16	4.25E-03	80.8	
44	0	1001.39	33	21	1.81	2002.56	1997	11	9.25E-03	32.1	
45	0	1075.91	9	13	1.32	2151.60	2146	9	2.58E-03	78.0	
46	0	1120.08	236	12	1.74	2239.93	2231	16	6.54E-02	7.3	
47	0	1126.84	18	12	0.94	2253.45	2248	10	5.11E-03	42.5	
48	0	1154.79	29	30	0.93	2309.34	2303	12	8.18E-03	41.4	
49	0	1203.36	5	16	0.71	2406.49	2400	9	1.31E-03	159.4	
50	0	1237.46	91	21	1.86	2474.69	2465	16	2.54E-02	15.1	
51	0	1281.56	15	25	2.76	2562.89	2556	12	4.27E-03	71.5	
52	0	1323.51	17	16	4.83	2646.80	2638	16	4.74E-03	57.7	
53	0	1346.23	15	10	3.09	2692.23	2685	13	4.03E-03	51.5	
54	0	1377.51	84	11	2.28	2754.80	2747	14	2.34E-02	13.6	
55	0	1401.00	18	11	1.55	2801.80	2795	13	4.88E-03	48.1	
56	0	1410.17	19	55	1.94	2820.13	2811	20	5.38E-03	99.9	
57	0	1461.89	29	39	1.61	2923.56	2917	16	8.15E-03	53.3	
58	0	1574.13	14	0	4.46	3148.07	3141	14	3.89E-03	26.7	
59	0	1660.25	31	4	1.49	3320.32	3312	16	8.64E-03	23.0	
60	6	1727.10	20	0	2.50	3454.04	3451	14	5.60E-03	21.1	1.26E+01
61	6	1729.58	80	0	2.58	3459.00	3451	14	2.23E-02	9.9	
62	0	1764.13	206	14	3.44	3528.11	3518	19	5.71E-02	8.3	
63	0	1848.32	20	14	2.38	3696.51	3688	14	5.62E-03	45.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299010.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:30:00 Acquisition date : 30-JUL-2024 11:17:40
Sample ID : G674299010 Sample quantity : 107.75 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA23 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.57 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.690E-01	1.857E+00	1.857E+00	106.51	OK
GE-68	1077.34	3.22*	1.272E+00	1.494E+00	1.631E+00	156.09	OK
AS-74	595.83	59.00*	2.163E+00	1.771E-01	6.698E-01	74.79	OK
	634.78	15.40	2.053E+00	----- Line	Not Found	-----	Absent
RB-86	1077.00	8.64*	1.272E+00	5.570E-01	1.979E+00	156.09	OK
Y-91	1204.77	0.26*	1.147E+00	1.041E+01	1.558E+01	318.71	OK
CD-109	88.03	3.70*	4.956E+00	8.570E+00	9.020E+00	25.08	OK
SN-126	64.28	9.60	2.364E+00	3.124E+00	3.124E+00	69.40	OK
	86.94	8.90	4.956E+00	3.563E+00	3.563E+00	25.08	OK
	87.57	37.00*	4.956E+00	8.570E-01	8.570E-01	25.08	OK
TL-208	277.37	6.60	3.918E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.204E+00	4.899E-01	4.899E-01	31.93	OK
	860.56	12.50	1.568E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	3.550E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.272E+00	2.822E+01	2.822E+01	5.68	OK
BI-212	727.33	6.67*	1.825E+00	3.301E+00	3.301E+00	39.69	OK
	1620.50	1.47	8.981E-01	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	3.797E+00	5.977E+00	5.977E+00	20.32	OK
	77.11	17.10	4.047E+00	5.777E+00	5.777E+00	12.87	OK
	238.63	43.60*	4.379E+00	1.278E+00	1.278E+00	18.54	OK
	300.09	3.30	3.693E+00	1.964E+00	1.964E+00	82.41	OK
BI-214	609.32	45.49*	2.125E+00	8.346E+00	8.347E+00	6.46	OK
	1120.29	14.92	1.225E+00	8.500E+00	8.500E+00	14.60	OK
	1764.49	15.30	8.531E-01	1.024E+01	1.024E+01	16.50	OK
PB-214	74.82	5.80	3.797E+00	1.059E+01	1.059E+01	20.32	OK
	77.11	9.70	4.047E+00	1.018E+01	1.018E+01	12.87	OK
	87.09	3.41	4.956E+00	9.299E+00	9.299E+00	25.08	OK
	242.00	7.25	4.336E+00	1.035E+01	1.035E+01	12.76	OK
	295.22	18.42	3.738E+00	9.934E+00	9.934E+00	8.40	OK
	351.93	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68	OK
RN-222	609.32	45.49*	2.125E+00	8.346E+00	8.347E+00	6.46	OK
	1120.29	14.92	1.225E+00	8.500E+00	8.500E+00	14.60	OK
	1764.49	15.30	8.531E-01	1.024E+01	1.024E+01	16.50	OK
RA-224	240.99	4.10*	4.336E+00	1.830E+01	1.830E+01	12.76	OK
RA-226	74.82	5.80	3.797E+00	1.059E+01	1.059E+01	20.32	OK
	77.11	9.70	4.047E+00	1.018E+01	1.018E+01	12.87	OK
	87.09	3.41	4.956E+00	9.299E+00	9.299E+00	25.08	OK
	242.00	7.25	4.336E+00	1.035E+01	1.035E+01	12.76	OK
	295.22	18.42	3.738E+00	9.934E+00	9.934E+00	8.40	OK
	351.93	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68	OK
AC-228	105.21	1.10	5.840E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.375E+00	1.235E+00	1.235E+00	70.04	OK
	835.71	1.61	1.611E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18	OK
	968.97	15.80	1.404E+00	2.147E+00	2.147E+00	34.07	OK
RA-228	105.21	1.10	5.840E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.375E+00	1.235E+00	1.235E+00	70.04	OK
	835.71	1.61	1.611E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-228	968.97	15.80	1.404E+00	2.147E+00	2.147E+00	34.07	OK
	74.82	10.28	3.797E+00	5.977E+00	5.977E+00	20.32	OK
	77.11	17.10	4.047E+00	5.777E+00	5.777E+00	12.87	OK
	238.63	43.60*	4.379E+00	1.278E+00	1.278E+00	18.54	OK
TH-229	300.09	3.30	3.693E+00	1.964E+00	1.964E+00	82.41	OK
	85.43	14.70	4.710E+00	8.561E-01	8.561E-01	76.28	OK
	88.47	24.00	4.956E+00	1.321E+00	1.321E+00	25.08	OK
	193.51	4.41*	5.067E+00	----- Line	Not Found	-----	Absent
TH-230	210.85	2.80	4.784E+00	----- Line	Not Found	-----	Absent
	74.82	5.80	3.797E+00	1.059E+01	1.059E+01	20.32	OK
	77.11	9.70	4.047E+00	1.018E+01	1.018E+01	12.87	OK
	87.09	3.41	4.956E+00	9.299E+00	9.299E+00	25.08	OK
PA-231	242.00	7.25	4.336E+00	1.035E+01	1.035E+01	12.76	OK
	295.22	18.42	3.738E+00	9.934E+00	9.934E+00	8.40	OK
	351.93	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68	OK
	283.69	1.70	3.852E+00	----- Line	Not Found	-----	Absent
TH-232	301.36	5.35*	3.693E+00	1.211E+00	1.211E+00	82.41	OK
	105.21	1.10	5.840E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.375E+00	1.235E+00	1.235E+00	70.04	OK
	835.71	1.61	1.611E+00	----- Line	Not Found	-----	Absent
TH-234	911.20	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18	OK
	968.97	15.80	1.404E+00	2.147E+00	2.147E+00	34.07	OK
	63.29	3.70*	2.364E+00	8.106E+00	8.106E+00	69.40	OK
	92.59	4.23	5.323E+00	9.593E+00	9.593E+00	19.59	OK
U-234	74.82	5.80	3.797E+00	1.059E+01	1.059E+01	20.32	OK
	77.11	9.70	4.047E+00	1.018E+01	1.018E+01	12.87	OK
	87.09	3.41	4.956E+00	9.299E+00	9.299E+00	25.08	OK
	242.00	7.25	4.336E+00	1.035E+01	1.035E+01	12.76	OK
U-235	295.22	18.42	3.738E+00	9.934E+00	9.934E+00	8.40	OK
	351.93	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68	OK
	89.96	3.47	5.156E+00	5.360E+00	5.360E+00	34.64	OK
	93.35	5.60	5.323E+00	7.246E+00	7.246E+00	19.59	OK
U-238	143.76	10.96*	5.892E+00	8.480E-01	8.480E-01	70.51	OK
	163.33	5.08	5.592E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.194E+00	1.061E+00	1.061E+00	13.98	OK
	205.31	5.01	4.872E+00	----- Line	Not Found	-----	Absent
AM-243	63.29	3.70*	2.364E+00	8.106E+00	8.106E+00	69.40	OK
	92.59	4.23	5.323E+00	9.593E+00	9.593E+00	19.59	OK
ANH-511	43.53	5.90	2.737E-01	----- Line	Not Found	-----	Absent
	74.66	67.20*	3.797E+00	9.143E-01	9.143E-01	20.32	OK
	511.00	100.00*	2.450E+00	2.472E-01	2.472E-01	48.24	OK

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299010.CNF;1  *
* Acquisition date   : 30-JUL-2024 11:17:40 Sensitivity      : 3.000          *
* Detector ID        : GAM23 Energy tolerance: 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000          *
* Elapsed real time  : 0 01:00:01.57 Half life ratio : *****          *
* Sample date        : 26-JUN-2024 09:30:00 Analyst initials: RXF2          *
* Sample ID          : G674299010 Sample Quantity : 1.0775E+02 GRAM          *
* Batch Number       : 2636542 Wet Weight : 0.00000          *
* Wet wt corr        : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library    : SOLID.NLB;17
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date     : 6-SEP-2023 11:17:47 Eff. Geometry    : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.857E+00	1.939E+00	1.706E+00
GE-68	1.631E+00	2.495E+00	3.850E+00
AS-74	6.698E-01	4.909E-01	5.060E-01
RB-86	1.979E+00	3.027E+00	4.439E+00
Y-91	1.558E+01	4.868E+01	9.286E+01
CD-109	9.020E+00	2.218E+00	2.245E+00
SN-126	8.570E-01	2.107E-01	2.223E-01
TL-208	4.899E-01	1.533E-01	1.200E-01
BI-211	2.822E+01	1.570E+00	7.053E-01
BI-212	3.301E+00	1.284E+00	1.508E+00
PB-212	1.278E+00	2.321E-01	1.970E-01
BI-214	8.347E+00	5.284E-01	1.775E-01
PB-214	1.024E+01	5.699E-01	2.566E-01
RN-222	8.347E+00	5.284E-01	1.775E-01
RA-224	1.830E+01	2.288E+00	1.787E+00
RA-226	1.024E+01	5.699E-01	2.566E-01
AC-228	1.287E+00	5.193E-01	4.903E-01
RA-228	1.287E+00	5.193E-01	4.903E-01
TH-228	1.278E+00	2.321E-01	1.970E-01
TH-229	-3.529E-01	9.762E-01	1.658E+00
TH-230	1.024E+01	5.699E-01	2.566E-01
PA-231	1.211E+00	9.783E-01	1.599E+00
TH-232	1.287E+00	5.193E-01	4.903E-01
TH-234	8.106E+00	5.513E+00	4.429E+00
U-234	1.024E+01	5.699E-01	2.566E-01
U-235	8.480E-01	5.860E-01	5.655E-01
U-238	8.106E+00	5.513E+00	4.429E+00
AM-243	9.143E-01	1.821E-01	1.811E-01
ANH-511	2.472E-01	1.169E-01	8.146E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	7.103E-02	7.360E-01	1.354E+00	NOT IDENT.

NA-22	-5.067E-02	8.684E-02	1.373E-01	NOT IDENT.
NA-24	0.000E+00	1.779E+15	0.000E+00	SHORT HLIF
AL-26	2.362E-02	4.959E-02	1.160E-01	NOT IDENT.
SC-46	-9.744E-02	9.269E-02	1.509E-01	FAIL ABUN
V-48	5.326E-02	3.409E-01	5.729E-01	NOT IDENT.
CR-51	2.027E-01	1.079E+00	2.031E+00	NOT IDENT.
MN-52	2.940E+00	4.893E+00	1.042E+01	FAIL ABUN
MN-54	-9.810E-03	7.452E-02	1.211E-01	NOT IDENT.
CO-56	1.424E-02	7.794E-02	1.390E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.245E-02	4.281E-02	7.634E-02	NOT IDENT.
CO-58	8.707E-02	9.545E-02	1.556E-01	NOT IDENT.
FE-59	-1.372E-02	2.215E-01	4.062E-01	NOT IDENT.
CO-60	-1.724E-02	7.362E-02	1.386E-01	NOT IDENT.
ZN-65	8.942E-02	1.431E-01	2.721E-01	NOT IDENT.
AS-73	2.466E-01	2.763E+00	4.490E+00	NOT IDENT.
SE-75	3.923E-03	9.100E-02	1.559E-01	NOT IDENT.
BR-77	0.000E+00	9.124E+03	0.000E+00	SHORT HLIF
SR-82	9.140E-02	1.023E+00	1.830E+00	NOT IDENT.
RB-83	1.248E-01	1.407E-01	2.800E-01	NOT IDENT.
RB-84	1.339E-01	2.015E-01	4.034E-01	NOT IDENT.
KR-85	1.511E+01	1.206E+01	2.442E+01	NOT IDENT.
SR-85	9.750E-02	7.802E-02	1.579E-01	NOT IDENT.
Y-88	-3.765E-02	7.795E-02	1.466E-01	NOT IDENT.
NB-94	9.228E-03	6.121E-02	1.166E-01	NOT IDENT.
NB-95	1.579E-01	1.191E-01	2.254E-01	NOT IDENT.
NB-95M	8.006E-02	3.218E-01	5.151E-01	NOT IDENT.
ZR-95	-2.179E-02	1.626E-01	3.027E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.776E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.753E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.582E+39	0.000E+00	SHORT HLIF
RH-101	8.512E-02	9.605E-02	9.615E-02	FAIL ABUN
RH-102	5.479E-02	9.989E-02	1.904E-01	NOT IDENT.
RU-103	-5.008E-02	9.681E-02	1.667E-01	FAIL ABUN
RH-106	3.526E-01	5.638E-01	1.090E+00	NOT IDENT.
RU-106	3.526E-01	5.638E-01	1.090E+00	NOT IDENT.
AG-108M	-3.033E-03	5.691E-02	1.033E-01	NOT IDENT.
AG-110	-9.794E-02	1.301E+00	2.312E+00	NOT IDENT.
AG-110M	5.105E-02	1.087E-01	2.117E-01	NOT IDENT.
SN-113	-6.150E-02	9.319E-02	1.619E-01	NOT IDENT.
CD-115	0.000E+00	7.461E+03	0.000E+00	SHORT HLIF
SN-117M	3.401E-02	2.650E-01	4.713E-01	NOT IDENT.
SB-122	0.000E+00	4.183E+02	0.000E+00	SHORT HLIF
TE-123M	4.725E-02	5.724E-02	1.059E-01	NOT IDENT.
SB-124	2.081E-02	2.025E-01	4.105E-01	NOT IDENT.
SB-125	1.453E-01	1.796E-01	3.481E-01	NOT IDENT.
TE-125M	1.833E+01	2.072E+01	3.733E+01	NOT IDENT.
I-126	2.526E+00	1.597E+00	2.559E+00	FAIL ABUN
SB-126	8.479E-01	7.668E-01	1.536E+00	FAIL ABUN
SB-127	-7.748E+00	7.157E+01	1.258E+02	NOT IDENT.
I-131	2.465E-01	1.044E+00	1.970E+00	NOT IDENT.
I-132	0.000E+00	7.973E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	7.937E+01	0.000E+00	SHORT HLIF
BA-133	0.000E+00	1.242E-01	1.470E-01	FAIL ABUN
I-133	0.000E+00	3.826E+10	0.000E+00	SHORT HLIF
CS-134	-5.251E-04	7.964E-02	1.491E-01	NOT IDENT.
I-135	0.000E+00	6.044E+36	0.000E+00	SHORT HLIF
CS-136	2.931E-01	5.442E-01	1.078E+00	NOT IDENT.
BA-137M	-1.844E-02	7.445E-02	1.128E-01	NOT IDENT.
CS-137	-1.948E-02	7.865E-02	1.191E-01	NOT IDENT.
LA-138	3.772E-02	1.151E-01	2.341E-01	NOT IDENT.
CE-139	2.749E-03	5.823E-02	1.029E-01	NOT IDENT.
BA-140	-1.922E-01	1.303E+00	2.326E+00	NOT IDENT.
LA-140	-2.818E-02	5.802E-01	1.098E+00	FAIL ABUN
CE-141	0.000E+00	2.751E-01	3.005E-01	FAIL ABUN
CE-143	0.000E+00	3.858E+06	0.000E+00	SHORT HLIF
CE-144	-2.364E-01	3.558E-01	6.144E-01	NOT IDENT.
PM-144	-2.410E-02	5.471E-02	9.998E-02	NOT IDENT.
PR-144	-1.857E+00	4.131E+00	7.540E+00	NOT IDENT.
PM-146	6.467E-02	8.459E-02	1.629E-01	NOT IDENT.
ND-147	-2.220E+00	3.267E+00	5.474E+00	FAIL ABUN
PM-147	7.902E+02	1.193E+03	2.250E+03	NOT IDENT.
PM-149	0.000E+00	6.188E+04	0.000E+00	SHORT HLIF
EU-150	8.442E-03	6.685E-02	9.077E-02	FAIL ABUN
EU-152	-7.325E-02	1.895E-01	3.255E-01	FAIL ABUN
GD-153	-6.774E-02	1.564E-01	2.604E-01	NOT IDENT.
EU-154	-1.311E-01	2.453E-01	3.918E-01	NOT IDENT.

EU-155	-6.661E-02	1.686E-01	3.025E-01	FAIL ABUN
TB-160	-1.464E-01	3.109E-01	5.489E-01	FAIL ABUN
HO-166M	1.085E-01	1.102E-01	2.277E-01	FAIL ABUN
TM-171	7.393E-02	4.920E+01	7.976E+01	FAIL ABUN
HF-172	5.717E-02	3.453E-01	5.853E-01	FAIL ABUN
LU-172	1.179E-02	1.200E-01	2.252E-01	FAIL ABUN
LU-176	3.828E-03	4.533E-02	8.529E-02	FAIL ABUN
HF-181	-5.729E-02	1.060E-01	1.825E-01	NOT IDENT.
TA-182	-8.559E-02	3.538E-01	6.265E-01	FAIL ABUN
RE-183	-5.688E-02	4.473E-01	8.549E-01	FAIL ABUN
RE-184	4.359E-02	3.979E-01	7.198E-01	NOT IDENT.
W-188	-8.383E+00	1.744E+01	2.818E+01	FAIL ABUN
IR-192	-2.237E-03	7.176E-02	1.337E-01	FAIL ABUN
HG-203	-5.007E-02	9.364E-02	1.514E-01	NOT IDENT.
TL-204	-7.474E+00	9.176E+00	1.533E+01	FAIL ABUN
BI-207	8.640E-03	9.464E-02	1.781E-01	FAIL ABUN
BI-210	5.489E+00	1.147E+01	1.946E+01	NOT IDENT.
PB-210	5.489E+00	1.147E+01	1.946E+01	NOT IDENT.
PB-211	1.851E-01	1.394E+00	2.569E+00	NOT IDENT.
BI-213	-8.101E-02	1.819E-01	3.194E-01	NOT IDENT.
RN-219	6.162E-01	8.133E-01	1.564E+00	FAIL ABUN
RA-223	1.000E+00	1.250E+00	2.246E+00	FAIL ABUN
AC-225	-2.900E+00	4.273E+00	7.010E+00	NOT IDENT.
AC-227	2.488E-01	5.489E-01	8.945E-01	FAIL ABUN
TH-227	2.488E-01	5.489E-01	8.945E-01	FAIL ABUN
TH-231	1.000E+00	1.250E+00	2.246E+00	FAIL ABUN
PA-233	4.025E-02	1.133E-01	2.166E-01	FAIL ABUN
PA-234	-2.482E-01	5.469E-01	9.633E-01	NOT IDENT.
PA-234M	1.927E+01	1.214E+01	2.131E+01	FAIL ABUN
NP-237	4.025E-02	1.133E-01	2.166E-01	FAIL ABUN
NP-238	0.000E+00	2.046E+04	0.000E+00	SHORT HLIF
NP-239	-2.185E-01	4.325E-01	7.639E-01	NOT IDENT.
PU-239	8.995E+02	1.015E+03	1.104E+03	FAIL ABUN
AM-241	9.530E-02	2.999E-01	5.489E-01	NOT IDENT.
CM-243	7.760E-02	1.666E-01	3.142E-01	NOT IDENT.
BK-247	5.698E-02	1.506E-01	2.646E-01	FAIL ABUN
CM-247	1.138E-02	7.643E-02	1.406E-01	NOT IDENT.
CF-249	9.894E-02	7.256E-02	1.472E-01	NOT IDENT.
CF-251	-1.592E-01	2.280E-01	3.819E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	28	10.66*	9.690E-01	1.857E+00	1.857E+00	106.51
GE-68	1077.34	9	3.22*	1.272E+00	1.494E+00	1.631E+00	156.09
AS-74	595.83	32	59.00*	2.163E+00	1.771E-01	6.698E-01	74.79
	634.78	-----	15.40	2.053E+00	-----	Line Not Found	-----
RB-86	1077.00	9	8.64*	1.272E+00	5.570E-01	1.979E+00	156.09
Y-91	1204.77	4	0.26*	1.147E+00	1.041E+01	1.558E+01	318.71
CD-109	88.03	226	3.70*	4.956E+00	8.570E+00	9.020E+00	25.08
SN-126	64.28	102	9.60	2.364E+00	3.124E+00	3.124E+00	69.40
	86.94	226	8.90	4.956E+00	3.563E+00	3.563E+00	25.08
	87.57	226	37.00*	4.956E+00	8.570E-01	8.570E-01	25.08
CE-141	145.44	79	48.29*	5.892E+00	1.925E-01	3.982E-01	70.51
TL-208	277.37	-----	6.60	3.918E+00	-----	Line Not Found	-----
	583.19	132	85.00*	2.204E+00	4.899E-01	4.899E-01	31.93
	860.56	-----	12.50	1.568E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	3.550E+00	-----	Line Not Found	-----
	351.06	1712	12.92*	3.272E+00	2.822E+01	2.822E+01	5.68
BI-212	727.33	58	6.67*	1.825E+00	3.301E+00	3.301E+00	39.69
	1620.50	-----	1.47	8.981E-01	-----	Line Not Found	-----
PB-212	74.82	335	10.28	3.797E+00	5.977E+00	5.977E+00	20.32
	77.11	574	17.10	4.047E+00	5.777E+00	5.777E+00	12.87
	238.63	350	43.60*	4.379E+00	1.278E+00	1.278E+00	18.54
	300.09	34	3.30	3.693E+00	1.964E+00	1.964E+00	82.41
BI-214	609.32	1158	45.49*	2.125E+00	8.346E+00	8.347E+00	6.46
	1120.29	223	14.92	1.225E+00	8.500E+00	8.500E+00	14.60
	1764.49	192	15.30	8.531E-01	1.024E+01	1.024E+01	16.50
PB-214	74.82	335	5.80	3.797E+00	1.059E+01	1.059E+01	20.32
	77.11	574	9.70	4.047E+00	1.018E+01	1.018E+01	12.87
	87.09	226	3.41	4.956E+00	9.299E+00	9.299E+00	25.08
	242.00	467	7.25	4.336E+00	1.035E+01	1.035E+01	12.76
	295.22	982	18.42	3.738E+00	9.934E+00	9.934E+00	8.40
	351.93	1712	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68
RN-222	609.32	1158	45.49*	2.125E+00	8.346E+00	8.347E+00	6.46
	1120.29	223	14.92	1.225E+00	8.500E+00	8.500E+00	14.60
	1764.49	192	15.30	8.531E-01	1.024E+01	1.024E+01	16.50
RA-224	240.99	467	4.10*	4.336E+00	1.830E+01	1.830E+01	12.76
RA-226	74.82	335	5.80	3.797E+00	1.059E+01	1.059E+01	20.32
	77.11	574	9.70	4.047E+00	1.018E+01	1.018E+01	12.87
	87.09	226	3.41	4.956E+00	9.299E+00	9.299E+00	25.08
	242.00	467	7.25	4.336E+00	1.035E+01	1.035E+01	12.76
	295.22	982	18.42	3.738E+00	9.934E+00	9.934E+00	8.40
	351.93	1712	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68
AC-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	67	11.27	3.375E+00	1.235E+00	1.235E+00	70.04
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	71	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18
	968.97	68	15.80	1.404E+00	2.147E+00	2.147E+00	34.07
RA-228	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	338.32	67	11.27	3.375E+00	1.235E+00	1.235E+00	70.04
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	71	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18
	968.97	68	15.80	1.404E+00	2.147E+00	2.147E+00	34.07
TH-228	74.82	335	10.28	3.797E+00	5.977E+00	5.977E+00	20.32
	77.11	574	17.10	4.047E+00	5.777E+00	5.777E+00	12.87
	238.63	350	43.60*	4.379E+00	1.278E+00	1.278E+00	18.54
	300.09	34	3.30	3.693E+00	1.964E+00	1.964E+00	82.41
TH-229	85.43	85	14.70	4.710E+00	8.561E-01	8.561E-01	76.28
	88.47	226	24.00	4.956E+00	1.321E+00	1.321E+00	25.08
	193.51	-----	4.41*	5.067E+00	-----	Line Not Found	-----
	210.85	-----	2.80	4.784E+00	-----	Line Not Found	-----
TH-230	74.82	335	5.80	3.797E+00	1.059E+01	1.059E+01	20.32
	77.11	574	9.70	4.047E+00	1.018E+01	1.018E+01	12.87
	87.09	226	3.41	4.956E+00	9.299E+00	9.299E+00	25.08
	242.00	467	7.25	4.336E+00	1.035E+01	1.035E+01	12.76
	295.22	982	18.42	3.738E+00	9.934E+00	9.934E+00	8.40
	351.93	1712	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68
PA-231	283.69	-----	1.70	3.852E+00	-----	Line Not Found	-----
	301.36	34	5.35*	3.693E+00	1.211E+00	1.211E+00	82.41
TH-232	105.21	-----	1.10	5.840E+00	-----	Line Not Found	-----
	338.32	67	11.27	3.375E+00	1.235E+00	1.235E+00	70.04
	835.71	-----	1.61	1.611E+00	-----	Line Not Found	-----
	911.20	71	25.80*	1.487E+00	1.287E+00	1.287E+00	41.18
	968.97	68	15.80	1.404E+00	2.147E+00	2.147E+00	34.07
TH-234	63.29	102	3.70*	2.364E+00	8.106E+00	8.106E+00	69.40
	92.59	310	4.23	5.323E+00	9.593E+00	9.593E+00	19.59
U-234	74.82	335	5.80	3.797E+00	1.059E+01	1.059E+01	20.32
	77.11	574	9.70	4.047E+00	1.018E+01	1.018E+01	12.87
	87.09	226	3.41	4.956E+00	9.299E+00	9.299E+00	25.08
	242.00	467	7.25	4.336E+00	1.035E+01	1.035E+01	12.76
	295.22	982	18.42	3.738E+00	9.934E+00	9.934E+00	8.40
	351.93	1712	35.60*	3.272E+00	1.024E+01	1.024E+01	5.68
U-235	89.96	138	3.47	5.156E+00	5.360E+00	5.360E+00	34.64
	93.35	310	5.60	5.323E+00	7.246E+00	7.246E+00	19.59
	143.76	79	10.96*	5.892E+00	8.480E-01	8.480E-01	70.51
	163.33	-----	5.08	5.592E+00	-----	Line Not Found	-----
	185.72	452	57.20	5.194E+00	1.061E+00	1.061E+00	13.98
	205.31	-----	5.01	4.872E+00	-----	Line Not Found	-----
U-238	63.29	102	3.70*	2.364E+00	8.106E+00	8.106E+00	69.40
	92.59	310	4.23	5.323E+00	9.593E+00	9.593E+00	19.59
AM-243	43.53	-----	5.90	2.737E-01	-----	Line Not Found	-----
	74.66	335	67.20*	3.797E+00	9.143E-01	9.143E-01	20.32
ANH-511	511.00	87	100.00*	2.450E+00	2.472E-01	2.472E-01	48.24

Flag: "*" = Keyline

Total number of lines in spectrum 63
Number of unidentified lines 22
Number of lines tentatively identified by NID 41 65.08%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.857E+00	1.857E+00	1.978E+00	106.51	
GE-68	270.95D	1.09	1.494E+00	1.631E+00	2.545E+00	156.09	
AS-74	17.77D	3.78	1.771E-01	6.698E-01	5.009E-01	74.79	
RB-86	18.64D	3.55	5.570E-01	1.979E+00	3.089E+00	156.09	
Y-91	58.51D	1.50	1.041E+01	1.558E+01	4.967E+01	318.71	
CD-109	461.40D	1.05	8.570E+00	9.020E+00	2.263E+00	25.08	
SN-126	2.30E+05Y	1.00	8.570E-01	8.570E-01	2.150E-01	25.08	
CE-141	32.51D	2.07	1.925E-01	3.982E-01	2.807E-01	70.51	
TL-208	1.41E+10Y	1.00	4.899E-01	4.899E-01	1.564E-01	31.93	
BI-211	7.04E+08Y	1.00	2.822E+01	2.822E+01	0.160E+01	5.68	
BI-212	1.41E+10Y	1.00	3.301E+00	3.301E+00	1.310E+00	39.69	
PB-212	1.41E+10Y	1.00	1.278E+00	1.278E+00	0.237E+00	18.54	
BI-214	1600.00Y	1.00	8.346E+00	8.347E+00	0.539E+00	6.46	
PB-214	1600.00Y	1.00	1.024E+01	1.024E+01	0.058E+01	5.68	
RN-222	1600.00Y	1.00	8.346E+00	8.347E+00	0.539E+00	6.46	
RA-224	1.41E+10Y	1.00	1.830E+01	1.830E+01	0.234E+01	12.76	
RA-226	1600.00Y	1.00	1.024E+01	1.024E+01	0.058E+01	5.68	
AC-228	1.41E+10Y	1.00	1.287E+00	1.287E+00	0.530E+00	41.18	
RA-228	1.41E+10Y	1.00	1.287E+00	1.287E+00	0.530E+00	41.18	
TH-228	1.41E+10Y	1.00	1.278E+00	1.278E+00	0.237E+00	18.54	
TH-229	7340.00Y	1.00	1.321E+00	1.321E+00	0.331E+00	25.08	K
TH-230	7.54E+04Y	1.00	1.024E+01	1.024E+01	0.058E+01	5.68	
PA-231	7.04E+08Y	1.00	1.211E+00	1.211E+00	0.998E+00	82.41	
TH-232	1.41E+10Y	1.00	1.287E+00	1.287E+00	0.530E+00	41.18	
TH-234	4.47E+09Y	1.00	8.106E+00	8.106E+00	5.626E+00	69.40	
U-234	2.45E+05Y	1.00	1.024E+01	1.024E+01	0.058E+01	5.68	
U-235	7.04E+08Y	1.00	8.480E-01	8.480E-01	5.979E-01	70.51	
U-238	4.47E+09Y	1.00	8.106E+00	8.106E+00	5.626E+00	69.40	
AM-243	7370.00Y	1.00	9.143E-01	9.143E-01	1.858E-01	20.32	
ANH-511	1.00E+09Y	1.00	2.472E-01	2.472E-01	1.193E-01	48.24	
Total Activity :			1.593E+02	1.672E+02			

Grand Total Activity : 1.593E+02 1.672E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	68.02	76	403	1.41	136.02	133	10	2.05E-02	****	2.94E+00	T
0	112.58	67	188	1.94	225.13	222	7	1.85E-02	72.0	5.99E+00	T
0	128.63	49	249	0.92	257.23	254	8	1.35E-02	****	6.04E+00	T
1	183.92	37	142	1.18	367.79	365	14	1.02E-02	99.0	5.23E+00	T
0	208.40	58	188	1.39	416.74	413	9	1.61E-02	89.6	4.82E+00	
0	258.91	23	130	1.33	517.75	514	7	6.39E-03	****	4.13E+00	
0	270.25	49	168	1.34	540.42	537	9	1.37E-02	99.5	4.00E+00	T
0	329.08	50	188	5.67	658.07	652	17	1.43E-02	****	3.44E+00	T
0	357.35	45	82	1.46	714.58	711	10	1.27E-02	80.7	3.23E+00	T
0	429.40	11	86	1.52	858.67	851	9	3.24E-03	****	2.81E+00	
0	487.65	31	62	1.74	975.16	971	11	8.97E-03	****	2.54E+00	T
0	665.96	38	32	0.93	1331.73	1327	10	1.09E-02	64.5	1.97E+00	T
0	768.36	111	67	1.78	1536.52	1529	18	3.21E-02	38.3	1.74E+00	
0	786.37	51	20	1.55	1572.53	1564	17	1.47E-02	48.4	1.70E+00	
0	806.21	27	22	2.03	1612.20	1607	11	7.91E-03	76.9	1.66E+00	
0	815.94	19	14	2.27	1631.67	1627	9	5.63E-03	82.9	1.65E+00	T
0	841.42	23	47	4.73	1682.63	1672	18	6.61E-03	****	1.60E+00	
0	934.04	52	22	1.41	1867.87	1863	13	1.52E-02	45.1	1.45E+00	T
0	940.12	6	8	1.15	1880.03	1876	6	1.81E-03	****	1.44E+00	
3	964.29	28	11	2.47	1928.36	1924	20	8.12E-03	57.2	1.41E+00	T
0	991.32	15	24	4.81	1982.43	1969	16	4.25E-03	****	1.37E+00	
0	1001.39	32	20	1.81	2002.56	1997	11	9.25E-03	64.3	1.36E+00	T
0	1126.84	17	11	0.94	2253.45	2248	10	5.11E-03	85.1	1.22E+00	
0	1154.79	28	28	0.93	2309.34	2303	12	8.18E-03	82.9	1.19E+00	
0	1237.46	86	19	1.86	2474.69	2465	16	2.54E-02	30.3	1.12E+00	T
0	1281.56	14	23	2.76	2562.89	2556	12	4.27E-03	****	1.08E+00	
0	1323.51	16	15	4.83	2646.80	2638	16	4.74E-03	****	1.05E+00	
0	1346.23	14	9	3.09	2692.23	2685	13	4.03E-03	****	1.04E+00	
0	1377.51	79	10	2.28	2754.80	2747	14	2.34E-02	27.2	1.02E+00	
0	1401.00	16	11	1.55	2801.80	2795	13	4.88E-03	96.2	1.00E+00	
0	1410.17	18	51	1.94	2820.13	2811	20	5.38E-03	****	9.98E-01	
0	1574.13	13	0	4.46	3148.07	3141	14	3.89E-03	53.5	9.16E-01	
0	1660.25	29	4	1.49	3320.32	3312	16	8.64E-03	45.9	8.84E-01	
6	1727.10	19	0	2.50	3454.04	3451	14	5.60E-03	42.1	8.63E-01	
6	1729.58	75	0	2.58	3459.00	3451	14	2.23E-02	19.8	8.62E-01	
0	1848.32	19	13	2.38	3696.51	3688	14	5.62E-03	90.0	8.34E-01	

Flags: "T" = Tentatively associated

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299010.CNF;1
Acquisition date : 30-JUL-2024 11:17:40 Sensitivity : 3.000
Detector ID : GAM23 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.57 Half life ratio : *****
Sample date : 26-JUN-2024 09:30:00 Nuclide Library : SOLID
Sample ID : G674299010 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0775E+02 GRAM
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 6-SEP-2023 11:17:47 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	7.627E-01
GE-68	1.675E+00
AS-74	2.252E-01
RB-86	1.916E+00
Y-91	4.173E+01
CD-109	1.069E+00
SN-126	1.060E-01
TL-208	5.502E-02
BI-211	3.305E-01
BI-212	6.772E-01
PB-212	9.357E-02
BI-214	7.905E-02
PB-214	1.202E-01
RN-222	7.905E-02
RA-224	8.407E-01
RA-226	1.202E-01
AC-228	2.208E-01
RA-228	2.208E-01
TH-228	9.357E-02
TH-229	7.869E-01
TH-230	1.202E-01
PA-231	7.520E-01
TH-232	2.208E-01
TH-234	2.105E+00
U-234	1.202E-01
U-235	2.682E-01
U-238	2.105E+00
AM-243	8.681E-02
ANH-511	3.690E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
BE-7	6.228E-01 NOT IDENT.
NA-22	5.986E-02 NOT IDENT.

NA-24	0.000E+00	SHORT HLIF
AL-26	4.689E-02	NOT IDENT.
SC-46	6.731E-02	FAIL ABUN
V-48	2.567E-01	NOT IDENT.
CR-51	9.521E-01	NOT IDENT.
MN-52	4.561E+00	FAIL ABUN
MN-54	5.427E-02	NOT IDENT.
CO-56	6.150E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.619E-02	NOT IDENT.
CO-58	6.984E-02	NOT IDENT.
FE-59	1.805E-01	NOT IDENT.
CO-60	6.026E-02	NOT IDENT.
ZN-65	1.195E-01	NOT IDENT.
AS-73	2.132E+00	NOT IDENT.
SE-75	7.315E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	8.234E-01	NOT IDENT.
RB-83	1.286E-01	NOT IDENT.
RB-84	1.835E-01	NOT IDENT.
KR-85	1.132E+01	NOT IDENT.
SR-85	7.320E-02	NOT IDENT.
Y-88	5.927E-02	NOT IDENT.
NB-94	5.331E-02	NOT IDENT.
NB-95	1.049E-01	NOT IDENT.
NB-95M	2.452E-01	NOT IDENT.
ZR-95	1.372E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.574E-02	FAIL ABUN
RH-102	8.692E-02	NOT IDENT.
RU-103	7.586E-02	FAIL ABUN
RH-106	4.968E-01	NOT IDENT.
RU-106	4.968E-01	NOT IDENT.
AG-108M	4.791E-02	NOT IDENT.
AG-110	1.041E+00	NOT IDENT.
AG-110M	9.658E-02	NOT IDENT.
SN-113	7.506E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	2.248E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	5.053E-02	NOT IDENT.
SB-124	1.720E-01	NOT IDENT.
SB-125	1.626E-01	NOT IDENT.
TE-125M	1.778E+01	NOT IDENT.
I-126	1.190E+00	FAIL ABUN
SB-126	7.039E-01	FAIL ABUN
SB-127	5.673E+01	NOT IDENT.
I-131	9.164E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	6.883E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	6.785E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	4.848E-01	NOT IDENT.
BA-137M	5.111E-02	NOT IDENT.
CS-137	5.400E-02	NOT IDENT.
LA-138	1.025E-01	NOT IDENT.
CE-139	4.895E-02	NOT IDENT.
BA-140	1.059E+00	NOT IDENT.
LA-140	4.802E-01	FAIL ABUN
CE-141	1.434E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.918E-01	NOT IDENT.
PM-144	4.468E-02	NOT IDENT.
PR-144	3.369E+00	NOT IDENT.
PM-146	7.601E-02	NOT IDENT.
ND-147	2.478E+00	FAIL ABUN
PM-147	1.069E+03	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	4.251E-02	FAIL ABUN
EU-152	1.521E-01	FAIL ABUN
GD-153	1.237E-01	NOT IDENT.
EU-154	1.712E-01	NOT IDENT.
EU-155	1.435E-01	FAIL ABUN

TB-160	2.464E-01	FAIL ABUN
HO-166M	1.046E-01	FAIL ABUN
TM-171	3.775E+01	FAIL ABUN
HF-172	2.784E-01	FAIL ABUN
LU-172	1.003E-01	FAIL ABUN
LU-176	3.988E-02	FAIL ABUN
HF-181	8.331E-02	NOT IDENT.
TA-182	2.756E-01	FAIL ABUN
RE-183	4.037E-01	FAIL ABUN
RE-184	3.280E-01	NOT IDENT.
W-188	1.322E+01	FAIL ABUN
IR-192	6.242E-02	FAIL ABUN
HG-203	7.077E-02	NOT IDENT.
TL-204	7.296E+00	FAIL ABUN
BI-207	7.928E-02	FAIL ABUN
BI-210	9.241E+00	NOT IDENT.
PB-210	9.241E+00	NOT IDENT.
PB-211	1.200E+00	NOT IDENT.
BI-213	1.466E-01	NOT IDENT.
RN-219	7.339E-01	FAIL ABUN
RA-223	1.056E+00	FAIL ABUN
AC-225	3.317E+00	NOT IDENT.
AC-227	4.235E-01	FAIL ABUN
TH-227	4.235E-01	FAIL ABUN
TH-231	1.056E+00	FAIL ABUN
PA-233	1.015E-01	FAIL ABUN
PA-234	4.273E-01	NOT IDENT.
PA-234M	9.839E+00	FAIL ABUN
NP-237	1.015E-01	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.623E-01	NOT IDENT.
PU-239	5.272E+02	FAIL ABUN
AM-241	2.600E-01	NOT IDENT.
CM-243	1.493E-01	NOT IDENT.
BK-247	1.246E-01	FAIL ABUN
CM-247	6.589E-02	NOT IDENT.
CF-249	6.894E-02	NOT IDENT.
CF-251	1.808E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299010.CNF;1
Acquisition date : 30-JUL-2024 11:17:40 Sensitivity : 3.000
Detector ID : GAM23 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.57 Half life ratio : *****
Sample date : 26-JUN-2024 09:30:00 Nuclide Library : SOLID
Sample ID : G674299010 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0775E+02 GRAM
Quantity Err(%) : 1.8561E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 6-SEP-2023 11:17:47 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM23_CAN.CNF;21

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.857E+00	1.946E+00	1.946E+00
GE-68	1.631E+00	2.498E+00	2.498E+00
AS-74	6.698E-01	4.965E-01	4.965E-01
RB-86	1.979E+00	3.032E+00	3.032E+00
Y-91	1.558E+01	4.869E+01	4.869E+01
CD-109	9.020E+00	2.528E+00	2.528E+00
SN-126	8.570E-01	2.359E-01	2.359E-01
TL-208	4.899E-01	1.593E-01	1.593E-01
BI-211	2.822E+01	2.765E+00	2.765E+00
BI-212	3.301E+00	1.320E+00	1.320E+00
PB-212	1.278E+00	2.602E-01	2.602E-01
BI-214	8.347E+00	9.116E-01	9.116E-01
PB-214	1.024E+01	9.898E-01	9.898E-01
RN-222	8.347E+00	9.116E-01	9.116E-01
RA-224	1.830E+01	2.832E+00	2.832E+00
RA-226	1.024E+01	9.898E-01	9.898E-01
AC-228	1.287E+00	5.328E-01	5.328E-01
RA-228	1.287E+00	5.328E-01	5.328E-01
TH-228	1.278E+00	2.602E-01	2.602E-01
TH-229	-3.529E-01	9.769E-01	9.769E-01
TH-230	1.024E+01	9.897E-01	9.897E-01
PA-231	1.211E+00	1.014E+00	1.014E+00
TH-232	1.287E+00	5.328E-01	5.328E-01
TH-234	8.106E+00	5.856E+00	5.856E+00
U-234	1.024E+01	9.897E-01	9.897E-01
U-235	8.480E-01	5.911E-01	5.911E-01
U-238	8.106E+00	5.856E+00	5.856E+00
AM-243	9.143E-01	2.110E-01	2.110E-01
ANH-511	2.472E-01	1.189E-01	1.189E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)
BE-7	7.103E-02	7.361E-01	7.368E-01 NOT IDENT.

NA-22	-5.067E-02	8.693E-02	8.988E-02	NOT IDENT.
NA-24	-7.310E+14	1.780E+15	1.811E+15	SHORT HLIF
AL-26	2.362E-02	4.962E-02	5.075E-02	NOT IDENT.
SC-46	-9.744E-02	9.309E-02	1.029E-01	FAIL ABUN
V-48	5.326E-02	3.410E-01	3.418E-01	NOT IDENT.
CR-51	2.027E-01	1.079E+00	1.082E+00	NOT IDENT.
MN-52	2.940E+00	4.899E+00	5.076E+00	FAIL ABUN
MN-54	-9.810E-03	7.452E-02	7.466E-02	NOT IDENT.
CO-56	1.424E-02	7.795E-02	7.821E-02	FAIL ABUN
MN-56	-1.000E+41	6.285E+41	0.000E+00	SHORT HLIF
CO-57	-1.245E-02	4.282E-02	4.319E-02	NOT IDENT.
CO-58	8.707E-02	9.577E-02	1.035E-01	NOT IDENT.
FE-59	-1.372E-02	2.215E-01	2.216E-01	NOT IDENT.
CO-60	-1.724E-02	7.364E-02	7.404E-02	NOT IDENT.
ZN-65	8.942E-02	1.432E-01	1.488E-01	NOT IDENT.
AS-73	2.466E-01	2.763E+00	2.766E+00	NOT IDENT.
SE-75	3.923E-03	9.100E-02	9.101E-02	NOT IDENT.
BR-77	5.022E+04	5.046E+04	5.530E+04	SHORT HLIF
SR-82	9.140E-02	1.023E+00	1.024E+00	NOT IDENT.
RB-83	1.248E-01	1.420E-01	1.528E-01	NOT IDENT.
RB-84	1.339E-01	2.018E-01	2.106E-01	NOT IDENT.
KR-85	1.511E+01	1.214E+01	1.392E+01	NOT IDENT.
SR-85	9.750E-02	7.849E-02	8.996E-02	NOT IDENT.
Y-88	-3.765E-02	7.800E-02	7.982E-02	NOT IDENT.
NB-94	9.228E-03	6.122E-02	6.136E-02	NOT IDENT.
NB-95	1.579E-01	1.200E-01	1.395E-01	NOT IDENT.
NB-95M	8.006E-02	3.220E-01	3.240E-01	NOT IDENT.
ZR-95	-2.179E-02	1.626E-01	1.629E-01	NOT IDENT.
NB-97	1.000E+41	3.313E+41	0.000E+00	SHORT HLIF
ZR-97	2.565E+14	3.783E+14	3.956E+14	SHORT HLIF
MO-99	3.335E+02	2.753E+03	2.757E+03	SHORT HLIF
TC-99M	2.751E+39	3.598E+39	0.000E+00	SHORT HLIF
RH-101	8.512E-02	9.739E-02	1.047E-01	FAIL ABUN
RH-102	5.479E-02	1.001E-01	1.031E-01	NOT IDENT.
RU-103	-5.008E-02	9.691E-02	9.951E-02	FAIL ABUN
RH-106	3.526E-01	5.649E-01	5.869E-01	NOT IDENT.
RU-106	3.526E-01	5.649E-01	5.869E-01	NOT IDENT.
AG-108M	-3.033E-03	5.691E-02	5.693E-02	NOT IDENT.
AG-110	-9.794E-02	1.301E+00	1.302E+00	NOT IDENT.
AG-110M	5.105E-02	1.088E-01	1.112E-01	NOT IDENT.
SN-113	-6.150E-02	9.332E-02	9.735E-02	NOT IDENT.
CD-115	-5.718E+02	7.461E+03	7.466E+03	SHORT HLIF
SN-117M	3.401E-02	2.651E-01	2.655E-01	NOT IDENT.
SB-122	-2.095E+02	4.187E+02	4.292E+02	SHORT HLIF
TE-123M	4.725E-02	5.743E-02	6.126E-02	NOT IDENT.
SB-124	2.081E-02	2.025E-01	2.027E-01	NOT IDENT.
SB-125	1.453E-01	1.800E-01	1.916E-01	NOT IDENT.
TE-125M	1.833E+01	2.079E+01	2.237E+01	NOT IDENT.
I-126	2.526E+00	1.616E+00	1.977E+00	FAIL ABUN
SB-126	8.479E-01	7.743E-01	8.635E-01	FAIL ABUN
SB-127	-7.748E+00	7.158E+01	7.166E+01	NOT IDENT.
I-131	2.465E-01	1.044E+00	1.050E+00	NOT IDENT.
I-132	1.000E+41	2.249E+41	0.000E+00	SHORT HLIF
TE-132	-1.470E+01	7.939E+01	7.966E+01	SHORT HLIF
BA-133	1.571E-01	1.248E-01	1.435E-01	FAIL ABUN
I-133	8.390E+08	3.826E+10	3.826E+10	SHORT HLIF
CS-134	-5.251E-04	7.964E-02	7.964E-02	NOT IDENT.
I-135	-1.506E+36	6.156E+36	0.000E+00	SHORT HLIF
CS-136	2.931E-01	5.452E-01	5.610E-01	NOT IDENT.
BA-137M	-1.844E-02	7.447E-02	7.493E-02	NOT IDENT.
CS-137	-1.948E-02	7.867E-02	7.916E-02	NOT IDENT.
LA-138	3.772E-02	1.151E-01	1.164E-01	NOT IDENT.
CE-139	2.749E-03	5.823E-02	5.824E-02	NOT IDENT.
BA-140	-1.922E-01	1.303E+00	1.306E+00	NOT IDENT.
LA-140	-2.818E-02	5.802E-01	5.803E-01	FAIL ABUN
CE-141	3.982E-01	2.773E-01	3.304E-01	FAIL ABUN
CE-143	1.014E+07	3.935E+06	6.031E+06	SHORT HLIF
CE-144	-2.364E-01	3.564E-01	3.720E-01	NOT IDENT.
PM-144	-2.410E-02	5.476E-02	5.582E-02	NOT IDENT.
PR-144	-1.857E+00	4.134E+00	4.218E+00	NOT IDENT.
PM-146	6.467E-02	8.486E-02	8.973E-02	NOT IDENT.
ND-147	-2.220E+00	3.274E+00	3.423E+00	FAIL ABUN
PM-147	7.902E+02	1.194E+03	1.246E+03	NOT IDENT.
PM-149	7.763E+03	6.189E+04	6.199E+04	SHORT HLIF
EU-150	8.442E-03	6.685E-02	6.696E-02	FAIL ABUN
EU-152	-7.325E-02	1.896E-01	1.925E-01	FAIL ABUN
GD-153	-6.774E-02	1.566E-01	1.596E-01	NOT IDENT.
EU-154	-1.311E-01	2.455E-01	2.525E-01	NOT IDENT.

EU-155	-6.661E-02	1.688E-01	1.714E-01	FAIL	ABUN
TB-160	-1.464E-01	3.113E-01	3.182E-01	FAIL	ABUN
HO-166M	1.085E-01	1.107E-01	1.210E-01	FAIL	ABUN
TM-171	7.393E-02	4.920E+01	4.920E+01	FAIL	ABUN
HF-172	5.717E-02	3.454E-01	3.464E-01	FAIL	ABUN
LU-172	1.179E-02	1.200E-01	1.201E-01	FAIL	ABUN
LU-176	3.828E-03	4.533E-02	4.536E-02	FAIL	ABUN
HF-181	-5.729E-02	1.061E-01	1.092E-01	NOT IDENT.	
TA-182	-8.559E-02	3.539E-01	3.560E-01	FAIL	ABUN
RE-183	-5.688E-02	4.474E-01	4.481E-01	FAIL	ABUN
RE-184	4.359E-02	3.979E-01	3.984E-01	NOT IDENT.	
W-188	-8.383E+00	1.747E+01	1.788E+01	FAIL	ABUN
IR-192	-2.237E-03	7.176E-02	7.176E-02	FAIL	ABUN
HG-203	-5.007E-02	9.370E-02	9.638E-02	NOT IDENT.	
TL-204	-7.474E+00	9.228E+00	9.824E+00	FAIL	ABUN
BI-207	8.640E-03	9.465E-02	9.473E-02	FAIL	ABUN
BI-210	5.489E+00	1.149E+01	1.175E+01	NOT IDENT.	
PB-210	5.489E+00	1.149E+01	1.175E+01	NOT IDENT.	
PB-211	1.851E-01	1.394E+00	1.397E+00	NOT IDENT.	
BI-213	-8.101E-02	1.820E-01	1.857E-01	NOT IDENT.	
RN-219	6.162E-01	8.182E-01	8.640E-01	FAIL	ABUN
RA-223	1.000E+00	1.253E+00	1.332E+00	FAIL	ABUN
AC-225	-2.900E+00	4.287E+00	4.482E+00	NOT IDENT.	
AC-227	2.488E-01	5.502E-01	5.615E-01	FAIL	ABUN
TH-227	2.488E-01	5.502E-01	5.615E-01	FAIL	ABUN
TH-231	1.000E+00	1.253E+00	1.332E+00	FAIL	ABUN
PA-233	4.025E-02	1.134E-01	1.148E-01	FAIL	ABUN
PA-234	-2.482E-01	6.165E-01	6.266E-01	NOT IDENT.	
PA-234M	1.927E+01	1.226E+01	1.502E+01	FAIL	ABUN
NP-237	4.025E-02	1.134E-01	1.148E-01	FAIL	ABUN
NP-238	1.802E+03	2.046E+04	2.048E+04	SHORT HLIF	
NP-239	-2.185E-01	4.331E-01	4.442E-01	NOT IDENT.	
PU-239	8.995E+02	1.017E+03	1.095E+03	FAIL	ABUN
AM-241	9.530E-02	3.002E-01	3.032E-01	NOT IDENT.	
CM-243	7.760E-02	1.668E-01	1.705E-01	NOT IDENT.	
BK-247	5.698E-02	1.511E-01	1.533E-01	FAIL	ABUN
CM-247	1.138E-02	7.646E-02	7.663E-02	NOT IDENT.	
CF-249	9.894E-02	7.334E-02	8.584E-02	NOT IDENT.	
CF-251	-1.592E-01	2.291E-01	2.401E-01	NOT IDENT.	

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	83.6879	85.43	87.2946	131.20	125.1877
45.60	100.2126	86.55	87.6318	133.02	127.0250
46.54	103.5780	86.79	190.5858	133.52	140.6689
49.72	0.0000	86.94	190.6841	136.00	122.1202
51.35	96.0820	87.09	190.7823	136.47	127.1081
51.87	102.1770	87.57	142.0525	140.51	0.0000
52.39	103.9113	88.03	132.1106	143.76	112.4979
52.97	98.3444	88.34	132.2487	144.24	112.6206
53.44	114.7607	88.47	132.3070	145.44	136.0383
54.07	92.9816	89.96	121.6028	152.43	155.9224
57.36	0.0000	1093.63	121.8771	153.25	163.2508
57.53	99.0514	91.11	122.0654	323.87	151.4694
57.98	99.2603	92.59	122.6564	156.02	158.1376
59.27	115.7434	93.35	122.9590	158.56	136.5661
59.32	115.7702	94.56	123.4368	159.00	119.3494
59.54	98.9715	94.65	123.4717	162.33	116.0657
60.96	107.7447	94.67	123.4804	162.66	116.1433
61.17	108.8640	94.87	123.5588	163.33	125.5668
62.93	120.9991	97.43	136.1989	165.86	124.1418
63.29	121.1899	98.43	124.3616	176.31	119.3245
63.58	121.3439	98.44	124.3648	176.60	120.4466
64.28	121.7136	99.53	114.2380	177.52	125.9509
66.73	114.1327	100.11	129.4056	181.07	0.0000
67.24	137.8787	102.03	128.3884	181.52	113.7516
125.81	138.1311	103.18	107.5062	184.41	119.0096
67.75	138.1714	103.37	107.5671	143.76	119.2959
68.89	134.0900	105.21	125.1340	193.51	127.5206
69.67	134.5193	105.31	125.1714	197.03	119.5381
70.82	156.8721	106.12	112.9205	198.01	147.2066
70.83	156.8796	106.47	109.4465	201.83	134.9081
72.81	165.0615	109.28	104.9064	203.43	125.2973
72.87	165.0992	111.00	124.8030	205.31	139.4146
74.66	178.6259	111.76	0.0000	210.85	136.2149
74.82	178.7374	114.06	112.4245	215.65	99.5700
74.97	178.8404	116.30	0.0000	218.12	124.9568
77.11	180.2977	116.74	127.4019	222.11	114.3188
78.74	181.3936	119.76	123.7773	227.09	100.2340
79.69	182.0286	121.12	99.9362	227.38	112.9581
80.03	182.2515	121.22	101.8307	228.16	0.0000
80.12	182.3139	121.78	114.1414	228.18	98.0945
80.19	182.3612	122.06	118.9055	116.74	98.0945
80.57	182.6128	122.92	119.1710	235.69	121.3973
81.00	182.8965	123.07	119.2166	235.96	123.0035
81.07	182.9421	265.00	116.5840	238.63	120.3673
81.75	183.3896	125.81	120.9990	238.98	0.0000
82.47	183.8641	127.23	135.3457	240.99	84.7079
83.79	184.7219	127.91	123.5403	242.00	86.4041
84.00	184.8587	129.30	123.9677	244.70	89.8998

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	100.4639	344.28	74.1009	563.25	33.4206
252.80	108.8970	345.93	82.6396	564.24	0.0000
254.15	0.0000	351.06	74.1916	569.33	38.9751
256.23	91.3859	351.93	74.2604	946.00	38.9795
260.90	0.0000	355.39	0.0000	569.70	38.9854
264.66	76.6371	356.01	54.2407	583.19	40.4401
264.80	76.6524	364.49	54.7205	584.27	37.7358
265.00	76.6717	366.42	0.0000	595.83	22.0459
269.46	91.4170	372.51	61.6048	427.87	33.1738
270.03	109.0500	375.05	60.8411	602.52	0.0000
271.23	109.2238	377.52	57.2937	604.72	34.9261
273.65	105.0599	356.01	58.5844	607.14	22.2111
276.40	97.6145	388.16	43.8904	609.32	22.2428
277.37	90.3143	388.63	49.5161	610.33	22.2575
277.60	82.9158	391.69	68.4033	614.28	33.4717
278.00	82.9587	264.66	72.7718	618.01	31.3154
279.20	83.0875	401.81	60.5521	620.36	38.0826
279.54	86.8463	402.40	70.9991	621.93	25.7880
279.70	94.3112	404.85	64.5206	630.19	0.0000
280.46	99.3726	410.95	67.7499	631.29	28.1972
283.69	76.0862	413.71	54.5299	633.25	30.4915
284.31	96.1184	414.70	45.0044	634.78	28.2593
285.41	94.1713	423.72	70.9579	635.95	31.6743
285.90	0.0000	427.09	50.3538	636.99	27.1670
287.50	86.8994	427.87	50.3888	657.50	28.6591
290.67	90.6021	433.94	56.5061	657.76	24.0779
293.27	0.0000	439.40	52.8618	657.90	0.0000
351.93	75.9302	440.45	49.9707	661.66	36.2027
295.96	75.9998	453.88	49.5585	664.57	0.0000
879.38	63.5361	463.37	55.9499	666.33	32.2702
299.98	82.7387	468.07	47.1415	666.50	32.2736
300.09	86.5688	473.00	35.2478	667.71	0.0000
300.13	86.5730	475.06	43.3771	677.62	19.7254
301.36	82.8766	476.78	47.4781	685.70	30.3122
302.85	52.3711	477.60	42.4554	692.65	0.0000
256.23	77.6459	482.18	46.6710	695.00	29.8911
304.85	81.9473	487.02	42.7776	696.49	29.9160
306.78	67.5917	492.35	0.0000	696.51	29.9171
308.46	66.0121	497.08	43.1185	697.00	32.5658
311.90	66.2815	505.52	48.0525	697.30	28.1699
316.51	67.5057	507.63	0.0000	697.49	28.1729
319.41	70.3378	511.00	31.1316	702.65	34.4380
320.08	71.2595	514.00	31.2024	706.68	36.2879
321.04	79.1696	514.00	31.2024	711.68	26.6272
323.87	61.5326	520.40	28.2184	720.70	22.5996
325.23	66.8737	520.69	0.0000	721.93	0.0000
328.76	66.7010	522.65	0.0000	722.78	31.4381
333.37	67.0458	527.90	0.0000	722.91	31.4402
333.97	68.8562	528.26	40.9995	723.31	38.5950
334.37	71.5358	529.59	31.5698	724.19	41.4737
338.28	66.5237	529.87	0.0000	727.33	25.9671
338.32	66.5268	531.02	42.1370	733.00	28.7432
311.90	80.0208	537.26	37.0394	735.93	36.8860
340.48	80.0208	546.56	0.0000	333.97	31.5147
340.55	80.0262	552.55	36.3796	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	37.9587	949.00	16.9725	1384.29	17.5525
747.24	28.9678	667.71	0.0000	1408.01	20.0370
748.06	21.7354	962.31	32.1328	1434.09	10.4538
752.31	30.8623	964.08	22.1081	1435.80	13.3116
753.82	22.7119	966.17	22.1282	1457.56	0.0000
756.73	33.6656	911.20	22.1544	1460.82	23.9478
756.80	33.6667	983.53	22.6974	1489.16	10.6240
884.68	26.3057	984.45	0.0000	1505.03	29.1064
765.81	33.6465	1274.44	14.2619	1584.12	14.8777
766.42	33.8406	1001.03	19.3937	1596.21	16.9162
766.84	33.8474	1002.74	21.2462	1620.50	6.0094
772.60	0.0000	1004.73	29.4425	1621.92	7.0137
776.52	25.7458	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	8.1613
778.90	29.4600	1028.54	0.0000	1750.46	0.0000
783.70	22.1506	1037.84	22.7963	1764.49	7.2741
788.74	20.7279	1038.76	0.0000	1063.66	8.6719
792.07	34.1114	631.29	23.9167	1771.35	5.2046
795.86	34.3634	1048.07	19.7689	1791.20	0.0000
810.06	14.9673	1049.04	20.8167	1808.65	3.1512
810.29	14.9692	1050.41	18.7460	1810.72	0.0000
344.28	14.9702	1063.66	20.9375	1836.06	7.4009
810.76	11.2295	1077.00	13.4703		
815.77	21.5772	1077.34	15.1559		
1048.07	27.0554	1085.87	22.1754		
832.01	27.0211	1093.63	21.1829		
834.85	27.2751	1099.45	22.2920		
835.71	25.7706	1112.07	18.4875		
836.80	0.0000	1112.84	17.0703		
846.75	0.0000	1115.54	10.2527		
846.77	15.2412	1120.29	13.6945		
856.80	33.5014	1120.55	13.6961		
860.56	23.9731	1221.41	17.1250		
871.09	26.9840	1129.67	13.7430		
873.19	27.9752	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	32.8939	1173.23	10.9088		
880.51	32.9116	1177.95	21.8542		
881.60	24.2119	1189.05	17.5527		
883.24	28.1070	1204.77	26.4756		
884.68	29.0964	1221.41	21.0816		
889.28	38.8770	1231.02	12.4681		
894.76	32.1551	1235.36	13.3784		
898.04	32.2034	1238.28	16.0708		
900.72	36.1520	1260.41	0.0000		
903.28	33.5386	1271.87	18.0596		
911.20	27.4890	1274.44	23.2395		
912.08	31.4287	1274.54	23.2408		
923.98	0.0000	1291.59	14.5422		
926.50	21.7476	1298.22	0.0000		
929.11	20.5848	1312.11	13.7249		
935.54	19.0559	1332.49	17.4999		
937.49	15.8936	1362.66	0.0000		
944.13	21.2533	1365.19	16.7502		
946.00	26.9209	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:22:26.46

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299011.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM24.CNF;751
Background date    : 28-JUL-2024 09:55:36
Sample date       : 26-JUN-2024 09:35:00 Acquisition date : 30-JUL-2024 11:18:49
Sample ID        : G674299011 Sample quantity : 1.07060E+02 GRAM
Detector name     : GAM24 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.53 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.01*	44	110	1.07	126.24	121	11	1.23E-02	49.9	
2	3	74.78*	72	101	1.30	149.78	146	13	1.99E-02	28.3	1.23E+00
3	3	77.16	136	90	1.31	154.54	146	13	3.79E-02	15.3	
4	0	87.22	25	77	0.98	174.65	172	7	6.90E-03	61.5	
5	0	93.40*	67	142	1.72	187.01	181	13	1.86E-02	42.3	
6	0	166.08	12	53	1.30	332.33	329	8	3.43E-03	105.4	
7	0	185.99*	75	94	1.40	372.16	366	13	2.09E-02	30.0	
8	0	203.29	25	39	0.78	406.75	403	8	7.05E-03	46.6	
9	2	238.72*	138	55	1.15	477.60	470	19	3.84E-02	12.5	2.04E+00
10	2	241.75	30	68	1.53	483.66	470	19	8.36E-03	56.0	
11	0	294.91*	86	39	1.47	589.95	583	13	2.39E-02	18.7	
12	0	338.36	31	32	1.49	676.85	673	9	8.47E-03	37.8	
13	0	352.06*	115	62	1.21	704.24	698	13	3.20E-02	17.0	
14	0	397.02	16	16	1.41	794.15	790	9	4.43E-03	53.4	
15	0	511.47*	20	17	2.20	1023.02	1017	17	5.59E-03	76.4	
16	0	519.28	30	9	3.84	1038.64	1033	12	8.27E-03	27.3	
17	0	523.88	13	7	1.50	1047.85	1045	7	3.61E-03	43.7	
18	0	582.87*	57	9	1.56	1165.83	1160	12	1.59E-02	17.6	
19	1	609.31*	89	18	1.51	1218.70	1210	30	2.48E-02	14.3	1.52E+00
20	1	613.12	14	22	1.81	1226.33	1210	30	3.85E-03	70.6	
21	0	687.25	6	9	1.46	1374.58	1370	9	1.58E-03	104.2	
22	0	728.10	10	25	1.35	1456.27	1450	11	2.66E-03	105.9	
23	0	758.56	8	4	0.59	1517.20	1514	6	2.29E-03	52.5	
24	0	768.90	12	11	3.45	1537.89	1533	10	3.47E-03	55.5	
25	0	831.24	9	9	0.74	1662.56	1656	9	2.50E-03	68.7	
26	0	859.40	15	9	3.33	1718.89	1713	12	4.16E-03	47.7	
27	0	911.55*	26	12	1.21	1823.20	1817	10	7.26E-03	33.8	
28	0	923.27	7	2	0.83	1846.64	1843	7	1.98E-03	48.8	
29	0	935.27	24	3	3.72	1870.65	1865	13	6.75E-03	25.2	
30	0	969.94*	22	12	2.15	1939.98	1933	17	6.25E-03	43.3	
31	0	1120.32*	13	7	1.89	2240.77	2236	10	3.55E-03	55.5	
32	0	1170.03	6	7	1.37	2340.22	2332	10	1.72E-03	91.0	
33	0	1460.69*	108	0	1.71	2921.66	2915	15	3.01E-02	10.0	
34	0	1764.43*	9	0	1.59	3529.33	3523	11	2.59E-03	43.8	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
Flag: "*" = Peak area was modified by background subtraction											

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299011.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:35:00	Acquisition date	: 30-JUL-2024 11:18:49
Sample ID	: G674299011	Sample quantity	: 107.06 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA24	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.53 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	102	10.66*	1.314E+00	5.092E+00	5.092E+00	19.93
CD-109	88.03	25	3.70*	7.915E+00	6.050E-01	6.368E-01	123.09
SN-126	64.28	45	9.60	5.495E+00	6.024E-01	6.024E-01	99.80
	86.94	25	8.90	7.915E+00	2.515E-01	2.515E-01	123.09
	87.57	25	37.00*	7.915E+00	6.050E-02	6.050E-02	123.09
CE-139	165.86	12	80.00*	7.055E+00	1.532E-02	1.819E-02	210.72
TL-208	277.37	-----	6.60	5.118E+00	-----	Line Not Found	-----
	583.19	55	85.00*	3.002E+00	1.515E-01	1.515E-01	35.22
	860.56	14	12.50	2.135E+00	3.747E-01	3.747E-01	95.48
BI-211	72.87	-----	1.23	6.856E+00	-----	Line Not Found	-----
	351.06	113	12.92*	4.359E+00	1.404E+00	1.404E+00	34.10
BI-212	727.33	9	6.67*	2.484E+00	3.886E-01	3.886E-01	211.81
	1620.50	-----	1.47	1.219E+00	-----	Line Not Found	-----
PB-212	74.82	73	10.28	7.055E+00	7.081E-01	7.081E-01	56.61
	77.11	139	17.10	7.275E+00	7.842E-01	7.842E-01	30.57
	238.63	137	43.60*	5.648E+00	3.897E-01	3.897E-01	24.90
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
BI-214	609.32	86	45.49*	2.894E+00	4.583E-01	4.583E-01	28.62
	1120.29	12	14.92	1.660E+00	3.417E-01	3.417E-01	111.01
	1764.49	9	15.30	1.161E+00	3.438E-01	3.438E-01	87.64
PB-214	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.383E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.139E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.557E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
RN-222	609.32	86	45.49*	2.894E+00	4.583E-01	4.583E-01	28.62
	1120.29	12	14.92	1.660E+00	3.417E-01	3.417E-01	111.01
	1764.49	9	15.30	1.161E+00	3.438E-01	3.438E-01	87.64
RA-224	240.99	30	4.10*	5.602E+00	9.086E-01	9.086E-01	111.97
RA-226	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.383E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.139E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.557E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
AC-228	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
RA-228	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
TH-228	74.82	73	10.28	7.055E+00	7.081E-01	7.081E-01	56.61
	77.11	139	17.10	7.275E+00	7.842E-01	7.842E-01	30.57
	238.63	137	43.60*	5.648E+00	3.897E-01	3.897E-01	24.90

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-230	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.382E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.138E-01	111.97
TH-232	295.22	85	18.42	4.914E+00	6.556E-01	6.556E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
TH-234	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
	63.29	45	3.70*	5.495E+00	1.563E+00	1.563E+00	99.80
	92.59	68	4.23	8.120E+00	1.391E+00	1.391E+00	84.59
	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
U-234	77.11	139	9.70	7.275E+00	1.382E+00	1.382E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.138E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.556E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
U-238	63.29	45	3.70*	5.495E+00	1.563E+00	1.563E+00	99.80
	92.59	68	4.23	8.120E+00	1.391E+00	1.391E+00	84.59
	43.53	-----	5.90	1.656E+00	-----	Line Not Found	-----
AM-243	74.66	73	67.20*	7.055E+00	1.083E-01	1.083E-01	56.61
ANH-511	511.00	19	100.00*	3.328E+00	4.102E-02	4.102E-02	152.80

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299011.CNF;1
Acquisition date : 30-JUL-2024 11:18:49 Sensitivity : 3.000
Detector ID : GAM24 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.53 Half life ratio : *****
Sample date : 26-JUN-2024 09:35:00 Analyst initials: RXF2
Sample ID : G674299011 Sample Quantity : 1.0706E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 24-JUN-2024 07:06:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	5.092E+00	9.945E-01	4.785E-01
CD-109	6.368E-01	7.682E-01	9.142E-01
SN-126	6.050E-02	7.299E-02	8.702E-02
CE-139	1.819E-02	3.756E-02	4.253E-02
TL-208	1.515E-01	5.229E-02	6.061E-02
BI-211	1.404E+00	4.691E-01	2.960E-01
BI-212	3.886E-01	8.067E-01	8.465E-01
PB-212	3.897E-01	9.512E-02	8.769E-02
BI-214	4.583E-01	1.285E-01	1.078E-01
PB-214	5.095E-01	1.702E-01	1.076E-01
RN-222	4.583E-01	1.285E-01	1.078E-01
RA-224	9.086E-01	9.970E-01	9.395E-01
RA-226	5.095E-01	1.702E-01	1.076E-01
AC-228	3.347E-01	2.220E-01	2.539E-01
RA-228	3.347E-01	2.220E-01	2.539E-01
TH-228	3.897E-01	9.512E-02	8.769E-02
TH-230	5.095E-01	1.702E-01	1.076E-01
TH-232	3.347E-01	2.220E-01	2.539E-01
TH-234	1.563E+00	1.529E+00	1.110E+00
U-234	5.095E-01	1.702E-01	1.076E-01
U-238	1.563E+00	1.529E+00	1.110E+00
AM-243	1.083E-01	6.009E-02	6.451E-02
ANH-511	4.102E-02	6.142E-02	4.436E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	1.794E-01	3.243E-01	6.741E-01	NOT IDENT.
NA-22	8.220E-03	3.659E-02	7.694E-02	NOT IDENT.
NA-24	0.000E+00	8.726E+14	0.000E+00	SHORT HLIF
AL-26	6.401E-03	2.051E-02	5.648E-02	NOT IDENT.
SC-46	3.911E-03	3.440E-02	7.222E-02	FAIL ABUN
V-48	-2.178E-02	1.192E-01	2.358E-01	NOT IDENT.
CR-51	3.380E-02	5.011E-01	9.668E-01	NOT IDENT.

MN-52	6.152E-01	2.073E+00	4.694E+00	FAIL ABUN
MN-54	8.264E-03	4.370E-02	7.795E-02	NOT IDENT.
CO-56	8.143E-03	3.797E-02	7.956E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-2.027E-03	1.956E-02	3.509E-02	NOT IDENT.
CO-58	-2.579E-02	3.643E-02	6.430E-02	NOT IDENT.
FE-59	-4.922E-02	9.173E-02	1.636E-01	NOT IDENT.
CO-60	2.697E-02	3.074E-02	7.698E-02	NOT IDENT.
ZN-65	4.775E-02	7.570E-02	1.589E-01	NOT IDENT.
GE-68	2.707E-01	7.595E-01	1.791E+00	NOT IDENT.
AS-73	1.306E-01	4.349E-01	8.506E-01	NOT IDENT.
AS-74	-1.231E-01	1.714E-01	2.817E-01	NOT IDENT.
SE-75	-1.211E-02	3.365E-02	6.322E-02	NOT IDENT.
BR-77	0.000E+00	3.736E+03	0.000E+00	SHORT HLIF
SR-82	-1.817E-01	3.809E-01	7.169E-01	NOT IDENT.
RB-83	0.000E+00	9.599E-02	1.506E-01	FAIL ABUN
RB-84	6.560E-03	8.044E-02	1.665E-01	NOT IDENT.
KR-85	6.693E+00	7.041E+00	1.366E+01	NOT IDENT.
SR-85	4.316E-02	4.553E-02	8.832E-02	NOT IDENT.
RB-86	6.331E-03	1.033E+00	2.183E+00	NOT IDENT.
Y-88	4.863E-04	3.629E-02	8.215E-02	NOT IDENT.
Y-91	-1.109E+01	1.805E+01	3.108E+01	NOT IDENT.
NB-94	8.151E-03	2.824E-02	5.577E-02	NOT IDENT.
NB-95	3.352E-02	4.469E-02	9.179E-02	NOT IDENT.
NB-95M	-2.703E-02	1.270E-01	2.150E-01	NOT IDENT.
ZR-95	4.706E-02	7.316E-02	1.515E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.001E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.115E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.651E+39	0.000E+00	SHORT HLIF
RH-101	-1.156E-02	2.345E-02	4.010E-02	NOT IDENT.
RH-102	-1.513E-02	4.421E-02	7.877E-02	NOT IDENT.
RU-103	-1.109E-02	4.651E-02	8.531E-02	FAIL ABUN
RH-106	-5.547E-02	2.778E-01	4.501E-01	NOT IDENT.
RU-106	-5.547E-02	2.778E-01	4.501E-01	NOT IDENT.
AG-108M	1.822E-02	2.628E-02	5.416E-02	FAIL ABUN
AG-110	-7.659E-02	5.568E-01	1.045E+00	NOT IDENT.
AG-110M	-2.479E-02	3.613E-02	6.354E-02	NOT IDENT.
SN-113	1.569E-02	3.693E-02	7.575E-02	NOT IDENT.
CD-115	0.000E+00	3.151E+03	0.000E+00	SHORT HLIF
SN-117M	8.356E-02	1.059E-01	2.074E-01	NOT IDENT.
SB-122	0.000E+00	1.962E+02	0.000E+00	SHORT HLIF
TE-123M	2.130E-02	2.212E-02	4.450E-02	NOT IDENT.
SB-124	1.443E-03	9.722E-02	2.150E-01	NOT IDENT.
SB-125	-5.408E-02	6.424E-02	1.068E-01	NOT IDENT.
TE-125M	-6.349E+00	8.562E+00	1.435E+01	NOT IDENT.
I-126	3.767E-02	5.476E-01	1.034E+00	NOT IDENT.
SB-126	1.457E-01	3.392E-01	6.936E-01	NOT IDENT.
SB-127	5.334E+00	3.579E+01	6.293E+01	NOT IDENT.
I-131	4.478E-02	5.809E-01	1.104E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	3.509E+01	0.000E+00	SHORT HLIF
BA-133	-1.358E-02	3.601E-02	5.807E-02	NOT IDENT.
I-133	0.000E+00	1.835E+10	0.000E+00	SHORT HLIF
CS-134	3.362E-02	3.576E-02	8.094E-02	NOT IDENT.
I-135	0.000E+00	3.045E+36	0.000E+00	SHORT HLIF
CS-136	-3.608E-02	1.895E-01	3.798E-01	NOT IDENT.
BA-137M	7.588E-03	2.790E-02	5.583E-02	NOT IDENT.
CS-137	8.016E-03	2.947E-02	5.897E-02	NOT IDENT.
LA-138	1.395E-02	4.632E-02	1.049E-01	NOT IDENT.
BA-140	-7.034E-02	6.062E-01	1.135E+00	NOT IDENT.
LA-140	-6.249E-02	2.219E-01	4.469E-01	NOT IDENT.
CE-141	-9.800E-03	7.208E-02	1.272E-01	NOT IDENT.
CE-143	0.000E+00	1.508E+06	0.000E+00	SHORT HLIF
CE-144	-3.706E-02	1.550E-01	2.722E-01	NOT IDENT.
PM-144	1.743E-02	2.748E-02	5.844E-02	NOT IDENT.
PR-144	1.073E+00	2.136E+00	4.422E+00	NOT IDENT.
PM-146	-1.884E-03	2.849E-02	5.525E-02	NOT IDENT.
ND-147	-1.804E-01	1.503E+00	2.815E+00	NOT IDENT.
PM-147	1.292E+02	5.324E+02	9.947E+02	NOT IDENT.
PM-149	0.000E+00	2.445E+04	0.000E+00	SHORT HLIF
EU-150	1.345E-02	2.338E-02	4.406E-02	FAIL ABUN
EU-152	-9.993E-03	7.366E-02	1.399E-01	NOT IDENT.
GD-153	-2.501E-02	5.942E-02	9.550E-02	NOT IDENT.
EU-154	2.307E-02	1.027E-01	2.159E-01	NOT IDENT.
EU-155	2.815E-02	7.703E-02	1.450E-01	FAIL ABUN
TB-160	4.580E-02	1.121E-01	2.509E-01	FAIL ABUN
HO-166M	-2.202E-02	5.530E-02	9.545E-02	NOT IDENT.

TM-171	-5.020E+00	7.589E+00	1.357E+01	NOT IDENT.
HF-172	2.615E-02	1.219E-01	2.296E-01	FAIL ABUN
LU-172	-1.436E-02	5.288E-02	1.005E-01	FAIL ABUN
LU-176	4.207E-03	1.946E-02	3.884E-02	FAIL ABUN
HF-181	-2.661E-02	3.904E-02	6.636E-02	NOT IDENT.
TA-182	-1.198E-01	1.708E-01	2.854E-01	FAIL ABUN
RE-183	4.449E-02	1.027E-01	2.028E-01	NOT IDENT.
RE-184	-4.940E-02	1.427E-01	2.707E-01	NOT IDENT.
W-188	1.798E+00	6.624E+00	1.219E+01	FAIL ABUN
IR-192	7.983E-03	3.135E-02	6.265E-02	FAIL ABUN
HG-203	1.716E-02	3.773E-02	7.682E-02	NOT IDENT.
TL-204	3.179E+00	2.834E+00	5.433E+00	NOT IDENT.
BI-207	-1.049E-02	4.923E-02	9.328E-02	FAIL ABUN
BI-210	3.821E-01	1.290E+00	2.509E+00	NOT IDENT.
PB-210	3.821E-01	1.290E+00	2.509E+00	NOT IDENT.
PB-211	-2.314E-01	5.459E-01	9.859E-01	FAIL ABUN
BI-213	3.222E-02	8.081E-02	1.645E-01	NOT IDENT.
RN-219	3.497E-01	3.018E-01	6.612E-01	NOT IDENT.
RA-223	-3.269E-01	5.223E-01	9.269E-01	FAIL ABUN
AC-225	4.163E-01	1.989E+00	3.556E+00	NOT IDENT.
AC-227	3.686E-02	1.993E-01	3.927E-01	NOT IDENT.
TH-227	3.686E-02	1.993E-01	3.927E-01	NOT IDENT.
TH-229	3.557E-01	4.534E-01	8.652E-01	FAIL ABUN
PA-231	8.467E-02	4.358E-01	8.423E-01	NOT IDENT.
TH-231	-3.269E-01	5.223E-01	9.269E-01	FAIL ABUN
PA-233	2.153E-02	5.160E-02	1.041E-01	NOT IDENT.
PA-234	1.140E-01	2.534E-01	5.496E-01	FAIL ABUN
PA-234M	2.953E+00	3.331E+00	7.968E+00	NOT IDENT.
U-235	-1.013E-01	1.599E-01	2.642E-01	FAIL ABUN
NP-237	2.153E-02	5.160E-02	1.041E-01	FAIL ABUN
NP-238	0.000E+00	8.141E+03	0.000E+00	SHORT HLIF
NP-239	5.120E-02	1.845E-01	3.467E-01	NOT IDENT.
PU-239	2.150E+02	2.619E+02	5.095E+02	NOT IDENT.
AM-241	-6.194E-02	7.393E-02	1.156E-01	NOT IDENT.
CM-243	3.444E-03	7.227E-02	1.329E-01	NOT IDENT.
BK-247	-3.371E-02	5.542E-02	1.006E-01	NOT IDENT.
CM-247	3.574E-02	2.789E-02	6.290E-02	NOT IDENT.
CF-249	1.046E-02	3.371E-02	6.678E-02	NOT IDENT.
CF-251	1.171E-02	1.101E-01	1.968E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	102	10.66*	1.314E+00	5.092E+00	5.092E+00	19.93
CD-109	88.03	25	3.70*	7.915E+00	6.050E-01	6.368E-01	123.09
SN-126	64.28	45	9.60	5.495E+00	6.024E-01	6.024E-01	99.80
	86.94	25	8.90	7.915E+00	2.515E-01	2.515E-01	123.09
	87.57	25	37.00*	7.915E+00	6.050E-02	6.050E-02	123.09
CE-139	165.86	12	80.00*	7.055E+00	1.532E-02	1.819E-02	210.72
TL-208	277.37	-----	6.60	5.118E+00	-----	Line Not Found	-----
	583.19	55	85.00*	3.002E+00	1.515E-01	1.515E-01	35.22
	860.56	14	12.50	2.135E+00	3.747E-01	3.747E-01	95.48
BI-211	72.87	-----	1.23	6.856E+00	-----	Line Not Found	-----
	351.06	113	12.92*	4.359E+00	1.404E+00	1.404E+00	34.10
BI-212	727.33	9	6.67*	2.484E+00	3.886E-01	3.886E-01	211.81
	1620.50	-----	1.47	1.219E+00	-----	Line Not Found	-----
PB-212	74.82	73	10.28	7.055E+00	7.081E-01	7.081E-01	56.61
	77.11	139	17.10	7.275E+00	7.842E-01	7.842E-01	30.57
	238.63	137	43.60*	5.648E+00	3.897E-01	3.897E-01	24.90
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
BI-214	609.32	86	45.49*	2.894E+00	4.583E-01	4.583E-01	28.62
	1120.29	12	14.92	1.660E+00	3.417E-01	3.417E-01	111.01
	1764.49	9	15.30	1.161E+00	3.438E-01	3.438E-01	87.64
PB-214	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.383E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.139E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.557E-01	37.39
RN-222	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
	609.32	86	45.49*	2.894E+00	4.583E-01	4.583E-01	28.62
	1120.29	12	14.92	1.660E+00	3.417E-01	3.417E-01	111.01
	1764.49	9	15.30	1.161E+00	3.438E-01	3.438E-01	87.64
RA-224	240.99	30	4.10*	5.602E+00	9.086E-01	9.086E-01	111.97
RA-226	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.383E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.139E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.557E-01	37.39
AC-228	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
RA-228	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
TH-228	74.82	73	10.28	7.055E+00	7.081E-01	7.081E-01	56.61

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	139	17.10	7.275E+00	7.842E-01	7.842E-01	30.57
	238.63	137	43.60*	5.648E+00	3.897E-01	3.897E-01	24.90
	300.09	-----	3.30	4.857E+00	-----	Line Not Found	-----
TH-230	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.382E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.138E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.556E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
TH-232	105.21	-----	1.10	8.242E+00	-----	Line Not Found	-----
	338.32	30	11.27	4.479E+00	4.150E-01	4.150E-01	75.59
	835.71	-----	1.61	2.191E+00	-----	Line Not Found	-----
	911.20	25	25.80*	2.020E+00	3.347E-01	3.347E-01	67.68
	968.97	21	15.80	1.904E+00	4.979E-01	4.979E-01	86.68
TH-234	63.29	45	3.70*	5.495E+00	1.563E+00	1.563E+00	99.80
	92.59	68	4.23	8.120E+00	1.391E+00	1.391E+00	84.59
U-234	74.82	73	5.80	7.055E+00	1.255E+00	1.255E+00	56.61
	77.11	139	9.70	7.275E+00	1.382E+00	1.382E+00	30.57
	87.09	25	3.41	7.915E+00	6.565E-01	6.565E-01	123.09
	242.00	30	7.25	5.602E+00	5.138E-01	5.138E-01	111.97
	295.22	85	18.42	4.914E+00	6.556E-01	6.556E-01	37.39
	351.93	113	35.60*	4.359E+00	5.095E-01	5.095E-01	34.10
U-238	63.29	45	3.70*	5.495E+00	1.563E+00	1.563E+00	99.80
	92.59	68	4.23	8.120E+00	1.391E+00	1.391E+00	84.59
AM-243	43.53	-----	5.90	1.656E+00	-----	Line Not Found	-----
	74.66	73	67.20*	7.055E+00	1.083E-01	1.083E-01	56.61
ANH-511	511.00	19	100.00*	3.328E+00	4.102E-02	4.102E-02	152.80

Flag: "*" = Keyline

Total number of lines in spectrum 34
Number of unidentified lines 5
Number of lines tentatively identified by NID 29 85.29%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	5.092E+00	5.092E+00	1.015E+00	19.93	
CD-109	461.40D	1.05	6.050E-01	6.368E-01	7.839E-01	123.09	
SN-126	2.30E+05Y	1.00	6.050E-02	6.050E-02	7.447E-02	123.09	
CE-139	137.64D	1.19	1.532E-02	1.819E-02	3.833E-02	210.72	
TL-208	1.41E+10Y	1.00	1.515E-01	1.515E-01	0.534E-01	35.22	
BI-211	7.04E+08Y	1.00	1.404E+00	1.404E+00	0.479E+00	34.10	
BI-212	1.41E+10Y	1.00	3.886E-01	3.886E-01	8.232E-01	211.81	
PB-212	1.41E+10Y	1.00	3.897E-01	3.897E-01	0.971E-01	24.90	
BI-214	1600.00Y	1.00	4.583E-01	4.583E-01	1.312E-01	28.62	
PB-214	1600.00Y	1.00	5.095E-01	5.095E-01	1.737E-01	34.10	
RN-222	1600.00Y	1.00	4.583E-01	4.583E-01	1.312E-01	28.62	
RA-224	1.41E+10Y	1.00	9.086E-01	9.086E-01	10.17E-01	111.97	
RA-226	1600.00Y	1.00	5.095E-01	5.095E-01	1.737E-01	34.10	
AC-228	1.41E+10Y	1.00	3.347E-01	3.347E-01	2.265E-01	67.68	
RA-228	1.41E+10Y	1.00	3.347E-01	3.347E-01	2.265E-01	67.68	
TH-228	1.41E+10Y	1.00	3.897E-01	3.897E-01	0.971E-01	24.90	
TH-230	7.54E+04Y	1.00	5.095E-01	5.095E-01	1.737E-01	34.10	
TH-232	1.41E+10Y	1.00	3.347E-01	3.347E-01	2.265E-01	67.68	
TH-234	4.47E+09Y	1.00	1.563E+00	1.563E+00	1.560E+00	99.80	
U-234	2.45E+05Y	1.00	5.095E-01	5.095E-01	1.737E-01	34.10	
U-238	4.47E+09Y	1.00	1.563E+00	1.563E+00	1.560E+00	99.80	
AM-243	7370.00Y	1.00	1.083E-01	1.083E-01	0.613E-01	56.61	
ANH-511	1.00E+09Y	1.00	4.102E-02	4.102E-02	6.268E-02	152.80	
Total Activity :			1.664E+01	1.667E+01			

Grand Total Activity : 1.664E+01 1.667E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.99	75	94	1.40	372.16	366	13	2.09E-02	60.0	6.61E+00	T
0	203.29	25	38	0.78	406.75	403	8	7.05E-03	93.3	6.26E+00	T
0	397.02	16	16	1.41	794.15	790	9	4.43E-03	****	4.01E+00	
0	519.28	29	9	3.84	1038.64	1033	12	8.27E-03	54.6	3.29E+00	T
0	523.88	13	7	1.50	1047.85	1045	7	3.61E-03	87.4	3.27E+00	T
1	613.12	13	21	1.81	1226.33	1210	30	3.85E-03	****	2.88E+00	T
0	687.25	5	9	1.46	1374.58	1370	9	1.58E-03	****	2.61E+00	
0	758.56	8	4	0.59	1517.20	1514	6	2.29E-03	****	2.39E+00	
0	768.90	12	10	3.45	1537.89	1533	10	3.47E-03	****	2.37E+00	
0	831.24	9	9	0.74	1662.56	1656	9	2.50E-03	****	2.20E+00	T
0	923.27	7	2	0.83	1846.64	1843	7	1.98E-03	97.7	2.00E+00	T
0	935.27	23	3	3.72	1870.65	1865	13	6.75E-03	50.4	1.97E+00	T
0	1170.03	6	6	1.37	2340.22	2332	10	1.72E-03	****	1.59E+00	

Flags: "T" = Tentatively associated

```
*****
*
*                               GEL Laboratories LLC
*                               2040 Savage Road
*                               Charleston, SC 29407
*                               *****
*
*                               DETECTOR AND SAMPLE DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299011.CNF;1
* Acquisition date   : 30-JUL-2024 11:18:49 Sensitivity      : 3.000
* Detector ID        : GAM24 Energy tolerance: 1.500
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 01:00:00.53 Half life ratio  : *****
* Sample date        : 26-JUN-2024 09:35:00 Nuclide Library : SOLID
* Sample ID          : G674299011 Analyst initials: RXF2
* Batch Number       : 2636542 Sample Quantity  : 1.0706E+02 GRAM
* Wet wt corr        : 1.00000 Wet Weight       : 0.00000
*                               Dry Weight       : 0.00000
*
*                               CALIBRATION INFORMATION
*
* Eff. Cal. date     : 24-JUN-2024 07:06:44 Eff. Geometry   : CAN
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16
*****
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	1.720E-01
CD-109	4.230E-01
SN-126	4.026E-02
CE-139	1.927E-02
TL-208	2.660E-02
BI-211	1.312E-01
BI-212	3.663E-01
PB-212	4.000E-02
BI-214	4.674E-02
PB-214	4.771E-02
RN-222	4.674E-02
RA-224	4.286E-01
RA-226	4.771E-02
AC-228	1.089E-01
RA-228	1.089E-01
TH-228	4.000E-02
TH-230	4.771E-02
TH-232	1.089E-01
TH-234	5.084E-01
U-234	4.771E-02
U-238	5.084E-01
AM-243	3.024E-02
ANH-511	1.934E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	2.967E-01	NOT IDENT.
NA-22	3.192E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.001E-02	NOT IDENT.
SC-46	3.006E-02	FAIL ABUN
V-48	9.584E-02	NOT IDENT.
CR-51	4.352E-01	NOT IDENT.
MN-52	1.863E+00	FAIL ABUN

MN-54	3.434E-02	NOT IDENT.
CO-56	3.385E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.604E-02	NOT IDENT.
CO-58	2.626E-02	NOT IDENT.
FE-59	6.500E-02	NOT IDENT.
CO-60	3.176E-02	NOT IDENT.
ZN-65	6.716E-02	NOT IDENT.
GE-68	7.098E-01	NOT IDENT.
AS-73	3.914E-01	NOT IDENT.
AS-74	1.203E-01	NOT IDENT.
SE-75	2.789E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	2.905E-01	NOT IDENT.
RB-83	6.690E-02	FAIL ABUN
RB-84	6.977E-02	NOT IDENT.
KR-85	6.170E+00	NOT IDENT.
SR-85	3.989E-02	NOT IDENT.
RB-86	8.663E-01	NOT IDENT.
Y-88	3.068E-02	NOT IDENT.
Y-91	1.204E+01	NOT IDENT.
NB-94	2.419E-02	NOT IDENT.
NB-95	4.014E-02	NOT IDENT.
NB-95M	9.778E-02	NOT IDENT.
ZR-95	6.530E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.826E-02	NOT IDENT.
RH-102	3.327E-02	NOT IDENT.
RU-103	3.707E-02	FAIL ABUN
RH-106	1.894E-01	NOT IDENT.
RU-106	1.894E-01	NOT IDENT.
AG-108M	2.430E-02	FAIL ABUN
AG-110	4.372E-01	NOT IDENT.
AG-110M	2.489E-02	NOT IDENT.
SN-113	3.345E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	9.507E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.034E-02	NOT IDENT.
SB-124	8.281E-02	NOT IDENT.
SB-125	4.482E-02	NOT IDENT.
TE-125M	6.529E+00	NOT IDENT.
I-126	4.506E-01	NOT IDENT.
SB-126	2.993E-01	NOT IDENT.
SB-127	2.692E+01	NOT IDENT.
I-131	5.002E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.548E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.550E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	1.497E-01	NOT IDENT.
BA-137M	2.401E-02	NOT IDENT.
CS-137	2.537E-02	NOT IDENT.
LA-138	4.166E-02	NOT IDENT.
BA-140	4.903E-01	NOT IDENT.
LA-140	1.723E-01	NOT IDENT.
CE-141	5.821E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.242E-01	NOT IDENT.
PM-144	2.530E-02	NOT IDENT.
PR-144	1.914E+00	NOT IDENT.
PM-146	2.357E-02	NOT IDENT.
ND-147	1.215E+00	NOT IDENT.
PM-147	4.549E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.984E-02	FAIL ABUN
EU-152	6.186E-02	NOT IDENT.
GD-153	4.332E-02	NOT IDENT.
EU-154	8.957E-02	NOT IDENT.
EU-155	6.697E-02	FAIL ABUN
TB-160	1.046E-01	FAIL ABUN
HO-166M	4.084E-02	NOT IDENT.
TM-171	6.178E+00	NOT IDENT.

HF-172	1.039E-01	FAIL ABUN
LU-172	4.114E-02	FAIL ABUN
LU-176	1.731E-02	FAIL ABUN
HF-181	2.727E-02	NOT IDENT.
TA-182	1.147E-01	FAIL ABUN
RE-183	9.286E-02	NOT IDENT.
RE-184	1.116E-01	NOT IDENT.
W-188	5.429E+00	FAIL ABUN
IR-192	2.796E-02	FAIL ABUN
HG-203	3.462E-02	NOT IDENT.
TL-204	2.531E+00	NOT IDENT.
BI-207	3.938E-02	FAIL ABUN
BI-210	1.154E+00	NOT IDENT.
PB-210	1.154E+00	NOT IDENT.
PB-211	4.296E-01	FAIL ABUN
BI-213	7.246E-02	NOT IDENT.
RN-219	2.945E-01	NOT IDENT.
RA-223	4.120E-01	FAIL ABUN
AC-225	1.630E+00	NOT IDENT.
AC-227	1.778E-01	NOT IDENT.
TH-227	1.778E-01	NOT IDENT.
TH-229	3.993E-01	FAIL ABUN
PA-231	3.846E-01	NOT IDENT.
TH-231	4.120E-01	FAIL ABUN
PA-233	4.686E-02	NOT IDENT.
PA-234	2.345E-01	FAIL ABUN
PA-234M	3.376E+00	NOT IDENT.
U-235	1.206E-01	FAIL ABUN
NP-237	4.686E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	1.586E-01	NOT IDENT.
PU-239	2.357E+02	NOT IDENT.
AM-241	5.234E-02	NOT IDENT.
CM-243	6.091E-02	NOT IDENT.
BK-247	4.428E-02	NOT IDENT.
CM-247	2.814E-02	NOT IDENT.
CF-249	2.987E-02	NOT IDENT.
CF-251	9.034E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299011.CNF;1
Acquisition date : 30-JUL-2024 11:18:49 Sensitivity : 3.000
Detector ID : GAM24 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.53 Half life ratio : *****
Sample date : 26-JUN-2024 09:35:00 Nuclide Library : SOLID
Sample ID : G674299011 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0706E+02 GRAM
Quantity Err(%) : 1.8681E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 24-JUN-2024 07:06:44 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM24_CAN.CNF;16

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	5.092E+00	1.157E+00	1.157E+00
CD-109	6.368E-01	7.707E-01	7.707E-01
SN-126	6.050E-02	7.315E-02	7.315E-02
CE-139	1.819E-02	3.776E-02	3.776E-02
TL-208	1.515E-01	5.381E-02	5.381E-02
BI-211	1.404E+00	4.876E-01	4.876E-01
BI-212	3.886E-01	8.076E-01	8.076E-01
PB-212	3.897E-01	1.033E-01	1.033E-01
BI-214	4.583E-01	1.341E-01	1.341E-01
PB-214	5.095E-01	1.768E-01	1.768E-01
RN-222	4.583E-01	1.341E-01	1.341E-01
RA-224	9.086E-01	1.002E+00	1.002E+00
RA-226	5.095E-01	1.768E-01	1.768E-01
AC-228	3.347E-01	2.260E-01	2.260E-01
RA-228	3.347E-01	2.260E-01	2.260E-01
TH-228	3.897E-01	1.033E-01	1.033E-01
TH-230	5.095E-01	1.768E-01	1.768E-01
TH-232	3.347E-01	2.260E-01	2.260E-01
TH-234	1.563E+00	1.570E+00	1.570E+00
U-234	5.095E-01	1.768E-01	1.768E-01
U-238	1.563E+00	1.570E+00	1.570E+00
AM-243	1.083E-01	6.070E-02	6.070E-02
ANH-511	4.102E-02	6.152E-02	6.152E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	1.794E-01	3.247E-01	3.346E-01	NOT IDENT.
NA-22	8.220E-03	3.660E-02	3.679E-02	NOT IDENT.
NA-24	-9.186E+12	8.726E+14	8.727E+14	SHORT HLIF
AL-26	6.401E-03	2.051E-02	2.071E-02	NOT IDENT.
SC-46	3.911E-03	3.440E-02	3.445E-02	FAIL ABUN
V-48	-2.178E-02	1.193E-01	1.197E-01	NOT IDENT.
CR-51	3.380E-02	5.011E-01	5.013E-01	NOT IDENT.

MN-52	6.152E-01	2.074E+00	2.093E+00	FAIL ABUN
MN-54	8.264E-03	4.371E-02	4.387E-02	NOT IDENT.
CO-56	8.143E-03	3.799E-02	3.816E-02	NOT IDENT.
MN-56	1.000E+41	4.665E+41	0.000E+00	SHORT HLIF
CO-57	-2.027E-03	1.956E-02	1.958E-02	NOT IDENT.
CO-58	-2.579E-02	3.654E-02	3.834E-02	NOT IDENT.
FE-59	-4.922E-02	9.192E-02	9.456E-02	NOT IDENT.
CO-60	2.697E-02	3.090E-02	3.321E-02	NOT IDENT.
ZN-65	4.775E-02	7.584E-02	7.884E-02	NOT IDENT.
GE-68	2.707E-01	7.600E-01	7.698E-01	NOT IDENT.
AS-73	1.306E-01	4.358E-01	4.397E-01	NOT IDENT.
AS-74	-1.231E-01	1.719E-01	1.806E-01	NOT IDENT.
SE-75	-1.211E-02	3.367E-02	3.411E-02	NOT IDENT.
BR-77	1.531E+04	1.559E+04	1.705E+04	SHORT HLIF
SR-82	-1.817E-01	3.814E-01	3.901E-01	NOT IDENT.
RB-83	1.794E-01	9.995E-02	1.286E-01	FAIL ABUN
RB-84	6.560E-03	8.045E-02	8.050E-02	NOT IDENT.
KR-85	6.693E+00	7.064E+00	7.681E+00	NOT IDENT.
SR-85	4.316E-02	4.568E-02	4.965E-02	NOT IDENT.
RB-86	6.331E-03	1.033E+00	1.033E+00	NOT IDENT.
Y-88	4.863E-04	3.629E-02	3.629E-02	NOT IDENT.
Y-91	-1.109E+01	1.807E+01	1.875E+01	NOT IDENT.
NB-94	8.151E-03	2.825E-02	2.849E-02	NOT IDENT.
NB-95	3.352E-02	4.481E-02	4.729E-02	NOT IDENT.
NB-95M	-2.703E-02	1.270E-01	1.276E-01	NOT IDENT.
ZR-95	4.706E-02	7.331E-02	7.632E-02	NOT IDENT.
NB-97	1.000E+41	4.551E+41	0.000E+00	SHORT HLIF
ZR-97	1.117E+14	2.003E+14	2.066E+14	SHORT HLIF
MO-99	4.173E+02	1.116E+03	1.132E+03	SHORT HLIF
TC-99M	-5.776E+38	1.653E+39	0.000E+00	SHORT HLIF
RH-101	-1.156E-02	2.355E-02	2.412E-02	NOT IDENT.
RH-102	-1.513E-02	4.424E-02	4.477E-02	NOT IDENT.
RU-103	-1.109E-02	4.652E-02	4.679E-02	FAIL ABUN
RH-106	-5.547E-02	2.778E-01	2.789E-01	NOT IDENT.
RU-106	-5.547E-02	2.778E-01	2.789E-01	NOT IDENT.
AG-108M	1.822E-02	2.632E-02	2.757E-02	FAIL ABUN
AG-110	-7.659E-02	5.568E-01	5.579E-01	NOT IDENT.
AG-110M	-2.479E-02	3.626E-02	3.795E-02	NOT IDENT.
SN-113	1.569E-02	3.695E-02	3.762E-02	NOT IDENT.
CD-115	1.680E+03	3.155E+03	3.245E+03	SHORT HLIF
SN-117M	8.356E-02	1.062E-01	1.127E-01	NOT IDENT.
SB-122	5.833E+01	1.963E+02	1.980E+02	SHORT HLIF
TE-123M	2.130E-02	2.219E-02	2.418E-02	NOT IDENT.
SB-124	1.443E-03	9.722E-02	9.722E-02	NOT IDENT.
SB-125	-5.408E-02	6.439E-02	6.885E-02	NOT IDENT.
TE-125M	-6.349E+00	8.576E+00	9.041E+00	NOT IDENT.
I-126	3.767E-02	5.476E-01	5.479E-01	NOT IDENT.
SB-126	1.457E-01	3.397E-01	3.460E-01	NOT IDENT.
SB-127	5.334E+00	3.580E+01	3.588E+01	NOT IDENT.
I-131	4.478E-02	5.810E-01	5.813E-01	NOT IDENT.
I-132	1.000E+41	3.709E+41	0.000E+00	SHORT HLIF
TE-132	-3.345E+00	3.509E+01	3.512E+01	SHORT HLIF
BA-133	-1.358E-02	3.603E-02	3.654E-02	NOT IDENT.
I-133	-9.002E+09	1.846E+10	1.890E+10	SHORT HLIF
CS-134	3.362E-02	3.593E-02	3.900E-02	NOT IDENT.
I-135	6.475E+35	3.086E+36	0.000E+00	SHORT HLIF
CS-136	-3.608E-02	1.896E-01	1.903E-01	NOT IDENT.
BA-137M	7.588E-03	2.790E-02	2.811E-02	NOT IDENT.
CS-137	8.016E-03	2.948E-02	2.970E-02	NOT IDENT.
LA-138	1.395E-02	4.634E-02	4.677E-02	NOT IDENT.
BA-140	-7.034E-02	6.062E-01	6.070E-01	NOT IDENT.
LA-140	-6.249E-02	2.220E-01	2.238E-01	NOT IDENT.
CE-141	-9.800E-03	7.208E-02	7.222E-02	NOT IDENT.
CE-143	8.543E+05	1.511E+06	1.559E+06	SHORT HLIF
CE-144	-3.706E-02	1.550E-01	1.559E-01	NOT IDENT.
PM-144	1.743E-02	2.752E-02	2.862E-02	NOT IDENT.
PR-144	1.073E+00	2.138E+00	2.192E+00	NOT IDENT.
PM-146	-1.884E-03	2.849E-02	2.850E-02	NOT IDENT.
ND-147	-1.804E-01	1.503E+00	1.505E+00	NOT IDENT.
PM-147	1.292E+02	5.325E+02	5.357E+02	NOT IDENT.
PM-149	1.687E+04	2.461E+04	2.576E+04	SHORT HLIF
EU-150	1.345E-02	2.341E-02	2.419E-02	FAIL ABUN
EU-152	-9.993E-03	7.367E-02	7.380E-02	NOT IDENT.
GD-153	-2.501E-02	5.945E-02	6.051E-02	NOT IDENT.
EU-154	2.307E-02	1.027E-01	1.032E-01	NOT IDENT.
EU-155	2.815E-02	7.707E-02	7.810E-02	FAIL ABUN
TB-160	4.580E-02	1.122E-01	1.141E-01	FAIL ABUN
HO-166M	-2.202E-02	5.534E-02	5.622E-02	NOT IDENT.

TM-171	-5.020E+00	7.605E+00	7.935E+00	NOT IDENT.
HF-172	2.615E-02	1.219E-01	1.225E-01	FAIL ABUN
LU-172	-1.436E-02	5.292E-02	5.331E-02	FAIL ABUN
LU-176	4.207E-03	1.946E-02	1.955E-02	FAIL ABUN
HF-181	-2.661E-02	3.910E-02	4.090E-02	NOT IDENT.
TA-182	-1.198E-01	1.711E-01	1.795E-01	FAIL ABUN
RE-183	4.449E-02	1.029E-01	1.048E-01	NOT IDENT.
RE-184	-4.940E-02	1.429E-01	1.446E-01	NOT IDENT.
W-188	1.798E+00	6.630E+00	6.679E+00	FAIL ABUN
IR-192	7.983E-03	3.136E-02	3.156E-02	FAIL ABUN
HG-203	1.716E-02	3.778E-02	3.856E-02	NOT IDENT.
TL-204	3.179E+00	2.851E+00	3.191E+00	NOT IDENT.
BI-207	-1.049E-02	4.925E-02	4.947E-02	FAIL ABUN
BI-210	3.821E-01	1.291E+00	1.302E+00	NOT IDENT.
PB-210	3.821E-01	1.291E+00	1.302E+00	NOT IDENT.
PB-211	-2.314E-01	5.463E-01	5.561E-01	FAIL ABUN
BI-213	3.222E-02	8.085E-02	8.215E-02	NOT IDENT.
RN-219	3.497E-01	3.060E-01	3.442E-01	NOT IDENT.
RA-223	-3.269E-01	5.235E-01	5.439E-01	FAIL ABUN
AC-225	4.163E-01	1.990E+00	1.999E+00	NOT IDENT.
AC-227	3.686E-02	1.993E-01	2.000E-01	NOT IDENT.
TH-227	3.686E-02	1.993E-01	2.000E-01	NOT IDENT.
TH-229	3.557E-01	4.546E-01	4.821E-01	FAIL ABUN
PA-231	8.467E-02	4.362E-01	4.379E-01	NOT IDENT.
TH-231	-3.269E-01	5.235E-01	5.439E-01	FAIL ABUN
PA-233	2.153E-02	5.165E-02	5.256E-02	NOT IDENT.
PA-234	1.140E-01	2.853E-01	2.899E-01	FAIL ABUN
PA-234M	2.953E+00	3.349E+00	3.604E+00	NOT IDENT.
U-235	-1.013E-01	1.601E-01	1.665E-01	FAIL ABUN
NP-237	2.153E-02	5.165E-02	5.256E-02	FAIL ABUN
NP-238	-2.643E+03	8.147E+03	8.233E+03	SHORT HLIF
NP-239	5.120E-02	1.846E-01	1.860E-01	NOT IDENT.
PU-239	2.150E+02	2.623E+02	2.797E+02	NOT IDENT.
AM-241	-6.194E-02	7.416E-02	7.924E-02	NOT IDENT.
CM-243	3.444E-03	7.227E-02	7.228E-02	NOT IDENT.
BK-247	-3.371E-02	5.593E-02	5.796E-02	NOT IDENT.
CM-247	3.574E-02	2.864E-02	3.286E-02	NOT IDENT.
CF-249	1.046E-02	3.373E-02	3.406E-02	NOT IDENT.
CF-251	1.171E-02	1.101E-01	1.102E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	24.9996	85.43	44.1326	131.20	49.2799
45.60	44.9650	86.55	40.2209	133.02	31.8542
46.54	29.7721	86.79	51.3089	133.52	40.6748
49.72	0.0000	86.94	51.3265	136.00	33.1128
51.35	47.6584	87.09	51.3432	136.47	32.0334
51.87	45.9007	87.57	51.3980	140.51	0.0000
52.39	37.7001	88.03	51.4502	143.76	43.5798
52.97	34.0835	88.34	66.6279	144.24	48.0850
53.44	31.3657	88.47	66.6465	145.44	41.4522
54.07	34.1994	89.96	66.8636	152.43	30.5711
57.36	0.0000	1093.63	77.1075	153.25	31.7422
57.53	31.7546	91.11	67.0297	323.87	46.5454
57.98	32.7316	92.59	50.9407	156.02	28.4573
59.27	46.3091	93.35	51.0231	158.56	27.4200
59.32	46.3157	94.56	51.1528	159.00	22.8647
59.54	46.3450	94.65	51.1627	162.33	27.5687
60.96	33.9565	94.67	51.1646	162.66	27.5819
61.17	39.6395	94.87	51.1860	163.33	38.3443
62.93	39.8348	97.43	39.7942	165.86	31.1697
63.29	39.8745	98.43	38.5006	176.31	44.5011
63.58	39.9064	98.44	38.5014	176.60	43.3470
64.28	39.9829	99.53	26.8728	177.52	39.8811
66.73	40.8867	100.11	32.0780	181.07	0.0000
67.24	39.6626	102.03	38.4337	181.52	42.4512
125.81	42.2705	103.18	34.3568	184.41	37.8765
67.75	42.2782	103.37	39.5771	143.76	37.9409
68.89	63.6072	105.21	41.8103	193.51	33.5281
69.67	56.9762	105.31	41.8185	197.03	40.8907
70.82	38.7418	106.12	38.7428	198.01	36.1240
70.83	38.7430	106.47	45.0556	201.83	32.2599
72.81	59.7044	109.28	47.4050	203.43	33.9387
72.87	59.7133	111.00	38.0468	205.31	43.7338
74.66	75.3005	111.76	0.0000	210.85	41.5760
74.82	75.3298	114.06	42.5146	215.65	36.8903
74.97	75.3580	116.30	0.0000	218.12	36.9951
77.11	75.7516	116.74	34.1780	222.11	38.4019
78.74	52.6737	119.76	44.0276	227.09	24.9136
79.69	47.5129	121.12	34.4456	227.38	24.9219
80.03	47.5503	121.22	34.4517	228.16	0.0000
80.12	47.5609	121.78	39.8737	228.18	29.9326
80.19	29.0699	122.06	39.8934	116.74	29.9326
80.57	29.0957	122.92	25.9156	235.69	37.7238
81.00	43.6875	123.07	25.9224	235.96	36.0577
81.07	43.6945	265.00	31.3559	238.63	36.1614
81.75	57.6885	125.81	27.1303	238.98	0.0000
82.47	52.8035	127.23	43.5135	240.99	36.2524
83.79	30.6451	127.91	41.3857	242.00	36.2909
84.00	30.6596	129.30	36.0243	244.70	29.1999

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	27.3011	344.28	21.3262	563.25	14.9941
252.80	28.1657	345.93	15.5982	564.24	0.0000
254.15	0.0000	351.06	20.5100	569.33	9.6709
256.23	28.2642	351.93	20.5243	946.00	9.6720
260.90	0.0000	355.39	0.0000	569.70	11.8227
264.66	23.3212	356.01	22.4624	583.19	17.3210
264.80	23.3245	364.49	30.1484	584.27	17.8730
265.00	25.9210	366.42	0.0000	595.83	19.6165
269.46	26.9024	372.51	14.2191	427.87	15.2948
270.03	28.6541	375.05	26.5935	602.52	0.0000
271.23	24.3411	377.52	22.8369	604.72	18.0650
273.65	22.6553	356.01	22.9448	607.14	14.2505
276.40	23.5887	388.16	20.1408	609.32	14.2664
277.37	24.4852	388.63	22.0665	610.33	14.2738
277.60	27.1143	391.69	14.4235	614.28	14.3029
278.00	20.1250	264.66	20.3241	618.01	14.3298
279.20	21.8999	401.81	9.2986	620.36	13.2432
279.54	24.5356	402.40	9.6901	621.93	11.5972
279.70	24.5393	404.85	20.3852	630.19	0.0000
280.46	27.1881	410.95	10.7241	631.29	13.3159
283.69	20.2331	413.71	19.5361	633.25	9.9968
284.31	15.8438	414.70	19.5496	634.78	6.6697
285.41	22.0281	423.72	13.7701	635.95	14.4594
285.90	0.0000	427.09	21.6889	636.99	18.9182
287.50	32.6648	427.87	17.7550	657.50	10.1162
290.67	18.5938	433.94	16.8374	657.76	10.1173
293.27	0.0000	439.40	17.8931	657.90	0.0000
351.93	30.2301	440.45	13.9268	661.66	10.1364
295.96	30.2501	453.88	12.0430	664.57	0.0000
879.38	32.1057	463.37	15.1459	666.33	14.6742
299.98	29.4672	468.07	11.1403	666.50	15.8041
300.09	34.2922	473.00	16.2546	667.71	0.0000
300.13	34.2938	475.06	17.2929	677.62	12.4829
301.36	33.9736	476.78	19.3479	685.70	10.2521
302.85	29.5430	477.60	12.2261	692.65	0.0000
256.23	30.4825	482.18	13.2827	695.00	8.0083
304.85	28.6986	487.02	10.2480	696.49	8.0137
306.78	19.7638	492.35	0.0000	696.51	9.1585
308.46	23.3922	497.08	17.5285	697.00	9.1608
311.90	21.6577	505.52	13.6794	697.30	9.1621
316.51	19.9326	507.63	0.0000	697.49	11.4535
319.41	25.4320	511.00	15.5956	702.65	11.4805
320.08	26.3550	514.00	15.6232	706.68	13.8018
321.04	20.0100	514.00	15.6232	711.68	16.1385
323.87	30.0869	520.40	9.4091	720.70	9.2594
325.23	27.3834	520.69	0.0000	721.93	0.0000
328.76	31.1265	522.65	0.0000	722.78	13.9023
333.37	30.8786	527.90	0.0000	722.91	13.9028
333.97	19.3085	528.26	7.8766	723.31	12.1671
334.37	22.0742	529.59	15.7654	724.19	12.1722
338.28	24.9137	529.87	0.0000	727.33	13.9302
338.32	24.9142	531.02	14.7263	733.00	15.3619
311.90	13.8657	537.26	14.7787	735.93	10.4875
340.48	13.8657	546.56	0.0000	333.97	17.4908
340.55	13.8666	552.55	17.0358	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	7.8942	949.00	10.4562	1384.29	3.2514
747.24	7.0264	667.71	0.0000	1408.01	4.3618
748.06	8.7860	962.31	10.9145	1434.09	3.2930
752.31	12.3231	964.08	7.6450	1435.80	3.2944
753.82	11.7440	966.17	16.8314	1457.56	0.0000
756.73	7.0552	911.20	9.5728	1460.82	2.2100
756.80	7.0554	983.53	7.6970	1489.16	4.4507
884.68	2.8308	984.45	0.0000	1505.03	5.5847
765.81	8.4990	1274.44	6.7644	1584.12	6.3721
766.42	12.7516	1001.03	3.8716	1596.21	5.4771
766.84	15.5885	1002.74	10.6532	1620.50	2.7536
772.60	0.0000	1004.73	7.7529	1621.92	2.7545
776.52	9.7828	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	3.7291
778.90	10.6827	1028.54	0.0000	1750.46	0.0000
783.70	13.3800	1037.84	10.7791	1764.49	3.1567
788.74	13.4084	1038.76	0.0000	1063.66	3.7926
792.07	10.7413	631.29	9.8273	1771.35	2.8452
795.86	8.0686	1048.07	5.8993	1791.20	0.0000
810.06	11.7225	1049.04	5.9011	1808.65	0.9557
810.29	11.7237	1050.41	4.9197	1810.72	0.0000
344.28	13.5283	1063.66	11.8586	1836.06	2.8833
810.76	12.6277	1077.00	4.9622		
815.77	11.7495	1077.34	2.9777		
1048.07	7.2385	1085.87	10.9476		
832.01	18.9217	1093.63	8.9791		
834.85	16.0290	1099.45	8.9956		
835.71	15.6178	1112.07	5.0174		
836.80	0.0000	1112.84	9.0335		
846.75	0.0000	1115.54	4.8220		
846.77	9.1501	1120.29	9.0544		
856.80	4.4092	1120.55	9.0549		
860.56	10.3031	1221.41	3.2203		
871.09	7.3892	1129.67	4.0359		
873.19	6.4706	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	5.5594	1173.23	3.2715		
880.51	6.4888	1177.95	11.2612		
881.60	8.3460	1189.05	9.2439		
883.24	6.4954	1204.77	8.2549		
884.68	9.2844	1221.41	11.4048		
889.28	7.4402	1231.02	7.2777		
894.76	13.0472	1235.36	20.8191		
898.04	7.4646	1238.28	6.2509		
900.72	10.2742	1260.41	0.0000		
903.28	10.2840	1271.87	9.4653		
911.20	12.1895	1274.44	6.3146		
912.08	10.5051	1274.54	6.3149		
923.98	0.0000	1291.59	2.1149		
926.50	7.5432	1298.22	0.0000		
929.11	3.7751	1312.11	7.4435		
935.54	8.5139	1332.49	2.1384		
937.49	4.5439	1362.66	0.0000		
944.13	9.4891	1365.19	3.2355		
946.00	7.5962	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:23:10.74

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299012.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM27.CNF;738
Background date    : 28-JUL-2024 11:28:58
Sample date       : 26-JUN-2024 09:50:00 Acquisition date : 30-JUL-2024 11:19:15
Sample ID        : G674299012 Sample quantity : 1.01650E+02 GRAM
Detector name    : GAM27 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.81 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.81*	13	138	0.77	94.45	89	9	3.74E-03	165.8	
2	0	63.62*	7	159	0.96	128.07	124	9	1.97E-03	335.4	
3	2	74.93*	110	104	0.89	150.67	147	15	3.05E-02	16.6	2.49E+00
4	2	77.23*	194	109	1.04	155.27	147	15	5.39E-02	11.4	
5	2	79.09	24	114	1.17	159.00	147	15	6.77E-03	93.6	
6	0	87.40	59	163	1.16	175.60	172	8	1.65E-02	39.4	
7	0	92.96*	72	130	1.34	186.72	183	8	2.01E-02	32.7	
8	0	109.62	39	71	0.72	220.03	217	7	1.07E-02	39.9	
9	0	186.07*	67	91	1.49	372.86	368	11	1.86E-02	32.2	
10	0	209.99	37	82	1.90	420.70	415	10	1.04E-02	48.7	
11	4	238.77*	349	49	1.15	478.23	473	16	9.69E-02	6.5	1.60E+00
12	4	241.60	84	41	1.76	483.89	473	16	2.34E-02	20.5	
13	0	245.94	38	39	1.74	492.57	489	9	1.07E-02	33.2	
14	0	270.50	44	53	1.05	541.66	537	11	1.22E-02	36.0	
15	0	289.96	11	50	1.57	580.58	575	8	2.95E-03	119.6	
16	0	295.29	148	51	1.16	591.23	585	10	4.11E-02	12.2	
17	0	328.20*	29	72	0.71	657.03	650	14	8.11E-03	66.4	
18	0	338.69	54	74	1.18	678.01	672	11	1.50E-02	33.8	
19	0	352.15*	253	74	1.32	704.91	698	15	7.03E-02	9.9	
20	0	422.03	7	31	1.01	844.64	839	8	2.00E-03	137.3	
21	0	424.25	14	18	1.63	849.09	846	7	3.91E-03	57.6	
22	0	463.28	24	22	0.97	927.12	922	9	6.56E-03	41.6	
23	0	510.67*	60	39	1.46	1021.87	1015	14	1.65E-02	30.5	
24	0	583.36*	126	28	1.41	1167.21	1159	16	3.50E-02	13.2	
25	0	609.47*	165	44	1.50	1219.42	1211	16	4.59E-02	12.0	
26	0	727.13*	21	10	1.66	1454.69	1450	8	5.91E-03	34.5	
27	0	737.77	8	17	3.41	1475.98	1467	10	2.10E-03	109.7	
28	0	744.08	7	15	0.78	1488.58	1483	7	2.06E-03	97.9	
29	5	767.71	17	27	2.63	1535.84	1529	23	4.79E-03	67.8	9.16E-01
30	5	772.96	12	15	2.63	1546.35	1529	23	3.42E-03	78.0	
31	0	787.06	32	16	2.97	1574.54	1568	13	8.89E-03	33.0	
32	0	795.99	55	0	6.00	1592.40	1582	22	1.53E-02	13.5	
33	0	860.41	33	17	3.21	1721.22	1712	18	9.11E-03	34.9	
34	0	911.97*	48	49	1.79	1824.32	1816	16	1.33E-02	35.8	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	935.35	30	9	3.82	1871.08	1861	19	8.38E-03	30.4	
36	0	960.13	9	9	3.37	1920.62	1914	12	2.47E-03	75.5	
37	0	969.67	37	22	0.75	1939.70	1931	12	1.01E-02	30.2	
38	0	1042.06	9	13	0.55	2084.47	2075	14	2.44E-03	96.0	
39	0	1074.37	10	4	3.31	2149.09	2144	9	2.74E-03	49.8	
40	0	1086.92	7	8	0.59	2174.19	2170	8	1.81E-03	85.2	
41	0	1105.83	9	0	0.73	2212.00	2209	7	2.50E-03	33.3	
42	0	1110.17	3	6	0.97	2220.69	2216	6	8.95E-04	131.7	
43	0	1120.86	38	19	1.32	2242.06	2235	15	1.06E-02	29.7	
44	0	1166.16	7	11	0.65	2332.66	2325	10	1.83E-03	106.6	
45	0	1187.08	22	17	3.74	2374.50	2365	17	6.11E-03	47.9	
46	0	1271.81	9	4	1.30	2543.94	2540	8	2.50E-03	50.9	
47	0	1293.68*	14	5	2.37	2587.68	2582	10	3.86E-03	41.2	
48	0	1377.25	15	3	1.95	2754.83	2750	10	4.28E-03	31.9	
49	0	1460.76*	331	24	1.92	2921.85	2914	16	9.21E-02	6.5	
50	0	1729.92	11	3	1.08	3460.23	3452	12	2.94E-03	45.4	
51	0	1764.80*	26	0	3.20	3530.00	3524	12	7.16E-03	21.1	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 30-JUL-2024 12:23:12

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299012.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 09:50:00	Acquisition date	: 30-JUL-2024 11:19:15
Sample ID	: G674299012	Sample quantity	: 101.65 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA27	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.81 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	310	10.66*	1.254E+00	1.713E+01	1.713E+01	12.91
CD-109	88.03	59	3.70*	6.738E+00	1.735E+00	1.826E+00	78.74
TE-125M	109.28	38	0.27*	7.454E+00	1.388E+01	2.095E+01	79.72
SN-126	64.28	7	9.60	3.897E+00	1.386E-01	1.386E-01	670.71
	86.94	59	8.90	6.738E+00	7.212E-01	7.212E-01	78.74
	87.57	59	37.00*	6.738E+00	1.735E-01	1.735E-01	78.74
TL-208	277.37	-----	6.60	4.872E+00	-----	Line Not Found	-----
	583.19	120	85.00*	2.908E+00	3.589E-01	3.589E-01	26.32
	860.56	31	12.50	2.058E+00	8.890E-01	8.890E-01	69.83
BI-210	46.54	13	4.25*	1.065E+00	2.191E+00	2.198E+00	331.58
PB-210	46.54	13	4.25*	1.065E+00	2.191E+00	2.198E+00	331.58
BI-211	72.87	-----	1.23	5.308E+00	-----	Line Not Found	-----
	351.06	243	12.92*	4.175E+00	3.330E+00	3.330E+00	19.73
BI-212	727.33	20	6.67*	2.409E+00	9.273E-01	9.273E-01	68.96
	1620.50	-----	1.47	1.168E+00	-----	Line Not Found	-----
PB-212	74.82	109	10.28	5.571E+00	1.402E+00	1.402E+00	33.23
	77.11	192	17.10	5.839E+00	1.418E+00	1.418E+00	22.83
	238.63	338	43.60*	5.359E+00	1.068E+00	1.068E+00	13.04
	300.09	-----	3.30	4.632E+00	-----	Line Not Found	-----
BI-214	609.32	157	45.49*	2.806E+00	9.093E-01	9.094E-01	24.07
	1120.29	36	14.92	1.588E+00	1.115E+00	1.115E+00	59.30
	1764.49	24	15.30	1.120E+00	1.035E+00	1.036E+00	42.15
PB-214	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
RN-222	609.32	157	45.49*	2.806E+00	9.093E-01	9.094E-01	24.07
	1120.29	36	14.92	1.588E+00	1.115E+00	1.115E+00	59.30
	1764.49	24	15.30	1.120E+00	1.035E+00	1.036E+00	42.15
RA-224	240.99	82	4.10*	5.319E+00	2.763E+00	2.763E+00	41.08
RA-226	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
AC-228	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65
	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
RA-228	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65
	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
TH-228	74.82	109	10.28	5.571E+00	1.402E+00	1.402E+00	33.23

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	192	17.10	5.839E+00	1.418E+00	1.418E+00	22.83
	238.63	338	43.60*	5.359E+00	1.068E+00	1.068E+00	13.04
TH-230	300.09	-----	3.30	4.632E+00	-----	Line Not Found	-----
	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
TH-232	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65
TH-234	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
	63.29	7	3.70*	3.897E+00	3.597E-01	3.597E-01	670.71
U-234	92.59	71	4.23	7.051E+00	1.763E+00	1.763E+00	65.41
	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
U-238	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
	63.29	7	3.70*	3.897E+00	3.597E-01	3.597E-01	670.71
	92.59	71	4.23	7.051E+00	1.763E+00	1.763E+00	65.41
AM-243	43.53	-----	5.90	6.688E-01	-----	Line Not Found	-----
	74.66	109	67.20*	5.571E+00	2.145E-01	2.145E-01	33.23
ANH-511	511.00	57	100.00*	3.224E+00	1.302E-01	1.302E-01	61.01

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299012.CNF;1
Acquisition date : 30-JUL-2024 11:19:15 Sensitivity : 3.000
Detector ID : GAM27 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.81 Half life ratio : *****
Sample date : 26-JUN-2024 09:50:00 Analyst initials: RXF2
Sample ID : G674299012 Sample Quantity : 1.0165E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 9-JUL-2024 08:43:14 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.713E+01	2.167E+00	8.705E-01
CD-109	1.826E+00	1.409E+00	1.555E+00
TE-125M	2.095E+01	1.637E+01	1.952E+01
SN-126	1.735E-01	1.339E-01	1.484E-01
TL-208	3.589E-01	9.256E-02	6.680E-02
BI-210	2.198E+00	7.141E+00	6.036E+00
PB-210	2.198E+00	7.141E+00	6.036E+00
BI-211	3.330E+00	6.440E-01	3.874E-01
BI-212	9.273E-01	6.267E-01	7.835E-01
PB-212	1.068E+00	1.364E-01	9.540E-02
BI-214	9.094E-01	2.145E-01	1.505E-01
PB-214	1.208E+00	2.337E-01	1.409E-01
RN-222	9.094E-01	2.145E-01	1.505E-01
RA-224	2.763E+00	1.112E+00	1.022E+00
RA-226	1.208E+00	2.337E-01	1.409E-01
AC-228	6.633E-01	4.657E-01	3.305E-01
RA-228	6.633E-01	4.657E-01	3.305E-01
TH-228	1.068E+00	1.364E-01	9.540E-02
TH-230	1.208E+00	2.337E-01	1.409E-01
TH-232	6.633E-01	4.657E-01	3.305E-01
TH-234	3.597E-01	2.365E+00	2.218E+00
U-234	1.208E+00	2.337E-01	1.409E-01
U-238	3.597E-01	2.365E+00	2.218E+00
AM-243	2.145E-01	6.986E-02	8.668E-02
ANH-511	1.302E-01	7.781E-02	5.165E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.148E-01	4.611E-01	8.305E-01	NOT IDENT.
NA-22	6.782E-03	4.800E-02	8.873E-02	NOT IDENT.
NA-24	0.000E+00	9.785E+14	0.000E+00	SHORT HLIF
AL-26	9.835E-03	3.191E-02	7.649E-02	NOT IDENT.
SC-46	2.183E-02	4.707E-02	9.675E-02	FAIL ABUN

V-48	-5.470E-02	1.705E-01	3.239E-01	NOT IDENT.
CR-51	-3.833E-01	4.941E-01	8.723E-01	NOT IDENT.
MN-52	-1.139E+00	1.968E+00	3.662E+00	FAIL ABUN
MN-54	-2.518E-03	3.950E-02	7.491E-02	NOT IDENT.
CO-56	1.361E-02	6.086E-02	1.153E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	5.360E-04	2.562E-02	4.608E-02	NOT IDENT.
CO-58	3.739E-02	5.580E-02	1.139E-01	NOT IDENT.
FE-59	-6.679E-02	1.297E-01	2.344E-01	NOT IDENT.
CO-60	1.811E-02	4.430E-02	9.590E-02	NOT IDENT.
ZN-65	-6.856E-02	1.135E-01	1.693E-01	NOT IDENT.
GE-68	7.436E-01	1.299E+00	2.698E+00	NOT IDENT.
AS-73	-2.704E-01	9.651E-01	1.740E+00	NOT IDENT.
AS-74	1.160E-01	2.238E-01	4.440E-01	NOT IDENT.
SE-75	-6.065E-02	5.365E-02	7.935E-02	NOT IDENT.
BR-77	0.000E+00	5.343E+03	0.000E+00	SHORT HLIF
SR-82	4.742E-01	5.471E-01	1.136E+00	NOT IDENT.
RB-83	-9.141E-02	9.024E-02	1.467E-01	NOT IDENT.
RB-84	9.647E-02	1.037E-01	2.294E-01	NOT IDENT.
KR-85	1.269E+00	7.300E+00	1.283E+01	NOT IDENT.
SR-85	8.146E-03	4.721E-02	8.296E-02	NOT IDENT.
RB-86	8.849E-01	1.713E+00	3.443E+00	NOT IDENT.
Y-88	1.467E-02	4.813E-02	1.092E-01	NOT IDENT.
Y-91	-2.266E+01	3.009E+01	5.148E+01	NOT IDENT.
NB-94	2.371E-02	3.724E-02	7.529E-02	NOT IDENT.
NB-95	3.657E-02	5.907E-02	1.183E-01	NOT IDENT.
NB-95M	1.008E-01	1.710E-01	2.934E-01	NOT IDENT.
ZR-95	-2.868E-02	8.799E-02	1.569E-01	NOT IDENT.
NB-97	0.000E+00	1.415E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.208E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.727E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.952E+39	0.000E+00	SHORT HLIF
RH-101	-2.607E-03	3.145E-02	5.580E-02	NOT IDENT.
RH-102	2.215E-02	5.421E-02	1.095E-01	FAIL ABUN
RU-103	-5.133E-02	5.405E-02	8.890E-02	FAIL ABUN
RH-106	9.129E-02	3.390E-01	6.647E-01	NOT IDENT.
RU-106	9.129E-02	3.390E-01	6.647E-01	NOT IDENT.
AG-108M	4.502E-03	2.574E-02	5.109E-02	NOT IDENT.
AG-110	-5.731E-01	8.073E-01	1.347E+00	NOT IDENT.
AG-110M	3.249E-03	5.445E-02	1.040E-01	NOT IDENT.
SN-113	-9.141E-03	5.328E-02	9.920E-02	NOT IDENT.
CD-115	0.000E+00	4.414E+03	0.000E+00	SHORT HLIF
SN-117M	1.043E-01	1.459E-01	2.752E-01	NOT IDENT.
SB-122	0.000E+00	2.305E+02	0.000E+00	SHORT HLIF
TE-123M	1.719E-02	3.204E-02	5.960E-02	NOT IDENT.
SB-124	-4.294E-02	8.246E-02	1.483E-01	NOT IDENT.
SB-125	-4.041E-02	8.962E-02	1.426E-01	FAIL ABUN
I-126	4.630E-01	6.696E-01	1.366E+00	NOT IDENT.
SB-126	1.562E-01	4.438E-01	8.751E-01	NOT IDENT.
SB-127	-5.170E+00	3.845E+01	7.152E+01	NOT IDENT.
I-131	-4.100E-02	6.059E-01	1.149E+00	FAIL ABUN
I-132	0.000E+00	8.335E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.563E+01	0.000E+00	SHORT HLIF
BA-133	3.975E-02	4.020E-02	8.061E-02	NOT IDENT.
I-133	0.000E+00	2.244E+10	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.533E-02	9.892E-02	FAIL ABUN
I-135	0.000E+00	4.336E+36	0.000E+00	SHORT HLIF
CS-136	-1.151E-01	2.775E-01	5.207E-01	NOT IDENT.
BA-137M	-2.415E-02	4.056E-02	6.896E-02	NOT IDENT.
CS-137	-2.551E-02	4.284E-02	7.285E-02	NOT IDENT.
LA-138	-7.965E-03	3.637E-02	8.138E-02	NOT IDENT.
CE-139	1.443E-02	3.297E-02	6.078E-02	NOT IDENT.
BA-140	1.123E-01	7.399E-01	1.439E+00	FAIL ABUN
LA-140	-1.275E-01	3.046E-01	5.539E-01	FAIL ABUN
CE-141	-9.009E-02	9.604E-02	1.537E-01	NOT IDENT.
CE-143	0.000E+00	1.904E+06	0.000E+00	SHORT HLIF
CE-144	-7.566E-03	2.200E-01	3.896E-01	FAIL ABUN
PM-144	-1.107E-02	3.918E-02	7.234E-02	NOT IDENT.
PR-144	-8.369E-01	2.961E+00	5.468E+00	NOT IDENT.
PM-146	1.100E-02	4.474E-02	8.721E-02	NOT IDENT.
ND-147	-5.511E-01	1.798E+00	3.284E+00	NOT IDENT.
PM-147	1.209E+02	7.172E+02	1.309E+03	NOT IDENT.
PM-149	0.000E+00	4.006E+04	0.000E+00	SHORT HLIF
EU-150	1.002E-02	2.650E-02	4.584E-02	FAIL ABUN
EU-152	-3.769E-02	1.035E-01	1.897E-01	FAIL ABUN
GD-153	-3.753E-02	8.554E-02	1.480E-01	NOT IDENT.
EU-154	2.391E-02	1.357E-01	2.527E-01	NOT IDENT.
EU-155	7.993E-02	9.488E-02	1.844E-01	FAIL ABUN

TB-160	-1.273E-01	1.618E-01	2.547E-01	FAIL ABUN
HO-166M	-4.355E-03	5.739E-02	1.078E-01	FAIL ABUN
TM-171	4.013E+00	1.794E+01	3.364E+01	NOT IDENT.
HF-172	1.364E-02	1.923E-01	3.459E-01	FAIL ABUN
LU-172	-3.018E-02	6.870E-02	1.269E-01	FAIL ABUN
LU-176	-2.131E-02	2.284E-02	3.957E-02	FAIL ABUN
HF-181	-4.527E-02	6.285E-02	1.104E-01	NOT IDENT.
TA-182	-1.592E-01	2.686E-01	4.782E-01	FAIL ABUN
RE-183	3.693E-02	2.144E-01	4.020E-01	NOT IDENT.
RE-184	-1.131E-01	1.922E-01	3.183E-01	NOT IDENT.
W-188	5.569E+00	1.306E+01	1.666E+01	FAIL ABUN
IR-192	-1.325E-04	4.060E-02	7.795E-02	FAIL ABUN
HG-203	-2.577E-02	6.245E-02	1.022E-01	NOT IDENT.
TL-204	2.835E-01	4.473E+00	8.174E+00	FAIL ABUN
BI-207	-1.823E-02	5.105E-02	9.662E-02	FAIL ABUN
PB-211	2.197E-01	7.071E-01	1.395E+00	NOT IDENT.
BI-213	9.232E-02	1.111E-01	2.295E-01	NOT IDENT.
RN-219	-2.566E-01	3.839E-01	6.751E-01	FAIL ABUN
RA-223	4.054E-01	6.511E-01	1.228E+00	FAIL ABUN
AC-225	-1.066E+00	2.261E+00	3.749E+00	NOT IDENT.
AC-227	1.022E-01	2.651E-01	4.837E-01	FAIL ABUN
TH-227	1.022E-01	2.651E-01	4.837E-01	FAIL ABUN
TH-229	-1.971E-01	5.326E-01	8.997E-01	FAIL ABUN
PA-231	8.817E-03	5.373E-01	1.018E+00	NOT IDENT.
TH-231	4.054E-01	6.511E-01	1.228E+00	FAIL ABUN
PA-233	-5.533E-03	5.825E-02	1.116E-01	NOT IDENT.
PA-234	-2.703E-01	3.330E-01	5.167E-01	FAIL ABUN
PA-234M	-3.924E+00	5.334E+00	9.338E+00	FAIL ABUN
U-235	3.789E-02	2.072E-01	3.794E-01	FAIL ABUN
NP-237	-5.533E-03	5.825E-02	1.116E-01	NOT IDENT.
NP-238	0.000E+00	1.038E+04	0.000E+00	SHORT HLIF
NP-239	-6.894E-02	2.458E-01	4.315E-01	NOT IDENT.
PU-239	2.283E+02	3.451E+02	6.491E+02	NOT IDENT.
AM-241	-1.660E-01	1.400E-01	2.097E-01	NOT IDENT.
CM-243	-1.103E-01	9.047E-02	1.442E-01	NOT IDENT.
BK-247	-6.083E-02	8.623E-02	1.365E-01	NOT IDENT.
CM-247	-1.579E-02	3.569E-02	6.469E-02	NOT IDENT.
CF-249	3.352E-02	4.000E-02	8.311E-02	NOT IDENT.
CF-251	7.072E-02	1.312E-01	2.437E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	310	10.66*	1.254E+00	1.713E+01	1.713E+01	12.91
CD-109	88.03	59	3.70*	6.738E+00	1.735E+00	1.826E+00	78.74
TE-125M	109.28	38	0.27*	7.454E+00	1.388E+01	2.095E+01	79.72
SN-126	64.28	7	9.60	3.897E+00	1.386E-01	1.386E-01	670.71
	86.94	59	8.90	6.738E+00	7.212E-01	7.212E-01	78.74
	87.57	59	37.00*	6.738E+00	1.735E-01	1.735E-01	78.74
TL-208	277.37	-----	6.60	4.872E+00	-----	Line Not Found	-----
	583.19	120	85.00*	2.908E+00	3.589E-01	3.589E-01	26.32
	860.56	31	12.50	2.058E+00	8.890E-01	8.890E-01	69.83
BI-210	46.54	13	4.25*	1.065E+00	2.191E+00	2.198E+00	331.58
PB-210	46.54	13	4.25*	1.065E+00	2.191E+00	2.198E+00	331.58
BI-211	72.87	-----	1.23	5.308E+00	-----	Line Not Found	-----
	351.06	243	12.92*	4.175E+00	3.330E+00	3.330E+00	19.73
BI-212	727.33	20	6.67*	2.409E+00	9.273E-01	9.273E-01	68.96
	1620.50	-----	1.47	1.168E+00	-----	Line Not Found	-----
PB-212	74.82	109	10.28	5.571E+00	1.402E+00	1.402E+00	33.23
	77.11	192	17.10	5.839E+00	1.418E+00	1.418E+00	22.83
	238.63	338	43.60*	5.359E+00	1.068E+00	1.068E+00	13.04
	300.09	-----	3.30	4.632E+00	-----	Line Not Found	-----
BI-214	609.32	157	45.49*	2.806E+00	9.093E-01	9.094E-01	24.07
	1120.29	36	14.92	1.588E+00	1.115E+00	1.115E+00	59.30
	1764.49	24	15.30	1.120E+00	1.035E+00	1.036E+00	42.15
PB-214	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
RN-222	609.32	157	45.49*	2.806E+00	9.093E-01	9.094E-01	24.07
	1120.29	36	14.92	1.588E+00	1.115E+00	1.115E+00	59.30
	1764.49	24	15.30	1.120E+00	1.035E+00	1.036E+00	42.15
RA-224	240.99	82	4.10*	5.319E+00	2.763E+00	2.763E+00	41.08
RA-226	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
AC-228	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65
	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
RA-228	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
	74.82	109	10.28	5.571E+00	1.402E+00	1.402E+00	33.23
	77.11	192	17.10	5.839E+00	1.418E+00	1.418E+00	22.83
	238.63	338	43.60*	5.359E+00	1.068E+00	1.068E+00	13.04
TH-230	300.09	-----	3.30	4.632E+00	-----	Line Not Found	-----
	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
TH-232	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
	105.21	-----	1.10	7.409E+00	-----	Line Not Found	-----
	338.32	52	11.27	4.283E+00	7.931E-01	7.931E-01	67.65
	835.71	-----	1.61	2.117E+00	-----	Line Not Found	-----
	911.20	45	25.80*	1.945E+00	6.633E-01	6.633E-01	71.65
TH-234	968.97	34	15.80	1.832E+00	8.785E-01	8.785E-01	60.49
	63.29	7	3.70*	3.897E+00	3.597E-01	3.597E-01	670.71
	92.59	71	4.23	7.051E+00	1.763E+00	1.763E+00	65.41
U-234	74.82	109	5.80	5.571E+00	2.485E+00	2.485E+00	33.23
	77.11	192	9.70	5.839E+00	2.500E+00	2.500E+00	22.83
	87.09	59	3.41	6.738E+00	1.882E+00	1.882E+00	78.74
	242.00	82	7.25	5.319E+00	1.563E+00	1.563E+00	41.08
	295.22	143	18.42	4.681E+00	1.222E+00	1.222E+00	24.34
U-238	351.93	243	35.60*	4.175E+00	1.208E+00	1.208E+00	19.73
	63.29	7	3.70*	3.897E+00	3.597E-01	3.597E-01	670.71
	92.59	71	4.23	7.051E+00	1.763E+00	1.763E+00	65.41
AM-243	43.53	-----	5.90	6.688E-01	-----	Line Not Found	-----
ANH-511	74.66	109	67.20*	5.571E+00	2.145E-01	2.145E-01	33.23
	511.00	57	100.00*	3.224E+00	1.302E-01	1.302E-01	61.01

Flag: "*" = Keyline

Total number of lines in spectrum 51
Number of unidentified lines 12
Number of lines tentatively identified by NID 39 76.47%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.713E+01	1.713E+01	0.221E+01	12.91	
CD-109	461.40D	1.05	1.735E+00	1.826E+00	1.438E+00	78.74	
TE-125M	57.40D	1.51	1.388E+01	2.095E+01	1.670E+01	79.72	
SN-126	2.30E+05Y	1.00	1.735E-01	1.735E-01	1.366E-01	78.74	
TL-208	1.41E+10Y	1.00	3.589E-01	3.589E-01	0.944E-01	26.32	
BI-210	22.20Y	1.00	2.191E+00	2.198E+00	7.287E+00	331.58	
PB-210	22.20Y	1.00	2.191E+00	2.198E+00	7.287E+00	331.58	
BI-211	7.04E+08Y	1.00	3.330E+00	3.330E+00	0.657E+00	19.73	
BI-212	1.41E+10Y	1.00	9.273E-01	9.273E-01	6.394E-01	68.96	
PB-212	1.41E+10Y	1.00	1.068E+00	1.068E+00	0.139E+00	13.04	
BI-214	1600.00Y	1.00	9.093E-01	9.094E-01	2.189E-01	24.07	
PB-214	1600.00Y	1.00	1.208E+00	1.208E+00	0.238E+00	19.73	
RN-222	1600.00Y	1.00	9.093E-01	9.094E-01	2.189E-01	24.07	
RA-224	1.41E+10Y	1.00	2.763E+00	2.763E+00	1.135E+00	41.08	
RA-226	1600.00Y	1.00	1.208E+00	1.208E+00	0.238E+00	19.73	
AC-228	1.41E+10Y	1.00	6.633E-01	6.633E-01	4.752E-01	71.65	
RA-228	1.41E+10Y	1.00	6.633E-01	6.633E-01	4.752E-01	71.65	
TH-228	1.41E+10Y	1.00	1.068E+00	1.068E+00	0.139E+00	13.04	
TH-230	7.54E+04Y	1.00	1.208E+00	1.208E+00	0.238E+00	19.73	
TH-232	1.41E+10Y	1.00	6.633E-01	6.633E-01	4.752E-01	71.65	
TH-234	4.47E+09Y	1.00	3.597E-01	3.597E-01	24.13E-01	670.71	
U-234	2.45E+05Y	1.00	1.208E+00	1.208E+00	0.238E+00	19.73	
U-238	4.47E+09Y	1.00	3.597E-01	3.597E-01	24.13E-01	670.71	
AM-243	7370.00Y	1.00	2.145E-01	2.145E-01	0.713E-01	33.23	
ANH-511	1.00E+09Y	1.00	1.302E-01	1.302E-01	0.794E-01	61.01	
Total Activity :			5.652E+01	6.369E+01			

Grand Total Activity : 5.652E+01 6.369E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	79.09	24	112	1.17	159.00	147	15	6.77E-03	****	6.04E+00	T
0	186.07	65	88	1.49	372.86	368	11	1.86E-02	64.3	6.24E+00	T
0	209.99	36	79	1.90	420.70	415	10	1.04E-02	97.5	5.81E+00	T
0	245.94	37	37	1.74	492.57	489	9	1.07E-02	66.5	5.26E+00	T
0	270.50	42	51	1.05	541.66	537	11	1.22E-02	72.0	4.95E+00	T
0	289.96	10	49	1.57	580.58	575	8	2.95E-03	****	4.74E+00	T
0	328.20	28	70	0.71	657.03	650	14	8.11E-03	****	4.37E+00	T
0	422.03	7	29	1.01	844.64	839	8	2.00E-03	****	3.70E+00	
0	424.25	13	17	1.63	849.09	846	7	3.91E-03	****	3.68E+00	T
0	463.28	23	21	0.97	927.12	922	9	6.56E-03	83.3	3.46E+00	T
0	737.77	7	17	3.41	1475.98	1467	10	2.10E-03	****	2.38E+00	T
0	744.08	7	14	0.78	1488.58	1483	7	2.06E-03	****	2.36E+00	T
5	767.71	16	26	2.63	1535.84	1529	23	4.79E-03	****	2.29E+00	T
5	772.96	12	14	2.63	1546.35	1529	23	3.42E-03	****	2.28E+00	T
0	787.06	30	15	2.97	1574.54	1568	13	8.89E-03	66.0	2.24E+00	
0	795.99	52	0	6.00	1592.40	1582	22	1.53E-02	27.0	2.22E+00	T
0	935.35	28	8	3.82	1871.08	1861	19	8.38E-03	60.8	1.90E+00	T
0	960.13	8	9	3.37	1920.62	1914	12	2.47E-03	****	1.85E+00	
0	1042.06	8	12	0.55	2084.47	2075	14	2.44E-03	****	1.71E+00	
0	1074.37	9	4	3.31	2149.09	2144	9	2.74E-03	99.7	1.66E+00	
0	1086.92	6	8	0.59	2174.19	2170	8	1.81E-03	****	1.64E+00	T
0	1105.83	8	0	0.73	2212.00	2209	7	2.50E-03	66.7	1.61E+00	
0	1110.17	3	5	0.97	2220.69	2216	6	8.95E-04	****	1.60E+00	
0	1166.16	6	11	0.65	2332.66	2325	10	1.83E-03	****	1.53E+00	
0	1187.08	21	16	3.74	2374.50	2365	17	6.11E-03	95.9	1.50E+00	
0	1271.81	8	4	1.30	2543.94	2540	8	2.50E-03	****	1.41E+00	T
0	1293.68	13	4	2.37	2587.68	2582	10	3.86E-03	82.5	1.39E+00	
0	1377.25	14	2	1.95	2754.83	2750	10	4.28E-03	63.9	1.31E+00	
0	1729.92	10	3	1.08	3460.23	3452	12	2.94E-03	90.7	1.13E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299012.CNF;1 *
* Acquisition date : 30-JUL-2024 11:19:15 Sensitivity : 3.000 *
* Detector ID : GAM27 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.81 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:50:00 Nuclide Library : SOLID *
* Sample ID : G674299012 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.0165E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 9-JUL-2024 08:43:14 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.612E-01
CD-109	7.360E-01
TE-125M	9.017E+00
SN-126	7.021E-02
TL-208	2.939E-02
BI-210	2.789E+00
PB-210	2.789E+00
BI-211	1.753E-01
BI-212	3.300E-01
PB-212	4.345E-02
BI-214	6.749E-02
PB-214	6.376E-02
RN-222	6.749E-02
RA-224	4.655E-01
RA-226	6.376E-02
AC-228	1.455E-01
RA-228	1.455E-01
TH-228	4.345E-02
TH-230	6.376E-02
TH-232	1.455E-01
TH-234	1.039E+00
U-234	6.376E-02
U-238	1.039E+00
AM-243	4.067E-02
ANH-511	2.275E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.715E-01	NOT IDENT.
NA-22	3.714E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.931E-02	NOT IDENT.
SC-46	4.178E-02	FAIL ABUN
V-48	1.379E-01	NOT IDENT.

CR-51	3.832E-01	NOT IDENT.
MN-52	1.297E+00	FAIL ABUN
MN-54	3.241E-02	NOT IDENT.
CO-56	5.121E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.134E-02	NOT IDENT.
CO-58	5.056E-02	NOT IDENT.
FE-59	9.878E-02	NOT IDENT.
CO-60	4.054E-02	NOT IDENT.
ZN-65	7.112E-02	NOT IDENT.
GE-68	1.146E+00	NOT IDENT.
AS-73	8.081E-01	NOT IDENT.
AS-74	1.998E-01	NOT IDENT.
SE-75	3.558E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	4.942E-01	NOT IDENT.
RB-83	6.421E-02	NOT IDENT.
RB-84	1.000E-01	NOT IDENT.
KR-85	5.699E+00	NOT IDENT.
SR-85	3.684E-02	NOT IDENT.
RB-86	1.475E+00	NOT IDENT.
Y-88	4.334E-02	NOT IDENT.
Y-91	2.189E+01	NOT IDENT.
NB-94	3.365E-02	NOT IDENT.
NB-95	5.293E-02	NOT IDENT.
NB-95M	1.360E-01	NOT IDENT.
ZR-95	6.708E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.588E-02	NOT IDENT.
RH-102	4.814E-02	FAIL ABUN
RU-103	3.840E-02	FAIL ABUN
RH-106	2.938E-01	NOT IDENT.
RU-106	2.938E-01	NOT IDENT.
AG-108M	2.252E-02	NOT IDENT.
AG-110	5.816E-01	NOT IDENT.
AG-110M	4.452E-02	NOT IDENT.
SN-113	4.478E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.280E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.768E-02	NOT IDENT.
SB-124	4.714E-02	NOT IDENT.
SB-125	6.197E-02	FAIL ABUN
I-126	6.113E-01	NOT IDENT.
SB-126	3.862E-01	NOT IDENT.
SB-127	3.085E+01	NOT IDENT.
I-131	5.180E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.642E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.407E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.164E-01	NOT IDENT.
BA-137M	3.026E-02	NOT IDENT.
CS-137	3.197E-02	NOT IDENT.
LA-138	2.878E-02	NOT IDENT.
CE-139	2.817E-02	NOT IDENT.
BA-140	6.358E-01	FAIL ABUN
LA-140	2.208E-01	FAIL ABUN
CE-141	7.082E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.814E-01	FAIL ABUN
PM-144	3.192E-02	NOT IDENT.
PR-144	2.413E+00	NOT IDENT.
PM-146	3.921E-02	NOT IDENT.
ND-147	1.434E+00	NOT IDENT.
PM-147	6.063E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.052E-02	FAIL ABUN
EU-152	8.599E-02	FAIL ABUN
GD-153	6.877E-02	NOT IDENT.
EU-154	1.061E-01	NOT IDENT.
EU-155	8.576E-02	FAIL ABUN
TB-160	1.047E-01	FAIL ABUN

HO-166M	4.643E-02	FAIL ABUN
TM-171	1.568E+01	NOT IDENT.
HF-172	1.607E-01	FAIL ABUN
LU-172	5.344E-02	FAIL ABUN
LU-176	1.746E-02	FAIL ABUN
HF-181	4.880E-02	NOT IDENT.
TA-182	2.083E-01	FAIL ABUN
RE-183	1.870E-01	NOT IDENT.
RE-184	1.333E-01	NOT IDENT.
W-188	7.599E+00	FAIL ABUN
IR-192	3.528E-02	FAIL ABUN
HG-203	4.692E-02	NOT IDENT.
TL-204	3.832E+00	FAIL ABUN
BI-207	4.035E-02	FAIL ABUN
PB-211	6.286E-01	NOT IDENT.
BI-213	1.041E-01	NOT IDENT.
RN-219	2.982E-01	FAIL ABUN
RA-223	5.577E-01	FAIL ABUN
AC-225	1.711E+00	NOT IDENT.
AC-227	2.215E-01	FAIL ABUN
TH-227	2.215E-01	FAIL ABUN
TH-229	4.130E-01	FAIL ABUN
PA-231	4.691E-01	NOT IDENT.
TH-231	5.577E-01	FAIL ABUN
PA-233	5.011E-02	NOT IDENT.
PA-234	2.143E-01	FAIL ABUN
PA-234M	4.005E+00	FAIL ABUN
U-235	1.770E-01	FAIL ABUN
NP-237	5.011E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	1.990E-01	NOT IDENT.
PU-239	3.031E+02	NOT IDENT.
AM-241	9.611E-02	NOT IDENT.
CM-243	6.563E-02	NOT IDENT.
BK-247	6.163E-02	NOT IDENT.
CM-247	2.874E-02	NOT IDENT.
CF-249	3.772E-02	NOT IDENT.
CF-251	1.129E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299012.CNF;1
Acquisition date : 30-JUL-2024 11:19:15 Sensitivity : 3.000
Detector ID : GAM27 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.81 Half life ratio : *****
Sample date : 26-JUN-2024 09:50:00 Nuclide Library : SOLID
Sample ID : G674299012 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.0165E+02 GRAM
Quantity Err(%) : 1.9675E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 9-JUL-2024 08:43:14 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM27_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.713E+01	3.009E+00	3.009E+00
CD-109	1.826E+00	1.428E+00	1.428E+00
TE-125M	2.095E+01	1.647E+01	1.647E+01
SN-126	1.735E-01	1.353E-01	1.353E-01
TL-208	3.589E-01	9.737E-02	9.737E-02
BI-210	2.198E+00	7.146E+00	7.146E+00
PB-210	2.198E+00	7.146E+00	7.146E+00
BI-211	3.330E+00	7.169E-01	7.169E-01
BI-212	9.273E-01	6.331E-01	6.331E-01
PB-212	1.068E+00	1.716E-01	1.716E-01
BI-214	9.094E-01	2.276E-01	2.276E-01
PB-214	1.208E+00	2.595E-01	2.595E-01
RN-222	9.094E-01	2.276E-01	2.276E-01
RA-224	2.763E+00	1.145E+00	1.145E+00
RA-226	1.208E+00	2.595E-01	2.595E-01
AC-228	6.633E-01	4.738E-01	4.738E-01
RA-228	6.633E-01	4.738E-01	4.738E-01
TH-228	1.068E+00	1.716E-01	1.716E-01
TH-230	1.208E+00	2.594E-01	2.594E-01
TH-232	6.633E-01	4.738E-01	4.738E-01
TH-234	3.597E-01	2.366E+00	2.366E+00
U-234	1.208E+00	2.594E-01	2.594E-01
U-238	3.597E-01	2.366E+00	2.366E+00
AM-243	2.145E-01	7.404E-02	7.404E-02
ANH-511	1.302E-01	7.859E-02	7.859E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.148E-01	4.612E-01	4.641E-01	NOT IDENT.
NA-22	6.782E-03	4.800E-02	4.810E-02	NOT IDENT.
NA-24	-2.699E+14	9.791E+14	9.867E+14	SHORT HLIF
AL-26	9.835E-03	3.192E-02	3.223E-02	NOT IDENT.
SC-46	2.183E-02	4.715E-02	4.817E-02	FAIL ABUN

V-48	-5.470E-02	1.706E-01	1.724E-01	NOT IDENT.
CR-51	-3.833E-01	4.956E-01	5.249E-01	NOT IDENT.
MN-52	-1.139E+00	1.973E+00	2.039E+00	FAIL ABUN
MN-54	-2.518E-03	3.950E-02	3.951E-02	NOT IDENT.
CO-56	1.361E-02	6.089E-02	6.119E-02	NOT IDENT.
MN-56	1.000E+41	4.355E+41	0.000E+00	SHORT HLIF
CO-57	5.360E-04	2.562E-02	2.562E-02	NOT IDENT.
CO-58	3.739E-02	5.595E-02	5.844E-02	NOT IDENT.
FE-59	-6.679E-02	1.299E-01	1.334E-01	NOT IDENT.
CO-60	1.811E-02	4.436E-02	4.510E-02	NOT IDENT.
ZN-65	-6.856E-02	1.137E-01	1.178E-01	NOT IDENT.
GE-68	7.436E-01	1.302E+00	1.344E+00	NOT IDENT.
AS-73	-2.704E-01	9.673E-01	9.749E-01	NOT IDENT.
AS-74	1.160E-01	2.241E-01	2.302E-01	NOT IDENT.
SE-75	-6.065E-02	5.401E-02	6.054E-02	NOT IDENT.
BR-77	4.181E+04	4.167E+04	4.573E+04	SHORT HLIF
SR-82	4.742E-01	5.493E-01	5.894E-01	NOT IDENT.
RB-83	-9.141E-02	9.135E-02	1.002E-01	NOT IDENT.
RB-84	9.647E-02	1.044E-01	1.131E-01	NOT IDENT.
KR-85	1.269E+00	7.301E+00	7.323E+00	NOT IDENT.
SR-85	8.146E-03	4.721E-02	4.736E-02	NOT IDENT.
RB-86	8.849E-01	1.715E+00	1.761E+00	NOT IDENT.
Y-88	1.467E-02	4.814E-02	4.860E-02	NOT IDENT.
Y-91	-2.266E+01	3.017E+01	3.185E+01	NOT IDENT.
NB-94	2.371E-02	3.730E-02	3.880E-02	NOT IDENT.
NB-95	3.657E-02	5.919E-02	6.144E-02	NOT IDENT.
NB-95M	1.008E-01	1.714E-01	1.773E-01	NOT IDENT.
ZR-95	-2.868E-02	8.804E-02	8.898E-02	NOT IDENT.
NB-97	-1.000E+41	1.418E+41	0.000E+00	SHORT HLIF
ZR-97	1.129E+14	2.210E+14	2.268E+14	SHORT HLIF
MO-99	-1.277E+03	2.730E+03	2.790E+03	SHORT HLIF
TC-99M	7.712E+37	1.952E+39	0.000E+00	SHORT HLIF
RH-101	-2.607E-03	3.146E-02	3.148E-02	NOT IDENT.
RH-102	2.215E-02	5.427E-02	5.518E-02	FAIL ABUN
RU-103	-5.133E-02	5.424E-02	5.897E-02	FAIL ABUN
RH-106	9.129E-02	3.391E-01	3.416E-01	NOT IDENT.
RU-106	9.129E-02	3.391E-01	3.416E-01	NOT IDENT.
AG-108M	4.502E-03	2.574E-02	2.582E-02	NOT IDENT.
AG-110	-5.731E-01	8.087E-01	8.489E-01	NOT IDENT.
AG-110M	3.249E-03	5.445E-02	5.447E-02	NOT IDENT.
SN-113	-9.141E-03	5.328E-02	5.344E-02	NOT IDENT.
CD-115	8.548E+01	4.414E+03	4.414E+03	SHORT HLIF
SN-117M	1.043E-01	1.461E-01	1.534E-01	NOT IDENT.
SB-122	-2.998E+01	2.305E+02	2.309E+02	SHORT HLIF
TE-123M	1.719E-02	3.207E-02	3.299E-02	NOT IDENT.
SB-124	-4.294E-02	8.256E-02	8.480E-02	NOT IDENT.
SB-125	-4.041E-02	8.969E-02	9.152E-02	FAIL ABUN
I-126	4.630E-01	6.710E-01	7.027E-01	NOT IDENT.
SB-126	1.562E-01	4.442E-01	4.498E-01	NOT IDENT.
SB-127	-5.170E+00	3.846E+01	3.853E+01	NOT IDENT.
I-131	-4.100E-02	6.059E-01	6.062E-01	FAIL ABUN
I-132	-1.000E+41	2.261E+41	0.000E+00	SHORT HLIF
TE-132	-1.258E+01	4.566E+01	4.601E+01	SHORT HLIF
BA-133	3.975E-02	4.037E-02	4.417E-02	NOT IDENT.
I-133	8.976E+09	2.253E+10	2.289E+10	SHORT HLIF
CS-134	2.093E-01	5.968E-02	1.117E-01	FAIL ABUN
I-135	4.008E+35	4.347E+36	0.000E+00	SHORT HLIF
CS-136	-1.151E-01	2.780E-01	2.828E-01	NOT IDENT.
BA-137M	-2.415E-02	4.061E-02	4.204E-02	NOT IDENT.
CS-137	-2.551E-02	4.290E-02	4.441E-02	NOT IDENT.
LA-138	-7.965E-03	3.639E-02	3.656E-02	NOT IDENT.
CE-139	1.443E-02	3.311E-02	3.374E-02	NOT IDENT.
BA-140	1.123E-01	7.400E-01	7.417E-01	FAIL ABUN
LA-140	-1.275E-01	3.049E-01	3.103E-01	FAIL ABUN
CE-141	-9.009E-02	9.627E-02	1.045E-01	NOT IDENT.
CE-143	2.634E+05	1.905E+06	1.908E+06	SHORT HLIF
CE-144	-7.566E-03	2.200E-01	2.200E-01	FAIL ABUN
PM-144	-1.107E-02	3.919E-02	3.951E-02	NOT IDENT.
PR-144	-8.369E-01	2.962E+00	2.986E+00	NOT IDENT.
PM-146	1.100E-02	4.476E-02	4.503E-02	NOT IDENT.
ND-147	-5.511E-01	1.799E+00	1.816E+00	NOT IDENT.
PM-147	1.209E+02	7.173E+02	7.194E+02	NOT IDENT.
PM-149	2.879E+04	4.035E+04	4.238E+04	SHORT HLIF
EU-150	1.002E-02	2.652E-02	2.690E-02	FAIL ABUN
EU-152	-3.769E-02	1.036E-01	1.050E-01	FAIL ABUN
GD-153	-3.753E-02	8.562E-02	8.728E-02	NOT IDENT.
EU-154	2.391E-02	1.358E-01	1.362E-01	NOT IDENT.
EU-155	7.993E-02	9.522E-02	1.018E-01	FAIL ABUN

TB-160	-1.273E-01	1.626E-01	1.725E-01	FAIL ABUN
HO-166M	-4.355E-03	5.739E-02	5.742E-02	FAIL ABUN
TM-171	4.013E+00	1.795E+01	1.804E+01	NOT IDENT.
HF-172	1.364E-02	1.923E-01	1.924E-01	FAIL ABUN
LU-172	-3.018E-02	6.883E-02	7.016E-02	FAIL ABUN
LU-176	-2.131E-02	2.294E-02	2.488E-02	FAIL ABUN
HF-181	-4.527E-02	6.296E-02	6.619E-02	NOT IDENT.
TA-182	-1.592E-01	2.691E-01	2.785E-01	FAIL ABUN
RE-183	3.693E-02	2.145E-01	2.152E-01	NOT IDENT.
RE-184	-1.131E-01	1.929E-01	1.996E-01	NOT IDENT.
W-188	5.569E+00	1.308E+01	1.332E+01	FAIL ABUN
IR-192	-1.325E-04	4.060E-02	4.060E-02	FAIL ABUN
HG-203	-2.577E-02	6.251E-02	6.358E-02	NOT IDENT.
TL-204	2.835E-01	4.473E+00	4.475E+00	FAIL ABUN
BI-207	-1.823E-02	5.109E-02	5.175E-02	FAIL ABUN
PB-211	2.197E-01	7.074E-01	7.143E-01	NOT IDENT.
BI-213	9.232E-02	1.114E-01	1.189E-01	NOT IDENT.
RN-219	-2.566E-01	3.857E-01	4.027E-01	FAIL ABUN
RA-223	4.054E-01	6.526E-01	6.777E-01	FAIL ABUN
AC-225	-1.066E+00	2.264E+00	2.315E+00	NOT IDENT.
AC-227	1.022E-01	2.656E-01	2.696E-01	FAIL ABUN
TH-227	1.022E-01	2.656E-01	2.696E-01	FAIL ABUN
TH-229	-1.971E-01	5.329E-01	5.402E-01	FAIL ABUN
PA-231	8.817E-03	5.373E-01	5.373E-01	NOT IDENT.
TH-231	4.054E-01	6.526E-01	6.777E-01	FAIL ABUN
PA-233	-5.533E-03	5.825E-02	5.831E-02	NOT IDENT.
PA-234	-2.703E-01	4.555E-01	4.716E-01	FAIL ABUN
PA-234M	-3.924E+00	5.355E+00	5.639E+00	FAIL ABUN
U-235	3.789E-02	2.072E-01	2.079E-01	FAIL ABUN
NP-237	-5.533E-03	5.825E-02	5.831E-02	NOT IDENT.
NP-238	-4.815E+03	1.039E+04	1.062E+04	SHORT HLIF
NP-239	-6.894E-02	2.459E-01	2.479E-01	NOT IDENT.
PU-239	2.283E+02	3.455E+02	3.605E+02	NOT IDENT.
AM-241	-1.660E-01	1.422E-01	1.607E-01	NOT IDENT.
CM-243	-1.103E-01	9.140E-02	1.041E-01	NOT IDENT.
BK-247	-6.083E-02	8.728E-02	9.148E-02	NOT IDENT.
CM-247	-1.579E-02	3.581E-02	3.651E-02	NOT IDENT.
CF-249	3.352E-02	4.017E-02	4.292E-02	NOT IDENT.
CF-251	7.072E-02	1.315E-01	1.353E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	68.1823	85.43	94.9637	131.20	83.2841
45.60	49.6819	86.55	103.6466	133.02	56.0238
46.54	49.8197	86.79	103.6952	133.52	62.4111
49.72	0.0000	86.94	103.7259	136.00	50.9575
51.35	67.6392	87.09	103.7558	136.47	59.4906
51.87	60.5104	87.57	103.8529	140.51	0.0000
52.39	53.3608	88.03	103.9451	143.76	50.4438
52.97	58.8797	88.34	104.0073	144.24	50.4768
53.44	58.0471	88.47	109.9219	145.44	63.4689
54.07	63.5958	89.96	104.3308	152.43	57.5539
57.36	0.0000	1093.63	76.8705	153.25	69.5752
57.53	53.1714	91.11	104.5581	323.87	54.4243
57.98	55.9854	92.59	87.0446	156.02	63.2817
59.27	67.2175	93.35	87.1675	158.56	44.8813
59.32	67.2259	94.56	56.9182	159.00	46.0016
59.54	66.3415	94.65	56.9274	162.33	45.0977
60.96	49.3152	94.67	56.9296	162.66	41.8153
61.17	49.3406	94.87	56.9506	163.33	46.2567
62.93	73.3995	97.43	59.8778	165.86	45.2986
63.29	73.4629	98.43	51.9873	176.31	45.8804
63.58	73.5140	98.44	51.9885	176.60	52.6132
64.28	73.6370	99.53	57.0983	177.52	42.5847
66.73	66.2495	100.11	60.1653	181.07	0.0000
67.24	43.8013	102.03	43.2644	181.52	45.0385
125.81	71.4060	103.18	48.3918	184.41	57.2412
67.75	71.4170	103.37	57.4845	143.76	42.9958
68.89	86.6782	105.21	42.4912	193.51	49.0856
69.67	75.5060	105.31	42.4986	197.03	50.4238
70.82	73.8076	106.12	48.6368	198.01	55.0671
70.83	73.8094	106.47	40.5548	201.83	44.9295
72.81	77.3015	109.28	48.8965	203.43	43.8534
72.87	77.3117	111.00	47.6743	205.31	32.3784
74.66	77.2946	111.76	0.0000	210.85	38.7731
74.82	77.3212	114.06	55.4428	215.65	40.9163
74.97	77.3465	116.30	0.0000	218.12	45.7085
77.11	77.6994	116.74	52.5887	222.11	41.1876
78.74	77.9651	119.76	47.6600	227.09	41.3943
79.69	75.8686	121.12	49.8376	227.38	46.1381
80.03	79.7812	121.22	49.8453	228.16	0.0000
80.12	79.7970	121.78	45.7315	228.18	43.8071
80.19	79.8083	122.06	51.9901	116.74	43.8071
80.57	73.4296	122.92	53.1004	235.69	41.3481
81.00	76.0727	123.07	53.1124	235.96	41.3592
81.07	76.0835	265.00	45.8654	238.63	35.0862
81.75	74.8978	125.81	55.4266	238.98	0.0000
82.47	81.4731	127.23	56.5930	240.99	35.1659
83.79	81.6890	127.91	62.9459	242.00	35.1999
84.00	71.3455	129.30	52.5635	244.70	19.2490

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	41.1994	344.28	37.4535	563.25	16.8928
252.80	38.7900	345.93	25.1156	564.24	0.0000
254.15	0.0000	351.06	30.6364	569.33	15.9473
256.23	32.8321	351.93	30.6556	946.00	14.9518
260.90	0.0000	355.39	0.0000	569.70	15.9505
264.66	45.3354	356.01	15.8119	583.19	18.0637
264.80	41.6647	364.49	29.1637	584.27	18.0732
265.00	41.6720	366.42	0.0000	595.83	20.1945
269.46	24.6100	372.51	28.4382	427.87	23.2770
270.03	24.6228	375.05	16.9145	602.52	0.0000
271.23	24.6484	377.52	25.8606	604.72	25.8569
273.65	32.9338	356.01	28.6589	607.14	25.3794
276.40	49.5190	388.16	20.6584	609.32	25.4059
277.37	39.6484	388.63	22.4620	610.33	25.4181
277.60	39.6563	391.69	31.5108	614.28	18.3347
278.00	42.1493	264.66	23.5466	618.01	17.3466
279.20	50.8796	401.81	28.0963	620.36	18.3867
279.54	50.8947	402.40	27.2003	621.93	16.3561
279.70	40.9690	404.85	23.6112	630.19	0.0000
280.46	34.7847	410.95	31.9096	631.29	13.3465
283.69	33.6346	413.71	28.3126	633.25	15.4138
284.31	28.6665	414.70	22.8470	634.78	24.6797
285.41	34.9308	423.72	11.0293	635.95	15.4327
285.90	0.0000	427.09	16.5787	636.99	9.2640
287.50	36.6586	427.87	20.7335	657.50	21.8169
290.67	50.1208	433.94	16.6490	657.76	18.7024
293.27	0.0000	439.40	24.1290	657.90	0.0000
351.93	42.2604	440.45	20.4299	661.66	24.9795
295.96	45.3065	453.88	23.4039	664.57	0.0000
879.38	51.7104	463.37	23.5352	666.33	15.6445
299.98	31.1457	468.07	16.9918	666.50	18.7749
300.09	31.1480	473.00	20.8269	667.71	0.0000
300.13	31.1495	475.06	15.1647	677.62	18.8665
301.36	45.5065	476.78	20.8721	685.70	14.7252
302.85	50.6238	477.60	25.6278	692.65	0.0000
256.23	22.8109	482.18	24.7432	695.00	20.0638
304.85	22.8175	487.02	20.9938	696.49	17.9629
306.78	31.3166	492.35	0.0000	696.51	17.9636
308.46	19.4933	497.08	24.9505	697.00	19.0239
311.90	27.1947	505.52	13.0152	697.30	17.9691
316.51	30.7053	507.63	0.0000	697.49	22.1989
319.41	22.2263	511.00	18.3724	702.65	15.8911
320.08	27.3691	514.00	18.8867	706.68	18.0404
321.04	29.9578	514.00	18.8867	711.68	13.8247
323.87	23.1603	520.40	30.1284	720.70	14.9439
325.23	32.2006	520.69	0.0000	721.93	0.0000
328.76	26.6911	522.65	0.0000	722.78	12.8203
333.37	23.3278	527.90	0.0000	722.91	12.8208
333.97	19.0168	528.26	20.4950	723.31	14.4256
334.37	25.9393	529.59	16.6029	724.19	19.2415
338.28	37.2882	529.87	0.0000	727.33	9.6332
338.32	37.2899	531.02	19.5475	733.00	14.4833
311.90	40.3895	537.26	17.6499	735.93	13.9633
340.48	40.3895	546.56	0.0000	333.97	22.5706
340.55	40.3914	552.55	15.8132	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	16.1658	949.00	13.9346	1384.29	6.8923
747.24	11.6534	667.71	0.0000	1408.01	7.9224
748.06	10.7939	962.31	23.3268	1434.09	3.9856
752.31	18.3807	964.08	17.5049	1435.80	1.9937
753.82	14.0643	966.17	15.7654	1457.56	0.0000
756.73	15.1638	911.20	14.0264	1460.82	8.0215
756.80	15.1644	983.53	14.0928	1489.16	5.0461
884.68	17.9227	984.45	0.0000	1505.03	9.1159
765.81	16.3055	1274.44	15.9192	1584.12	9.2769
766.42	16.3092	1001.03	16.8285	1596.21	8.2676
766.84	16.3123	1002.74	14.1792	1620.50	3.1165
772.60	0.0000	1004.73	9.7542	1621.92	3.1174
776.52	6.5496	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	3.1626
778.90	14.2039	1028.54	0.0000	1750.46	0.0000
783.70	14.7777	1037.84	15.7695	1764.49	2.1398
788.74	0.0000	1038.76	0.0000	1063.66	8.5688
792.07	0.0000	631.29	10.0618	1771.35	3.2141
795.86	4.9490	1048.07	11.6844	1791.20	0.0000
810.06	7.7400	1049.04	8.0914	1808.65	2.1583
810.29	8.8464	1050.41	8.0947	1810.72	0.0000
344.28	6.6353	1063.66	11.7392	1836.06	3.2547
810.76	13.2720	1077.00	7.2534		
815.77	9.9727	1077.34	5.8031		
1048.07	11.0921	1085.87	10.1814		
832.01	8.9183	1093.63	13.6670		
834.85	12.2752	1099.45	13.6908		
835.71	6.6978	1112.07	13.1915		
836.80	0.0000	1112.84	5.8641		
846.75	0.0000	1115.54	16.1391		
846.77	16.8121	1120.29	7.3462		
856.80	10.1239	1120.55	7.3467		
860.56	10.1375	1221.41	7.3481		
871.09	23.7429	1129.67	13.8116		
873.19	15.8406	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	14.7414	1173.23	13.0498		
880.51	10.2096	1177.95	8.4001		
881.60	6.8091	1189.05	10.4856		
883.24	13.6260	1204.77	18.8062		
884.68	11.3607	1221.41	20.7794		
889.28	9.1032	1231.02	14.2044		
894.76	12.5406	1235.36	20.8573		
898.04	11.4136	1238.28	15.1807		
900.72	13.7090	1260.41	0.0000		
903.28	14.8646	1271.87	11.4866		
911.20	18.3451	1274.44	7.6631		
912.08	18.3503	1274.54	7.6631		
923.98	0.0000	1291.59	4.6181		
926.50	13.8306	1298.22	0.0000		
929.11	12.1120	1312.11	8.7045		
935.54	11.5605	1332.49	6.8052		
937.49	11.5678	1362.66	0.0000		
944.13	9.2747	1365.19	5.8802		
946.00	16.2410	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:23:53.99

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299013.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM28.CNF;655
Background date : 28-JUL-2024 11:29:42
Sample date     : 26-JUN-2024 09:55:00 Acquisition date : 30-JUL-2024 11:19:43
Sample ID       : G674299013 Sample quantity : 1.32040E+02 GRAM
Detector name   : GAM28 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.14 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	49.69	58	212	1.31	99.91	97	7	1.61E-02	43.6	
2	0	63.39*	120	446	0.99	127.28	122	10	3.34E-02	34.4	
3	2	73.45	54	370	1.14	147.39	143	19	1.50E-02	67.3	5.66E+00
4	2	74.81	376	372	1.14	150.12	143	19	1.04E-01	10.2	
5	2	77.09*	663	323	0.96	154.66	143	19	1.84E-01	5.8	
6	2	79.06	64	380	1.15	158.61	143	19	1.79E-02	59.1	
7	0	83.69*	98	362	1.03	167.86	165	7	2.72E-02	34.1	
8	0	87.01	219	414	1.10	174.49	172	7	6.09E-02	16.7	
9	4	89.79	85	179	0.87	180.06	178	12	2.35E-02	22.5	1.15E+00
10	4	92.56*	327	344	1.06	185.60	178	12	9.09E-02	10.8	
11	0	98.53*	60	298	1.69	197.54	194	9	1.67E-02	53.8	
12	0	144.11*	27	292	0.67	288.64	285	7	7.40E-03	110.0	
13	0	159.35	24	259	1.24	319.11	315	7	6.65E-03	114.1	
14	0	185.85*	538	399	1.32	372.08	368	12	1.49E-01	8.6	
15	0	204.55	29	165	1.00	409.46	408	6	8.09E-03	71.8	
16	2	238.50*	313	247	1.11	477.33	473	16	8.70E-02	9.7	1.81E+00
17	2	241.80	605	177	1.12	483.93	473	16	1.68E-01	5.6	
18	3	269.71	83	187	1.62	539.73	532	15	2.30E-02	34.3	1.26E+00
19	3	271.36	57	147	1.33	543.03	532	15	1.58E-02	41.5	
20	0	295.08	1221	155	1.14	590.44	587	9	3.39E-01	3.4	
21	2	328.14	51	118	1.54	656.54	651	29	1.40E-02	41.8	1.87E+00
22	2	338.11*	66	82	1.47	676.47	651	29	1.84E-02	26.8	
23	0	351.65*	2031	189	1.20	703.54	697	13	5.64E-01	2.6	
24	0	390.06	30	161	4.20	780.32	774	13	8.42E-03	89.1	
25	0	454.87*	20	56	1.01	909.90	906	8	5.48E-03	71.7	
26	0	463.86	31	125	1.48	927.88	921	14	8.58E-03	79.1	
27	0	487.70	32	75	1.33	975.53	968	12	8.92E-03	56.8	
28	0	511.40*	105	48	2.92	1022.91	1015	20	2.93E-02	21.3	
29	0	519.50	22	45	2.75	1039.12	1035	10	6.17E-03	59.2	
30	0	559.87	10	45	1.31	1119.83	1113	8	2.73E-03	114.8	
31	1	562.10	21	13	1.62	1124.29	1121	28	5.78E-03	39.0	1.91E+00
32	1	567.81*	20	31	1.62	1135.70	1121	28	5.50E-03	61.5	
33	1	570.31*	22	35	1.63	1140.70	1121	28	5.99E-03	57.6	
34	0	582.98*	101	78	1.19	1166.04	1160	13	2.80E-02	21.2	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	608.93*	1442	90	1.41	1217.93	1212	14	4.00E-01	3.0	
36	0	664.85	51	27	1.60	1329.73	1325	9	1.42E-02	23.0	
37	2	719.29	19	17	1.91	1438.58	1435	26	5.14E-03	41.3	2.06E+00
38	2	726.44	36	21	1.92	1452.88	1435	26	9.92E-03	35.5	
39	0	767.84	150	82	1.67	1535.67	1528	17	4.16E-02	16.0	
40	0	785.63	56	25	2.24	1571.24	1566	12	1.57E-02	21.9	
41	0	806.85	35	53	1.33	1613.67	1607	15	9.58E-03	48.8	
42	0	820.33	15	34	3.43	1640.63	1634	10	4.12E-03	78.9	
43	0	839.40	26	44	2.12	1678.76	1673	11	7.18E-03	55.5	
44	0	854.19	16	19	1.43	1708.34	1705	7	4.47E-03	51.5	
45	0	878.07	20	49	4.85	1756.09	1743	18	5.43E-03	87.4	
46	0	910.62*	112	24	1.69	1821.18	1814	14	3.12E-02	13.4	
47	0	933.82	91	52	0.76	1867.58	1860	14	2.52E-02	19.9	
48	0	964.29	29	26	2.45	1928.51	1923	10	8.06E-03	37.4	
49	0	968.13*	50	24	2.71	1936.20	1932	10	1.39E-02	23.1	
50	0	999.98*	44	18	4.13	1999.88	1994	12	1.22E-02	25.0	
51	0	1053.76	21	60	7.67	2107.43	2095	20	5.83E-03	92.9	
52	0	1069.65	42	35	3.71	2139.22	2130	20	1.16E-02	38.1	
53	0	1119.65	340	41	1.76	2239.21	2230	18	9.46E-02	7.0	
54	0	1155.66	38	49	2.05	2311.22	2304	18	1.07E-02	45.8	
55	0	1237.49	138	5	1.86	2474.89	2470	14	3.84E-02	9.4	
56	0	1281.50	16	26	2.15	2562.91	2556	15	4.48E-03	77.0	
57	0	1340.00	12	10	4.11	2679.92	2673	11	3.36E-03	59.8	
58	0	1346.36	6	17	0.57	2692.64	2683	11	1.53E-03	149.2	
59	0	1366.50	7	3	0.57	2732.93	2729	6	1.94E-03	54.4	
60	0	1376.66	75	21	1.58	2753.25	2747	12	2.09E-02	16.7	
61	0	1384.55	13	9	1.28	2769.04	2765	8	3.67E-03	49.0	
62	0	1400.57	33	9	1.16	2801.08	2795	12	9.22E-03	25.0	
63	0	1406.95*	50	12	1.35	2813.83	2807	15	1.38E-02	20.7	
64	0	1451.94	13	11	0.71	2903.82	2896	11	3.68E-03	55.6	
65	0	1459.87	112	14	1.52	2919.69	2914	14	3.11E-02	11.8	
66	0	1508.46	37	16	1.57	3016.88	3009	13	1.02E-02	28.1	
67	0	1549.44	7	11	0.50	3098.85	3092	11	1.85E-03	112.1	
68	0	1581.93	14	14	1.39	3163.86	3157	14	3.89E-03	62.7	
69	0	1587.29	9	6	1.41	3174.56	3170	9	2.44E-03	62.4	
70	0	1614.63	7	6	0.89	3229.27	3223	9	1.98E-03	74.6	
71	0	1628.02	18	0	1.01	3256.06	3250	13	5.00E-03	23.6	
72	0	1654.64	15	3	4.31	3309.29	3303	12	4.20E-03	34.4	
73	0	1660.40*	18	3	2.30	3320.82	3315	12	4.88E-03	35.2	
74	0	1728.34	76	9	1.60	3456.75	3450	16	2.12E-02	14.2	
75	0	1763.32	272	13	1.79	3526.72	3518	15	7.56E-02	6.6	
76	0	1846.14	48	4	1.72	3692.42	3683	15	1.32E-02	17.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299013.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:55:00 Acquisition date : 30-JUL-2024 11:19:43
Sample ID : G674299013 Sample quantity : 132.04 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA28 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.14 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.227E+00	4.644E+00	4.644E+00	23.62	OK
CD-109	88.03	3.70*	5.622E+00	6.943E+00	7.307E+00	33.41	OK
SN-117M	156.02	2.11	6.273E+00	----- Line	Not Found	-----	Absent
	158.56	86.40*	6.215E+00	2.825E-02	1.605E-01	228.13	OK
TE-123M	159.00	84.00*	6.215E+00	2.906E-02	3.543E-02	228.13	OK
I-126	388.63	35.60	3.478E+00	1.461E-01	9.077E-01	178.28	OK
	666.33	32.90*	2.360E+00	3.796E-01	2.359E+00	45.94	OK
	753.82	4.15	2.136E+00	----- Line	Not Found	-----	Absent
SN-126	64.28	9.60	2.918E+00	2.882E+00	2.882E+00	68.71	OK
	86.94	8.90	5.622E+00	2.886E+00	2.886E+00	33.41	OK
	87.57	37.00*	5.622E+00	6.943E-01	6.943E-01	33.41	OK
TL-208	277.37	6.60	4.410E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.608E+00	2.639E-01	2.639E-01	42.31	OK
	860.56	12.50	1.916E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	4.287E+00	6.827E+00	6.827E+00	134.67	OK
	351.06	12.92*	3.739E+00	2.528E+01	2.528E+01	5.25	OK
BI-212	727.33	6.67*	2.201E+00	1.390E+00	1.390E+00	71.03	OK
	1620.50	1.47	1.137E+00	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	4.451E+00	5.460E+00	5.460E+00	20.49	OK
	77.11	17.10	4.709E+00	5.464E+00	5.464E+00	11.62	OK
	238.63	43.60*	4.891E+00	9.062E-01	9.062E-01	19.47	OK
	300.09	3.30	4.175E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	2.524E+00	7.262E+00	7.262E+00	5.98	OK
	1120.29	14.92	1.529E+00	8.258E+00	8.258E+00	13.94	OK
	1764.49	15.30	1.079E+00	8.811E+00	8.811E+00	13.29	OK
PB-214	74.82	5.80	4.451E+00	9.677E+00	9.677E+00	20.49	OK
	77.11	9.70	4.709E+00	9.632E+00	9.632E+00	11.62	OK
	87.09	3.41	5.622E+00	7.533E+00	7.533E+00	33.41	OK
	242.00	7.25	4.845E+00	1.062E+01	1.062E+01	11.22	OK
	295.22	18.42	4.224E+00	9.545E+00	9.545E+00	6.78	OK
	351.93	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25	OK
RN-222	609.32	45.49*	2.524E+00	7.262E+00	7.262E+00	5.98	OK
	1120.29	14.92	1.529E+00	8.258E+00	8.258E+00	13.94	OK
	1764.49	15.30	1.079E+00	8.811E+00	8.811E+00	13.29	OK
RA-224	240.99	4.10*	4.845E+00	1.877E+01	1.877E+01	11.22	OK
RA-226	74.82	5.80	4.451E+00	9.677E+00	9.677E+00	20.49	OK
	77.11	9.70	4.709E+00	9.632E+00	9.632E+00	11.62	OK
	87.09	3.41	5.622E+00	7.533E+00	7.533E+00	33.41	OK
	242.00	7.25	4.845E+00	1.062E+01	1.062E+01	11.22	OK
	295.22	18.42	4.224E+00	9.545E+00	9.545E+00	6.78	OK
	351.93	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25	OK
AC-228	105.21	1.10	6.483E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.843E+00	9.196E-01	9.196E-01	53.64	OK
	835.71	1.61	1.963E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89	OK
	968.97	15.80	1.733E+00	1.021E+00	1.021E+00	46.17	OK
RA-228	105.21	1.10	6.483E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.843E+00	9.196E-01	9.196E-01	53.64	OK
	835.71	1.61	1.963E+00	----- Line	Not Found	-----	Absent

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-228	911.20	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89	OK
	968.97	15.80	1.733E+00	1.021E+00	1.021E+00	46.17	OK
	74.82	10.28	4.451E+00	5.460E+00	5.460E+00	20.49	OK
	77.11	17.10	4.709E+00	5.464E+00	5.464E+00	11.62	OK
	238.63	43.60*	4.891E+00	9.062E-01	9.062E-01	19.47	OK
TH-230	300.09	3.30	4.175E+00	----- Line	Not Found	-----	Absent
	74.82	5.80	4.451E+00	9.677E+00	9.677E+00	20.49	OK
	77.11	9.70	4.709E+00	9.632E+00	9.632E+00	11.62	OK
	87.09	3.41	5.622E+00	7.533E+00	7.533E+00	33.41	OK
	242.00	7.25	4.845E+00	1.062E+01	1.062E+01	11.22	OK
TH-232	295.22	18.42	4.224E+00	9.545E+00	9.545E+00	6.78	OK
	351.93	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25	OK
	105.21	1.10	6.483E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.843E+00	9.196E-01	9.196E-01	53.64	OK
	835.71	1.61	1.963E+00	----- Line	Not Found	-----	Absent
PA-234M	911.20	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89	OK
	968.97	15.80	1.733E+00	1.021E+00	1.021E+00	46.17	OK
	766.42	0.32	2.105E+00	1.265E+02	1.265E+02	32.03	OK
	1001.03	0.84*	1.686E+00	1.726E+01	1.726E+01	50.05	OK
	63.29	3.70*	2.918E+00	7.477E+00	7.477E+00	68.71	OK
U-234	92.59	4.23	5.984E+00	8.485E+00	8.485E+00	21.59	OK
	74.82	5.80	4.451E+00	9.677E+00	9.677E+00	20.49	OK
	77.11	9.70	4.709E+00	9.632E+00	9.632E+00	11.62	OK
	87.09	3.41	5.622E+00	7.533E+00	7.533E+00	33.41	OK
	242.00	7.25	4.845E+00	1.062E+01	1.062E+01	11.22	OK
U-235	295.22	18.42	4.224E+00	9.545E+00	9.545E+00	6.78	OK
	351.93	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25	OK
	89.96	3.47	5.816E+00	2.762E+00	2.762E+00	45.01	OK
	93.35	5.60	5.984E+00	6.410E+00	6.410E+00	21.59	OK
	143.76	10.96*	6.464E+00	2.399E-01	2.399E-01	220.06	OK
U-238	163.33	5.08	6.144E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.735E+00	1.029E+00	1.029E+00	17.29	OK
	205.31	5.01	5.410E+00	6.697E-01	6.697E-01	143.61	OK
	63.29	3.70*	2.918E+00	7.477E+00	7.477E+00	68.71	OK
	92.59	4.23	5.984E+00	8.485E+00	8.485E+00	21.59	OK
AM-243	43.53	5.90	4.389E-01	----- Line	Not Found	-----	Absent
ANH-511	74.66	67.20*	4.451E+00	8.352E-01	8.352E-01	20.49	OK
	511.00	100.00*	2.871E+00	2.150E-01	2.150E-01	42.67	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299013.CNF;1
Acquisition date : 30-JUL-2024 11:19:43 Sensitivity : 3.000
Detector ID : GAM28 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.14 Half life ratio : *****
Sample date : 26-JUN-2024 09:55:00 Analyst initials: RXF2
Sample ID : G674299013 Sample Quantity : 1.3204E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 19-MAR-2024 04:24:53 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	4.644E+00	1.075E+00	8.452E-01
CD-109	7.307E+00	2.392E+00	2.237E+00
SN-117M	1.605E-01	3.588E-01	4.136E-01
TE-123M	3.543E-02	7.921E-02	9.145E-02
I-126	2.359E+00	1.062E+00	1.229E+00
SN-126	6.943E-01	2.273E-01	2.137E-01
TL-208	2.639E-01	1.094E-01	8.540E-02
BI-211	2.528E+01	1.300E+00	5.411E-01
BI-212	1.390E+00	9.675E-01	9.676E-01
PB-212	9.062E-01	1.729E-01	1.600E-01
BI-214	7.262E+00	4.256E-01	1.583E-01
PB-214	9.174E+00	4.719E-01	1.968E-01
RN-222	7.262E+00	4.256E-01	1.583E-01
RA-224	1.877E+01	2.063E+00	1.714E+00
RA-226	9.174E+00	4.719E-01	1.968E-01
AC-228	1.337E+00	3.524E-01	3.160E-01
RA-228	1.337E+00	3.524E-01	3.160E-01
TH-228	9.062E-01	1.729E-01	1.600E-01
TH-230	9.174E+00	4.718E-01	1.968E-01
TH-232	1.337E+00	3.524E-01	3.160E-01
PA-234M	1.726E+01	8.463E+00	1.042E+01
TH-234	7.477E+00	5.035E+00	3.590E+00
U-234	9.174E+00	4.718E-01	1.968E-01
U-235	2.399E-01	5.174E-01	5.454E-01
U-238	7.477E+00	5.035E+00	3.590E+00
AM-243	8.352E-01	1.677E-01	1.417E-01
ANH-511	2.150E-01	8.989E-02	6.164E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-3.062E-01	5.206E-01	9.303E-01	NOT IDENT.
NA-22	2.627E-02	5.496E-02	1.061E-01	NOT IDENT.
NA-24	0.000E+00	1.262E+15	0.000E+00	SHORT HLIF

AL-26	-3.499E-02	3.497E-02	4.960E-02	NOT IDENT.
SC-46	3.010E-03	5.917E-02	1.091E-01	FAIL ABUN
V-48	-2.376E-01	2.288E-01	3.525E-01	NOT IDENT.
CR-51	-5.735E-03	7.734E-01	1.482E+00	NOT IDENT.
MN-52	1.223E+00	3.834E+00	7.628E+00	NOT IDENT.
MN-54	4.203E-03	5.633E-02	9.259E-02	NOT IDENT.
CO-56	3.581E-02	5.939E-02	1.171E-01	FAIL ABUN
MN-56	0.000E+00	1.652E+41	0.000E+00	SHORT HLIF
CO-57	-5.626E-03	3.968E-02	7.162E-02	NOT IDENT.
CO-58	1.754E-03	6.484E-02	1.072E-01	NOT IDENT.
FE-59	-1.385E-01	1.317E-01	2.201E-01	NOT IDENT.
CO-60	-1.226E-02	5.158E-02	9.292E-02	NOT IDENT.
ZN-65	2.201E-02	1.146E-01	2.032E-01	NOT IDENT.
GE-68	7.621E-02	1.850E+00	3.186E+00	NOT IDENT.
AS-73	1.017E+00	1.538E+00	3.049E+00	NOT IDENT.
AS-74	1.133E-01	2.290E-01	4.524E-01	NOT IDENT.
SE-75	6.205E-02	7.470E-02	1.299E-01	NOT IDENT.
BR-77	0.000E+00	6.765E+03	0.000E+00	SHORT HLIF
SR-82	2.183E-02	6.204E-01	1.165E+00	NOT IDENT.
RB-83	1.338E-01	1.554E-01	1.957E-01	FAIL ABUN
RB-84	-7.290E-02	1.466E-01	2.169E-01	NOT IDENT.
KR-85	6.067E+00	9.056E+00	1.657E+01	NOT IDENT.
SR-85	3.905E-02	5.855E-02	1.071E-01	NOT IDENT.
RB-86	3.550E-01	2.211E+00	3.887E+00	NOT IDENT.
Y-88	4.141E-02	5.854E-02	1.295E-01	NOT IDENT.
Y-91	6.862E+00	3.206E+01	6.271E+01	NOT IDENT.
NB-94	1.695E-02	4.350E-02	8.420E-02	NOT IDENT.
NB-95	1.744E-01	8.705E-02	1.807E-01	NOT IDENT.
NB-95M	2.217E-03	2.816E-01	4.496E-01	NOT IDENT.
ZR-95	-4.110E-02	1.142E-01	2.012E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.668E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.835E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.185E+39	0.000E+00	SHORT HLIF
RH-101	-3.900E-02	4.552E-02	7.876E-02	NOT IDENT.
RH-102	2.620E-02	6.352E-02	1.251E-01	FAIL ABUN
RU-103	-6.728E-03	6.924E-02	1.285E-01	FAIL ABUN
RH-106	1.233E-01	3.787E-01	7.375E-01	NOT IDENT.
RU-106	1.233E-01	3.787E-01	7.375E-01	NOT IDENT.
AG-108M	-1.759E-02	3.935E-02	7.167E-02	NOT IDENT.
AG-110	-4.570E-01	8.285E-01	1.451E+00	NOT IDENT.
AG-110M	1.096E-02	6.808E-02	1.272E-01	FAIL ABUN
SN-113	-1.631E-02	6.949E-02	1.293E-01	NOT IDENT.
CD-115	0.000E+00	4.499E+03	0.000E+00	SHORT HLIF
SB-122	0.000E+00	3.018E+02	0.000E+00	SHORT HLIF
SB-124	-5.905E-02	1.145E-01	2.034E-01	NOT IDENT.
SB-125	6.374E-02	1.315E-01	2.562E-01	FAIL ABUN
TE-125M	1.186E+00	1.662E+01	3.062E+01	NOT IDENT.
SB-126	6.004E-01	4.861E-01	9.414E-01	FAIL ABUN
SB-127	-5.057E+01	5.102E+01	8.348E+01	NOT IDENT.
I-131	-7.005E-01	8.033E-01	1.431E+00	FAIL ABUN
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.749E+01	0.000E+00	SHORT HLIF
BA-133	1.394E-02	6.192E-02	1.085E-01	NOT IDENT.
I-133	0.000E+00	2.551E+10	0.000E+00	SHORT HLIF
CS-134	-2.746E-05	5.150E-02	9.480E-02	FAIL ABUN
I-135	0.000E+00	3.797E+36	0.000E+00	SHORT HLIF
CS-136	1.474E-01	4.034E-01	7.308E-01	NOT IDENT.
BA-137M	3.678E-03	4.449E-02	7.555E-02	NOT IDENT.
CS-137	3.885E-03	4.700E-02	7.981E-02	NOT IDENT.
LA-138	8.181E-02	7.894E-02	1.735E-01	NOT IDENT.
CE-139	-5.749E-02	5.095E-02	8.499E-02	NOT IDENT.
BA-140	5.869E-02	9.698E-01	1.829E+00	NOT IDENT.
LA-140	-8.421E-02	3.927E-01	7.210E-01	FAIL ABUN
CE-141	1.126E-01	2.428E-01	2.428E-01	FAIL ABUN
CE-143	0.000E+00	3.585E+06	0.000E+00	SHORT HLIF
CE-144	1.943E-02	3.079E-01	5.585E-01	FAIL ABUN
PM-144	-1.620E-02	4.486E-02	7.953E-02	NOT IDENT.
PR-144	-1.224E+00	3.390E+00	6.011E+00	NOT IDENT.
PM-146	5.806E-02	8.155E-02	1.174E-01	FAIL ABUN
ND-147	8.960E-01	2.057E+00	4.097E+00	FAIL ABUN
PM-147	1.681E+02	1.109E+03	2.034E+03	NOT IDENT.
PM-149	0.000E+00	5.317E+04	0.000E+00	SHORT HLIF
EU-150	1.059E-03	4.002E-02	7.601E-02	FAIL ABUN
EU-152	-9.856E-02	1.404E-01	2.545E-01	FAIL ABUN
GD-153	0.000E+00	2.519E-01	2.278E-01	FAIL ABUN
EU-154	7.371E-02	1.542E-01	2.977E-01	NOT IDENT.
EU-155	3.889E-02	1.460E-01	2.721E-01	FAIL ABUN

TB-160	2.691E-01	4.611E-01	3.617E-01	FAIL ABUN
HO-166M	1.252E-02	7.183E-02	1.363E-01	FAIL ABUN
TM-171	1.032E+00	3.087E+01	5.517E+01	NOT IDENT.
HF-172	-2.458E-01	2.786E-01	4.818E-01	FAIL ABUN
LU-172	3.811E-02	6.819E-02	1.441E-01	FAIL ABUN
LU-176	-4.092E-03	3.626E-02	6.894E-02	FAIL ABUN
HF-181	-4.720E-02	8.754E-02	1.382E-01	NOT IDENT.
TA-182	1.899E-02	2.014E-01	4.001E-01	NOT IDENT.
RE-183	1.309E-01	3.614E-01	7.001E-01	NOT IDENT.
RE-184	1.458E-01	2.247E-01	4.470E-01	NOT IDENT.
W-188	1.447E+01	1.349E+01	2.519E+01	FAIL ABUN
IR-192	-1.735E-02	5.488E-02	1.030E-01	FAIL ABUN
HG-203	-1.270E-02	7.880E-02	1.348E-01	FAIL ABUN
TL-204	2.085E+00	7.684E+00	1.355E+01	FAIL ABUN
BI-207	3.035E-02	6.486E-02	1.215E-01	FAIL ABUN
BI-210	4.991E+00	6.120E+00	1.166E+01	NOT IDENT.
PB-210	4.991E+00	6.120E+00	1.166E+01	NOT IDENT.
PB-211	-1.994E-01	1.042E+00	1.935E+00	NOT IDENT.
BI-213	-8.902E-02	1.400E-01	2.504E-01	NOT IDENT.
RN-219	1.942E-01	5.829E-01	1.124E+00	FAIL ABUN
RA-223	4.665E-01	9.623E-01	1.725E+00	FAIL ABUN
AC-225	-2.178E+00	3.437E+00	5.784E+00	NOT IDENT.
AC-227	-6.861E-02	4.195E-01	7.200E-01	FAIL ABUN
TH-227	-6.861E-02	4.195E-01	7.200E-01	FAIL ABUN
TH-229	-2.071E-01	8.157E-01	1.418E+00	FAIL ABUN
PA-231	-2.582E-01	7.770E-01	1.304E+00	NOT IDENT.
TH-231	4.665E-01	9.623E-01	1.725E+00	FAIL ABUN
PA-233	2.540E-02	9.552E-02	1.847E-01	NOT IDENT.
PA-234	-7.220E-02	3.768E-01	6.701E-01	FAIL ABUN
NP-237	2.540E-02	9.552E-02	1.847E-01	FAIL ABUN
NP-238	0.000E+00	1.421E+04	0.000E+00	SHORT HLIF
NP-239	-1.114E-01	3.693E-01	6.639E-01	FAIL ABUN
PU-239	1.599E+01	5.043E+02	9.144E+02	NOT IDENT.
AM-241	-8.771E-03	2.401E-01	4.229E-01	NOT IDENT.
CM-243	-1.436E-02	1.425E-01	2.613E-01	FAIL ABUN
BK-247	3.681E-02	1.267E-01	2.089E-01	FAIL ABUN
CM-247	2.330E-02	5.264E-02	1.024E-01	NOT IDENT.
CF-249	5.101E-02	6.049E-02	1.200E-01	NOT IDENT.
CF-251	8.715E-02	2.005E-01	3.649E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	107	10.66*	1.227E+00	4.644E+00	4.644E+00	23.62
CD-109	88.03	254	3.70*	5.622E+00	6.943E+00	7.307E+00	33.41
SN-117M	156.02	-----	2.11	6.273E+00	-----	Line Not Found	-----
	158.56	27	86.40*	6.215E+00	2.825E-02	1.605E-01	228.13
TE-123M	159.00	27	84.00*	6.215E+00	2.906E-02	3.543E-02	228.13
I-126	388.63	32	35.60	3.478E+00	1.461E-01	9.077E-01	178.28
	666.33	52	32.90*	2.360E+00	3.796E-01	2.359E+00	45.94
	753.82	-----	4.15	2.136E+00	-----	Line Not Found	-----
SN-126	64.28	142	9.60	2.918E+00	2.882E+00	2.882E+00	68.71
	86.94	254	8.90	5.622E+00	2.886E+00	2.886E+00	33.41
	87.57	254	37.00*	5.622E+00	6.943E-01	6.943E-01	33.41
CE-141	145.44	30	48.29*	6.464E+00	5.445E-02	1.126E-01	220.06
TL-208	277.37	-----	6.60	4.410E+00	-----	Line Not Found	-----
	583.19	103	85.00*	2.608E+00	2.639E-01	2.639E-01	42.31
	860.56	-----	12.50	1.916E+00	-----	Line Not Found	-----
BI-211	72.87	63	1.23	4.287E+00	6.827E+00	6.827E+00	134.67
	351.06	2148	12.92*	3.739E+00	2.528E+01	2.528E+01	5.25
BI-212	727.33	36	6.67*	2.201E+00	1.390E+00	1.390E+00	71.03
	1620.50	-----	1.47	1.137E+00	-----	Line Not Found	-----
PB-212	74.82	439	10.28	4.451E+00	5.460E+00	5.460E+00	20.49
	77.11	774	17.10	4.709E+00	5.464E+00	5.464E+00	11.62
	238.63	340	43.60*	4.891E+00	9.062E-01	9.062E-01	19.47
	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
BI-214	609.32	1466	45.49*	2.524E+00	7.262E+00	7.262E+00	5.98
	1120.29	331	14.92	1.529E+00	8.258E+00	8.258E+00	13.94
	1764.49	256	15.30	1.079E+00	8.811E+00	8.811E+00	13.29
PB-214	74.82	439	5.80	4.451E+00	9.677E+00	9.677E+00	20.49
	77.11	774	9.70	4.709E+00	9.632E+00	9.632E+00	11.62
	87.09	254	3.41	5.622E+00	7.533E+00	7.533E+00	33.41
	242.00	656	7.25	4.845E+00	1.062E+01	1.062E+01	11.22
	295.22	1306	18.42	4.224E+00	9.545E+00	9.545E+00	6.78
	351.93	2148	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25
RN-222	609.32	1466	45.49*	2.524E+00	7.262E+00	7.262E+00	5.98
	1120.29	331	14.92	1.529E+00	8.258E+00	8.258E+00	13.94
	1764.49	256	15.30	1.079E+00	8.811E+00	8.811E+00	13.29
RA-224	240.99	656	4.10*	4.845E+00	1.877E+01	1.877E+01	11.22
RA-226	74.82	439	5.80	4.451E+00	9.677E+00	9.677E+00	20.49
	77.11	774	9.70	4.709E+00	9.632E+00	9.632E+00	11.62
	87.09	254	3.41	5.622E+00	7.533E+00	7.533E+00	33.41
	242.00	656	7.25	4.845E+00	1.062E+01	1.062E+01	11.22
	295.22	1306	18.42	4.224E+00	9.545E+00	9.545E+00	6.78
	351.93	2148	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25
AC-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	70	11.27	3.843E+00	9.196E-01	9.196E-01	53.64
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	111	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89
	968.97	49	15.80	1.733E+00	1.021E+00	1.021E+00	46.17

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
	338.32	70	11.27	3.843E+00	9.196E-01	9.196E-01	53.64
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	111	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89
TH-228	968.97	49	15.80	1.733E+00	1.021E+00	1.021E+00	46.17
	74.82	439	10.28	4.451E+00	5.460E+00	5.460E+00	20.49
	77.11	774	17.10	4.709E+00	5.464E+00	5.464E+00	11.62
	238.63	340	43.60*	4.891E+00	9.062E-01	9.062E-01	19.47
TH-230	300.09	-----	3.30	4.175E+00	-----	Line Not Found	-----
	74.82	439	5.80	4.451E+00	9.677E+00	9.677E+00	20.49
	77.11	774	9.70	4.709E+00	9.632E+00	9.632E+00	11.62
	87.09	254	3.41	5.622E+00	7.533E+00	7.533E+00	33.41
TH-232	242.00	656	7.25	4.845E+00	1.062E+01	1.062E+01	11.22
	295.22	1306	18.42	4.224E+00	9.545E+00	9.545E+00	6.78
	351.93	2148	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25
	105.21	-----	1.10	6.483E+00	-----	Line Not Found	-----
PA-234M	338.32	70	11.27	3.843E+00	9.196E-01	9.196E-01	53.64
	835.71	-----	1.61	1.963E+00	-----	Line Not Found	-----
	911.20	111	25.80*	1.826E+00	1.337E+00	1.337E+00	26.89
	968.97	49	15.80	1.733E+00	1.021E+00	1.021E+00	46.17
TH-234	766.42	150	0.32	2.105E+00	1.265E+02	1.265E+02	32.03
	1001.03	43	0.84*	1.686E+00	1.726E+01	1.726E+01	50.05
	63.29	142	3.70*	2.918E+00	7.477E+00	7.477E+00	68.71
	92.59	378	4.23	5.984E+00	8.485E+00	8.485E+00	21.59
U-234	74.82	439	5.80	4.451E+00	9.677E+00	9.677E+00	20.49
	77.11	774	9.70	4.709E+00	9.632E+00	9.632E+00	11.62
	87.09	254	3.41	5.622E+00	7.533E+00	7.533E+00	33.41
	242.00	656	7.25	4.845E+00	1.062E+01	1.062E+01	11.22
U-235	295.22	1306	18.42	4.224E+00	9.545E+00	9.545E+00	6.78
	351.93	2148	35.60*	3.739E+00	9.174E+00	9.174E+00	5.25
	89.96	98	3.47	5.816E+00	2.762E+00	2.762E+00	45.01
	93.35	378	5.60	5.984E+00	6.410E+00	6.410E+00	21.59
U-238	143.76	30	10.96*	6.464E+00	2.399E-01	2.399E-01	220.06
	163.33	-----	5.08	6.144E+00	-----	Line Not Found	-----
	185.72	594	57.20	5.735E+00	1.029E+00	1.029E+00	17.29
	205.31	32	5.01	5.410E+00	6.697E-01	6.697E-01	143.61
AM-243	63.29	142	3.70*	2.918E+00	7.477E+00	7.477E+00	68.71
	92.59	378	4.23	5.984E+00	8.485E+00	8.485E+00	21.59
	43.53	-----	5.90	4.389E-01	-----	Line Not Found	-----
	74.66	439	67.20*	4.451E+00	8.352E-01	8.352E-01	20.49
ANH-511	511.00	109	100.00*	2.871E+00	2.150E-01	2.150E-01	42.67

Flag: "*" = Keyline

Total number of lines in spectrum 76
Number of unidentified lines 27
Number of lines tentatively identified by NID 49 64.47%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	4.644E+00	4.644E+00	1.097E+00	23.62	
CD-109	461.40D	1.05	6.943E+00	7.307E+00	2.441E+00	33.41	
SN-117M	13.60D	5.68	2.825E-02	1.605E-01	3.661E-01	228.13	
TE-123M	119.20D	1.22	2.906E-02	3.543E-02	8.082E-02	228.13	
I-126	12.93D	6.21	3.796E-01	2.359E+00	1.084E+00	45.94	
SN-126	2.30E+05Y	1.00	6.943E-01	6.943E-01	2.319E-01	33.41	
CE-141	32.51D	2.07	5.445E-02	1.126E-01	2.478E-01	220.06	
TL-208	1.41E+10Y	1.00	2.639E-01	2.639E-01	1.117E-01	42.31	
BI-211	7.04E+08Y	1.00	2.528E+01	2.528E+01	0.133E+01	5.25	
BI-212	1.41E+10Y	1.00	1.390E+00	1.390E+00	0.987E+00	71.03	
PB-212	1.41E+10Y	1.00	9.062E-01	9.062E-01	1.765E-01	19.47	
BI-214	1600.00Y	1.00	7.262E+00	7.262E+00	0.434E+00	5.98	
PB-214	1600.00Y	1.00	9.174E+00	9.174E+00	0.481E+00	5.25	
RN-222	1600.00Y	1.00	7.262E+00	7.262E+00	0.434E+00	5.98	
RA-224	1.41E+10Y	1.00	1.877E+01	1.877E+01	0.211E+01	11.22	
RA-226	1600.00Y	1.00	9.174E+00	9.174E+00	0.481E+00	5.25	
AC-228	1.41E+10Y	1.00	1.337E+00	1.337E+00	0.360E+00	26.89	
RA-228	1.41E+10Y	1.00	1.337E+00	1.337E+00	0.360E+00	26.89	
TH-228	1.41E+10Y	1.00	9.062E-01	9.062E-01	1.765E-01	19.47	
TH-230	7.54E+04Y	1.00	9.174E+00	9.174E+00	0.481E+00	5.25	
TH-232	1.41E+10Y	1.00	1.337E+00	1.337E+00	0.360E+00	26.89	
PA-234M	4.47E+09Y	1.00	1.726E+01	1.726E+01	0.864E+01	50.05	
TH-234	4.47E+09Y	1.00	7.477E+00	7.477E+00	5.138E+00	68.71	
U-234	2.45E+05Y	1.00	9.174E+00	9.174E+00	0.481E+00	5.25	
U-235	7.04E+08Y	1.00	2.399E-01	2.399E-01	5.279E-01	220.06	
U-238	4.47E+09Y	1.00	7.477E+00	7.477E+00	5.138E+00	68.71	
AM-243	7370.00Y	1.00	8.352E-01	8.352E-01	1.711E-01	20.49	
ANH-511	1.00E+09Y	1.00	2.150E-01	2.150E-01	0.917E-01	42.67	
Total Activity :			1.490E+02	1.516E+02			

Grand Total Activity : 1.490E+02 1.516E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.69	70	254	1.31	99.91	97	7	1.61E-02	87.3	1.02E+00	T
2	79.06	75	443	1.15	158.61	143	19	1.79E-02	****	4.92E+00	T
0	83.69	114	420	1.03	167.86	165	7	2.72E-02	68.1	5.36E+00	T
0	98.53	69	343	1.69	197.54	194	9	1.67E-02	****	6.27E+00	T
3	269.71	89	201	1.62	539.73	532	15	2.30E-02	68.7	4.50E+00	T
3	271.36	61	158	1.33	543.03	532	15	1.58E-02	83.0	4.48E+00	T
2	328.14	54	125	1.54	656.54	651	29	1.40E-02	83.6	3.92E+00	T
0	454.87	20	58	1.01	909.90	906	8	5.48E-03	****	3.12E+00	T
0	463.86	32	130	1.48	927.88	921	14	8.58E-03	****	3.08E+00	T
0	487.70	33	77	1.33	975.53	968	12	8.92E-03	****	2.97E+00	T
0	519.50	23	46	2.75	1039.12	1035	10	6.17E-03	****	2.84E+00	T
0	559.87	10	46	1.31	1119.83	1113	8	2.73E-03	****	2.69E+00	
1	562.10	21	14	1.62	1124.29	1121	28	5.78E-03	78.1	2.68E+00	T
1	567.81	20	31	1.62	1135.70	1121	28	5.50E-03	****	2.66E+00	
1	570.31	22	35	1.63	1140.70	1121	28	5.99E-03	****	2.65E+00	T
2	719.29	19	17	1.91	1438.58	1435	26	5.14E-03	82.6	2.22E+00	T
0	785.63	56	24	2.24	1571.24	1566	12	1.57E-02	43.8	2.07E+00	
0	806.85	34	52	1.33	1613.67	1607	15	9.58E-03	97.7	2.02E+00	
0	820.33	15	34	3.43	1640.63	1634	10	4.12E-03	****	1.99E+00	
0	839.40	26	44	2.12	1678.76	1673	11	7.18E-03	****	1.96E+00	
0	854.19	16	19	1.43	1708.34	1705	7	4.47E-03	****	1.93E+00	
0	878.07	19	49	4.85	1756.09	1743	18	5.43E-03	****	1.88E+00	T
0	933.82	90	51	0.76	1867.58	1860	14	2.52E-02	39.8	1.79E+00	
0	964.29	29	26	2.45	1928.51	1923	10	8.06E-03	74.7	1.74E+00	T
0	1053.76	21	59	7.67	2107.43	2095	20	5.83E-03	****	1.61E+00	
0	1069.65	41	34	3.71	2139.22	2130	20	1.16E-02	76.2	1.59E+00	
0	1155.66	37	47	2.05	2311.22	2304	18	1.07E-02	91.5	1.49E+00	
0	1237.49	133	5	1.86	2474.89	2470	14	3.84E-02	18.7	1.40E+00	T
0	1281.50	16	25	2.15	2562.91	2556	15	4.48E-03	****	1.36E+00	
0	1340.00	12	10	4.11	2679.92	2673	11	3.36E-03	****	1.31E+00	
0	1346.36	5	16	0.57	2692.64	2683	11	1.53E-03	****	1.31E+00	
0	1366.50	7	3	0.57	2732.93	2729	6	1.94E-03	****	1.29E+00	T
0	1376.66	72	20	1.58	2753.25	2747	12	2.09E-02	33.5	1.28E+00	
0	1384.55	13	8	1.28	2769.04	2765	8	3.67E-03	98.0	1.28E+00	T
0	1400.57	32	8	1.16	2801.08	2795	12	9.22E-03	50.1	1.27E+00	
0	1406.95	48	11	1.35	2813.83	2807	15	1.38E-02	41.3	1.26E+00	T
0	1451.94	13	10	0.71	2903.82	2896	11	3.68E-03	****	1.23E+00	
0	1508.46	35	16	1.57	3016.88	3009	13	1.02E-02	56.2	1.20E+00	
0	1549.44	6	11	0.50	3098.85	3092	11	1.85E-03	****	1.17E+00	
0	1581.93	13	13	1.39	3163.86	3157	14	3.89E-03	****	1.16E+00	
0	1587.29	8	6	1.41	3174.56	3170	9	2.44E-03	****	1.15E+00	
0	1614.63	7	6	0.89	3229.27	3223	9	1.98E-03	****	1.14E+00	
0	1628.02	17	0	1.01	3256.06	3250	13	5.00E-03	47.1	1.13E+00	
0	1654.64	14	3	4.31	3309.29	3303	12	4.20E-03	68.8	1.12E+00	
0	1660.40	17	3	2.30	3320.82	3315	12	4.88E-03	70.5	1.12E+00	
0	1728.34	72	8	1.60	3456.75	3450	16	2.12E-02	28.4	1.09E+00	
0	1846.14	45	4	1.72	3692.42	3683	15	1.32E-02	34.2	1.05E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299013.CNF;1 *
* Acquisition date : 30-JUL-2024 11:19:43 Sensitivity : 3.000 *
* Detector ID : GAM28 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.14 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:55:00 Nuclide Library : SOLID *
* Sample ID : G674299013 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.3204E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 19-MAR-2024 04:24:53 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.638E-01
CD-109	1.079E+00
SN-117M	1.985E-01
TE-123M	4.388E-02
I-126	5.519E-01
SN-126	1.030E-01
TL-208	3.918E-02
BI-211	2.544E-01
BI-212	4.308E-01
PB-212	7.630E-02
BI-214	7.238E-02
PB-214	9.250E-02
RN-222	7.238E-02
RA-224	8.176E-01
RA-226	9.250E-02
AC-228	1.416E-01
RA-228	1.416E-01
TH-228	7.630E-02
TH-230	9.250E-02
TH-232	1.416E-01
PA-234M	4.666E+00
TH-234	1.720E+00
U-234	9.250E-02
U-235	2.615E-01
U-238	1.720E+00
AM-243	6.818E-02
ANH-511	2.810E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.265E-01	NOT IDENT.
NA-22	4.728E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.757E-02	NOT IDENT.

SC-46	4.903E-02	FAIL ABUN
V-48	1.564E-01	NOT IDENT.
CR-51	6.943E-01	NOT IDENT.
MN-52	3.391E+00	NOT IDENT.
MN-54	4.204E-02	NOT IDENT.
CO-56	5.314E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.429E-02	NOT IDENT.
CO-58	4.818E-02	NOT IDENT.
FE-59	9.510E-02	NOT IDENT.
CO-60	4.055E-02	NOT IDENT.
ZN-65	9.066E-02	NOT IDENT.
GE-68	1.427E+00	NOT IDENT.
AS-73	1.454E+00	NOT IDENT.
AS-74	2.068E-01	NOT IDENT.
SE-75	6.137E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.199E-01	NOT IDENT.
RB-83	8.983E-02	FAIL ABUN
RB-84	9.613E-02	NOT IDENT.
KR-85	7.654E+00	NOT IDENT.
SR-85	4.948E-02	NOT IDENT.
RB-86	1.743E+00	NOT IDENT.
Y-88	5.566E-02	NOT IDENT.
Y-91	2.827E+01	NOT IDENT.
NB-94	3.866E-02	NOT IDENT.
NB-95	8.506E-02	NOT IDENT.
NB-95M	2.155E-01	NOT IDENT.
ZR-95	9.090E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.759E-02	NOT IDENT.
RH-102	5.677E-02	FAIL ABUN
RU-103	5.890E-02	FAIL ABUN
RH-106	3.351E-01	NOT IDENT.
RU-106	3.351E-01	NOT IDENT.
AG-108M	3.316E-02	NOT IDENT.
AG-110	6.455E-01	NOT IDENT.
AG-110M	5.733E-02	FAIL ABUN
SN-113	6.036E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SB-122	0.000E+00	SHORT HLIF
SB-124	8.008E-02	NOT IDENT.
SB-125	1.199E-01	FAIL ABUN
TE-125M	1.463E+01	NOT IDENT.
SB-126	4.266E-01	FAIL ABUN
SB-127	3.750E+01	NOT IDENT.
I-131	6.657E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.082E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.282E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	3.295E-01	NOT IDENT.
BA-137M	3.411E-02	NOT IDENT.
CS-137	3.604E-02	NOT IDENT.
LA-138	7.730E-02	NOT IDENT.
CE-139	4.057E-02	NOT IDENT.
BA-140	8.411E-01	NOT IDENT.
LA-140	3.159E-01	FAIL ABUN
CE-141	1.161E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.675E-01	FAIL ABUN
PM-144	3.610E-02	NOT IDENT.
PR-144	2.729E+00	NOT IDENT.
PM-146	5.481E-02	FAIL ABUN
ND-147	1.865E+00	FAIL ABUN
PM-147	9.741E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.590E-02	FAIL ABUN
EU-152	1.194E-01	FAIL ABUN
GD-153	1.090E-01	FAIL ABUN
EU-154	1.327E-01	NOT IDENT.
EU-155	1.302E-01	FAIL ABUN
TB-160	1.619E-01	FAIL ABUN

HO-166M	6.174E-02	FAIL ABUN
TM-171	2.627E+01	NOT IDENT.
HF-172	2.299E-01	FAIL ABUN
LU-172	6.390E-02	FAIL ABUN
LU-176	3.243E-02	FAIL ABUN
HF-181	6.345E-02	NOT IDENT.
TA-182	1.753E-01	NOT IDENT.
RE-183	3.346E-01	NOT IDENT.
RE-184	2.020E-01	NOT IDENT.
W-188	1.195E+01	FAIL ABUN
IR-192	4.824E-02	FAIL ABUN
HG-203	6.376E-02	FAIL ABUN
TL-204	6.512E+00	FAIL ABUN
BI-207	5.425E-02	FAIL ABUN
BI-210	5.555E+00	NOT IDENT.
PB-210	5.555E+00	NOT IDENT.
PB-211	9.066E-01	NOT IDENT.
BI-213	1.158E-01	NOT IDENT.
RN-219	5.272E-01	FAIL ABUN
RA-223	8.126E-01	FAIL ABUN
AC-225	2.751E+00	NOT IDENT.
AC-227	3.422E-01	FAIL ABUN
TH-227	3.422E-01	FAIL ABUN
TH-229	6.773E-01	FAIL ABUN
PA-231	6.167E-01	NOT IDENT.
TH-231	8.126E-01	FAIL ABUN
PA-233	8.735E-02	NOT IDENT.
PA-234	2.986E-01	FAIL ABUN
NP-237	8.735E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.169E-01	FAIL ABUN
PU-239	4.383E+02	NOT IDENT.
AM-241	2.019E-01	NOT IDENT.
CM-243	1.247E-01	FAIL ABUN
BK-247	9.869E-02	FAIL ABUN
CM-247	4.800E-02	NOT IDENT.
CF-249	5.660E-02	NOT IDENT.
CF-251	1.747E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299013.CNF;1
Acquisition date : 30-JUL-2024 11:19:43 Sensitivity : 3.000
Detector ID : GAM28 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.14 Half life ratio : *****
Sample date : 26-JUN-2024 09:55:00 Nuclide Library : SOLID
Sample ID : G674299013 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.3204E+02 GRAM
Quantity Err(%) : 1.5147E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 19-MAR-2024 04:24:53 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM28_CAN.CNF;19

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	4.644E+00	1.164E+00	1.164E+00
CD-109	7.307E+00	2.567E+00	2.567E+00
SN-117M	1.605E-01	3.591E-01	3.591E-01
TE-123M	3.543E-02	7.928E-02	7.928E-02
I-126	2.359E+00	1.090E+00	1.090E+00
SN-126	6.943E-01	2.411E-01	2.411E-01
TL-208	2.639E-01	1.121E-01	1.121E-01
BI-211	2.528E+01	2.489E+00	2.489E+00
BI-212	1.390E+00	9.770E-01	9.770E-01
PB-212	9.062E-01	1.927E-01	1.927E-01
BI-214	7.262E+00	7.940E-01	7.940E-01
PB-214	9.174E+00	8.909E-01	8.909E-01
RN-222	7.262E+00	7.940E-01	7.940E-01
RA-224	1.877E+01	2.709E+00	2.709E+00
RA-226	9.174E+00	8.909E-01	8.909E-01
AC-228	1.337E+00	3.763E-01	3.763E-01
RA-228	1.337E+00	3.763E-01	3.763E-01
TH-228	9.062E-01	1.927E-01	1.927E-01
TH-230	9.174E+00	8.909E-01	8.909E-01
TH-232	1.337E+00	3.763E-01	3.763E-01
PA-234M	1.726E+01	8.610E+00	8.610E+00
TH-234	7.477E+00	5.340E+00	5.340E+00
U-234	9.174E+00	8.909E-01	8.909E-01
U-235	2.399E-01	5.178E-01	5.178E-01
U-238	7.477E+00	5.340E+00	5.340E+00
AM-243	8.352E-01	1.902E-01	1.902E-01
ANH-511	2.150E-01	9.187E-02	9.187E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-3.062E-01	5.213E-01	5.393E-01	NOT IDENT.
NA-22	2.627E-02	5.500E-02	5.626E-02	NOT IDENT.
NA-24	4.563E+14	1.263E+15	1.280E+15	SHORT HLIF

AL-26	-3.499E-02	3.507E-02	3.846E-02	NOT IDENT.
SC-46	3.010E-03	5.917E-02	5.919E-02	FAIL ABUN
V-48	-2.376E-01	2.299E-01	2.536E-01	NOT IDENT.
CR-51	-5.735E-03	7.734E-01	7.734E-01	NOT IDENT.
MN-52	1.223E+00	3.836E+00	3.875E+00	NOT IDENT.
MN-54	4.203E-03	5.634E-02	5.637E-02	NOT IDENT.
CO-56	3.581E-02	5.949E-02	6.164E-02	FAIL ABUN
MN-56	1.000E+41	1.655E+41	0.000E+00	SHORT HLIF
CO-57	-5.626E-03	3.969E-02	3.977E-02	NOT IDENT.
CO-58	1.754E-03	6.485E-02	6.485E-02	NOT IDENT.
FE-59	-1.385E-01	1.325E-01	1.465E-01	NOT IDENT.
CO-60	-1.226E-02	5.160E-02	5.189E-02	NOT IDENT.
ZN-65	2.201E-02	1.146E-01	1.150E-01	NOT IDENT.
GE-68	7.621E-02	1.850E+00	1.850E+00	NOT IDENT.
AS-73	1.017E+00	1.555E+00	1.621E+00	NOT IDENT.
AS-74	1.133E-01	2.293E-01	2.350E-01	NOT IDENT.
SE-75	6.205E-02	7.489E-02	7.994E-02	NOT IDENT.
BR-77	3.545E+04	3.567E+04	3.908E+04	SHORT HLIF
SR-82	2.183E-02	6.205E-01	6.205E-01	NOT IDENT.
RB-83	1.338E-01	1.568E-01	1.680E-01	FAIL ABUN
RB-84	-7.290E-02	1.468E-01	1.504E-01	NOT IDENT.
KR-85	6.067E+00	9.072E+00	9.475E+00	NOT IDENT.
SR-85	3.905E-02	5.866E-02	6.124E-02	NOT IDENT.
RB-86	3.550E-01	2.211E+00	2.217E+00	NOT IDENT.
Y-88	4.141E-02	5.862E-02	6.152E-02	NOT IDENT.
Y-91	6.862E+00	3.207E+01	3.222E+01	NOT IDENT.
NB-94	1.695E-02	4.353E-02	4.420E-02	NOT IDENT.
NB-95	1.744E-01	8.861E-02	1.185E-01	NOT IDENT.
NB-95M	2.217E-03	2.816E-01	2.816E-01	NOT IDENT.
ZR-95	-4.110E-02	1.142E-01	1.157E-01	NOT IDENT.
NB-97	-1.000E+41	2.148E+41	0.000E+00	SHORT HLIF
ZR-97	5.270E+13	2.669E+14	2.679E+14	SHORT HLIF
MO-99	-7.247E+02	1.837E+03	1.866E+03	SHORT HLIF
TC-99M	3.285E+38	3.185E+39	0.000E+00	SHORT HLIF
RH-101	-3.900E-02	4.611E-02	4.935E-02	NOT IDENT.
RH-102	2.620E-02	6.359E-02	6.468E-02	FAIL ABUN
RU-103	-6.728E-03	6.924E-02	6.931E-02	FAIL ABUN
RH-106	1.233E-01	3.789E-01	3.829E-01	NOT IDENT.
RU-106	1.233E-01	3.789E-01	3.829E-01	NOT IDENT.
AG-108M	-1.759E-02	3.938E-02	4.017E-02	NOT IDENT.
AG-110	-4.570E-01	8.296E-01	8.548E-01	NOT IDENT.
AG-110M	1.096E-02	6.809E-02	6.827E-02	FAIL ABUN
SN-113	-1.631E-02	6.950E-02	6.989E-02	NOT IDENT.
CD-115	8.529E+02	4.500E+03	4.516E+03	SHORT HLIF
SB-122	9.959E+01	3.019E+02	3.052E+02	SHORT HLIF
SB-124	-5.905E-02	1.146E-01	1.176E-01	NOT IDENT.
SB-125	6.374E-02	1.316E-01	1.347E-01	FAIL ABUN
TE-125M	1.186E+00	1.662E+01	1.663E+01	NOT IDENT.
SB-126	6.004E-01	4.923E-01	5.618E-01	FAIL ABUN
SB-127	-5.057E+01	5.185E+01	5.664E+01	NOT IDENT.
I-131	-7.005E-01	8.054E-01	8.651E-01	FAIL ABUN
I-132	1.000E+41	1.854E+42	0.000E+00	SHORT HLIF
TE-132	1.119E+01	6.750E+01	6.769E+01	SHORT HLIF
BA-133	1.394E-02	6.193E-02	6.225E-02	NOT IDENT.
I-133	5.041E+09	2.554E+10	2.564E+10	SHORT HLIF
CS-134	-2.746E-05	5.150E-02	5.150E-02	FAIL ABUN
I-135	3.303E+35	3.806E+36	0.000E+00	SHORT HLIF
CS-136	1.474E-01	4.037E-01	4.092E-01	NOT IDENT.
BA-137M	3.678E-03	4.449E-02	4.452E-02	NOT IDENT.
CS-137	3.885E-03	4.700E-02	4.704E-02	NOT IDENT.
LA-138	8.181E-02	7.928E-02	8.744E-02	NOT IDENT.
CE-139	-5.749E-02	5.248E-02	5.853E-02	NOT IDENT.
BA-140	5.869E-02	9.698E-01	9.702E-01	NOT IDENT.
LA-140	-8.421E-02	3.927E-01	3.946E-01	FAIL ABUN
CE-141	1.126E-01	2.430E-01	2.483E-01	FAIL ABUN
CE-143	1.049E+07	3.693E+06	5.999E+06	SHORT HLIF
CE-144	1.943E-02	3.079E-01	3.080E-01	FAIL ABUN
PM-144	-1.620E-02	4.488E-02	4.547E-02	NOT IDENT.
PR-144	-1.224E+00	3.392E+00	3.437E+00	NOT IDENT.
PM-146	5.806E-02	8.177E-02	8.586E-02	FAIL ABUN
ND-147	8.960E-01	2.059E+00	2.098E+00	FAIL ABUN
PM-147	1.681E+02	1.109E+03	1.112E+03	NOT IDENT.
PM-149	-8.645E+03	5.318E+04	5.333E+04	SHORT HLIF
EU-150	1.059E-03	4.002E-02	4.003E-02	FAIL ABUN
EU-152	-9.856E-02	1.407E-01	1.476E-01	FAIL ABUN
GD-153	2.390E-01	2.530E-01	2.750E-01	FAIL ABUN
EU-154	7.371E-02	1.544E-01	1.579E-01	NOT IDENT.
EU-155	3.889E-02	1.460E-01	1.471E-01	FAIL ABUN

TB-160	2.691E-01	4.619E-01	4.776E-01	FAIL ABUN
HO-166M	1.252E-02	7.184E-02	7.206E-02	FAIL ABUN
TM-171	1.032E+00	3.087E+01	3.088E+01	NOT IDENT.
HF-172	-2.458E-01	2.818E-01	3.028E-01	FAIL ABUN
LU-172	3.811E-02	6.835E-02	7.048E-02	FAIL ABUN
LU-176	-4.092E-03	3.626E-02	3.631E-02	FAIL ABUN
HF-181	-4.720E-02	8.764E-02	9.018E-02	NOT IDENT.
TA-182	1.899E-02	2.014E-01	2.016E-01	NOT IDENT.
RE-183	1.309E-01	3.618E-01	3.666E-01	NOT IDENT.
RE-184	1.458E-01	2.253E-01	2.347E-01	NOT IDENT.
W-188	1.447E+01	1.363E+01	1.511E+01	FAIL ABUN
IR-192	-1.735E-02	5.490E-02	5.545E-02	FAIL ABUN
HG-203	-1.270E-02	7.880E-02	7.901E-02	FAIL ABUN
TL-204	2.085E+00	7.688E+00	7.746E+00	FAIL ABUN
BI-207	3.035E-02	6.491E-02	6.634E-02	FAIL ABUN
BI-210	4.991E+00	6.140E+00	6.539E+00	NOT IDENT.
PB-210	4.991E+00	6.140E+00	6.539E+00	NOT IDENT.
PB-211	-1.994E-01	1.043E+00	1.046E+00	NOT IDENT.
BI-213	-8.902E-02	1.402E-01	1.459E-01	NOT IDENT.
RN-219	1.942E-01	5.836E-01	5.901E-01	FAIL ABUN
RA-223	4.665E-01	9.633E-01	9.860E-01	FAIL ABUN
AC-225	-2.178E+00	3.447E+00	3.584E+00	NOT IDENT.
AC-227	-6.861E-02	4.196E-01	4.208E-01	FAIL ABUN
TH-227	-6.861E-02	4.196E-01	4.208E-01	FAIL ABUN
TH-229	-2.071E-01	8.159E-01	8.213E-01	FAIL ABUN
PA-231	-2.582E-01	7.791E-01	7.878E-01	NOT IDENT.
TH-231	4.665E-01	9.633E-01	9.860E-01	FAIL ABUN
PA-233	2.540E-02	9.554E-02	9.622E-02	NOT IDENT.
PA-234	-7.220E-02	3.858E-01	3.871E-01	FAIL ABUN
NP-237	2.540E-02	9.554E-02	9.622E-02	FAIL ABUN
NP-238	-6.443E+03	1.422E+04	1.452E+04	SHORT HLIF
NP-239	-1.114E-01	3.695E-01	3.729E-01	FAIL ABUN
PU-239	1.599E+01	5.043E+02	5.044E+02	NOT IDENT.
AM-241	-8.771E-03	2.401E-01	2.401E-01	NOT IDENT.
CM-243	-1.436E-02	1.425E-01	1.427E-01	FAIL ABUN
BK-247	3.681E-02	1.269E-01	1.280E-01	FAIL ABUN
CM-247	2.330E-02	5.281E-02	5.385E-02	NOT IDENT.
CF-249	5.101E-02	6.074E-02	6.495E-02	NOT IDENT.
CF-251	8.715E-02	2.008E-01	2.046E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	107.8496	85.43	188.7101	131.20	174.8214
45.60	136.5321	86.55	241.2319	133.02	179.4615
46.54	100.6365	86.79	241.3445	133.52	168.1071
49.72	0.0000	86.94	241.4169	136.00	154.0409
51.35	128.1226	87.09	241.4875	136.47	162.5352
51.87	125.9300	87.57	241.7126	140.51	0.0000
52.39	132.0575	88.03	241.9281	143.76	181.1656
52.97	119.1579	88.34	213.0243	144.24	181.2857
53.44	120.8009	88.47	213.0780	145.44	185.4794
54.07	145.2057	89.96	218.8693	152.43	199.3875
57.36	0.0000	1093.63	219.1530	153.25	196.3866
57.53	147.4309	91.11	219.3489	323.87	183.7410
57.98	143.0724	92.59	219.9610	156.02	212.5392
59.27	157.4708	93.35	220.2721	158.56	186.9485
59.32	157.4906	94.56	182.2310	159.00	187.0541
59.54	150.3045	94.65	182.2608	162.33	182.4247
60.96	147.1875	94.67	182.2679	162.66	171.6384
61.17	147.2638	94.87	182.3360	163.33	173.9575
62.93	175.0934	97.43	145.7632	165.86	188.6934
63.29	175.2457	98.43	135.1729	176.31	161.2960
63.58	175.3685	98.44	135.1761	176.60	156.9311
64.28	175.6625	99.53	135.4395	177.52	147.1451
66.73	178.8383	100.11	138.5484	181.07	0.0000
67.24	197.5716	102.03	149.6103	181.52	137.8406
125.81	207.6621	103.18	149.2481	184.41	172.5108
67.75	207.6946	103.37	149.2973	143.76	145.2185
68.89	179.4194	105.21	151.7704	193.51	157.7820
69.67	199.9169	105.31	151.7959	197.03	158.4015
70.82	194.2081	106.12	160.0073	198.01	177.8300
70.83	194.2129	106.47	160.1025	201.83	142.5567
72.81	211.9491	109.28	151.8156	203.43	159.5166
72.87	211.9767	111.00	165.3588	205.31	127.8713
74.66	212.8061	111.76	0.0000	210.85	153.8947
74.82	212.8785	114.06	180.3779	215.65	125.8134
74.97	212.9475	116.30	0.0000	218.12	146.9639
77.11	213.9234	116.74	156.7329	222.11	139.4312
78.74	214.6579	119.76	164.6432	227.09	114.4415
79.69	223.3301	121.12	164.9945	227.38	113.3078
80.03	223.4841	121.22	165.0203	228.16	0.0000
80.12	213.3684	121.78	171.3192	228.18	126.2576
80.19	213.3992	122.06	173.4457	116.74	126.2576
80.57	230.7283	122.92	182.9269	235.69	177.4430
81.00	230.9314	123.07	188.1086	235.96	155.4992
81.07	213.7854	265.00	159.4760	238.63	141.7291
81.75	189.2339	125.81	177.5443	238.98	0.0000
82.47	224.6066	127.23	175.8559	240.99	142.0514
83.79	212.4072	127.91	149.1136	242.00	142.1887
84.00	212.4950	129.30	175.3643	244.70	110.8746

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	114.8672	344.28	95.4877	563.25	27.9781
252.80	122.0915	345.93	68.4724	564.24	0.0000
254.15	0.0000	351.06	82.1296	569.33	28.0640
256.23	128.4821	351.93	82.1818	946.00	28.0663
260.90	0.0000	355.39	0.0000	569.70	28.0686
264.66	74.2109	356.01	67.6740	583.19	41.6411
264.80	74.2203	364.49	78.5559	584.27	41.6633
265.00	88.7573	366.42	0.0000	595.83	29.9268
269.46	99.6397	372.51	59.6868	427.87	35.9941
270.03	99.6898	375.05	70.3434	602.52	0.0000
271.23	99.7949	377.52	71.3430	604.72	45.0824
273.65	91.0638	356.01	81.7354	607.14	48.1426
276.40	101.4678	388.16	71.8588	609.32	38.1531
277.37	92.9891	388.63	71.8819	610.33	38.1701
277.60	91.7839	391.69	72.0286	614.28	40.7571
278.00	102.8313	264.66	62.6172	618.01	33.2686
279.20	106.6154	401.81	68.9306	620.36	33.3048
279.54	115.2280	402.40	65.3750	621.93	28.2791
279.70	115.2424	404.85	78.0384	630.19	0.0000
280.46	111.6366	410.95	67.5400	631.29	26.3735
283.69	99.6432	413.71	66.7569	633.25	32.4883
284.31	100.9260	414.70	76.7286	634.78	24.3838
285.41	102.2530	423.72	72.6286	635.95	39.6443
285.90	0.0000	427.09	55.4960	636.99	34.5783
287.50	85.1550	427.87	60.0743	657.50	29.7670
290.67	84.1450	433.94	60.2999	657.76	29.7705
293.27	0.0000	439.40	66.0029	657.90	0.0000
351.93	95.6414	440.45	63.2935	661.66	27.7657
295.96	95.7001	453.88	59.6460	664.57	0.0000
879.38	104.6232	463.37	54.8660	666.33	26.2772
299.98	96.0150	468.07	50.3547	666.50	26.2792
300.09	96.0221	473.00	48.6283	667.71	0.0000
300.13	96.0268	475.06	52.4305	677.62	30.0325
301.36	108.6066	476.78	48.7341	685.70	42.6082
302.85	94.9884	477.60	51.5692	692.65	0.0000
256.23	80.9320	482.18	53.5848	695.00	39.6483
304.85	80.9537	487.02	45.2480	696.49	38.6290
306.78	86.9312	492.35	0.0000	696.51	38.6290
308.46	85.3735	497.08	41.7110	697.00	34.4609
311.90	94.0010	505.52	35.7147	697.30	35.5094
316.51	80.8652	507.63	0.0000	697.49	31.3342
319.41	78.5142	511.00	35.8219	702.65	31.4026
320.08	74.3324	514.00	35.8795	706.68	31.4563
321.04	71.8519	514.00	35.8795	711.68	28.3700
323.87	76.2451	520.40	38.8834	720.70	22.1484
325.23	75.0518	520.69	0.0000	721.93	0.0000
328.76	95.2383	522.65	0.0000	722.78	22.1681
333.37	95.5710	527.90	0.0000	722.91	22.1689
333.97	95.6143	528.26	32.7798	723.31	22.1724
334.37	95.6416	529.59	35.6977	724.19	22.1809
338.28	95.9219	529.87	0.0000	727.33	22.2091
338.32	95.9241	531.02	28.0005	733.00	24.1693
311.90	66.9122	537.26	42.6232	735.93	28.6556
340.48	66.9122	546.56	0.0000	333.97	35.0450
340.55	66.9154	552.55	38.0796	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	23.4278	949.00	20.6565	1384.29	13.6257
747.24	29.8537	667.71	0.0000	1408.01	7.8306
748.06	23.4636	962.31	19.0184	1434.09	17.7286
752.31	30.9824	964.08	29.4086	1435.80	10.8382
753.82	23.5182	966.17	0.0000	1457.56	0.0000
756.73	35.3176	911.20	13.8618	1460.82	12.8842
756.80	35.3190	983.53	37.1393	1489.16	21.9463
884.68	25.7598	984.45	0.0000	1505.03	16.0195
765.81	40.8157	1274.44	17.4799	1584.12	0.0000
766.42	40.8265	1001.03	24.5094	1596.21	19.4094
766.84	40.8327	1002.74	15.4140	1620.50	8.2153
772.60	0.0000	1004.73	19.6308	1621.92	6.5742
776.52	22.6509	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	8.3369
778.90	32.3889	1028.54	0.0000	1750.46	0.0000
783.70	32.4487	1037.84	23.9084	1764.49	11.8460
788.74	32.5122	1038.76	0.0000	1063.66	6.0509
792.07	24.9578	631.29	21.3091	1771.35	5.2954
795.86	29.3412	1048.07	22.7391	1791.20	0.0000
810.06	24.5837	1049.04	25.5902	1808.65	8.5352
810.29	21.3075	1050.41	24.0007	1810.72	0.0000
344.28	21.3083	1063.66	17.1352	1836.06	6.4351
810.76	26.2295	1077.00	22.9391		
815.77	22.9935	1077.34	24.3761		
1048.07	29.5939	1085.87	23.3594		
832.01	33.0469	1093.63	14.4082		
834.85	31.4282	1099.45	26.1591		
835.71	21.5098	1112.07	26.0754		
836.80	0.0000	1112.84	21.7339		
846.75	0.0000	1115.54	20.3014		
846.77	23.2584	1120.29	25.4109		
856.80	53.3555	1120.55	25.4126		
860.56	34.5054	1221.41	25.4194		
871.09	30.1663	1129.67	31.8512		
873.19	20.1262	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	21.8510	1173.23	16.5839		
880.51	25.2228	1177.95	22.1396		
881.60	28.5972	1189.05	17.5817		
883.24	24.2367	1204.77	25.0917		
884.68	25.8207	1221.41	15.8701		
889.28	25.8628	1231.02	18.1846		
894.76	28.1657	1235.36	19.4911		
898.04	18.0462	1238.28	17.8183		
900.72	29.3526	1260.41	0.0000		
903.28	20.3394	1271.87	25.5449		
911.20	24.9264	1274.44	16.4108		
912.08	32.3014	1274.54	16.4108		
923.98	0.0000	1291.59	13.3138		
926.50	38.7245	1298.22	0.0000		
929.11	27.3594	1312.11	12.4271		
935.54	18.8499	1332.49	18.6685		
937.49	24.0070	1362.66	0.0000		
944.13	18.3314	1365.19	9.6875		
946.00	25.2218	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:24:37.20

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29407                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299014.CNF;1
Background file  : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM30.CNF;699
Background date  : 28-JUL-2024 11:30:33
Sample date     : 26-JUN-2024 10:00:00 Acquisition date : 30-JUL-2024 11:20:20
Sample ID      : G674299014 Sample quantity : 7.77900E+01 GRAM
Detector name   : GAM30 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.20 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.41*	13	36	1.14	127.09	123	8	3.52E-03	101.6	
2	0	66.93	15	31	1.29	134.14	130	7	4.21E-03	63.3	
3	1	75.00	39	90	1.46	150.27	144	19	1.08E-02	45.6	1.53E+00
4	1	77.35*	51	68	1.47	154.98	144	19	1.43E-02	35.5	
5	0	92.96*	39	73	1.56	186.19	181	14	1.08E-02	55.9	
6	0	186.24*	2	69	1.65	372.74	366	12	6.21E-04	811.3	
7	1	238.34*	50	45	1.62	476.95	471	18	1.39E-02	31.5	1.25E+00
8	1	241.88	30	45	1.66	484.03	471	18	8.34E-03	47.2	
9	0	294.89	49	25	2.12	590.04	585	12	1.37E-02	24.6	
10	0	338.34	44	19	5.31	676.95	669	16	1.23E-02	26.9	
11	0	346.82	4	19	1.15	693.90	687	9	1.15E-03	191.9	
12	1	351.94*	88	23	1.73	704.14	697	28	2.45E-02	14.9	1.11E+00
13	1	360.87	13	12	1.59	722.00	697	28	3.74E-03	47.1	
14	0	433.44	21	13	3.90	867.14	862	13	5.83E-03	41.6	
15	0	491.71	14	8	0.88	983.67	978	11	3.78E-03	49.1	
16	0	511.21*	23	22	2.31	1022.67	1014	22	6.46E-03	70.5	
17	0	553.17	11	20	6.35	1106.59	1096	16	3.04E-03	96.3	
18	3	566.10	11	3	2.28	1132.45	1131	12	3.10E-03	28.3	1.22E+00
19	3	569.86*	12	2	1.87	1139.96	1131	12	3.26E-03	48.6	
20	0	583.43*	8	12	0.75	1167.10	1163	9	2.34E-03	89.2	
21	0	609.44*	37	20	1.65	1219.12	1214	13	1.03E-02	32.3	
22	0	661.48*	9	2	1.13	1323.19	1320	7	2.40E-03	52.9	
23	0	964.82	7	6	1.12	1929.84	1923	9	1.88E-03	78.4	
24	0	968.17*	19	0	3.20	1936.55	1932	10	5.30E-03	24.3	
25	0	998.81	9	7	1.91	1997.82	1988	13	2.57E-03	65.9	
26	0	1270.41	6	0	0.67	2541.00	2537	8	1.67E-03	40.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299014.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 10:00:00	Acquisition date	: 30-JUL-2024 11:20:20
Sample ID	: G674299014	Sample quantity	: 77.790 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA30	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.20 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BA-137M	661.66	8	89.90*	2.462E+00	3.398E-02	3.405E-02	105.84
CS-137	661.66	8	85.10*	2.462E+00	3.590E-02	3.598E-02	105.84
TL-208	277.37	-----	6.60	4.727E+00	-----	Line Not Found	-----
	583.19	8	85.00*	2.735E+00	3.145E-02	3.145E-02	178.34
	860.56	-----	12.50	1.946E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.708E+00	-----	Line Not Found	-----
	351.06	78	12.92*	4.004E+00	1.456E+00	1.456E+00	29.84
PB-212	74.82	33	10.28	4.970E+00	6.224E-01	6.224E-01	91.12
	77.11	44	17.10	5.238E+00	4.709E-01	4.709E-01	71.09
	238.63	44	43.60*	5.234E+00	1.857E-01	1.857E-01	63.10
	300.09	-----	3.30	4.478E+00	-----	Line Not Found	-----
PB-214	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.303E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.760E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
RA-224	240.99	26	4.10*	5.184E+00	1.195E+00	1.195E+00	94.32
RA-226	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.303E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.760E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
TH-228	74.82	33	10.28	4.970E+00	6.224E-01	6.224E-01	91.12
	77.11	44	17.10	5.238E+00	4.709E-01	4.709E-01	71.09
	238.63	44	43.60*	5.234E+00	1.857E-01	1.857E-01	63.10
	300.09	-----	3.30	4.478E+00	-----	Line Not Found	-----
TH-230	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.302E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.759E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
TH-234	63.29	11	3.70*	3.361E+00	8.290E-01	8.290E-01	203.14
	92.59	33	4.23	6.489E+00	1.171E+00	1.171E+00	111.78
U-234	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.302E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.759E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
U-238	63.29	11	3.70*	3.361E+00	8.290E-01	8.290E-01	203.14
	92.59	33	4.23	6.489E+00	1.171E+00	1.171E+00	111.78
AM-243	43.53	-----	5.90	5.764E-01	-----	Line Not Found	-----
	74.66	33	67.20*	4.970E+00	9.521E-02	9.521E-02	91.12
ANH-511	511.00	21	100.00*	3.038E+00	6.613E-02	6.613E-02	141.00

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299014.CNF;1
Acquisition date : 30-JUL-2024 11:20:20 Sensitivity : 3.000
Detector ID : GAM30 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.20 Half life ratio : *****
Sample date : 26-JUN-2024 10:00:00 Analyst initials: RXF2
Sample ID : G674299014 Sample Quantity : 7.7790E+01 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 21-MAY-2024 06:33:04 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM30_CAN.CNF;18

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
BA-137M	3.405E-02	3.532E-02	8.392E-02
CS-137	3.598E-02	3.731E-02	8.865E-02
TL-208	3.145E-02	5.497E-02	8.391E-02
BI-211	1.456E+00	4.258E-01	4.167E-01
PB-212	1.857E-01	1.148E-01	1.175E-01
PB-214	5.285E-01	1.545E-01	1.515E-01
RA-224	1.195E+00	1.105E+00	1.258E+00
RA-226	5.285E-01	1.545E-01	1.515E-01
TH-228	1.857E-01	1.148E-01	1.175E-01
TH-230	5.285E-01	1.545E-01	1.515E-01
TH-234	8.290E-01	1.650E+00	2.028E+00
U-234	5.285E-01	1.545E-01	1.515E-01
U-238	8.290E-01	1.650E+00	2.028E+00
AM-243	9.521E-02	8.502E-02	9.239E-02
ANH-511	6.613E-02	9.137E-02	4.882E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.074E-01	3.320E-01	5.414E-01	NOT IDENT.
NA-22	-2.976E-02	3.556E-02	5.310E-02	NOT IDENT.
NA-24	0.000E+00	9.585E+14	0.000E+00	SHORT HLIF
AL-26	-1.658E-02	4.086E-02	7.632E-02	NOT IDENT.
K-40	5.596E-01	6.987E-01	1.621E+00	NOT IDENT.
SC-46	4.068E-02	3.255E-02	9.371E-02	NOT IDENT.
V-48	5.910E-02	1.657E-01	3.671E-01	NOT IDENT.
CR-51	1.558E-01	6.367E-01	1.209E+00	NOT IDENT.
MN-52	1.337E-01	2.245E+00	5.217E+00	NOT IDENT.
MN-54	3.026E-03	4.152E-02	8.451E-02	NOT IDENT.
CO-56	-1.304E-02	4.565E-02	8.822E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.911E-02	2.526E-02	4.210E-02	NOT IDENT.
CO-58	1.569E-03	3.884E-02	8.343E-02	NOT IDENT.
FE-59	2.991E-02	1.126E-01	2.514E-01	NOT IDENT.

CO-60	-2.356E-02	4.491E-02	7.973E-02	NOT IDENT.
ZN-65	-2.363E-02	9.321E-02	1.796E-01	NOT IDENT.
GE-68	3.376E-01	1.242E+00	2.780E+00	NOT IDENT.
AS-73	6.748E-01	1.069E+00	2.077E+00	NOT IDENT.
AS-74	1.978E-01	2.795E-01	5.560E-01	NOT IDENT.
SE-75	4.337E-02	5.402E-02	1.082E-01	NOT IDENT.
BR-77	0.000E+00	4.488E+03	0.000E+00	SHORT HLIF
SR-82	2.497E-01	6.178E-01	1.327E+00	NOT IDENT.
RB-83	-9.804E-02	1.079E-01	1.497E-01	FAIL ABUN
RB-84	7.161E-02	1.025E-01	2.408E-01	NOT IDENT.
KR-85	1.348E+01	8.572E+00	1.910E+01	NOT IDENT.
SR-85	8.691E-02	5.540E-02	1.234E-01	NOT IDENT.
RB-86	6.717E-01	1.433E+00	3.388E+00	NOT IDENT.
Y-88	-2.390E-03	4.804E-02	1.066E-01	NOT IDENT.
Y-91	1.172E+01	2.543E+01	5.773E+01	NOT IDENT.
NB-94	8.181E-03	3.014E-02	6.497E-02	NOT IDENT.
NB-95	-2.783E-02	6.126E-02	1.111E-01	NOT IDENT.
NB-95M	9.083E-02	1.779E-01	3.087E-01	NOT IDENT.
ZR-95	-1.688E-02	9.145E-02	1.785E-01	NOT IDENT.
NB-97	0.000E+00	1.187E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.572E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.469E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.989E+39	0.000E+00	SHORT HLIF
RH-101	-1.700E-03	3.212E-02	5.792E-02	NOT IDENT.
RH-102	-5.484E-02	4.899E-02	7.525E-02	NOT IDENT.
RU-103	-4.511E-02	6.750E-02	1.007E-01	FAIL ABUN
RH-106	2.991E-01	4.298E-01	8.750E-01	NOT IDENT.
RU-106	2.991E-01	4.298E-01	8.750E-01	NOT IDENT.
AG-108M	5.794E-02	4.722E-02	7.044E-02	FAIL ABUN
CD-109	-3.218E-01	9.371E-01	1.451E+00	NOT IDENT.
AG-110	1.066E-01	9.324E-01	1.689E+00	NOT IDENT.
AG-110M	-1.034E-02	4.184E-02	8.443E-02	NOT IDENT.
SN-113	-1.610E-02	5.862E-02	1.024E-01	NOT IDENT.
CD-115	0.000E+00	4.463E+03	0.000E+00	SHORT HLIF
SN-117M	4.812E-02	1.466E-01	2.749E-01	NOT IDENT.
SB-122	0.000E+00	2.731E+02	0.000E+00	SHORT HLIF
TE-123M	1.070E-02	3.293E-02	6.159E-02	NOT IDENT.
SB-124	-2.985E-02	5.851E-02	7.378E-02	NOT IDENT.
SB-125	1.182E-02	1.098E-01	1.961E-01	NOT IDENT.
TE-125M	5.960E+00	1.206E+01	2.299E+01	NOT IDENT.
I-126	1.089E-01	7.240E-01	1.375E+00	NOT IDENT.
SB-126	-1.634E-01	3.891E-01	7.283E-01	NOT IDENT.
SN-126	-2.755E-02	8.345E-02	1.384E-01	FAIL ABUN
SB-127	-1.037E+01	3.819E+01	7.383E+01	NOT IDENT.
I-131	4.597E-01	6.850E-01	1.290E+00	NOT IDENT.
I-132	0.000E+00	1.382E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.817E+01	0.000E+00	SHORT HLIF
BA-133	9.784E-03	5.566E-02	9.318E-02	NOT IDENT.
I-133	0.000E+00	2.389E+10	0.000E+00	SHORT HLIF
CS-134	1.351E-02	3.653E-02	8.193E-02	FAIL ABUN
I-135	0.000E+00	3.096E+36	0.000E+00	SHORT HLIF
CS-136	2.743E-02	3.056E-01	6.390E-01	NOT IDENT.
LA-138	-7.534E-02	6.028E-02	3.223E-02	NOT IDENT.
CE-139	-1.767E-02	3.395E-02	5.784E-02	NOT IDENT.
BA-140	6.071E-03	7.911E-01	1.485E+00	NOT IDENT.
LA-140	5.818E-02	3.095E-01	6.906E-01	NOT IDENT.
CE-141	-1.288E-01	1.020E-01	1.588E-01	NOT IDENT.
CE-143	0.000E+00	2.317E+06	0.000E+00	SHORT HLIF
CE-144	-1.075E-01	2.241E-01	3.843E-01	NOT IDENT.
PM-144	4.573E-03	4.124E-02	8.173E-02	NOT IDENT.
PR-144	3.589E-01	3.120E+00	6.186E+00	NOT IDENT.
PM-146	-6.463E-03	5.283E-02	9.431E-02	NOT IDENT.
ND-147	1.440E-01	1.764E+00	3.425E+00	NOT IDENT.
PM-147	-6.255E+02	7.007E+02	1.146E+03	NOT IDENT.
PM-149	0.000E+00	3.608E+04	0.000E+00	SHORT HLIF
EU-150	1.636E-02	3.268E-02	5.837E-02	FAIL ABUN
EU-152	1.145E-01	8.951E-02	1.855E-01	FAIL ABUN
GD-153	1.979E-02	1.041E-01	1.650E-01	NOT IDENT.
EU-154	-8.351E-02	9.977E-02	1.490E-01	NOT IDENT.
EU-155	8.805E-02	1.017E-01	2.014E-01	NOT IDENT.
TB-160	-2.818E-02	1.662E-01	3.277E-01	FAIL ABUN
HO-166M	4.143E-03	6.331E-02	1.287E-01	NOT IDENT.
TM-171	1.392E+01	2.091E+01	4.044E+01	FAIL ABUN
HF-172	-1.023E-02	1.958E-01	3.532E-01	FAIL ABUN
LU-172	7.064E-02	6.572E-02	1.661E-01	FAIL ABUN
LU-176	-4.769E-03	3.128E-02	5.551E-02	NOT IDENT.
HF-181	2.554E-02	6.460E-02	1.287E-01	FAIL ABUN
TA-182	7.845E-02	1.993E-01	4.490E-01	FAIL ABUN

RE-183	1.093E-01	2.300E-01	4.435E-01	FAIL ABUN
RE-184	4.333E-02	1.194E-01	2.972E-01	NOT IDENT.
W-188	1.936E+00	1.017E+01	1.722E+01	FAIL ABUN
IR-192	-2.812E-02	5.315E-02	8.492E-02	FAIL ABUN
HG-203	3.285E-03	5.446E-02	9.996E-02	NOT IDENT.
TL-204	4.368E+00	6.325E+00	1.025E+01	NOT IDENT.
BI-207	1.477E-02	5.380E-02	1.175E-01	FAIL ABUN
BI-210	-1.855E+00	4.511E+00	7.827E+00	NOT IDENT.
PB-210	-1.855E+00	4.511E+00	7.827E+00	NOT IDENT.
PB-211	-5.205E-01	8.225E-01	1.345E+00	NOT IDENT.
BI-212	5.095E-02	6.218E-01	1.232E+00	NOT IDENT.
BI-213	6.924E-02	9.615E-02	2.069E-01	NOT IDENT.
BI-214	2.691E-01	1.703E-01	2.852E-01	FAIL ABUN
RN-219	2.690E-01	4.413E-01	8.901E-01	NOT IDENT.
RN-222	2.691E-01	1.703E-01	2.852E-01	FAIL ABUN
RA-223	-2.072E-01	6.593E-01	1.153E+00	FAIL ABUN
AC-225	6.325E-01	2.184E+00	4.127E+00	NOT IDENT.
AC-227	-6.844E-02	2.692E-01	4.738E-01	NOT IDENT.
TH-227	-6.844E-02	2.692E-01	4.738E-01	NOT IDENT.
AC-228	2.162E-01	2.083E-01	4.793E-01	FAIL ABUN
RA-228	2.162E-01	2.083E-01	4.793E-01	FAIL ABUN
TH-229	-3.945E-01	5.858E-01	9.744E-01	NOT IDENT.
PA-231	4.849E-01	5.594E-01	1.117E+00	NOT IDENT.
TH-231	-2.072E-01	6.593E-01	1.153E+00	FAIL ABUN
TH-232	2.162E-01	2.083E-01	4.793E-01	FAIL ABUN
PA-233	-4.578E-02	7.567E-02	1.255E-01	NOT IDENT.
PA-234	1.082E-01	3.249E-01	7.056E-01	FAIL ABUN
PA-234M	-4.922E-01	6.255E+00	1.180E+01	NOT IDENT.
U-235	1.494E-01	2.243E-01	4.311E-01	FAIL ABUN
NP-237	-4.578E-02	7.567E-02	1.255E-01	NOT IDENT.
NP-238	0.000E+00	1.085E+04	0.000E+00	SHORT HLIF
NP-239	8.584E-02	3.001E-01	5.538E-01	NOT IDENT.
PU-239	1.428E+01	3.674E+02	6.641E+02	NOT IDENT.
AM-241	7.722E-02	1.579E-01	2.791E-01	NOT IDENT.
CM-243	-6.834E-02	1.000E-01	1.689E-01	NOT IDENT.
BK-247	4.307E-02	8.317E-02	1.626E-01	NOT IDENT.
CM-247	2.316E-02	4.024E-02	8.088E-02	NOT IDENT.
CF-249	1.159E-02	4.646E-02	8.836E-02	NOT IDENT.
CF-251	1.158E-01	1.292E-01	2.579E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BA-137M	661.66	8	89.90*	2.462E+00	3.398E-02	3.405E-02	105.84
CS-137	661.66	8	85.10*	2.462E+00	3.590E-02	3.598E-02	105.84
TL-208	277.37	-----	6.60	4.727E+00	-----	Line Not Found	-----
	583.19	8	85.00*	2.735E+00	3.145E-02	3.145E-02	178.34
	860.56	-----	12.50	1.946E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	4.708E+00	-----	Line Not Found	-----
	351.06	78	12.92*	4.004E+00	1.456E+00	1.456E+00	29.84
PB-212	74.82	33	10.28	4.970E+00	6.224E-01	6.224E-01	91.12
	77.11	44	17.10	5.238E+00	4.709E-01	4.709E-01	71.09
	238.63	44	43.60*	5.234E+00	1.857E-01	1.857E-01	63.10
	300.09	-----	3.30	4.478E+00	-----	Line Not Found	-----
PB-214	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.303E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.760E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
RA-224	240.99	26	4.10*	5.184E+00	1.195E+00	1.195E+00	94.32
RA-226	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.303E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.760E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
TH-228	74.82	33	10.28	4.970E+00	6.224E-01	6.224E-01	91.12
	77.11	44	17.10	5.238E+00	4.709E-01	4.709E-01	71.09
	238.63	44	43.60*	5.234E+00	1.857E-01	1.857E-01	63.10
	300.09	-----	3.30	4.478E+00	-----	Line Not Found	-----
TH-230	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.302E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.759E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
TH-234	63.29	11	3.70*	3.361E+00	8.290E-01	8.290E-01	203.14
	92.59	33	4.23	6.489E+00	1.171E+00	1.171E+00	111.78
U-234	74.82	33	5.80	4.970E+00	1.103E+00	1.103E+00	91.12
	77.11	44	9.70	5.238E+00	8.302E-01	8.302E-01	71.09
	87.09	-----	3.41	6.122E+00	-----	Line Not Found	-----
	242.00	26	7.25	5.184E+00	6.759E-01	6.759E-01	94.32
	295.22	43	18.42	4.532E+00	5.013E-01	5.013E-01	49.13
	351.93	78	35.60*	4.004E+00	5.285E-01	5.285E-01	29.84
U-238	63.29	11	3.70*	3.361E+00	8.290E-01	8.290E-01	203.14
	92.59	33	4.23	6.489E+00	1.171E+00	1.171E+00	111.78
AM-243	43.53	-----	5.90	5.764E-01	-----	Line Not Found	-----
	74.66	33	67.20*	4.970E+00	9.521E-02	9.521E-02	91.12
ANH-511	511.00	21	100.00*	3.038E+00	6.613E-02	6.613E-02	141.00

Flag: "*" = Keyline

Total number of lines in spectrum 26
Number of unidentified lines 3
Number of lines tentatively identified by NID 23 88.46%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-137M	30.08Y	1.00	3.398E-02	3.405E-02	3.604E-02	105.84	
CS-137	30.08Y	1.00	3.590E-02	3.598E-02	3.808E-02	105.84	
TL-208	1.41E+10Y	1.00	3.145E-02	3.145E-02	5.609E-02	178.34	
BI-211	7.04E+08Y	1.00	1.456E+00	1.456E+00	0.434E+00	29.84	
PB-212	1.41E+10Y	1.00	1.857E-01	1.857E-01	1.172E-01	63.10	
PB-214	1600.00Y	1.00	5.285E-01	5.285E-01	1.577E-01	29.84	
RA-224	1.41E+10Y	1.00	1.195E+00	1.195E+00	1.127E+00	94.32	
RA-226	1600.00Y	1.00	5.285E-01	5.285E-01	1.577E-01	29.84	
TH-228	1.41E+10Y	1.00	1.857E-01	1.857E-01	1.172E-01	63.10	
TH-230	7.54E+04Y	1.00	5.285E-01	5.285E-01	1.577E-01	29.84	
TH-234	4.47E+09Y	1.00	8.290E-01	8.290E-01	16.84E-01	203.14	
U-234	2.45E+05Y	1.00	5.285E-01	5.285E-01	1.577E-01	29.84	
U-238	4.47E+09Y	1.00	8.290E-01	8.290E-01	16.84E-01	203.14	
AM-243	7370.00Y	1.00	9.521E-02	9.521E-02	8.676E-02	91.12	
ANH-511	1.00E+09Y	1.00	6.613E-02	6.613E-02	9.324E-02	141.00	
Total Activity :			7.057E+00	7.057E+00			

Grand Total Activity : 7.057E+00 7.057E+00

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	66.93	13	26	1.29	134.14	130	7	4.21E-03	****	3.89E+00	T
0	186.24	2	60	1.65	372.74	366	12	6.21E-04	****	6.10E+00	T
0	338.34	39	16	5.31	676.95	669	16	1.23E-02	53.9	4.12E+00	T
0	346.82	4	17	1.15	693.90	687	9	1.15E-03	****	4.05E+00	T
1	360.87	12	11	1.59	722.00	697	28	3.74E-03	94.3	3.93E+00	
0	433.44	19	12	3.90	867.14	862	13	5.83E-03	83.2	3.44E+00	T
0	491.71	12	7	0.88	983.67	978	11	3.78E-03	98.2	3.13E+00	T
0	553.17	10	18	6.35	1106.59	1096	16	3.04E-03	****	2.85E+00	T
3	566.10	10	3	2.28	1132.45	1131	12	3.10E-03	56.6	2.80E+00	
3	569.86	11	2	1.87	1139.96	1131	12	3.26E-03	97.3	2.79E+00	T
0	609.44	33	18	1.65	1219.12	1214	13	1.03E-02	64.6	2.64E+00	T
0	964.82	6	6	1.12	1929.84	1923	9	1.88E-03	****	1.75E+00	T
0	968.17	17	0	3.20	1936.55	1932	10	5.30E-03	48.7	1.74E+00	T
0	998.81	8	6	1.91	1997.82	1988	13	2.57E-03	****	1.69E+00	
0	1270.41	6	0	0.67	2541.00	2537	8	1.67E-03	81.6	1.35E+00	T

Flags: "T" = Tentatively associated

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299014.CNF;1
Acquisition date : 30-JUL-2024 11:20:20 Sensitivity : 3.000
Detector ID : GAM30 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.20 Half life ratio : *****
Sample date : 26-JUN-2024 10:00:00 Nuclide Library : SOLID
Sample ID : G674299014 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 7.7790E+01 GRAM
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 21-MAY-2024 06:33:04 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM30_CAN.CNF;18

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
BA-137M	3.619E-02
CS-137	3.823E-02
TL-208	3.648E-02
BI-211	1.839E-01
PB-212	5.321E-02
PB-214	6.688E-02
RA-224	5.699E-01
RA-226	6.688E-02
TH-228	5.321E-02
TH-230	6.688E-02
TH-234	9.133E-01
U-234	6.688E-02
U-238	9.133E-01
AM-243	4.243E-02
ANH-511	2.022E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	2.113E-01	NOT IDENT.
NA-22	1.679E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.586E-02	NOT IDENT.
K-40	7.108E-01	NOT IDENT.
SC-46	3.787E-02	NOT IDENT.
V-48	1.508E-01	NOT IDENT.
CR-51	5.345E-01	NOT IDENT.
MN-52	1.888E+00	NOT IDENT.
MN-54	3.537E-02	NOT IDENT.
CO-56	3.532E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.879E-02	NOT IDENT.
CO-58	3.299E-02	NOT IDENT.
FE-59	1.008E-01	NOT IDENT.
CO-60	2.985E-02	NOT IDENT.

ZN-65	7.152E-02	NOT IDENT.
GE-68	1.115E+00	NOT IDENT.
AS-73	9.485E-01	NOT IDENT.
AS-74	2.477E-01	NOT IDENT.
SE-75	4.875E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.628E-01	NOT IDENT.
RB-83	6.244E-02	FAIL ABUN
RB-84	1.004E-01	NOT IDENT.
KR-85	8.579E+00	NOT IDENT.
SR-85	5.542E-02	NOT IDENT.
RB-86	1.360E+00	NOT IDENT.
Y-88	3.777E-02	NOT IDENT.
Y-91	2.367E+01	NOT IDENT.
NB-94	2.702E-02	NOT IDENT.
NB-95	4.703E-02	NOT IDENT.
NB-95M	1.404E-01	NOT IDENT.
ZR-95	7.373E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.630E-02	NOT IDENT.
RH-102	2.857E-02	NOT IDENT.
RU-103	4.216E-02	FAIL ABUN
RH-106	3.848E-01	NOT IDENT.
RU-106	3.848E-01	NOT IDENT.
AG-108M	3.114E-02	FAIL ABUN
CD-109	6.679E-01	NOT IDENT.
AG-110	7.186E-01	NOT IDENT.
AG-110M	3.202E-02	NOT IDENT.
SN-113	4.472E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.250E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.804E-02	NOT IDENT.
SB-124	0.000E+00	NOT IDENT.
SB-125	8.551E-02	NOT IDENT.
TE-125M	1.050E+01	NOT IDENT.
I-126	5.889E-01	NOT IDENT.
SB-126	2.939E-01	NOT IDENT.
SN-126	6.373E-02	FAIL ABUN
SB-127	3.021E+01	NOT IDENT.
I-131	5.694E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.142E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.359E-02	FAIL ABUN
I-135	0.000E+00	SHORT HLIF
CS-136	2.599E-01	NOT IDENT.
LA-138	0.000E+00	NOT IDENT.
CE-139	2.604E-02	NOT IDENT.
BA-140	6.287E-01	NOT IDENT.
LA-140	2.691E-01	NOT IDENT.
CE-141	7.152E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.746E-01	NOT IDENT.
PM-144	3.506E-02	NOT IDENT.
PR-144	2.654E+00	NOT IDENT.
PM-146	4.122E-02	NOT IDENT.
ND-147	1.429E+00	NOT IDENT.
PM-147	5.095E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.601E-02	FAIL ABUN
EU-152	8.097E-02	FAIL ABUN
GD-153	7.542E-02	NOT IDENT.
EU-154	4.710E-02	NOT IDENT.
EU-155	9.206E-02	NOT IDENT.
TB-160	1.330E-01	FAIL ABUN
HO-166M	5.414E-02	NOT IDENT.
TM-171	1.856E+01	FAIL ABUN
HF-172	1.604E-01	FAIL ABUN
LU-172	6.949E-02	FAIL ABUN
LU-176	2.469E-02	NOT IDENT.
HF-181	5.570E-02	FAIL ABUN
TA-182	1.829E-01	FAIL ABUN
RE-183	2.015E-01	FAIL ABUN

RE-184	1.134E-01	NOT IDENT.
W-188	7.647E+00	FAIL ABUN
IR-192	3.758E-02	FAIL ABUN
HG-203	4.451E-02	NOT IDENT.
TL-204	4.761E+00	NOT IDENT.
BI-207	4.798E-02	FAIL ABUN
BI-210	3.581E+00	NOT IDENT.
PB-210	3.581E+00	NOT IDENT.
PB-211	5.799E-01	NOT IDENT.
BI-212	5.317E-01	NOT IDENT.
BI-213	8.908E-02	NOT IDENT.
BI-214	1.320E-01	FAIL ABUN
RN-219	3.923E-01	NOT IDENT.
RN-222	1.320E-01	FAIL ABUN
RA-223	5.020E-01	FAIL ABUN
AC-225	1.852E+00	NOT IDENT.
AC-227	2.102E-01	NOT IDENT.
TH-227	2.102E-01	NOT IDENT.
AC-228	2.128E-01	FAIL ABUN
RA-228	2.128E-01	FAIL ABUN
TH-229	4.393E-01	NOT IDENT.
PA-231	5.054E-01	NOT IDENT.
TH-231	5.020E-01	FAIL ABUN
TH-232	2.128E-01	FAIL ABUN
PA-233	5.521E-02	NOT IDENT.
PA-234	2.930E-01	FAIL ABUN
PA-234M	4.997E+00	NOT IDENT.
U-235	1.989E-01	FAIL ABUN
NP-237	5.521E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	2.546E-01	NOT IDENT.
PU-239	3.038E+02	NOT IDENT.
AM-241	1.270E-01	NOT IDENT.
CM-243	7.575E-02	NOT IDENT.
BK-247	7.268E-02	NOT IDENT.
CM-247	3.560E-02	NOT IDENT.
CF-249	3.903E-02	NOT IDENT.
CF-251	1.173E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299014.CNF;1
Acquisition date : 30-JUL-2024 11:20:20 Sensitivity : 3.000
Detector ID : GAM30 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.20 Half life ratio : *****
Sample date : 26-JUN-2024 10:00:00 Nuclide Library : SOLID
Sample ID : G674299014 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 7.7790E+01 GRAM
Quantity Err(%) : 1.2855E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 21-MAY-2024 06:33:04 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM30_CAN.CNF;18

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
BA-137M	3.405E-02	3.543E-02	3.543E-02
CS-137	3.598E-02	3.743E-02	3.743E-02
TL-208	3.145E-02	5.504E-02	5.504E-02
BI-211	1.456E+00	4.436E-01	4.436E-01
PB-212	1.857E-01	1.159E-01	1.159E-01
PB-214	5.285E-01	1.608E-01	1.608E-01
RA-224	1.195E+00	1.110E+00	1.110E+00
RA-226	5.285E-01	1.608E-01	1.608E-01
TH-228	1.857E-01	1.159E-01	1.159E-01
TH-230	5.285E-01	1.607E-01	1.607E-01
TH-234	8.290E-01	1.662E+00	1.662E+00
U-234	5.285E-01	1.607E-01	1.607E-01
U-238	8.290E-01	1.662E+00	1.662E+00
AM-243	9.521E-02	8.545E-02	8.545E-02
ANH-511	6.613E-02	9.155E-02	9.155E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.074E-01	3.325E-01	3.454E-01	NOT IDENT.
NA-22	-2.976E-02	3.568E-02	3.812E-02	NOT IDENT.
NA-24	-1.635E+13	9.585E+14	9.585E+14	SHORT HLIF
AL-26	-1.658E-02	4.088E-02	4.156E-02	NOT IDENT.
K-40	5.596E-01	7.010E-01	7.450E-01	NOT IDENT.
SC-46	4.068E-02	3.292E-02	3.768E-02	NOT IDENT.
V-48	5.910E-02	1.659E-01	1.680E-01	NOT IDENT.
CR-51	1.558E-01	6.368E-01	6.407E-01	NOT IDENT.
MN-52	1.337E-01	2.245E+00	2.245E+00	NOT IDENT.
MN-54	3.026E-03	4.152E-02	4.154E-02	NOT IDENT.
CO-56	-1.304E-02	4.568E-02	4.605E-02	NOT IDENT.
MN-56	-1.000E+41	3.583E+41	0.000E+00	SHORT HLIF
CO-57	-1.911E-02	2.529E-02	2.672E-02	NOT IDENT.
CO-58	1.569E-03	3.884E-02	3.884E-02	NOT IDENT.
FE-59	2.991E-02	1.126E-01	1.134E-01	NOT IDENT.

CO-60	-2.356E-02	4.498E-02	4.621E-02	NOT IDENT.
ZN-65	-2.363E-02	9.324E-02	9.385E-02	NOT IDENT.
GE-68	3.376E-01	1.243E+00	1.252E+00	NOT IDENT.
AS-73	6.748E-01	1.079E+00	1.121E+00	NOT IDENT.
AS-74	1.978E-01	2.803E-01	2.942E-01	NOT IDENT.
SE-75	4.337E-02	5.415E-02	5.757E-02	NOT IDENT.
BR-77	7.258E+03	8.453E+03	9.064E+03	SHORT HLIF
SR-82	2.497E-01	6.183E-01	6.285E-01	NOT IDENT.
RB-83	-9.804E-02	1.090E-01	1.176E-01	FAIL ABUN
RB-84	7.161E-02	1.029E-01	1.078E-01	NOT IDENT.
KR-85	1.348E+01	8.649E+00	1.057E+01	NOT IDENT.
SR-85	8.691E-02	5.589E-02	6.825E-02	NOT IDENT.
RB-86	6.717E-01	1.435E+00	1.467E+00	NOT IDENT.
Y-88	-2.390E-03	4.804E-02	4.805E-02	NOT IDENT.
Y-91	1.172E+01	2.545E+01	2.599E+01	NOT IDENT.
NB-94	8.181E-03	3.015E-02	3.038E-02	NOT IDENT.
NB-95	-2.783E-02	6.132E-02	6.259E-02	NOT IDENT.
NB-95M	9.083E-02	1.781E-01	1.828E-01	NOT IDENT.
ZR-95	-1.688E-02	9.147E-02	9.178E-02	NOT IDENT.
NB-97	1.000E+41	1.190E+41	0.000E+00	SHORT HLIF
ZR-97	8.468E+13	2.573E+14	2.602E+14	SHORT HLIF
MO-99	-1.059E+03	1.473E+03	1.548E+03	SHORT HLIF
TC-99M	-8.732E+38	1.991E+39	0.000E+00	SHORT HLIF
RH-101	-1.700E-03	3.212E-02	3.213E-02	NOT IDENT.
RH-102	-5.484E-02	4.936E-02	5.520E-02	NOT IDENT.
RU-103	-4.511E-02	6.762E-02	7.061E-02	FAIL ABUN
RH-106	2.991E-01	4.308E-01	4.514E-01	NOT IDENT.
RU-106	2.991E-01	4.308E-01	4.514E-01	NOT IDENT.
AG-108M	5.794E-02	4.747E-02	5.418E-02	FAIL ABUN
CD-109	-3.218E-01	9.377E-01	9.489E-01	NOT IDENT.
AG-110	1.066E-01	9.324E-01	9.337E-01	NOT IDENT.
AG-110M	-1.034E-02	4.186E-02	4.212E-02	NOT IDENT.
SN-113	-1.610E-02	5.863E-02	5.908E-02	NOT IDENT.
CD-115	1.666E+03	4.466E+03	4.528E+03	SHORT HLIF
SN-117M	4.812E-02	1.467E-01	1.483E-01	NOT IDENT.
SB-122	7.149E+00	2.731E+02	2.731E+02	SHORT HLIF
TE-123M	1.070E-02	3.294E-02	3.329E-02	NOT IDENT.
SB-124	-2.985E-02	5.857E-02	6.009E-02	NOT IDENT.
SB-125	1.182E-02	1.098E-01	1.099E-01	NOT IDENT.
TE-125M	5.960E+00	1.207E+01	1.236E+01	NOT IDENT.
I-126	1.089E-01	7.241E-01	7.257E-01	NOT IDENT.
SB-126	-1.634E-01	3.897E-01	3.966E-01	NOT IDENT.
SN-126	-2.755E-02	8.349E-02	8.441E-02	FAIL ABUN
SB-127	-1.037E+01	3.824E+01	3.852E+01	NOT IDENT.
I-131	4.597E-01	6.861E-01	7.167E-01	NOT IDENT.
I-132	-1.000E+41	2.516E+41	0.000E+00	SHORT HLIF
TE-132	-3.848E+00	4.817E+01	4.820E+01	SHORT HLIF
BA-133	9.784E-03	5.566E-02	5.584E-02	NOT IDENT.
I-133	1.794E+09	2.389E+10	2.391E+10	SHORT HLIF
CS-134	1.351E-02	3.655E-02	3.706E-02	FAIL ABUN
I-135	-1.646E+34	3.096E+36	0.000E+00	SHORT HLIF
CS-136	2.743E-02	3.056E-01	3.058E-01	NOT IDENT.
LA-138	-7.534E-02	6.073E-02	6.958E-02	NOT IDENT.
CE-139	-1.767E-02	3.415E-02	3.507E-02	NOT IDENT.
BA-140	6.071E-03	7.911E-01	7.912E-01	NOT IDENT.
LA-140	5.818E-02	3.096E-01	3.107E-01	NOT IDENT.
CE-141	-1.288E-01	1.024E-01	1.177E-01	NOT IDENT.
CE-143	5.947E+05	2.318E+06	2.333E+06	SHORT HLIF
CE-144	-1.075E-01	2.242E-01	2.294E-01	NOT IDENT.
PM-144	4.573E-03	4.124E-02	4.129E-02	NOT IDENT.
PR-144	3.589E-01	3.120E+00	3.124E+00	NOT IDENT.
PM-146	-6.463E-03	5.283E-02	5.291E-02	NOT IDENT.
ND-147	1.440E-01	1.764E+00	1.765E+00	NOT IDENT.
PM-147	-6.255E+02	7.021E+02	7.566E+02	NOT IDENT.
PM-149	1.251E+04	3.613E+04	3.657E+04	SHORT HLIF
EU-150	1.636E-02	3.271E-02	3.353E-02	FAIL ABUN
EU-152	1.145E-01	9.012E-02	1.039E-01	FAIL ABUN
GD-153	1.979E-02	1.041E-01	1.045E-01	NOT IDENT.
EU-154	-8.351E-02	1.001E-01	1.070E-01	NOT IDENT.
EU-155	8.805E-02	1.020E-01	1.095E-01	NOT IDENT.
TB-160	-2.818E-02	1.662E-01	1.667E-01	FAIL ABUN
HO-166M	4.143E-03	6.331E-02	6.334E-02	NOT IDENT.
TM-171	1.392E+01	2.098E+01	2.190E+01	FAIL ABUN
HF-172	-1.023E-02	1.958E-01	1.958E-01	FAIL ABUN
LU-172	7.064E-02	6.648E-02	7.371E-02	FAIL ABUN
LU-176	-4.769E-03	3.128E-02	3.135E-02	NOT IDENT.
HF-181	2.554E-02	6.464E-02	6.566E-02	FAIL ABUN
TA-182	7.845E-02	1.994E-01	2.025E-01	FAIL ABUN

RE-183	1.093E-01	2.305E-01	2.357E-01	FAIL ABUN
RE-184	4.333E-02	1.196E-01	1.212E-01	NOT IDENT.
W-188	1.936E+00	1.018E+01	1.021E+01	FAIL ABUN
IR-192	-2.812E-02	5.321E-02	5.470E-02	FAIL ABUN
HG-203	3.285E-03	5.446E-02	5.448E-02	NOT IDENT.
TL-204	4.368E+00	6.343E+00	6.641E+00	NOT IDENT.
BI-207	1.477E-02	5.382E-02	5.423E-02	FAIL ABUN
BI-210	-1.855E+00	4.515E+00	4.592E+00	NOT IDENT.
PB-210	-1.855E+00	4.515E+00	4.592E+00	NOT IDENT.
PB-211	-5.205E-01	8.238E-01	8.565E-01	NOT IDENT.
BI-212	5.095E-02	6.218E-01	6.222E-01	NOT IDENT.
BI-213	6.924E-02	9.632E-02	1.013E-01	NOT IDENT.
BI-214	2.691E-01	1.718E-01	2.103E-01	FAIL ABUN
RN-219	2.690E-01	4.430E-01	4.593E-01	NOT IDENT.
RN-222	2.691E-01	1.718E-01	2.103E-01	FAIL ABUN
RA-223	-2.072E-01	6.596E-01	6.661E-01	FAIL ABUN
AC-225	6.325E-01	2.185E+00	2.204E+00	NOT IDENT.
AC-227	-6.844E-02	2.694E-01	2.712E-01	NOT IDENT.
TH-227	-6.844E-02	2.694E-01	2.712E-01	NOT IDENT.
AC-228	2.162E-01	2.101E-01	2.316E-01	FAIL ABUN
RA-228	2.162E-01	2.101E-01	2.316E-01	FAIL ABUN
TH-229	-3.945E-01	5.867E-01	6.130E-01	NOT IDENT.
PA-231	4.849E-01	5.700E-01	6.105E-01	NOT IDENT.
TH-231	-2.072E-01	6.596E-01	6.661E-01	FAIL ABUN
TH-232	2.162E-01	2.101E-01	2.316E-01	FAIL ABUN
PA-233	-4.578E-02	7.577E-02	7.853E-02	NOT IDENT.
PA-234	1.082E-01	3.479E-01	3.513E-01	FAIL ABUN
PA-234M	-4.922E-01	6.256E+00	6.259E+00	NOT IDENT.
U-235	1.494E-01	2.246E-01	2.345E-01	FAIL ABUN
NP-237	-4.578E-02	7.577E-02	7.853E-02	NOT IDENT.
NP-238	2.608E+03	1.085E+04	1.092E+04	SHORT HLIF
NP-239	8.584E-02	3.002E-01	3.027E-01	NOT IDENT.
PU-239	1.428E+01	3.674E+02	3.675E+02	NOT IDENT.
AM-241	7.722E-02	1.582E-01	1.620E-01	NOT IDENT.
CM-243	-6.834E-02	1.003E-01	1.049E-01	NOT IDENT.
BK-247	4.307E-02	8.367E-02	8.590E-02	NOT IDENT.
CM-247	2.316E-02	4.046E-02	4.178E-02	NOT IDENT.
CF-249	1.159E-02	4.648E-02	4.677E-02	NOT IDENT.
CF-251	1.158E-01	1.301E-01	1.402E-01	NOT IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	35.7389	85.43	44.8058	131.20	43.8932
45.60	36.7037	86.55	52.0344	133.02	41.1511
46.54	38.4641	86.79	49.3550	133.52	41.1672
49.72	0.0000	86.94	49.3629	136.00	27.1857
51.35	37.8679	87.09	51.1657	136.47	26.2580
51.87	33.5888	87.57	51.7295	140.51	0.0000
52.39	31.0272	88.03	52.5622	143.76	23.5761
52.97	27.6016	88.34	59.3197	144.24	33.0186
53.44	27.6191	88.47	51.2373	145.44	49.1007
54.07	31.9618	89.96	37.8104	152.43	27.5250
57.36	0.0000	90.64	31.0796	153.25	29.4406
57.53	26.9016	91.11	41.9096	154.21	30.4115
57.98	26.0489	92.59	46.0325	156.02	32.3547
59.27	28.7013	93.35	46.0670	158.56	28.6002
59.32	24.7891	94.56	46.1212	159.00	29.5626
59.54	26.1011	94.65	46.1254	162.33	28.6765
60.96	40.5293	94.67	46.1261	162.66	21.9902
61.17	40.5399	94.87	46.1352	163.33	25.8267
62.93	27.5227	97.43	32.6462	165.86	35.4546
63.29	27.5349	98.43	34.0389	176.31	24.1264
63.58	27.5446	98.44	34.0393	176.60	21.2353
64.28	10.5022	99.53	33.8018	177.52	21.2483
66.73	34.2329	100.11	36.3658	181.07	0.0000
67.24	40.8410	102.03	30.0556	181.52	23.2412
67.68	43.4986	103.18	35.5580	184.41	28.1359
67.75	43.5021	103.37	35.5643	185.72	28.1598
68.89	40.4805	105.21	23.7496	193.51	39.0344
69.67	34.3515	105.31	24.6653	197.03	29.3405
70.82	42.3350	106.12	26.5118	198.01	28.3796
70.83	42.3354	106.47	30.1782	201.83	35.3130
72.81	55.6912	109.28	29.3377	203.43	30.4384
72.87	55.6951	111.00	39.4827	205.31	26.5410
74.66	42.5198	111.76	0.0000	210.85	20.7120
74.82	42.5273	114.06	33.1439	215.65	20.7710
74.97	42.5344	116.30	0.0000	218.12	21.7914
77.11	42.6350	116.74	38.7574	222.11	24.8205
78.74	42.7107	119.76	34.2313	227.09	28.8740
79.69	42.7544	121.12	34.2705	227.38	26.8871
80.03	37.4236	121.22	34.2733	228.16	0.0000
80.12	37.4274	121.78	37.0697	228.18	28.8920
80.19	37.4302	122.06	34.2974	235.69	25.5125
80.57	45.4693	122.92	29.6839	235.96	25.5163
81.00	53.5181	123.07	25.0488	238.63	31.0656
81.07	53.5220	123.68	25.0616	238.98	0.0000
81.75	54.8995	125.81	33.4741	240.99	31.1060
82.47	48.2412	127.23	33.5127	242.00	31.1233
83.79	45.0874	127.91	35.3942	244.70	28.6554
84.00	42.9500	129.30	38.2315	252.40	16.1540

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.80	15.1477	351.06	19.0496	569.33	6.8750
254.15	0.0000	351.93	19.0565	569.50	8.5944
256.23	24.2803	355.39	0.0000	569.70	8.5950
260.90	0.0000	356.01	19.0902	583.19	14.9604
264.66	17.2743	364.49	11.1759	584.27	8.6337
264.80	17.2757	366.42	0.0000	595.83	13.8628
265.00	17.2774	372.51	17.0872	600.60	15.0397
269.46	17.3172	375.05	17.1051	602.52	0.0000
270.03	20.3788	377.52	14.9821	604.72	15.6374
271.23	19.3719	383.85	10.7292	607.14	6.9551
273.65	19.3954	388.16	13.9722	609.32	15.0789
276.40	16.3558	388.63	12.9001	610.33	15.0836
277.37	21.4777	391.69	19.3740	614.28	8.7122
277.60	19.4341	400.66	14.0423	618.01	12.7922
278.00	21.4841	401.81	11.8874	620.36	13.9648
279.20	21.4973	402.40	11.8900	621.93	10.4784
279.54	21.5007	404.85	20.5570	630.19	0.0000
279.70	17.4067	410.95	11.9299	631.29	11.3825
280.46	15.3647	413.71	16.2854	633.25	5.2566
283.69	19.4932	414.70	18.4641	634.78	4.3825
284.31	23.6041	423.72	11.9887	635.95	4.3839
285.41	15.4025	427.09	8.7301	636.99	7.8934
285.90	0.0000	427.87	14.4090	657.50	9.8807
287.50	22.6136	433.94	8.7528	657.76	9.8813
290.67	18.5306	439.40	6.5780	657.90	0.0000
293.27	0.0000	440.45	6.5806	661.66	13.2486
295.22	19.6034	453.88	17.6348	664.57	0.0000
295.96	19.6104	463.37	12.1655	666.33	10.6128
298.58	32.5523	468.07	19.9409	666.50	8.0865
299.98	27.9207	473.00	12.2074	667.71	0.0000
300.09	20.1661	475.06	7.7740	677.62	7.0977
300.13	20.1665	476.78	13.3350	685.70	8.8919
301.36	18.6262	477.60	8.8926	692.65	0.0000
302.85	26.9236	482.18	10.0203	695.00	6.2401
304.50	27.9811	487.02	8.3643	696.49	8.9182
304.85	24.8760	492.35	0.0000	696.51	8.9182
306.78	23.8610	497.08	16.1150	697.00	10.7032
308.46	25.9567	505.52	11.7845	697.30	10.7040
311.90	25.9984	507.63	0.0000	697.49	8.9206
316.51	22.9274	511.00	7.8709	702.65	6.2532
319.41	19.8272	514.00	7.8787	706.68	7.1543
320.08	16.7018	514.00	7.8787	711.68	8.9548
321.04	21.9305	520.40	18.9492	720.70	8.9764
323.87	18.8218	520.69	0.0000	721.93	0.0000
325.23	20.9261	522.65	0.0000	722.78	10.7776
328.76	15.7196	527.90	0.0000	722.91	8.9816
333.37	22.0527	528.26	7.9160	723.31	8.9825
333.97	15.7562	529.59	10.1821	724.19	9.8831
334.37	20.4867	529.87	0.0000	727.33	12.5888
338.28	13.8921	531.02	7.9231	733.00	8.1052
338.32	13.8923	537.26	10.2078	735.93	8.1112
340.48	13.9055	546.56	0.0000	737.46	7.2129
340.55	3.1605	552.55	7.9787	739.50	0.0000
344.28	3.1656	563.25	8.5776	744.23	6.3224
345.93	12.6716	564.24	0.0000	747.24	6.3273

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
748.06	5.4247	954.55	0.0000	1408.01	5.1721
752.31	9.9560	962.31	6.0873	1434.09	2.0778
753.82	5.4327	964.08	7.6121	1435.80	6.2351
756.73	9.0613	966.17	0.0000	1457.56	0.0000
756.80	9.0616	968.97	3.0480	1460.82	4.1736
763.94	11.8015	983.53	4.7775	1489.16	3.1443
765.81	14.5317	984.45	0.0000	1505.03	5.2536
766.42	11.8090	996.26	10.5391	1584.12	3.1910
766.84	7.2678	1001.03	6.1379	1596.21	3.1967
772.60	0.0000	1002.74	10.7454	1620.50	0.0000
776.52	7.2856	1004.73	12.4775	1621.92	3.2091
777.92	0.0000	1021.30	0.0000	1678.03	0.0000
778.90	7.2900	1025.87	0.0000	1690.97	1.0806
783.70	6.3865	1028.54	0.0000	1750.46	0.0000
788.74	8.2216	1037.84	1.9329	1764.49	2.1837
792.07	4.5714	1038.76	0.0000	1770.23	3.2783
795.86	4.5757	1046.59	7.7456	1771.35	2.1859
801.95	8.2485	1048.07	5.8107	1791.20	0.0000
810.06	4.5917	1049.04	2.9061	1808.65	3.2957
810.29	4.5920	1050.41	5.8136	1810.72	0.0000
810.45	2.7553	1063.66	4.8578	1836.06	2.2053
810.76	4.5924	1077.00	2.9225		
815.77	8.2766	1077.34	3.8970		
818.51	4.6011	1085.87	6.8312		
832.01	1.8465	1093.63	1.9548		
834.85	8.3150	1099.45	3.9141		
835.71	7.3926	1112.07	4.9048		
836.80	0.0000	1112.84	2.9432		
846.75	0.0000	1115.54	6.8714		
846.77	7.4121	1120.29	4.9127		
856.80	6.5010	1120.55	4.9127		
860.56	7.4363	1121.30	5.8964		
871.09	9.3182	1129.67	3.9373		
873.19	4.6614	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	7.4690	1173.23	5.9553		
880.51	4.6693	1177.95	3.9736		
881.60	3.7365	1189.05	5.9729		
883.24	3.7378	1204.77	3.9937		
884.68	4.6738	1221.41	4.0059		
889.28	0.0000	1231.02	5.0162		
894.76	7.4954	1235.36	4.0161		
898.04	7.5010	1238.28	1.0045		
900.72	6.5674	1260.41	0.0000		
903.28	1.8775	1271.87	1.6170		
911.20	3.7617	1274.44	5.0552		
912.08	12.2280	1274.54	5.0555		
923.98	0.0000	1291.59	8.1133		
926.50	5.6620	1298.22	0.0000		
929.11	7.5537	1312.11	0.0000		
935.54	4.7278	1332.49	6.1282		
937.49	7.5679	1362.66	0.0000		
944.13	9.4736	1365.19	4.1084		
946.00	5.6865	1368.63	0.0000		
949.00	4.7418	1384.29	3.0912		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:25:19.74

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29407                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299015.CNF:1
Background file  : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM40.CNF:522
Background date  : 28-JUL-2024 11:31:12
Sample date      : 26-JUN-2024 10:05:00 Acquisition date : 30-JUL-2024 11:20:47
Sample ID        : G674299015 Sample quantity : 8.95100E+01 GRAM
Detector name     : GAM40 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.28 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	64.12*	6	47	0.61	129.31	125	6	1.64E-03	196.9	
2	4	83.39	17	53	1.39	167.88	162	17	4.77E-03	77.5	1.20E+00
3	4	87.10*	37	39	1.40	175.31	162	17	1.02E-02	37.1	
4	0	92.98*	13	119	1.31	187.08	182	13	3.62E-03	185.3	
5	0	186.41*	28	51	0.97	374.14	370	9	7.74E-03	53.5	
6	4	238.57*	65	42	1.32	478.56	474	18	1.80E-02	23.1	2.43E+00
7	4	241.97	20	44	1.73	485.36	474	18	5.45E-03	76.2	
8	0	295.39	64	25	0.92	592.28	587	9	1.78E-02	18.8	
9	0	352.46*	88	21	1.60	706.51	701	15	2.45E-02	16.4	
10	0	383.60	7	4	1.05	768.85	764	7	1.81E-03	61.8	
11	0	394.19	10	5	1.51	790.03	787	6	2.64E-03	47.9	
12	0	489.98	5	15	1.05	981.73	976	8	1.52E-03	126.5	
13	0	609.30*	70	3	1.29	1220.49	1215	11	1.94E-02	13.8	
14	0	619.55	8	7	0.47	1241.00	1236	7	2.22E-03	65.3	
15	0	656.16	10	7	3.37	1314.24	1308	10	2.65E-03	62.7	
16	0	661.92*	12	2	2.28	1325.77	1321	9	3.22E-03	41.4	
17	5	738.85	9	2	1.51	1479.66	1478	10	2.46E-03	32.2	1.22E+00
18	5	741.52	9	2	1.52	1485.01	1478	10	2.60E-03	38.7	
19	0	763.64*	10	9	0.56	1529.26	1521	13	2.74E-03	74.7	
20	0	848.61	9	3	2.23	1699.22	1693	10	2.60E-03	45.6	
21	0	865.37	6	7	0.93	1732.74	1724	10	1.59E-03	98.3	
22	0	912.68*	15	12	1.88	1827.37	1818	11	4.16E-03	52.7	
23	0	916.39	12	2	2.37	1834.79	1831	8	3.29E-03	35.8	
24	0	969.74*	15	3	1.72	1941.49	1936	12	4.29E-03	37.4	
25	0	1044.38	10	3	1.00	2090.75	2083	11	2.75E-03	45.9	
26	0	1120.57	10	8	1.67	2243.10	2237	11	2.87E-03	61.7	
27	0	1461.04*	35	0	1.88	2923.71	2918	10	9.78E-03	18.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299015.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 10:05:00	Acquisition date	: 30-JUL-2024 11:20:47
Sample ID	: G674299015	Sample quantity	: 89.510 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA40	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.28 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	33	10.66*	9.685E-01	2.654E+00	2.654E+00	36.81
CD-109	88.03	34	3.70*	4.282E+00	1.791E+00	1.885E+00	74.26
AG-110	657.50	9	4.50*	1.989E+00	8.259E-01	9.078E-01	125.49
SN-126	64.28	5	9.60	1.838E+00	2.570E-01	2.570E-01	393.89
	86.94	34	8.90	4.282E+00	7.447E-01	7.447E-01	74.26
	87.57	34	37.00*	4.282E+00	1.791E-01	1.791E-01	74.26
BA-137M	661.66	11	89.90*	1.975E+00	5.070E-02	5.081E-02	82.77
CS-137	661.66	11	85.10*	1.975E+00	5.356E-02	5.367E-02	82.77
BI-211	72.87	-----	1.23	2.870E+00	-----	Line Not Found	-----
	351.06	82	12.92*	3.214E+00	1.647E+00	1.647E+00	32.88
BI-214	609.32	65	45.49*	2.115E+00	5.640E-01	5.641E-01	27.58
	1120.29	10	14.92	1.224E+00	4.397E-01	4.398E-01	123.46
	1764.49	-----	15.30	8.540E-01	-----	Line Not Found	-----
PB-214	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.351E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.978E-01	32.88
RN-222	609.32	65	45.49*	2.115E+00	5.640E-01	5.641E-01	27.58
	1120.29	10	14.92	1.224E+00	4.397E-01	4.398E-01	123.46
	1764.49	-----	15.30	8.540E-01	-----	Line Not Found	-----
RA-224	240.99	18	4.10*	4.221E+00	8.768E-01	8.768E-01	152.46
RA-226	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.351E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.978E-01	32.88
TH-230	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.350E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.977E-01	32.88
TH-234	63.29	5	3.70*	1.838E+00	6.667E-01	6.667E-01	393.89
	92.59	12	4.23	4.707E+00	5.035E-01	5.035E-01	370.53
U-234	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.350E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.977E-01	32.88
U-238	63.29	5	3.70*	1.838E+00	6.667E-01	6.667E-01	393.89
	92.59	12	4.23	4.707E+00	5.035E-01	5.035E-01	370.53

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299015.CNF;1
Acquisition date : 30-JUL-2024 11:20:47 Sensitivity : 3.000
Detector ID : GAM40 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.28 Half life ratio : *****
Sample date : 26-JUN-2024 10:05:00 Analyst initials: RXF2
Sample ID : G674299015 Sample Quantity : 8.9510E+01 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 31-OCT-2023 08:42:58 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM40_CAN.CNF;14

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	2.654E+00	9.575E-01	5.894E-01
CD-109	1.885E+00	1.372E+00	1.669E+00
AG-110	9.078E-01	1.116E+00	1.713E+00
SN-126	1.791E-01	1.304E-01	1.424E-01
BA-137M	5.081E-02	4.122E-02	5.076E-02
CS-137	5.367E-02	4.354E-02	5.362E-02
BI-211	1.647E+00	5.307E-01	4.068E-01
BI-214	5.641E-01	1.525E-01	1.292E-01
PB-214	5.978E-01	1.926E-01	1.479E-01
RN-222	5.641E-01	1.525E-01	1.292E-01
RA-224	8.768E-01	1.310E+00	1.229E+00
RA-226	5.978E-01	1.926E-01	1.479E-01
TH-230	5.977E-01	1.926E-01	1.479E-01
TH-234	6.667E-01	2.574E+00	3.836E+00
U-234	5.977E-01	1.926E-01	1.479E-01
U-238	6.667E-01	2.574E+00	3.836E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.522E-01	5.040E-01	9.315E-01	NOT IDENT.
NA-22	-1.882E-02	4.060E-02	7.701E-02	NOT IDENT.
NA-24	0.000E+00	1.250E+15	0.000E+00	SHORT HLIF
AL-26	-2.269E-02	5.007E-02	9.147E-02	NOT IDENT.
SC-46	2.468E-02	4.654E-02	1.067E-01	FAIL ABUN
V-48	6.486E-03	1.864E-01	3.714E-01	NOT IDENT.
CR-51	-9.768E-02	6.424E-01	1.234E+00	NOT IDENT.
MN-52	1.316E+00	3.970E+00	8.748E+00	NOT IDENT.
MN-54	3.996E-03	3.048E-02	6.668E-02	NOT IDENT.
CO-56	4.739E-03	5.240E-02	9.726E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	1.786E-04	2.972E-02	5.381E-02	NOT IDENT.
CO-58	4.622E-03	4.847E-02	9.972E-02	NOT IDENT.
FE-59	-6.038E-02	1.302E-01	2.457E-01	NOT IDENT.

CO-60	2.454E-03	4.324E-02	9.748E-02	NOT IDENT.
ZN-65	4.456E-02	5.042E-02	1.579E-01	NOT IDENT.
GE-68	-8.880E-01	1.584E+00	2.895E+00	NOT IDENT.
AS-73	-1.496E+00	1.957E+00	3.362E+00	NOT IDENT.
AS-74	7.306E-02	1.884E-01	4.078E-01	NOT IDENT.
SE-75	-1.051E-02	5.437E-02	9.400E-02	NOT IDENT.
BR-77	0.000E+00	4.770E+03	0.000E+00	SHORT HLIF
SR-82	8.682E-01	5.761E-01	1.505E+00	NOT IDENT.
RB-83	-2.796E-02	1.109E-01	1.993E-01	NOT IDENT.
RB-84	6.346E-02	1.171E-01	2.602E-01	NOT IDENT.
KR-85	-1.013E+01	1.102E+01	1.815E+01	NOT IDENT.
SR-85	-6.570E-02	7.125E-02	1.173E-01	NOT IDENT.
RB-86	-1.319E+00	1.978E+00	3.510E+00	NOT IDENT.
Y-88	8.852E-03	5.607E-02	1.315E-01	NOT IDENT.
Y-91	-4.400E+01	2.973E+01	3.633E+01	NOT IDENT.
NB-94	4.995E-04	3.159E-02	6.387E-02	NOT IDENT.
NB-95	-3.970E-02	6.623E-02	9.787E-02	NOT IDENT.
NB-95M	-1.628E-01	2.066E-01	2.893E-01	NOT IDENT.
ZR-95	3.722E-02	1.315E-01	2.400E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.226E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.076E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.885E+39	0.000E+00	SHORT HLIF
RH-101	-1.087E-02	3.602E-02	6.158E-02	NOT IDENT.
RH-102	-3.030E-02	7.194E-02	1.279E-01	NOT IDENT.
RU-103	-4.828E-02	6.525E-02	1.109E-01	FAIL ABUN
RH-106	2.457E-02	2.936E-01	5.641E-01	NOT IDENT.
RU-106	2.457E-02	2.936E-01	5.641E-01	NOT IDENT.
AG-108M	2.782E-03	3.313E-02	6.581E-02	NOT IDENT.
AG-110M	-8.592E-02	6.481E-02	7.606E-02	FAIL ABUN
SN-113	-3.474E-02	5.793E-02	8.934E-02	NOT IDENT.
CD-115	0.000E+00	4.867E+03	0.000E+00	SHORT HLIF
SN-117M	6.600E-02	1.456E-01	2.776E-01	NOT IDENT.
SB-122	0.000E+00	3.166E+02	0.000E+00	SHORT HLIF
TE-123M	1.158E-02	3.246E-02	6.114E-02	NOT IDENT.
SB-124	1.330E-02	9.400E-02	2.475E-01	NOT IDENT.
SB-125	7.710E-02	1.078E-01	2.307E-01	NOT IDENT.
TE-125M	-8.429E+00	1.515E+01	2.568E+01	NOT IDENT.
I-126	7.023E-01	5.964E-01	1.452E+00	NOT IDENT.
SB-126	7.617E-02	4.263E-01	8.827E-01	NOT IDENT.
SB-127	-1.270E+00	3.799E+01	7.632E+01	NOT IDENT.
I-131	1.953E-02	6.060E-01	1.207E+00	NOT IDENT.
I-132	0.000E+00	1.908E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	5.144E+01	0.000E+00	SHORT HLIF
BA-133	1.852E-02	4.196E-02	8.291E-02	FAIL ABUN
I-133	0.000E+00	2.371E+10	0.000E+00	SHORT HLIF
CS-134	3.420E-02	4.168E-02	9.866E-02	NOT IDENT.
I-135	0.000E+00	4.716E+36	0.000E+00	SHORT HLIF
CS-136	1.007E-01	2.841E-01	6.225E-01	NOT IDENT.
LA-138	-1.185E-02	9.150E-02	1.816E-01	NOT IDENT.
CE-139	-9.975E-03	3.724E-02	6.422E-02	NOT IDENT.
BA-140	6.617E-01	7.896E-01	1.791E+00	NOT IDENT.
LA-140	-1.280E-01	2.465E-01	4.494E-01	NOT IDENT.
CE-141	3.968E-02	9.636E-02	1.823E-01	NOT IDENT.
CE-143	0.000E+00	2.206E+06	0.000E+00	SHORT HLIF
CE-144	-1.178E-02	2.291E-01	4.103E-01	NOT IDENT.
PM-144	-5.958E-03	4.394E-02	8.248E-02	NOT IDENT.
PR-144	-4.648E-01	3.318E+00	6.224E+00	NOT IDENT.
PM-146	3.024E-03	4.849E-02	9.572E-02	NOT IDENT.
ND-147	1.912E-01	1.714E+00	3.561E+00	NOT IDENT.
PM-147	-1.716E+02	8.708E+02	1.536E+03	NOT IDENT.
PM-149	0.000E+00	3.590E+04	0.000E+00	SHORT HLIF
EU-150	5.380E-03	2.902E-02	5.814E-02	FAIL ABUN
EU-152	-4.638E-02	1.150E-01	2.115E-01	NOT IDENT.
GD-153	-1.744E-02	1.093E-01	1.808E-01	NOT IDENT.
EU-154	-4.835E-02	1.156E-01	2.226E-01	NOT IDENT.
EU-155	1.170E-02	1.082E-01	2.014E-01	FAIL ABUN
TB-160	-1.309E-01	2.123E-01	3.499E-01	FAIL ABUN
HO-166M	5.127E-03	6.483E-02	1.304E-01	NOT IDENT.
TM-171	1.731E+00	3.763E+01	7.180E+01	NOT IDENT.
HF-172	-5.060E-03	2.170E-01	3.841E-01	FAIL ABUN
LU-172	-5.469E-02	5.716E-02	8.788E-02	FAIL ABUN
LU-176	9.654E-03	3.026E-02	5.674E-02	FAIL ABUN
HF-181	2.552E-02	6.806E-02	1.412E-01	NOT IDENT.
TA-182	-6.030E-02	1.546E-01	3.073E-01	FAIL ABUN
RE-183	-5.309E-01	3.689E-01	5.614E-01	NOT IDENT.
RE-184	4.809E-02	2.253E-01	4.587E-01	NOT IDENT.
W-188	6.119E+00	1.061E+01	1.929E+01	FAIL ABUN

IR-192	1.909E-02	4.272E-02	8.909E-02	FAIL ABUN
HG-203	3.202E-02	6.569E-02	1.226E-01	NOT IDENT.
TL-204	4.461E+00	6.371E+00	1.260E+01	FAIL ABUN
BI-207	-5.541E-02	5.052E-02	8.033E-02	NOT IDENT.
TL-208	6.340E-02	6.648E-02	1.378E-01	NOT IDENT.
BI-210	1.747E+00	9.896E+00	1.908E+01	NOT IDENT.
PB-210	1.747E+00	9.896E+00	1.908E+01	NOT IDENT.
PB-211	-6.221E-01	7.858E-01	1.348E+00	NOT IDENT.
BI-212	5.141E-01	5.791E-01	1.314E+00	NOT IDENT.
PB-212	0.000E+00	1.221E-01	2.378E-01	FAIL ABUN
BI-213	9.498E-02	1.215E-01	2.628E-01	NOT IDENT.
RN-219	1.257E-01	4.400E-01	8.989E-01	NOT IDENT.
RA-223	-4.456E-01	7.162E-01	1.249E+00	FAIL ABUN
AC-225	-5.689E-01	2.416E+00	4.155E+00	NOT IDENT.
AC-227	-2.213E-01	2.779E-01	4.277E-01	NOT IDENT.
TH-227	-2.213E-01	2.779E-01	4.277E-01	NOT IDENT.
AC-228	3.041E-01	3.143E-01	5.895E-01	FAIL ABUN
RA-228	3.041E-01	3.143E-01	5.895E-01	FAIL ABUN
TH-228	0.000E+00	1.221E-01	2.378E-01	FAIL ABUN
TH-229	-1.897E-01	5.985E-01	1.018E+00	FAIL ABUN
PA-231	-1.200E-01	5.875E-01	9.980E-01	NOT IDENT.
TH-231	-4.456E-01	7.162E-01	1.249E+00	FAIL ABUN
TH-232	3.041E-01	3.143E-01	5.895E-01	FAIL ABUN
PA-233	-5.065E-03	6.470E-02	1.267E-01	NOT IDENT.
PA-234	6.639E-02	3.196E-01	6.754E-01	NOT IDENT.
PA-234M	1.120E+00	5.184E+00	1.145E+01	NOT IDENT.
U-235	7.431E-02	2.162E-01	3.917E-01	FAIL ABUN
NP-237	-5.065E-03	6.470E-02	1.267E-01	NOT IDENT.
NP-238	0.000E+00	7.997E+03	0.000E+00	SHORT HLIF
NP-239	-2.691E-01	2.801E-01	4.483E-01	NOT IDENT.
PU-239	-3.843E+01	3.838E+02	6.823E+02	NOT IDENT.
AM-241	1.141E-01	2.353E-01	4.684E-01	NOT IDENT.
AM-243	3.126E-02	7.586E-02	1.427E-01	NOT IDENT.
CM-243	-5.339E-02	1.126E-01	1.946E-01	NOT IDENT.
BK-247	-6.317E-02	9.485E-02	1.497E-01	FAIL ABUN
CM-247	4.842E-02	3.835E-02	8.913E-02	NOT IDENT.
CF-249	-1.385E-02	4.306E-02	8.056E-02	NOT IDENT.
CF-251	6.652E-02	1.462E-01	2.745E-01	NOT IDENT.
ANH-511	-1.103E-01	6.429E-02	1.257E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	33	10.66*	9.685E-01	2.654E+00	2.654E+00	36.81
CD-109	88.03	34	3.70*	4.282E+00	1.791E+00	1.885E+00	74.26
AG-110	657.50	9	4.50*	1.989E+00	8.259E-01	9.078E-01	125.49
SN-126	64.28	5	9.60	1.838E+00	2.570E-01	2.570E-01	393.89
	86.94	34	8.90	4.282E+00	7.447E-01	7.447E-01	74.26
	87.57	34	37.00*	4.282E+00	1.791E-01	1.791E-01	74.26
BA-137M	661.66	11	89.90*	1.975E+00	5.070E-02	5.081E-02	82.77
CS-137	661.66	11	85.10*	1.975E+00	5.356E-02	5.367E-02	82.77
BI-211	72.87	-----	1.23	2.870E+00	-----	Line Not Found	-----
	351.06	82	12.92*	3.214E+00	1.647E+00	1.647E+00	32.88
BI-214	609.32	65	45.49*	2.115E+00	5.640E-01	5.641E-01	27.58
	1120.29	10	14.92	1.224E+00	4.397E-01	4.398E-01	123.46
	1764.49	-----	15.30	8.540E-01	-----	Line Not Found	-----
PB-214	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.351E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.978E-01	32.88
RN-222	609.32	65	45.49*	2.115E+00	5.640E-01	5.641E-01	27.58
	1120.29	10	14.92	1.224E+00	4.397E-01	4.398E-01	123.46
	1764.49	-----	15.30	8.540E-01	-----	Line Not Found	-----
RA-224	240.99	18	4.10*	4.221E+00	8.768E-01	8.768E-01	152.46
RA-226	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.351E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.978E-01	32.88
TH-230	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.350E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.977E-01	32.88
TH-234	63.29	5	3.70*	1.838E+00	6.667E-01	6.667E-01	393.89
	92.59	12	4.23	4.707E+00	5.035E-01	5.035E-01	370.53
U-234	74.82	-----	5.80	3.091E+00	-----	Line Not Found	-----
	77.11	-----	9.70	3.341E+00	-----	Line Not Found	-----
	87.09	34	3.41	4.282E+00	1.944E+00	1.944E+00	74.26
	242.00	18	7.25	4.221E+00	4.959E-01	4.959E-01	152.46
	295.22	59	18.42	3.658E+00	7.350E-01	7.350E-01	37.58
	351.93	82	35.60*	3.214E+00	5.977E-01	5.977E-01	32.88
U-238	63.29	5	3.70*	1.838E+00	6.667E-01	6.667E-01	393.89
	92.59	12	4.23	4.707E+00	5.035E-01	5.035E-01	370.53

Flag: "*" = Keyline

Total number of lines in spectrum 27
Number of unidentified lines 7
Number of lines tentatively identified by NID 20 74.07%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.654E+00	2.654E+00	0.977E+00	36.81	
CD-109	461.40D	1.05	1.791E+00	1.885E+00	1.400E+00	74.26	
AG-110	249.76D	1.10	8.259E-01	9.078E-01	11.39E-01	125.49	
SN-126	2.30E+05Y	1.00	1.791E-01	1.791E-01	1.330E-01	74.26	
BA-137M	30.08Y	1.00	5.070E-02	5.081E-02	4.206E-02	82.77	
CS-137	30.08Y	1.00	5.356E-02	5.367E-02	4.443E-02	82.77	
BI-211	7.04E+08Y	1.00	1.647E+00	1.647E+00	0.542E+00	32.88	
BI-214	1600.00Y	1.00	5.640E-01	5.641E-01	1.556E-01	27.58	
PB-214	1600.00Y	1.00	5.977E-01	5.978E-01	1.965E-01	32.88	
RN-222	1600.00Y	1.00	5.640E-01	5.641E-01	1.556E-01	27.58	
RA-224	1.41E+10Y	1.00	8.768E-01	8.768E-01	13.37E-01	152.46	
RA-226	1600.00Y	1.00	5.977E-01	5.978E-01	1.965E-01	32.88	
TH-230	7.54E+04Y	1.00	5.977E-01	5.977E-01	1.965E-01	32.88	
TH-234	4.47E+09Y	1.00	6.667E-01	6.667E-01	26.26E-01	393.89	
U-234	2.45E+05Y	1.00	5.977E-01	5.977E-01	1.965E-01	32.88	
U-238	4.47E+09Y	1.00	6.667E-01	6.667E-01	26.26E-01	393.89	

Total Activity : 1.293E+01 1.311E+01

Grand Total Activity : 1.293E+01 1.311E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	83.39	16	49	1.39	167.88	162	17	4.77E-03	****	3.96E+00	T
0	186.41	26	47	0.97	374.14	370	9	7.74E-03	****	5.00E+00	T
4	238.57	60	39	1.32	478.56	474	18	1.80E-02	46.1	4.26E+00	T
0	383.60	6	3	1.05	768.85	764	7	1.81E-03	****	3.02E+00	T
0	394.19	9	4	1.51	790.03	787	6	2.64E-03	95.9	2.96E+00	
0	489.98	5	13	1.05	981.73	976	8	1.52E-03	****	2.51E+00	
0	619.55	7	6	0.47	1241.00	1236	7	2.22E-03	****	2.09E+00	T
5	738.85	8	2	1.51	1479.66	1478	10	2.46E-03	64.4	1.80E+00	T
5	741.52	9	2	1.52	1485.01	1478	10	2.60E-03	77.4	1.79E+00	
0	763.64	9	8	0.56	1529.26	1521	13	2.74E-03	****	1.75E+00	T
0	848.61	9	2	2.23	1699.22	1693	10	2.60E-03	91.1	1.59E+00	
0	865.37	5	7	0.93	1732.74	1724	10	1.59E-03	****	1.56E+00	
0	912.68	14	11	1.88	1827.37	1818	11	4.16E-03	****	1.48E+00	T
0	916.39	11	2	2.37	1834.79	1831	8	3.29E-03	71.6	1.48E+00	
0	969.74	14	2	1.72	1941.49	1936	12	4.29E-03	74.9	1.40E+00	T
0	1044.38	9	3	1.00	2090.75	2083	11	2.75E-03	91.8	1.31E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                    *
*****
*                                     DETECTOR AND SAMPLE DATA                *
*                                     *                                         *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299015.CNF;1 *
* Acquisition date   : 30-JUL-2024 11:20:47 Sensitivity      : 3.000          *
* Detector ID       : GAM40 Energy tolerance: 1.500          *
* Elapsed live time : 0 01:00:00.00 Abundance limit : 75.000      *
* Elapsed real time : 0 01:00:00.28 Half life ratio : *****          *
* Sample date       : 26-JUN-2024 10:05:00 Nuclide Library : SOLID          *
* Sample ID         : G674299015 Analyst initials: RXF2          *
* Batch Number      : 2636542 Sample Quantity : 8.9510E+01 GRAM      *
* Wet wt corr       : 1.00000 Wet Weight : 0.00000          *
*                                     Dry Weight : 0.00000          *
*****
*                                     CALIBRATION INFORMATION                  *
*                                     *                                         *
* Eff. Cal. date    : 31-OCT-2023 08:42:58 Eff. Geometry   : CAN          *
* Eff. File         : DKA100:[CANBERRA.GAMMA]EFF_GAM40_CAN.CNF;14          *
*****
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Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	1.860E-01
CD-109	7.620E-01
AG-110	7.191E-01
SN-126	6.427E-02
BA-137M	1.907E-02
CS-137	2.014E-02
BI-211	1.766E-01
BI-214	5.298E-02
PB-214	6.424E-02
RN-222	5.298E-02
RA-224	5.502E-01
RA-226	6.424E-02
TH-230	6.423E-02
TH-234	1.746E+00
U-234	6.423E-02
U-238	1.746E+00

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.007E-01	NOT IDENT.
NA-22	2.793E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.241E-02	NOT IDENT.
SC-46	4.362E-02	FAIL ABUN
V-48	1.502E-01	NOT IDENT.
CR-51	5.407E-01	NOT IDENT.
MN-52	3.595E+00	NOT IDENT.
MN-54	2.585E-02	NOT IDENT.
CO-56	3.907E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.440E-02	NOT IDENT.
CO-58	4.037E-02	NOT IDENT.
FE-59	9.579E-02	NOT IDENT.
CO-60	3.789E-02	NOT IDENT.

ZN-65	5.909E-02	NOT IDENT.
GE-68	1.149E+00	NOT IDENT.
AS-73	1.481E+00	NOT IDENT.
AS-74	1.707E-01	NOT IDENT.
SE-75	4.119E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.432E-01	NOT IDENT.
RB-83	8.605E-02	NOT IDENT.
RB-84	1.084E-01	NOT IDENT.
KR-85	8.006E+00	NOT IDENT.
SR-85	5.173E-02	NOT IDENT.
RB-86	1.393E+00	NOT IDENT.
Y-88	4.890E-02	NOT IDENT.
Y-91	1.253E+01	NOT IDENT.
NB-94	2.597E-02	NOT IDENT.
NB-95	3.963E-02	NOT IDENT.
NB-95M	1.296E-01	NOT IDENT.
ZR-95	1.031E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.785E-02	NOT IDENT.
RH-102	5.409E-02	NOT IDENT.
RU-103	4.644E-02	FAIL ABUN
RH-106	2.244E-01	NOT IDENT.
RU-106	2.244E-01	NOT IDENT.
AG-108M	2.843E-02	NOT IDENT.
AG-110M	2.695E-02	FAIL ABUN
SN-113	3.758E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.253E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.759E-02	NOT IDENT.
SB-124	8.379E-02	NOT IDENT.
SB-125	1.016E-01	NOT IDENT.
TE-125M	1.170E+01	NOT IDENT.
I-126	6.187E-01	NOT IDENT.
SB-126	3.648E-01	NOT IDENT.
SB-127	3.084E+01	NOT IDENT.
I-131	5.207E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.579E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	4.131E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.466E-01	NOT IDENT.
LA-138	7.341E-02	NOT IDENT.
CE-139	2.901E-02	NOT IDENT.
BA-140	7.707E-01	NOT IDENT.
LA-140	1.421E-01	NOT IDENT.
CE-141	8.263E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.859E-01	NOT IDENT.
PM-144	3.491E-02	NOT IDENT.
PR-144	2.633E+00	NOT IDENT.
PM-146	4.134E-02	NOT IDENT.
ND-147	1.470E+00	NOT IDENT.
PM-147	6.973E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.559E-02	FAIL ABUN
EU-152	9.288E-02	NOT IDENT.
GD-153	8.191E-02	NOT IDENT.
EU-154	8.164E-02	NOT IDENT.
EU-155	9.065E-02	FAIL ABUN
TB-160	1.414E-01	FAIL ABUN
HO-166M	5.408E-02	NOT IDENT.
TM-171	3.207E+01	NOT IDENT.
HF-172	1.741E-01	FAIL ABUN
LU-172	2.924E-02	FAIL ABUN
LU-176	2.502E-02	FAIL ABUN
HF-181	6.110E-02	NOT IDENT.
TA-182	1.085E-01	FAIL ABUN
RE-183	2.413E-01	NOT IDENT.
RE-184	1.912E-01	NOT IDENT.
W-188	8.595E+00	FAIL ABUN
IR-192	3.921E-02	FAIL ABUN

HG-203	5.535E-02	NOT IDENT.
TL-204	5.757E+00	FAIL ABUN
BI-207	2.846E-02	NOT IDENT.
TL-208	6.290E-02	NOT IDENT.
BI-210	8.556E+00	NOT IDENT.
PB-210	8.556E+00	NOT IDENT.
PB-211	5.722E-01	NOT IDENT.
BI-212	5.652E-01	NOT IDENT.
PB-212	1.130E-01	FAIL ABUN
BI-213	1.156E-01	NOT IDENT.
RN-219	3.915E-01	NOT IDENT.
RA-223	5.430E-01	FAIL ABUN
AC-225	1.849E+00	NOT IDENT.
AC-227	1.849E-01	NOT IDENT.
TH-227	1.849E-01	NOT IDENT.
AC-228	2.657E-01	FAIL ABUN
RA-228	2.657E-01	FAIL ABUN
TH-228	1.130E-01	FAIL ABUN
TH-229	4.577E-01	FAIL ABUN
PA-231	4.413E-01	NOT IDENT.
TH-231	5.430E-01	FAIL ABUN
TH-232	2.657E-01	FAIL ABUN
PA-233	5.510E-02	NOT IDENT.
PA-234	2.727E-01	NOT IDENT.
PA-234M	4.746E+00	NOT IDENT.
U-235	1.777E-01	FAIL ABUN
NP-237	5.510E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	1.991E-01	NOT IDENT.
PU-239	3.101E+02	NOT IDENT.
AM-241	2.108E-01	NOT IDENT.
AM-243	6.597E-02	NOT IDENT.
CM-243	8.713E-02	NOT IDENT.
BK-247	6.546E-02	FAIL ABUN
CM-247	3.925E-02	NOT IDENT.
CF-249	3.463E-02	NOT IDENT.
CF-251	1.248E-01	NOT IDENT.
ANH-511	5.828E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299015.CNF;1
Acquisition date : 30-JUL-2024 11:20:47 Sensitivity : 3.000
Detector ID : GAM40 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.28 Half life ratio : *****
Sample date : 26-JUN-2024 10:05:00 Nuclide Library : SOLID
Sample ID : G674299015 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 8.9510E+01 GRAM
Quantity Err(%) : 1.1172E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 31-OCT-2023 08:42:58 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM40_CAN.CNF;14

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	2.654E+00	9.903E-01	9.903E-01
CD-109	1.885E+00	1.393E+00	1.393E+00
AG-110	9.078E-01	1.119E+00	1.119E+00
SN-126	1.791E-01	1.320E-01	1.320E-01
BA-137M	5.081E-02	4.143E-02	4.143E-02
CS-137	5.367E-02	4.377E-02	4.377E-02
BI-211	1.647E+00	5.507E-01	5.507E-01
BI-214	5.641E-01	1.601E-01	1.601E-01
PB-214	5.978E-01	1.996E-01	1.996E-01
RN-222	5.641E-01	1.601E-01	1.601E-01
RA-224	8.768E-01	1.313E+00	1.313E+00
RA-226	5.978E-01	1.996E-01	1.996E-01
TH-230	5.977E-01	1.996E-01	1.996E-01
TH-234	6.667E-01	2.579E+00	2.579E+00
U-234	5.977E-01	1.996E-01	1.996E-01
U-238	6.667E-01	2.579E+00	2.579E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.522E-01	5.042E-01	5.089E-01	NOT IDENT.
NA-22	-1.882E-02	4.063E-02	4.151E-02	NOT IDENT.
NA-24	-1.025E+14	1.250E+15	1.251E+15	SHORT HLIF
AL-26	-2.269E-02	5.010E-02	5.114E-02	NOT IDENT.
SC-46	2.468E-02	4.660E-02	4.791E-02	FAIL ABUN
V-48	6.486E-03	1.864E-01	1.865E-01	NOT IDENT.
CR-51	-9.768E-02	6.425E-01	6.440E-01	NOT IDENT.
MN-52	1.316E+00	3.972E+00	4.016E+00	NOT IDENT.
MN-54	3.996E-03	3.048E-02	3.054E-02	NOT IDENT.
CO-56	4.739E-03	5.240E-02	5.245E-02	NOT IDENT.
MN-56	1.000E+41	1.106E+42	0.000E+00	SHORT HLIF
CO-57	1.786E-04	2.972E-02	2.972E-02	NOT IDENT.
CO-58	4.622E-03	4.847E-02	4.852E-02	NOT IDENT.
FE-59	-6.038E-02	1.304E-01	1.332E-01	NOT IDENT.

CO-60	2.454E-03	4.324E-02	4.326E-02	NOT IDENT.
ZN-65	4.456E-02	5.056E-02	5.440E-02	NOT IDENT.
GE-68	-8.880E-01	1.586E+00	1.635E+00	NOT IDENT.
AS-73	-1.496E+00	1.990E+00	2.102E+00	NOT IDENT.
AS-74	7.306E-02	1.886E-01	1.915E-01	NOT IDENT.
SE-75	-1.051E-02	5.438E-02	5.459E-02	NOT IDENT.
BR-77	1.055E+04	1.146E+04	1.241E+04	SHORT HLIF
SR-82	8.682E-01	5.811E-01	7.006E-01	NOT IDENT.
RB-83	-2.796E-02	1.110E-01	1.117E-01	NOT IDENT.
RB-84	6.346E-02	1.172E-01	1.206E-01	NOT IDENT.
KR-85	-1.013E+01	1.106E+01	1.196E+01	NOT IDENT.
SR-85	-6.570E-02	7.149E-02	7.738E-02	NOT IDENT.
RB-86	-1.319E+00	1.981E+00	2.069E+00	NOT IDENT.
Y-88	8.852E-03	5.608E-02	5.622E-02	NOT IDENT.
Y-91	-4.400E+01	2.995E+01	3.592E+01	NOT IDENT.
NB-94	4.995E-04	3.159E-02	3.159E-02	NOT IDENT.
NB-95	-3.970E-02	6.632E-02	6.869E-02	NOT IDENT.
NB-95M	-1.628E-01	2.074E-01	2.200E-01	NOT IDENT.
ZR-95	3.722E-02	1.316E-01	1.326E-01	NOT IDENT.
NB-97	1.000E+41	3.813E+41	0.000E+00	SHORT HLIF
ZR-97	-2.373E+14	3.233E+14	3.406E+14	SHORT HLIF
MO-99	1.706E+03	1.088E+03	1.333E+03	SHORT HLIF
TC-99M	1.178E+39	1.890E+39	0.000E+00	SHORT HLIF
RH-101	-1.087E-02	3.608E-02	3.641E-02	NOT IDENT.
RH-102	-3.030E-02	7.202E-02	7.330E-02	NOT IDENT.
RU-103	-4.828E-02	6.540E-02	6.893E-02	FAIL ABUN
RH-106	2.457E-02	2.936E-01	2.938E-01	NOT IDENT.
RU-106	2.457E-02	2.936E-01	2.938E-01	NOT IDENT.
AG-108M	2.782E-03	3.313E-02	3.315E-02	NOT IDENT.
AG-110M	-8.592E-02	6.532E-02	7.594E-02	FAIL ABUN
SN-113	-3.474E-02	5.801E-02	6.008E-02	NOT IDENT.
CD-115	-9.629E+02	4.868E+03	4.888E+03	SHORT HLIF
SN-117M	6.600E-02	1.457E-01	1.487E-01	NOT IDENT.
SB-122	2.335E+02	3.173E+02	3.343E+02	SHORT HLIF
TE-123M	1.158E-02	3.248E-02	3.289E-02	NOT IDENT.
SB-124	1.330E-02	9.401E-02	9.420E-02	NOT IDENT.
SB-125	7.710E-02	1.080E-01	1.135E-01	NOT IDENT.
TE-125M	-8.429E+00	1.517E+01	1.563E+01	NOT IDENT.
I-126	7.023E-01	6.001E-01	6.785E-01	NOT IDENT.
SB-126	7.617E-02	4.264E-01	4.277E-01	NOT IDENT.
SB-127	-1.270E+00	3.799E+01	3.800E+01	NOT IDENT.
I-131	1.953E-02	6.060E-01	6.061E-01	NOT IDENT.
I-132	1.000E+41	2.839E+41	0.000E+00	SHORT HLIF
TE-132	-2.092E+01	5.151E+01	5.236E+01	SHORT HLIF
BA-133	1.852E-02	4.200E-02	4.282E-02	FAIL ABUN
I-133	-1.085E+10	2.384E+10	2.434E+10	SHORT HLIF
CS-134	3.420E-02	4.179E-02	4.454E-02	NOT IDENT.
I-135	3.385E+36	5.400E+36	0.000E+00	SHORT HLIF
CS-136	1.007E-01	2.843E-01	2.879E-01	NOT IDENT.
LA-138	-1.185E-02	9.150E-02	9.166E-02	NOT IDENT.
CE-139	-9.975E-03	3.730E-02	3.757E-02	NOT IDENT.
BA-140	6.617E-01	7.918E-01	8.462E-01	NOT IDENT.
LA-140	-1.280E-01	2.468E-01	2.534E-01	NOT IDENT.
CE-141	3.968E-02	9.642E-02	9.807E-02	NOT IDENT.
CE-143	-7.693E+05	2.207E+06	2.234E+06	SHORT HLIF
CE-144	-1.178E-02	2.291E-01	2.292E-01	NOT IDENT.
PM-144	-5.958E-03	4.394E-02	4.402E-02	NOT IDENT.
PR-144	-4.648E-01	3.318E+00	3.325E+00	NOT IDENT.
PM-146	3.024E-03	4.849E-02	4.851E-02	NOT IDENT.
ND-147	1.912E-01	1.714E+00	1.716E+00	NOT IDENT.
PM-147	-1.716E+02	8.709E+02	8.743E+02	NOT IDENT.
PM-149	-4.626E+03	3.591E+04	3.597E+04	SHORT HLIF
EU-150	5.380E-03	2.902E-02	2.912E-02	FAIL ABUN
EU-152	-4.638E-02	1.151E-01	1.169E-01	NOT IDENT.
GD-153	-1.744E-02	1.093E-01	1.096E-01	NOT IDENT.
EU-154	-4.835E-02	1.156E-01	1.177E-01	NOT IDENT.
EU-155	1.170E-02	1.083E-01	1.084E-01	FAIL ABUN
TB-160	-1.309E-01	2.127E-01	2.208E-01	FAIL ABUN
HO-166M	5.127E-03	6.484E-02	6.488E-02	NOT IDENT.
TM-171	1.731E+00	3.763E+01	3.764E+01	NOT IDENT.
HF-172	-5.060E-03	2.170E-01	2.171E-01	FAIL ABUN
LU-172	-5.469E-02	5.757E-02	6.263E-02	FAIL ABUN
LU-176	9.654E-03	3.027E-02	3.058E-02	FAIL ABUN
HF-181	2.552E-02	6.810E-02	6.906E-02	NOT IDENT.
TA-182	-6.030E-02	1.546E-01	1.570E-01	FAIL ABUN
RE-183	-5.309E-01	3.782E-01	4.475E-01	NOT IDENT.
RE-184	4.809E-02	2.254E-01	2.264E-01	NOT IDENT.
W-188	6.119E+00	1.064E+01	1.099E+01	FAIL ABUN

IR-192	1.909E-02	4.275E-02	4.361E-02	FAIL ABUN
HG-203	3.202E-02	6.575E-02	6.731E-02	NOT IDENT.
TL-204	4.461E+00	6.398E+00	6.707E+00	FAIL ABUN
BI-207	-5.541E-02	5.075E-02	5.657E-02	NOT IDENT.
TL-208	6.340E-02	6.671E-02	7.258E-02	NOT IDENT.
BI-210	1.747E+00	9.899E+00	9.930E+00	NOT IDENT.
PB-210	1.747E+00	9.899E+00	9.930E+00	NOT IDENT.
PB-211	-6.221E-01	7.880E-01	8.364E-01	NOT IDENT.
BI-212	5.141E-01	5.810E-01	6.255E-01	NOT IDENT.
PB-212	2.701E-01	1.247E-01	1.743E-01	FAIL ABUN
BI-213	9.498E-02	1.218E-01	1.291E-01	NOT IDENT.
RN-219	1.257E-01	4.404E-01	4.440E-01	NOT IDENT.
RA-223	-4.456E-01	7.175E-01	7.451E-01	FAIL ABUN
AC-225	-5.689E-01	2.417E+00	2.430E+00	NOT IDENT.
AC-227	-2.213E-01	2.799E-01	2.972E-01	NOT IDENT.
TH-227	-2.213E-01	2.799E-01	2.972E-01	NOT IDENT.
AC-228	3.041E-01	3.156E-01	3.441E-01	FAIL ABUN
RA-228	3.041E-01	3.156E-01	3.441E-01	FAIL ABUN
TH-228	2.701E-01	1.247E-01	1.743E-01	FAIL ABUN
TH-229	-1.897E-01	5.987E-01	6.048E-01	FAIL ABUN
PA-231	-1.200E-01	5.881E-01	5.906E-01	NOT IDENT.
TH-231	-4.456E-01	7.175E-01	7.451E-01	FAIL ABUN
TH-232	3.041E-01	3.156E-01	3.441E-01	FAIL ABUN
PA-233	-5.065E-03	6.471E-02	6.475E-02	NOT IDENT.
PA-234	6.639E-02	3.285E-01	3.299E-01	NOT IDENT.
PA-234M	1.120E+00	5.185E+00	5.209E+00	NOT IDENT.
U-235	7.431E-02	2.163E-01	2.189E-01	FAIL ABUN
NP-237	-5.065E-03	6.471E-02	6.475E-02	NOT IDENT.
NP-238	1.003E+04	8.047E+03	9.232E+03	SHORT HLIF
NP-239	-2.691E-01	2.816E-01	3.066E-01	NOT IDENT.
PU-239	-3.843E+01	3.838E+02	3.842E+02	NOT IDENT.
AM-241	1.141E-01	2.358E-01	2.414E-01	NOT IDENT.
AM-243	3.126E-02	7.595E-02	7.724E-02	NOT IDENT.
CM-243	-5.339E-02	1.128E-01	1.153E-01	NOT IDENT.
BK-247	-6.317E-02	9.581E-02	9.996E-02	FAIL ABUN
CM-247	4.842E-02	3.939E-02	4.503E-02	NOT IDENT.
CF-249	-1.385E-02	4.309E-02	4.354E-02	NOT IDENT.
CF-251	6.652E-02	1.465E-01	1.495E-01	NOT IDENT.
ANH-511	-1.103E-01	6.504E-02	8.188E-02	NOT IDENT.

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *
* GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	23.2619	85.43	28.6674	131.20	22.7523
45.60	20.8096	86.55	28.7318	133.02	37.3321
46.54	19.9991	86.79	28.7455	133.52	32.1712
49.72	0.0000	86.94	28.7542	136.00	35.4137
51.35	27.3343	87.09	28.7627	136.47	30.2266
51.87	21.1929	87.57	28.7901	140.51	0.0000
52.39	22.9923	88.03	37.1409	143.76	22.1180
52.97	31.0008	88.34	32.6784	144.24	25.2949
53.44	28.3802	88.47	32.6869	145.44	25.3374
54.07	26.6523	89.96	36.6388	152.43	31.9771
57.36	0.0000	1093.63	32.8254	153.25	35.2136
57.53	27.7961	91.11	37.3648	323.87	33.1220
57.98	30.5217	92.59	36.8247	156.02	35.3445
59.27	18.9145	93.35	36.8780	158.56	22.5676
59.32	18.9169	94.56	36.9624	159.00	23.6556
59.54	20.7302	94.65	36.9685	162.33	29.1580
60.96	28.9460	94.67	36.9699	162.66	31.3311
61.17	33.7883	94.87	36.9838	163.33	30.2772
62.93	34.5425	97.43	33.9005	165.86	33.6295
63.29	34.5731	98.43	26.1253	176.31	41.7631
63.58	34.5978	98.44	26.1257	176.60	37.3800
64.28	37.6970	99.53	31.4131	177.52	26.4155
66.73	38.5310	100.11	39.3079	181.07	0.0000
67.24	28.4738	102.03	21.6938	181.52	29.8608
125.81	29.4229	103.18	35.5718	184.41	31.0732
67.75	29.4275	103.37	31.6301	143.76	31.1210
68.89	40.5709	105.21	25.7826	193.51	31.4026
69.67	37.8732	105.31	25.7872	197.03	29.2758
70.82	26.8587	106.12	40.7219	198.01	20.2901
70.83	26.8596	106.47	39.7528	201.83	19.2446
72.81	52.0992	109.28	44.9382	203.43	41.9592
72.87	52.1061	111.00	35.0539	205.31	25.0001
74.66	42.9720	111.76	0.0000	210.85	19.4345
74.82	68.2186	114.06	35.2334	215.65	27.5771
74.97	68.2415	116.30	0.0000	218.12	25.3445
77.11	43.2019	116.74	35.3885	222.11	26.6064
78.74	74.1395	119.76	27.4330	227.09	22.0914
79.69	30.2192	121.12	29.5290	227.38	22.0981
80.03	30.2405	121.22	35.6441	228.16	0.0000
80.12	30.2466	121.78	31.5984	228.18	29.0997
80.19	35.2928	122.06	31.6123	116.74	29.0997
80.57	35.3210	122.92	32.6763	235.69	39.0920
81.00	34.0903	123.07	32.6841	235.96	32.8458
81.07	34.0952	265.00	32.7153	238.63	24.6991
81.75	28.4528	125.81	29.7465	238.98	0.0000
82.47	28.4953	127.23	32.8953	240.99	24.7561
83.79	28.5725	127.91	23.6682	242.00	24.7802
84.00	28.5846	129.30	35.0620	244.70	22.0844

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	28.6025	344.28	22.3009	563.25	14.7070
252.80	27.4209	345.93	20.6108	564.24	0.0000
254.15	0.0000	351.06	14.6547	569.33	13.7687
256.23	23.9209	351.93	14.6640	946.00	12.7863
260.90	0.0000	355.39	0.0000	569.70	12.7874
264.66	19.2852	356.01	9.0842	583.19	17.8257
264.80	24.1095	364.49	13.0569	584.27	12.8810
265.00	25.3195	366.42	0.0000	595.83	5.9790
269.46	23.0003	372.51	17.5081	427.87	7.9902
270.03	24.2230	375.05	14.9085	602.52	0.0000
271.23	30.3116	377.52	17.5696	604.72	7.5058
273.65	24.3011	356.01	14.5583	607.14	15.0293
276.40	34.1045	388.16	15.9283	609.32	7.0211
277.37	21.9430	388.63	15.9335	610.33	9.0315
277.60	21.9474	391.69	15.9668	614.28	4.0215
278.00	20.7354	264.66	15.1704	618.01	7.5537
279.20	21.9781	401.81	12.5026	620.36	7.5620
279.54	23.2061	402.40	6.2539	621.93	4.5406
279.70	23.2090	404.85	18.7920	630.19	0.0000
280.46	30.5588	410.95	17.0703	631.29	14.1886
283.69	15.9350	413.71	11.7006	633.25	7.1005
284.31	23.3018	414.70	12.6086	634.78	9.1359
285.41	22.0963	423.72	10.8701	635.95	9.1406
285.90	0.0000	427.09	15.4322	636.99	5.0807
287.50	12.2977	427.87	10.8987	657.50	9.2311
290.67	14.7968	433.94	12.7635	657.76	6.1548
293.27	0.0000	439.40	14.6364	657.90	0.0000
351.93	16.0913	440.45	10.0690	661.66	3.0828
295.96	13.2113	453.88	12.9205	664.57	0.0000
879.38	19.8604	463.37	11.1377	666.33	2.4714
299.98	11.1844	468.07	14.8916	666.50	2.4716
300.09	11.1855	473.00	14.0015	667.71	0.0000
300.13	11.1857	475.06	13.0837	677.62	8.2793
301.36	22.3940	476.78	15.9033	685.70	6.2314
302.85	17.4389	477.60	15.9107	692.65	0.0000
256.23	23.6990	482.18	10.3223	695.00	14.5987
304.85	23.7059	487.02	7.0575	696.49	11.4780
306.78	14.9956	492.35	0.0000	696.51	11.4780
308.46	22.5242	497.08	16.0883	697.00	14.6112
311.90	15.8944	505.52	19.9678	697.30	12.5259
316.51	13.4339	507.63	0.0000	697.49	10.4390
319.41	18.5142	511.00	23.8434	702.65	6.2773
320.08	18.5240	514.00	31.5243	706.68	7.3361
321.04	13.4821	514.00	31.5243	711.68	7.3515
323.87	20.2681	520.40	13.4207	720.70	6.3254
325.23	19.4442	520.69	0.0000	721.93	0.0000
328.76	22.0406	522.65	0.0000	722.78	7.3859
333.37	18.7156	527.90	0.0000	722.91	7.3865
333.97	16.1708	528.26	4.8134	723.31	11.6092
334.37	14.4731	529.59	12.5239	724.19	12.6689
338.28	13.6621	529.87	0.0000	727.33	5.2856
338.32	13.6624	531.02	6.7488	733.00	6.3577
311.90	30.7910	537.26	5.8040	735.93	4.7741
340.48	30.7910	546.56	0.0000	333.97	4.7770
340.55	30.7925	552.55	12.6763	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	1.5968	949.00	10.3326	1384.29	3.8992
747.24	7.4609	667.71	0.0000	1408.01	1.9609
748.06	5.3310	962.31	9.2253	1434.09	4.9329
752.31	9.6123	964.08	1.7308	1435.80	6.9090
753.82	7.4808	966.17	3.4640	1457.56	0.0000
756.73	9.6295	911.20	2.3114	1460.82	0.9929
756.80	9.6295	983.53	5.8061	1489.16	0.9994
884.68	5.3652	984.45	0.0000	1505.03	7.0214
765.81	9.6643	1274.44	6.9961	1584.12	4.0837
766.42	9.6669	1001.03	3.5034	1596.21	3.0709
766.84	6.4456	1002.74	3.5054	1620.50	1.0290
772.60	0.0000	1004.73	6.1382	1621.92	4.1172
776.52	1.0784	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.0444
778.90	7.5560	1028.54	0.0000	1750.46	0.0000
783.70	7.5702	1037.84	7.0889	1764.49	2.1202
788.74	8.6686	1038.76	0.0000	1063.66	6.3680
792.07	9.7646	631.29	0.0000	1771.35	5.3079
795.86	3.2598	1048.07	2.8445	1791.20	0.0000
810.06	6.5552	1049.04	4.0647	1808.65	4.2776
810.29	6.5557	1050.41	5.3375	1810.72	0.0000
344.28	4.3708	1063.66	5.3591	1836.06	2.1503
810.76	5.4641	1077.00	9.8647		
815.77	7.6642	1077.34	8.9691		
1048.07	4.3841	1085.87	4.4962		
832.01	7.7112	1093.63	6.3091		
834.85	3.3082	1099.45	7.2227		
835.71	3.3093	1112.07	4.5313		
836.80	0.0000	1112.84	5.4386		
846.75	0.0000	1115.54	0.0000		
846.77	4.9843	1120.29	5.4507		
856.80	5.5585	1120.55	5.4510		
860.56	5.0094	1221.41	5.8156		
871.09	4.4699	1129.67	3.6436		
873.19	5.5914	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	11.2077	1173.23	4.6115		
880.51	4.4849	1177.95	8.3117		
881.60	4.4867	1189.05	2.7792		
883.24	3.3669	1204.77	12.0955		
884.68	12.3517	1221.41	3.7388		
889.28	3.3741	1231.02	1.8743		
894.76	5.6346	1235.36	5.6294		
898.04	4.5129	1238.28	5.6338		
900.72	5.6464	1260.41	0.0000		
903.28	6.7815	1271.87	1.8948		
911.20	6.8003	1274.44	4.7400		
912.08	3.4011	1274.54	4.7403		
923.98	0.0000	1291.59	4.7614		
926.50	7.9755	1298.22	0.0000		
929.11	9.1230	1312.11	3.8293		
935.54	11.4286	1332.49	1.9247		
937.49	12.5800	1362.66	0.0000		
944.13	6.8772	1365.19	3.8809		
946.00	4.5877	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:26:02.86

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299016.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM46.CNF;171
Background date    : 28-JUL-2024 10:37:59
Sample date       : 26-JUN-2024 10:10:00 Acquisition date : 30-JUL-2024 11:21:37
Sample ID        : G674299016 Sample quantity : 1.27250E+02 GRAM
Detector name     : GAM46 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:01.46 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	9.98	174	426	2.78	20.01	18	6	4.84E-02	20.1	
2	0	17.04	116	813	1.69	34.13	28	14	3.23E-02	53.1	
3	0	46.58*	288	480	1.10	93.19	90	9	8.01E-02	14.9	
4	0	53.24	105	441	1.22	106.52	103	8	2.92E-02	35.8	
5	0	63.33*	457	752	0.88	126.68	122	10	1.27E-01	12.2	
6	3	74.92*	971	527	1.01	149.85	146	12	2.70E-01	4.9	2.24E+00
7	3	77.22	1599	507	0.95	154.46	146	12	4.44E-01	3.4	
8	0	80.86	38	534	0.88	161.73	160	6	1.07E-02	97.3	
9	3	83.97*	238	415	1.26	167.95	165	29	6.62E-02	14.6	2.86E+00
10	3	87.30	559	449	1.16	174.60	165	29	1.55E-01	7.5	
11	3	89.98	236	418	1.18	179.97	165	29	6.56E-02	16.4	
12	3	92.74*	677	432	1.27	185.48	165	29	1.88E-01	6.9	
13	0	98.89	76	456	1.02	197.79	194	10	2.12E-02	53.8	
14	0	122.10	20	249	1.25	244.18	242	6	5.50E-03	127.7	
15	0	144.66*	58	485	1.14	289.31	283	9	1.61E-02	69.9	
16	0	154.13	90	353	1.24	308.23	305	8	2.50E-02	37.7	
17	0	157.53	58	319	0.90	315.03	312	8	1.61E-02	55.2	
18	0	163.31	91	421	1.93	326.60	321	11	2.53E-02	45.0	
19	0	167.18	41	186	1.02	334.33	332	5	1.14E-02	52.0	
20	0	186.00*	770	523	1.28	371.95	365	13	2.14E-01	7.1	
21	3	238.67*	449	239	0.97	477.27	473	16	1.25E-01	7.0	2.00E+00
22	3	242.02	760	194	1.21	483.97	473	16	2.11E-01	4.8	
23	0	250.94	29	192	1.87	501.80	500	9	8.15E-03	86.6	
24	0	269.83	54	254	2.64	539.57	536	10	1.49E-02	57.2	
25	0	295.33*	1596	185	1.21	590.56	586	11	4.43E-01	3.0	
26	0	299.60	43	145	2.00	599.11	597	8	1.19E-02	50.5	
27	0	338.29	90	186	1.04	676.47	673	9	2.51E-02	29.4	
28	0	351.99*	2606	205	1.29	703.87	698	13	7.24E-01	2.3	
29	0	401.64	37	97	2.25	803.16	800	8	1.04E-02	48.2	
30	0	409.49	13	94	1.31	818.84	817	6	3.53E-03	121.4	
31	0	487.82	27	59	2.74	975.48	971	9	7.44E-03	55.7	
32	0	511.37*	87	78	1.90	1022.59	1017	13	2.42E-02	26.2	
33	2	533.52	22	40	1.80	1066.88	1063	19	6.21E-03	53.2	1.29E+00
34	2	537.40	24	68	1.80	1074.63	1063	19	6.74E-03	67.9	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	583.90*	88	131	1.22	1167.62	1162	13	2.44E-02	29.8	
36	0	589.62	13	44	0.62	1179.07	1175	7	3.64E-03	89.3	
37	0	609.50*	1785	76	1.46	1218.81	1214	13	4.96E-01	2.6	
38	0	665.90	43	65	1.13	1331.62	1326	10	1.19E-02	38.2	
39	0	672.77	25	38	3.46	1345.35	1340	11	7.00E-03	51.6	
40	2	703.25	23	60	1.92	1406.30	1400	31	6.40E-03	69.4	1.83E+00
41	2	713.80	25	22	1.93	1427.41	1400	31	6.82E-03	36.3	
42	0	728.04	39	103	2.33	1455.89	1447	17	1.09E-02	60.9	
43	0	743.73	36	59	2.19	1487.27	1481	13	9.86E-03	47.5	
44	0	752.80	29	66	2.03	1505.40	1499	16	7.99E-03	65.1	
45	0	768.58	154	78	1.64	1536.96	1530	15	4.28E-02	14.9	
46	0	786.67	67	37	1.70	1573.15	1567	15	1.85E-02	24.1	
47	0	806.49	48	50	1.09	1612.79	1607	11	1.32E-02	32.1	
48	0	852.49	21	37	3.82	1704.78	1699	12	5.88E-03	60.9	
49	0	871.13	13	44	4.33	1742.07	1733	11	3.53E-03	105.1	
50	0	896.09	16	25	1.46	1791.99	1788	8	4.38E-03	62.4	
51	0	911.54*	112	41	1.56	1822.90	1815	15	3.11E-02	15.8	
52	0	928.77	12	33	0.87	1857.36	1850	9	3.33E-03	89.7	
53	0	934.59	83	47	1.53	1869.00	1863	11	2.31E-02	19.3	
54	0	954.87	24	26	4.31	1909.56	1903	12	6.54E-03	50.3	
55	3	964.48	40	20	2.16	1928.78	1925	20	1.12E-02	23.7	1.63E+00
56	3	969.40*	54	32	2.30	1938.61	1925	20	1.50E-02	26.7	
57	0	1000.95*	37	42	1.43	2001.72	1996	12	1.03E-02	38.8	
58	0	1019.62	28	66	6.39	2039.07	2024	23	7.84E-03	78.5	
59	0	1095.12	17	17	2.57	2190.08	2184	11	4.69E-03	52.8	
60	0	1100.17	11	23	4.22	2200.18	2194	11	3.14E-03	86.1	
61	0	1120.68	380	32	1.83	2241.21	2234	14	1.06E-01	6.0	
62	0	1156.08	34	35	1.25	2312.01	2305	12	9.32E-03	39.7	
63	0	1208.29	24	44	3.69	2416.46	2407	16	6.70E-03	64.8	
64	0	1238.75	117	51	1.40	2477.38	2471	14	3.25E-02	16.0	
65	0	1281.94	20	42	1.59	2563.77	2556	14	5.50E-03	73.0	
66	0	1321.52	22	3	3.38	2642.95	2638	11	6.11E-03	25.9	
67	0	1335.30	7	12	1.01	2670.52	2667	6	2.08E-03	81.4	
68	0	1352.38	16	7	1.20	2704.69	2699	10	4.47E-03	40.2	
69	0	1378.14	128	33	2.07	2756.22	2748	19	3.57E-02	13.9	
70	0	1387.93	50	9	4.94	2775.82	2768	18	1.39E-02	19.9	
71	0	1402.45	31	33	2.61	2804.86	2796	12	8.51E-03	41.7	
72	0	1408.60	54	29	1.52	2817.16	2810	13	1.50E-02	24.7	
73	0	1461.26*	111	49	1.14	2922.51	2915	16	3.08E-02	17.1	
74	0	1509.93	48	23	1.46	3019.88	3014	11	1.32E-02	24.8	
75	0	1516.74	22	31	0.66	3033.51	3025	20	6.23E-03	63.6	
76	0	1525.85	11	15	1.03	3051.72	3046	9	2.93E-03	74.4	
77	0	1627.31	7	4	1.30	3254.72	3250	8	2.07E-03	58.5	
78	0	1661.89	29	8	2.80	3323.90	3314	16	8.06E-03	28.6	
79	0	1730.12	80	12	1.48	3460.40	3452	14	2.23E-02	14.1	
80	0	1764.88*	340	14	1.91	3529.95	3520	19	9.43E-02	6.1	
81	0	1839.12	10	0	0.60	3678.50	3672	11	2.78E-03	31.6	
82	0	1847.50	49	7	2.50	3695.27	3687	14	1.36E-02	18.3	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299016.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 10:10:00 Acquisition date : 30-JUL-2024 11:21:37
Sample ID : G674299016 Sample quantity : 127.25 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA46 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.46 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	TH-231	144.24
U-235	143.76	RA-223	144.24
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	1.247E+00	4.680E+00	4.680E+00	34.23	OK
CO-57	122.06	85.60*	8.337E+00	1.818E-02	1.983E-02	255.48	OK
	136.47	10.68	7.909E+00	----- Line	Not Found	-----	Absent
AS-73	53.44	10.30*	9.732E+00	7.204E-01	9.667E-01	71.67	OK
NB-94	702.65	99.81*	2.356E+00	5.762E-02	5.762E-02	138.71	OK
	871.09	99.89	1.950E+00	3.783E-02	3.783E-02	210.22	OK
CD-109	88.03	3.70*	9.401E+00	1.074E+01	1.130E+01	14.94	OK
SN-117M	156.02	2.11	7.370E+00	----- Line	Not Found	-----	Absent
	158.56	86.40*	7.330E+00	5.896E-02	3.347E-01	110.42	OK
TE-123M	159.00	84.00*	7.330E+00	6.064E-02	7.393E-02	110.42	OK
SN-126	64.28	9.60	9.843E+00	3.289E+00	3.289E+00	24.39	OK
	86.94	8.90	9.401E+00	4.464E+00	4.464E+00	14.94	OK
	87.57	37.00*	9.401E+00	1.074E+00	1.074E+00	14.94	OK
CE-139	165.86	80.00*	7.086E+00	4.668E-02	5.542E-02	104.02	OK
BA-140	162.66	6.22	7.182E+00	1.311E+00	8.358E+00	90.00	OK
	304.85	4.29	4.721E+00	----- Line	Not Found	-----	Absent
	423.72	3.15	3.637E+00	----- Line	Not Found	-----	Absent
	537.26	24.39*	2.978E+00	1.999E-01	1.274E+00	135.89	OK
PM-147	121.22	0.00*	8.337E+00	5.459E+02	5.596E+02	255.48	OK
TL-208	277.37	6.60	5.066E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.773E+00	2.217E-01	2.217E-01	59.66	OK
	860.56	12.50	1.971E+00	----- Line	Not Found	-----	Absent
BI-210	46.54	4.25*	9.449E+00	4.965E+00	4.979E+00	29.71	OK
PB-210	46.54	4.25*	9.449E+00	4.965E+00	4.979E+00	29.71	OK
BI-211	72.87	1.23	9.741E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	4.224E+00	2.935E+01	2.935E+01	4.54	OK
BI-212	727.33	6.67*	2.285E+00	1.517E+00	1.517E+00	121.81	OK
	1620.50	1.47	1.147E+00	----- Line	Not Found	-----	Absent
PB-212	74.82	10.28	9.703E+00	6.554E+00	6.554E+00	9.87	OK
	77.11	17.10	9.655E+00	6.510E+00	6.510E+00	6.74	OK
	238.63	43.60*	5.641E+00	1.150E+00	1.150E+00	13.96	OK
	300.09	3.30	4.783E+00	1.685E+00	1.685E+00	100.99	OK
BI-214	609.32	45.49*	2.671E+00	8.723E+00	8.724E+00	5.15	OK
	1120.29	14.92	1.562E+00	9.321E+00	9.321E+00	12.01	OK
	1764.49	15.30	1.073E+00	1.145E+01	1.145E+01	12.15	OK
PB-214	74.82	5.80	9.703E+00	1.162E+01	1.162E+01	9.87	OK
	77.11	9.70	9.655E+00	1.148E+01	1.148E+01	6.74	OK
	87.09	3.41	9.401E+00	1.165E+01	1.165E+01	14.94	OK
	242.00	7.25	5.586E+00	1.181E+01	1.181E+01	9.64	OK
	295.22	18.42	4.835E+00	1.114E+01	1.114E+01	6.04	OK
	351.93	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54	OK
RN-219	271.23	10.80	5.169E+00	5.993E-01	5.993E-01	114.47	OK
	401.81	6.60*	3.800E+00	9.104E-01	9.104E-01	96.43	OK
RN-222	609.32	45.49*	2.671E+00	8.723E+00	8.724E+00	5.15	OK
	1120.29	14.92	1.562E+00	9.321E+00	9.321E+00	12.01	OK
	1764.49	15.30	1.073E+00	1.145E+01	1.145E+01	12.15	OK
RA-223	81.07	15.00	9.570E+00	1.797E-01	1.797E-01	194.63	OK
	83.79	24.70	9.491E+00	6.800E-01	6.800E-01	29.15	OK
	94.56	8.67	9.190E+00	----- Line	Not Found	-----	Absent

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
	144.24	3.27	7.688E+00	----- Line	Not Found	-----	<<INT Reject
	154.21	5.70	7.419E+00	1.376E+00	1.376E+00	75.45	OK
	269.46	13.90	5.169E+00	4.657E-01	4.657E-01	114.47	OK
	323.87	3.99*	4.507E+00	----- Line	Not Found	-----	Absent
	338.28	2.84	4.358E+00	4.495E+00	4.495E+00	58.89	OK
RA-224	240.99	4.10*	5.586E+00	2.088E+01	2.088E+01	9.64	OK
RA-226	74.82	5.80	9.703E+00	1.162E+01	1.162E+01	9.87	OK
	77.11	9.70	9.655E+00	1.148E+01	1.148E+01	6.74	OK
	87.09	3.41	9.401E+00	1.165E+01	1.165E+01	14.94	OK
	242.00	7.25	5.586E+00	1.181E+01	1.181E+01	9.64	OK
	295.22	18.42	4.835E+00	1.114E+01	1.114E+01	6.04	OK
	351.93	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54	OK
AC-228	105.21	1.10	8.862E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.358E+00	1.133E+00	1.133E+00	58.89	OK
	835.71	1.61	2.023E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64	OK
	968.97	15.80	1.774E+00	1.112E+00	1.112E+00	53.44	OK
RA-228	105.21	1.10	8.862E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.358E+00	1.133E+00	1.133E+00	58.89	OK
	835.71	1.61	2.023E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64	OK
	968.97	15.80	1.774E+00	1.112E+00	1.112E+00	53.44	OK
TH-228	74.82	10.28	9.703E+00	6.554E+00	6.554E+00	9.87	OK
	77.11	17.10	9.655E+00	6.510E+00	6.510E+00	6.74	OK
	238.63	43.60*	5.641E+00	1.150E+00	1.150E+00	13.96	OK
	300.09	3.30	4.783E+00	1.685E+00	1.685E+00	100.99	OK
TH-229	85.43	14.70	9.491E+00	1.143E+00	1.143E+00	29.15	OK
	88.47	24.00	9.401E+00	1.655E+00	1.655E+00	14.94	OK
	193.51	4.41*	6.484E+00	----- Line	Not Found	-----	Absent
	210.85	2.80	6.135E+00	----- Line	Not Found	-----	Absent
TH-230	74.82	5.80	9.703E+00	1.162E+01	1.162E+01	9.87	OK
	77.11	9.70	9.655E+00	1.148E+01	1.148E+01	6.74	OK
	87.09	3.41	9.401E+00	1.165E+01	1.165E+01	14.94	OK
	242.00	7.25	5.586E+00	1.181E+01	1.181E+01	9.64	OK
	295.22	18.42	4.835E+00	1.114E+01	1.114E+01	6.04	OK
	351.93	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54	OK
TH-231	81.07	15.00	9.570E+00	1.797E-01	1.797E-01	194.63	OK
	83.79	24.70	9.491E+00	6.800E-01	6.800E-01	29.15	OK
	94.87	5.69	9.180E+00	----- Line	Not Found	-----	Absent
	144.24	3.27	7.688E+00	----- Line	Not Found	-----	<<INT Reject
	154.21	5.70	7.419E+00	1.376E+00	1.376E+00	75.45	OK
	269.46	13.90	5.169E+00	4.657E-01	4.657E-01	114.47	OK
	323.87	3.99*	4.507E+00	----- Line	Not Found	-----	Absent
	338.28	2.84	4.358E+00	4.495E+00	4.495E+00	58.89	OK
TH-232	105.21	1.10	8.862E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	4.358E+00	1.133E+00	1.133E+00	58.89	OK
	835.71	1.61	2.023E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64	OK
	968.97	15.80	1.774E+00	1.112E+00	1.112E+00	53.44	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-234	63.29	3.70*	9.843E+00	8.533E+00	8.533E+00	24.39	OK
	92.59	4.23	9.244E+00	1.153E+01	1.153E+01	13.87	OK
U-234	74.82	5.80	9.703E+00	1.162E+01	1.162E+01	9.87	OK
	77.11	9.70	9.655E+00	1.148E+01	1.148E+01	6.74	OK
	87.09	3.41	9.401E+00	1.165E+01	1.165E+01	14.94	OK
	242.00	7.25	5.586E+00	1.181E+01	1.181E+01	9.64	OK
	295.22	18.42	4.835E+00	1.114E+01	1.114E+01	6.04	OK
	351.93	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54	OK
U-235	89.96	3.47	9.325E+00	4.863E+00	4.863E+00	32.75	OK
	93.35	5.60	9.244E+00	8.706E+00	8.706E+00	13.87	OK
	143.76	10.96*	7.676E+00	4.472E-01	4.472E-01	139.84	OK
	163.33	5.08	7.182E+00	1.606E+00	1.606E+00	90.00	OK
	185.72	57.20	6.647E+00	1.294E+00	1.294E+00	14.29	OK
	205.31	5.01	6.243E+00	-----	Line Not Found	-----	Absent
U-238	63.29	3.70*	9.843E+00	8.533E+00	8.533E+00	24.39	OK
	92.59	4.23	9.244E+00	1.153E+01	1.153E+01	13.87	OK
AM-243	43.53	5.90	9.237E+00	-----	Line Not Found	-----	Absent
	74.66	67.20*	9.703E+00	1.003E+00	1.003E+00	9.87	OK
CM-247	278.00	3.40	5.057E+00	-----	Line Not Found	-----	Absent
	287.50	2.00	4.933E+00	-----	Line Not Found	-----	Absent
	402.40	72.00*	3.800E+00	8.345E-02	8.345E-02	96.43	OK
ANH-511	511.00	100.00*	3.107E+00	1.683E-01	1.683E-01	52.48	OK

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*
*                                     DETECTOR AND SAMPLE DATA                *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299016.CNF;1  *
* Acquisition date   : 30-JUL-2024 11:21:37 Sensitivity      : 3.000          *
* Detector ID        : GAM46 Energy tolerance: 1.500         *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 01:00:01.46 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 10:10:00 Analyst initials: RXF2      *
* Sample ID          : G674299016 Sample Quantity : 1.2725E+02 GRAM    *
* Batch Number       : 2636542 Wet Weight      : 0.00000        *
* Wet wt corr        : 1.00000 Dry Weight       : 0.00000        *
* Nuclide Library    : SOLID.NLB;17
*****
*
*                                     CALIBRATION INFORMATION                  *
*
* Eff. Cal. date     : 26-SEP-2023 07:28:30 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM46_CAN.CNF;5          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	4.680E+00	1.570E+00	1.214E+00
CO-57	1.983E-02	4.964E-02	6.255E-02
AS-73	9.667E-01	6.790E-01	6.410E-01
NB-94	5.762E-02	7.833E-02	7.862E-02
CD-109	1.130E+01	1.654E+00	1.479E+00
SN-117M	3.347E-01	3.622E-01	3.936E-01
TE-123M	7.393E-02	8.000E-02	8.156E-02
SN-126	1.074E+00	1.572E-01	1.403E-01
CE-139	5.542E-02	5.649E-02	8.048E-02
BA-140	1.274E+00	1.697E+00	1.682E+00
PM-147	5.596E+02	1.401E+03	1.851E+03
TL-208	2.217E-01	1.296E-01	1.054E-01
BI-210	4.979E+00	1.450E+00	1.126E+00
PB-210	4.979E+00	1.450E+00	1.126E+00
BI-211	2.935E+01	1.306E+00	4.896E-01
BI-212	1.517E+00	1.811E+00	1.248E+00
PB-212	1.150E+00	1.573E-01	1.528E-01
BI-214	8.724E+00	4.402E-01	1.736E-01
PB-214	1.065E+01	4.741E-01	1.781E-01
RN-219	9.104E-01	8.604E-01	1.114E+00
RN-222	8.724E+00	4.402E-01	1.736E-01
RA-223	4.616E-01	8.874E-01	1.708E+00
RA-224	2.088E+01	1.972E+00	1.638E+00
RA-226	1.065E+01	4.741E-01	1.781E-01
AC-228	1.339E+00	4.152E-01	3.313E-01
RA-228	1.339E+00	4.152E-01	3.313E-01
TH-228	1.150E+00	1.573E-01	1.528E-01
TH-229	-6.534E-01	8.432E-01	1.381E+00
TH-230	1.065E+01	4.741E-01	1.781E-01
TH-231	4.616E-01	8.874E-01	1.708E+00
TH-232	1.339E+00	4.152E-01	3.313E-01
TH-234	8.533E+00	2.040E+00	1.456E+00
U-234	1.065E+01	4.741E-01	1.781E-01
U-235	4.472E-01	6.129E-01	5.282E-01
U-238	8.533E+00	2.040E+00	1.456E+00
AM-243	1.003E+00	9.698E-02	9.177E-02
CM-247	8.345E-02	7.887E-02	1.022E-01

ANH-511 1.683E-01 8.658E-02 7.047E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-9.369E-01	5.896E-01	9.420E-01	NOT IDENT.
NA-22	-2.489E-03	5.446E-02	9.745E-02	NOT IDENT.
NA-24	0.000E+00	1.518E+15	0.000E+00	SHORT HLIF
AL-26	-6.560E-03	3.363E-02	6.719E-02	NOT IDENT.
SC-46	1.373E-02	7.471E-02	1.363E-01	FAIL ABUN
V-48	-1.657E-01	2.169E-01	3.495E-01	NOT IDENT.
CR-51	-4.526E-01	8.248E-01	1.491E+00	NOT IDENT.
MN-52	-1.592E+00	3.139E+00	5.645E+00	FAIL ABUN
MN-54	-2.533E-02	5.448E-02	9.313E-02	NOT IDENT.
CO-56	4.647E-03	7.267E-02	1.186E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-58	4.283E-03	8.512E-02	1.370E-01	NOT IDENT.
FE-59	1.224E-01	2.065E-01	2.731E-01	FAIL ABUN
CO-60	-2.630E-02	6.205E-02	9.650E-02	NOT IDENT.
ZN-65	4.426E-02	1.257E-01	2.259E-01	NOT IDENT.
GE-68	4.210E-01	1.440E+00	2.938E+00	NOT IDENT.
AS-74	-7.032E-02	2.432E-01	4.378E-01	NOT IDENT.
SE-75	-3.727E-02	6.981E-02	1.267E-01	FAIL ABUN
BR-77	0.000E+00	6.138E+03	0.000E+00	SHORT HLIF
SR-82	3.093E-01	7.674E-01	1.461E+00	NOT IDENT.
RB-83	4.209E-02	1.122E-01	2.141E-01	NOT IDENT.
RB-84	9.763E-03	1.546E-01	2.806E-01	NOT IDENT.
KR-85	7.402E+00	9.589E+00	1.732E+01	NOT IDENT.
SR-85	4.782E-02	6.202E-02	1.120E-01	NOT IDENT.
RB-86	2.342E-01	1.823E+00	3.625E+00	NOT IDENT.
Y-88	-2.350E-02	3.289E-02	2.445E-02	NOT IDENT.
Y-91	6.019E+00	3.198E+01	5.656E+01	NOT IDENT.
NB-95	3.539E-02	8.389E-02	1.422E-01	NOT IDENT.
NB-95M	2.884E-01	2.289E-01	4.172E-01	NOT IDENT.
ZR-95	-7.611E-03	1.274E-01	2.061E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.944E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.481E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	3.069E+39	0.000E+00	SHORT HLIF
RH-101	-1.478E-02	4.688E-02	8.074E-02	NOT IDENT.
RH-102	-9.576E-03	7.321E-02	1.330E-01	NOT IDENT.
RU-103	-9.315E-03	7.127E-02	1.310E-01	FAIL ABUN
RH-106	2.277E-01	4.237E-01	8.231E-01	NOT IDENT.
RU-106	2.277E-01	4.237E-01	8.231E-01	NOT IDENT.
AG-108M	-2.556E-02	4.020E-02	7.092E-02	NOT IDENT.
AG-110	-4.237E-01	9.961E-01	1.747E+00	NOT IDENT.
AG-110M	-1.317E-02	8.164E-02	1.439E-01	NOT IDENT.
SN-113	-2.547E-02	7.383E-02	1.336E-01	NOT IDENT.
CD-115	0.000E+00	5.571E+03	0.000E+00	SHORT HLIF
SB-122	0.000E+00	3.264E+02	0.000E+00	SHORT HLIF
SB-124	1.022E-01	1.392E-01	3.135E-01	NOT IDENT.
SB-125	-8.883E-02	1.311E-01	2.305E-01	NOT IDENT.
TE-125M	3.747E+00	1.593E+01	2.842E+01	NOT IDENT.
I-126	1.940E+00	1.454E+00	2.091E+00	FAIL ABUN
SB-126	5.089E-01	6.037E-01	1.148E+00	FAIL ABUN
SB-127	-1.382E+01	5.073E+01	9.051E+01	FAIL ABUN
I-131	-3.254E-01	7.784E-01	1.413E+00	FAIL ABUN
I-132	0.000E+00	1.349E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.661E+01	0.000E+00	SHORT HLIF
BA-133	2.169E-02	5.672E-02	9.932E-02	FAIL ABUN
I-133	0.000E+00	3.129E+10	0.000E+00	SHORT HLIF
CS-134	2.369E-02	6.047E-02	1.125E-01	NOT IDENT.
I-135	0.000E+00	4.379E+36	0.000E+00	SHORT HLIF
CS-136	-4.050E-01	3.698E-01	6.226E-01	FAIL ABUN
BA-137M	-5.754E-03	5.344E-02	8.607E-02	NOT IDENT.
CS-137	-6.078E-03	5.645E-02	9.092E-02	NOT IDENT.
LA-138	-1.269E-02	7.454E-02	1.416E-01	NOT IDENT.
LA-140	-6.591E-02	4.091E-01	7.601E-01	FAIL ABUN
CE-141	2.099E-01	2.876E-01	2.683E-01	FAIL ABUN
CE-143	0.000E+00	3.159E+06	0.000E+00	SHORT HLIF
CE-144	2.070E-01	2.928E-01	5.307E-01	FAIL ABUN
PM-144	3.501E-02	4.746E-02	9.311E-02	NOT IDENT.
PR-144	2.662E+00	3.589E+00	7.043E+00	NOT IDENT.
PM-146	4.405E-02	6.025E-02	1.174E-01	NOT IDENT.
ND-147	-1.178E+00	2.803E+00	4.395E+00	FAIL ABUN

PM-149	0.000E+00	4.779E+04	0.000E+00	SHORT HLIF
EU-150	-2.919E-02	4.220E-02	6.668E-02	FAIL ABUN
EU-152	-2.338E-02	1.312E-01	2.422E-01	FAIL ABUN
GD-153	0.000E+00	2.238E-01	1.882E-01	FAIL ABUN
EU-154	-4.564E-03	1.532E-01	2.748E-01	FAIL ABUN
EU-155	9.404E-02	1.339E-01	2.448E-01	FAIL ABUN
TB-160	-1.207E-01	2.418E-01	4.096E-01	FAIL ABUN
HO-166M	-3.207E-03	7.992E-02	1.456E-01	FAIL ABUN
TM-171	0.000E+00	1.147E+01	1.143E+01	FAIL ABUN
HF-172	-2.461E-02	2.965E-01	4.766E-01	FAIL ABUN
LU-172	9.952E-02	1.029E-01	1.561E-01	FAIL ABUN
LU-176	6.142E-03	3.670E-02	6.939E-02	FAIL ABUN
HF-181	-1.565E-02	8.539E-02	1.553E-01	NOT IDENT.
TA-182	-2.446E-02	2.473E-01	4.692E-01	FAIL ABUN
RE-183	7.380E-02	1.107E-01	2.060E-01	FAIL ABUN
RE-184	3.960E-02	2.875E-01	5.222E-01	FAIL ABUN
W-188	-8.794E+00	1.438E+01	2.313E+01	FAIL ABUN
IR-192	-5.975E-03	5.537E-02	1.031E-01	FAIL ABUN
HG-203	-5.990E-02	7.240E-02	1.296E-01	NOT IDENT.
TL-204	-5.917E-02	4.751E+00	7.829E+00	FAIL ABUN
BI-207	-2.416E-03	6.781E-02	1.324E-01	FAIL ABUN
PB-211	-8.619E-01	1.283E+00	1.997E+00	NOT IDENT.
BI-213	9.188E-02	1.426E-01	2.774E-01	NOT IDENT.
AC-225	3.856E-01	3.318E+00	5.710E+00	NOT IDENT.
AC-227	-2.033E-01	4.300E-01	7.045E-01	FAIL ABUN
TH-227	-2.033E-01	4.300E-01	7.045E-01	FAIL ABUN
PA-231	3.821E-01	7.530E-01	1.313E+00	NOT IDENT.
PA-233	-3.625E-02	8.768E-02	1.602E-01	FAIL ABUN
PA-234	-2.591E-01	4.413E-01	7.342E-01	FAIL ABUN
PA-234M	1.478E+01	1.124E+01	1.616E+01	FAIL ABUN
NP-237	-3.625E-02	8.768E-02	1.602E-01	FAIL ABUN
NP-238	0.000E+00	1.380E+04	0.000E+00	SHORT HLIF
NP-239	-1.910E-01	3.566E-01	6.107E-01	FAIL ABUN
PU-239	-1.755E+02	4.893E+02	8.405E+02	NOT IDENT.
AM-241	1.425E-02	8.479E-02	1.429E-01	NOT IDENT.
CM-243	-6.530E-02	1.455E-01	2.311E-01	FAIL ABUN
BK-247	-8.824E-02	1.108E-01	1.982E-01	FAIL ABUN
CF-249	1.200E-02	5.916E-02	1.110E-01	NOT IDENT.
CF-251	-1.777E-01	2.096E-01	3.439E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	105	10.66*	1.247E+00	4.680E+00	4.680E+00	34.23
CO-57	122.06	22	85.60*	8.337E+00	1.818E-02	1.983E-02	255.48
	136.47	-----	10.68	7.909E+00	-----	Line Not Found	-----
AS-73	53.44	122	10.30*	9.732E+00	7.204E-01	9.667E-01	71.67
NB-94	702.65	23	99.81*	2.356E+00	5.762E-02	5.762E-02	138.71
	871.09	12	99.89	1.950E+00	3.783E-02	3.783E-02	210.22
CD-109	88.03	633	3.70*	9.401E+00	1.074E+01	1.130E+01	14.94
SN-117M	156.02	-----	2.11	7.370E+00	-----	Line Not Found	-----
	158.56	63	86.40*	7.330E+00	5.896E-02	3.347E-01	110.42
TE-123M	159.00	63	84.00*	7.330E+00	6.064E-02	7.393E-02	110.42
SN-126	64.28	527	9.60	9.843E+00	3.289E+00	3.289E+00	24.39
	86.94	633	8.90	9.401E+00	4.464E+00	4.464E+00	14.94
	87.57	633	37.00*	9.401E+00	1.074E+00	1.074E+00	14.94
CE-139	165.86	45	80.00*	7.086E+00	4.668E-02	5.542E-02	104.02
BA-140	162.66	99	6.22	7.182E+00	1.311E+00	8.358E+00	90.00
	304.85	-----	4.29	4.721E+00	-----	Line Not Found	-----
	423.72	-----	3.15	3.637E+00	-----	Line Not Found	-----
	537.26	25	24.39*	2.978E+00	1.999E-01	1.274E+00	135.89
CE-141	145.44	64	48.29*	7.676E+00	1.015E-01	2.099E-01	139.84
PM-147	121.22	22	0.00*	8.337E+00	5.459E+02	5.596E+02	255.48
TL-208	277.37	-----	6.60	5.066E+00	-----	Line Not Found	-----
	583.19	89	85.00*	2.773E+00	2.217E-01	2.217E-01	59.66
	860.56	-----	12.50	1.971E+00	-----	Line Not Found	-----
BI-210	46.54	338	4.25*	9.449E+00	4.965E+00	4.979E+00	29.71
PB-210	46.54	338	4.25*	9.449E+00	4.965E+00	4.979E+00	29.71
BI-211	72.87	-----	1.23	9.741E+00	-----	Line Not Found	-----
	351.06	2715	12.92*	4.224E+00	2.935E+01	2.935E+01	4.54
BI-212	727.33	39	6.67*	2.285E+00	1.517E+00	1.517E+00	121.81
	1620.50	-----	1.47	1.147E+00	-----	Line Not Found	-----
PB-212	74.82	1108	10.28	9.703E+00	6.554E+00	6.554E+00	9.87
	77.11	1822	17.10	9.655E+00	6.510E+00	6.510E+00	6.74
	238.63	479	43.60*	5.641E+00	1.150E+00	1.150E+00	13.96
	300.09	45	3.30	4.783E+00	1.685E+00	1.685E+00	100.99
BI-214	609.32	1797	45.49*	2.671E+00	8.723E+00	8.724E+00	5.15
	1120.29	368	14.92	1.562E+00	9.321E+00	9.321E+00	12.01
	1764.49	319	15.30	1.073E+00	1.145E+01	1.145E+01	12.15
PB-214	74.82	1108	5.80	9.703E+00	1.162E+01	1.162E+01	9.87
	77.11	1822	9.70	9.655E+00	1.148E+01	1.148E+01	6.74
	87.09	633	3.41	9.401E+00	1.165E+01	1.165E+01	14.94
	242.00	810	7.25	5.586E+00	1.181E+01	1.181E+01	9.64
	295.22	1682	18.42	4.835E+00	1.114E+01	1.114E+01	6.04
	351.93	2715	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54
RN-219	271.23	57	10.80	5.169E+00	5.993E-01	5.993E-01	114.47
	401.81	39	6.60*	3.800E+00	9.104E-01	9.104E-01	96.43
RN-222	609.32	1797	45.49*	2.671E+00	8.723E+00	8.724E+00	5.15
	1120.29	368	14.92	1.562E+00	9.321E+00	9.321E+00	12.01
	1764.49	319	15.30	1.073E+00	1.145E+01	1.145E+01	12.15

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-223	81.07	44	15.00	9.570E+00	1.797E-01	1.797E-01	194.63
	83.79	270	24.70	9.491E+00	6.800E-01	6.800E-01	29.15
	94.56	-----	8.67	9.190E+00	-----	Line Not Found	-----
	144.24	64	3.27	7.676E+00	1.499E+00	1.499E+00	139.84
	154.21	99	5.70	7.419E+00	1.376E+00	1.376E+00	75.45
	269.46	57	13.90	5.169E+00	4.657E-01	4.657E-01	114.47
	323.87	-----	3.99*	4.507E+00	-----	Line Not Found	-----
RA-224	338.28	94	2.84	4.358E+00	4.495E+00	4.495E+00	58.89
	240.99	810	4.10*	5.586E+00	2.088E+01	2.088E+01	9.64
RA-226	74.82	1108	5.80	9.703E+00	1.162E+01	1.162E+01	9.87
	77.11	1822	9.70	9.655E+00	1.148E+01	1.148E+01	6.74
	87.09	633	3.41	9.401E+00	1.165E+01	1.165E+01	14.94
	242.00	810	7.25	5.586E+00	1.181E+01	1.181E+01	9.64
	295.22	1682	18.42	4.835E+00	1.114E+01	1.114E+01	6.04
AC-228	351.93	2715	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54
	105.21	-----	1.10	8.862E+00	-----	Line Not Found	-----
	338.32	94	11.27	4.358E+00	1.133E+00	1.133E+00	58.89
	835.71	-----	1.61	2.023E+00	-----	Line Not Found	-----
	911.20	110	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64
RA-228	968.97	53	15.80	1.774E+00	1.112E+00	1.112E+00	53.44
	105.21	-----	1.10	8.862E+00	-----	Line Not Found	-----
	338.32	94	11.27	4.358E+00	1.133E+00	1.133E+00	58.89
	835.71	-----	1.61	2.023E+00	-----	Line Not Found	-----
	911.20	110	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64
TH-228	968.97	53	15.80	1.774E+00	1.112E+00	1.112E+00	53.44
	74.82	1108	10.28	9.703E+00	6.554E+00	6.554E+00	9.87
	77.11	1822	17.10	9.655E+00	6.510E+00	6.510E+00	6.74
	238.63	479	43.60*	5.641E+00	1.150E+00	1.150E+00	13.96
TH-229	300.09	45	3.30	4.783E+00	1.685E+00	1.685E+00	100.99
	85.43	270	14.70	9.491E+00	1.143E+00	1.143E+00	29.15
	88.47	633	24.00	9.401E+00	1.655E+00	1.655E+00	14.94
	193.51	-----	4.41*	6.484E+00	-----	Line Not Found	-----
TH-230	210.85	-----	2.80	6.135E+00	-----	Line Not Found	-----
	74.82	1108	5.80	9.703E+00	1.162E+01	1.162E+01	9.87
	77.11	1822	9.70	9.655E+00	1.148E+01	1.148E+01	6.74
	87.09	633	3.41	9.401E+00	1.165E+01	1.165E+01	14.94
	242.00	810	7.25	5.586E+00	1.181E+01	1.181E+01	9.64
TH-231	295.22	1682	18.42	4.835E+00	1.114E+01	1.114E+01	6.04
	351.93	2715	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54
	81.07	44	15.00	9.570E+00	1.797E-01	1.797E-01	194.63
	83.79	270	24.70	9.491E+00	6.800E-01	6.800E-01	29.15
	94.87	-----	5.69	9.180E+00	-----	Line Not Found	-----
	144.24	64	3.27	7.676E+00	1.499E+00	1.499E+00	139.84
	154.21	99	5.70	7.419E+00	1.376E+00	1.376E+00	75.45
TH-232	269.46	57	13.90	5.169E+00	4.657E-01	4.657E-01	114.47
	323.87	-----	3.99*	4.507E+00	-----	Line Not Found	-----
	338.28	94	2.84	4.358E+00	4.495E+00	4.495E+00	58.89
	105.21	-----	1.10	8.862E+00	-----	Line Not Found	-----
	338.32	94	11.27	4.358E+00	1.133E+00	1.133E+00	58.89

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	835.71	-----	1.61	2.023E+00	-----	Line Not Found	-----
	911.20	110	25.80*	1.873E+00	1.339E+00	1.339E+00	31.64
	968.97	53	15.80	1.774E+00	1.112E+00	1.112E+00	53.44
TH-234	63.29	527	3.70*	9.843E+00	8.533E+00	8.533E+00	24.39
	92.59	764	4.23	9.244E+00	1.153E+01	1.153E+01	13.87
U-234	74.82	1108	5.80	9.703E+00	1.162E+01	1.162E+01	9.87
	77.11	1822	9.70	9.655E+00	1.148E+01	1.148E+01	6.74
	87.09	633	3.41	9.401E+00	1.165E+01	1.165E+01	14.94
	242.00	810	7.25	5.586E+00	1.181E+01	1.181E+01	9.64
	295.22	1682	18.42	4.835E+00	1.114E+01	1.114E+01	6.04
	351.93	2715	35.60*	4.224E+00	1.065E+01	1.065E+01	4.54
U-235	89.96	267	3.47	9.325E+00	4.863E+00	4.863E+00	32.75
	93.35	764	5.60	9.244E+00	8.706E+00	8.706E+00	13.87
	143.76	64	10.96*	7.676E+00	4.472E-01	4.472E-01	139.84
	163.33	99	5.08	7.182E+00	1.606E+00	1.606E+00	90.00
	185.72	834	57.20	6.647E+00	1.294E+00	1.294E+00	14.29
	205.31	-----	5.01	6.243E+00	-----	Line Not Found	-----
U-238	63.29	527	3.70*	9.843E+00	8.533E+00	8.533E+00	24.39
	92.59	764	4.23	9.244E+00	1.153E+01	1.153E+01	13.87
AM-243	43.53	-----	5.90	9.237E+00	-----	Line Not Found	-----
	74.66	1108	67.20*	9.703E+00	1.003E+00	1.003E+00	9.87
CM-247	278.00	-----	3.40	5.057E+00	-----	Line Not Found	-----
	287.50	-----	2.00	4.933E+00	-----	Line Not Found	-----
	402.40	39	72.00*	3.800E+00	8.345E-02	8.345E-02	96.43
ANH-511	511.00	89	100.00*	3.107E+00	1.683E-01	1.683E-01	52.48

Flag: "*" = Keyline

Total number of lines in spectrum 82
Number of unidentified lines 28
Number of lines tentatively identified by NID 54 65.85%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	4.680E+00	4.680E+00	1.602E+00	34.23	
CO-57	271.74D	1.09	1.818E-02	1.983E-02	5.065E-02	255.48	
AS-73	80.30D	1.34	7.204E-01	9.667E-01	6.929E-01	71.67	
NB-94	20300.00Y	1.00	5.762E-02	5.762E-02	7.992E-02	138.71	
CD-109	461.40D	1.05	1.074E+01	1.130E+01	0.169E+01	14.94	
SN-117M	13.60D	5.68	5.896E-02	3.347E-01	3.696E-01	110.42	
TE-123M	119.20D	1.22	6.064E-02	7.393E-02	8.163E-02	110.42	
SN-126	2.30E+05Y	1.00	1.074E+00	1.074E+00	0.160E+00	14.94	
CE-139	137.64D	1.19	4.668E-02	5.542E-02	5.765E-02	104.02	
BA-140	12.75D	6.37	1.999E-01	1.274E+00	1.731E+00	135.89	
CE-141	32.51D	2.07	1.015E-01	2.099E-01	2.935E-01	139.84	
PM-147	2.62Y	1.02	5.459E+02	5.596E+02	14.30E+02	255.48	
TL-208	1.41E+10Y	1.00	2.217E-01	2.217E-01	1.323E-01	59.66	
BI-210	22.20Y	1.00	4.965E+00	4.979E+00	1.479E+00	29.71	
PB-210	22.20Y	1.00	4.965E+00	4.979E+00	1.479E+00	29.71	
BI-211	7.04E+08Y	1.00	2.935E+01	2.935E+01	0.133E+01	4.54	
BI-212	1.41E+10Y	1.00	1.517E+00	1.517E+00	1.848E+00	121.81	
PB-212	1.41E+10Y	1.00	1.150E+00	1.150E+00	0.161E+00	13.96	
BI-214	1600.00Y	1.00	8.723E+00	8.724E+00	0.449E+00	5.15	
PB-214	1600.00Y	1.00	1.065E+01	1.065E+01	0.048E+01	4.54	
RN-219	7.04E+08Y	1.00	9.104E-01	9.104E-01	8.779E-01	96.43	
RN-222	1600.00Y	1.00	8.723E+00	8.724E+00	0.449E+00	5.15	
RA-223	7.04E+08Y	1.00	6.800E-01	6.800E-01	1.982E-01	29.15	K
RA-224	1.41E+10Y	1.00	2.088E+01	2.088E+01	0.201E+01	9.64	
RA-226	1600.00Y	1.00	1.065E+01	1.065E+01	0.048E+01	4.54	
AC-228	1.41E+10Y	1.00	1.339E+00	1.339E+00	0.424E+00	31.64	
RA-228	1.41E+10Y	1.00	1.339E+00	1.339E+00	0.424E+00	31.64	
TH-228	1.41E+10Y	1.00	1.150E+00	1.150E+00	0.161E+00	13.96	
TH-229	7340.00Y	1.00	1.655E+00	1.655E+00	0.247E+00	14.94	K
TH-230	7.54E+04Y	1.00	1.065E+01	1.065E+01	0.048E+01	4.54	
TH-231	7.04E+08Y	1.00	6.800E-01	6.800E-01	1.982E-01	29.15	K
TH-232	1.41E+10Y	1.00	1.339E+00	1.339E+00	0.424E+00	31.64	
TH-234	4.47E+09Y	1.00	8.533E+00	8.533E+00	2.082E+00	24.39	
U-234	2.45E+05Y	1.00	1.065E+01	1.065E+01	0.048E+01	4.54	
U-235	7.04E+08Y	1.00	4.472E-01	4.472E-01	6.254E-01	139.84	
U-238	4.47E+09Y	1.00	8.533E+00	8.533E+00	2.082E+00	24.39	
AM-243	7370.00Y	1.00	1.003E+00	1.003E+00	0.099E+00	9.87	
CM-247	1.56E+07Y	1.00	8.345E-02	8.345E-02	8.048E-02	96.43	
ANH-511	1.00E+09Y	1.00	1.683E-01	1.683E-01	0.883E-01	52.48	
Total Activity :			7.147E+02	7.306E+02			

Grand Total Activity : 7.147E+02 7.306E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	9.98	221	541	2.78	20.01	18	6	4.84E-02	40.1	6.36E-01	
0	17.04	144	1005	1.69	34.13	28	14	3.23E-02	****	3.14E+00	
0	98.89	86	512	1.02	197.79	194	10	2.12E-02	****	9.06E+00	T
0	250.94	31	204	1.87	501.80	500	9	8.15E-03	****	5.45E+00	T
0	409.49	13	97	1.31	818.84	817	6	3.53E-03	****	3.74E+00	T
0	487.82	27	60	2.74	975.48	971	9	7.44E-03	****	3.23E+00	T
2	533.52	23	41	1.80	1066.88	1063	19	6.21E-03	****	3.00E+00	
0	589.62	13	44	0.62	1179.07	1175	7	3.64E-03	****	2.75E+00	
0	665.90	43	65	1.13	1331.62	1326	10	1.19E-02	76.5	2.47E+00	T
0	672.77	25	38	3.46	1345.35	1340	11	7.00E-03	****	2.45E+00	
2	713.80	24	22	1.93	1427.41	1400	31	6.82E-03	72.6	2.33E+00	
0	743.73	35	58	2.19	1487.27	1481	13	9.86E-03	95.0	2.24E+00	T
0	752.80	29	66	2.03	1505.40	1499	16	7.99E-03	****	2.22E+00	T
0	768.58	153	77	1.64	1536.96	1530	15	4.28E-02	29.8	2.18E+00	
0	786.67	66	37	1.70	1573.15	1567	15	1.85E-02	48.3	2.13E+00	
0	806.49	47	49	1.09	1612.79	1607	11	1.32E-02	64.3	2.09E+00	
0	852.49	21	36	3.82	1704.78	1699	12	5.88E-03	****	1.99E+00	
0	896.09	15	25	1.46	1791.99	1788	8	4.38E-03	****	1.90E+00	T
0	928.77	12	32	0.87	1857.36	1850	9	3.33E-03	****	1.84E+00	T
0	934.59	82	46	1.53	1869.00	1863	11	2.31E-02	38.6	1.83E+00	T
0	954.87	23	26	4.31	1909.56	1903	12	6.54E-03	****	1.80E+00	T
3	964.48	39	20	2.16	1928.78	1925	20	1.12E-02	47.4	1.78E+00	T
0	1000.95	36	41	1.43	2001.72	1996	12	1.03E-02	77.6	1.72E+00	T
0	1019.62	27	64	6.39	2039.07	2024	23	7.84E-03	****	1.70E+00	
0	1095.12	16	17	2.57	2190.08	2184	11	4.69E-03	****	1.59E+00	T
0	1100.17	11	22	4.22	2200.18	2194	11	3.14E-03	****	1.59E+00	T
0	1156.08	32	34	1.25	2312.01	2305	12	9.32E-03	79.3	1.52E+00	
0	1208.29	23	42	3.69	2416.46	2407	16	6.70E-03	****	1.46E+00	
0	1238.75	112	49	1.40	2477.38	2471	14	3.25E-02	32.1	1.43E+00	T
0	1281.94	19	40	1.59	2563.77	2556	14	5.50E-03	****	1.39E+00	
0	1321.52	21	3	3.38	2642.95	2638	11	6.11E-03	51.9	1.36E+00	
0	1335.30	7	11	1.01	2670.52	2667	6	2.08E-03	****	1.34E+00	
0	1352.38	15	7	1.20	2704.69	2699	10	4.47E-03	80.3	1.33E+00	
0	1378.14	123	31	2.07	2756.22	2748	19	3.57E-02	27.8	1.31E+00	
0	1387.93	48	9	4.94	2775.82	2768	18	1.39E-02	39.9	1.30E+00	
0	1402.45	29	32	2.61	2804.86	2796	12	8.51E-03	83.3	1.29E+00	
0	1408.60	51	28	1.52	2817.16	2810	13	1.50E-02	49.4	1.29E+00	T
0	1509.93	45	22	1.46	3019.88	3014	11	1.32E-02	49.6	1.21E+00	
0	1516.74	21	29	0.66	3033.51	3025	20	6.23E-03	****	1.21E+00	
0	1525.85	10	15	1.03	3051.72	3046	9	2.93E-03	****	1.20E+00	
0	1627.31	7	3	1.30	3254.72	3250	8	2.07E-03	****	1.14E+00	
0	1661.89	27	8	2.80	3323.90	3314	16	8.06E-03	57.3	1.12E+00	
0	1730.12	75	11	1.48	3460.40	3452	14	2.23E-02	28.3	1.09E+00	
0	1839.12	9	0	0.60	3678.50	3672	11	2.78E-03	63.2	1.04E+00	
0	1847.50	46	7	2.50	3695.27	3687	14	1.36E-02	36.6	1.04E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299016.CNF;1 *
* Acquisition date : 30-JUL-2024 11:21:37 Sensitivity : 3.000 *
* Detector ID : GAM46 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:01.46 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:10:00 Nuclide Library : SOLID *
* Sample ID : G674299016 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.2725E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 26-SEP-2023 07:28:30 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM46_CAN.CNF;5 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	5.473E-01
CO-57	3.002E-02
AS-73	3.094E-01
NB-94	3.590E-02
CD-109	7.146E-01
SN-117M	1.895E-01
TE-123M	3.916E-02
SN-126	6.778E-02
CE-139	3.854E-02
BA-140	7.702E-01
PM-147	8.906E+02
TL-208	4.929E-02
BI-210	5.421E-01
PB-210	5.421E-01
BI-211	2.300E-01
BI-212	5.715E-01
PB-212	7.312E-02
BI-214	8.017E-02
PB-214	8.365E-02
RN-219	5.247E-01
RN-222	8.017E-02
RA-223	8.091E-01
RA-224	7.836E-01
RA-226	8.365E-02
AC-228	1.491E-01
RA-228	1.491E-01
TH-228	7.312E-02
TH-229	6.622E-01
TH-230	8.365E-02
TH-231	8.091E-01
TH-232	1.491E-01
TH-234	7.054E-01
U-234	8.365E-02
U-235	2.545E-01
U-238	7.054E-01
AM-243	4.463E-02
CM-247	4.816E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.344E-01	NOT IDENT.
NA-22	4.287E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.603E-02	NOT IDENT.
SC-46	6.260E-02	FAIL ABUN
V-48	1.547E-01	NOT IDENT.
CR-51	7.032E-01	NOT IDENT.
MN-52	2.392E+00	FAIL ABUN
MN-54	4.229E-02	NOT IDENT.
CO-56	5.386E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-58	6.311E-02	NOT IDENT.
FE-59	1.214E-01	FAIL ABUN
CO-60	4.226E-02	NOT IDENT.
ZN-65	1.019E-01	NOT IDENT.
GE-68	1.302E+00	NOT IDENT.
AS-74	2.000E-01	NOT IDENT.
SE-75	6.015E-02	FAIL ABUN
BR-77	0.000E+00	SHORT HLIF
SR-82	6.680E-01	NOT IDENT.
RB-83	9.937E-02	NOT IDENT.
RB-84	1.280E-01	NOT IDENT.
KR-85	8.058E+00	NOT IDENT.
SR-85	5.211E-02	NOT IDENT.
RB-86	1.609E+00	NOT IDENT.
Y-88	2.606E-03	NOT IDENT.
Y-91	2.515E+01	NOT IDENT.
NB-95	6.577E-02	NOT IDENT.
NB-95M	2.003E-01	NOT IDENT.
ZR-95	9.336E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.887E-02	NOT IDENT.
RH-102	6.083E-02	NOT IDENT.
RU-103	6.039E-02	FAIL ABUN
RH-106	3.787E-01	NOT IDENT.
RU-106	3.787E-01	NOT IDENT.
AG-108M	3.296E-02	NOT IDENT.
AG-110	7.951E-01	NOT IDENT.
AG-110M	6.566E-02	NOT IDENT.
SN-113	6.286E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SB-122	0.000E+00	SHORT HLIF
SB-124	1.345E-01	NOT IDENT.
SB-125	1.075E-01	NOT IDENT.
TE-125M	1.369E+01	NOT IDENT.
I-126	9.845E-01	FAIL ABUN
SB-126	5.301E-01	FAIL ABUN
SB-127	4.107E+01	FAIL ABUN
I-131	6.606E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.653E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	5.169E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.750E-01	FAIL ABUN
BA-137M	3.943E-02	NOT IDENT.
CS-137	4.165E-02	NOT IDENT.
LA-138	6.120E-02	NOT IDENT.
LA-140	3.343E-01	FAIL ABUN
CE-141	1.296E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.553E-01	FAIL ABUN
PM-144	4.293E-02	NOT IDENT.
PR-144	3.248E+00	NOT IDENT.
PM-146	5.506E-02	NOT IDENT.
ND-147	2.022E+00	FAIL ABUN
PM-149	0.000E+00	SHORT HLIF

EU-150	3.142E-02	FAIL ABUN
EU-152	1.140E-01	FAIL ABUN
GD-153	9.066E-02	FAIL ABUN
EU-154	1.210E-01	FAIL ABUN
EU-155	1.180E-01	FAIL ABUN
TB-160	1.857E-01	FAIL ABUN
HO-166M	6.645E-02	FAIL ABUN
TM-171	5.529E+00	FAIL ABUN
HF-172	2.292E-01	FAIL ABUN
LU-172	6.984E-02	FAIL ABUN
LU-176	3.285E-02	FAIL ABUN
HF-181	7.230E-02	NOT IDENT.
TA-182	2.096E-01	FAIL ABUN
RE-183	9.959E-02	FAIL ABUN
RE-184	2.394E-01	FAIL ABUN
W-188	1.099E+01	FAIL ABUN
IR-192	4.862E-02	FAIL ABUN
HG-203	6.154E-02	NOT IDENT.
TL-204	3.806E+00	FAIL ABUN
BI-207	5.964E-02	FAIL ABUN
PB-211	9.422E-01	NOT IDENT.
BI-213	1.299E-01	NOT IDENT.
AC-225	2.729E+00	NOT IDENT.
AC-227	3.364E-01	FAIL ABUN
TH-227	3.364E-01	FAIL ABUN
PA-231	6.247E-01	NOT IDENT.
PA-233	7.555E-02	FAIL ABUN
PA-234	3.303E-01	FAIL ABUN
PA-234M	7.532E+00	FAIL ABUN
NP-237	7.555E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.932E-01	FAIL ABUN
PU-239	4.043E+02	NOT IDENT.
AM-241	6.913E-02	NOT IDENT.
CM-243	1.111E-01	FAIL ABUN
BK-247	9.392E-02	FAIL ABUN
CF-249	5.236E-02	NOT IDENT.
CF-251	1.651E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299016.CNF;1
Acquisition date : 30-JUL-2024 11:21:37 Sensitivity : 3.000
Detector ID : GAM46 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:01.46 Half life ratio : *****
Sample date : 26-JUN-2024 10:10:00 Nuclide Library : SOLID
Sample ID : G674299016 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.2725E+02 GRAM
Quantity Err(%) : 1.5717E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 26-SEP-2023 07:28:30 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM46_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	4.680E+00	1.619E+00	1.619E+00
CO-57	1.983E-02	4.971E-02	4.971E-02
AS-73	9.667E-01	7.083E-01	7.083E-01
NB-94	5.762E-02	7.861E-02	7.861E-02
CD-109	1.130E+01	1.999E+00	1.999E+00
SN-117M	3.347E-01	3.647E-01	3.647E-01
TE-123M	7.393E-02	8.054E-02	8.054E-02
SN-126	1.074E+00	1.812E-01	1.812E-01
CE-139	5.542E-02	5.794E-02	5.794E-02
BA-140	1.274E+00	1.702E+00	1.702E+00
PM-147	5.596E+02	1.403E+03	1.403E+03
TL-208	2.217E-01	1.318E-01	1.318E-01
BI-210	4.979E+00	1.525E+00	1.525E+00
PB-210	4.979E+00	1.525E+00	1.525E+00
BI-211	2.935E+01	2.736E+00	2.736E+00
BI-212	1.517E+00	1.820E+00	1.820E+00
PB-212	1.150E+00	1.959E-01	1.959E-01
BI-214	8.724E+00	1.067E+00	1.067E+00
PB-214	1.065E+01	9.780E-01	9.780E-01
RN-219	9.104E-01	8.705E-01	8.705E-01
RN-222	8.724E+00	1.067E+00	1.067E+00
RA-223	4.616E-01	8.884E-01	8.884E-01
RA-224	2.088E+01	2.874E+00	2.874E+00
RA-226	1.065E+01	9.780E-01	9.780E-01
AC-228	1.339E+00	4.385E-01	4.385E-01
RA-228	1.339E+00	4.385E-01	4.385E-01
TH-228	1.150E+00	1.959E-01	1.959E-01
TH-229	-6.534E-01	8.466E-01	8.466E-01
TH-230	1.065E+01	9.779E-01	9.779E-01
TH-231	4.616E-01	8.884E-01	8.884E-01
TH-232	1.339E+00	4.385E-01	4.385E-01
TH-234	8.533E+00	2.809E+00	2.809E+00
U-234	1.065E+01	9.779E-01	9.779E-01
U-235	4.472E-01	6.156E-01	6.156E-01
U-238	8.533E+00	2.809E+00	2.809E+00
AM-243	1.003E+00	1.265E-01	1.265E-01
CM-247	8.345E-02	8.034E-02	8.034E-02

ANH-511 1.683E-01 8.816E-02 8.816E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-9.369E-01	5.962E-01	7.307E-01	NOT IDENT.
NA-22	-2.489E-03	5.446E-02	5.447E-02	NOT IDENT.
NA-24	7.207E+14	1.520E+15	1.554E+15	SHORT HLIF
AL-26	-6.560E-03	3.364E-02	3.377E-02	NOT IDENT.
SC-46	1.373E-02	7.472E-02	7.498E-02	FAIL ABUN
V-48	-1.657E-01	2.175E-01	2.300E-01	NOT IDENT.
CR-51	-4.526E-01	8.255E-01	8.504E-01	NOT IDENT.
MN-52	-1.592E+00	3.142E+00	3.223E+00	FAIL ABUN
MN-54	-2.533E-02	5.455E-02	5.573E-02	NOT IDENT.
CO-56	4.647E-03	7.267E-02	7.270E-02	FAIL ABUN
MN-56	1.000E+41	1.512E+42	0.000E+00	SHORT HLIF
CO-58	4.283E-03	8.512E-02	8.515E-02	NOT IDENT.
FE-59	1.224E-01	2.069E-01	2.141E-01	FAIL ABUN
CO-60	-2.630E-02	6.208E-02	6.320E-02	NOT IDENT.
ZN-65	4.426E-02	1.258E-01	1.274E-01	NOT IDENT.
GE-68	4.210E-01	1.440E+00	1.453E+00	NOT IDENT.
AS-74	-7.032E-02	2.434E-01	2.454E-01	NOT IDENT.
SE-75	-3.727E-02	6.988E-02	7.187E-02	FAIL ABUN
BR-77	4.487E+04	4.477E+04	4.913E+04	SHORT HLIF
SR-82	3.093E-01	7.682E-01	7.807E-01	NOT IDENT.
RB-83	4.209E-02	1.124E-01	1.140E-01	NOT IDENT.
RB-84	9.763E-03	1.546E-01	1.547E-01	NOT IDENT.
KR-85	7.402E+00	9.617E+00	1.018E+01	NOT IDENT.
SR-85	4.782E-02	6.220E-02	6.583E-02	NOT IDENT.
RB-86	2.342E-01	1.823E+00	1.826E+00	NOT IDENT.
Y-88	-2.350E-02	3.294E-02	3.460E-02	NOT IDENT.
Y-91	6.019E+00	3.198E+01	3.210E+01	NOT IDENT.
NB-95	3.539E-02	8.399E-02	8.549E-02	NOT IDENT.
NB-95M	2.884E-01	2.314E-01	2.655E-01	NOT IDENT.
ZR-95	-7.611E-03	1.274E-01	1.274E-01	NOT IDENT.
NB-97	1.000E+41	9.486E+41	0.000E+00	SHORT HLIF
ZR-97	-3.153E+13	2.944E+14	2.947E+14	SHORT HLIF
MO-99	-9.588E+02	2.484E+03	2.521E+03	SHORT HLIF
TC-99M	2.000E+39	3.084E+39	0.000E+00	SHORT HLIF
RH-101	-1.478E-02	4.699E-02	4.746E-02	NOT IDENT.
RH-102	-9.576E-03	7.323E-02	7.335E-02	NOT IDENT.
RU-103	-9.315E-03	7.128E-02	7.140E-02	FAIL ABUN
RH-106	2.277E-01	4.246E-01	4.368E-01	NOT IDENT.
RU-106	2.277E-01	4.246E-01	4.368E-01	NOT IDENT.
AG-108M	-2.556E-02	4.027E-02	4.188E-02	NOT IDENT.
AG-110	-4.237E-01	9.973E-01	1.015E+00	NOT IDENT.
AG-110M	-1.317E-02	8.165E-02	8.187E-02	NOT IDENT.
SN-113	-2.547E-02	7.386E-02	7.475E-02	NOT IDENT.
CD-115	-2.847E+02	5.571E+03	5.573E+03	SHORT HLIF
SB-122	2.557E+02	3.275E+02	3.472E+02	SHORT HLIF
SB-124	1.022E-01	1.394E-01	1.468E-01	NOT IDENT.
SB-125	-8.883E-02	1.313E-01	1.373E-01	NOT IDENT.
TE-125M	3.747E+00	1.593E+01	1.602E+01	NOT IDENT.
I-126	1.940E+00	1.474E+00	1.714E+00	FAIL ABUN
SB-126	5.089E-01	6.083E-01	6.501E-01	FAIL ABUN
SB-127	-1.382E+01	5.081E+01	5.119E+01	FAIL ABUN
I-131	-3.254E-01	7.789E-01	7.926E-01	FAIL ABUN
I-132	1.000E+41	2.499E+41	0.000E+00	SHORT HLIF
TE-132	1.374E+01	6.663E+01	6.692E+01	SHORT HLIF
BA-133	2.169E-02	5.675E-02	5.758E-02	FAIL ABUN
I-133	1.312E+10	3.144E+10	3.199E+10	SHORT HLIF
CS-134	2.369E-02	6.053E-02	6.146E-02	NOT IDENT.
I-135	-6.652E+35	4.409E+36	0.000E+00	SHORT HLIF
CS-136	-4.050E-01	3.729E-01	4.152E-01	FAIL ABUN
BA-137M	-5.754E-03	5.344E-02	5.350E-02	NOT IDENT.
CS-137	-6.078E-03	5.645E-02	5.652E-02	NOT IDENT.
LA-138	-1.269E-02	7.454E-02	7.476E-02	NOT IDENT.
LA-140	-6.591E-02	4.091E-01	4.102E-01	FAIL ABUN
CE-141	2.099E-01	2.889E-01	3.040E-01	FAIL ABUN
CE-143	1.077E+07	3.271E+06	5.853E+06	SHORT HLIF
CE-144	2.070E-01	2.941E-01	3.086E-01	FAIL ABUN
PM-144	3.501E-02	4.764E-02	5.019E-02	NOT IDENT.
PR-144	2.662E+00	3.603E+00	3.797E+00	NOT IDENT.
PM-146	4.405E-02	6.044E-02	6.362E-02	NOT IDENT.
ND-147	-1.178E+00	2.806E+00	2.856E+00	FAIL ABUN

PM-149	5.522E+03	4.780E+04	4.786E+04	SHORT HLIF
EU-150	-2.919E-02	4.226E-02	4.426E-02	FAIL ABUN
EU-152	-2.338E-02	1.312E-01	1.316E-01	FAIL ABUN
GD-153	2.121E-01	2.247E-01	2.442E-01	FAIL ABUN
EU-154	-4.564E-03	1.532E-01	1.532E-01	FAIL ABUN
EU-155	9.404E-02	1.344E-01	1.409E-01	FAIL ABUN
TB-160	-1.207E-01	2.422E-01	2.482E-01	FAIL ABUN
HO-166M	-3.207E-03	7.992E-02	7.993E-02	FAIL ABUN
TM-171	1.633E+01	1.157E+01	1.372E+01	FAIL ABUN
HF-172	-2.461E-02	2.965E-01	2.967E-01	FAIL ABUN
LU-172	9.952E-02	1.037E-01	1.130E-01	FAIL ABUN
LU-176	6.142E-03	3.670E-02	3.680E-02	FAIL ABUN
HF-181	-1.565E-02	8.541E-02	8.570E-02	NOT IDENT.
TA-182	-2.446E-02	2.473E-01	2.476E-01	FAIL ABUN
RE-183	7.380E-02	1.110E-01	1.158E-01	FAIL ABUN
RE-184	3.960E-02	2.876E-01	2.881E-01	FAIL ABUN
W-188	-8.794E+00	1.443E+01	1.496E+01	FAIL ABUN
IR-192	-5.975E-03	5.537E-02	5.544E-02	FAIL ABUN
HG-203	-5.990E-02	7.254E-02	7.740E-02	NOT IDENT.
TL-204	-5.917E-02	4.751E+00	4.751E+00	FAIL ABUN
BI-207	-2.416E-03	6.781E-02	6.782E-02	FAIL ABUN
PB-211	-8.619E-01	1.285E+00	1.342E+00	NOT IDENT.
BI-213	9.188E-02	1.429E-01	1.488E-01	NOT IDENT.
AC-225	3.856E-01	3.318E+00	3.323E+00	NOT IDENT.
AC-227	-2.033E-01	4.312E-01	4.408E-01	FAIL ABUN
TH-227	-2.033E-01	4.312E-01	4.408E-01	FAIL ABUN
PA-231	3.821E-01	7.578E-01	7.771E-01	NOT IDENT.
PA-233	-3.625E-02	8.773E-02	8.924E-02	FAIL ABUN
PA-234	-2.591E-01	5.321E-01	5.448E-01	FAIL ABUN
PA-234M	1.478E+01	1.133E+01	1.314E+01	FAIL ABUN
NP-237	-3.625E-02	8.773E-02	8.924E-02	FAIL ABUN
NP-238	-1.735E+04	1.391E+04	1.596E+04	SHORT HLIF
NP-239	-1.910E-01	3.576E-01	3.679E-01	FAIL ABUN
PU-239	-1.755E+02	4.899E+02	4.962E+02	NOT IDENT.
AM-241	1.425E-02	8.480E-02	8.504E-02	NOT IDENT.
CM-243	-6.530E-02	1.457E-01	1.486E-01	FAIL ABUN
BK-247	-8.824E-02	1.124E-01	1.193E-01	FAIL ABUN
CF-249	1.200E-02	5.917E-02	5.942E-02	NOT IDENT.
CF-251	-1.777E-01	2.115E-01	2.261E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	172.1689	85.43	270.2321	131.20	240.2147
45.60	194.2612	86.55	270.6877	133.02	188.2359
46.54	225.9966	86.79	270.7839	133.52	186.0587
49.72	0.0000	86.94	270.8454	136.00	208.3297
51.35	259.9750	87.09	270.9050	136.47	205.0022
51.87	269.6925	87.57	271.0992	140.51	0.0000
52.39	257.1558	88.03	271.2838	143.76	228.5840
52.97	257.4591	88.34	271.4087	144.24	228.7049
53.44	257.7033	88.47	271.4606	145.44	234.3952
54.07	258.0298	89.96	272.0547	152.43	233.0231
57.36	0.0000	1093.63	272.3239	153.25	220.7830
57.53	260.8122	91.11	272.5104	323.87	222.5589
57.98	246.7054	92.59	273.0910	156.02	168.4006
59.27	279.1241	93.35	273.3890	158.56	220.4244
59.32	279.1511	94.56	273.8581	159.00	192.3702
59.54	279.2663	94.65	273.8927	162.33	183.5980
60.96	286.8732	94.67	273.9004	162.66	183.6599
61.17	286.9849	94.87	273.9792	163.33	183.7813
62.93	319.2562	97.43	213.8591	165.86	170.0684
63.29	319.4649	98.43	215.6120	176.31	183.7186
63.58	319.6340	98.44	215.6150	176.60	186.1545
64.28	320.0378	99.53	215.9387	177.52	225.7295
66.73	349.5223	100.11	216.1088	181.07	0.0000
67.24	369.2704	102.03	226.9215	181.52	226.9741
125.81	376.5010	103.18	200.8787	184.41	192.3193
67.75	405.7269	103.37	230.2632	143.76	192.5488
68.89	395.7391	105.21	202.8925	193.51	210.8677
69.67	426.5927	105.31	202.9191	197.03	207.8766
70.82	405.0778	106.12	214.1753	198.01	205.6206
70.83	405.0867	106.47	240.7810	201.83	197.7589
72.81	406.4348	109.28	215.0589	203.43	211.4773
72.87	406.4761	111.00	243.3090	205.31	186.1058
74.66	412.2516	111.76	0.0000	210.85	191.8984
74.82	412.3589	114.06	220.8315	215.65	146.9687
74.97	412.4604	116.30	0.0000	218.12	150.9791
77.11	413.8952	116.74	214.8545	222.11	141.5381
78.74	452.1180	119.76	179.7107	227.09	144.5964
79.69	452.7973	121.12	211.5072	227.38	144.6301
80.03	397.7374	121.22	211.5330	228.16	0.0000
80.12	397.7973	121.78	192.1602	228.18	147.2173
80.19	397.8401	122.06	190.3468	116.74	147.2173
80.57	453.4245	122.92	205.9529	235.69	144.3221
81.00	430.2980	123.07	205.9892	235.96	144.3519
81.07	430.3442	265.00	192.5977	238.63	162.6790
81.75	281.5131	125.81	212.6934	238.98	0.0000
82.47	281.8273	127.23	235.7115	240.99	162.9731
83.79	297.3730	127.91	195.0721	242.00	163.0994
84.00	269.6476	129.30	227.1912	244.70	118.7852

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	109.3030	344.28	90.0472	563.25	39.1428
252.80	109.3358	345.93	91.9395	564.24	0.0000
254.15	0.0000	351.06	80.4643	569.33	32.1992
256.23	165.6927	351.93	80.5060	946.00	35.2193
260.90	0.0000	355.39	0.0000	569.70	35.2222
264.66	131.6576	356.01	63.9236	583.19	69.8254
264.80	131.6701	364.49	79.2721	584.27	69.8563
265.00	131.6889	366.42	0.0000	595.83	39.6697
269.46	141.5417	372.51	59.4974	427.87	38.7252
270.03	141.5988	375.05	75.1650	602.52	0.0000
271.23	141.7197	377.52	61.4998	604.72	47.4650
273.65	134.2180	356.01	93.9565	607.14	45.9778
276.40	133.6131	388.16	87.7173	609.32	49.0859
277.37	124.2158	388.63	96.0506	610.33	49.1055
277.60	118.1943	391.69	91.5859	614.28	38.4232
278.00	122.5426	264.66	68.3260	618.01	47.2017
279.20	142.5085	401.81	88.3667	620.36	34.9200
279.54	137.3588	402.40	88.3938	621.93	34.9421
279.70	138.2389	404.85	113.1993	630.19	0.0000
280.46	117.5640	410.95	92.5345	631.29	41.2565
283.69	128.2203	413.71	78.6287	633.25	45.4162
284.31	120.4768	414.70	72.1123	634.78	40.2791
285.41	112.7582	423.72	81.8599	635.95	42.3647
285.90	0.0000	427.09	71.6335	636.99	56.8530
287.50	122.4742	427.87	81.0922	657.50	41.6683
290.67	141.0150	433.94	71.8840	657.76	41.6732
293.27	0.0000	439.40	65.4427	657.90	0.0000
351.93	123.1082	440.45	57.8850	661.66	42.2551
295.96	123.1685	453.88	59.2275	664.57	0.0000
879.38	65.6296	463.37	71.0175	666.33	42.3276
299.98	103.7912	468.07	60.5967	666.50	42.3309
300.09	103.7984	473.00	59.7762	667.71	0.0000
300.13	103.8008	475.06	44.3931	677.62	37.7813
301.36	111.7752	476.78	65.6772	685.70	36.8400
302.85	125.0470	477.60	82.1293	692.65	0.0000
256.23	104.0974	482.18	64.8763	695.00	50.6914
304.85	109.6570	487.02	50.4660	696.49	33.8125
306.78	101.1725	492.35	0.0000	696.51	33.8125
308.46	110.9703	497.08	49.7258	697.00	36.7782
311.90	103.2700	505.52	51.6796	697.30	38.0508
316.51	93.8369	507.63	0.0000	697.49	34.8812
319.41	100.2153	511.00	52.9849	702.65	37.0636
320.08	107.3570	514.00	42.7389	706.68	37.1163
321.04	99.4310	514.00	42.7389	711.68	37.1818
323.87	93.3810	520.40	48.2802	720.70	33.2503
325.23	114.8224	520.69	0.0000	721.93	0.0000
328.76	110.6141	522.65	0.0000	722.78	43.1927
333.37	119.8726	527.90	0.0000	722.91	43.1944
333.97	110.0724	528.26	50.4252	723.31	49.6011
334.37	110.0999	529.59	37.0987	724.19	49.6163
338.28	122.0242	529.87	0.0000	727.33	39.5218
338.32	122.0270	531.02	53.4573	733.00	38.5283
311.90	97.0313	537.26	39.7054	735.93	35.3539
340.48	97.0313	546.56	0.0000	333.97	38.5884
340.55	97.0334	552.55	52.9547	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	35.4546	949.00	22.3199	1384.29	7.6328
747.24	19.3586	667.71	0.0000	1408.01	21.7342
748.06	29.0457	962.31	25.8508	1434.09	15.4248
752.31	28.0101	964.08	33.3354	1435.80	15.4297
753.82	28.0238	966.17	33.3542	1457.56	0.0000
756.73	32.3669	911.20	33.3802	1460.82	28.1097
756.80	32.3682	983.53	31.2034	1489.16	22.4202
884.68	38.9341	984.45	0.0000	1505.03	17.2101
765.81	42.2056	1274.44	36.5308	1584.12	15.8867
766.42	40.5899	1001.03	32.5140	1596.21	19.9036
766.84	46.5501	1002.74	24.3975	1620.50	8.9973
772.60	0.0000	1004.73	34.8718	1621.92	17.5989
776.52	31.4945	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	6.0758
778.90	41.3012	1028.54	0.0000	1750.46	0.0000
783.70	40.8218	1037.84	33.4216	1764.49	8.2070
788.74	28.3497	1038.76	0.0000	1063.66	6.5723
792.07	27.8346	631.29	19.3937	1771.35	1.6434
795.86	31.6940	1048.07	34.3940	1791.20	0.0000
810.06	42.8181	1049.04	33.5214	1808.65	5.1685
810.29	46.1152	1050.41	22.9436	1810.72	0.0000
344.28	46.1169	1063.66	24.7939	1836.06	3.3230
810.76	44.4749	1077.00	19.5481		
815.77	34.0967	1077.34	16.8836		
1048.07	38.5305	1085.87	26.7169		
832.01	33.1665	1093.63	17.1328		
834.85	40.9415	1099.45	17.1574		
835.71	52.0201	1112.07	28.6875		
836.80	0.0000	1112.84	26.0016		
846.75	0.0000	1115.54	22.9688		
846.77	31.6520	1120.29	25.1528		
856.80	38.4349	1120.55	25.1545		
860.56	25.6523	1221.41	25.1580		
871.09	48.6720	1129.67	31.5137		
873.19	41.9846	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	40.3799	1173.23	27.2992		
880.51	37.0283	1177.95	27.3303		
881.60	34.7955	1189.05	25.5750		
883.24	37.0579	1204.77	19.0696		
884.68	39.3209	1221.41	24.8511		
889.28	39.3750	1231.02	24.9055		
894.76	40.5659	1235.36	29.5469		
898.04	35.5298	1238.28	21.2523		
900.72	23.0272	1260.41	0.0000		
903.28	38.4077	1271.87	18.6218		
911.20	27.1748	1274.44	18.6316		
912.08	27.1816	1274.54	18.6328		
923.98	0.0000	1291.59	24.3147		
926.50	27.2949	1298.22	0.0000		
929.11	30.7299	1312.11	16.9102		
935.54	29.0766	1332.49	22.6465		
937.49	34.2261	1362.66	0.0000		
944.13	29.7187	1365.19	21.8559		
946.00	36.5964	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:26:47.88

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
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Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM50.CNF;72
Background date    : 28-JUL-2024 11:22:27
Sample date       : 26-JUN-2024 10:15:00 Acquisition date : 30-JUL-2024 11:22:06
Sample ID        : G674299017 Sample quantity : 8.47500E+01 GRAM
Detector name    : GAM50 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.59 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID         : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	38.77	23	64	1.05	77.81	75	7	6.40E-03	61.9	
2	0	63.44*	32	94	1.46	127.12	123	9	8.91E-03	58.1	
3	2	74.95	67	97	1.27	150.14	144	18	1.86E-02	29.0	2.06E+00
4	2	77.08	97	86	1.16	154.40	144	18	2.69E-02	19.0	
5	2	89.78	39	64	1.33	179.79	171	22	1.08E-02	39.6	4.11E+00
6	2	92.80*	100	51	1.29	185.84	171	22	2.79E-02	17.7	
7	2	94.82	25	38	1.23	189.87	171	22	6.93E-03	60.1	
8	0	128.63	26	41	1.47	257.46	255	6	7.11E-03	45.3	
9	0	144.25	24	67	0.63	288.70	284	8	6.69E-03	62.5	
10	0	185.73*	75	89	1.51	371.63	365	12	2.09E-02	28.8	
11	2	238.76*	133	70	1.47	477.64	472	18	3.70E-02	14.2	1.24E+00
12	2	242.22	117	53	1.56	484.56	472	18	3.26E-02	15.4	
13	0	295.29*	203	45	1.40	590.66	584	11	5.64E-02	9.5	
14	0	339.31*	38	71	2.09	678.69	670	18	1.06E-02	55.0	
15	0	352.05*	352	39	1.47	704.16	698	12	9.77E-02	6.5	
16	0	394.47	14	35	4.24	788.96	780	13	3.75E-03	94.9	
17	0	405.32	9	24	1.50	810.67	807	8	2.50E-03	100.0	
18	0	410.24	13	17	0.92	820.51	817	7	3.56E-03	62.2	
19	0	481.00	9	18	0.80	961.98	958	7	2.55E-03	82.8	
20	0	511.65*	32	15	2.90	1023.26	1016	16	8.85E-03	43.4	
21	0	538.50	14	24	4.95	1076.94	1063	16	3.86E-03	83.3	
22	0	583.41*	46	27	1.90	1166.76	1158	17	1.27E-02	32.0	
23	0	609.39*	224	44	1.81	1218.69	1211	13	6.23E-02	9.1	
24	0	656.54	11	11	3.97	1312.97	1304	14	3.19E-03	66.8	
25	0	769.17	19	18	2.95	1538.18	1532	12	5.28E-03	50.2	
26	0	778.64	9	5	0.98	1557.11	1551	10	2.62E-03	54.6	
27	0	783.33	12	16	0.57	1566.50	1560	13	3.31E-03	75.5	
28	0	885.08	7	2	1.34	1769.94	1765	9	1.93E-03	54.0	
29	0	912.46*	21	19	2.08	1824.70	1814	15	5.89E-03	51.0	
30	0	1120.60	44	14	1.54	2240.93	2233	13	1.23E-02	22.6	
31	0	1128.85	9	4	1.47	2257.41	2253	8	2.36E-03	52.6	
32	0	1207.70	12	0	1.99	2415.08	2410	10	3.33E-03	28.9	
33	5	1235.92	39	0	3.81	2471.52	2461	20	1.08E-02	18.4	7.31E-01
34	5	1239.13	22	0	1.54	2477.94	2461	20	6.14E-03	23.5	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	1384.59	13	0	0.73	2768.85	2762	14	3.61E-03	27.7	
36	0	1461.33*	21	11	2.31	2922.30	2914	14	5.79E-03	41.2	
37	0	1730.70	11	4	1.84	3461.02	3451	15	3.05E-03	49.2	
38	0	1765.41	27	12	1.89	3530.45	3523	13	7.57E-03	30.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299017.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 10:15:00 Acquisition date : 30-JUL-2024 11:22:06
Sample ID : G674299017 Sample quantity : 84.750 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA50 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.59 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.631E-01	1.664E+00	1.664E+00	82.44	OK
AG-110	657.50	4.50*	2.187E+00	9.454E-01	1.039E+00	133.57	OK
CE-141	145.44	48.29*	5.911E+00	2.096E-02	4.334E-02	418.16	OK
TL-208	277.37	6.60	4.200E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.430E+00	1.794E-01	1.794E-01	63.96	OK
	860.56	12.50	1.670E+00	----- Line	Not Found	-----	Absent
BI-211	72.87	1.23	2.519E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.569E+00	6.136E+00	6.136E+00	13.02	OK
PB-212	74.82	10.28	2.774E+00	1.852E+00	1.852E+00	57.91	OK
	77.11	17.10	3.031E+00	1.471E+00	1.471E+00	38.06	OK
	238.63	43.60*	4.637E+00	5.268E-01	5.268E-01	28.48	OK
	300.09	3.30	3.983E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	2.340E+00	1.707E+00	1.707E+00	18.16	OK
	1120.29	14.92	1.253E+00	1.935E+00	1.935E+00	45.19	OK
	1764.49	15.30	8.555E-01	1.710E+00	1.710E+00	60.14	OK
PB-214	74.82	5.80	2.774E+00	3.283E+00	3.283E+00	57.91	OK
	77.11	9.70	3.031E+00	2.594E+00	2.594E+00	38.06	OK
	87.09	3.41	4.116E+00	----- Line	Not Found	-----	Absent
	242.00	7.25	4.594E+00	2.819E+00	2.819E+00	30.81	OK
	295.22	18.42	4.027E+00	2.197E+00	2.198E+00	19.08	OK
	351.93	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02	OK
RN-222	609.32	45.49*	2.340E+00	1.707E+00	1.707E+00	18.16	OK
	1120.29	14.92	1.253E+00	1.935E+00	1.935E+00	45.19	OK
	1764.49	15.30	8.555E-01	1.710E+00	1.710E+00	60.14	OK
RA-224	240.99	4.10*	4.594E+00	4.985E+00	4.985E+00	30.81	OK
RA-226	74.82	5.80	2.774E+00	3.283E+00	3.283E+00	57.91	OK
	77.11	9.70	3.031E+00	2.594E+00	2.594E+00	38.06	OK
	87.09	3.41	4.116E+00	----- Line	Not Found	-----	Absent
	242.00	7.25	4.594E+00	2.819E+00	2.819E+00	30.81	OK
	295.22	18.42	4.027E+00	2.197E+00	2.198E+00	19.08	OK
	351.93	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02	OK
TH-228	74.82	10.28	2.774E+00	1.852E+00	1.852E+00	57.91	OK
	77.11	17.10	3.031E+00	1.471E+00	1.471E+00	38.06	OK
	238.63	43.60*	4.637E+00	5.268E-01	5.268E-01	28.48	OK
	300.09	3.30	3.983E+00	----- Line	Not Found	-----	Absent
TH-230	74.82	5.80	2.774E+00	3.283E+00	3.283E+00	57.91	OK
	77.11	9.70	3.031E+00	2.594E+00	2.594E+00	38.06	OK
	87.09	3.41	4.116E+00	----- Line	Not Found	-----	Absent
	242.00	7.25	4.594E+00	2.819E+00	2.819E+00	30.81	OK
	295.22	18.42	4.027E+00	2.197E+00	2.197E+00	19.08	OK
	351.93	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02	OK
TH-234	63.29	3.70*	1.383E+00	4.928E+00	4.928E+00	116.14	OK
	92.59	4.23	4.617E+00	4.060E+00	4.060E+00	35.35	OK
U-234	74.82	5.80	2.774E+00	3.283E+00	3.283E+00	57.91	OK
	77.11	9.70	3.031E+00	2.594E+00	2.594E+00	38.06	OK
	87.09	3.41	4.116E+00	----- Line	Not Found	-----	Absent
	242.00	7.25	4.594E+00	2.819E+00	2.819E+00	30.81	OK
	295.22	18.42	4.027E+00	2.197E+00	2.197E+00	19.08	OK
	351.93	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
U-235	89.96	3.47	4.364E+00	2.036E+00	2.036E+00	79.20	OK
	93.35	5.60	4.617E+00	3.067E+00	3.067E+00	35.35	OK
	143.76	10.96*	5.914E+00	----- Line	Not Found	-----	<<INT Reject
	163.33	5.08	5.710E+00	----- Line	Not Found	-----	Absent
	185.72	57.20	5.386E+00	1.944E-01	1.944E-01	57.69	OK
U-238	205.31	5.01	5.093E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	1.383E+00	4.928E+00	4.928E+00	116.14	OK
AM-243	92.59	4.23	4.617E+00	4.060E+00	4.060E+00	35.35	OK
	43.53	5.90	6.527E-02	----- Line	Not Found	-----	Absent
ANH-511	74.66	67.20*	2.774E+00	2.834E-01	2.834E-01	57.91	OK
	511.00	100.00*	2.710E+00	9.508E-02	9.508E-02	86.83	OK

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299017.CNF;1
Acquisition date : 30-JUL-2024 11:22:06 Sensitivity : 3.000
Detector ID : GAM50 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.59 Half life ratio : *****
Sample date : 26-JUN-2024 10:15:00 Analyst initials: RXF2
Sample ID : G674299017 Sample Quantity : 8.4750E+01 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 9-JUL-2024 04:24:41 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM50_CAN.CNF;3

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.664E+00	1.344E+00	1.164E+00
AG-110	1.039E+00	1.360E+00	2.269E+00
CE-141	4.334E-02	1.776E-01	2.425E-01
TL-208	1.794E-01	1.124E-01	1.022E-01
BI-211	6.136E+00	7.827E-01	5.509E-01
PB-212	5.268E-01	1.471E-01	1.471E-01
BI-214	1.707E+00	3.038E-01	2.078E-01
PB-214	2.227E+00	2.841E-01	2.004E-01
RN-222	1.707E+00	3.038E-01	2.078E-01
RA-224	4.985E+00	1.505E+00	1.576E+00
RA-226	2.227E+00	2.841E-01	2.004E-01
TH-228	5.268E-01	1.471E-01	1.471E-01
TH-230	2.227E+00	2.841E-01	2.004E-01
TH-234	4.928E+00	5.609E+00	6.078E+00
U-234	2.227E+00	2.841E-01	2.004E-01
U-235	2.956E-01	3.623E-01	5.461E-01
U-238	4.928E+00	5.609E+00	6.078E+00
AM-243	2.834E-01	1.608E-01	1.866E-01
ANH-511	9.508E-02	8.090E-02	6.977E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-4.174E-01	6.295E-01	9.204E-01	NOT IDENT.
NA-22	-3.091E-03	6.255E-02	1.229E-01	NOT IDENT.
NA-24	0.000E+00	1.681E+15	0.000E+00	SHORT HLIF
AL-26	-1.615E-02	4.377E-02	8.665E-02	FAIL ABUN
SC-46	-8.735E-03	6.067E-02	1.039E-01	FAIL ABUN
V-48	7.835E-03	1.782E-01	3.733E-01	NOT IDENT.
CR-51	-3.041E-01	9.616E-01	1.644E+00	NOT IDENT.
MN-52	-4.701E-01	2.583E+00	5.665E+00	NOT IDENT.
MN-54	4.355E-02	4.819E-02	1.077E-01	NOT IDENT.
CO-56	-5.261E-02	7.988E-02	1.296E-01	FAIL ABUN
MN-56	0.000E+00	1.500E+41	0.000E+00	SHORT HLIF

CO-57	2.390E-02	3.787E-02	6.847E-02	NOT IDENT.
CO-58	-6.219E-02	7.867E-02	1.247E-01	NOT IDENT.
FE-59	-3.701E-02	1.420E-01	2.728E-01	NOT IDENT.
CO-60	-2.018E-02	6.302E-02	1.208E-01	NOT IDENT.
ZN-65	1.627E-01	1.599E-01	3.326E-01	NOT IDENT.
GE-68	1.782E+00	1.884E+00	4.358E+00	NOT IDENT.
AS-73	4.260E+00	4.457E+00	8.661E+00	NOT IDENT.
AS-74	-6.641E-02	2.731E-01	4.965E-01	NOT IDENT.
SE-75	-6.090E-02	6.581E-02	1.063E-01	NOT IDENT.
BR-77	0.000E+00	5.733E+03	0.000E+00	SHORT HLIF
SR-82	1.953E-01	8.758E-01	1.530E+00	NOT IDENT.
RB-83	9.690E-02	1.187E-01	2.469E-01	NOT IDENT.
RB-84	-1.568E-01	1.812E-01	2.405E-01	NOT IDENT.
KR-85	1.426E+01	1.188E+01	2.306E+01	NOT IDENT.
SR-85	9.178E-02	7.680E-02	1.489E-01	NOT IDENT.
RB-86	1.970E+00	2.239E+00	5.158E+00	NOT IDENT.
Y-88	2.568E-02	7.355E-02	1.706E-01	NOT IDENT.
Y-91	6.525E+00	4.294E+01	7.572E+01	NOT IDENT.
NB-94	6.484E-02	5.688E-02	1.192E-01	NOT IDENT.
NB-95	1.066E-01	7.844E-02	1.661E-01	NOT IDENT.
NB-95M	2.141E-02	2.280E-01	3.721E-01	NOT IDENT.
ZR-95	2.650E-02	1.142E-01	2.272E-01	NOT IDENT.
NB-97	0.000E+00	1.309E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.895E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	2.364E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.972E+39	0.000E+00	SHORT HLIF
RH-101	5.135E-02	4.562E-02	8.590E-02	FAIL ABUN
RH-102	3.542E-02	7.258E-02	1.489E-01	NOT IDENT.
RU-103	1.121E-02	7.099E-02	1.392E-01	FAIL ABUN
RH-106	2.196E-02	4.180E-01	8.058E-01	NOT IDENT.
RU-106	2.196E-02	4.180E-01	8.058E-01	NOT IDENT.
AG-108M	4.514E-03	4.163E-02	8.008E-02	NOT IDENT.
CD-109	1.897E+00	1.384E+00	2.627E+00	NOT IDENT.
AG-110M	5.273E-02	5.580E-02	1.354E-01	FAIL ABUN
SN-113	-4.479E-03	7.495E-02	1.317E-01	NOT IDENT.
CD-115	0.000E+00	6.185E+03	0.000E+00	SHORT HLIF
SN-117M	-3.438E-02	2.000E-01	3.620E-01	NOT IDENT.
SB-122	0.000E+00	3.325E+02	0.000E+00	SHORT HLIF
TE-123M	1.834E-02	4.470E-02	8.445E-02	NOT IDENT.
SB-124	-6.530E-02	1.924E-01	3.689E-01	NOT IDENT.
SB-125	8.680E-02	1.312E-01	2.667E-01	NOT IDENT.
TE-125M	9.415E+00	1.768E+01	3.181E+01	NOT IDENT.
I-126	2.459E-01	7.756E-01	1.554E+00	NOT IDENT.
SB-126	-4.239E-02	5.491E-01	1.027E+00	NOT IDENT.
SN-126	2.559E-01	1.387E-01	2.698E-01	FAIL ABUN
SB-127	-1.138E+01	5.426E+01	9.904E+01	FAIL ABUN
I-131	-6.566E-03	8.465E-01	1.511E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.212E+01	0.000E+00	SHORT HLIF
BA-133	3.031E-02	7.008E-02	1.193E-01	NOT IDENT.
I-133	0.000E+00	3.993E+10	0.000E+00	SHORT HLIF
CS-134	-9.788E-03	6.269E-02	1.139E-01	NOT IDENT.
I-135	0.000E+00	5.754E+36	0.000E+00	SHORT HLIF
CS-136	2.311E-01	4.127E-01	8.995E-01	FAIL ABUN
BA-137M	2.059E-02	5.257E-02	9.523E-02	NOT IDENT.
CS-137	2.175E-02	5.554E-02	1.006E-01	NOT IDENT.
LA-138	2.565E-02	5.160E-02	1.427E-01	NOT IDENT.
CE-139	8.672E-03	4.359E-02	8.137E-02	NOT IDENT.
BA-140	1.129E+00	1.844E+00	1.989E+00	FAIL ABUN
LA-140	-3.099E-02	4.916E-01	9.847E-01	NOT IDENT.
CE-143	0.000E+00	2.813E+06	0.000E+00	SHORT HLIF
CE-144	1.519E-02	2.875E-01	4.880E-01	NOT IDENT.
PM-144	-2.099E-02	5.067E-02	8.843E-02	NOT IDENT.
PR-144	-1.601E+00	3.828E+00	6.675E+00	NOT IDENT.
PM-146	5.251E-03	5.996E-02	1.149E-01	NOT IDENT.
ND-147	-2.884E+00	2.992E+00	3.955E+00	FAIL ABUN
PM-147	3.565E+02	1.038E+03	1.832E+03	NOT IDENT.
PM-149	0.000E+00	4.600E+04	0.000E+00	SHORT HLIF
EU-150	7.787E-03	4.681E-02	7.578E-02	FAIL ABUN
EU-152	-1.442E-01	1.688E-01	2.281E-01	FAIL ABUN
GD-153	3.467E-02	1.388E-01	2.265E-01	NOT IDENT.
EU-154	-8.675E-03	1.755E-01	3.450E-01	NOT IDENT.
EU-155	4.257E-02	1.456E-01	2.586E-01	NOT IDENT.
TB-160	-2.710E-01	3.055E-01	4.214E-01	NOT IDENT.
HO-166M	8.197E-02	8.922E-02	1.895E-01	FAIL ABUN
TM-171	-6.753E+01	9.131E+01	1.515E+02	NOT IDENT.
HF-172	2.311E-01	3.006E-01	5.119E-01	FAIL ABUN
LU-172	8.435E-02	8.688E-02	2.053E-01	FAIL ABUN

LU-176	1.066E-02	3.595E-02	6.709E-02	FAIL ABUN
HF-181	5.643E-02	9.159E-02	1.871E-01	FAIL ABUN
TA-182	-1.254E-02	3.148E-01	6.056E-01	FAIL ABUN
RE-183	1.451E-01	8.664E-01	1.555E+00	NOT IDENT.
RE-184	1.593E-01	3.216E-01	6.219E-01	NOT IDENT.
W-188	7.257E+00	1.194E+01	2.130E+01	FAIL ABUN
IR-192	-1.756E-03	6.992E-02	1.232E-01	FAIL ABUN
HG-203	2.516E-02	7.227E-02	1.344E-01	NOT IDENT.
TL-204	-9.648E+00	1.188E+01	1.740E+01	NOT IDENT.
BI-207	3.127E-02	7.267E-02	1.561E-01	FAIL ABUN
BI-210	1.625E+01	2.964E+01	5.550E+01	NOT IDENT.
PB-210	1.625E+01	2.964E+01	5.550E+01	NOT IDENT.
PB-211	5.937E-01	1.164E+00	2.051E+00	FAIL ABUN
BI-212	4.612E-01	7.796E-01	1.570E+00	NOT IDENT.
BI-213	1.603E-03	1.424E-01	2.716E-01	NOT IDENT.
RN-219	6.476E-02	6.377E-01	1.029E+00	NOT IDENT.
RA-223	-6.096E-01	9.534E-01	1.569E+00	FAIL ABUN
AC-225	1.112E+00	3.185E+00	5.925E+00	NOT IDENT.
AC-227	-2.821E-01	3.223E-01	5.257E-01	NOT IDENT.
TH-227	-2.821E-01	3.223E-01	5.257E-01	NOT IDENT.
AC-228	4.264E-01	4.262E-01	6.636E-01	FAIL ABUN
RA-228	4.264E-01	4.262E-01	6.636E-01	FAIL ABUN
TH-229	8.490E-02	6.812E-01	1.259E+00	FAIL ABUN
PA-231	-4.164E-02	6.885E-01	1.223E+00	NOT IDENT.
TH-231	-6.096E-01	9.534E-01	1.569E+00	FAIL ABUN
TH-232	4.264E-01	4.262E-01	6.636E-01	FAIL ABUN
PA-233	1.107E-02	1.022E-01	1.836E-01	FAIL ABUN
PA-234	-2.017E-01	4.427E-01	8.028E-01	FAIL ABUN
PA-234M	-3.463E+00	7.480E+00	1.383E+01	NOT IDENT.
NP-237	1.107E-02	1.022E-01	1.836E-01	FAIL ABUN
NP-238	0.000E+00	1.086E+04	0.000E+00	SHORT HLIF
NP-239	1.796E-01	3.858E-01	6.872E-01	NOT IDENT.
PU-239	5.426E+02	4.821E+02	8.131E+02	FAIL ABUN
AM-241	-5.785E-02	5.401E-01	8.730E-01	NOT IDENT.
CM-243	-1.465E-01	1.595E-01	2.466E-01	NOT IDENT.
BK-247	-5.959E-02	1.043E-01	1.767E-01	NOT IDENT.
CM-247	-8.138E-03	6.112E-02	9.396E-02	NOT IDENT.
CF-249	6.304E-02	6.409E-02	1.182E-01	NOT IDENT.
CF-251	1.921E-02	1.850E-01	3.399E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	19	10.66*	9.631E-01	1.664E+00	1.664E+00	82.44
AG-110	657.50	11	4.50*	2.187E+00	9.454E-01	1.039E+00	133.57
CE-141	145.44	22	48.29*	5.911E+00	6.710E-02	1.387E-01	125.04
TL-208	277.37	-----	6.60	4.200E+00	-----	Line Not Found	-----
	583.19	42	85.00*	2.430E+00	1.794E-01	1.794E-01	63.96
	860.56	-----	12.50	1.670E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	2.519E+00	-----	Line Not Found	-----
	351.06	319	12.92*	3.569E+00	6.136E+00	6.136E+00	13.02
PB-212	74.82	60	10.28	2.774E+00	1.852E+00	1.852E+00	57.91
	77.11	86	17.10	3.031E+00	1.471E+00	1.471E+00	38.06
	238.63	120	43.60*	4.637E+00	5.268E-01	5.268E-01	28.48
	300.09	-----	3.30	3.983E+00	-----	Line Not Found	-----
BI-214	609.32	205	45.49*	2.340E+00	1.707E+00	1.707E+00	18.16
	1120.29	41	14.92	1.253E+00	1.935E+00	1.935E+00	45.19
	1764.49	25	15.30	8.555E-01	1.710E+00	1.710E+00	60.14
PB-214	74.82	60	5.80	2.774E+00	3.283E+00	3.283E+00	57.91
	77.11	86	9.70	3.031E+00	2.594E+00	2.594E+00	38.06
	87.09	-----	3.41	4.116E+00	-----	Line Not Found	-----
	242.00	106	7.25	4.594E+00	2.819E+00	2.819E+00	30.81
	295.22	184	18.42	4.027E+00	2.197E+00	2.198E+00	19.08
	351.93	319	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02
RN-222	609.32	205	45.49*	2.340E+00	1.707E+00	1.707E+00	18.16
	1120.29	41	14.92	1.253E+00	1.935E+00	1.935E+00	45.19
	1764.49	25	15.30	8.555E-01	1.710E+00	1.710E+00	60.14
RA-224	240.99	106	4.10*	4.594E+00	4.985E+00	4.985E+00	30.81
RA-226	74.82	60	5.80	2.774E+00	3.283E+00	3.283E+00	57.91
	77.11	86	9.70	3.031E+00	2.594E+00	2.594E+00	38.06
	87.09	-----	3.41	4.116E+00	-----	Line Not Found	-----
	242.00	106	7.25	4.594E+00	2.819E+00	2.819E+00	30.81
	295.22	184	18.42	4.027E+00	2.197E+00	2.198E+00	19.08
	351.93	319	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02
TH-228	74.82	60	10.28	2.774E+00	1.852E+00	1.852E+00	57.91
	77.11	86	17.10	3.031E+00	1.471E+00	1.471E+00	38.06
	238.63	120	43.60*	4.637E+00	5.268E-01	5.268E-01	28.48
	300.09	-----	3.30	3.983E+00	-----	Line Not Found	-----
TH-230	74.82	60	5.80	2.774E+00	3.283E+00	3.283E+00	57.91
	77.11	86	9.70	3.031E+00	2.594E+00	2.594E+00	38.06
	87.09	-----	3.41	4.116E+00	-----	Line Not Found	-----
	242.00	106	7.25	4.594E+00	2.819E+00	2.819E+00	30.81
	295.22	184	18.42	4.027E+00	2.197E+00	2.197E+00	19.08
	351.93	319	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02
TH-234	63.29	28	3.70*	1.383E+00	4.928E+00	4.928E+00	116.14
	92.59	90	4.23	4.617E+00	4.060E+00	4.060E+00	35.35
U-234	74.82	60	5.80	2.774E+00	3.283E+00	3.283E+00	57.91
	77.11	86	9.70	3.031E+00	2.594E+00	2.594E+00	38.06
	87.09	-----	3.41	4.116E+00	-----	Line Not Found	-----
	242.00	106	7.25	4.594E+00	2.819E+00	2.819E+00	30.81

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-235	295.22	184	18.42	4.027E+00	2.197E+00	2.197E+00	19.08
	351.93	319	35.60*	3.569E+00	2.227E+00	2.227E+00	13.02
	89.96	35	3.47	4.364E+00	2.036E+00	2.036E+00	79.20
	93.35	90	5.60	4.617E+00	3.067E+00	3.067E+00	35.35
	143.76	22	10.96*	5.911E+00	2.956E-01	2.956E-01	125.04
	163.33	-----	5.08	5.710E+00	-----	Line Not Found	-----
U-238	185.72	68	57.20	5.386E+00	1.944E-01	1.944E-01	57.69
	205.31	-----	5.01	5.093E+00	-----	Line Not Found	-----
	63.29	28	3.70*	1.383E+00	4.928E+00	4.928E+00	116.14
	92.59	90	4.23	4.617E+00	4.060E+00	4.060E+00	35.35
AM-243	43.53	-----	5.90	6.527E-02	-----	Line Not Found	-----
	74.66	60	67.20*	2.774E+00	2.834E-01	2.834E-01	57.91
ANH-511	511.00	29	100.00*	2.710E+00	9.508E-02	9.508E-02	86.83

Flag: "*" = Keyline

Total number of lines in spectrum 38
Number of unidentified lines 5
Number of lines tentatively identified by NID 33 86.84%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.664E+00	1.664E+00	1.372E+00	82.44	
AG-110	249.76D	1.10	9.454E-01	1.039E+00	1.388E+00	133.57	
CE-141	32.51D	2.07	6.710E-02	1.387E-01	1.735E-01	125.04	
TL-208	1.41E+10Y	1.00	1.794E-01	1.794E-01	1.147E-01	63.96	
BI-211	7.04E+08Y	1.00	6.136E+00	6.136E+00	0.799E+00	13.02	
PB-212	1.41E+10Y	1.00	5.268E-01	5.268E-01	1.501E-01	28.48	
BI-214	1600.00Y	1.00	1.707E+00	1.707E+00	0.310E+00	18.16	
PB-214	1600.00Y	1.00	2.227E+00	2.227E+00	0.290E+00	13.02	
RN-222	1600.00Y	1.00	1.707E+00	1.707E+00	0.310E+00	18.16	
RA-224	1.41E+10Y	1.00	4.985E+00	4.985E+00	1.536E+00	30.81	
RA-226	1600.00Y	1.00	2.227E+00	2.227E+00	0.290E+00	13.02	
TH-228	1.41E+10Y	1.00	5.268E-01	5.268E-01	1.501E-01	28.48	
TH-230	7.54E+04Y	1.00	2.227E+00	2.227E+00	0.290E+00	13.02	
TH-234	4.47E+09Y	1.00	4.928E+00	4.928E+00	5.723E+00	116.14	
U-234	2.45E+05Y	1.00	2.227E+00	2.227E+00	0.290E+00	13.02	
U-235	7.04E+08Y	1.00	2.956E-01	2.956E-01	3.697E-01	125.04	
U-238	4.47E+09Y	1.00	4.928E+00	4.928E+00	5.723E+00	116.14	
AM-243	7370.00Y	1.00	2.834E-01	2.834E-01	1.641E-01	57.91	
ANH-511	1.00E+09Y	1.00	9.508E-02	9.508E-02	8.255E-02	86.83	
Total Activity :			3.788E+01	3.805E+01			

Grand Total Activity : 3.788E+01 3.805E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	38.77	20	56	1.05	77.81	75	7	6.40E-03	****	1.44E-02	
2	94.82	22	34	1.23	189.87	171	22	6.93E-03	****	4.77E+00	T
0	128.63	23	37	1.47	257.46	255	6	7.11E-03	90.7	5.93E+00	T
0	339.31	35	64	2.09	678.69	670	18	1.06E-02	****	3.66E+00	T
0	394.47	12	31	4.24	788.96	780	13	3.75E-03	****	3.29E+00	
0	405.32	8	22	1.50	810.67	807	8	2.50E-03	****	3.23E+00	T
0	410.24	12	16	0.92	820.51	817	7	3.56E-03	****	3.20E+00	T
0	481.00	8	16	0.80	961.98	958	7	2.55E-03	****	2.84E+00	T
0	538.50	13	22	4.95	1076.94	1063	16	3.86E-03	****	2.60E+00	T
0	769.17	17	17	2.95	1538.18	1532	12	5.28E-03	****	1.88E+00	
0	778.64	9	4	0.98	1557.11	1551	10	2.62E-03	****	1.85E+00	T
0	783.33	11	15	0.57	1566.50	1560	13	3.31E-03	****	1.84E+00	T
0	885.08	6	2	1.34	1769.94	1765	9	1.93E-03	****	1.62E+00	T
0	912.46	19	18	2.08	1824.70	1814	15	5.89E-03	****	1.57E+00	T
0	1128.85	8	3	1.47	2257.41	2253	8	2.36E-03	****	1.24E+00	T
0	1207.70	11	0	1.99	2415.08	2410	10	3.33E-03	57.7	1.16E+00	
5	1235.92	36	0	3.81	2471.52	2461	20	1.08E-02	36.8	1.13E+00	T
5	1239.13	20	0	1.54	2477.94	2461	20	6.14E-03	47.0	1.13E+00	T
0	1384.59	12	0	0.73	2768.85	2762	14	3.61E-03	55.5	1.01E+00	T
0	1730.70	10	4	1.84	3461.02	3451	15	3.05E-03	98.3	8.62E-01	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299017.CNF;1 *
* Acquisition date : 30-JUL-2024 11:22:06 Sensitivity : 3.000 *
* Detector ID : GAM50 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.59 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:15:00 Nuclide Library : SOLID *
* Sample ID : G674299017 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 8.4750E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 9-JUL-2024 04:24:41 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM50_CAN.CNF;3 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	4.668E-01
AG-110	1.003E+00
CE-141	1.128E-01
TL-208	4.543E-02
BI-211	2.502E-01
PB-212	6.778E-02
BI-214	9.288E-02
PB-214	9.099E-02
RN-222	9.288E-02
RA-224	7.265E-01
RA-226	9.099E-02
TH-228	6.778E-02
TH-230	9.099E-02
TH-234	2.810E+00
U-234	9.099E-02
U-235	2.551E-01
U-238	2.810E+00
AM-243	8.700E-02
ANH-511	3.056E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.990E-01	NOT IDENT.
NA-22	5.040E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.934E-02	FAIL ABUN
SC-46	4.228E-02	FAIL ABUN
V-48	1.509E-01	NOT IDENT.
CR-51	7.497E-01	NOT IDENT.
MN-52	2.007E+00	NOT IDENT.
MN-54	4.651E-02	NOT IDENT.
CO-56	5.538E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.171E-02	NOT IDENT.

CO-58	5.304E-02	NOT IDENT.
FE-59	1.087E-01	NOT IDENT.
CO-60	4.899E-02	NOT IDENT.
ZN-65	1.459E-01	NOT IDENT.
GE-68	1.874E+00	NOT IDENT.
AS-73	4.007E+00	NOT IDENT.
AS-74	2.167E-01	NOT IDENT.
SE-75	4.755E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	6.586E-01	NOT IDENT.
RB-83	1.106E-01	NOT IDENT.
RB-84	9.866E-02	NOT IDENT.
KR-85	1.052E+01	NOT IDENT.
SR-85	6.797E-02	NOT IDENT.
RB-86	2.209E+00	NOT IDENT.
Y-88	6.772E-02	NOT IDENT.
Y-91	3.200E+01	NOT IDENT.
NB-94	5.387E-02	NOT IDENT.
NB-95	7.402E-02	NOT IDENT.
NB-95M	1.715E-01	NOT IDENT.
ZR-95	9.719E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	4.001E-02	FAIL ABUN
RH-102	6.504E-02	NOT IDENT.
RU-103	6.111E-02	FAIL ABUN
RH-106	3.480E-01	NOT IDENT.
RU-106	3.480E-01	NOT IDENT.
AG-108M	3.583E-02	NOT IDENT.
CD-109	1.235E+00	NOT IDENT.
AG-110M	5.673E-02	FAIL ABUN
SN-113	5.918E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.678E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	3.930E-02	NOT IDENT.
SB-124	1.422E-01	NOT IDENT.
SB-125	1.204E-01	NOT IDENT.
TE-125M	1.474E+01	NOT IDENT.
I-126	6.741E-01	NOT IDENT.
SB-126	4.396E-01	NOT IDENT.
SN-126	1.274E-01	FAIL ABUN
SB-127	4.251E+01	FAIL ABUN
I-131	6.776E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	5.431E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.912E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	3.840E-01	FAIL ABUN
BA-137M	4.158E-02	NOT IDENT.
CS-137	4.393E-02	NOT IDENT.
LA-138	5.288E-02	NOT IDENT.
CE-139	3.765E-02	NOT IDENT.
BA-140	8.767E-01	FAIL ABUN
LA-140	4.048E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	2.248E-01	NOT IDENT.
PM-144	3.812E-02	NOT IDENT.
PR-144	2.877E+00	NOT IDENT.
PM-146	5.131E-02	NOT IDENT.
ND-147	1.685E+00	FAIL ABUN
PM-147	8.448E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.459E-02	FAIL ABUN
EU-152	1.019E-01	FAIL ABUN
GD-153	1.044E-01	NOT IDENT.
EU-154	1.414E-01	NOT IDENT.
EU-155	1.189E-01	NOT IDENT.
TB-160	1.775E-01	NOT IDENT.
HO-166M	8.402E-02	FAIL ABUN
TM-171	6.932E+01	NOT IDENT.
HF-172	2.380E-01	FAIL ABUN
LU-172	8.762E-02	FAIL ABUN
LU-176	3.036E-02	FAIL ABUN

HF-181	8.459E-02	FAIL ABUN
TA-182	2.559E-01	FAIL ABUN
RE-183	7.199E-01	NOT IDENT.
RE-184	2.730E-01	NOT IDENT.
W-188	9.647E+00	FAIL ABUN
IR-192	5.653E-02	FAIL ABUN
HG-203	6.152E-02	NOT IDENT.
TL-204	8.042E+00	NOT IDENT.
BI-207	6.614E-02	FAIL ABUN
BI-210	2.574E+01	NOT IDENT.
PB-210	2.574E+01	NOT IDENT.
PB-211	9.298E-01	FAIL ABUN
BI-212	6.963E-01	NOT IDENT.
BI-213	1.210E-01	NOT IDENT.
RN-219	4.600E-01	NOT IDENT.
RA-223	7.068E-01	FAIL ABUN
AC-225	2.742E+00	NOT IDENT.
AC-227	2.351E-01	NOT IDENT.
TH-227	2.351E-01	NOT IDENT.
AC-228	3.028E-01	FAIL ABUN
RA-228	3.028E-01	FAIL ABUN
TH-229	5.794E-01	FAIL ABUN
PA-231	5.563E-01	NOT IDENT.
TH-231	7.068E-01	FAIL ABUN
TH-232	3.028E-01	FAIL ABUN
PA-233	8.397E-02	FAIL ABUN
PA-234	3.363E-01	FAIL ABUN
PA-234M	5.928E+00	NOT IDENT.
NP-237	8.397E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	3.183E-01	NOT IDENT.
PU-239	3.755E+02	FAIL ABUN
AM-241	4.033E-01	NOT IDENT.
CM-243	1.128E-01	NOT IDENT.
BK-247	7.935E-02	NOT IDENT.
CM-247	4.197E-02	NOT IDENT.
CF-249	5.380E-02	NOT IDENT.
CF-251	1.577E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299017.CNF;1
Acquisition date : 30-JUL-2024 11:22:06 Sensitivity : 3.000
Detector ID : GAM50 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.59 Half life ratio : *****
Sample date : 26-JUN-2024 10:15:00 Nuclide Library : SOLID
Sample ID : G674299017 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 8.4750E+01 GRAM
Quantity Err(%) : 1.1799E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 9-JUL-2024 04:24:41 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM50_CAN.CNF;3

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.664E+00	1.352E+00	1.352E+00
AG-110	1.039E+00	1.363E+00	1.363E+00
CE-141	4.333E-02	1.780E-01	1.780E-01
TL-208	1.794E-01	1.135E-01	1.135E-01
BI-211	6.136E+00	9.693E-01	9.693E-01
PB-212	5.268E-01	1.554E-01	1.554E-01
BI-214	1.707E+00	3.376E-01	3.376E-01
PB-214	2.227E+00	3.499E-01	3.499E-01
RN-222	1.707E+00	3.376E-01	3.376E-01
RA-224	4.985E+00	1.581E+00	1.581E+00
RA-226	2.227E+00	3.499E-01	3.499E-01
TH-228	5.268E-01	1.554E-01	1.554E-01
TH-230	2.227E+00	3.499E-01	3.499E-01
TH-234	4.928E+00	5.739E+00	5.739E+00
U-234	2.227E+00	3.499E-01	3.499E-01
U-235	2.956E-01	3.631E-01	3.631E-01
U-238	4.928E+00	5.739E+00	5.739E+00
AM-243	2.834E-01	1.634E-01	1.634E-01
ANH-511	9.508E-02	8.131E-02	8.131E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-4.174E-01	6.305E-01	6.580E-01	NOT IDENT.
NA-22	-3.091E-03	6.255E-02	6.257E-02	NOT IDENT.
NA-24	2.966E+14	1.681E+15	1.686E+15	SHORT HLIF
AL-26	-1.615E-02	4.379E-02	4.439E-02	FAIL ABUN
SC-46	-8.735E-03	6.068E-02	6.080E-02	FAIL ABUN
V-48	7.835E-03	1.782E-01	1.782E-01	NOT IDENT.
CR-51	-3.041E-01	9.620E-01	9.718E-01	NOT IDENT.
MN-52	-4.701E-01	2.583E+00	2.592E+00	NOT IDENT.
MN-54	4.355E-02	4.843E-02	5.225E-02	NOT IDENT.
CO-56	-5.261E-02	8.010E-02	8.353E-02	FAIL ABUN
MN-56	-1.000E+41	1.505E+41	0.000E+00	SHORT HLIF

CO-57	2.390E-02	3.793E-02	3.943E-02	NOT IDENT.
CO-58	-6.219E-02	7.895E-02	8.378E-02	NOT IDENT.
FE-59	-3.701E-02	1.421E-01	1.431E-01	NOT IDENT.
CO-60	-2.018E-02	6.305E-02	6.370E-02	NOT IDENT.
ZN-65	1.627E-01	1.614E-01	1.773E-01	NOT IDENT.
GE-68	1.782E+00	1.899E+00	2.062E+00	NOT IDENT.
AS-73	4.260E+00	4.594E+00	4.980E+00	NOT IDENT.
AS-74	-6.641E-02	2.732E-01	2.748E-01	NOT IDENT.
SE-75	-6.090E-02	6.609E-02	7.157E-02	NOT IDENT.
BR-77	2.054E+04	2.108E+04	2.302E+04	SHORT HLIF
SR-82	1.953E-01	8.760E-01	8.804E-01	NOT IDENT.
RB-83	9.690E-02	1.197E-01	1.274E-01	NOT IDENT.
RB-84	-1.568E-01	1.821E-01	1.954E-01	NOT IDENT.
KR-85	1.426E+01	1.195E+01	1.357E+01	NOT IDENT.
SR-85	9.178E-02	7.720E-02	8.759E-02	NOT IDENT.
RB-86	1.970E+00	2.255E+00	2.423E+00	NOT IDENT.
Y-88	2.568E-02	7.358E-02	7.448E-02	NOT IDENT.
Y-91	6.525E+00	4.295E+01	4.305E+01	NOT IDENT.
NB-94	6.484E-02	5.718E-02	6.422E-02	NOT IDENT.
NB-95	1.066E-01	7.916E-02	9.260E-02	NOT IDENT.
NB-95M	2.141E-02	2.280E-01	2.282E-01	NOT IDENT.
ZR-95	2.650E-02	1.142E-01	1.149E-01	NOT IDENT.
NB-97	1.000E+41	1.312E+41	0.000E+00	SHORT HLIF
ZR-97	-2.654E+13	2.895E+14	2.897E+14	SHORT HLIF
MO-99	-3.837E+02	2.365E+03	2.371E+03	SHORT HLIF
TC-99M	-5.632E+37	2.972E+39	0.000E+00	SHORT HLIF
RH-101	5.135E-02	4.669E-02	5.212E-02	FAIL ABUN
RH-102	3.542E-02	7.268E-02	7.442E-02	NOT IDENT.
RU-103	1.121E-02	7.100E-02	7.118E-02	FAIL ABUN
RH-106	2.196E-02	4.180E-01	4.181E-01	NOT IDENT.
RU-106	2.196E-02	4.180E-01	4.181E-01	NOT IDENT.
AG-108M	4.514E-03	4.163E-02	4.168E-02	NOT IDENT.
CD-109	1.897E+00	1.399E+00	1.640E+00	NOT IDENT.
AG-110M	5.273E-02	5.618E-02	6.100E-02	FAIL ABUN
SN-113	-4.479E-03	7.495E-02	7.498E-02	NOT IDENT.
CD-115	5.027E+03	6.205E+03	6.606E+03	SHORT HLIF
SN-117M	-3.438E-02	2.000E-01	2.006E-01	NOT IDENT.
SB-122	1.886E+02	3.329E+02	3.436E+02	SHORT HLIF
TE-123M	1.834E-02	4.473E-02	4.548E-02	NOT IDENT.
SB-124	-6.530E-02	1.925E-01	1.947E-01	NOT IDENT.
SB-125	8.680E-02	1.314E-01	1.371E-01	NOT IDENT.
TE-125M	9.415E+00	1.770E+01	1.820E+01	NOT IDENT.
I-126	2.459E-01	7.759E-01	7.838E-01	NOT IDENT.
SB-126	-4.239E-02	5.491E-01	5.494E-01	NOT IDENT.
SN-126	2.559E-01	1.409E-01	1.821E-01	FAIL ABUN
SB-127	-1.138E+01	5.430E+01	5.454E+01	FAIL ABUN
I-131	-6.566E-03	8.465E-01	8.465E-01	NOT IDENT.
I-132	1.000E+41	5.273E+41	0.000E+00	SHORT HLIF
TE-132	2.946E+00	6.213E+01	6.214E+01	SHORT HLIF
BA-133	3.031E-02	7.013E-02	7.145E-02	NOT IDENT.
I-133	-3.215E+10	4.060E+10	4.311E+10	SHORT HLIF
CS-134	-9.788E-03	6.270E-02	6.286E-02	NOT IDENT.
I-135	-1.556E+36	5.881E+36	0.000E+00	SHORT HLIF
CS-136	2.311E-01	4.142E-01	4.271E-01	FAIL ABUN
BA-137M	2.059E-02	5.260E-02	5.341E-02	NOT IDENT.
CS-137	2.175E-02	5.557E-02	5.642E-02	NOT IDENT.
LA-138	2.565E-02	5.164E-02	5.292E-02	NOT IDENT.
CE-139	8.672E-03	4.363E-02	4.381E-02	NOT IDENT.
BA-140	1.129E+00	1.847E+00	1.916E+00	FAIL ABUN
LA-140	-3.099E-02	4.916E-01	4.918E-01	NOT IDENT.
CE-143	4.981E+06	2.861E+06	3.637E+06	SHORT HLIF
CE-144	1.519E-02	2.875E-01	2.875E-01	NOT IDENT.
PM-144	-2.099E-02	5.071E-02	5.158E-02	NOT IDENT.
PR-144	-1.601E+00	3.830E+00	3.898E+00	NOT IDENT.
PM-146	5.251E-03	5.996E-02	6.001E-02	NOT IDENT.
ND-147	-2.884E+00	3.003E+00	3.272E+00	FAIL ABUN
PM-147	3.565E+02	1.038E+03	1.051E+03	NOT IDENT.
PM-149	2.936E+03	4.600E+04	4.602E+04	SHORT HLIF
EU-150	7.787E-03	4.682E-02	4.695E-02	FAIL ABUN
EU-152	-1.442E-01	1.694E-01	1.815E-01	FAIL ABUN
GD-153	3.467E-02	1.388E-01	1.397E-01	NOT IDENT.
EU-154	-8.675E-03	1.755E-01	1.756E-01	NOT IDENT.
EU-155	4.257E-02	1.456E-01	1.469E-01	NOT IDENT.
TB-160	-2.710E-01	3.073E-01	3.307E-01	NOT IDENT.
HO-166M	8.197E-02	8.958E-02	9.690E-02	FAIL ABUN
TM-171	-6.753E+01	9.221E+01	9.711E+01	NOT IDENT.
HF-172	2.311E-01	3.034E-01	3.208E-01	FAIL ABUN
LU-172	8.435E-02	8.798E-02	9.584E-02	FAIL ABUN

LU-176	1.066E-02	3.596E-02	3.628E-02	FAIL ABUN
HF-181	5.643E-02	9.172E-02	9.518E-02	FAIL ABUN
TA-182	-1.254E-02	3.148E-01	3.149E-01	FAIL ABUN
RE-183	1.451E-01	8.667E-01	8.692E-01	NOT IDENT.
RE-184	1.593E-01	3.224E-01	3.303E-01	NOT IDENT.
W-188	7.257E+00	1.198E+01	1.242E+01	FAIL ABUN
IR-192	-1.756E-03	6.992E-02	6.992E-02	FAIL ABUN
HG-203	2.516E-02	7.232E-02	7.321E-02	NOT IDENT.
TL-204	-9.648E+00	1.194E+01	1.271E+01	NOT IDENT.
BI-207	3.127E-02	7.279E-02	7.414E-02	FAIL ABUN
BI-210	1.625E+01	2.976E+01	3.064E+01	NOT IDENT.
PB-210	1.625E+01	2.976E+01	3.064E+01	NOT IDENT.
PB-211	5.937E-01	1.165E+00	1.195E+00	FAIL ABUN
BI-212	4.612E-01	7.809E-01	8.081E-01	NOT IDENT.
BI-213	1.603E-03	1.424E-01	1.424E-01	NOT IDENT.
RN-219	6.476E-02	6.378E-01	6.384E-01	NOT IDENT.
RA-223	-6.096E-01	9.556E-01	9.943E-01	FAIL ABUN
AC-225	1.112E+00	3.188E+00	3.227E+00	NOT IDENT.
AC-227	-2.821E-01	3.254E-01	3.493E-01	NOT IDENT.
TH-227	-2.821E-01	3.254E-01	3.493E-01	NOT IDENT.
AC-228	4.264E-01	4.295E-01	4.706E-01	FAIL ABUN
RA-228	4.264E-01	4.295E-01	4.706E-01	FAIL ABUN
TH-229	8.490E-02	6.812E-01	6.823E-01	FAIL ABUN
PA-231	-4.164E-02	6.886E-01	6.888E-01	NOT IDENT.
TH-231	-6.096E-01	9.556E-01	9.943E-01	FAIL ABUN
TH-232	4.264E-01	4.295E-01	4.706E-01	FAIL ABUN
PA-233	1.107E-02	1.022E-01	1.023E-01	FAIL ABUN
PA-234	-2.017E-01	4.998E-01	5.080E-01	FAIL ABUN
PA-234M	-3.463E+00	7.494E+00	7.655E+00	NOT IDENT.
NP-237	1.107E-02	1.022E-01	1.023E-01	FAIL ABUN
NP-238	-3.452E+03	1.087E+04	1.098E+04	SHORT HLIF
NP-239	1.796E-01	3.863E-01	3.947E-01	NOT IDENT.
PU-239	5.426E+02	4.844E+02	5.427E+02	FAIL ABUN
AM-241	-5.785E-02	5.402E-01	5.408E-01	NOT IDENT.
CM-243	-1.465E-01	1.604E-01	1.735E-01	NOT IDENT.
BK-247	-5.959E-02	1.051E-01	1.085E-01	NOT IDENT.
CM-247	-8.138E-03	6.114E-02	6.125E-02	NOT IDENT.
CF-249	6.304E-02	6.446E-02	7.045E-02	NOT IDENT.
CF-251	1.921E-02	1.850E-01	1.852E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	45.4207	85.43	66.3632	131.20	40.3880
45.60	44.9299	86.55	51.0208	133.02	48.6511
46.54	44.1846	86.79	51.0559	133.52	45.0491
49.72	0.0000	86.94	51.0785	136.00	58.7432
51.35	37.4501	87.09	51.1007	136.47	63.6995
51.87	48.1190	87.57	51.1714	140.51	0.0000
52.39	53.0469	88.03	51.2388	143.76	45.9926
52.97	43.5074	88.34	51.2843	144.24	46.0360
53.44	33.9052	88.47	51.3033	145.44	59.8630
54.07	43.7057	89.96	51.5206	152.43	55.6130
57.36	0.0000	1093.63	51.6192	153.25	56.5422
57.53	49.2413	91.11	51.6874	323.87	54.1074
57.98	49.3277	92.59	51.9000	156.02	50.8960
59.27	51.5574	93.35	52.0087	158.56	57.0997
59.32	51.5674	94.56	52.1804	159.00	52.0272
59.54	51.6108	94.65	52.1933	162.33	63.4951
60.96	45.2372	94.67	52.1962	162.66	64.3913
61.17	42.6099	94.87	52.2245	163.33	62.7489
62.93	50.2607	97.43	37.2938	165.86	47.4883
63.29	50.3271	98.43	47.1145	176.31	52.7423
63.58	50.3805	98.44	47.1157	176.60	46.6117
64.28	50.5089	99.53	52.8757	177.52	53.7299
66.73	52.9906	100.11	34.9282	181.07	0.0000
67.24	61.2524	102.03	41.8956	181.52	45.2190
125.81	60.3243	103.18	54.5105	184.41	52.5589
67.75	60.3387	103.37	56.8092	143.76	52.6699
68.89	52.3638	105.21	42.2345	193.51	42.4766
69.67	60.3971	105.31	38.8196	197.03	49.0688
70.82	68.9000	106.12	40.0423	198.01	41.8620
70.83	68.9026	106.47	36.6418	201.83	53.0888
72.81	63.4638	109.28	42.6607	203.43	44.0410
72.87	63.4764	111.00	53.2584	205.31	46.0047
74.66	63.8491	111.76	0.0000	210.85	50.0900
74.82	63.8822	114.06	46.6498	215.65	43.8990
74.97	63.9129	116.30	0.0000	218.12	44.9902
77.11	64.3518	116.74	43.4218	222.11	46.1852
78.74	64.6822	119.76	55.5400	227.09	37.9618
79.69	52.4656	121.12	40.3013	227.38	46.5217
80.03	52.5198	121.22	40.3104	228.16	0.0000
80.12	53.9547	121.78	36.7997	228.18	44.6716
80.19	53.9663	122.06	40.3862	116.74	44.6716
80.57	69.6694	122.92	48.7945	235.69	44.6443
81.00	69.7611	123.07	52.3823	235.96	44.6604
81.07	82.5921	265.00	58.4137	238.63	46.2637
81.75	59.9317	125.81	41.5204	238.98	0.0000
82.47	71.5032	127.23	57.6671	240.99	46.4063
83.79	41.6356	127.91	59.3564	242.00	46.4673
84.00	41.6615	129.30	41.8342	244.70	27.6865

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	27.4679	344.28	39.0688	563.25	16.4169
252.80	22.5742	345.93	34.7832	564.24	0.0000
254.15	0.0000	351.06	32.7704	569.33	15.5112
256.23	37.4563	351.93	32.7979	946.00	15.5127
260.90	0.0000	355.39	0.0000	569.70	15.5146
264.66	38.8397	356.01	24.6936	583.19	21.5139
264.80	34.8626	364.49	25.4431	584.27	21.5287
265.00	34.8704	366.42	0.0000	595.83	18.7252
269.46	41.0667	372.51	20.0592	427.87	26.6869
270.03	42.0974	375.05	20.1053	602.52	0.0000
271.23	46.1722	377.52	24.6278	604.72	33.2934
273.65	27.1785	356.01	30.3964	607.14	31.7539
276.40	39.3840	388.16	18.6461	609.32	23.8462
277.37	33.3625	388.63	16.9580	610.33	14.3165
277.60	33.3713	391.69	27.2056	614.28	11.1610
278.00	27.3164	264.66	23.9899	618.01	9.9875
279.20	33.4330	401.81	22.2981	620.36	17.0021
279.54	33.4465	402.40	25.7414	621.93	13.0135
279.70	36.4937	404.85	24.0753	630.19	0.0000
280.46	38.5551	410.95	29.3853	631.29	11.0718
283.69	25.4588	413.71	19.0576	633.25	22.1685
284.31	27.5153	414.70	19.4202	634.78	18.1538
285.41	25.5086	423.72	27.9497	635.95	18.1664
285.90	0.0000	427.09	16.6407	636.99	17.1671
287.50	28.6374	427.87	20.1566	657.50	19.6160
290.67	21.5546	433.94	22.8972	657.76	19.6189
293.27	0.0000	439.40	15.9208	657.90	0.0000
351.93	31.9795	440.45	22.1306	661.66	11.4690
295.96	30.9735	453.88	22.3633	664.57	0.0000
879.38	38.8275	463.37	19.8227	666.33	11.2934
299.98	18.6658	468.07	20.7971	666.50	10.2679
300.09	18.6680	473.00	19.0585	667.71	0.0000
300.13	18.6691	475.06	15.5818	677.62	18.5955
301.36	35.3108	476.78	20.3861	685.70	14.5264
302.85	33.2871	477.60	23.3125	692.65	0.0000
256.23	31.2622	482.18	26.3145	695.00	16.6846
304.85	20.8492	487.02	20.1725	696.49	17.7414
306.78	26.1154	492.35	0.0000	696.51	17.7419
308.46	34.5341	497.08	15.7007	697.00	18.7905
311.90	36.7610	505.52	17.8386	697.30	19.8373
316.51	42.2160	507.63	0.0000	697.49	17.7512
319.41	41.2844	511.00	16.7879	702.65	14.6584
320.08	41.3129	514.00	17.9443	706.68	27.2806
321.04	32.8706	514.00	17.9443	711.68	10.5200
323.87	38.2837	520.40	15.0195	720.70	12.6833
325.23	45.7907	520.69	0.0000	721.93	0.0000
328.76	37.4054	522.65	0.0000	722.78	12.6969
333.37	32.2101	527.90	0.0000	722.91	12.6980
333.97	33.8405	528.26	16.3584	723.31	19.0508
334.37	29.0176	529.59	24.1820	724.19	23.2944
338.28	38.8403	529.87	0.0000	727.33	13.7871
338.32	38.8418	531.02	24.2055	733.00	14.8908
311.90	38.9246	537.26	10.4441	735.93	11.7174
340.48	38.9246	546.56	0.0000	333.97	12.7925
340.55	38.9275	552.55	20.1406	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	20.3243	949.00	9.3840	1384.29	11.9732
747.24	14.9985	667.71	0.0000	1408.01	6.5757
748.06	12.8610	962.31	15.0953	1434.09	2.7601
752.31	22.5541	964.08	20.7711	1435.80	0.9205
753.82	16.1224	966.17	22.6781	1457.56	0.0000
756.73	9.6875	911.20	19.8654	1460.82	5.5613
756.80	9.6877	983.53	5.7086	1489.16	6.5389
884.68	10.3699	984.45	0.0000	1505.03	11.2573
765.81	6.9197	1274.44	14.3427	1584.12	7.6621
766.42	6.9217	1001.03	13.4114	1596.21	7.6859
766.84	8.6541	1002.74	15.3375	1620.50	2.9000
772.60	0.0000	1004.73	13.4306	1621.92	1.9340
776.52	10.4338	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	5.9014
778.90	0.0000	1028.54	0.0000	1750.46	0.0000
783.70	8.7249	1037.84	15.5437	1764.49	8.0068
788.74	12.2445	1038.76	0.0000	1063.66	0.0000
792.07	10.9500	631.29	7.7973	1771.35	18.0439
795.86	13.1635	1048.07	6.8264	1791.20	0.0000
810.06	19.8776	1049.04	9.7554	1808.65	3.0332
810.29	20.9842	1050.41	12.6883	1810.72	0.0000
344.28	20.9854	1063.66	6.8657	1836.06	3.0520
810.76	19.8842	1077.00	4.9280		
815.77	14.3941	1077.34	4.9285		
1048.07	14.4124	1085.87	8.8989		
832.01	14.5020	1093.63	3.9660		
834.85	5.5849	1099.45	6.9549		
835.71	4.4696	1112.07	13.7225		
836.80	0.0000	1112.84	11.4090		
846.75	0.0000	1115.54	6.6615		
846.77	19.0908	1120.29	15.0132		
856.80	5.4145	1120.55	11.6781		
860.56	12.6550	1221.41	11.6815		
871.09	16.3463	1129.67	6.6947		
873.19	20.9061	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	18.2280	1173.23	12.2309		
880.51	21.2769	1177.95	9.1876		
881.60	16.7251	1189.05	8.1969		
883.24	9.1294	1204.77	8.5828		
884.68	9.1350	1221.41	10.3555		
889.28	7.6276	1231.02	6.9251		
894.76	12.8444	1235.36	9.3621		
898.04	17.4562	1238.28	6.9414		
900.72	21.1554	1260.41	0.0000		
903.28	11.8389	1271.87	5.2615		
911.20	16.6298	1274.44	7.3722		
912.08	13.8633	1274.54	7.3722		
923.98	0.0000	1291.59	4.2352		
926.50	12.0875	1298.22	0.0000		
929.11	26.9935	1312.11	7.4580		
935.54	12.1326	1332.49	6.4321		
937.49	24.2842	1362.66	0.0000		
944.13	13.1117	1365.19	5.4121		
946.00	13.1219	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 12:27:30.83

```
*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29407                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299018.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM52.CNF;62
Background date : 28-JUL-2024 11:31:59
Sample date     : 26-JUN-2024 10:30:00 Acquisition date : 30-JUL-2024 11:22:31
Sample ID       : G674299018 Sample quantity : 9.48700E+01 GRAM
Detector name   : GAM52 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.39 0.0%
Energy tolerance: 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.97*	44	44	2.03	126.21	121	9	1.22E-02	33.1	1.47E+00
2	2	74.73*	70	36	1.14	149.73	147	20	1.95E-02	18.3	
3	2	77.18*	97	33	1.03	154.62	147	20	2.70E-02	14.3	
4	0	86.83*	42	47	0.96	173.92	171	7	1.17E-02	31.9	
5	0	93.16*	64	39	2.14	186.59	182	11	1.77E-02	25.0	
6	0	185.96*	47	40	0.82	372.19	368	9	1.30E-02	30.4	
7	0	238.55*	85	35	1.21	477.38	471	11	2.37E-02	18.0	
8	0	242.67*	36	25	2.54	485.61	482	9	1.01E-02	31.1	
9	0	295.14*	48	27	1.05	590.57	587	10	1.35E-02	24.8	
10	0	321.75	23	28	4.30	643.79	634	16	6.44E-03	55.1	
11	0	328.38	10	20	0.91	657.05	652	8	2.78E-03	83.7	
12	0	351.82*	104	20	1.16	703.93	697	13	2.90E-02	13.4	
13	0	462.93	19	11	1.67	926.16	921	11	5.28E-03	40.9	
14	0	479.06	17	6	0.54	958.42	955	11	4.58E-03	36.9	
15	0	493.99	14	14	3.44	988.29	982	14	3.89E-03	62.7	
16	0	511.34*	8	17	2.88	1022.98	1017	17	2.33E-03	161.9	
17	0	557.30*	20	8	7.28	1114.92	1106	18	5.66E-03	42.3	
18	0	583.71*	22	22	0.81	1167.73	1161	10	6.02E-03	48.5	
19	0	609.45*	77	11	1.33	1219.22	1212	15	2.13E-02	15.3	
20	0	649.47	8	9	0.81	1299.26	1295	9	2.13E-03	79.5	
21	0	751.70	8	7	0.61	1503.76	1496	10	2.17E-03	74.5	
22	0	781.23	8	5	0.92	1562.81	1555	11	2.16E-03	68.3	
23	0	911.21*	8	9	1.67	1822.80	1818	8	2.35E-03	77.5	
24	0	1010.24	6	2	1.57	2020.90	2018	6	1.77E-03	50.2	
25	0	1121.30	25	3	1.26	2243.06	2236	14	6.86E-03	25.7	
26	0	1460.39	20	0	0.54	2921.35	2915	10	5.56E-03	22.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299018.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 10:30:00	Acquisition date	: 30-JUL-2024 11:22:31
Sample ID	: G674299018	Sample quantity	: 94.870 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA52	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.39 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BE-7	477.60	15	10.44*	3.070E+00	3.821E-01	5.954E-01	73.85
K-40	1460.82	19	10.66*	1.120E+00	1.234E+00	1.234E+00	44.72
CD-109	88.03	40	3.70*	7.043E+00	1.209E+00	1.272E+00	63.71
SN-126	64.28	42	9.60	4.523E+00	7.608E-01	7.608E-01	66.17
	86.94	40	8.90	7.043E+00	5.025E-01	5.025E-01	63.71
	87.57	40	37.00*	7.043E+00	1.209E-01	1.209E-01	63.71
TL-208	277.37	-----	6.60	4.751E+00	-----	Line Not Found	-----
	583.19	20	85.00*	2.595E+00	7.287E-02	7.287E-02	96.94
	860.56	-----	12.50	1.827E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	5.868E+00	-----	Line Not Found	-----
	351.06	98	12.92*	3.946E+00	1.521E+00	1.521E+00	26.88
PB-212	74.82	67	10.28	6.072E+00	8.446E-01	8.446E-01	36.53
	77.11	92	17.10	6.317E+00	6.751E-01	6.751E-01	28.70
	238.63	80	43.60*	5.318E+00	2.742E-01	2.742E-01	35.95
	300.09	-----	3.30	4.471E+00	-----	Line Not Found	-----
BI-214	609.32	72	45.49*	2.499E+00	4.986E-01	4.986E-01	30.55
	1120.29	23	14.92	1.423E+00	8.584E-01	8.584E-01	51.38
	1764.49	-----	15.30	9.673E-01	-----	Line Not Found	-----
PB-214	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
RN-222	609.32	72	45.49*	2.499E+00	4.986E-01	4.986E-01	30.55
	1120.29	23	14.92	1.423E+00	8.584E-01	8.584E-01	51.38
	1764.49	-----	15.30	9.673E-01	-----	Line Not Found	-----
RA-226	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
TH-228	74.82	67	10.28	6.072E+00	8.446E-01	8.446E-01	36.53
	77.11	92	17.10	6.317E+00	6.751E-01	6.751E-01	28.70
	238.63	80	43.60*	5.318E+00	2.742E-01	2.742E-01	35.95
	300.09	-----	3.30	4.471E+00	-----	Line Not Found	-----
TH-230	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
TH-234	63.29	42	3.70*	4.523E+00	1.974E+00	1.974E+00	66.17
	92.59	61	4.23	7.339E+00	1.544E+00	1.544E+00	50.03
U-234	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
U-238	63.29	42	3.70*	4.523E+00	1.974E+00	1.974E+00	66.17
	92.59	61	4.23	7.339E+00	1.544E+00	1.544E+00	50.03
AM-243	43.53	-----	5.90	1.248E+00	-----	Line Not Found	-----
	74.66	67	67.20*	6.072E+00	1.292E-01	1.292E-01	36.53
ANH-511	511.00	8	100.00*	2.907E+00	2.139E-02	2.139E-02	323.78

Flag: "*" = Keyline

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*                                     DETECTOR AND SAMPLE DATA                *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299018.CNF;1 *
* Acquisition date   : 30-JUL-2024 11:22:31 Sensitivity      : 3.000          *
* Detector ID        : GAM52 Energy tolerance: 1.500         *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 01:00:00.39 Half life ratio : *****      *
* Sample date        : 26-JUN-2024 10:30:00 Analyst initials: RXF2      *
* Sample ID          : G674299018 Sample Quantity : 9.4870E+01 GRAM   *
* Batch Number       : 2636542 Wet Weight : 0.00000         *
* Wet wt corr        : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library    : SOLID.NLB;17                                         *
*****
*                                     CALIBRATION INFORMATION                  *
*                                     *                                       *
* Eff. Cal. date     : 1-SEP-2023 08:30:22 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM52_CAN.CNF;4          *
*****

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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
BE-7	5.954E-01	4.309E-01	6.511E-01
K-40	1.234E+00	5.409E-01	8.312E-01
CD-109	1.272E+00	7.943E-01	1.037E+00
SN-126	1.209E-01	7.547E-02	8.900E-02
TL-208	7.287E-02	6.923E-02	6.582E-02
BI-211	1.521E+00	4.008E-01	2.786E-01
PB-212	2.742E-01	9.659E-02	8.248E-02
BI-214	4.986E-01	1.493E-01	1.137E-01
PB-214	5.522E-01	1.455E-01	1.013E-01
RN-222	4.986E-01	1.493E-01	1.137E-01
RA-226	5.522E-01	1.455E-01	1.013E-01
TH-228	2.742E-01	9.659E-02	8.248E-02
TH-230	5.522E-01	1.455E-01	1.013E-01
TH-234	1.974E+00	1.280E+00	1.277E+00
U-234	5.522E-01	1.455E-01	1.013E-01
U-238	1.974E+00	1.280E+00	1.277E+00
AM-243	1.292E-01	4.625E-02	6.283E-02
ANH-511	2.139E-02	6.786E-02	5.093E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
NA-22	1.122E-02	2.884E-02	7.314E-02	NOT IDENT.
NA-24	0.000E+00	5.535E+14	0.000E+00	SHORT HLIF
AL-26	-4.325E-03	3.905E-02	8.372E-02	NOT IDENT.
SC-46	-8.601E-03	3.660E-02	7.038E-02	FAIL ABUN
V-48	-8.601E-02	1.641E-01	2.795E-01	NOT IDENT.
CR-51	5.291E-01	5.063E-01	1.069E+00	NOT IDENT.
MN-52	-3.605E+00	2.498E+00	1.273E+00	NOT IDENT.
MN-54	-3.114E-02	3.220E-02	4.701E-02	NOT IDENT.
CO-56	-2.085E-02	4.286E-02	7.518E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-1.029E-03	1.858E-02	3.402E-02	NOT IDENT.
CO-58	4.268E-03	4.514E-02	9.104E-02	NOT IDENT.

FE-59	1.648E-02	7.907E-02	1.820E-01	NOT IDENT.
CO-60	6.144E-03	3.246E-02	7.626E-02	NOT IDENT.
ZN-65	1.596E-02	7.983E-02	1.627E-01	NOT IDENT.
GE-68	6.458E-01	1.039E+00	2.510E+00	NOT IDENT.
AS-73	1.813E-01	5.073E-01	9.964E-01	NOT IDENT.
AS-74	-8.842E-02	1.749E-01	3.318E-01	NOT IDENT.
SE-75	1.341E-02	3.422E-02	6.772E-02	NOT IDENT.
BR-77	0.000E+00	3.754E+03	0.000E+00	SHORT HLIF
SR-82	5.991E-01	3.905E-01	1.095E+00	NOT IDENT.
RB-83	-1.225E-02	5.299E-02	1.052E-01	NOT IDENT.
RB-84	-4.194E-02	8.363E-02	1.466E-01	NOT IDENT.
KR-85	2.844E+00	6.575E+00	1.360E+01	NOT IDENT.
SR-85	1.829E-02	4.250E-02	8.792E-02	NOT IDENT.
RB-86	-2.150E-01	1.460E+00	2.807E+00	NOT IDENT.
Y-88	1.809E-02	4.039E-02	1.088E-01	NOT IDENT.
Y-91	-1.097E+01	1.778E+01	3.246E+01	NOT IDENT.
NB-94	-1.107E-02	2.950E-02	5.384E-02	NOT IDENT.
NB-95	-1.230E-02	5.320E-02	9.811E-02	NOT IDENT.
NB-95M	-2.704E-03	1.108E-01	1.851E-01	NOT IDENT.
ZR-95	-1.610E-03	9.646E-02	1.854E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.832E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.261E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.342E+39	0.000E+00	SHORT HLIF
RH-101	7.625E-03	2.248E-02	4.300E-02	NOT IDENT.
RH-102	5.933E-03	5.766E-02	1.138E-01	NOT IDENT.
RU-103	5.694E-03	4.393E-02	8.377E-02	FAIL ABUN
RH-106	1.027E-01	2.226E-01	5.111E-01	NOT IDENT.
RU-106	1.027E-01	2.226E-01	5.111E-01	NOT IDENT.
AG-108M	-2.459E-02	2.366E-02	3.841E-02	NOT IDENT.
AG-110	4.132E-01	5.842E-01	1.363E+00	NOT IDENT.
AG-110M	1.856E-02	4.078E-02	9.396E-02	NOT IDENT.
SN-113	8.427E-03	3.147E-02	6.819E-02	NOT IDENT.
CD-115	0.000E+00	3.447E+03	0.000E+00	SHORT HLIF
SN-117M	-2.762E-02	1.038E-01	1.827E-01	NOT IDENT.
SB-122	0.000E+00	1.738E+02	0.000E+00	SHORT HLIF
TE-123M	1.919E-03	2.359E-02	4.338E-02	NOT IDENT.
SB-124	-1.176E-04	9.695E-02	2.270E-01	NOT IDENT.
SB-125	1.852E-02	6.282E-02	1.356E-01	FAIL ABUN
TE-125M	-9.348E-01	7.745E+00	1.418E+01	NOT IDENT.
I-126	-4.423E-01	5.400E-01	9.022E-01	NOT IDENT.
SB-126	5.916E-02	4.050E-01	8.137E-01	NOT IDENT.
SB-127	7.717E+00	2.710E+01	6.052E+01	NOT IDENT.
I-131	-6.113E-02	3.960E-01	7.896E-01	NOT IDENT.
I-132	0.000E+00	6.462E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	3.093E+01	0.000E+00	SHORT HLIF
BA-133	1.512E-02	3.398E-02	6.700E-02	NOT IDENT.
I-133	0.000E+00	1.713E+10	0.000E+00	SHORT HLIF
CS-134	-7.124E-03	3.530E-02	6.750E-02	NOT IDENT.
I-135	0.000E+00	2.380E+36	0.000E+00	SHORT HLIF
CS-136	-6.695E-02	2.191E-01	4.112E-01	NOT IDENT.
BA-137M	2.014E-02	2.715E-02	6.349E-02	NOT IDENT.
CS-137	2.128E-02	2.868E-02	6.707E-02	NOT IDENT.
LA-138	1.604E-03	4.978E-02	1.133E-01	NOT IDENT.
CE-139	-7.481E-03	2.405E-02	4.194E-02	NOT IDENT.
BA-140	2.003E-02	6.583E-01	1.314E+00	NOT IDENT.
LA-140	-4.905E-02	1.703E-01	3.696E-01	FAIL ABUN
CE-141	-1.919E-02	6.243E-02	1.100E-01	NOT IDENT.
CE-143	0.000E+00	1.521E+06	0.000E+00	SHORT HLIF
CE-144	-3.740E-02	1.639E-01	2.897E-01	NOT IDENT.
PM-144	1.861E-02	2.708E-02	6.286E-02	NOT IDENT.
PR-144	1.361E+00	2.035E+00	4.715E+00	NOT IDENT.
PM-146	-3.894E-03	3.479E-02	6.820E-02	NOT IDENT.
ND-147	7.983E-01	1.414E+00	3.174E+00	NOT IDENT.
PM-147	2.810E+02	5.128E+02	1.012E+03	NOT IDENT.
PM-149	0.000E+00	3.026E+04	0.000E+00	SHORT HLIF
EU-150	-1.629E-02	2.173E-02	3.854E-02	FAIL ABUN
EU-152	1.851E-02	7.425E-02	1.535E-01	NOT IDENT.
GD-153	2.119E-02	5.791E-02	1.058E-01	NOT IDENT.
EU-154	3.510E-02	8.247E-02	2.096E-01	NOT IDENT.
EU-155	-1.495E-02	6.835E-02	1.235E-01	FAIL ABUN
TB-160	4.601E-02	1.201E-01	2.747E-01	FAIL ABUN
HO-166M	6.720E-02	6.234E-02	1.423E-01	FAIL ABUN
TM-171	-2.794E+00	9.777E+00	1.784E+01	NOT IDENT.
HF-172	-3.255E-02	1.342E-01	2.394E-01	FAIL ABUN
LU-172	-3.211E-03	5.442E-02	1.090E-01	FAIL ABUN
LU-176	1.241E-02	2.013E-02	4.093E-02	NOT IDENT.
HF-181	3.759E-04	4.866E-02	9.172E-02	NOT IDENT.

TA-182	5.259E-02	1.741E-01	3.934E-01	FAIL ABUN
RE-183	1.828E-03	1.320E-01	2.481E-01	NOT IDENT.
RE-184	-1.291E-02	1.143E-01	2.384E-01	NOT IDENT.
W-188	7.427E-01	7.634E+00	1.387E+01	FAIL ABUN
IR-192	-5.263E-03	2.992E-02	4.879E-02	FAIL ABUN
HG-203	1.096E-02	4.110E-02	7.735E-02	NOT IDENT.
TL-204	-3.853E+00	3.263E+00	5.355E+00	NOT IDENT.
BI-207	3.185E-03	4.989E-02	1.005E-01	FAIL ABUN
BI-210	1.400E-01	1.701E+00	3.251E+00	NOT IDENT.
PB-210	1.400E-01	1.701E+00	3.251E+00	NOT IDENT.
PB-211	1.819E-01	4.929E-01	1.065E+00	NOT IDENT.
BI-212	6.490E-01	4.614E-01	1.132E+00	NOT IDENT.
BI-213	-8.135E-02	8.505E-02	1.409E-01	NOT IDENT.
RN-219	-7.169E-02	3.033E-01	5.868E-01	NOT IDENT.
RA-223	4.313E-02	6.743E-01	9.908E-01	FAIL ABUN
RA-224	2.690E-01	6.239E-01	1.003E+00	NOT IDENT.
AC-225	-7.489E-02	1.581E+00	2.862E+00	NOT IDENT.
AC-227	-1.178E-02	1.929E-01	3.472E-01	NOT IDENT.
TH-227	-1.178E-02	1.929E-01	3.472E-01	NOT IDENT.
AC-228	1.401E-01	2.127E-01	3.936E-01	FAIL ABUN
RA-228	1.401E-01	2.127E-01	3.936E-01	FAIL ABUN
TH-229	6.657E-02	4.301E-01	7.882E-01	FAIL ABUN
PA-231	1.287E-01	3.944E-01	7.484E-01	NOT IDENT.
TH-231	4.313E-02	6.743E-01	9.908E-01	NOT IDENT.
TH-232	1.401E-01	2.127E-01	3.936E-01	FAIL ABUN
PA-233	4.625E-02	4.240E-02	9.637E-02	NOT IDENT.
PA-234	-3.508E-02	2.546E-01	4.981E-01	NOT IDENT.
PA-234M	-7.710E-01	2.468E+00	5.465E+00	NOT IDENT.
U-235	5.894E-02	1.507E-01	2.856E-01	FAIL ABUN
NP-237	4.625E-02	4.240E-02	9.637E-02	FAIL ABUN
NP-238	0.000E+00	8.551E+03	0.000E+00	SHORT HLIF
NP-239	2.494E-02	1.752E-01	3.309E-01	NOT IDENT.
PU-239	3.951E+01	2.429E+02	4.537E+02	NOT IDENT.
AM-241	3.066E-02	9.146E-02	1.659E-01	NOT IDENT.
CM-243	1.716E-02	6.860E-02	1.314E-01	NOT IDENT.
BK-247	-3.408E-02	6.494E-02	1.066E-01	NOT IDENT.
CM-247	-3.350E-03	2.957E-02	5.797E-02	NOT IDENT.
CF-249	-1.064E-02	2.849E-02	5.409E-02	NOT IDENT.
CF-251	-1.214E-02	9.424E-02	1.686E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BE-7	477.60	15	10.44*	3.070E+00	3.821E-01	5.954E-01	73.85
K-40	1460.82	19	10.66*	1.120E+00	1.234E+00	1.234E+00	44.72
CD-109	88.03	40	3.70*	7.043E+00	1.209E+00	1.272E+00	63.71
SN-126	64.28	42	9.60	4.523E+00	7.608E-01	7.608E-01	66.17
	86.94	40	8.90	7.043E+00	5.025E-01	5.025E-01	63.71
	87.57	40	37.00*	7.043E+00	1.209E-01	1.209E-01	63.71
TL-208	277.37	-----	6.60	4.751E+00	-----	Line Not Found	-----
	583.19	20	85.00*	2.595E+00	7.287E-02	7.287E-02	96.94
	860.56	-----	12.50	1.827E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.23	5.868E+00	-----	Line Not Found	-----
	351.06	98	12.92*	3.946E+00	1.521E+00	1.521E+00	26.88
PB-212	74.82	67	10.28	6.072E+00	8.446E-01	8.446E-01	36.53
	77.11	92	17.10	6.317E+00	6.751E-01	6.751E-01	28.70
	238.63	80	43.60*	5.318E+00	2.742E-01	2.742E-01	35.95
	300.09	-----	3.30	4.471E+00	-----	Line Not Found	-----
BI-214	609.32	72	45.49*	2.499E+00	4.986E-01	4.986E-01	30.55
	1120.29	23	14.92	1.423E+00	8.584E-01	8.584E-01	51.38
	1764.49	-----	15.30	9.673E-01	-----	Line Not Found	-----
PB-214	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
RN-222	609.32	72	45.49*	2.499E+00	4.986E-01	4.986E-01	30.55
	1120.29	23	14.92	1.423E+00	8.584E-01	8.584E-01	51.38
	1764.49	-----	15.30	9.673E-01	-----	Line Not Found	-----
RA-226	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
TH-228	74.82	67	10.28	6.072E+00	8.446E-01	8.446E-01	36.53
	77.11	92	17.10	6.317E+00	6.751E-01	6.751E-01	28.70
	238.63	80	43.60*	5.318E+00	2.742E-01	2.742E-01	35.95
	300.09	-----	3.30	4.471E+00	-----	Line Not Found	-----
TH-230	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
TH-234	63.29	42	3.70*	4.523E+00	1.974E+00	1.974E+00	66.17
	92.59	61	4.23	7.339E+00	1.544E+00	1.544E+00	50.03
U-234	74.82	67	5.80	6.072E+00	1.497E+00	1.497E+00	36.53
	77.11	92	9.70	6.317E+00	1.190E+00	1.190E+00	28.70

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	87.09	40	3.41	7.043E+00	1.312E+00	1.312E+00	63.71
	242.00	34	7.25	5.252E+00	7.119E-01	7.119E-01	62.21
	295.22	46	18.42	4.529E+00	4.327E-01	4.327E-01	49.55
	351.93	98	35.60*	3.946E+00	5.522E-01	5.522E-01	26.88
U-238	63.29	42	3.70*	4.523E+00	1.974E+00	1.974E+00	66.17
	92.59	61	4.23	7.339E+00	1.544E+00	1.544E+00	50.03
AM-243	43.53	-----	5.90	1.248E+00	-----	Line Not Found	-----
	74.66	67	67.20*	6.072E+00	1.292E-01	1.292E-01	36.53
ANH-511	511.00	8	100.00*	2.907E+00	2.139E-02	2.139E-02	323.78

Flag: "*" = Keyline

Total number of lines in spectrum 26
Number of unidentified lines 5
Number of lines tentatively identified by NID 21 80.77%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BE-7	53.22D	1.56	3.821E-01	5.954E-01	4.397E-01	73.85	
K-40	1.25E+09Y	1.00	1.234E+00	1.234E+00	0.552E+00	44.72	
CD-109	461.40D	1.05	1.209E+00	1.272E+00	0.811E+00	63.71	
SN-126	2.30E+05Y	1.00	1.209E-01	1.209E-01	0.770E-01	63.71	
TL-208	1.41E+10Y	1.00	7.287E-02	7.287E-02	7.064E-02	96.94	
BI-211	7.04E+08Y	1.00	1.521E+00	1.521E+00	0.409E+00	26.88	
PB-212	1.41E+10Y	1.00	2.742E-01	2.742E-01	0.986E-01	35.95	
BI-214	1600.00Y	1.00	4.986E-01	4.986E-01	1.523E-01	30.55	
PB-214	1600.00Y	1.00	5.522E-01	5.522E-01	1.484E-01	26.88	
RN-222	1600.00Y	1.00	4.986E-01	4.986E-01	1.523E-01	30.55	
RA-226	1600.00Y	1.00	5.522E-01	5.522E-01	1.484E-01	26.88	
TH-228	1.41E+10Y	1.00	2.742E-01	2.742E-01	0.986E-01	35.95	
TH-230	7.54E+04Y	1.00	5.522E-01	5.522E-01	1.484E-01	26.88	
TH-234	4.47E+09Y	1.00	1.974E+00	1.974E+00	1.306E+00	66.17	
U-234	2.45E+05Y	1.00	5.522E-01	5.522E-01	1.484E-01	26.88	
U-238	4.47E+09Y	1.00	1.974E+00	1.974E+00	1.306E+00	66.17	
AM-243	7370.00Y	1.00	1.292E-01	1.292E-01	0.472E-01	36.53	
ANH-511	1.00E+09Y	1.00	2.139E-02	2.139E-02	6.925E-02	323.78	

Total Activity : 1.239E+01 1.267E+01

Grand Total Activity : 1.239E+01 1.267E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.96	44	38	0.82	372.19	368	9	1.30E-02	60.8	6.31E+00	T
0	321.75	22	26	4.30	643.79	634	16	6.44E-03	****	4.23E+00	T
0	328.38	9	19	0.91	657.05	652	8	2.78E-03	****	4.17E+00	T
0	462.93	18	10	1.67	926.16	921	11	5.28E-03	81.7	3.16E+00	T
0	493.99	13	13	3.44	988.29	982	14	3.89E-03	****	2.99E+00	
0	557.30	19	7	7.28	1114.92	1106	18	5.66E-03	84.5	2.70E+00	
0	649.47	7	9	0.81	1299.26	1295	9	2.13E-03	****	2.36E+00	
0	751.70	7	7	0.61	1503.76	1496	10	2.17E-03	****	2.07E+00	T
0	781.23	7	5	0.92	1562.81	1555	11	2.16E-03	****	2.00E+00	
0	911.21	8	8	1.67	1822.80	1818	8	2.35E-03	****	1.73E+00	T
0	1010.24	6	2	1.57	2020.90	2018	6	1.77E-03	****	1.57E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299018.CNF;1 *
* Acquisition date : 30-JUL-2024 11:22:31 Sensitivity : 3.000 *
* Detector ID : GAM52 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.39 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:30:00 Nuclide Library : SOLID *
* Sample ID : G674299018 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 9.4870E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 1-SEP-2023 08:30:22 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM52_CAN.CNF;4 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
BE-7	2.742E-01
K-40	3.269E-01
CD-109	4.761E-01
SN-126	4.047E-02
TL-208	2.812E-02
BI-211	1.186E-01
PB-212	3.669E-02
BI-214	4.756E-02
PB-214	4.313E-02
RN-222	4.756E-02
RA-226	4.313E-02
TH-228	3.669E-02
TH-230	4.313E-02
TH-234	5.760E-01
U-234	4.313E-02
U-238	5.760E-01
AM-243	2.883E-02
ANH-511	2.183E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
NA-22	2.797E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.070E-02	NOT IDENT.
SC-46	2.727E-02	FAIL ABUN
V-48	1.109E-01	NOT IDENT.
CR-51	4.755E-01	NOT IDENT.
MN-52	0.000E+00	NOT IDENT.
MN-54	1.743E-02	NOT IDENT.
CO-56	2.984E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	1.523E-02	NOT IDENT.
CO-58	3.783E-02	NOT IDENT.
FE-59	6.900E-02	NOT IDENT.

CO-60	2.929E-02	NOT IDENT.
ZN-65	6.524E-02	NOT IDENT.
GE-68	1.012E+00	NOT IDENT.
AS-73	4.508E-01	NOT IDENT.
AS-74	1.393E-01	NOT IDENT.
SE-75	2.942E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	4.587E-01	NOT IDENT.
RB-83	4.178E-02	NOT IDENT.
RB-84	5.562E-02	NOT IDENT.
KR-85	5.955E+00	NOT IDENT.
SR-85	3.848E-02	NOT IDENT.
RB-86	1.109E+00	NOT IDENT.
Y-88	4.028E-02	NOT IDENT.
Y-91	1.165E+01	NOT IDENT.
NB-94	2.211E-02	NOT IDENT.
NB-95	4.153E-02	NOT IDENT.
NB-95M	8.104E-02	NOT IDENT.
ZR-95	7.906E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.940E-02	NOT IDENT.
RH-102	4.900E-02	NOT IDENT.
RU-103	3.476E-02	FAIL ABUN
RH-106	2.093E-01	NOT IDENT.
RU-106	2.093E-01	NOT IDENT.
AG-108M	1.569E-02	NOT IDENT.
AG-110	5.711E-01	NOT IDENT.
AG-110M	3.799E-02	NOT IDENT.
SN-113	2.857E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	8.131E-02	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	1.947E-02	NOT IDENT.
SB-124	8.043E-02	NOT IDENT.
SB-125	5.704E-02	FAIL ABUN
TE-125M	6.317E+00	NOT IDENT.
I-126	3.646E-01	NOT IDENT.
SB-126	3.451E-01	NOT IDENT.
SB-127	2.438E+01	NOT IDENT.
I-131	3.308E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	2.911E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	2.724E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	1.531E-01	NOT IDENT.
BA-137M	2.667E-02	NOT IDENT.
CS-137	2.817E-02	NOT IDENT.
LA-138	4.240E-02	NOT IDENT.
CE-139	1.865E-02	NOT IDENT.
BA-140	5.579E-01	NOT IDENT.
LA-140	1.168E-01	FAIL ABUN
CE-141	4.870E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.309E-01	NOT IDENT.
PM-144	2.631E-02	NOT IDENT.
PR-144	1.971E+00	NOT IDENT.
PM-146	2.897E-02	NOT IDENT.
ND-147	1.341E+00	NOT IDENT.
PM-147	4.559E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	1.659E-02	FAIL ABUN
EU-152	6.678E-02	NOT IDENT.
GD-153	4.754E-02	NOT IDENT.
EU-154	8.066E-02	NOT IDENT.
EU-155	5.507E-02	FAIL ABUN
TB-160	1.101E-01	FAIL ABUN
HO-166M	6.215E-02	FAIL ABUN
TM-171	8.066E+00	NOT IDENT.
HF-172	1.069E-01	FAIL ABUN
LU-172	4.254E-02	FAIL ABUN
LU-176	1.790E-02	NOT IDENT.
HF-181	3.835E-02	NOT IDENT.
TA-182	1.600E-01	FAIL ABUN

RE-183	1.124E-01	NOT IDENT.
RE-184	8.817E-02	NOT IDENT.
W-188	6.129E+00	FAIL ABUN
IR-192	2.029E-02	FAIL ABUN
HG-203	3.413E-02	NOT IDENT.
TL-204	2.436E+00	NOT IDENT.
BI-207	4.076E-02	FAIL ABUN
BI-210	1.480E+00	NOT IDENT.
PB-210	1.480E+00	NOT IDENT.
PB-211	4.531E-01	NOT IDENT.
BI-212	4.918E-01	NOT IDENT.
BI-213	5.804E-02	NOT IDENT.
RN-219	2.482E-01	NOT IDENT.
RA-223	4.325E-01	FAIL ABUN
RA-224	4.526E-01	NOT IDENT.
AC-225	1.258E+00	NOT IDENT.
AC-227	1.515E-01	NOT IDENT.
TH-227	1.515E-01	NOT IDENT.
AC-228	1.731E-01	FAIL ABUN
RA-228	1.731E-01	FAIL ABUN
TH-229	3.552E-01	FAIL ABUN
PA-231	3.299E-01	NOT IDENT.
TH-231	4.325E-01	NOT IDENT.
TH-232	1.731E-01	FAIL ABUN
PA-233	4.185E-02	NOT IDENT.
PA-234	1.962E-01	NOT IDENT.
PA-234M	1.936E+00	NOT IDENT.
U-235	1.295E-01	FAIL ABUN
NP-237	4.185E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	1.480E-01	NOT IDENT.
PU-239	2.046E+02	NOT IDENT.
AM-241	7.553E-02	NOT IDENT.
CM-243	5.904E-02	NOT IDENT.
BK-247	4.612E-02	NOT IDENT.
CM-247	2.484E-02	NOT IDENT.
CF-249	2.265E-02	NOT IDENT.
CF-251	7.490E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299018.CNF;1
Acquisition date : 30-JUL-2024 11:22:31 Sensitivity : 3.000
Detector ID : GAM52 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.39 Half life ratio : *****
Sample date : 26-JUN-2024 10:30:00 Nuclide Library : SOLID
Sample ID : G674299018 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 9.4870E+01 GRAM
Quantity Err(%) : 1.0541E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 1-SEP-2023 08:30:22 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM52_CAN.CNF;4

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
BE-7	5.954E-01	4.343E-01	4.343E-01
K-40	1.234E+00	5.518E-01	5.518E-01
CD-109	1.272E+00	8.063E-01	8.063E-01
SN-126	1.209E-01	7.634E-02	7.634E-02
TL-208	7.287E-02	6.959E-02	6.959E-02
BI-211	1.521E+00	4.199E-01	4.199E-01
PB-212	2.742E-01	9.906E-02	9.906E-02
BI-214	4.986E-01	1.570E-01	1.570E-01
PB-214	5.522E-01	1.521E-01	1.521E-01
RN-222	4.986E-01	1.570E-01	1.570E-01
RA-226	5.522E-01	1.521E-01	1.521E-01
TH-228	2.742E-01	9.906E-02	9.906E-02
TH-230	5.522E-01	1.521E-01	1.521E-01
TH-234	1.974E+00	1.355E+00	1.355E+00
U-234	5.522E-01	1.521E-01	1.521E-01
U-238	1.974E+00	1.355E+00	1.355E+00
AM-243	1.292E-01	4.750E-02	4.750E-02
ANH-511	2.139E-02	6.789E-02	6.789E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
NA-22	1.122E-02	2.886E-02	2.930E-02	NOT IDENT.
NA-24	-1.408E+14	5.537E+14	5.573E+14	SHORT HLIF
AL-26	-4.325E-03	3.905E-02	3.910E-02	NOT IDENT.
SC-46	-8.601E-03	3.661E-02	3.681E-02	FAIL ABUN
V-48	-8.601E-02	1.643E-01	1.688E-01	NOT IDENT.
CR-51	5.291E-01	5.080E-01	5.612E-01	NOT IDENT.
MN-52	-3.605E+00	2.516E+00	2.995E+00	NOT IDENT.
MN-54	-3.114E-02	3.233E-02	3.525E-02	NOT IDENT.
CO-56	-2.085E-02	4.290E-02	4.392E-02	NOT IDENT.
MN-56	-1.000E+41	2.057E+41	0.000E+00	SHORT HLIF
CO-57	-1.029E-03	1.858E-02	1.859E-02	NOT IDENT.
CO-58	4.268E-03	4.514E-02	4.518E-02	NOT IDENT.

FE-59	1.648E-02	7.909E-02	7.944E-02	NOT IDENT.
CO-60	6.144E-03	3.246E-02	3.258E-02	NOT IDENT.
ZN-65	1.596E-02	7.984E-02	8.016E-02	NOT IDENT.
GE-68	6.458E-01	1.041E+00	1.081E+00	NOT IDENT.
AS-73	1.813E-01	5.087E-01	5.152E-01	NOT IDENT.
AS-74	-8.842E-02	1.752E-01	1.797E-01	NOT IDENT.
SE-75	1.341E-02	3.423E-02	3.476E-02	NOT IDENT.
BR-77	1.066E+04	1.116E+04	1.215E+04	SHORT HLIF
SR-82	5.991E-01	3.946E-01	4.782E-01	NOT IDENT.
RB-83	-1.225E-02	5.302E-02	5.331E-02	NOT IDENT.
RB-84	-4.194E-02	8.371E-02	8.582E-02	NOT IDENT.
KR-85	2.844E+00	6.581E+00	6.704E+00	NOT IDENT.
SR-85	1.829E-02	4.254E-02	4.333E-02	NOT IDENT.
RB-86	-2.150E-01	1.460E+00	1.463E+00	NOT IDENT.
Y-88	1.809E-02	4.041E-02	4.123E-02	NOT IDENT.
Y-91	-1.097E+01	1.780E+01	1.847E+01	NOT IDENT.
NB-94	-1.107E-02	2.952E-02	2.994E-02	NOT IDENT.
NB-95	-1.230E-02	5.322E-02	5.351E-02	NOT IDENT.
NB-95M	-2.704E-03	1.108E-01	1.108E-01	NOT IDENT.
ZR-95	-1.610E-03	9.646E-02	9.647E-02	NOT IDENT.
NB-97	-1.000E+41	1.305E+42	0.000E+00	SHORT HLIF
ZR-97	9.972E+13	1.834E+14	1.889E+14	SHORT HLIF
MO-99	7.173E+02	1.263E+03	1.304E+03	SHORT HLIF
TC-99M	4.663E+38	1.343E+39	0.000E+00	SHORT HLIF
RH-101	7.625E-03	2.253E-02	2.279E-02	NOT IDENT.
RH-102	5.933E-03	5.766E-02	5.772E-02	NOT IDENT.
RU-103	5.694E-03	4.393E-02	4.401E-02	FAIL ABUN
RH-106	1.027E-01	2.228E-01	2.276E-01	NOT IDENT.
RU-106	1.027E-01	2.228E-01	2.276E-01	NOT IDENT.
AG-108M	-2.459E-02	2.376E-02	2.622E-02	NOT IDENT.
AG-110	4.132E-01	5.856E-01	6.145E-01	NOT IDENT.
AG-110M	1.856E-02	4.081E-02	4.166E-02	NOT IDENT.
SN-113	8.427E-03	3.148E-02	3.171E-02	NOT IDENT.
CD-115	-3.901E+03	3.471E+03	3.891E+03	SHORT HLIF
SN-117M	-2.762E-02	1.039E-01	1.046E-01	NOT IDENT.
SB-122	7.549E+01	1.739E+02	1.772E+02	SHORT HLIF
TE-123M	1.919E-03	2.359E-02	2.360E-02	NOT IDENT.
SB-124	-1.176E-04	9.695E-02	9.695E-02	NOT IDENT.
SB-125	1.852E-02	6.284E-02	6.339E-02	FAIL ABUN
TE-125M	-9.348E-01	7.745E+00	7.756E+00	NOT IDENT.
I-126	-4.423E-01	5.421E-01	5.776E-01	NOT IDENT.
SB-126	5.916E-02	4.050E-01	4.059E-01	NOT IDENT.
SB-127	7.717E+00	2.714E+01	2.736E+01	NOT IDENT.
I-131	-6.113E-02	3.961E-01	3.970E-01	NOT IDENT.
I-132	-1.000E+41	2.199E+41	0.000E+00	SHORT HLIF
TE-132	2.346E+01	3.105E+01	3.280E+01	SHORT HLIF
BA-133	1.512E-02	3.401E-02	3.468E-02	NOT IDENT.
I-133	3.181E+09	1.715E+10	1.721E+10	SHORT HLIF
CS-134	-7.124E-03	3.530E-02	3.545E-02	NOT IDENT.
I-135	-9.723E+35	2.497E+36	0.000E+00	SHORT HLIF
CS-136	-6.695E-02	2.193E-01	2.213E-01	NOT IDENT.
BA-137M	2.014E-02	2.722E-02	2.870E-02	NOT IDENT.
CS-137	2.128E-02	2.876E-02	3.032E-02	NOT IDENT.
LA-138	1.604E-03	4.978E-02	4.979E-02	NOT IDENT.
CE-139	-7.481E-03	2.410E-02	2.434E-02	NOT IDENT.
BA-140	2.003E-02	6.583E-01	6.584E-01	NOT IDENT.
LA-140	-4.905E-02	1.704E-01	1.718E-01	FAIL ABUN
CE-141	-1.919E-02	6.245E-02	6.305E-02	NOT IDENT.
CE-143	-2.970E+05	1.521E+06	1.527E+06	SHORT HLIF
CE-144	-3.740E-02	1.639E-01	1.648E-01	NOT IDENT.
PM-144	1.861E-02	2.715E-02	2.841E-02	NOT IDENT.
PR-144	1.361E+00	2.039E+00	2.129E+00	NOT IDENT.
PM-146	-3.894E-03	3.479E-02	3.483E-02	NOT IDENT.
ND-147	7.983E-01	1.416E+00	1.461E+00	NOT IDENT.
PM-147	2.810E+02	5.133E+02	5.287E+02	NOT IDENT.
PM-149	1.085E+04	3.030E+04	3.069E+04	SHORT HLIF
EU-150	-1.629E-02	2.176E-02	2.297E-02	FAIL ABUN
EU-152	1.851E-02	7.427E-02	7.473E-02	NOT IDENT.
GD-153	2.119E-02	5.794E-02	5.873E-02	NOT IDENT.
EU-154	3.510E-02	8.252E-02	8.402E-02	NOT IDENT.
EU-155	-1.495E-02	6.837E-02	6.870E-02	FAIL ABUN
TB-160	4.601E-02	1.202E-01	1.220E-01	FAIL ABUN
HO-166M	6.720E-02	6.272E-02	6.965E-02	FAIL ABUN
TM-171	-2.794E+00	9.781E+00	9.861E+00	NOT IDENT.
HF-172	-3.255E-02	1.344E-01	1.352E-01	FAIL ABUN
LU-172	-3.211E-03	5.442E-02	5.444E-02	FAIL ABUN
LU-176	1.241E-02	2.015E-02	2.091E-02	NOT IDENT.
HF-181	3.759E-04	4.866E-02	4.866E-02	NOT IDENT.

TA-182	5.259E-02	1.741E-01	1.757E-01	FAIL ABUN
RE-183	1.828E-03	1.320E-01	1.320E-01	NOT IDENT.
RE-184	-1.291E-02	1.143E-01	1.144E-01	NOT IDENT.
W-188	7.427E-01	7.635E+00	7.642E+00	FAIL ABUN
IR-192	-5.263E-03	2.992E-02	3.002E-02	FAIL ABUN
HG-203	1.096E-02	4.111E-02	4.140E-02	NOT IDENT.
TL-204	-3.853E+00	3.286E+00	3.717E+00	NOT IDENT.
BI-207	3.185E-03	4.989E-02	4.991E-02	FAIL ABUN
BI-210	1.400E-01	1.701E+00	1.702E+00	NOT IDENT.
PB-210	1.400E-01	1.701E+00	1.702E+00	NOT IDENT.
PB-211	1.819E-01	4.932E-01	5.000E-01	NOT IDENT.
BI-212	6.490E-01	4.660E-01	5.502E-01	NOT IDENT.
BI-213	-8.135E-02	8.536E-02	9.290E-02	NOT IDENT.
RN-219	-7.169E-02	3.034E-01	3.052E-01	NOT IDENT.
RA-223	4.313E-02	6.743E-01	6.745E-01	FAIL ABUN
RA-224	2.690E-01	6.243E-01	6.360E-01	NOT IDENT.
AC-225	-7.489E-02	1.581E+00	1.582E+00	NOT IDENT.
AC-227	-1.178E-02	1.929E-01	1.930E-01	NOT IDENT.
TH-227	-1.178E-02	1.929E-01	1.930E-01	NOT IDENT.
AC-228	1.401E-01	2.131E-01	2.223E-01	FAIL ABUN
RA-228	1.401E-01	2.131E-01	2.223E-01	FAIL ABUN
TH-229	6.657E-02	4.302E-01	4.312E-01	FAIL ABUN
PA-231	1.287E-01	3.954E-01	3.996E-01	NOT IDENT.
TH-231	4.313E-02	6.743E-01	6.745E-01	NOT IDENT.
TH-232	1.401E-01	2.131E-01	2.223E-01	FAIL ABUN
PA-233	4.625E-02	4.256E-02	4.739E-02	NOT IDENT.
PA-234	-3.508E-02	2.577E-01	2.582E-01	NOT IDENT.
PA-234M	-7.710E-01	2.469E+00	2.493E+00	NOT IDENT.
U-235	5.894E-02	1.508E-01	1.531E-01	FAIL ABUN
NP-237	4.625E-02	4.256E-02	4.739E-02	FAIL ABUN
NP-238	-1.750E+03	8.553E+03	8.589E+03	SHORT HLIF
NP-239	2.494E-02	1.753E-01	1.756E-01	NOT IDENT.
PU-239	3.951E+01	2.429E+02	2.436E+02	NOT IDENT.
AM-241	3.066E-02	9.150E-02	9.253E-02	NOT IDENT.
CM-243	1.716E-02	6.863E-02	6.906E-02	NOT IDENT.
BK-247	-3.408E-02	6.533E-02	6.712E-02	NOT IDENT.
CM-247	-3.350E-03	2.958E-02	2.962E-02	NOT IDENT.
CF-249	-1.064E-02	2.852E-02	2.892E-02	NOT IDENT.
CF-251	-1.214E-02	9.425E-02	9.441E-02	NOT IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
74.66	24.5711	81.75	42.1228	123.68	20.5048
879.38	33.5389	82.47	38.3456	125.81	26.7371
46.54	22.1215	83.79	23.0640	127.23	23.6993
228.16	0.0000	265.00	23.0729	127.91	23.7222
52.39	23.2984	193.51	33.4154	129.30	25.8347
1093.63	31.4046	105.31	33.8058	131.20	29.0113
52.39	34.1411	86.79	33.8203	133.02	25.9674
125.81	28.7921	86.94	33.8296	133.52	33.2612
53.44	25.2226	87.09	33.8390	136.00	25.0294
54.07	27.0662	87.57	33.8683	136.47	21.9145
293.27	0.0000	88.03	42.6126	739.50	0.0000
482.18	36.3910	306.78	40.0521	140.51	0.0000
57.98	30.9650	88.47	40.0615	143.76	21.0721
59.27	31.6675	143.76	31.0977	144.24	17.9224
59.32	31.6712	90.64	33.7299	145.44	24.2855
59.54	29.2499	531.02	46.7413	152.43	30.8922
60.96	37.9045	92.59	30.2653	1048.07	22.3928
61.17	28.4420	93.35	30.3051	154.21	16.0137
62.93	28.5551	94.56	30.3683	158.56	20.3293
63.29	28.5780	311.90	30.3730	159.00	24.6983
290.67	28.5965	946.00	30.3741	162.33	28.0313
87.57	24.6372	94.87	30.3844	537.26	26.9638
66.73	34.3671	97.43	21.0007	163.33	23.7469
67.24	38.1241	98.43	20.7071	165.86	25.9830
67.68	36.2986	98.44	20.7076	427.87	20.8178
1221.41	31.6496	103.37	35.5630	176.60	20.8244
70.82	31.7261	116.74	35.5630	177.52	23.0402
97.43	33.6476	100.11	24.7202	181.07	0.0000
70.82	44.0338	102.03	28.7659	181.52	30.8566
279.20	44.0349	103.18	22.8570	184.41	29.4804
1063.66	32.6119	103.37	22.8640	185.72	23.2488
72.87	32.6158	911.20	25.9226	193.51	25.6753
351.06	32.6158	105.31	25.9268	197.03	22.4088
74.66	41.5468	106.12	24.9619	198.01	23.5532
351.93	41.5598	106.47	24.9756	201.83	25.8978
238.63	41.5598	109.28	24.0826	203.43	21.4286
351.93	41.5598	111.00	20.1224	205.31	27.1194
238.63	41.5598	111.76	0.0000	210.85	23.8612
74.97	41.5723	114.06	23.2490	215.65	13.6992
77.11	41.7488	116.30	0.0000	218.12	18.3096
78.74	41.8814	116.74	22.3278	222.11	16.0822
256.23	41.9580	119.76	22.4277	227.09	20.7749
80.03	41.9848	264.66	23.4936	227.38	21.9351
133.52	41.9926	121.22	20.4321	228.16	0.0000
364.49	41.9983	344.28	25.5610	228.18	12.7087
711.68	42.0288	122.06	25.5713	235.69	17.0631
356.01	42.0630	122.92	27.6511	235.96	17.0673
323.87	42.0688	1274.44	27.6571	238.63	21.7747

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
238.98	0.0000	338.28	13.4684	531.02	5.6582
240.99	18.7039	338.32	13.4688	537.26	10.4056
242.00	12.4806	340.48	21.9200	1260.41	0.0000
244.70	12.5107	340.55	21.9211	552.55	8.5778
685.70	10.6278	344.28	12.6797	795.86	7.1851
388.16	12.9939	345.93	12.6941	564.24	0.0000
507.63	0.0000	351.06	11.0404	569.33	7.6865
256.23	16.5869	351.93	11.0470	569.50	7.6872
527.90	0.0000	355.39	0.0000	569.70	8.6488
264.66	10.7397	356.01	10.2256	583.19	11.6050
264.80	10.7411	364.49	10.2839	584.27	10.1595
265.00	20.2918	366.42	0.0000	595.83	9.7274
269.46	16.7733	372.51	11.1999	600.60	15.5983
270.03	14.3840	375.05	11.2187	602.52	0.0000
401.81	20.3976	377.52	11.2367	604.72	11.7202
273.65	16.8314	383.85	13.0182	607.14	8.8000
276.40	21.6892	388.16	12.1839	609.32	8.8085
583.19	15.6767	666.33	12.1876	610.33	8.8125
277.60	20.5045	391.69	6.9777	614.28	8.8282
402.40	20.5107	400.66	9.6483	618.01	4.9127
279.20	15.7001	401.81	12.2885	884.68	5.9016
279.54	21.7447	402.40	13.1711	621.93	3.9370
279.70	21.7474	404.85	7.9146	630.19	0.0000
280.46	19.3428	410.95	15.0057	631.29	11.8599
301.36	19.3931	413.71	13.2626	633.25	12.8593
284.31	24.2535	720.70	10.6162	634.78	8.9084
285.41	13.5312	423.72	14.2318	635.95	9.9036
285.90	0.0000	427.09	7.1302	636.99	8.9172
287.50	19.4521	427.87	7.1335	657.50	3.9984
290.67	18.2817	433.94	16.1074	657.76	8.9971
293.27	0.0000	439.40	12.5679	657.90	0.0000
295.22	15.9009	440.45	16.1686	661.66	4.0054
316.51	15.9100	453.88	11.7670	664.57	0.0000
298.58	24.5264	463.37	9.0999	666.33	6.0198
299.98	16.3684	468.07	7.6638	666.50	6.0203
300.09	16.3700	473.00	10.0632	667.71	0.0000
300.13	16.3704	631.29	8.2427	677.62	8.0645
311.90	16.3704	696.49	19.2509	685.70	4.0457
301.36	14.7473	477.60	9.6299	692.65	0.0000
302.85	14.7642	482.18	5.5164	695.00	9.1373
304.50	19.7100	487.02	11.9833	696.49	4.0635
304.85	19.7153	492.35	0.0000	696.51	4.0636
306.78	9.8721	497.08	6.9505	697.00	5.0806
308.46	18.5335	505.52	10.0529	697.30	8.1299
311.90	4.9551	507.63	0.0000	697.49	8.1305
316.51	9.9441	511.00	12.1351	702.65	10.1843
319.41	9.9653	514.00	12.1542	706.68	8.1605
320.08	9.9702	514.00	12.1542	711.68	6.1328
321.04	9.9773	520.40	6.5659	720.70	9.2322
323.87	14.9967	520.69	0.0000	721.93	0.0000
325.23	12.5095	667.71	0.0000	1690.97	8.2129
1596.21	16.3040	527.90	0.0000	722.91	8.2135
333.37	17.6158	528.26	10.3590	723.31	7.1880
333.97	20.9803	529.59	6.5964	756.73	6.1631
334.37	20.9864	529.87	0.0000	727.33	3.0854

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
733.00	6.1846	929.11	5.5247	1312.11	5.5345
735.93	10.3194	935.54	5.5361	1332.49	2.7810
737.46	5.1628	937.49	2.2158	1362.66	0.0000
739.50	0.0000	983.53	2.2205	1365.19	0.9343
1434.09	4.1410	946.00	5.5546	1368.63	0.0000
747.24	9.3281	949.00	5.5599	1384.29	3.7539
748.06	7.7759	954.55	0.0000	1408.01	3.7747
752.31	7.7884	962.31	12.2832	1434.09	7.5942
753.82	10.9102	964.08	2.2346	1435.80	2.8491
756.73	11.4422	966.17	11.1804	1457.56	0.0000
756.80	11.4427	968.97	4.4761	1460.82	4.5841
763.94	11.4736	983.53	8.9925	1489.16	7.6885
765.81	11.4816	984.45	0.0000	1505.03	0.9644
1001.03	6.2642	996.26	2.2570	1584.12	2.9425
766.84	6.2651	1001.03	1.1301	1596.21	1.9667
772.60	0.0000	1002.74	4.5228	1620.50	1.9766
776.52	0.0000	1004.73	4.5256	1621.92	0.9885
777.92	0.0000	1021.30	0.0000	1678.03	0.0000
778.90	7.3424	1025.87	0.0000	1690.97	2.0048
783.70	7.8809	1028.54	0.0000	1750.46	0.0000
1435.80	9.4746	1037.84	2.2853	1764.49	3.0505
903.28	7.3783	1038.76	0.0000	1770.23	5.0897
795.86	7.3885	1046.59	6.8735	1771.35	3.0546
801.95	8.4629	1048.07	4.5846	1791.20	0.0000
810.06	7.4267	1049.04	3.4395	1808.65	3.0762
810.29	6.3662	1050.41	1.1469	1810.72	0.0000
810.45	6.3667	1063.66	5.7568	1836.06	1.0306
810.76	7.4287	1077.00	5.7788		
815.77	8.5052	1077.34	2.3118		
818.51	10.6417	1085.87	3.4761		
832.01	1.0693	1093.63	4.6452		
834.85	9.6332	1099.45	2.3263		
835.71	6.4241	1112.07	7.0039		
836.80	0.0000	1112.84	2.6270		
846.75	0.0000	1115.54	4.2064		
846.77	8.5986	1120.29	4.3875		
856.80	5.3929	1120.55	4.3878		
860.56	12.9600	1121.30	4.3887		
871.09	11.9225	1808.65	4.3988		
873.19	1.0846	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	3.2607	1332.49	1.7805		
880.51	4.3493	1177.95	3.5654		
881.60	6.5264	1189.05	2.6821		
883.24	4.3534	1204.77	5.3862		
884.68	3.2666	1221.41	4.5081		
889.28	5.4527	1231.02	3.6155		
894.76	8.7402	1235.36	7.2388		
1836.06	7.6562	1238.28	1.8112		
900.72	6.5684	1260.41	0.0000		
903.28	3.2869	1271.87	3.6531		
911.20	6.5911	1274.44	1.8278		
912.08	4.9446	1274.54	1.8278		
984.45	0.0000	1291.59	3.6711		
926.50	4.4160	1298.22	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 14:38:12.64

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299019.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM05.CNF;914
Background date    : 28-JUL-2024 10:37:54
Sample date       : 26-JUN-2024 10:07:00 Acquisition date : 30-JUL-2024 13:37:44
Sample ID        : G674299019 Sample quantity : 7.92600E+01 GRAM
Detector name     : GAM05 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.39 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	26.28*	26	150	5.51	52.22	44	16	7.10E-03	111.8	
2	0	46.70*	25	34	0.91	93.00	89	8	7.04E-03	53.3	
3	0	63.37*	11	43	0.84	126.30	124	6	2.92E-03	121.1	
4	2	75.06*	65	38	1.03	149.64	145	26	1.80E-02	21.1	2.16E+00
5	2	77.31*	112	36	1.02	154.13	145	26	3.11E-02	13.3	
6	2	79.93*	12	35	1.05	159.36	145	26	3.28E-03	94.4	
7	1	87.24*	20	32	0.97	173.95	172	11	5.64E-03	48.3	7.98E-01
8	1	89.85	22	44	0.98	179.18	172	11	6.06E-03	53.0	
9	0	92.95*	29	65	1.47	185.37	182	10	8.02E-03	61.7	
10	0	186.62*	17	77	0.98	372.45	366	12	4.63E-03	114.5	
11	0	199.37*	35	57	1.57	397.90	392	15	9.62E-03	51.0	
12	0	209.30	22	17	1.10	417.74	415	6	6.13E-03	36.8	
13	1	237.08	12	7	1.04	473.23	472	9	3.41E-03	34.6	7.16E+00
14	1	238.86*	79	42	1.27	476.77	472	9	2.21E-02	18.5	
15	0	242.41	45	29	0.77	483.87	481	8	1.26E-02	26.2	
16	0	270.00	20	21	1.39	538.98	535	8	5.48E-03	46.7	
17	0	295.82*	51	44	0.96	590.54	586	11	1.42E-02	29.9	
18	0	320.59	8	22	1.38	640.03	635	9	2.27E-03	109.9	
19	0	338.68	18	27	1.45	676.17	669	11	5.10E-03	59.8	
20	0	352.29*	61	27	1.03	703.35	698	8	1.69E-02	20.1	
21	0	456.87	11	30	2.83	912.24	897	17	3.07E-03	117.0	
22	0	467.89	14	29	5.78	934.27	917	20	3.87E-03	99.7	
23	0	511.29*	29	11	1.77	1020.97	1013	15	8.10E-03	44.9	
24	0	583.94*	20	9	1.49	1166.12	1159	11	5.61E-03	38.4	
25	0	610.19*	26	16	1.05	1218.55	1213	9	7.32E-03	36.2	
26	0	820.17	11	6	3.37	1638.12	1633	9	3.03E-03	52.0	
27	0	846.40	8	5	1.80	1690.54	1684	10	2.29E-03	61.4	
28	0	858.67	12	9	3.57	1715.06	1708	13	3.22E-03	62.6	
29	0	868.59*	3	3	0.73	1734.88	1731	6	7.55E-04	137.2	
30	6	908.55	12	0	3.19	1814.73	1811	14	3.24E-03	27.1	7.06E-01
31	6	911.68*	12	0	1.80	1821.00	1811	14	3.31E-03	38.0	
32	0	1195.04	9	0	1.35	2387.33	2382	9	2.50E-03	33.3	
33	0	1462.11*	21	7	1.90	2921.23	2914	14	5.84E-03	36.4	
34	0	1765.29*	4	3	1.42	3527.48	3522	10	1.01E-03	112.0	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299019.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 10:07:00	Acquisition date	: 30-JUL-2024 13:37:44
Sample ID	: G674299019	Sample quantity	: 79.260 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA5	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.39 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	19	10.66*	1.248E+00	1.380E+00	1.380E+00	72.79
CR-51	320.08	7	9.91*	4.470E+00	1.551E-01	3.648E-01	219.90
NB-95M	235.69	11	24.80*	5.602E+00	7.371E-02	1.067E-01	69.21
CD-109	88.03	17	3.70*	9.318E+00	4.797E-01	5.049E-01	96.66
SN-126	64.28	9	9.60	9.699E+00	9.118E-02	9.118E-02	242.10
	86.94	17	8.90	9.318E+00	1.994E-01	1.994E-01	96.66
	87.57	17	37.00*	9.318E+00	4.797E-02	4.797E-02	96.66
TL-208	277.37	-----	6.60	4.995E+00	-----	Line Not Found	-----
	583.19	18	85.00*	2.727E+00	7.444E-02	7.444E-02	76.75
	860.56	-----	12.50	1.955E+00	-----	Line Not Found	-----
BI-210	46.54	21	4.25*	9.306E+00	5.138E-01	5.153E-01	106.52
PB-210	46.54	21	4.25*	9.306E+00	5.138E-01	5.153E-01	106.52
BI-211	72.87	-----	1.23	9.622E+00	-----	Line Not Found	-----
	351.06	54	12.92*	4.149E+00	9.599E-01	9.599E-01	40.11
PB-212	74.82	55	10.28	9.587E+00	5.328E-01	5.328E-01	42.14
	77.11	96	17.10	9.546E+00	5.575E-01	5.575E-01	26.60
	238.63	70	43.60*	5.573E+00	2.733E-01	2.733E-01	36.95
	300.09	-----	3.30	4.705E+00	-----	Line Not Found	-----
BI-214	609.32	24	45.49*	2.626E+00	1.886E-01	1.886E-01	72.30
	1120.29	-----	14.92	1.560E+00	-----	Line Not Found	-----
	1764.49	3	15.30	1.069E+00	1.950E-01	1.950E-01	223.96
PB-214	74.82	55	5.80	9.587E+00	9.443E-01	9.444E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.829E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.884E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
RN-222	609.32	24	45.49*	2.626E+00	1.886E-01	1.886E-01	72.30
	1120.29	-----	14.92	1.560E+00	-----	Line Not Found	-----
	1764.49	3	15.30	1.069E+00	1.950E-01	1.950E-01	223.96
RA-224	240.99	40	4.10*	5.514E+00	1.681E+00	1.681E+00	52.41
RA-226	74.82	55	5.80	9.587E+00	9.443E-01	9.444E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.829E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.884E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
TH-228	74.82	55	10.28	9.587E+00	5.328E-01	5.328E-01	42.14
	77.11	96	17.10	9.546E+00	5.575E-01	5.575E-01	26.60
	238.63	70	43.60*	5.573E+00	2.733E-01	2.733E-01	36.95
	300.09	-----	3.30	4.705E+00	-----	Line Not Found	-----
TH-230	74.82	55	5.80	9.587E+00	9.443E-01	9.443E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.828E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.883E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
TH-234	63.29	9	3.70*	9.699E+00	2.366E-01	2.366E-01	242.10
	92.59	25	4.23	9.164E+00	6.079E-01	6.079E-01	123.36

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-234	74.82	55	5.80	9.587E+00	9.443E-01	9.443E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.828E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.883E-01	59.72
U-235	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
	89.96	19	3.47	9.249E+00	5.538E-01	5.538E-01	106.10
	93.35	25	5.60	9.164E+00	4.592E-01	4.592E-01	123.36
	143.76	-----	10.96*	7.659E+00	-----	Line Not Found	-----
	163.33	-----	5.08	7.136E+00	-----	Line Not Found	-----
U-238	185.72	15	57.20	6.581E+00	3.679E-02	3.679E-02	229.09
	205.31	-----	5.01	6.186E+00	-----	Line Not Found	-----
	63.29	9	3.70*	9.699E+00	2.366E-01	2.366E-01	242.10
	92.59	25	4.23	9.164E+00	6.079E-01	6.079E-01	123.36
	43.53	-----	5.90	9.102E+00	-----	Line Not Found	-----
AM-243	74.66	55	67.20*	9.587E+00	8.150E-02	8.151E-02	42.14
ANH-511	511.00	26	100.00*	3.052E+00	8.131E-02	8.131E-02	89.88

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299019.CNF;1
Acquisition date : 30-JUL-2024 13:37:44 Sensitivity : 3.000
Detector ID : GAM05 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.39 Half life ratio : *****
Sample date : 26-JUN-2024 10:07:00 Analyst initials: RXF2
Sample ID : G674299019 Sample Quantity : 7.9260E+01 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 16-AUG-2023 10:50:42 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM05_CAN.CNF;28

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.380E+00	9.844E-01	8.657E-01
CR-51	3.648E-01	7.861E-01	9.111E-01
NB-95M	1.067E-01	7.237E-02	2.453E-01
CD-109	5.049E-01	4.783E-01	7.444E-01
SN-126	4.797E-02	4.544E-02	7.059E-02
TL-208	7.444E-02	5.599E-02	7.305E-02
BI-210	5.153E-01	5.380E-01	6.032E-01
PB-210	5.153E-01	5.380E-01	6.032E-01
BI-211	9.599E-01	3.773E-01	3.781E-01
PB-212	2.733E-01	9.898E-02	1.027E-01
BI-214	1.886E-01	1.336E-01	1.631E-01
PB-214	3.484E-01	1.369E-01	1.375E-01
RN-222	1.886E-01	1.336E-01	1.631E-01
RA-224	1.681E+00	8.634E-01	1.142E+00
RA-226	3.484E-01	1.369E-01	1.375E-01
TH-228	2.733E-01	9.898E-02	1.027E-01
TH-230	3.484E-01	1.369E-01	1.375E-01
TH-234	2.366E-01	5.613E-01	7.189E-01
U-234	3.484E-01	1.369E-01	1.375E-01
U-235	6.030E-02	1.613E-01	3.044E-01
U-238	2.366E-01	5.613E-01	7.189E-01
AM-243	8.151E-02	3.366E-02	3.742E-02
ANH-511	8.131E-02	7.162E-02	5.439E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-1.484E-01	4.256E-01	7.733E-01	NOT IDENT.
NA-22	-1.729E-03	3.847E-02	8.068E-02	NOT IDENT.
NA-24	0.000E+00	9.203E+14	0.000E+00	SHORT HLIF
AL-26	-7.896E-03	2.946E-02	6.579E-02	NOT IDENT.
SC-46	2.262E-03	4.513E-02	9.494E-02	NOT IDENT.
V-48	-4.969E-02	1.511E-01	2.928E-01	NOT IDENT.
MN-52	-3.476E-02	1.481E+00	3.745E+00	NOT IDENT.

MN-54	-6.725E-03	4.320E-02	7.907E-02	NOT IDENT.
CO-56	4.862E-02	5.847E-02	1.105E-01	FAIL ABUN
MN-56	0.000E+00	1.203E+41	0.000E+00	SHORT HLIF
CO-57	-7.629E-03	2.078E-02	3.516E-02	NOT IDENT.
CO-58	3.019E-02	4.830E-02	1.069E-01	NOT IDENT.
FE-59	-2.157E-02	1.014E-01	2.045E-01	NOT IDENT.
CO-60	-1.815E-02	5.283E-02	9.703E-02	NOT IDENT.
ZN-65	5.448E-02	1.019E-01	2.250E-01	NOT IDENT.
GE-68	-1.098E+00	1.514E+00	2.563E+00	NOT IDENT.
AS-73	8.011E-03	1.644E-01	3.102E-01	NOT IDENT.
AS-74	-8.774E-02	2.503E-01	4.415E-01	NOT IDENT.
SE-75	-1.614E-02	4.305E-02	7.197E-02	NOT IDENT.
BR-77	0.000E+00	3.972E+03	0.000E+00	SHORT HLIF
SR-82	-5.527E-01	5.545E-01	7.685E-01	NOT IDENT.
RB-83	1.555E-02	8.305E-02	1.664E-01	NOT IDENT.
RB-84	-3.150E-03	9.825E-02	2.044E-01	NOT IDENT.
KR-85	2.507E+00	9.700E+00	1.699E+01	NOT IDENT.
SR-85	1.606E-02	6.277E-02	1.099E-01	NOT IDENT.
RB-86	-1.507E-02	1.446E+00	3.047E+00	NOT IDENT.
Y-88	3.523E-02	4.991E-02	1.365E-01	NOT IDENT.
Y-91	-1.480E+01	3.091E+01	5.494E+01	NOT IDENT.
NB-94	-2.576E-03	4.304E-02	7.917E-02	NOT IDENT.
NB-95	-1.558E-03	4.261E-02	8.405E-02	NOT IDENT.
ZR-95	1.481E-02	8.917E-02	1.795E-01	NOT IDENT.
NB-97	0.000E+00	1.116E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.336E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.693E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.945E+39	0.000E+00	SHORT HLIF
RH-101	7.263E-03	2.414E-02	4.562E-02	FAIL ABUN
RH-102	1.521E-02	6.447E-02	1.275E-01	NOT IDENT.
RU-103	-5.996E-02	5.413E-02	8.168E-02	FAIL ABUN
RH-106	-1.890E-01	4.099E-01	7.307E-01	NOT IDENT.
RU-106	-1.890E-01	4.099E-01	7.307E-01	NOT IDENT.
AG-108M	2.830E-03	3.079E-02	6.011E-02	NOT IDENT.
AG-110	-2.518E-01	7.110E-01	1.282E+00	NOT IDENT.
AG-110M	2.701E-02	5.093E-02	1.170E-01	NOT IDENT.
SN-113	-2.842E-02	4.229E-02	7.372E-02	NOT IDENT.
CD-115	0.000E+00	4.431E+03	0.000E+00	SHORT HLIF
SN-117M	7.434E-02	1.195E-01	2.319E-01	NOT IDENT.
SB-122	0.000E+00	2.872E+02	0.000E+00	SHORT HLIF
TE-123M	2.088E-02	2.800E-02	5.448E-02	NOT IDENT.
SB-124	3.683E-02	1.152E-01	2.900E-01	NOT IDENT.
SB-125	-7.375E-04	7.919E-02	1.563E-01	FAIL ABUN
TE-125M	2.267E+00	9.080E+00	1.701E+01	NOT IDENT.
I-126	1.488E-01	7.736E-01	1.491E+00	NOT IDENT.
SB-126	-1.631E-01	3.729E-01	6.538E-01	NOT IDENT.
SB-127	-1.175E+01	4.588E+01	8.720E+01	NOT IDENT.
I-131	2.687E-01	5.508E-01	1.149E+00	FAIL ABUN
I-132	0.000E+00	1.529E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	4.196E+01	0.000E+00	SHORT HLIF
BA-133	-2.539E-02	4.620E-02	7.767E-02	FAIL ABUN
I-133	0.000E+00	2.332E+10	0.000E+00	SHORT HLIF
CS-134	4.937E-03	5.393E-02	1.020E-01	NOT IDENT.
I-135	0.000E+00	5.031E+36	0.000E+00	SHORT HLIF
CS-136	-2.864E-02	3.391E-01	6.706E-01	NOT IDENT.
BA-137M	4.018E-02	3.598E-02	8.376E-02	NOT IDENT.
CS-137	4.245E-02	3.801E-02	8.848E-02	NOT IDENT.
LA-138	-8.312E-03	4.297E-02	9.249E-02	NOT IDENT.
CE-139	3.685E-03	2.588E-02	4.779E-02	NOT IDENT.
BA-140	1.969E-01	7.834E-01	1.577E+00	NOT IDENT.
LA-140	-1.468E-01	3.634E-01	6.489E-01	NOT IDENT.
CE-141	-6.824E-02	7.639E-02	1.221E-01	NOT IDENT.
CE-143	0.000E+00	2.062E+06	0.000E+00	SHORT HLIF
CE-144	-2.309E-02	1.684E-01	3.003E-01	FAIL ABUN
PM-144	6.249E-02	4.848E-02	1.064E-01	NOT IDENT.
PR-144	4.697E+00	3.660E+00	8.030E+00	NOT IDENT.
PM-146	1.596E-02	4.622E-02	9.285E-02	NOT IDENT.
ND-147	1.026E+00	1.588E+00	3.568E+00	FAIL ABUN
PM-147	-1.291E+02	5.407E+02	9.640E+02	NOT IDENT.
PM-149	0.000E+00	3.570E+04	0.000E+00	SHORT HLIF
EU-150	7.497E-03	2.760E-02	5.058E-02	FAIL ABUN
EU-152	-7.380E-03	8.749E-02	1.687E-01	NOT IDENT.
GD-153	-5.693E-02	6.168E-02	9.427E-02	NOT IDENT.
EU-154	-8.753E-03	1.066E-01	2.218E-01	NOT IDENT.
EU-155	8.312E-03	7.252E-02	1.351E-01	FAIL ABUN
TB-160	-5.023E-02	1.375E-01	2.681E-01	FAIL ABUN
HO-166M	2.794E-02	6.227E-02	1.311E-01	FAIL ABUN
TM-171	-1.696E+00	2.959E+00	5.192E+00	NOT IDENT.

HF-172	-7.409E-02	1.439E-01	2.461E-01	FAIL ABUN
LU-172	-2.177E-02	7.357E-02	1.392E-01	FAIL ABUN
LU-176	-1.352E-02	2.928E-02	4.705E-02	FAIL ABUN
HF-181	-1.228E-02	6.200E-02	1.157E-01	NOT IDENT.
TA-182	-1.519E-01	1.965E-01	3.149E-01	NOT IDENT.
RE-183	-2.716E-02	5.708E-02	1.021E-01	NOT IDENT.
RE-184	6.445E-02	2.456E-01	4.786E-01	NOT IDENT.
W-188	-6.312E+00	9.546E+00	1.485E+01	FAIL ABUN
IR-192	6.201E-03	3.924E-02	7.163E-02	FAIL ABUN
HG-203	-7.337E-03	4.524E-02	7.823E-02	NOT IDENT.
TL-204	2.017E+00	1.976E+00	3.837E+00	FAIL ABUN
BI-207	6.771E-04	6.268E-02	1.256E-01	FAIL ABUN
PB-211	-3.229E-01	6.996E-01	1.257E+00	NOT IDENT.
BI-212	-4.628E-01	5.670E-01	9.485E-01	NOT IDENT.
BI-213	-1.071E-01	9.727E-02	1.508E-01	NOT IDENT.
RN-219	7.202E-02	3.571E-01	7.231E-01	FAIL ABUN
RA-223	-1.416E-01	5.897E-01	9.979E-01	FAIL ABUN
AC-225	5.712E-01	1.665E+00	3.195E+00	NOT IDENT.
AC-227	2.238E-02	2.242E-01	4.067E-01	FAIL ABUN
TH-227	2.238E-02	2.242E-01	4.067E-01	FAIL ABUN
AC-228	2.144E-01	1.596E-01	4.562E-01	FAIL ABUN
RA-228	2.144E-01	1.596E-01	4.562E-01	FAIL ABUN
TH-229	2.153E-01	3.913E-01	7.700E-01	FAIL ABUN
PA-231	3.550E-01	5.020E-01	9.828E-01	NOT IDENT.
TH-231	-1.416E-01	5.897E-01	9.979E-01	FAIL ABUN
TH-232	2.144E-01	1.596E-01	4.562E-01	FAIL ABUN
PA-233	7.150E-03	6.241E-02	1.126E-01	NOT IDENT.
PA-234	-5.251E-02	3.265E-01	6.453E-01	NOT IDENT.
PA-234M	-1.064E+00	5.604E+00	1.052E+01	NOT IDENT.
NP-237	7.150E-03	6.241E-02	1.126E-01	NOT IDENT.
NP-238	0.000E+00	9.975E+03	0.000E+00	SHORT HLIF
NP-239	1.635E-02	2.076E-01	3.814E-01	NOT IDENT.
PU-239	1.829E+01	2.545E+02	4.686E+02	NOT IDENT.
AM-241	-1.053E-02	3.845E-02	7.027E-02	NOT IDENT.
CM-243	-3.669E-02	6.788E-02	1.173E-01	NOT IDENT.
BK-247	-1.263E-02	6.904E-02	1.199E-01	NOT IDENT.
CM-247	4.718E-03	3.363E-02	6.719E-02	NOT IDENT.
CF-249	-1.804E-02	3.703E-02	6.668E-02	NOT IDENT.
CF-251	-2.455E-02	1.107E-01	1.928E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	19	10.66*	1.248E+00	1.380E+00	1.380E+00	72.79
CR-51	320.08	7	9.91*	4.470E+00	1.551E-01	3.648E-01	219.90
NB-95M	235.69	11	24.80*	5.602E+00	7.371E-02	1.067E-01	69.21
CD-109	88.03	17	3.70*	9.318E+00	4.797E-01	5.049E-01	96.66
SN-126	64.28	9	9.60	9.699E+00	9.118E-02	9.118E-02	242.10
	86.94	17	8.90	9.318E+00	1.994E-01	1.994E-01	96.66
	87.57	17	37.00*	9.318E+00	4.797E-02	4.797E-02	96.66
TL-208	277.37	-----	6.60	4.995E+00	-----	Line Not Found	-----
	583.19	18	85.00*	2.727E+00	7.444E-02	7.444E-02	76.75
	860.56	-----	12.50	1.955E+00	-----	Line Not Found	-----
BI-210	46.54	21	4.25*	9.306E+00	5.138E-01	5.153E-01	106.52
PB-210	46.54	21	4.25*	9.306E+00	5.138E-01	5.153E-01	106.52
BI-211	72.87	-----	1.23	9.622E+00	-----	Line Not Found	-----
	351.06	54	12.92*	4.149E+00	9.599E-01	9.599E-01	40.11
PB-212	74.82	55	10.28	9.587E+00	5.328E-01	5.328E-01	42.14
	77.11	96	17.10	9.546E+00	5.575E-01	5.575E-01	26.60
	238.63	70	43.60*	5.573E+00	2.733E-01	2.733E-01	36.95
	300.09	-----	3.30	4.705E+00	-----	Line Not Found	-----
BI-214	609.32	24	45.49*	2.626E+00	1.886E-01	1.886E-01	72.30
	1120.29	-----	14.92	1.560E+00	-----	Line Not Found	-----
	1764.49	3	15.30	1.069E+00	1.950E-01	1.950E-01	223.96
PB-214	74.82	55	5.80	9.587E+00	9.443E-01	9.444E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.829E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.884E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
RN-222	609.32	24	45.49*	2.626E+00	1.886E-01	1.886E-01	72.30
	1120.29	-----	14.92	1.560E+00	-----	Line Not Found	-----
	1764.49	3	15.30	1.069E+00	1.950E-01	1.950E-01	223.96
RA-224	240.99	40	4.10*	5.514E+00	1.681E+00	1.681E+00	52.41
RA-226	74.82	55	5.80	9.587E+00	9.443E-01	9.444E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.829E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.884E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
TH-228	74.82	55	10.28	9.587E+00	5.328E-01	5.328E-01	42.14
	77.11	96	17.10	9.546E+00	5.575E-01	5.575E-01	26.60
	238.63	70	43.60*	5.573E+00	2.733E-01	2.733E-01	36.95
	300.09	-----	3.30	4.705E+00	-----	Line Not Found	-----
TH-230	74.82	55	5.80	9.587E+00	9.443E-01	9.443E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.828E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.883E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-234	63.29	9	3.70*	9.699E+00	2.366E-01	2.366E-01	242.10
	92.59	25	4.23	9.164E+00	6.079E-01	6.079E-01	123.36
U-234	74.82	55	5.80	9.587E+00	9.443E-01	9.443E-01	42.14
	77.11	96	9.70	9.546E+00	9.828E-01	9.828E-01	26.60
	87.09	17	3.41	9.318E+00	5.205E-01	5.205E-01	96.66
	242.00	40	7.25	5.514E+00	9.507E-01	9.507E-01	52.41
	295.22	45	18.42	4.757E+00	4.883E-01	4.883E-01	59.72
	351.93	54	35.60*	4.149E+00	3.484E-01	3.484E-01	40.11
U-235	89.96	19	3.47	9.249E+00	5.538E-01	5.538E-01	106.10
	93.35	25	5.60	9.164E+00	4.592E-01	4.592E-01	123.36
	143.76	-----	10.96*	7.659E+00	-----	Line Not Found	-----
	163.33	-----	5.08	7.136E+00	-----	Line Not Found	-----
	185.72	15	57.20	6.581E+00	3.679E-02	3.679E-02	229.09
	205.31	-----	5.01	6.186E+00	-----	Line Not Found	-----
U-238	63.29	9	3.70*	9.699E+00	2.366E-01	2.366E-01	242.10
	92.59	25	4.23	9.164E+00	6.079E-01	6.079E-01	123.36
AM-243	43.53	-----	5.90	9.102E+00	-----	Line Not Found	-----
	74.66	55	67.20*	9.587E+00	8.150E-02	8.151E-02	42.14
ANH-511	511.00	26	100.00*	3.052E+00	8.131E-02	8.131E-02	89.88

Flag: "*" = Keyline

Total number of lines in spectrum 34
Number of unidentified lines 8
Number of lines tentatively identified by NID 26 76.47%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.380E+00	1.380E+00	1.005E+00	72.79	
CR-51	27.70D	2.35	1.551E-01	3.648E-01	8.022E-01	219.90	
NB-95M	64.03D	1.45	7.371E-02	1.067E-01	0.738E-01	69.21	
CD-109	461.40D	1.05	4.797E-01	5.049E-01	4.881E-01	96.66	
SN-126	2.30E+05Y	1.00	4.797E-02	4.797E-02	4.636E-02	96.66	
TL-208	1.41E+10Y	1.00	7.444E-02	7.444E-02	5.713E-02	76.75	
BI-210	22.20Y	1.00	5.138E-01	5.153E-01	5.489E-01	106.52	
PB-210	22.20Y	1.00	5.138E-01	5.153E-01	5.489E-01	106.52	
BI-211	7.04E+08Y	1.00	9.599E-01	9.599E-01	3.850E-01	40.11	
PB-212	1.41E+10Y	1.00	2.733E-01	2.733E-01	1.010E-01	36.95	
BI-214	1600.00Y	1.00	1.886E-01	1.886E-01	1.364E-01	72.30	
PB-214	1600.00Y	1.00	3.484E-01	3.484E-01	1.397E-01	40.11	
RN-222	1600.00Y	1.00	1.886E-01	1.886E-01	1.364E-01	72.30	
RA-224	1.41E+10Y	1.00	1.681E+00	1.681E+00	0.881E+00	52.41	
RA-226	1600.00Y	1.00	3.484E-01	3.484E-01	1.397E-01	40.11	
TH-228	1.41E+10Y	1.00	2.733E-01	2.733E-01	1.010E-01	36.95	
TH-230	7.54E+04Y	1.00	3.484E-01	3.484E-01	1.397E-01	40.11	
TH-234	4.47E+09Y	1.00	2.366E-01	2.366E-01	5.728E-01	242.10	
U-234	2.45E+05Y	1.00	3.484E-01	3.484E-01	1.397E-01	40.11	
U-235	7.04E+08Y	1.00	3.679E-02	3.679E-02	8.428E-02	229.09	K
U-238	4.47E+09Y	1.00	2.366E-01	2.366E-01	5.728E-01	242.10	
AM-243	7370.00Y	1.00	8.150E-02	8.151E-02	3.435E-02	42.14	
ANH-511	1.00E+09Y	1.00	8.131E-02	8.131E-02	7.308E-02	89.88	
Total Activity :			8.870E+00	9.141E+00			

Grand Total Activity : 8.870E+00 9.141E+00

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	26.28	21	125	5.51	52.22	44	16	7.10E-03	****	6.58E+00	
2	79.93	10	30	1.05	159.36	145	26	3.28E-03	****	9.49E+00	T
0	199.37	30	50	1.57	397.90	392	15	9.62E-03	****	6.31E+00	T
0	209.30	19	15	1.10	417.74	415	6	6.13E-03	73.6	6.11E+00	
0	270.00	17	19	1.39	538.98	535	8	5.48E-03	93.4	5.10E+00	T
0	338.68	16	24	1.45	676.17	669	11	5.10E-03	****	4.28E+00	T
0	456.87	10	27	2.83	912.24	897	17	3.07E-03	****	3.35E+00	
0	467.89	12	26	5.78	934.27	917	20	3.87E-03	****	3.29E+00	T
0	820.17	10	6	3.37	1638.12	1633	9	3.03E-03	****	2.04E+00	
0	846.40	7	4	1.80	1690.54	1684	10	2.29E-03	****	1.98E+00	T
0	858.67	11	9	3.57	1715.06	1708	13	3.22E-03	****	1.96E+00	
0	868.59	2	3	0.73	1734.88	1731	6	7.55E-04	****	1.94E+00	
6	908.55	11	0	3.19	1814.73	1811	14	3.24E-03	54.2	1.87E+00	
6	911.68	11	0	1.80	1821.00	1811	14	3.31E-03	75.9	1.86E+00	T
0	1195.04	8	0	1.35	2387.33	2382	9	2.50E-03	66.7	1.48E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299019.CNF;1 *
* Acquisition date : 30-JUL-2024 13:37:44 Sensitivity : 3.000 *
* Detector ID : GAM05 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.39 Half life ratio : ***** *
* Sample date : 26-JUN-2024 10:07:00 Nuclide Library : SOLID *
* Sample ID : G674299019 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 7.9260E+01 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 16-AUG-2023 10:50:42 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM05_CAN.CNF;28 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.381E-01
CR-51	3.895E-01
NB-95M	1.098E-01
CD-109	3.346E-01
SN-126	3.172E-02
TL-208	3.113E-02
BI-210	2.705E-01
PB-210	2.705E-01
BI-211	1.659E-01
PB-212	4.624E-02
BI-214	7.108E-02
PB-214	6.035E-02
RN-222	7.108E-02
RA-224	5.162E-01
RA-226	6.035E-02
TH-228	4.624E-02
TH-230	6.035E-02
TH-234	3.252E-01
U-234	6.035E-02
U-235	1.375E-01
U-238	3.252E-01
AM-243	1.680E-02
ANH-511	2.310E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	3.289E-01	NOT IDENT.
NA-22	3.110E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.079E-02	NOT IDENT.
SC-46	3.870E-02	NOT IDENT.
V-48	1.146E-01	NOT IDENT.
MN-52	1.184E+00	NOT IDENT.
MN-54	3.279E-02	NOT IDENT.

CO-56	4.662E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	1.568E-02	NOT IDENT.
CO-58	4.488E-02	NOT IDENT.
FE-59	7.831E-02	NOT IDENT.
CO-60	3.905E-02	NOT IDENT.
ZN-65	9.499E-02	NOT IDENT.
GE-68	1.017E+00	NOT IDENT.
AS-73	1.384E-01	NOT IDENT.
AS-74	1.908E-01	NOT IDENT.
SE-75	3.101E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	2.850E-01	NOT IDENT.
RB-83	7.105E-02	NOT IDENT.
RB-84	8.259E-02	NOT IDENT.
KR-85	7.541E+00	NOT IDENT.
SR-85	4.878E-02	NOT IDENT.
RB-86	1.202E+00	NOT IDENT.
Y-88	5.287E-02	NOT IDENT.
Y-91	2.253E+01	NOT IDENT.
NB-94	3.419E-02	NOT IDENT.
NB-95	3.361E-02	NOT IDENT.
ZR-95	7.446E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.053E-02	FAIL ABUN
RH-102	5.485E-02	NOT IDENT.
RU-103	3.280E-02	FAIL ABUN
RH-106	3.134E-01	NOT IDENT.
RU-106	3.134E-01	NOT IDENT.
AG-108M	2.612E-02	NOT IDENT.
AG-110	5.169E-01	NOT IDENT.
AG-110M	4.857E-02	NOT IDENT.
SN-113	3.066E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.047E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.477E-02	NOT IDENT.
SB-124	1.095E-01	NOT IDENT.
SB-125	6.606E-02	FAIL ABUN
TE-125M	7.712E+00	NOT IDENT.
I-126	6.479E-01	NOT IDENT.
SB-126	2.572E-01	NOT IDENT.
SB-127	3.688E+01	NOT IDENT.
I-131	5.021E-01	FAIL ABUN
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	3.393E-02	FAIL ABUN
I-133	0.000E+00	SHORT HLIF
CS-134	4.376E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.777E-01	NOT IDENT.
BA-137M	3.619E-02	NOT IDENT.
CS-137	3.823E-02	NOT IDENT.
LA-138	3.103E-02	NOT IDENT.
CE-139	2.130E-02	NOT IDENT.
BA-140	6.765E-01	NOT IDENT.
LA-140	2.514E-01	NOT IDENT.
CE-141	5.408E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.349E-01	FAIL ABUN
PM-144	4.747E-02	NOT IDENT.
PR-144	3.582E+00	NOT IDENT.
PM-146	4.067E-02	NOT IDENT.
ND-147	1.505E+00	FAIL ABUN
PM-147	4.286E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.229E-02	FAIL ABUN
EU-152	7.322E-02	NOT IDENT.
GD-153	4.195E-02	NOT IDENT.
EU-154	8.496E-02	NOT IDENT.
EU-155	6.080E-02	FAIL ABUN
TB-160	1.039E-01	FAIL ABUN
HO-166M	5.548E-02	FAIL ABUN
TM-171	2.313E+00	NOT IDENT.
HF-172	1.092E-01	FAIL ABUN

LU-172	5.665E-02	FAIL ABUN
LU-176	2.065E-02	FAIL ABUN
HF-181	4.940E-02	NOT IDENT.
TA-182	1.179E-01	NOT IDENT.
RE-183	4.588E-02	NOT IDENT.
RE-184	2.050E-01	NOT IDENT.
W-188	6.523E+00	FAIL ABUN
IR-192	3.122E-02	FAIL ABUN
HG-203	3.402E-02	NOT IDENT.
TL-204	1.755E+00	FAIL ABUN
BI-207	5.245E-02	FAIL ABUN
PB-211	5.397E-01	NOT IDENT.
BI-212	3.910E-01	NOT IDENT.
BI-213	6.146E-02	NOT IDENT.
RN-219	3.109E-01	FAIL ABUN
RA-223	4.286E-01	FAIL ABUN
AC-225	1.402E+00	NOT IDENT.
AC-227	1.787E-01	FAIL ABUN
TH-227	1.787E-01	FAIL ABUN
AC-228	2.020E-01	FAIL ABUN
RA-228	2.020E-01	FAIL ABUN
TH-229	3.413E-01	FAIL ABUN
PA-231	4.419E-01	NOT IDENT.
TH-231	4.286E-01	FAIL ABUN
TH-232	2.020E-01	FAIL ABUN
PA-233	4.923E-02	NOT IDENT.
PA-234	2.646E-01	NOT IDENT.
PA-234M	4.388E+00	NOT IDENT.
NP-237	4.923E-02	NOT IDENT.
NP-238	0.000E+00	SHORT HLIF
NP-239	1.723E-01	NOT IDENT.
PU-239	2.101E+02	NOT IDENT.
AM-241	3.160E-02	NOT IDENT.
CM-243	5.196E-02	NOT IDENT.
BK-247	5.192E-02	NOT IDENT.
CM-247	2.895E-02	NOT IDENT.
CF-249	2.842E-02	NOT IDENT.
CF-251	8.588E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299019.CNF;1
Acquisition date : 30-JUL-2024 13:37:44 Sensitivity : 3.000
Detector ID : GAM05 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.39 Half life ratio : *****
Sample date : 26-JUN-2024 10:07:00 Nuclide Library : SOLID
Sample ID : G674299019 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 7.9260E+01 GRAM
Quantity Err(%) : 1.2617E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 16-AUG-2023 10:50:42 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM05_CAN.CNF;28

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.380E+00	9.915E-01	9.915E-01
CR-51	3.648E-01	7.866E-01	7.866E-01
NB-95M	1.067E-01	7.346E-02	7.346E-02
CD-109	5.049E-01	4.808E-01	4.808E-01
SN-126	4.797E-02	4.561E-02	4.561E-02
TL-208	7.444E-02	5.657E-02	5.657E-02
BI-210	5.153E-01	5.402E-01	5.402E-01
PB-210	5.153E-01	5.402E-01	5.402E-01
BI-211	9.599E-01	3.854E-01	3.854E-01
PB-212	2.733E-01	1.028E-01	1.028E-01
BI-214	1.886E-01	1.353E-01	1.353E-01
PB-214	3.484E-01	1.398E-01	1.398E-01
RN-222	1.886E-01	1.353E-01	1.353E-01
RA-224	1.681E+00	8.796E-01	8.796E-01
RA-226	3.484E-01	1.398E-01	1.398E-01
TH-228	2.733E-01	1.028E-01	1.028E-01
TH-230	3.484E-01	1.397E-01	1.397E-01
TH-234	2.366E-01	5.639E-01	5.639E-01
U-234	3.484E-01	1.397E-01	1.397E-01
U-235	6.030E-02	1.615E-01	1.615E-01
U-238	2.366E-01	5.639E-01	5.639E-01
AM-243	8.151E-02	3.431E-02	3.431E-02
ANH-511	8.131E-02	7.207E-02	7.207E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-1.484E-01	4.258E-01	4.310E-01	NOT IDENT.
NA-22	-1.729E-03	3.847E-02	3.847E-02	NOT IDENT.
NA-24	6.311E+14	9.222E+14	9.650E+14	SHORT HLIF
AL-26	-7.896E-03	2.947E-02	2.968E-02	NOT IDENT.
SC-46	2.262E-03	4.513E-02	4.514E-02	NOT IDENT.
V-48	-4.969E-02	1.512E-01	1.529E-01	NOT IDENT.
MN-52	-3.476E-02	1.481E+00	1.482E+00	NOT IDENT.

MN-54	-6.725E-03	4.321E-02	4.332E-02	NOT IDENT.
CO-56	4.862E-02	5.869E-02	6.265E-02	FAIL ABUN
MN-56	1.000E+41	1.207E+41	0.000E+00	SHORT HLIF
CO-57	-7.629E-03	2.081E-02	2.109E-02	NOT IDENT.
CO-58	3.019E-02	4.842E-02	5.029E-02	NOT IDENT.
FE-59	-2.157E-02	1.015E-01	1.019E-01	NOT IDENT.
CO-60	-1.815E-02	5.285E-02	5.348E-02	NOT IDENT.
ZN-65	5.448E-02	1.020E-01	1.049E-01	NOT IDENT.
GE-68	-1.098E+00	1.517E+00	1.595E+00	NOT IDENT.
AS-73	8.011E-03	1.644E-01	1.644E-01	NOT IDENT.
AS-74	-8.774E-02	2.506E-01	2.537E-01	NOT IDENT.
SE-75	-1.614E-02	4.307E-02	4.368E-02	NOT IDENT.
BR-77	1.097E+04	1.157E+04	1.259E+04	SHORT HLIF
SR-82	-5.527E-01	5.579E-01	6.110E-01	NOT IDENT.
RB-83	1.555E-02	8.309E-02	8.339E-02	NOT IDENT.
RB-84	-3.150E-03	9.825E-02	9.827E-02	NOT IDENT.
KR-85	2.507E+00	9.703E+00	9.768E+00	NOT IDENT.
SR-85	1.606E-02	6.279E-02	6.321E-02	NOT IDENT.
RB-86	-1.507E-02	1.446E+00	1.446E+00	NOT IDENT.
Y-88	3.523E-02	4.997E-02	5.244E-02	NOT IDENT.
Y-91	-1.480E+01	3.093E+01	3.164E+01	NOT IDENT.
NB-94	-2.576E-03	4.304E-02	4.306E-02	NOT IDENT.
NB-95	-1.558E-03	4.261E-02	4.262E-02	NOT IDENT.
ZR-95	1.481E-02	8.918E-02	8.943E-02	NOT IDENT.
NB-97	-1.000E+41	1.122E+41	0.000E+00	SHORT HLIF
ZR-97	1.269E+13	2.336E+14	2.337E+14	SHORT HLIF
MO-99	6.536E+02	1.695E+03	1.720E+03	SHORT HLIF
TC-99M	-8.355E+38	1.950E+39	0.000E+00	SHORT HLIF
RH-101	7.263E-03	2.419E-02	2.441E-02	FAIL ABUN
RH-102	1.521E-02	6.451E-02	6.487E-02	NOT IDENT.
RU-103	-5.996E-02	5.446E-02	6.080E-02	FAIL ABUN
RH-106	-1.890E-01	4.106E-01	4.193E-01	NOT IDENT.
RU-106	-1.890E-01	4.106E-01	4.193E-01	NOT IDENT.
AG-108M	2.830E-03	3.079E-02	3.082E-02	NOT IDENT.
AG-110	-2.518E-01	7.116E-01	7.206E-01	NOT IDENT.
AG-110M	2.701E-02	5.101E-02	5.244E-02	NOT IDENT.
SN-113	-2.842E-02	4.235E-02	4.425E-02	NOT IDENT.
CD-115	-6.663E+02	4.432E+03	4.442E+03	SHORT HLIF
SN-117M	7.434E-02	1.199E-01	1.245E-01	NOT IDENT.
SB-122	-2.786E+02	2.887E+02	3.149E+02	SHORT HLIF
TE-123M	2.088E-02	2.812E-02	2.966E-02	NOT IDENT.
SB-124	3.683E-02	1.153E-01	1.165E-01	NOT IDENT.
SB-125	-7.375E-04	7.919E-02	7.919E-02	FAIL ABUN
TE-125M	2.267E+00	9.083E+00	9.141E+00	NOT IDENT.
I-126	1.488E-01	7.738E-01	7.767E-01	NOT IDENT.
SB-126	-1.631E-01	3.737E-01	3.808E-01	NOT IDENT.
SB-127	-1.175E+01	4.593E+01	4.624E+01	NOT IDENT.
I-131	2.687E-01	5.513E-01	5.644E-01	FAIL ABUN
I-132	1.000E+41	2.605E+41	0.000E+00	SHORT HLIF
TE-132	4.588E+01	4.240E+01	4.717E+01	SHORT HLIF
BA-133	-2.539E-02	4.624E-02	4.764E-02	FAIL ABUN
I-133	4.306E+09	2.335E+10	2.343E+10	SHORT HLIF
CS-134	4.937E-03	5.393E-02	5.398E-02	NOT IDENT.
I-135	-5.456E+36	6.584E+36	0.000E+00	SHORT HLIF
CS-136	-2.864E-02	3.391E-01	3.393E-01	NOT IDENT.
BA-137M	4.018E-02	3.630E-02	4.056E-02	NOT IDENT.
CS-137	4.245E-02	3.834E-02	4.285E-02	NOT IDENT.
LA-138	-8.312E-03	4.298E-02	4.314E-02	NOT IDENT.
CE-139	3.685E-03	2.589E-02	2.594E-02	NOT IDENT.
BA-140	1.969E-01	7.836E-01	7.887E-01	NOT IDENT.
LA-140	-1.468E-01	3.635E-01	3.695E-01	NOT IDENT.
CE-141	-6.824E-02	7.689E-02	8.281E-02	NOT IDENT.
CE-143	-7.090E+05	2.063E+06	2.087E+06	SHORT HLIF
CE-144	-2.309E-02	1.684E-01	1.687E-01	FAIL ABUN
PM-144	6.249E-02	4.902E-02	5.654E-02	NOT IDENT.
PR-144	4.697E+00	3.701E+00	4.264E+00	NOT IDENT.
PM-146	1.596E-02	4.625E-02	4.680E-02	NOT IDENT.
ND-147	1.026E+00	1.592E+00	1.658E+00	FAIL ABUN
PM-147	-1.291E+02	5.409E+02	5.440E+02	NOT IDENT.
PM-149	2.079E+04	3.583E+04	3.704E+04	SHORT HLIF
EU-150	7.497E-03	2.761E-02	2.781E-02	FAIL ABUN
EU-152	-7.380E-03	8.749E-02	8.755E-02	NOT IDENT.
GD-153	-5.693E-02	6.192E-02	6.703E-02	NOT IDENT.
EU-154	-8.753E-03	1.066E-01	1.067E-01	NOT IDENT.
EU-155	8.312E-03	7.253E-02	7.262E-02	FAIL ABUN
TB-160	-5.023E-02	1.376E-01	1.394E-01	FAIL ABUN
HO-166M	2.794E-02	6.236E-02	6.362E-02	FAIL ABUN
TM-171	-1.696E+00	2.964E+00	3.061E+00	NOT IDENT.

HF-172	-7.409E-02	1.447E-01	1.485E-01	FAIL ABUN
LU-172	-2.177E-02	7.363E-02	7.428E-02	FAIL ABUN
LU-176	-1.352E-02	2.929E-02	2.992E-02	FAIL ABUN
HF-181	-1.228E-02	6.201E-02	6.225E-02	NOT IDENT.
TA-182	-1.519E-01	1.968E-01	2.084E-01	NOT IDENT.
RE-183	-2.716E-02	5.716E-02	5.846E-02	NOT IDENT.
RE-184	6.445E-02	2.458E-01	2.475E-01	NOT IDENT.
W-188	-6.312E+00	9.579E+00	9.993E+00	FAIL ABUN
IR-192	6.201E-03	3.925E-02	3.935E-02	FAIL ABUN
HG-203	-7.337E-03	4.524E-02	4.536E-02	NOT IDENT.
TL-204	2.017E+00	1.987E+00	2.185E+00	FAIL ABUN
BI-207	6.771E-04	6.268E-02	6.268E-02	FAIL ABUN
PB-211	-3.229E-01	7.002E-01	7.152E-01	NOT IDENT.
BI-212	-4.628E-01	5.696E-01	6.066E-01	NOT IDENT.
BI-213	-1.071E-01	9.775E-02	1.090E-01	NOT IDENT.
RN-219	7.202E-02	3.573E-01	3.587E-01	FAIL ABUN
RA-223	-1.416E-01	5.898E-01	5.933E-01	FAIL ABUN
AC-225	5.712E-01	1.666E+00	1.686E+00	NOT IDENT.
AC-227	2.238E-02	2.242E-01	2.244E-01	FAIL ABUN
TH-227	2.238E-02	2.242E-01	2.244E-01	FAIL ABUN
AC-228	2.144E-01	1.611E-01	1.879E-01	FAIL ABUN
RA-228	2.144E-01	1.611E-01	1.879E-01	FAIL ABUN
TH-229	2.153E-01	3.922E-01	4.040E-01	FAIL ABUN
PA-231	3.550E-01	5.081E-01	5.327E-01	NOT IDENT.
TH-231	-1.416E-01	5.898E-01	5.933E-01	FAIL ABUN
TH-232	2.144E-01	1.611E-01	1.879E-01	FAIL ABUN
PA-233	7.150E-03	6.242E-02	6.250E-02	NOT IDENT.
PA-234	-5.251E-02	3.320E-01	3.328E-01	NOT IDENT.
PA-234M	-1.064E+00	5.605E+00	5.625E+00	NOT IDENT.
NP-237	7.150E-03	6.242E-02	6.250E-02	NOT IDENT.
NP-238	-4.942E+03	9.986E+03	1.023E+04	SHORT HLIF
NP-239	1.635E-02	2.076E-01	2.078E-01	NOT IDENT.
PU-239	1.829E+01	2.545E+02	2.546E+02	NOT IDENT.
AM-241	-1.053E-02	3.846E-02	3.875E-02	NOT IDENT.
CM-243	-3.669E-02	6.804E-02	7.002E-02	NOT IDENT.
BK-247	-1.263E-02	6.909E-02	6.932E-02	NOT IDENT.
CM-247	4.718E-03	3.365E-02	3.371E-02	NOT IDENT.
CF-249	-1.804E-02	3.708E-02	3.796E-02	NOT IDENT.
CF-251	-2.455E-02	1.108E-01	1.114E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	12.1714	85.43	21.0460	131.20	20.4553
45.60	25.3284	86.55	19.3505	133.02	25.4160
46.54	25.4288	86.79	19.3628	133.52	28.3761
49.72	0.0000	86.94	26.4146	136.00	31.4619
51.35	19.6419	87.09	26.4253	136.47	26.5699
51.87	23.6180	87.57	26.4590	140.51	0.0000
52.39	25.2432	88.03	26.4915	143.76	23.9421
52.97	20.5557	88.34	26.5132	144.24	20.9680
53.44	17.4244	88.47	26.5224	145.44	33.0222
54.07	21.4354	89.96	26.6263	152.43	34.4503
57.36	0.0000	1093.63	17.7823	153.25	17.2501
57.53	28.1430	91.11	17.8040	323.87	14.2296
57.98	33.0207	92.59	26.2118	156.02	34.6661
59.27	33.9814	93.35	26.2626	158.56	20.4810
59.32	30.7505	94.56	26.3432	159.00	22.5458
59.54	30.7744	94.65	26.3490	162.33	22.6727
60.96	26.0438	94.67	26.3504	162.66	24.7474
61.17	27.1487	94.87	26.3636	163.33	26.8399
62.93	30.3166	97.43	28.9438	165.86	20.7327
63.29	30.3534	98.43	29.9216	176.31	28.4630
63.58	30.3830	98.44	28.1089	176.60	31.6402
64.28	39.5080	99.53	24.5468	177.52	25.3484
66.73	28.7641	100.11	26.4021	181.07	0.0000
67.24	29.0885	102.03	25.6091	181.52	29.7568
125.81	39.1173	103.18	27.5132	184.41	18.1463
67.75	39.1259	103.37	27.5256	143.76	18.1823
68.89	38.4328	105.21	25.8014	193.51	14.0656
69.67	36.0152	105.31	25.8074	197.03	18.8502
70.82	22.4150	106.12	23.0854	198.01	20.6917
70.83	35.8652	106.47	24.9524	201.83	20.8044
72.81	32.7014	109.28	27.9032	203.43	16.0958
72.87	31.5795	111.00	35.4809	205.31	19.0723
74.66	26.0807	111.76	0.0000	210.85	23.6536
74.82	26.0933	114.06	31.0213	215.65	21.2037
74.97	26.1050	116.30	0.0000	218.12	13.4361
77.11	26.2702	116.74	28.3658	222.11	20.2604
78.74	26.3946	119.76	26.6454	227.09	19.2589
79.69	26.4665	121.12	24.8130	227.38	18.1328
80.03	26.4917	121.22	24.8181	228.16	0.0000
80.12	26.4988	121.78	32.4924	228.18	15.8824
80.19	26.5041	122.06	26.7740	116.74	15.8824
80.57	26.5327	122.92	25.8639	235.69	24.4329
81.00	26.5650	123.07	26.8302	235.96	32.0789
81.07	26.5701	265.00	20.1480	238.63	27.5878
81.75	26.6209	125.81	27.9448	238.98	0.0000
82.47	26.6747	127.23	23.1932	240.99	29.9736
83.79	26.7720	127.91	20.3220	242.00	16.9292
84.00	26.7875	129.30	24.2599	244.70	9.2645

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	22.2071	344.28	15.4318	563.25	11.0985
252.80	15.2014	345.93	15.4552	564.24	0.0000
254.15	0.0000	351.06	17.2530	569.33	16.2031
256.23	16.4369	351.93	17.2664	946.00	16.2051
260.90	0.0000	355.39	0.0000	569.70	18.2329
264.66	14.2266	356.01	22.8755	583.19	11.2327
264.80	14.2288	364.49	11.3496	584.27	10.7290
265.00	13.0461	366.42	0.0000	595.83	17.4897
269.46	14.3038	372.51	14.9459	427.87	14.4432
270.03	14.3130	375.05	14.9784	602.52	0.0000
271.23	11.1474	377.52	12.3614	604.72	9.3069
273.65	12.7741	356.01	15.0908	607.14	9.3199
276.40	18.0185	388.16	16.0364	609.32	15.5524
277.37	18.0377	388.63	12.4776	610.33	10.8931
277.60	14.4338	391.69	14.2965	614.28	16.2202
278.00	16.8467	264.66	13.5019	618.01	9.3779
279.20	16.8690	401.81	10.8118	620.36	12.5205
279.54	13.2589	402.40	11.7183	621.93	13.5755
279.70	16.8779	404.85	17.1608	630.19	0.0000
280.46	22.9249	410.95	9.9837	631.29	10.4976
283.69	24.2157	413.71	15.4633	633.25	8.4072
284.31	29.0786	414.70	14.5651	634.78	13.6734
285.41	20.6217	423.72	15.5851	635.95	10.5245
285.90	0.0000	427.09	8.2723	636.99	5.2653
287.50	15.8045	427.87	10.1169	657.50	8.5189
290.67	26.8367	433.94	13.8599	657.76	10.6502
293.27	0.0000	439.40	12.9894	657.90	0.0000
351.93	20.8365	440.45	16.7139	661.66	4.2690
295.96	20.8526	453.88	13.1298	664.57	0.0000
879.38	18.0393	463.37	15.1094	666.33	12.8389
299.98	22.9927	468.07	17.0555	666.50	12.8398
300.09	32.8499	473.00	17.1156	667.71	0.0000
300.13	32.8516	475.06	6.6658	677.62	6.4578
301.36	12.3349	476.78	14.3008	685.70	7.5657
302.85	27.1784	477.60	14.3091	692.65	0.0000
256.23	25.9866	482.18	13.3982	695.00	15.2037
304.85	16.0925	487.02	6.7216	696.49	8.6947
306.78	23.5662	492.35	0.0000	696.51	8.6947
308.46	17.3940	497.08	15.4701	697.00	15.2196
311.90	14.9604	505.52	10.2101	697.30	16.3092
316.51	13.7765	507.63	0.0000	697.49	17.3978
319.41	11.7225	511.00	10.7355	702.65	14.1730
320.08	11.7302	514.00	17.6021	706.68	8.7396
321.04	11.7413	514.00	17.6021	711.68	6.5713
323.87	15.1373	520.40	9.8201	720.70	7.7010
325.23	14.3154	520.69	0.0000	721.93	0.0000
328.76	13.5189	522.65	0.0000	722.78	7.7089
333.37	15.2758	527.90	0.0000	722.91	7.7095
333.97	15.2842	528.26	12.8313	723.31	5.5078
334.37	21.6609	529.59	10.8666	724.19	5.5103
338.28	17.0512	529.87	0.0000	727.33	11.0376
338.32	17.0520	531.02	4.9441	733.00	7.7477
311.90	14.0961	537.26	9.9276	735.93	9.9756
340.48	14.0961	546.56	0.0000	333.97	4.4368
340.55	14.0971	552.55	13.0302	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	4.4515	949.00	3.6483	1384.29	4.2107
747.24	6.6870	667.71	0.0000	1408.01	5.2982
748.06	8.9193	962.31	11.9185	1434.09	1.0673
752.31	8.9375	964.08	5.5047	1435.80	2.1355
753.82	12.2980	966.17	14.6909	1457.56	0.0000
756.73	6.7173	911.20	8.2724	1460.82	4.2998
756.80	6.7175	983.53	6.4700	1489.16	2.1661
884.68	7.8636	984.45	0.0000	1505.03	3.2628
765.81	5.6219	1274.44	4.6437	1584.12	5.5484
766.42	5.6234	1001.03	9.3039	1596.21	6.6779
766.84	7.8744	1002.74	5.5858	1620.50	6.7178
772.60	0.0000	1004.73	8.3850	1621.92	4.4802
776.52	10.1700	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	1.8219
778.90	9.0501	1028.54	0.0000	1750.46	0.0000
783.70	11.3379	1037.84	3.7722	1764.49	1.8529
788.74	9.0915	1038.76	0.0000	1063.66	4.6384
792.07	6.8289	631.29	10.4065	1771.35	2.7836
795.86	11.4014	1048.07	8.5188	1791.20	0.0000
810.06	5.7373	1049.04	7.5747	1808.65	1.8713
810.29	2.2952	1050.41	4.7366	1810.72	0.0000
344.28	2.2953	1063.66	8.5660	1836.06	0.9413
810.76	4.5913	1077.00	4.7815		
815.77	8.6279	1077.34	10.5200		
1048.07	10.3660	1085.87	4.7961		
832.01	3.4761	1093.63	8.6561		
834.85	9.2809	1099.45	4.8187		
835.71	8.1239	1112.07	8.7111		
836.80	0.0000	1112.84	5.8088		
846.75	0.0000	1115.54	5.8143		
846.77	3.4984	1120.29	5.8239		
856.80	10.5406	1120.55	4.8535		
860.56	11.2613	1221.41	3.8838		
871.09	7.0698	1129.67	7.7896		
873.19	5.3069	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	6.2075	1173.23	4.9390		
880.51	7.9849	1177.95	7.9146		
881.60	6.2132	1189.05	2.6476		
883.24	4.4411	1204.77	10.9758		
884.68	4.4438	1221.41	7.0214		
889.28	6.2331	1231.02	2.0122		
894.76	7.1396	1235.36	5.0372		
898.04	11.6178	1238.28	1.0084		
900.72	8.9465	1260.41	0.0000		
903.28	9.5527	1271.87	5.0940		
911.20	6.2893	1274.44	4.0784		
912.08	1.4381	1274.54	4.0784		
923.98	0.0000	1291.59	6.1490		
926.50	5.4241	1298.22	0.0000		
929.11	2.7149	1312.11	6.1864		
935.54	5.4435	1332.49	8.2979		
937.49	5.4478	1362.66	0.0000		
944.13	3.6414	1365.19	3.1410		
946.00	8.1991	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 14:38:57.50

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299020.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM06.CNF;954
Background date    : 28-JUL-2024 11:21:57
Sample date       : 26-JUN-2024 10:45:00 Acquisition date : 30-JUL-2024 13:38:07
Sample ID        : G674299020 Sample quantity : 1.21040E+02 GRAM
Detector name     : GAM06 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.66 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.39*	38	112	1.01	125.59	123	6	1.05E-02	48.7	
2	2	73.59	26	100	0.89	146.00	143	14	7.28E-03	59.0	1.47E+01
3	2	77.24	260	145	1.09	153.31	143	14	7.21E-02	10.0	
4	5	84.17	64	149	1.48	167.17	163	29	1.77E-02	35.2	1.06E+00
5	5	87.41	138	135	1.49	173.66	163	29	3.83E-02	17.3	
6	5	90.07	90	95	1.18	178.98	163	29	2.49E-02	21.9	
7	5	93.07*	127	108	1.51	184.99	163	29	3.53E-02	18.9	
8	0	104.88	27	111	1.44	208.62	205	8	7.46E-03	70.4	
9	3	129.40	35	99	1.35	257.67	252	14	9.80E-03	53.2	1.37E+00
10	3	131.39	31	90	1.31	261.66	252	14	8.72E-03	58.9	
11	9	150.92	14	50	1.38	300.75	299	12	3.96E-03	75.6	2.16E+00
12	9	153.87	24	116	1.83	306.65	299	12	6.67E-03	82.7	
13	0	186.54*	98	174	1.74	372.02	366	14	2.72E-02	31.1	
14	0	202.83	21	70	1.42	404.61	402	7	5.90E-03	68.3	
15	0	210.06	48	85	1.06	419.07	415	9	1.34E-02	37.4	
16	3	238.76*	469	48	1.09	476.52	473	18	1.30E-01	5.3	1.78E+00
17	3	241.99	127	66	1.61	482.99	473	18	3.54E-02	16.4	
18	2	256.48	38	39	1.49	511.97	508	13	1.05E-02	33.9	2.34E+00
19	2	258.73	18	37	1.49	516.48	508	13	4.95E-03	70.2	
20	1	295.34*	203	39	1.34	589.74	584	23	5.65E-02	8.8	1.64E+00
21	1	300.06	33	28	1.42	599.19	584	23	9.06E-03	39.9	
22	0	317.22	25	56	1.38	633.53	629	11	6.97E-03	60.7	
23	0	322.22	19	51	0.66	643.53	639	10	5.39E-03	71.9	
24	0	338.52	93	78	1.09	676.15	670	12	2.57E-02	21.7	
25	0	352.24*	288	109	1.22	703.62	697	14	8.01E-02	9.7	
26	0	437.57	18	24	0.94	874.40	870	10	5.14E-03	53.6	
27	0	511.00*	56	45	2.29	1021.36	1013	18	1.56E-02	34.8	
28	0	534.18	34	19	4.89	1067.77	1060	13	9.43E-03	31.8	
29	0	544.67	12	12	0.58	1088.77	1085	9	3.44E-03	56.7	
30	0	583.13*	118	50	1.28	1165.74	1161	12	3.27E-02	15.4	
31	0	609.32*	194	26	1.46	1218.16	1212	11	5.40E-02	8.8	
32	0	728.11	20	30	1.43	1455.97	1448	11	5.53E-03	58.0	
33	0	755.34	12	14	0.81	1510.48	1506	9	3.19E-03	64.7	
34	0	768.85	40	24	2.51	1537.53	1529	19	1.11E-02	33.3	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	860.47	22	21	1.80	1720.96	1711	17	6.12E-03	52.4	4.85E-01
36	6	866.99	8	0	1.72	1734.02	1732	10	2.17E-03	31.4	
37	6	869.48	13	0	1.34	1739.01	1732	10	3.64E-03	27.6	
38	0	910.84*	77	16	1.21	1821.82	1816	13	2.15E-02	16.1	
39	0	933.42	15	4	2.55	1867.03	1863	8	4.17E-03	34.6	
40	0	969.36	33	27	1.93	1938.98	1932	13	9.24E-03	37.5	
41	0	990.25	8	6	1.19	1980.82	1976	8	2.25E-03	62.9	
42	0	1119.78	48	9	0.97	2240.20	2234	13	1.32E-02	19.8	
43	0	1172.97	8	5	1.43	2346.71	2342	9	2.14E-03	69.0	
44	0	1286.77*	11	0	0.62	2574.62	2569	12	3.12E-03	33.1	
45	0	1372.98	12	4	3.68	2747.28	2741	13	3.19E-03	44.0	
46	0	1378.08	11	6	1.11	2757.50	2753	12	3.06E-03	53.8	
47	0	1460.28	151	7	2.20	2922.15	2915	14	4.19E-02	8.9	
48	0	1763.87	43	4	1.63	3530.36	3523	14	1.21E-02	17.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299020.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 26-JUN-2024 10:45:00	Acquisition date	: 30-JUL-2024 13:38:07
Sample ID	: G674299020	Sample quantity	: 121.04 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA6	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.66 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	143	10.66*	9.865E-01	8.433E+00	8.433E+00	17.89
CD-109	88.03	151	3.70*	5.267E+00	4.815E+00	5.068E+00	34.65
SN-126	64.28	42	9.60	2.654E+00	1.022E+00	1.022E+00	97.36
	86.94	151	8.90	5.267E+00	2.002E+00	2.002E+00	34.65
	87.57	151	37.00*	5.267E+00	4.815E-01	4.815E-01	34.65
EU-155	86.55	151	30.70	5.267E+00	5.803E-01	5.882E-01	34.65
	105.31	29	21.10*	6.041E+00	1.420E-01	1.440E-01	140.89
TL-208	277.37	-----	6.60	3.940E+00	-----	Line Not Found	-----
	583.19	117	85.00*	2.228E+00	3.836E-01	3.836E-01	30.72
	860.56	21	12.50	1.593E+00	6.691E-01	6.691E-01	104.80
BI-211	72.87	29	1.23	3.977E+00	3.672E+00	3.672E+00	118.05
	351.06	295	12.92*	3.292E+00	4.299E+00	4.299E+00	19.45
BI-212	727.33	20	6.67*	1.849E+00	9.848E-01	9.848E-01	115.99
	1620.50	-----	1.47	9.117E-01	-----	Line Not Found	-----
PB-212	74.82	29	10.28	3.977E+00	4.394E-01	4.394E-01	118.05
	77.11	286	17.10	4.382E+00	2.371E+00	2.371E+00	20.07
	238.63	489	43.60*	4.404E+00	1.580E+00	1.580E+00	10.61
	300.09	34	3.30	3.714E+00	1.702E+00	1.702E+00	79.71
BI-214	609.32	193	45.49*	2.149E+00	1.225E+00	1.225E+00	17.65
	1120.29	46	14.92	1.248E+00	1.522E+00	1.522E+00	39.61
	1764.49	41	15.30	8.636E-01	1.912E+00	1.912E+00	35.42
PB-214	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
RN-222	609.32	193	45.49*	2.149E+00	1.225E+00	1.225E+00	17.65
	1120.29	46	14.92	1.248E+00	1.522E+00	1.522E+00	39.61
	1764.49	41	15.30	8.636E-01	1.912E+00	1.912E+00	35.42
RA-224	240.99	133	4.10*	4.360E+00	4.605E+00	4.605E+00	32.82
RA-226	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
AC-228	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90
RA-228	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90
TH-228	74.82	29	10.28	3.977E+00	4.394E-01	4.394E-01	118.05
	77.11	286	17.10	4.382E+00	2.371E+00	2.371E+00	20.07

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-229	238.63	489	43.60*	4.404E+00	1.580E+00	1.580E+00	10.61
	300.09	34	3.30	3.714E+00	1.702E+00	1.702E+00	79.71
	85.43	70	14.70	5.023E+00	5.892E-01	5.892E-01	70.48
	88.47	151	24.00	5.267E+00	7.422E-01	7.422E-01	34.65
	193.51	-----	4.41*	5.103E+00	-----	Line Not Found	-----
TH-230	210.85	51	2.80	4.827E+00	2.323E+00	2.323E+00	74.83
	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
PA-231	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
	283.69	-----	1.70	3.874E+00	-----	Line Not Found	-----
	301.36	34	5.35*	3.714E+00	1.050E+00	1.050E+00	79.71
	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
TH-232	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90
	63.29	42	3.70*	2.654E+00	2.651E+00	2.651E+00	97.36
U-234	92.59	139	4.23	5.610E+00	3.633E+00	3.633E+00	37.89
	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
U-235	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
	89.96	98	3.47	5.440E+00	3.229E+00	3.229E+00	43.80
	93.35	139	5.60	5.610E+00	2.744E+00	2.744E+00	37.89
	143.76	-----	10.96*	5.983E+00	-----	Line Not Found	-----
U-238	163.33	-----	5.08	5.649E+00	-----	Line Not Found	-----
	185.72	103	57.20	5.226E+00	2.146E-01	2.146E-01	62.15
	205.31	-----	5.01	4.904E+00	-----	Line Not Found	-----
	63.29	42	3.70*	2.654E+00	2.651E+00	2.651E+00	97.36
	92.59	139	4.23	5.610E+00	3.633E+00	3.633E+00	37.89
AM-243	43.53	-----	5.90	3.651E-01	-----	Line Not Found	-----
ANH-511	74.66	29	67.20*	3.977E+00	6.722E-02	6.722E-02	118.05
	511.00	56	100.00*	2.476E+00	1.413E-01	1.413E-01	69.56

Flag: "*" = Keyline

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
*                                     DETECTOR AND SAMPLE DATA                *
*                                     *                                     *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299020.CNF;1 *
* Acquisition date   : 30-JUL-2024 13:38:07 Sensitivity      : 3.000          *
* Detector ID        : GAM06 Energy tolerance: 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000          *
* Elapsed real time  : 0 01:00:00.66 Half life ratio : *****          *
* Sample date        : 26-JUN-2024 10:45:00 Analyst initials: RXF2          *
* Sample ID          : G674299020 Sample Quantity : 1.2104E+02 GRAM          *
* Batch Number       : 2636542 Wet Weight : 0.00000          *
* Wet wt corr        : 1.00000 Dry Weight : 0.00000          *
* Nuclide Library    : SOLID.NLB;17                                         *
*****
*                                     CALIBRATION INFORMATION                  *
*                                     *                                     *
* Eff. Cal. date     : 25-SEP-2023 07:18:20 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22          *
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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	8.433E+00	1.479E+00	6.616E-01
CD-109	5.068E+00	1.721E+00	1.388E+00
SN-126	4.815E-01	1.635E-01	1.326E-01
EU-155	1.440E-01	1.988E-01	2.024E-01
TL-208	3.836E-01	1.155E-01	8.174E-02
BI-211	4.299E+00	8.194E-01	3.855E-01
BI-212	9.848E-01	1.119E+00	1.178E+00
PB-212	1.580E+00	1.642E-01	1.217E-01
BI-214	1.225E+00	2.119E-01	1.559E-01
PB-214	1.560E+00	2.974E-01	1.402E-01
RN-222	1.225E+00	2.119E-01	1.559E-01
RA-224	4.605E+00	1.481E+00	1.305E+00
RA-226	1.560E+00	2.974E-01	1.402E-01
AC-228	1.194E+00	3.775E-01	2.923E-01
RA-228	1.194E+00	3.775E-01	2.923E-01
TH-228	1.580E+00	1.642E-01	1.217E-01
TH-229	6.962E-02	5.826E-01	1.056E+00
TH-230	1.560E+00	2.974E-01	1.402E-01
PA-231	1.050E+00	8.201E-01	9.226E-01
TH-232	1.194E+00	3.775E-01	2.923E-01
TH-234	2.651E+00	2.529E+00	2.736E+00
U-234	1.560E+00	2.974E-01	1.402E-01
U-235	1.539E-01	2.081E-01	3.992E-01
U-238	2.651E+00	2.529E+00	2.736E+00
AM-243	6.722E-02	7.776E-02	1.024E-01
ANH-511	1.413E-01	9.630E-02	5.734E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	-2.131E-01	5.380E-01	9.642E-01	NOT IDENT.
NA-22	-6.843E-03	4.235E-02	8.226E-02	NOT IDENT.
NA-24	0.000E+00	1.437E+15	0.000E+00	SHORT HLIF
AL-26	-8.381E-03	3.664E-02	7.573E-02	NOT IDENT.

SC-46	-2.327E-02	4.952E-02	9.137E-02	FAIL ABUN
V-48	-3.740E-02	1.568E-01	3.038E-01	NOT IDENT.
CR-51	8.234E-01	7.156E-01	1.287E+00	NOT IDENT.
MN-52	1.770E+00	2.134E+00	5.701E+00	NOT IDENT.
MN-54	-1.342E-02	4.234E-02	8.018E-02	NOT IDENT.
CO-56	-3.579E-03	5.338E-02	1.051E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-2.469E-03	2.679E-02	4.935E-02	NOT IDENT.
CO-58	7.241E-04	4.979E-02	1.005E-01	NOT IDENT.
FE-59	2.860E-02	1.357E-01	2.774E-01	NOT IDENT.
CO-60	8.431E-04	4.268E-02	8.647E-02	FAIL ABUN
ZN-65	8.469E-02	8.540E-02	1.965E-01	NOT IDENT.
GE-68	-9.270E-01	1.360E+00	2.336E+00	NOT IDENT.
AS-73	-2.725E-01	1.173E+00	2.266E+00	NOT IDENT.
AS-74	-1.673E-01	2.433E-01	4.086E-01	NOT IDENT.
SE-75	-3.417E-03	5.689E-02	9.982E-02	NOT IDENT.
BR-77	0.000E+00	6.542E+03	0.000E+00	SHORT HLIF
SR-82	3.401E-01	6.747E-01	1.318E+00	NOT IDENT.
RB-83	-4.694E-02	8.906E-02	1.567E-01	NOT IDENT.
RB-84	-3.430E-02	9.010E-02	1.725E-01	NOT IDENT.
KR-85	4.315E+00	7.639E+00	1.553E+01	NOT IDENT.
SR-85	2.777E-02	4.942E-02	1.004E-01	NOT IDENT.
RB-86	-9.921E-01	1.682E+00	2.961E+00	NOT IDENT.
Y-88	-2.684E-02	4.725E-02	8.534E-02	NOT IDENT.
Y-91	3.771E-01	3.164E+01	6.098E+01	NOT IDENT.
NB-94	2.484E-02	4.005E-02	8.118E-02	NOT IDENT.
NB-95	3.235E-02	6.327E-02	1.214E-01	NOT IDENT.
NB-95M	1.873E-02	2.021E-01	3.294E-01	NOT IDENT.
ZR-95	1.041E-01	1.320E-01	2.005E-01	FAIL ABUN
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.515E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.720E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.465E+39	0.000E+00	SHORT HLIF
RH-101	-7.623E-03	3.472E-02	5.802E-02	NOT IDENT.
RH-102	-7.105E-04	6.606E-02	1.237E-01	NOT IDENT.
RU-103	5.124E-03	6.077E-02	1.177E-01	FAIL ABUN
RH-106	7.729E-02	3.373E-01	6.686E-01	NOT IDENT.
RU-106	7.729E-02	3.373E-01	6.686E-01	NOT IDENT.
AG-108M	-2.866E-03	3.207E-02	5.500E-02	NOT IDENT.
AG-110	2.841E-01	8.627E-01	1.709E+00	NOT IDENT.
AG-110M	3.855E-02	5.146E-02	1.176E-01	NOT IDENT.
SN-113	-2.494E-02	5.616E-02	1.023E-01	NOT IDENT.
CD-115	0.000E+00	4.688E+03	0.000E+00	SHORT HLIF
SN-117M	3.814E-02	1.567E-01	2.905E-01	NOT IDENT.
SB-122	0.000E+00	3.049E+02	0.000E+00	SHORT HLIF
TE-123M	-2.220E-03	3.517E-02	6.341E-02	NOT IDENT.
SB-124	6.551E-02	9.417E-02	2.597E-01	NOT IDENT.
SB-125	-8.026E-02	1.017E-01	1.752E-01	FAIL ABUN
TE-125M	-2.686E+00	1.249E+01	2.289E+01	NOT IDENT.
I-126	7.745E-01	7.445E-01	1.584E+00	NOT IDENT.
SB-126	-3.624E-02	5.108E-01	8.933E-01	NOT IDENT.
SB-127	-1.024E+01	4.591E+01	8.295E+01	NOT IDENT.
I-131	4.159E-02	6.033E-01	1.184E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	0.000E+00	5.516E+01	0.000E+00	SHORT HLIF
BA-133	-6.343E-03	5.228E-02	8.891E-02	NOT IDENT.
I-133	0.000E+00	3.045E+10	0.000E+00	SHORT HLIF
CS-134	2.362E-02	5.491E-02	1.126E-01	NOT IDENT.
I-135	0.000E+00	4.380E+36	0.000E+00	SHORT HLIF
CS-136	-1.040E-01	3.285E-01	6.128E-01	FAIL ABUN
BA-137M	2.002E-02	3.806E-02	7.806E-02	NOT IDENT.
CS-137	2.115E-02	4.020E-02	8.246E-02	NOT IDENT.
LA-138	-5.752E-02	6.627E-02	9.957E-02	NOT IDENT.
CE-139	-1.439E-02	3.504E-02	6.111E-02	NOT IDENT.
BA-140	-7.678E-02	8.754E-01	1.472E+00	NOT IDENT.
LA-140	-3.407E-01	3.303E-01	5.187E-01	NOT IDENT.
CE-141	-5.921E-02	1.002E-01	1.734E-01	NOT IDENT.
CE-143	0.000E+00	2.035E+06	0.000E+00	SHORT HLIF
CE-144	-3.918E-02	2.098E-01	3.521E-01	NOT IDENT.
PM-144	2.115E-02	4.297E-02	8.555E-02	NOT IDENT.
PR-144	1.598E+00	3.248E+00	6.466E+00	NOT IDENT.
PM-146	-5.411E-03	4.476E-02	8.475E-02	NOT IDENT.
ND-147	-1.380E-01	2.179E+00	3.688E+00	FAIL ABUN
PM-147	1.282E+02	7.793E+02	1.464E+03	NOT IDENT.
PM-149	0.000E+00	3.612E+04	0.000E+00	SHORT HLIF
EU-150	-3.778E-03	3.156E-02	5.409E-02	FAIL ABUN
EU-152	-2.507E-02	1.087E-01	2.045E-01	NOT IDENT.
GD-153	3.649E-02	9.066E-02	1.650E-01	NOT IDENT.

EU-154	-1.275E-02	1.205E-01	2.367E-01	FAIL ABUN
TB-160	-1.086E-01	1.565E-01	2.764E-01	FAIL ABUN
HO-166M	1.804E-03	7.946E-02	1.467E-01	NOT IDENT.
TM-171	5.721E+00	2.224E+01	4.459E+01	NOT IDENT.
HF-172	5.254E-02	2.074E-01	3.652E-01	FAIL ABUN
LU-172	7.489E-02	8.208E-02	1.813E-01	FAIL ABUN
LU-176	1.075E-02	2.882E-02	5.787E-02	FAIL ABUN
HF-181	-7.607E-02	7.307E-02	1.191E-01	NOT IDENT.
TA-182	5.134E-03	2.546E-01	4.903E-01	FAIL ABUN
RE-183	-1.146E-01	2.926E-01	5.517E-01	NOT IDENT.
RE-184	-6.122E-02	2.010E-01	3.807E-01	NOT IDENT.
W-188	-4.180E+00	9.607E+00	1.594E+01	FAIL ABUN
IR-192	7.486E-02	8.906E-02	1.015E-01	FAIL ABUN
HG-203	-1.976E-02	5.673E-02	1.066E-01	FAIL ABUN
TL-204	1.930E+00	5.272E+00	9.685E+00	NOT IDENT.
BI-207	4.221E-03	6.644E-02	1.304E-01	FAIL ABUN
BI-210	-9.804E-01	4.735E+00	9.234E+00	NOT IDENT.
PB-210	-9.804E-01	4.735E+00	9.234E+00	NOT IDENT.
PB-211	-4.114E-01	8.947E-01	1.613E+00	NOT IDENT.
BI-213	-7.816E-02	1.171E-01	1.765E-01	NOT IDENT.
RN-219	1.945E-01	4.975E-01	9.830E-01	NOT IDENT.
RA-223	-1.155E-01	7.925E-01	1.351E+00	FAIL ABUN
AC-225	-2.428E+00	2.512E+00	4.001E+00	NOT IDENT.
AC-227	0.000E+00	4.065E-01	5.704E-01	FAIL ABUN
TH-227	0.000E+00	4.065E-01	5.704E-01	FAIL ABUN
TH-231	-1.155E-01	7.925E-01	1.351E+00	FAIL ABUN
PA-233	2.984E-02	7.159E-02	1.440E-01	FAIL ABUN
PA-234	7.253E-02	3.004E-01	6.341E-01	FAIL ABUN
PA-234M	4.643E-01	4.891E+00	9.894E+00	NOT IDENT.
NP-237	2.984E-02	7.159E-02	1.440E-01	FAIL ABUN
NP-238	0.000E+00	8.775E+03	0.000E+00	SHORT HLIF
NP-239	-2.895E-03	2.737E-01	5.080E-01	FAIL ABUN
PU-239	6.057E+02	6.315E+02	7.922E+02	FAIL ABUN
AM-241	-4.380E-02	1.808E-01	3.446E-01	NOT IDENT.
CM-243	-3.577E-02	1.102E-01	1.850E-01	NOT IDENT.
BK-247	-2.150E-03	9.064E-02	1.599E-01	FAIL ABUN
CM-247	1.081E-02	4.414E-02	8.631E-02	NOT IDENT.
CF-249	2.589E-02	4.621E-02	9.362E-02	NOT IDENT.
CF-251	6.355E-02	1.338E-01	2.533E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	143	10.66*	9.865E-01	8.433E+00	8.433E+00	17.89
CD-109	88.03	151	3.70*	5.267E+00	4.815E+00	5.068E+00	34.65
SN-126	64.28	42	9.60	2.654E+00	1.022E+00	1.022E+00	97.36
	86.94	151	8.90	5.267E+00	2.002E+00	2.002E+00	34.65
	87.57	151	37.00*	5.267E+00	4.815E-01	4.815E-01	34.65
EU-155	86.55	151	30.70	5.267E+00	5.803E-01	5.882E-01	34.65
	105.31	29	21.10*	6.041E+00	1.420E-01	1.440E-01	140.89
TL-208	277.37	-----	6.60	3.940E+00	-----	Line Not Found	-----
	583.19	117	85.00*	2.228E+00	3.836E-01	3.836E-01	30.72
	860.56	21	12.50	1.593E+00	6.691E-01	6.691E-01	104.80
BI-211	72.87	29	1.23	3.977E+00	3.672E+00	3.672E+00	118.05
	351.06	295	12.92*	3.292E+00	4.299E+00	4.299E+00	19.45
BI-212	727.33	20	6.67*	1.849E+00	9.848E-01	9.848E-01	115.99
	1620.50	-----	1.47	9.117E-01	-----	Line Not Found	-----
PB-212	74.82	29	10.28	3.977E+00	4.394E-01	4.394E-01	118.05
	77.11	286	17.10	4.382E+00	2.371E+00	2.371E+00	20.07
	238.63	489	43.60*	4.404E+00	1.580E+00	1.580E+00	10.61
	300.09	34	3.30	3.714E+00	1.702E+00	1.702E+00	79.71
BI-214	609.32	193	45.49*	2.149E+00	1.225E+00	1.225E+00	17.65
	1120.29	46	14.92	1.248E+00	1.522E+00	1.522E+00	39.61
	1764.49	41	15.30	8.636E-01	1.912E+00	1.912E+00	35.42
PB-214	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
RN-222	609.32	193	45.49*	2.149E+00	1.225E+00	1.225E+00	17.65
	1120.29	46	14.92	1.248E+00	1.522E+00	1.522E+00	39.61
	1764.49	41	15.30	8.636E-01	1.912E+00	1.912E+00	35.42
RA-224	240.99	133	4.10*	4.360E+00	4.605E+00	4.605E+00	32.82
RA-226	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
AC-228	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90
RA-228	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	29	10.28	3.977E+00	4.394E-01	4.394E-01	118.05
	77.11	286	17.10	4.382E+00	2.371E+00	2.371E+00	20.07
	238.63	489	43.60*	4.404E+00	1.580E+00	1.580E+00	10.61
	300.09	34	3.30	3.714E+00	1.702E+00	1.702E+00	79.71
TH-229	85.43	70	14.70	5.023E+00	5.892E-01	5.892E-01	70.48
	88.47	151	24.00	5.267E+00	7.422E-01	7.422E-01	34.65
	193.51	-----	4.41*	5.103E+00	-----	Line Not Found	-----
	210.85	51	2.80	4.827E+00	2.323E+00	2.323E+00	74.83
TH-230	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
PA-231	283.69	-----	1.70	3.874E+00	-----	Line Not Found	-----
TH-232	301.36	34	5.35*	3.714E+00	1.050E+00	1.050E+00	79.71
	105.21	29	1.10	6.041E+00	2.724E+00	2.724E+00	140.89
	338.32	95	11.27	3.392E+00	1.539E+00	1.539E+00	43.48
	835.71	-----	1.61	1.636E+00	-----	Line Not Found	-----
TH-234	911.20	75	25.80*	1.512E+00	1.194E+00	1.194E+00	32.27
	968.97	32	15.80	1.428E+00	8.857E-01	8.857E-01	74.90
	63.29	42	3.70*	2.654E+00	2.651E+00	2.651E+00	97.36
	92.59	139	4.23	5.610E+00	3.633E+00	3.633E+00	37.89
U-234	74.82	29	5.80	3.977E+00	7.788E-01	7.788E-01	118.05
	77.11	286	9.70	4.382E+00	4.179E+00	4.179E+00	20.07
	87.09	151	3.41	5.267E+00	5.224E+00	5.224E+00	34.65
	242.00	133	7.25	4.360E+00	2.604E+00	2.604E+00	32.82
	295.22	210	18.42	3.759E+00	1.878E+00	1.878E+00	17.64
U-235	351.93	295	35.60*	3.292E+00	1.560E+00	1.560E+00	19.45
	89.96	98	3.47	5.440E+00	3.229E+00	3.229E+00	43.80
	93.35	139	5.60	5.610E+00	2.744E+00	2.744E+00	37.89
	143.76	-----	10.96*	5.983E+00	-----	Line Not Found	-----
	163.33	-----	5.08	5.649E+00	-----	Line Not Found	-----
U-238	185.72	103	57.20	5.226E+00	2.146E-01	2.146E-01	62.15
	205.31	-----	5.01	4.904E+00	-----	Line Not Found	-----
	63.29	42	3.70*	2.654E+00	2.651E+00	2.651E+00	97.36
	92.59	139	4.23	5.610E+00	3.633E+00	3.633E+00	37.89
AM-243	43.53	-----	5.90	3.651E-01	-----	Line Not Found	-----
ANH-511	74.66	29	67.20*	3.977E+00	6.722E-02	6.722E-02	118.05
	511.00	56	100.00*	2.476E+00	1.413E-01	1.413E-01	69.56

Flag: "*" = Keyline

Total number of lines in spectrum 48
Number of unidentified lines 13
Number of lines tentatively identified by NID 35 72.92%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	8.433E+00	8.433E+00	1.509E+00	17.89	
CD-109	461.40D	1.05	4.815E+00	5.068E+00	1.756E+00	34.65	
SN-126	2.30E+05Y	1.00	4.815E-01	4.815E-01	1.668E-01	34.65	
EU-155	4.75Y	1.01	1.420E-01	1.440E-01	2.028E-01	140.89	
TL-208	1.41E+10Y	1.00	3.836E-01	3.836E-01	1.178E-01	30.72	
BI-211	7.04E+08Y	1.00	4.299E+00	4.299E+00	0.836E+00	19.45	
BI-212	1.41E+10Y	1.00	9.848E-01	9.848E-01	11.42E-01	115.99	
PB-212	1.41E+10Y	1.00	1.580E+00	1.580E+00	0.168E+00	10.61	
BI-214	1600.00Y	1.00	1.225E+00	1.225E+00	0.216E+00	17.65	
PB-214	1600.00Y	1.00	1.560E+00	1.560E+00	0.303E+00	19.45	
RN-222	1600.00Y	1.00	1.225E+00	1.225E+00	0.216E+00	17.65	
RA-224	1.41E+10Y	1.00	4.605E+00	4.605E+00	1.511E+00	32.82	
RA-226	1600.00Y	1.00	1.560E+00	1.560E+00	0.303E+00	19.45	
AC-228	1.41E+10Y	1.00	1.194E+00	1.194E+00	0.385E+00	32.27	
RA-228	1.41E+10Y	1.00	1.194E+00	1.194E+00	0.385E+00	32.27	
TH-228	1.41E+10Y	1.00	1.580E+00	1.580E+00	0.168E+00	10.61	
TH-229	7340.00Y	1.00	7.422E-01	7.422E-01	2.572E-01	34.65	K
TH-230	7.54E+04Y	1.00	1.560E+00	1.560E+00	0.303E+00	19.45	
PA-231	7.04E+08Y	1.00	1.050E+00	1.050E+00	0.837E+00	79.71	
TH-232	1.41E+10Y	1.00	1.194E+00	1.194E+00	0.385E+00	32.27	
TH-234	4.47E+09Y	1.00	2.651E+00	2.651E+00	2.581E+00	97.36	
U-234	2.45E+05Y	1.00	1.560E+00	1.560E+00	0.303E+00	19.45	
U-235	7.04E+08Y	1.00	2.146E-01	2.146E-01	1.334E-01	62.15	K
U-238	4.47E+09Y	1.00	2.651E+00	2.651E+00	2.581E+00	97.36	
AM-243	7370.00Y	1.00	6.722E-02	6.722E-02	7.935E-02	118.05	
ANH-511	1.00E+09Y	1.00	1.413E-01	1.413E-01	0.983E-01	69.56	
Total Activity :			4.709E+01	4.735E+01			

Grand Total Activity : 4.709E+01 4.735E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	129.40	38	107	1.35	257.67	252	14	9.80E-03	****	6.16E+00	T
3	131.39	34	97	1.31	261.66	252	14	8.72E-03	****	6.14E+00	T
9	150.92	15	54	1.38	300.75	299	12	3.96E-03	****	5.87E+00	
9	153.87	26	123	1.83	306.65	299	12	6.67E-03	****	5.82E+00	T
0	202.83	22	73	1.42	404.61	402	7	5.90E-03	****	4.94E+00	T
2	256.48	39	40	1.49	511.97	508	13	1.05E-02	67.8	4.18E+00	T
2	258.73	18	38	1.49	516.48	508	13	4.95E-03	****	4.15E+00	
0	317.22	26	57	1.38	633.53	629	11	6.97E-03	****	3.56E+00	T
0	322.22	20	52	0.66	643.53	639	10	5.39E-03	****	3.52E+00	T
0	437.57	19	24	0.94	874.40	870	10	5.14E-03	****	2.79E+00	
0	534.18	34	19	4.89	1067.77	1060	13	9.43E-03	63.5	2.39E+00	
0	544.67	12	12	0.58	1088.77	1085	9	3.44E-03	****	2.35E+00	
0	755.34	11	13	0.81	1510.48	1506	9	3.19E-03	****	1.79E+00	T
0	768.85	39	24	2.51	1537.53	1529	19	1.11E-02	66.6	1.76E+00	
6	866.99	8	0	1.72	1734.02	1732	10	2.17E-03	62.8	1.58E+00	
6	869.48	13	0	1.34	1739.01	1732	10	3.64E-03	55.1	1.58E+00	
0	933.42	15	4	2.55	1867.03	1863	8	4.17E-03	69.3	1.48E+00	
0	990.25	8	6	1.19	1980.82	1976	8	2.25E-03	****	1.40E+00	
0	1172.97	7	5	1.43	2346.71	2342	9	2.14E-03	****	1.20E+00	T
0	1286.77	11	0	0.62	2574.62	2569	12	3.12E-03	66.1	1.10E+00	
0	1372.98	11	3	3.68	2747.28	2741	13	3.19E-03	87.9	1.04E+00	
0	1378.08	10	6	1.11	2757.50	2753	12	3.06E-03	****	1.04E+00	

Flags: "T" = Tentatively associated

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299020.CNF;1
Acquisition date : 30-JUL-2024 13:38:07 Sensitivity : 3.000
Detector ID : GAM06 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.66 Half life ratio : *****
Sample date : 26-JUN-2024 10:45:00 Nuclide Library : SOLID
Sample ID : G674299020 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.2104E+02 GRAM
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	2.512E-01
CD-109	6.481E-01
SN-126	6.190E-02
EU-155	9.436E-02
TL-208	3.641E-02
BI-211	1.728E-01
BI-212	5.210E-01
PB-212	5.643E-02
BI-214	6.931E-02
PB-214	6.286E-02
RN-222	6.931E-02
RA-224	6.053E-01
RA-226	6.286E-02
AC-228	1.246E-01
RA-228	1.246E-01
TH-228	5.643E-02
TH-229	4.901E-01
TH-230	6.286E-02
PA-231	4.184E-01
TH-232	1.246E-01
TH-234	1.280E+00
U-234	6.286E-02
U-235	1.866E-01
U-238	1.280E+00
AM-243	4.806E-02
ANH-511	2.525E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.337E-01	NOT IDENT.
NA-22	3.338E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	2.804E-02	NOT IDENT.
SC-46	3.847E-02	FAIL ABUN

V-48	1.256E-01	NOT IDENT.
CR-51	5.866E-01	NOT IDENT.
MN-52	2.274E+00	NOT IDENT.
MN-54	3.454E-02	NOT IDENT.
CO-56	4.549E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.291E-02	NOT IDENT.
CO-58	4.322E-02	NOT IDENT.
FE-59	1.188E-01	NOT IDENT.
CO-60	3.528E-02	FAIL ABUN
ZN-65	8.365E-02	NOT IDENT.
GE-68	9.482E-01	NOT IDENT.
AS-73	1.047E+00	NOT IDENT.
AS-74	1.795E-01	NOT IDENT.
SE-75	4.559E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.778E-01	NOT IDENT.
RB-83	6.823E-02	NOT IDENT.
RB-84	7.011E-02	NOT IDENT.
KR-85	6.970E+00	NOT IDENT.
SR-85	4.508E-02	NOT IDENT.
RB-86	1.213E+00	NOT IDENT.
Y-88	3.023E-02	NOT IDENT.
Y-91	2.635E+01	NOT IDENT.
NB-94	3.616E-02	NOT IDENT.
NB-95	5.381E-02	NOT IDENT.
NB-95M	1.535E-01	NOT IDENT.
ZR-95	8.772E-02	FAIL ABUN
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.693E-02	NOT IDENT.
RH-102	5.450E-02	NOT IDENT.
RU-103	5.212E-02	FAIL ABUN
RH-106	2.914E-01	NOT IDENT.
RU-106	2.914E-01	NOT IDENT.
AG-108M	2.417E-02	NOT IDENT.
AG-110	7.523E-01	NOT IDENT.
AG-110M	5.062E-02	NOT IDENT.
SN-113	4.586E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.354E-01	NOT IDENT.
SB-122	0.000E+00	SHORT HLIF
TE-123M	2.954E-02	NOT IDENT.
SB-124	1.005E-01	NOT IDENT.
SB-125	7.733E-02	FAIL ABUN
TE-125M	1.066E+01	NOT IDENT.
I-126	7.119E-01	NOT IDENT.
SB-126	3.896E-01	NOT IDENT.
SB-127	3.598E+01	NOT IDENT.
I-131	5.302E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.024E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	5.035E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.586E-01	FAIL ABUN
BA-137M	3.435E-02	NOT IDENT.
CS-137	3.628E-02	NOT IDENT.
LA-138	3.700E-02	NOT IDENT.
CE-139	2.829E-02	NOT IDENT.
BA-140	6.429E-01	NOT IDENT.
LA-140	1.985E-01	NOT IDENT.
CE-141	8.056E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.623E-01	NOT IDENT.
PM-144	3.807E-02	NOT IDENT.
PR-144	2.877E+00	NOT IDENT.
PM-146	3.752E-02	NOT IDENT.
ND-147	1.612E+00	FAIL ABUN
PM-147	6.821E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	2.446E-02	FAIL ABUN
EU-152	9.267E-02	NOT IDENT.
GD-153	7.687E-02	NOT IDENT.
EU-154	9.661E-02	FAIL ABUN

TB-160	1.133E-01	FAIL ABUN
HO-166M	6.510E-02	NOT IDENT.
TM-171	2.069E+01	NOT IDENT.
HF-172	1.699E-01	FAIL ABUN
LU-172	7.986E-02	FAIL ABUN
LU-176	2.645E-02	FAIL ABUN
HF-181	5.246E-02	NOT IDENT.
TA-182	2.121E-01	FAIL ABUN
RE-183	2.573E-01	NOT IDENT.
RE-184	1.621E-01	NOT IDENT.
W-188	7.188E+00	FAIL ABUN
IR-192	4.681E-02	FAIL ABUN
HG-203	4.889E-02	FAIL ABUN
TL-204	4.537E+00	NOT IDENT.
BI-207	5.661E-02	FAIL ABUN
BI-210	4.269E+00	NOT IDENT.
PB-210	4.269E+00	NOT IDENT.
PB-211	7.310E-01	NOT IDENT.
BI-213	7.650E-02	NOT IDENT.
RN-219	4.485E-01	NOT IDENT.
RA-223	6.146E-01	FAIL ABUN
AC-225	1.831E+00	NOT IDENT.
AC-227	2.638E-01	FAIL ABUN
TH-227	2.638E-01	FAIL ABUN
TH-231	6.146E-01	FAIL ABUN
PA-233	6.588E-02	FAIL ABUN
PA-234	2.691E-01	FAIL ABUN
PA-234M	4.225E+00	NOT IDENT.
NP-237	6.588E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.366E-01	FAIL ABUN
PU-239	3.741E+02	FAIL ABUN
AM-241	1.609E-01	NOT IDENT.
CM-243	8.565E-02	NOT IDENT.
BK-247	7.298E-02	FAIL ABUN
CM-247	3.920E-02	NOT IDENT.
CF-249	4.261E-02	NOT IDENT.
CF-251	1.175E-01	NOT IDENT.

GEL Laboratories LLC
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DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G674299020.CNF;1
Acquisition date : 30-JUL-2024 13:38:07 Sensitivity : 3.000
Detector ID : GAM06 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.66 Half life ratio : *****
Sample date : 26-JUN-2024 10:45:00 Nuclide Library : SOLID
Sample ID : G674299020 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.2104E+02 GRAM
Quantity Err(%) : 1.6523E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 25-SEP-2023 07:18:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM06_CAN.CNF;22

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	8.433E+00	1.678E+00	1.678E+00
CD-109	5.068E+00	1.805E+00	1.805E+00
SN-126	4.815E-01	1.695E-01	1.695E-01
EU-155	1.440E-01	1.992E-01	1.992E-01
TL-208	3.836E-01	1.203E-01	1.203E-01
BI-211	4.299E+00	8.905E-01	8.905E-01
BI-212	9.848E-01	1.123E+00	1.123E+00
PB-212	1.580E+00	2.086E-01	2.086E-01
BI-214	1.225E+00	2.375E-01	2.375E-01
PB-214	1.560E+00	3.222E-01	3.222E-01
RN-222	1.225E+00	2.375E-01	2.375E-01
RA-224	4.605E+00	1.528E+00	1.528E+00
RA-226	1.560E+00	3.222E-01	3.222E-01
AC-228	1.194E+00	3.953E-01	3.953E-01
RA-228	1.194E+00	3.953E-01	3.953E-01
TH-228	1.580E+00	2.086E-01	2.086E-01
TH-229	6.962E-02	5.827E-01	5.827E-01
TH-230	1.560E+00	3.222E-01	3.222E-01
PA-231	1.050E+00	8.526E-01	8.526E-01
TH-232	1.194E+00	3.953E-01	3.953E-01
TH-234	2.651E+00	2.602E+00	2.602E+00
U-234	1.560E+00	3.222E-01	3.222E-01
U-235	1.539E-01	2.084E-01	2.084E-01
U-238	2.651E+00	2.602E+00	2.602E+00
AM-243	6.722E-02	7.798E-02	7.798E-02
ANH-511	1.413E-01	9.708E-02	9.708E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	-2.131E-01	5.383E-01	5.469E-01	NOT IDENT.
NA-22	-6.843E-03	4.235E-02	4.247E-02	NOT IDENT.
NA-24	6.554E+13	1.437E+15	1.438E+15	SHORT HLIF
AL-26	-8.381E-03	3.664E-02	3.684E-02	NOT IDENT.

SC-46	-2.327E-02	4.957E-02	5.067E-02	FAIL ABUN
V-48	-3.740E-02	1.568E-01	1.577E-01	NOT IDENT.
CR-51	8.234E-01	7.184E-01	8.087E-01	NOT IDENT.
MN-52	1.770E+00	2.140E+00	2.284E+00	NOT IDENT.
MN-54	-1.342E-02	4.235E-02	4.278E-02	NOT IDENT.
CO-56	-3.579E-03	5.338E-02	5.341E-02	NOT IDENT.
MN-56	-1.000E+41	1.586E+42	0.000E+00	SHORT HLIF
CO-57	-2.469E-03	2.679E-02	2.682E-02	NOT IDENT.
CO-58	7.241E-04	4.979E-02	4.979E-02	NOT IDENT.
FE-59	2.860E-02	1.357E-01	1.363E-01	NOT IDENT.
CO-60	8.431E-04	4.268E-02	4.269E-02	FAIL ABUN
ZN-65	8.469E-02	8.569E-02	9.381E-02	NOT IDENT.
GE-68	-9.270E-01	1.362E+00	1.425E+00	NOT IDENT.
AS-73	-2.725E-01	1.175E+00	1.181E+00	NOT IDENT.
AS-74	-1.673E-01	2.440E-01	2.554E-01	NOT IDENT.
SE-75	-3.417E-03	5.689E-02	5.691E-02	NOT IDENT.
BR-77	6.291E+04	6.253E+04	6.866E+04	SHORT HLIF
SR-82	3.401E-01	6.755E-01	6.926E-01	NOT IDENT.
RB-83	-4.694E-02	8.937E-02	9.184E-02	NOT IDENT.
RB-84	-3.430E-02	9.015E-02	9.147E-02	NOT IDENT.
KR-85	4.315E+00	7.648E+00	7.892E+00	NOT IDENT.
SR-85	2.777E-02	4.948E-02	5.104E-02	NOT IDENT.
RB-86	-9.921E-01	1.685E+00	1.743E+00	NOT IDENT.
Y-88	-2.684E-02	4.729E-02	4.882E-02	NOT IDENT.
Y-91	3.771E-01	3.164E+01	3.164E+01	NOT IDENT.
NB-94	2.484E-02	4.011E-02	4.164E-02	NOT IDENT.
NB-95	3.235E-02	6.334E-02	6.500E-02	NOT IDENT.
NB-95M	1.873E-02	2.021E-01	2.023E-01	NOT IDENT.
ZR-95	1.041E-01	1.324E-01	1.404E-01	FAIL ABUN
NB-97	-1.000E+41	7.451E+41	0.000E+00	SHORT HLIF
ZR-97	3.170E+13	2.515E+14	2.519E+14	SHORT HLIF
MO-99	-3.105E+01	1.720E+03	1.721E+03	SHORT HLIF
TC-99M	-1.903E+38	2.465E+39	0.000E+00	SHORT HLIF
RH-101	-7.623E-03	3.475E-02	3.492E-02	NOT IDENT.
RH-102	-7.105E-04	6.606E-02	6.607E-02	NOT IDENT.
RU-103	5.124E-03	6.077E-02	6.081E-02	FAIL ABUN
RH-106	7.729E-02	3.373E-01	3.391E-01	NOT IDENT.
RU-106	7.729E-02	3.373E-01	3.391E-01	NOT IDENT.
AG-108M	-2.866E-03	3.207E-02	3.210E-02	NOT IDENT.
AG-110	2.841E-01	8.631E-01	8.725E-01	NOT IDENT.
AG-110M	3.855E-02	5.160E-02	5.445E-02	NOT IDENT.
SN-113	-2.494E-02	5.620E-02	5.731E-02	NOT IDENT.
CD-115	4.286E+03	4.707E+03	5.088E+03	SHORT HLIF
SN-117M	3.814E-02	1.567E-01	1.577E-01	NOT IDENT.
SB-122	1.517E+02	3.052E+02	3.128E+02	SHORT HLIF
TE-123M	-2.220E-03	3.517E-02	3.518E-02	NOT IDENT.
SB-124	6.551E-02	9.432E-02	9.884E-02	NOT IDENT.
SB-125	-8.026E-02	1.019E-01	1.081E-01	FAIL ABUN
TE-125M	-2.686E+00	1.250E+01	1.255E+01	NOT IDENT.
I-126	7.745E-01	7.483E-01	8.258E-01	NOT IDENT.
SB-126	-3.624E-02	5.108E-01	5.111E-01	NOT IDENT.
SB-127	-1.024E+01	4.594E+01	4.617E+01	NOT IDENT.
I-131	4.159E-02	6.033E-01	6.036E-01	NOT IDENT.
I-132	-1.000E+41	4.680E+41	0.000E+00	SHORT HLIF
TE-132	5.754E+00	5.517E+01	5.523E+01	SHORT HLIF
BA-133	-6.343E-03	5.229E-02	5.236E-02	NOT IDENT.
I-133	-5.575E+09	3.047E+10	3.058E+10	SHORT HLIF
CS-134	2.362E-02	5.495E-02	5.597E-02	NOT IDENT.
I-135	7.153E+35	4.415E+36	0.000E+00	SHORT HLIF
CS-136	-1.040E-01	3.287E-01	3.321E-01	FAIL ABUN
BA-137M	2.002E-02	3.810E-02	3.915E-02	NOT IDENT.
CS-137	2.115E-02	4.024E-02	4.136E-02	NOT IDENT.
LA-138	-5.752E-02	6.646E-02	7.134E-02	NOT IDENT.
CE-139	-1.439E-02	3.517E-02	3.577E-02	NOT IDENT.
BA-140	-7.678E-02	8.754E-01	8.761E-01	NOT IDENT.
LA-140	-3.407E-01	3.316E-01	3.654E-01	NOT IDENT.
CE-141	-5.921E-02	1.003E-01	1.037E-01	NOT IDENT.
CE-143	3.409E+06	2.052E+06	2.564E+06	SHORT HLIF
CE-144	-3.918E-02	2.099E-01	2.106E-01	NOT IDENT.
PM-144	2.115E-02	4.301E-02	4.405E-02	NOT IDENT.
PR-144	1.598E+00	3.251E+00	3.330E+00	NOT IDENT.
PM-146	-5.411E-03	4.476E-02	4.483E-02	NOT IDENT.
ND-147	-1.380E-01	2.179E+00	2.180E+00	FAIL ABUN
PM-147	1.282E+02	7.793E+02	7.814E+02	NOT IDENT.
PM-149	-1.850E+04	3.623E+04	3.717E+04	SHORT HLIF
EU-150	-3.778E-03	3.156E-02	3.161E-02	FAIL ABUN
EU-152	-2.507E-02	1.087E-01	1.093E-01	NOT IDENT.
GD-153	3.649E-02	9.071E-02	9.219E-02	NOT IDENT.

EU-154	-1.275E-02	1.205E-01	1.207E-01	FAIL ABUN
TB-160	-1.086E-01	1.569E-01	1.643E-01	FAIL ABUN
HO-166M	1.804E-03	7.946E-02	7.946E-02	NOT IDENT.
TM-171	5.721E+00	2.225E+01	2.240E+01	NOT IDENT.
HF-172	5.254E-02	2.076E-01	2.089E-01	FAIL ABUN
LU-172	7.489E-02	8.262E-02	8.925E-02	FAIL ABUN
LU-176	1.075E-02	2.883E-02	2.923E-02	FAIL ABUN
HF-181	-7.607E-02	7.336E-02	8.098E-02	NOT IDENT.
TA-182	5.134E-03	2.546E-01	2.546E-01	FAIL ABUN
RE-183	-1.146E-01	2.929E-01	2.974E-01	NOT IDENT.
RE-184	-6.122E-02	2.011E-01	2.030E-01	NOT IDENT.
W-188	-4.180E+00	9.622E+00	9.804E+00	FAIL ABUN
IR-192	7.486E-02	8.925E-02	9.542E-02	FAIL ABUN
HG-203	-1.976E-02	5.675E-02	5.744E-02	FAIL ABUN
TL-204	1.930E+00	5.276E+00	5.347E+00	NOT IDENT.
BI-207	4.221E-03	6.644E-02	6.647E-02	FAIL ABUN
BI-210	-9.804E-01	4.736E+00	4.756E+00	NOT IDENT.
PB-210	-9.804E-01	4.736E+00	4.756E+00	NOT IDENT.
PB-211	-4.114E-01	8.954E-01	9.144E-01	NOT IDENT.
BI-213	-7.816E-02	1.173E-01	1.225E-01	NOT IDENT.
RN-219	1.945E-01	4.983E-01	5.060E-01	NOT IDENT.
RA-223	-1.155E-01	7.926E-01	7.943E-01	FAIL ABUN
AC-225	-2.428E+00	2.525E+00	2.752E+00	NOT IDENT.
AC-227	6.121E-01	4.162E-01	4.993E-01	FAIL ABUN
TH-227	6.121E-01	4.162E-01	4.993E-01	FAIL ABUN
TH-231	-1.155E-01	7.926E-01	7.943E-01	FAIL ABUN
PA-233	2.984E-02	7.163E-02	7.288E-02	FAIL ABUN
PA-234	7.253E-02	3.117E-01	3.134E-01	FAIL ABUN
PA-234M	4.643E-01	4.892E+00	4.896E+00	NOT IDENT.
NP-237	2.984E-02	7.163E-02	7.288E-02	FAIL ABUN
NP-238	9.007E+03	8.813E+03	9.704E+03	SHORT HLIF
NP-239	-2.895E-03	2.737E-01	2.737E-01	FAIL ABUN
PU-239	6.057E+02	6.330E+02	6.894E+02	FAIL ABUN
AM-241	-4.380E-02	1.809E-01	1.819E-01	NOT IDENT.
CM-243	-3.577E-02	1.102E-01	1.114E-01	NOT IDENT.
BK-247	-2.150E-03	9.064E-02	9.065E-02	FAIL ABUN
CM-247	1.081E-02	4.419E-02	4.445E-02	NOT IDENT.
CF-249	2.589E-02	4.629E-02	4.774E-02	NOT IDENT.
CF-251	6.355E-02	1.340E-01	1.371E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	62.4990	85.43	65.4466	131.20	53.1719
45.60	59.0084	86.55	65.6422	133.02	51.9910
46.54	54.3698	86.79	65.6833	133.52	50.6718
49.72	0.0000	86.94	65.7099	136.00	59.8559
51.35	57.9009	87.09	65.7359	136.47	66.1064
51.87	57.1875	87.57	65.8188	140.51	0.0000
52.39	50.6572	88.03	65.8984	143.76	49.2067
52.97	57.4265	88.34	65.9515	144.24	57.6318
53.44	54.1927	88.47	65.9737	145.44	70.3584
54.07	70.1982	89.96	66.2294	152.43	53.1586
57.36	0.0000	1093.63	66.3447	153.25	53.2341
57.53	75.3165	91.11	66.4244	323.87	53.3226
57.98	72.8932	92.59	66.6741	156.02	64.1858
59.27	74.0747	93.35	66.8019	158.56	58.0169
59.32	74.0876	94.56	67.0040	159.00	63.4347
59.54	67.3262	94.65	67.0186	162.33	63.7885
60.96	67.3698	94.67	67.0219	162.66	61.6593
61.17	63.9901	94.87	67.0554	163.33	57.3962
62.93	69.8300	97.43	53.2216	165.86	60.8962
63.29	69.9137	98.43	52.3980	176.31	68.5495
63.58	69.9808	98.44	52.3992	176.60	67.4745
64.28	65.8128	99.53	56.3573	177.52	45.4162
66.73	65.4636	100.11	62.1743	181.07	0.0000
67.24	64.6958	102.03	51.2472	181.52	62.4130
125.81	61.2842	103.18	52.6693	184.41	70.5203
67.75	67.4273	103.37	55.2630	143.76	70.6587
68.89	79.9735	105.21	63.8876	193.51	53.3196
69.67	73.1202	105.31	63.9028	197.03	45.6079
70.82	64.8325	106.12	62.0811	198.01	51.3803
70.83	64.8353	106.47	56.9528	201.83	45.9174
72.81	78.2703	109.28	66.4327	203.43	56.3744
72.87	78.2844	111.00	64.7250	205.31	58.4442
74.66	78.7026	111.76	0.0000	210.85	51.1389
74.82	78.7396	114.06	57.2610	215.65	38.6014
74.97	78.7745	116.30	0.0000	218.12	58.6777
77.11	79.2659	116.74	61.5625	222.11	43.6484
78.74	77.2233	119.76	65.9517	227.09	48.6775
79.69	83.4796	121.12	59.1233	227.38	48.6950
80.03	63.5769	121.22	59.1355	228.16	0.0000
80.12	63.5940	121.78	65.2246	228.18	55.8781
80.19	63.6063	122.06	58.2336	116.74	55.8781
80.57	76.4089	122.92	64.3711	235.69	60.8068
81.00	83.7863	123.07	64.3911	235.96	62.4276
81.07	83.8025	265.00	58.4270	238.63	54.2017
81.75	69.3586	125.81	53.9575	238.98	0.0000
82.47	74.3735	127.23	60.8743	240.99	54.3576
83.79	65.1584	127.91	52.8294	242.00	54.4242
84.00	65.1953	129.30	52.9744	244.70	37.2103

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	35.9187	344.28	34.9970	563.25	15.8197
252.80	31.0350	345.93	26.9611	564.24	0.0000
254.15	0.0000	351.06	25.2810	569.33	22.2288
256.23	30.7493	351.93	25.3004	946.00	21.1727
260.90	0.0000	355.39	0.0000	569.70	20.1164
264.66	38.4984	356.01	32.6477	583.19	22.4133
264.80	38.5040	364.49	23.7556	584.27	22.4270
265.00	37.2702	366.42	0.0000	595.83	26.8799
269.46	52.4398	372.51	31.2801	427.87	21.5633
270.03	48.7250	375.05	30.4266	602.52	0.0000
271.23	43.3682	377.52	27.7185	604.72	25.9365
273.65	50.1746	356.01	32.5106	607.14	29.2192
276.40	41.9373	388.16	26.1013	609.32	21.6707
277.37	40.3027	388.63	28.9092	610.33	14.6360
277.60	35.2734	391.69	31.7871	614.28	20.8625
278.00	34.4486	264.66	33.9031	618.01	22.8662
279.20	47.1133	401.81	30.1641	620.36	15.2641
279.54	45.4471	402.40	29.2353	621.93	13.0952
279.70	45.4548	404.85	38.7420	630.19	0.0000
280.46	46.3346	410.95	37.0314	631.29	18.6477
283.69	40.5781	413.71	27.5958	633.25	24.1583
284.31	35.5289	414.70	29.5216	634.78	16.4856
285.41	32.1831	423.72	23.9751	635.95	18.6954
285.90	0.0000	427.09	30.7676	636.99	23.1080
287.50	28.0103	427.87	29.8237	657.50	14.4642
290.67	35.7682	433.94	18.8470	657.76	18.9175
293.27	0.0000	439.40	17.4686	657.90	0.0000
351.93	31.6599	440.45	23.3096	661.66	12.2658
295.96	31.6840	453.88	21.5793	664.57	0.0000
879.38	31.7690	463.37	19.7522	666.33	13.4141
299.98	31.8149	468.07	19.8185	666.50	13.4150
300.09	31.8180	473.00	24.8591	667.71	0.0000
300.13	31.8195	475.06	17.9246	677.62	21.3642
301.36	31.8594	476.78	27.9163	685.70	16.9373
302.85	33.6323	477.60	32.9201	692.65	0.0000
256.23	36.2800	482.18	33.0248	695.00	23.8250
304.85	36.2928	487.02	24.0981	696.49	15.8953
306.78	32.0340	492.35	0.0000	696.51	15.8953
308.46	37.2908	497.08	19.2084	697.00	13.6279
311.90	32.1973	505.52	19.8257	697.30	14.7662
316.51	30.1580	507.63	0.0000	697.49	14.7673
319.41	15.7793	511.00	18.3669	702.65	14.8059
320.08	15.7896	514.00	18.4036	706.68	23.9659
321.04	35.5594	514.00	18.4036	711.68	20.5935
323.87	36.9764	520.40	21.5605	720.70	16.5486
325.23	35.7028	520.69	0.0000	721.93	0.0000
328.76	35.3809	522.65	0.0000	722.78	18.9808
333.37	30.6487	527.90	0.0000	722.91	18.9821
333.97	31.9988	528.26	7.7393	723.31	20.7122
334.37	30.6774	529.59	24.7861	724.19	13.8140
338.28	29.4504	529.87	0.0000	727.33	19.6002
338.32	29.4510	531.02	17.0559	733.00	24.2787
311.90	34.8756	537.26	17.1237	735.93	15.0508
340.48	34.8756	546.56	0.0000	333.97	25.4894
340.55	34.8780	552.55	18.8599	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	16.2735	949.00	10.4733	1384.29	5.2699
747.24	11.6406	667.71	0.0000	1408.01	7.7361
748.06	9.3161	962.31	14.0360	1434.09	1.1130
752.31	9.8017	964.08	16.8550	1435.80	8.9082
753.82	12.6114	966.17	24.5359	1457.56	0.0000
756.73	5.6127	911.20	13.4322	1460.82	3.3631
756.80	5.6129	983.53	9.6475	1489.16	4.5176
884.68	14.0796	984.45	0.0000	1505.03	10.8873
765.81	14.0918	1274.44	6.7855	1584.12	8.3307
766.42	12.3337	1001.03	10.6821	1596.21	11.1404
766.84	12.3363	1002.74	8.7454	1620.50	3.7355
772.60	0.0000	1004.73	9.7241	1621.92	6.5396
776.52	11.3297	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	0.9497
778.90	15.9500	1028.54	0.0000	1750.46	0.0000
783.70	16.8732	1037.84	10.8261	1764.49	1.9315
788.74	20.4724	1038.76	0.0000	1063.66	5.8022
792.07	27.6349	631.29	14.8096	1771.35	1.9346
795.86	18.7531	1048.07	12.8421	1791.20	0.0000
810.06	9.8858	1049.04	15.8105	1808.65	3.9012
810.29	9.8868	1050.41	17.7957	1810.72	0.0000
344.28	9.8875	1063.66	13.9060	1836.06	4.9058
810.76	12.5858	1077.00	11.9751		
815.77	15.3165	1077.34	11.9766		
1048.07	14.4331	1085.87	8.0078		
832.01	17.2414	1093.63	9.0330		
834.85	16.3537	1099.45	10.0568		
835.71	15.4509	1112.07	12.1201		
836.80	0.0000	1112.84	10.3912		
846.75	0.0000	1115.54	3.2357		
846.77	14.6118	1120.29	9.1154		
856.80	13.2069	1120.55	9.1159		
860.56	9.1861	1221.41	8.1055		
871.09	13.2864	1129.67	11.1759		
873.19	13.2983	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	12.9622	1173.23	6.5961		
880.51	14.8208	1177.95	9.6335		
881.60	9.2673	1189.05	7.2512		
883.24	10.2010	1204.77	13.5332		
884.68	6.4954	1221.41	13.6046		
889.28	13.9449	1231.02	6.2977		
894.76	9.3176	1235.36	10.5103		
898.04	13.0622	1238.28	8.4155		
900.72	10.2742	1260.41	0.0000		
903.28	14.0250	1271.87	5.3137		
911.20	11.2559	1274.44	7.4452		
912.08	11.2599	1274.54	7.4452		
923.98	0.0000	1291.59	11.9731		
926.50	10.3810	1298.22	0.0000		
929.11	13.6037	1312.11	4.3020		
935.54	10.6077	1332.49	6.4915		
937.49	6.0662	1362.66	0.0000		
944.13	8.5526	1365.19	6.5522		
946.00	8.5589	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 14:39:41.85

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29407                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781343.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM07.CNF;884
Background date    : 28-JUL-2024 09:24:38
Sample date       : 10-JUL-2024 00:00:00 Acquisition date : 30-JUL-2024 13:38:47
Sample ID        : G1205781343 Sample quantity : 1.49980E+02 GRAM
Detector name     : GAM07 Detector geometry: CAN
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:00.23 0.0%
Energy tolerance  : 1.50000 keV Analyst Initials : RXF2
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 2636542 Detector SN# :
Matrix Spike ID   : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	92.63*	5	24	1.13	186.11	183	7	1.35E-03	218.0	
2	0	108.10	6	29	0.62	217.03	212	8	1.67E-03	158.2	
3	0	128.10	21	44	2.48	257.02	251	11	5.95E-03	63.7	
4	0	155.57	9	13	1.27	311.94	309	5	2.56E-03	68.0	
5	0	224.78*	23	20	4.24	450.31	444	13	6.43E-03	45.6	
6	0	238.55*	27	35	1.26	477.83	471	14	7.37E-03	55.3	
7	0	314.68	17	21	2.82	630.04	623	13	4.67E-03	62.9	
8	0	328.06	17	9	1.37	656.80	653	9	4.59E-03	41.1	
9	0	351.88*	8	9	0.86	704.42	701	6	2.09E-03	82.1	
10	0	963.91	11	0	0.73	1928.18	1925	7	3.06E-03	30.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781343.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 10-JUL-2024 00:00:00	Acquisition date	: 30-JUL-2024 13:38:47
Sample ID	: G1205781343	Sample quantity	: 149.98 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA7	Detector geometry	: CAN
Elapsed live time	: 0 01:00:00.00	Elapsed real time	: 0 01:00:00.23 0.0%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TE-125M	109.28	7	0.27*	6.587E+00	2.100E+00	2.693E+00	316.47
BI-211	72.87	-----	1.23	4.457E+00	-----	Line Not Found	-----
	351.06	8	12.92*	3.618E+00	8.962E-02	8.962E-02	164.18

Flag: "*" = Keyline


```

*****
*                                     GEL Laboratories LLC                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29407                          *
*****
*                                     DETECTOR AND SAMPLE DATA                      *
*                                     *                                              *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781343.CNF;1      *
* Acquisition date   : 30-JUL-2024 13:38:47 Sensitivity      : 3.000                *
* Detector ID        : GAM07 Energy tolerance: 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 01:00:00.23 Half life ratio : *****      *
* Sample date        : 10-JUL-2024 00:00:00 Analyst initials: RXF2      *
* Sample ID          : G1205781343 Sample Quantity : 1.4998E+02 GRAM  *
* Batch Number       : 2636542 Wet Weight : 0.00000          *
* Wet wt corr        : 1.00000 Dry Weight : 0.00000           *
* Nuclide Library    : SOLID.NLB;17                                              *
*****
*                                     CALIBRATION INFORMATION                      *
*                                     *                                              *
* Eff. Cal. date     : 23-JUL-2024 04:21:13 Eff. Geometry   : CAN          *
* Eff. File          : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23          *
*****

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Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
TE-125M	2.693E+00	8.351E+00	9.470E+00
BI-211	8.962E-02	1.442E-01	2.108E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	9.043E-02	1.787E-01	4.072E-01	NOT IDENT.
NA-22	9.659E-03	1.735E-02	4.816E-02	NOT IDENT.
NA-24	0.000E+00	2.212E+08	0.000E+00	SHORT HLIF
AL-26	-1.369E-03	1.904E-02	4.642E-02	NOT IDENT.
K-40	-9.577E-02	2.217E-01	5.175E-01	NOT IDENT.
SC-46	-7.443E-03	2.141E-02	4.362E-02	NOT IDENT.
V-48	-2.662E-02	5.152E-02	9.825E-02	NOT IDENT.
CR-51	-9.385E-02	2.270E-01	4.220E-01	NOT IDENT.
MN-52	-5.127E-02	3.260E-01	6.777E-01	NOT IDENT.
MN-54	1.765E-02	1.907E-02	4.833E-02	NOT IDENT.
CO-56	8.830E-03	2.131E-02	4.944E-02	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-4.395E-03	1.033E-02	1.950E-02	NOT IDENT.
CO-58	-2.833E-03	2.221E-02	4.446E-02	NOT IDENT.
FE-59	-2.338E-03	4.035E-02	9.255E-02	NOT IDENT.
CO-60	-1.238E-02	2.466E-02	4.826E-02	NOT IDENT.
ZN-65	-8.583E-03	3.854E-02	8.207E-02	NOT IDENT.
GE-68	-4.371E-01	5.385E-01	8.805E-01	NOT IDENT.
AS-73	1.437E-02	3.649E-01	7.919E-01	NOT IDENT.
AS-74	-1.029E-02	6.471E-02	1.281E-01	NOT IDENT.
SE-75	8.313E-03	1.933E-02	4.437E-02	NOT IDENT.
BR-77	5.671E+01	6.145E+01	7.065E+01	FAIL ABUN
SR-82	4.909E-02	1.774E-01	4.085E-01	NOT IDENT.
RB-83	2.627E-02	3.737E-02	8.887E-02	NOT IDENT.
RB-84	-3.016E-02	4.219E-02	8.320E-02	NOT IDENT.
KR-85	-8.516E+00	5.364E+00	7.894E+00	NOT IDENT.
SR-85	-4.783E-02	3.011E-02	4.429E-02	NOT IDENT.
RB-86	-3.321E-01	4.093E-01	6.692E-01	NOT IDENT.

Y-88	-1.453E-02	1.369E-02	1.710E-02	NOT IDENT.
Y-91	6.581E+00	1.285E+01	3.037E+01	NOT IDENT.
NB-94	7.184E-03	2.046E-02	4.389E-02	NOT IDENT.
NB-95	-6.258E-03	2.231E-02	4.272E-02	NOT IDENT.
NB-95M	1.911E-02	6.349E-02	1.204E-01	NOT IDENT.
ZR-95	-3.313E-03	4.939E-02	9.724E-02	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.158E+08	0.000E+00	SHORT HLIF
MO-99	-8.264E+00	2.964E+01	5.602E+01	NOT IDENT.
TC-99M	0.000E+00	5.498E+22	0.000E+00	SHORT HLIF
RH-101	2.957E-02	3.693E-02	3.420E-02	FAIL ABUN
RH-102	-1.728E-02	3.205E-02	5.751E-02	NOT IDENT.
RU-103	1.441E-02	1.992E-02	4.877E-02	NOT IDENT.
RH-106	-5.228E-02	1.437E-01	2.771E-01	NOT IDENT.
RU-106	-5.228E-02	1.437E-01	2.771E-01	NOT IDENT.
AG-108M	8.436E-03	1.469E-02	3.400E-02	NOT IDENT.
CD-109	-2.604E-01	2.808E-01	4.955E-01	NOT IDENT.
AG-110	-5.040E-01	4.567E-01	6.791E-01	NOT IDENT.
AG-110M	1.814E-02	2.565E-02	6.551E-02	NOT IDENT.
SN-113	-4.124E-03	2.269E-02	4.620E-02	NOT IDENT.
CD-115	-2.968E+00	2.727E+01	5.722E+01	NOT IDENT.
SN-117M	-2.100E-02	3.023E-02	5.273E-02	FAIL ABUN
SB-122	2.132E+00	4.482E+00	1.000E+01	NOT IDENT.
TE-123M	-4.148E-03	1.215E-02	2.282E-02	NOT IDENT.
SB-124	-1.570E-02	5.145E-02	1.062E-01	NOT IDENT.
SB-125	3.703E-02	3.738E-02	9.669E-02	NOT IDENT.
I-126	-1.075E-01	1.460E-01	2.434E-01	NOT IDENT.
SB-126	-5.295E-02	9.045E-02	1.580E-01	NOT IDENT.
SN-126	-2.628E-02	2.720E-02	4.762E-02	NOT IDENT.
SB-127	-1.190E+00	1.699E+00	2.854E+00	NOT IDENT.
I-131	1.076E-01	1.095E-01	2.546E-01	NOT IDENT.
I-132	0.000E+00	1.782E+41	0.000E+00	SHORT HLIF
TE-132	2.890E-01	1.121E+00	2.143E+00	NOT IDENT.
BA-133	4.473E-03	2.178E-02	4.688E-02	NOT IDENT.
I-133	0.000E+00	2.237E+05	0.000E+00	SHORT HLIF
CS-134	7.267E-03	2.169E-02	4.851E-02	NOT IDENT.
I-135	0.000E+00	1.691E+21	0.000E+00	SHORT HLIF
CS-136	-1.061E-02	8.725E-02	1.819E-01	NOT IDENT.
BA-137M	-4.437E-03	2.113E-02	4.086E-02	NOT IDENT.
CS-137	-4.687E-03	2.232E-02	4.316E-02	NOT IDENT.
LA-138	2.464E-02	3.893E-02	9.846E-02	NOT IDENT.
CE-139	-7.725E-03	1.234E-02	2.177E-02	NOT IDENT.
BA-140	1.339E-01	1.856E-01	4.406E-01	NOT IDENT.
LA-140	1.381E-02	7.380E-02	1.765E-01	FAIL ABUN
CE-141	-2.010E-02	2.444E-02	4.152E-02	NOT IDENT.
CE-143	0.000E+00	8.594E+02	0.000E+00	SHORT HLIF
CE-144	-1.012E-02	7.185E-02	1.436E-01	NOT IDENT.
PM-144	-1.707E-03	2.283E-02	4.464E-02	NOT IDENT.
PR-144	-1.207E-01	1.715E+00	3.356E+00	NOT IDENT.
PM-146	4.636E-03	2.080E-02	4.559E-02	NOT IDENT.
ND-147	2.007E-01	3.851E-01	8.998E-01	NOT IDENT.
PM-147	1.359E+02	2.830E+02	6.235E+02	NOT IDENT.
PM-149	-4.143E+01	2.165E+02	4.510E+02	NOT IDENT.
EU-150	4.418E-03	1.405E-02	3.059E-02	NOT IDENT.
EU-152	3.609E-02	4.564E-02	1.084E-01	FAIL ABUN
GD-153	-5.131E-03	3.032E-02	6.123E-02	NOT IDENT.
EU-154	3.216E-02	5.127E-02	1.422E-01	NOT IDENT.
EU-155	6.496E-03	3.295E-02	6.821E-02	NOT IDENT.
TB-160	5.196E-02	7.140E-02	1.826E-01	NOT IDENT.
HO-166M	-1.114E-02	2.629E-02	4.924E-02	NOT IDENT.
TM-171	-7.303E+00	8.410E+00	1.567E+01	NOT IDENT.
HF-172	2.545E-02	9.643E-02	1.850E-01	FAIL ABUN
LU-172	-1.618E-02	2.955E-02	5.580E-02	NOT IDENT.
LU-176	-2.636E-03	9.916E-03	2.071E-02	NOT IDENT.
HF-181	-5.424E-03	2.628E-02	5.229E-02	NOT IDENT.
TA-182	6.047E-02	6.297E-02	1.979E-01	NOT IDENT.
RE-183	1.953E-02	7.412E-02	1.673E-01	NOT IDENT.
RE-184	-6.998E-02	7.072E-02	1.146E-01	NOT IDENT.
W-188	-8.991E-01	3.217E+00	6.603E+00	NOT IDENT.
IR-192	-3.638E-03	2.068E-02	3.770E-02	NOT IDENT.
HG-203	-7.296E-04	1.965E-02	4.134E-02	NOT IDENT.
TL-204	1.690E-01	1.943E+00	4.063E+00	NOT IDENT.
BI-207	-8.207E-03	2.834E-02	5.765E-02	NOT IDENT.
TL-208	-1.020E-03	2.180E-02	4.744E-02	NOT IDENT.
BI-210	-1.521E+00	2.006E+00	4.094E+00	NOT IDENT.
PB-210	-1.521E+00	2.006E+00	4.094E+00	NOT IDENT.
PB-211	-3.509E-01	3.565E-01	6.037E-01	NOT IDENT.
BI-212	-1.049E-01	3.309E-01	6.486E-01	NOT IDENT.

PB-212	7.412E-02	8.031E-02	9.118E-02	FAIL ABUN
BI-213	1.312E-02	5.077E-02	1.121E-01	NOT IDENT.
BI-214	-6.176E-02	4.338E-02	6.978E-02	NOT IDENT.
PB-214	3.253E-02	5.233E-02	9.497E-02	FAIL ABUN
RN-219	1.345E-01	2.120E-01	4.853E-01	NOT IDENT.
RN-222	-6.176E-02	4.338E-02	6.978E-02	NOT IDENT.
RA-223	-6.540E-02	3.237E-01	5.918E-01	FAIL ABUN
RA-224	3.382E-02	3.541E-01	6.308E-01	NOT IDENT.
AC-225	-3.787E-01	4.164E-01	6.646E-01	NOT IDENT.
RA-226	3.253E-02	5.233E-02	9.497E-02	FAIL ABUN
AC-227	-5.001E-02	1.348E-01	2.397E-01	NOT IDENT.
TH-227	-5.001E-02	1.348E-01	2.397E-01	NOT IDENT.
AC-228	1.203E-02	9.238E-02	2.123E-01	NOT IDENT.
RA-228	1.203E-02	9.238E-02	2.123E-01	NOT IDENT.
TH-228	7.412E-02	8.031E-02	9.118E-02	FAIL ABUN
TH-229	3.875E-02	2.125E-01	4.367E-01	NOT IDENT.
TH-230	3.253E-02	5.233E-02	9.497E-02	FAIL ABUN
PA-231	-5.272E-02	1.688E-01	3.503E-01	NOT IDENT.
TH-231	-6.540E-02	3.237E-01	5.918E-01	FAIL ABUN
TH-232	1.203E-02	9.238E-02	2.123E-01	NOT IDENT.
PA-233	3.566E-03	3.783E-02	7.245E-02	NOT IDENT.
PA-234	4.502E-02	1.659E-01	3.842E-01	NOT IDENT.
PA-234M	1.791E-01	2.378E+00	5.330E+00	NOT IDENT.
TH-234	-2.600E-01	5.852E-01	1.176E+00	FAIL ABUN
U-234	3.253E-02	5.233E-02	9.497E-02	FAIL ABUN
U-235	-4.509E-02	8.886E-02	1.647E-01	FAIL ABUN
NP-237	3.566E-03	3.783E-02	7.245E-02	NOT IDENT.
NP-238	-1.888E+00	6.905E+01	1.497E+02	NOT IDENT.
U-238	-2.600E-01	5.852E-01	1.176E+00	FAIL ABUN
NP-239	8.300E-02	9.844E-02	2.289E-01	NOT IDENT.
PU-239	3.150E+02	3.933E+02	3.352E+02	FAIL ABUN
AM-241	5.952E-04	5.742E-02	1.229E-01	NOT IDENT.
AM-243	-1.004E-03	2.004E-02	4.093E-02	NOT IDENT.
CM-243	4.635E-02	3.643E-02	8.883E-02	NOT IDENT.
BK-247	1.450E-02	3.372E-02	7.741E-02	NOT IDENT.
CM-247	-9.557E-04	1.907E-02	3.947E-02	NOT IDENT.
CF-249	8.297E-03	1.864E-02	4.255E-02	NOT IDENT.
CF-251	2.377E-02	5.973E-02	1.245E-01	NOT IDENT.
ANH-511	-4.648E-02	3.483E-02	7.631E-02	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TE-125M	109.28	7	0.27*	6.587E+00	2.100E+00	2.693E+00	316.47
BI-211	72.87	-----	1.23	4.457E+00	-----	Line Not Found	-----
	351.06	8	12.92*	3.618E+00	8.962E-02	8.962E-02	164.18

Flag: "*" = Keyline

Total number of lines in spectrum10
Number of unidentified lines2
Number of lines tentatively identified by NID880.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TE-125M	57.40D	1.28	2.100E+00	2.693E+00	8.521E+00	316.47	
BI-211	7.04E+08Y	1.00	8.962E-02	8.962E-02	14.71E-02	164.18	
Total Activity :			2.190E+00	2.782E+00			
Grand Total Activity :			2.190E+00	2.782E+00			
Flags: "K" = Keyline not found				"M" = Manually accepted			
"E" = Manually edited				"A" = Nuclide specific abn. limit			

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	92.63	6	30	1.13	186.11	183	7	1.35E-03	****	6.13E+00	T
0	128.10	26	53	2.48	257.02	251	11	5.95E-03	****	6.58E+00	T
0	155.57	11	15	1.27	311.94	309	5	2.56E-03	****	6.15E+00	T
0	224.78	27	23	4.24	450.31	444	13	6.43E-03	91.1	4.94E+00	
0	238.55	31	40	1.26	477.83	471	14	7.37E-03	****	4.74E+00	T
0	314.68	19	24	2.82	630.04	623	13	4.67E-03	****	3.92E+00	
0	328.06	19	11	1.37	656.80	653	9	4.59E-03	82.2	3.80E+00	T
0	963.91	11	0	0.73	1928.18	1925	7	3.06E-03	60.3	1.55E+00	T

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781343.CNF;1 *
* Acquisition date : 30-JUL-2024 13:38:47 Sensitivity : 3.000 *
* Detector ID : GAM07 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.23 Half life ratio : ***** *
* Sample date : 10-JUL-2024 00:00:00 Nuclide Library : SOLID *
* Sample ID : G1205781343 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.4998E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
TE-125M	4.214E+00
BI-211	9.033E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	1.733E-01	NOT IDENT.
NA-22	1.820E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.582E-02	NOT IDENT.
K-40	1.979E-01	NOT IDENT.
SC-46	1.694E-02	NOT IDENT.
V-48	3.806E-02	NOT IDENT.
CR-51	1.801E-01	NOT IDENT.
MN-52	2.567E-01	NOT IDENT.
MN-54	2.011E-02	NOT IDENT.
CO-56	2.000E-02	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	8.409E-03	NOT IDENT.
CO-58	1.760E-02	NOT IDENT.
FE-59	3.398E-02	NOT IDENT.
CO-60	1.806E-02	NOT IDENT.
ZN-65	3.032E-02	NOT IDENT.
GE-68	2.783E-01	NOT IDENT.
AS-73	3.436E-01	NOT IDENT.
AS-74	5.319E-02	NOT IDENT.
SE-75	1.911E-02	NOT IDENT.
BR-77	3.270E+01	FAIL ABUN
SR-82	1.621E-01	NOT IDENT.
RB-83	3.766E-02	NOT IDENT.
RB-84	3.247E-02	NOT IDENT.
KR-85	3.355E+00	NOT IDENT.
SR-85	1.882E-02	NOT IDENT.
RB-86	2.115E-01	NOT IDENT.
Y-88	0.000E+00	NOT IDENT.

Y-91	1.249E+01	NOT IDENT.
NB-94	1.863E-02	NOT IDENT.
NB-95	1.689E-02	NOT IDENT.
NB-95M	5.268E-02	NOT IDENT.
ZR-95	4.050E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	2.287E+01	NOT IDENT.
TC-99M	0.000E+00	SHORT HLIF
RH-101	1.547E-02	FAIL ABUN
RH-102	2.331E-02	NOT IDENT.
RU-103	2.044E-02	NOT IDENT.
RH-106	1.074E-01	NOT IDENT.
RU-106	1.074E-01	NOT IDENT.
AG-108M	1.451E-02	NOT IDENT.
CD-109	2.132E-01	NOT IDENT.
AG-110	2.660E-01	NOT IDENT.
AG-110M	2.681E-02	NOT IDENT.
SN-113	1.944E-02	NOT IDENT.
CD-115	2.285E+01	NOT IDENT.
SN-117M	2.247E-02	FAIL ABUN
SB-122	4.262E+00	NOT IDENT.
TE-123M	9.824E-03	NOT IDENT.
SB-124	3.404E-02	NOT IDENT.
SB-125	4.074E-02	NOT IDENT.
I-126	9.275E-02	NOT IDENT.
SB-126	5.900E-02	NOT IDENT.
SN-126	2.044E-02	NOT IDENT.
SB-127	1.068E+00	NOT IDENT.
I-131	1.128E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	9.282E-01	NOT IDENT.
BA-133	2.026E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	1.985E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	7.315E-02	NOT IDENT.
BA-137M	1.693E-02	NOT IDENT.
CS-137	1.789E-02	NOT IDENT.
LA-138	3.946E-02	NOT IDENT.
CE-139	9.212E-03	NOT IDENT.
BA-140	1.870E-01	NOT IDENT.
LA-140	6.608E-02	FAIL ABUN
CE-141	1.710E-02	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	6.132E-02	NOT IDENT.
PM-144	1.889E-02	NOT IDENT.
PR-144	1.421E+00	NOT IDENT.
PM-146	1.918E-02	NOT IDENT.
ND-147	3.764E-01	NOT IDENT.
PM-147	2.729E+02	NOT IDENT.
PM-149	1.909E+02	NOT IDENT.
EU-150	1.334E-02	NOT IDENT.
EU-152	4.695E-02	FAIL ABUN
GD-153	2.642E-02	NOT IDENT.
EU-154	5.451E-02	NOT IDENT.
EU-155	2.881E-02	NOT IDENT.
TB-160	7.488E-02	NOT IDENT.
HO-166M	1.843E-02	NOT IDENT.
TM-171	6.755E+00	NOT IDENT.
HF-172	8.264E-02	FAIL ABUN
LU-172	1.977E-02	NOT IDENT.
LU-176	8.459E-03	NOT IDENT.
HF-181	2.190E-02	NOT IDENT.
TA-182	7.560E-02	NOT IDENT.
RE-183	7.228E-02	NOT IDENT.
RE-184	4.093E-02	NOT IDENT.
W-188	2.779E+00	NOT IDENT.
IR-192	1.619E-02	NOT IDENT.
HG-203	1.790E-02	NOT IDENT.
TL-204	1.808E+00	NOT IDENT.
BI-207	2.227E-02	NOT IDENT.
TL-208	2.040E-02	NOT IDENT.
BI-210	1.819E+00	NOT IDENT.
PB-210	1.819E+00	NOT IDENT.
PB-211	2.449E-01	NOT IDENT.
BI-212	2.732E-01	NOT IDENT.
PB-212	4.216E-02	FAIL ABUN

BI-213	4.726E-02	NOT IDENT.
BI-214	2.845E-02	NOT IDENT.
PB-214	4.202E-02	FAIL ABUN
RN-219	2.103E-01	NOT IDENT.
RN-222	2.845E-02	NOT IDENT.
RA-223	2.498E-01	FAIL ABUN
RA-224	2.786E-01	NOT IDENT.
AC-225	2.805E-01	NOT IDENT.
RA-226	4.202E-02	FAIL ABUN
AC-227	1.033E-01	NOT IDENT.
TH-227	1.033E-01	NOT IDENT.
AC-228	8.989E-02	NOT IDENT.
RA-228	8.989E-02	NOT IDENT.
TH-228	4.216E-02	FAIL ABUN
TH-229	1.886E-01	NOT IDENT.
TH-230	4.202E-02	FAIL ABUN
PA-231	1.424E-01	NOT IDENT.
TH-231	2.498E-01	FAIL ABUN
TH-232	8.989E-02	NOT IDENT.
PA-233	3.157E-02	NOT IDENT.
PA-234	1.558E-01	NOT IDENT.
PA-234M	2.117E+00	NOT IDENT.
TH-234	5.248E-01	FAIL ABUN
U-234	4.202E-02	FAIL ABUN
U-235	7.201E-02	FAIL ABUN
NP-237	3.157E-02	NOT IDENT.
NP-238	5.979E+01	NOT IDENT.
U-238	5.248E-01	FAIL ABUN
NP-239	1.007E-01	NOT IDENT.
PU-239	1.502E+02	FAIL ABUN
AM-241	5.345E-02	NOT IDENT.
AM-243	1.814E-02	NOT IDENT.
CM-243	3.908E-02	NOT IDENT.
BK-247	3.334E-02	NOT IDENT.
CM-247	1.676E-02	NOT IDENT.
CF-249	1.812E-02	NOT IDENT.
CF-251	5.503E-02	NOT IDENT.
ANH-511	3.562E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781343.CNF;1
Acquisition date : 30-JUL-2024 13:38:47 Sensitivity : 3.000
Detector ID : GAM07 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.23 Half life ratio : *****
Sample date : 10-JUL-2024 00:00:00 Nuclide Library : SOLID
Sample ID : G1205781343 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.4998E+02 GRAM
Quantity Err(%) : 1.3335E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 23-JUL-2024 04:21:13 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM07_CAN.CNF;23

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
TE-125M	2.693E+00	8.354E+00	8.354E+00
BI-211	8.962E-02	1.444E-01	1.444E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	9.043E-02	1.789E-01	1.835E-01	NOT IDENT.
NA-22	9.659E-03	1.738E-02	1.791E-02	NOT IDENT.
NA-24	3.415E+07	2.212E+08	2.217E+08	SHORT HLIF
AL-26	-1.369E-03	1.904E-02	1.905E-02	NOT IDENT.
K-40	-9.577E-02	2.220E-01	2.261E-01	NOT IDENT.
SC-46	-7.443E-03	2.143E-02	2.169E-02	NOT IDENT.
V-48	-2.662E-02	5.160E-02	5.298E-02	NOT IDENT.
CR-51	-9.385E-02	2.271E-01	2.310E-01	NOT IDENT.
MN-52	-5.127E-02	3.260E-01	3.268E-01	NOT IDENT.
MN-54	1.765E-02	1.916E-02	2.075E-02	NOT IDENT.
CO-56	8.830E-03	2.133E-02	2.170E-02	NOT IDENT.
MN-56	1.000E+41	2.352E+41	0.000E+00	SHORT HLIF
CO-57	-4.395E-03	1.033E-02	1.052E-02	NOT IDENT.
CO-58	-2.833E-03	2.221E-02	2.225E-02	NOT IDENT.
FE-59	-2.338E-03	4.035E-02	4.037E-02	NOT IDENT.
CO-60	-1.238E-02	2.470E-02	2.532E-02	NOT IDENT.
ZN-65	-8.583E-03	3.855E-02	3.874E-02	NOT IDENT.
GE-68	-4.371E-01	5.403E-01	5.751E-01	NOT IDENT.
AS-73	1.437E-02	3.649E-01	3.649E-01	NOT IDENT.
AS-74	-1.029E-02	6.472E-02	6.489E-02	NOT IDENT.
SE-75	8.313E-03	1.934E-02	1.970E-02	NOT IDENT.
BR-77	5.671E+01	7.025E+01	7.476E+01	FAIL ABUN
SR-82	4.909E-02	1.774E-01	1.788E-01	NOT IDENT.
RB-83	2.627E-02	3.759E-02	3.941E-02	NOT IDENT.
RB-84	-3.016E-02	4.233E-02	4.446E-02	NOT IDENT.
KR-85	-8.516E+00	5.412E+00	6.635E+00	NOT IDENT.
SR-85	-4.783E-02	3.037E-02	3.725E-02	NOT IDENT.
RB-86	-3.321E-01	4.106E-01	4.370E-01	NOT IDENT.

Y-88	-1.453E-02	1.374E-02	1.522E-02	NOT IDENT.
Y-91	6.581E+00	1.287E+01	1.320E+01	NOT IDENT.
NB-94	7.184E-03	2.047E-02	2.072E-02	NOT IDENT.
NB-95	-6.258E-03	2.232E-02	2.250E-02	NOT IDENT.
NB-95M	1.911E-02	6.352E-02	6.410E-02	NOT IDENT.
ZR-95	-3.313E-03	4.939E-02	4.941E-02	NOT IDENT.
NB-97	-1.000E+41	2.202E+41	0.000E+00	SHORT HLIF
ZR-97	-6.104E+08	3.199E+08	4.220E+08	SHORT HLIF
MO-99	-8.264E+00	2.965E+01	2.988E+01	NOT IDENT.
TC-99M	2.588E+21	5.499E+22	0.000E+00	SHORT HLIF
RH-101	2.957E-02	3.734E-02	3.965E-02	FAIL ABUN
RH-102	-1.728E-02	3.210E-02	3.303E-02	NOT IDENT.
RU-103	1.441E-02	1.996E-02	2.099E-02	NOT IDENT.
RH-106	-5.228E-02	1.437E-01	1.457E-01	NOT IDENT.
RU-106	-5.228E-02	1.437E-01	1.457E-01	NOT IDENT.
AG-108M	8.436E-03	1.470E-02	1.519E-02	NOT IDENT.
CD-109	-2.604E-01	2.822E-01	3.057E-01	NOT IDENT.
AG-110	-5.040E-01	4.585E-01	5.117E-01	NOT IDENT.
AG-110M	1.814E-02	2.574E-02	2.701E-02	NOT IDENT.
SN-113	-4.124E-03	2.270E-02	2.277E-02	NOT IDENT.
CD-115	-2.968E+00	2.728E+01	2.731E+01	NOT IDENT.
SN-117M	-2.100E-02	3.027E-02	3.171E-02	FAIL ABUN
SB-122	2.132E+00	4.486E+00	4.588E+00	NOT IDENT.
TE-123M	-4.148E-03	1.216E-02	1.230E-02	NOT IDENT.
SB-124	-1.570E-02	5.147E-02	5.195E-02	NOT IDENT.
SB-125	3.703E-02	3.750E-02	4.105E-02	NOT IDENT.
I-126	-1.075E-01	1.463E-01	1.541E-01	NOT IDENT.
SB-126	-5.295E-02	9.070E-02	9.379E-02	NOT IDENT.
SN-126	-2.628E-02	2.731E-02	2.977E-02	NOT IDENT.
SB-127	-1.190E+00	1.706E+00	1.789E+00	NOT IDENT.
I-131	1.076E-01	1.099E-01	1.202E-01	NOT IDENT.
I-132	1.000E+41	2.189E+41	0.000E+00	SHORT HLIF
TE-132	2.890E-01	1.122E+00	1.129E+00	NOT IDENT.
BA-133	4.473E-03	2.178E-02	2.188E-02	NOT IDENT.
I-133	-6.834E+04	2.240E+05	2.261E+05	SHORT HLIF
CS-134	7.267E-03	2.170E-02	2.194E-02	NOT IDENT.
I-135	9.467E+19	1.692E+21	0.000E+00	SHORT HLIF
CS-136	-1.061E-02	8.726E-02	8.739E-02	NOT IDENT.
BA-137M	-4.437E-03	2.113E-02	2.123E-02	NOT IDENT.
CS-137	-4.687E-03	2.232E-02	2.242E-02	NOT IDENT.
LA-138	2.464E-02	3.903E-02	4.058E-02	NOT IDENT.
CE-139	-7.725E-03	1.245E-02	1.293E-02	NOT IDENT.
BA-140	1.339E-01	1.859E-01	1.955E-01	NOT IDENT.
LA-140	1.381E-02	7.382E-02	7.408E-02	FAIL ABUN
CE-141	-2.010E-02	2.448E-02	2.610E-02	NOT IDENT.
CE-143	5.457E+02	8.610E+02	8.955E+02	SHORT HLIF
CE-144	-1.012E-02	7.185E-02	7.200E-02	NOT IDENT.
PM-144	-1.707E-03	2.283E-02	2.284E-02	NOT IDENT.
PR-144	-1.207E-01	1.715E+00	1.716E+00	NOT IDENT.
PM-146	4.636E-03	2.081E-02	2.091E-02	NOT IDENT.
ND-147	2.007E-01	3.855E-01	3.960E-01	NOT IDENT.
PM-147	1.359E+02	2.832E+02	2.897E+02	NOT IDENT.
PM-149	-4.143E+01	2.166E+02	2.174E+02	NOT IDENT.
EU-150	4.418E-03	1.405E-02	1.419E-02	NOT IDENT.
EU-152	3.609E-02	4.577E-02	4.857E-02	FAIL ABUN
GD-153	-5.131E-03	3.032E-02	3.041E-02	NOT IDENT.
EU-154	3.216E-02	5.139E-02	5.339E-02	NOT IDENT.
EU-155	6.496E-03	3.296E-02	3.309E-02	NOT IDENT.
TB-160	5.196E-02	7.168E-02	7.541E-02	NOT IDENT.
HO-166M	-1.114E-02	2.632E-02	2.679E-02	NOT IDENT.
TM-171	-7.303E+00	8.461E+00	9.079E+00	NOT IDENT.
HF-172	2.545E-02	9.653E-02	9.721E-02	FAIL ABUN
LU-172	-1.618E-02	2.963E-02	3.051E-02	NOT IDENT.
LU-176	-2.636E-03	9.919E-03	9.990E-03	NOT IDENT.
HF-181	-5.424E-03	2.629E-02	2.640E-02	NOT IDENT.
TA-182	6.047E-02	6.323E-02	6.885E-02	NOT IDENT.
RE-183	1.953E-02	7.417E-02	7.469E-02	NOT IDENT.
RE-184	-6.998E-02	7.133E-02	7.800E-02	NOT IDENT.
W-188	-8.991E-01	3.219E+00	3.245E+00	NOT IDENT.
IR-192	-3.638E-03	2.068E-02	2.074E-02	NOT IDENT.
HG-203	-7.296E-04	1.965E-02	1.965E-02	NOT IDENT.
TL-204	1.690E-01	1.943E+00	1.944E+00	NOT IDENT.
BI-207	-8.207E-03	2.835E-02	2.859E-02	NOT IDENT.
TL-208	-1.020E-03	2.180E-02	2.180E-02	NOT IDENT.
BI-210	-1.521E+00	2.013E+00	2.126E+00	NOT IDENT.
PB-210	-1.521E+00	2.013E+00	2.126E+00	NOT IDENT.
PB-211	-3.509E-01	3.578E-01	3.912E-01	NOT IDENT.
BI-212	-1.049E-01	3.310E-01	3.344E-01	NOT IDENT.

PB-212	7.412E-02	8.058E-02	8.723E-02	FAIL ABUN
BI-213	1.312E-02	5.078E-02	5.112E-02	NOT IDENT.
BI-214	-6.176E-02	4.368E-02	5.180E-02	NOT IDENT.
PB-214	3.253E-02	5.241E-02	5.442E-02	FAIL ABUN
RN-219	1.345E-01	2.129E-01	2.214E-01	NOT IDENT.
RN-222	-6.176E-02	4.368E-02	5.180E-02	NOT IDENT.
RA-223	-6.540E-02	3.238E-01	3.251E-01	FAIL ABUN
RA-224	3.382E-02	3.541E-01	3.544E-01	NOT IDENT.
AC-225	-3.787E-01	4.181E-01	4.516E-01	NOT IDENT.
RA-226	3.253E-02	5.241E-02	5.442E-02	FAIL ABUN
AC-227	-5.001E-02	1.350E-01	1.369E-01	NOT IDENT.
TH-227	-5.001E-02	1.350E-01	1.369E-01	NOT IDENT.
AC-228	1.203E-02	9.239E-02	9.255E-02	NOT IDENT.
RA-228	1.203E-02	9.239E-02	9.255E-02	NOT IDENT.
TH-228	7.412E-02	8.058E-02	8.723E-02	FAIL ABUN
TH-229	3.875E-02	2.125E-01	2.132E-01	NOT IDENT.
TH-230	3.253E-02	5.241E-02	5.442E-02	FAIL ABUN
PA-231	-5.272E-02	1.692E-01	1.709E-01	NOT IDENT.
TH-231	-6.540E-02	3.238E-01	3.251E-01	FAIL ABUN
TH-232	1.203E-02	9.239E-02	9.255E-02	NOT IDENT.
PA-233	3.566E-03	3.783E-02	3.786E-02	NOT IDENT.
PA-234	4.502E-02	1.737E-01	1.749E-01	NOT IDENT.
PA-234M	1.791E-01	2.378E+00	2.380E+00	NOT IDENT.
TH-234	-2.600E-01	5.884E-01	6.000E-01	FAIL ABUN
U-234	3.253E-02	5.241E-02	5.442E-02	FAIL ABUN
U-235	-4.509E-02	8.893E-02	9.122E-02	FAIL ABUN
NP-237	3.566E-03	3.783E-02	3.786E-02	NOT IDENT.
NP-238	-1.888E+00	6.905E+01	6.906E+01	NOT IDENT.
U-238	-2.600E-01	5.884E-01	6.000E-01	FAIL ABUN
NP-239	8.300E-02	9.879E-02	1.056E-01	NOT IDENT.
PU-239	3.150E+02	3.940E+02	4.188E+02	FAIL ABUN
AM-241	5.952E-04	5.742E-02	5.742E-02	NOT IDENT.
AM-243	-1.004E-03	2.004E-02	2.004E-02	NOT IDENT.
CM-243	4.635E-02	3.678E-02	4.231E-02	NOT IDENT.
BK-247	1.450E-02	3.387E-02	3.449E-02	NOT IDENT.
CM-247	-9.557E-04	1.907E-02	1.907E-02	NOT IDENT.
CF-249	8.297E-03	1.866E-02	1.903E-02	NOT IDENT.
CF-251	2.377E-02	5.981E-02	6.076E-02	NOT IDENT.
ANH-511	-4.648E-02	3.505E-02	4.083E-02	NOT IDENT.

 * GEL Laboratories LLC *
 * 2040 Savage Road *
 * Charleston, SC 29407 *
 * GAMMA SPECTROSCOPY BACKGROUND REPORT *

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	15.9246	85.43	16.7515	131.20	8.5564
45.60	17.8120	86.55	8.8891	133.02	13.9434
46.54	20.5445	86.79	8.8935	133.52	12.8807
49.72	20.7451	86.94	12.8501	136.00	10.7745
51.35	10.8759	87.09	12.8542	136.47	12.9386
51.87	14.5233	87.57	23.7543	140.51	18.4410
52.39	18.1815	88.03	23.7766	143.76	16.3493
52.97	14.5695	88.34	13.8786	144.24	14.1791
53.44	9.1182	88.47	13.8822	145.44	15.2965
54.07	11.8749	89.96	9.2828	152.43	17.6560
57.36	0.0000	90.64	14.6072	153.25	16.2032
57.53	11.9896	91.11	22.5961	154.21	20.6497
57.98	11.0808	92.59	11.9979	156.02	11.8294
59.27	12.0459	93.35	14.6861	158.56	18.9188
59.32	12.0475	94.56	16.0592	159.00	16.7029
59.54	14.8364	94.65	16.0620	162.33	17.8965
60.96	19.5459	94.67	16.0626	162.66	17.9043
61.17	19.5566	94.87	10.7126	163.33	14.5601
62.93	19.6458	97.43	15.1392	165.86	16.8565
63.29	17.7912	98.43	9.1008	176.31	18.2236
63.58	16.8673	98.44	9.1010	176.60	17.0908
64.28	20.6522	99.53	16.2129	177.52	14.8291
66.73	18.8901	100.11	13.1874	181.07	16.0405
67.24	21.7508	102.03	18.3248	181.52	19.4887
67.68	18.9342	103.18	9.1818	184.41	23.0090
67.75	18.9374	103.37	5.4430	185.72	13.8274
68.89	21.8383	105.21	8.1919	193.51	11.6306
69.67	16.1717	105.31	8.1934	197.03	30.3640
70.82	20.9854	106.12	16.4108	198.01	17.5376
70.83	20.9860	106.47	10.2632	201.83	9.3945
72.81	17.2505	109.28	22.0047	203.43	12.9410
72.87	21.0867	111.00	24.8302	205.31	14.1475
74.66	16.3617	111.76	19.6832	210.85	13.0489
74.82	16.3677	114.06	13.5210	215.65	14.3102
74.97	21.1891	116.30	11.4846	218.12	20.3271
77.11	27.0987	116.74	9.4034	222.11	16.0111
78.74	17.4838	119.76	12.6013	227.09	12.8763
79.69	25.3073	121.12	11.5771	227.38	16.1003
80.03	25.3258	121.22	11.5791	228.16	11.2794
80.12	25.3311	121.78	13.6970	228.18	11.2796
80.19	25.3349	122.06	17.9196	235.69	12.9912
80.57	20.4798	122.92	18.2966	235.96	12.9946
81.00	20.4988	123.07	18.3011	238.63	13.4371
81.07	20.5020	123.68	14.0917	238.98	13.4418
81.75	21.5099	125.81	19.7960	240.99	17.9587
82.47	11.7509	127.23	20.1951	242.00	4.9028
83.79	11.7838	127.91	20.2170	244.70	15.9769
84.00	13.7539	129.30	15.6402	252.40	14.8594

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.80	17.3426	351.06	12.1207	569.33	10.2783
254.15	0.0000	351.93	10.7810	569.50	10.2795
256.23	17.3999	355.39	0.0000	569.70	11.3084
260.90	14.9806	356.01	11.7151	583.19	5.1758
264.66	9.1870	364.49	9.9752	584.27	9.3215
264.80	9.1884	366.42	16.3462	595.83	9.3761
265.00	9.1899	372.51	8.2092	600.60	13.5755
269.46	9.2282	375.05	13.7070	602.52	0.0000
270.03	7.5542	377.52	10.9851	604.72	15.6958
271.23	8.4029	383.85	10.1149	607.14	7.3335
273.65	11.7900	388.16	7.3786	609.32	11.5362
276.40	12.6639	388.63	7.3810	610.33	9.4435
277.37	13.5199	391.69	11.0950	614.28	9.4618
277.60	13.5228	400.66	10.2333	618.01	7.3726
278.00	11.8367	401.81	8.3793	620.36	3.1632
279.20	14.3884	402.40	11.1768	621.93	6.3313
279.54	14.3929	404.85	14.9271	630.19	0.0000
279.70	16.9352	410.95	13.1150	631.29	10.5994
280.46	15.2520	413.71	11.2622	633.25	7.4265
283.69	11.8968	414.70	9.3913	634.78	4.2467
284.31	11.9034	423.72	5.6683	635.95	7.4361
285.41	13.6172	427.09	4.7340	636.99	6.3770
285.90	11.9202	427.87	2.8418	657.50	13.9495
287.50	11.0843	433.94	6.6568	657.76	12.8779
290.67	11.9700	439.40	8.5886	657.90	0.0000
293.27	0.0000	440.45	7.6395	661.66	9.6760
295.22	10.3005	453.88	7.7039	664.57	0.0000
295.96	11.1661	463.37	7.7489	666.33	8.6191
298.58	9.4695	468.07	6.7996	666.50	8.6198
299.98	7.7569	473.00	9.7426	667.71	0.0000
300.09	7.7576	475.06	8.7792	677.62	9.7463
300.13	9.4818	476.78	10.7411	685.70	7.6078
301.36	8.6289	477.60	6.8385	692.65	8.7217
302.85	6.0478	482.18	10.7755	695.00	8.7308
304.50	7.7866	487.02	8.8414	696.49	10.9204
304.85	7.7889	492.35	4.9272	696.51	10.9208
306.78	8.6682	497.08	3.9525	697.00	7.6460
308.46	12.4998	505.52	13.9009	697.30	8.7396
311.90	14.3636	507.63	0.0000	697.49	5.4626
316.51	14.4180	511.00	14.9400	702.65	7.6651
319.41	13.1384	514.00	30.9281	706.68	10.9692
320.08	15.7745	514.00	30.9281	711.68	5.4966
321.04	13.1555	520.40	5.0063	720.70	6.6216
323.87	11.8672	520.69	5.0071	721.93	0.0000
325.23	9.2401	522.65	0.0000	722.78	6.6274
328.76	7.0599	527.90	6.0325	722.91	5.5233
333.37	13.2855	528.26	7.0393	723.31	5.5241
333.97	12.4055	529.59	8.0508	724.19	6.6316
334.37	15.9551	529.87	0.0000	727.33	8.8538
338.28	16.8929	531.02	5.0356	733.00	5.5469
338.32	16.8933	537.26	5.0527	735.93	4.4430
340.48	5.3436	546.56	0.0000	737.46	6.6689
340.55	5.3439	552.55	3.0565	739.50	8.8994
344.28	7.1457	563.25	10.2462	744.23	7.8024
345.93	9.8378	564.24	7.1760	747.24	2.2321

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
748.06	3.3492	954.55	0.0000	1408.01	4.1235
752.31	6.7102	962.31	1.4515	1434.09	4.1499
753.82	2.2381	964.08	4.5386	1435.80	2.0758
756.73	8.9632	966.17	5.8135	1457.56	0.0000
756.80	8.9635	968.97	6.3645	1460.82	1.0442
763.94	7.8662	983.53	7.3091	1489.16	2.1024
765.81	6.7476	984.45	5.4835	1505.03	0.0000
766.42	7.8741	996.26	4.5874	1584.12	2.1486
766.84	7.8756	1001.03	4.5946	1596.21	2.1543
772.60	0.0000	1002.74	8.2749	1620.50	1.0829
776.52	3.3884	1004.73	4.6002	1621.92	2.1665
777.92	2.2603	1021.30	0.0000	1678.03	0.0000
778.90	6.7834	1025.87	4.6317	1690.97	2.1987
783.70	1.1327	1028.54	6.4899	1750.46	0.0000
788.74	3.4052	1037.84	5.5792	1764.49	3.3486
792.07	2.2730	1038.76	0.0000	1770.23	2.2350
795.86	4.5529	1046.59	2.7975	1771.35	2.2355
801.95	6.8459	1048.07	6.5305	1791.20	0.0000
810.06	3.4338	1049.04	7.4653	1808.65	1.8019
810.29	3.4341	1050.41	6.5352	1810.72	0.0000
810.45	4.5791	1063.66	5.6250	1836.06	0.9058
810.76	5.7245	1077.00	4.7067		
815.77	4.5885	1077.34	4.7073		
818.51	8.0385	1085.87	3.7756		
832.01	4.6172	1093.63	4.7308		
834.85	2.3111	1099.45	2.8434		
835.71	1.1559	1112.07	0.9514		
836.80	0.0000	1112.84	0.9517		
846.75	0.0000	1115.54	3.8098		
846.77	3.4823	1120.29	4.7690		
856.80	2.3303	1120.55	5.7231		
860.56	6.1256	1121.30	3.8162		
871.09	7.0278	1129.67	0.9564		
873.19	5.2749	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	2.6434	1173.23	8.7177		
880.51	5.2890	1177.95	3.8799		
881.60	5.2912	1189.05	4.8651		
883.24	7.9415	1204.77	3.9094		
884.68	2.6485	1221.41	0.0000		
889.28	6.1902	1231.02	7.8760		
894.76	0.0000	1235.36	3.9429		
898.04	7.0969	1238.28	2.9595		
900.72	0.0000	1260.41	0.0000		
903.28	7.9989	1271.87	4.9774		
911.20	3.5651	1274.44	0.9962		
912.08	6.2408	1274.54	0.9962		
923.98	2.6859	1291.59	2.0015		
926.50	2.6882	1298.22	0.0000		
929.11	3.5875	1312.11	4.0247		
935.54	3.5956	1332.49	4.0459		
937.49	2.6985	1362.66	0.0000		
944.13	5.4093	1365.19	2.0399		
946.00	4.5107	1368.63	0.0000		
949.00	2.7092	1384.29	2.0497		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 14:40:24.18

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29407                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781344.CNF;1
Background file    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM08.CNF;726
Background date    : 29-JUL-2024 05:38:49
Sample date       : 26-JUN-2024 09:03:00 Acquisition date : 30-JUL-2024 13:39:20
Sample ID        : G1205781344 Sample quantity : 1.18840E+02 GRAM
Detector name    : GAM08 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.65 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit  : 75.00000 Sensitivity : 3.00000
Batch ID        : 2636542 Detector SN# :
Matrix Spike ID  : LCS ID :
*****
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BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.04*	15	102	0.85	92.28	89	6	4.12E-03	112.9	
2	0	63.33*	63	264	1.82	126.85	121	12	1.74E-02	54.0	
3	0	70.19	28	106	0.82	140.58	138	5	7.88E-03	57.6	
4	2	74.93	149	192	1.16	150.07	146	17	4.14E-02	17.3	2.01E+00
5	2	77.35*	234	183	1.15	154.91	146	17	6.51E-02	12.1	
6	0	87.02	45	224	1.62	174.26	172	8	1.24E-02	59.6	
7	0	93.31*	54	279	1.33	186.83	181	10	1.51E-02	61.7	
8	0	112.97	37	105	0.94	226.17	222	8	1.04E-02	50.0	
9	0	144.17*	57	154	1.66	288.59	284	10	1.60E-02	43.2	
10	0	156.62*	66	261	6.92	313.51	306	18	1.82E-02	59.3	
11	0	186.15*	183	143	1.55	372.58	367	11	5.09E-02	15.1	
12	1	238.89*	152	95	1.40	478.09	474	17	4.23E-02	14.0	2.69E+00
13	1	242.24	188	91	1.53	484.80	474	17	5.21E-02	11.8	
14	0	257.42	10	74	1.06	515.16	510	8	2.91E-03	144.1	
15	0	295.37*	386	75	1.37	591.09	585	10	1.07E-01	6.7	
16	0	328.94	20	63	1.28	658.25	653	9	5.45E-03	76.5	
17	0	339.10*	59	84	1.79	678.57	672	13	1.65E-02	34.9	
18	0	352.17*	634	68	1.25	704.71	698	13	1.76E-01	4.8	
19	0	368.65	19	37	0.86	737.69	733	9	5.35E-03	61.9	
20	0	448.02	6	19	0.55	896.46	892	7	1.71E-03	124.8	
21	0	463.53	36	15	1.14	927.49	923	11	9.94E-03	27.4	
22	0	547.33	18	18	1.14	1095.11	1092	8	5.11E-03	46.1	
23	0	583.13*	58	40	1.88	1166.73	1159	18	1.62E-02	29.1	
24	0	609.40*	457	16	1.68	1219.27	1213	13	1.27E-01	5.1	
25	3	666.13	25	19	2.40	1332.75	1324	22	6.82E-03	43.3	1.58E+00
26	3	670.70	22	3	2.19	1341.88	1324	22	6.12E-03	31.2	
27	0	685.95	15	24	3.69	1372.39	1364	14	4.11E-03	75.6	
28	0	701.88	4	16	0.60	1404.25	1398	8	1.06E-03	196.9	
29	0	704.50	6	17	0.93	1409.49	1405	9	1.55E-03	136.8	
30	0	768.46	54	23	1.27	1537.43	1530	13	1.50E-02	22.7	
31	1	783.75	28	0	1.90	1568.00	1562	15	7.78E-03	19.9	3.79E+00
32	1	786.06	24	0	2.09	1572.62	1562	15	6.69E-03	24.6	
33	0	838.20	12	9	3.03	1676.92	1672	9	3.33E-03	53.5	
34	0	860.93	11	13	1.35	1722.38	1715	11	3.06E-03	71.5	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
35	0	876.78	12	5	0.67	1754.08	1749	10	3.33E-03	45.3	
36	0	897.68	26	3	3.86	1795.87	1789	15	7.16E-03	25.4	
37	0	911.15*	49	15	2.49	1822.82	1815	15	1.37E-02	22.9	
38	0	933.74	27	9	1.60	1868.00	1862	12	7.47E-03	29.5	
39	0	969.04*	31	10	2.07	1938.60	1932	13	8.75E-03	28.4	
40	0	977.60	8	10	0.97	1955.72	1947	11	2.28E-03	84.5	
41	0	1001.24*	11	11	1.81	2003.00	1994	15	3.07E-03	76.0	
42	0	1063.40	13	8	1.94	2127.30	2121	11	3.58E-03	51.2	
43	0	1077.29	11	7	4.44	2155.10	2148	13	2.92E-03	58.8	
44	0	1120.67	95	14	1.85	2241.84	2235	14	2.65E-02	13.2	
45	0	1134.16	5	10	0.46	2268.81	2261	10	1.33E-03	141.7	
46	0	1173.92	9	8	1.42	2348.33	2344	8	2.50E-03	63.8	
47	0	1196.70	8	5	0.90	2393.88	2389	10	2.22E-03	63.1	
48	0	1213.35	8	5	1.57	2427.18	2422	10	2.09E-03	67.0	
49	0	1238.84	46	18	2.59	2478.15	2468	19	1.27E-02	27.2	
50	0	1378.08	26	9	1.96	2756.59	2750	13	7.10E-03	31.9	
51	0	1460.95*	33	10	2.06	2922.30	2915	14	9.19E-03	28.0	
52	0	1583.98	10	0	0.83	3168.30	3162	11	2.78E-03	31.6	
53	0	1729.82	18	0	1.83	3459.89	3455	10	5.00E-03	23.6	
54	0	1764.54*	83	0	1.39	3529.29	3521	16	2.30E-02	11.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781344.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,INTERF V2.4
Sample title : RXF2
Sample date : 26-JUN-2024 09:03:00 Acquisition date : 30-JUL-2024 13:39:20
Sample ID : G1205781344 Sample quantity : 118.84 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA8 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:00.65 0.0%
Energy tolerance : 1.50 keV Half life ratio : 10.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00

Interference Report

Interfering		Interfered	
Nuclide	Line	Nuclide	Line
U-235	143.76	CE-141	145.44

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
K-40	1460.82	10.66*	9.538E-01	1.944E+00	1.944E+00	56.08	OK
GE-68	1077.34	3.22*	1.239E+00	1.597E+00	1.743E+00	117.61	OK
RB-86	1077.00	8.64*	1.239E+00	5.951E-01	2.124E+00	117.61	OK
CD-109	88.03	3.70*	4.572E+00	1.813E+00	1.909E+00	119.24	OK
SN-126	64.28	9.60	2.145E+00	2.118E+00	2.118E+00	107.99	OK
	86.94	8.90	4.572E+00	7.537E-01	7.537E-01	119.24	OK
	87.57	37.00*	4.572E+00	1.813E-01	1.813E-01	119.24	OK
CE-141	145.44	48.29*	5.494E+00	4.596E-02	9.532E-02	279.92	OK
TL-204	68.89	0.47	2.972E+00	1.407E+01	1.431E+01	115.22	OK
	70.82	0.79*	2.972E+00	8.362E+00	8.507E+00	115.22	OK
	80.03	0.28	4.004E+00	----- Line	Not Found	-----	Absent
	82.47	0.07	4.220E+00	----- Line	Not Found	-----	Absent
TL-208	277.37	6.60	3.683E+00	----- Line	Not Found	-----	Absent
	583.19	85.00*	2.103E+00	2.047E-01	2.047E-01	58.12	OK
	860.56	12.50	1.516E+00	3.563E-01	3.563E-01	142.95	OK
BI-210	46.54	4.25*	3.905E-01	6.290E+00	6.309E+00	225.86	OK
PB-210	46.54	4.25*	3.905E-01	6.290E+00	6.309E+00	225.86	OK
BI-211	72.87	1.23	3.277E+00	----- Line	Not Found	-----	Absent
	351.06	12.92*	3.085E+00	1.021E+01	1.021E+01	9.65	OK
PB-212	74.82	10.28	3.500E+00	2.854E+00	2.854E+00	34.52	OK
	77.11	17.10	3.749E+00	2.517E+00	2.517E+00	24.23	OK
	238.63	43.60*	4.107E+00	5.552E-01	5.552E-01	27.99	OK
	300.09	3.30	3.475E+00	----- Line	Not Found	-----	Absent
BI-214	609.32	45.49*	2.030E+00	3.088E+00	3.088E+00	10.11	OK
	1120.29	14.92	1.196E+00	3.240E+00	3.240E+00	26.33	OK
	1764.49	15.30	8.411E-01	3.800E+00	3.800E+00	22.38	OK
PB-214	74.82	5.80	3.500E+00	5.058E+00	5.058E+00	34.52	OK
	77.11	9.70	3.749E+00	4.437E+00	4.437E+00	24.23	OK
	87.09	3.41	4.572E+00	1.967E+00	1.967E+00	119.24	OK
	242.00	7.25	4.066E+00	4.156E+00	4.156E+00	23.69	OK
	295.22	18.42	3.516E+00	3.856E+00	3.856E+00	13.32	OK
	351.93	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65	OK
RN-222	609.32	45.49*	2.030E+00	3.088E+00	3.088E+00	10.11	OK
	1120.29	14.92	1.196E+00	3.240E+00	3.240E+00	26.33	OK
	1764.49	15.30	8.411E-01	3.800E+00	3.800E+00	22.38	OK
RA-224	240.99	4.10*	4.066E+00	7.349E+00	7.349E+00	23.69	OK
RA-226	74.82	5.80	3.500E+00	5.058E+00	5.058E+00	34.52	OK
	77.11	9.70	3.749E+00	4.437E+00	4.437E+00	24.23	OK
	87.09	3.41	4.572E+00	1.967E+00	1.967E+00	119.24	OK
	242.00	7.25	4.066E+00	4.156E+00	4.156E+00	23.69	OK
	295.22	18.42	3.516E+00	3.856E+00	3.856E+00	13.32	OK
	351.93	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65	OK
AC-228	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.065E+00	1.065E+00	69.82	OK
	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78	OK
	968.97	15.80	1.364E+00	8.918E-01	8.918E-01	56.72	OK
RA-228	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.065E+00	1.065E+00	69.82	OK

Nuclide Type:

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error	Status
TH-228	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78	OK
	968.97	15.80	1.364E+00	8.918E-01	8.918E-01	56.72	OK
	74.82	10.28	3.500E+00	2.854E+00	2.854E+00	34.52	OK
	77.11	17.10	3.749E+00	2.517E+00	2.517E+00	24.23	OK
TH-230	238.63	43.60*	4.107E+00	5.552E-01	5.552E-01	27.99	OK
	300.09	3.30	3.475E+00	----- Line	Not Found	-----	Absent
	74.82	5.80	3.500E+00	5.058E+00	5.058E+00	34.52	OK
	77.11	9.70	3.749E+00	4.437E+00	4.437E+00	24.23	OK
	87.09	3.41	4.572E+00	1.967E+00	1.967E+00	119.24	OK
TH-232	242.00	7.25	4.066E+00	4.156E+00	4.156E+00	23.69	OK
	295.22	18.42	3.516E+00	3.856E+00	3.856E+00	13.32	OK
	351.93	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65	OK
	105.21	1.10	5.421E+00	----- Line	Not Found	-----	Absent
	338.32	11.27	3.173E+00	1.065E+00	1.065E+00	69.82	OK
TH-234	835.71	1.61	1.556E+00	----- Line	Not Found	-----	Absent
	911.20	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78	OK
	968.97	15.80	1.364E+00	8.918E-01	8.918E-01	56.72	OK
	63.29	3.70*	2.145E+00	5.495E+00	5.495E+00	107.99	OK
	92.59	4.23	4.961E+00	1.771E+00	1.771E+00	123.46	OK
U-234	74.82	5.80	3.500E+00	5.058E+00	5.058E+00	34.52	OK
	77.11	9.70	3.749E+00	4.437E+00	4.437E+00	24.23	OK
	87.09	3.41	4.572E+00	1.967E+00	1.967E+00	119.24	OK
	242.00	7.25	4.066E+00	4.156E+00	4.156E+00	23.69	OK
	295.22	18.42	3.516E+00	3.856E+00	3.856E+00	13.32	OK
U-235	351.93	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65	OK
	89.96	3.47	4.768E+00	----- Line	Not Found	-----	Absent
	93.35	5.60	4.961E+00	1.337E+00	1.337E+00	123.46	OK
	143.76	10.96*	5.499E+00	----- Line	Not Found	-----	<<INT Reject
	163.33	5.08	5.223E+00	----- Line	Not Found	-----	Absent
U-238	185.72	57.20	4.859E+00	4.361E-01	4.361E-01	30.29	OK
	205.31	5.01	4.563E+00	----- Line	Not Found	-----	Absent
	63.29	3.70*	2.145E+00	5.495E+00	5.495E+00	107.99	OK
	92.59	4.23	4.961E+00	1.771E+00	1.771E+00	123.46	OK
	43.53	5.90	2.524E-01	----- Line	Not Found	-----	Absent
AM-243	74.66	67.20*	3.500E+00	4.365E-01	4.365E-01	34.52	OK

Flag: "*" = Keyline

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781344.CNF;1 *
* Acquisition date : 30-JUL-2024 13:39:20 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.65 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:03:00 Analyst initials: RXF2 *
* Sample ID : G1205781344 Sample Quantity : 1.1884E+02 GRAM *
* Batch Number : 2636542 Wet Weight : 0.00000 *
* Wet wt corr : 1.00000 Dry Weight : 0.00000 *
* Nuclide Library : SOLID.NLB;17 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
K-40	1.944E+00	1.068E+00	9.017E-01
GE-68	1.743E+00	2.009E+00	2.797E+00
RB-86	2.124E+00	2.448E+00	3.407E+00
CD-109	1.909E+00	2.230E+00	2.293E+00
SN-126	1.813E-01	2.119E-01	2.192E-01
CE-141	9.532E-02	2.615E-01	2.368E-01
TL-204	8.507E+00	9.605E+00	1.376E+01
TL-208	2.047E-01	1.166E-01	8.319E-02
BI-210	6.309E+00	1.396E+01	1.604E+01
PB-210	6.309E+00	1.396E+01	1.604E+01
BI-211	1.021E+01	9.647E-01	5.291E-01
PB-212	5.552E-01	1.523E-01	1.600E-01
BI-214	3.088E+00	3.060E-01	1.806E-01
PB-214	3.704E+00	3.501E-01	1.924E-01
RN-222	3.088E+00	3.060E-01	1.806E-01
RA-224	7.349E+00	1.706E+00	1.715E+00
RA-226	3.704E+00	3.501E-01	1.924E-01
AC-228	8.111E-01	3.639E-01	3.717E-01
RA-228	8.111E-01	3.639E-01	3.717E-01
TH-228	5.552E-01	1.523E-01	1.600E-01
TH-230	3.704E+00	3.501E-01	1.924E-01
TH-232	8.111E-01	3.639E-01	3.717E-01
TH-234	5.495E+00	5.816E+00	3.993E+00
U-234	3.704E+00	3.501E-01	1.924E-01
U-235	6.386E-01	5.403E-01	5.871E-01
U-238	5.495E+00	5.816E+00	3.993E+00
AM-243	4.365E-01	1.477E-01	1.576E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	5.525E-01	6.186E-01	1.242E+00	NOT IDENT.
NA-22	2.194E-02	4.651E-02	1.017E-01	NOT IDENT.
NA-24	0.000E+00	1.310E+15	0.000E+00	SHORT HLIF

AL-26	-7.523E-03	4.476E-02	9.108E-02	NOT IDENT.
SC-46	5.405E-02	5.811E-02	1.293E-01	FAIL ABUN
V-48	5.840E-02	1.963E-01	4.044E-01	NOT IDENT.
CR-51	1.807E-01	8.167E-01	1.551E+00	NOT IDENT.
MN-52	6.246E-01	3.082E+00	6.761E+00	NOT IDENT.
MN-54	8.470E-03	4.963E-02	8.918E-02	NOT IDENT.
CO-56	-3.005E-02	7.296E-02	1.314E-01	FAIL ABUN
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	5.043E-02	3.657E-02	7.097E-02	NOT IDENT.
CO-58	1.188E-02	5.407E-02	1.109E-01	NOT IDENT.
FE-59	2.114E-02	1.163E-01	2.443E-01	NOT IDENT.
CO-60	3.965E-02	5.219E-02	1.169E-01	FAIL ABUN
ZN-65	2.292E-02	1.119E-01	2.036E-01	NOT IDENT.
AS-73	1.002E+00	2.011E+00	3.816E+00	NOT IDENT.
AS-74	-2.160E-01	2.226E-01	3.815E-01	NOT IDENT.
SE-75	-1.198E-02	6.971E-02	1.260E-01	NOT IDENT.
BR-77	0.000E+00	6.194E+03	0.000E+00	SHORT HLIF
SR-82	-1.490E-02	6.374E-01	1.259E+00	NOT IDENT.
RB-83	-1.225E-02	1.125E-01	2.036E-01	NOT IDENT.
RB-84	5.295E-02	1.330E-01	2.534E-01	NOT IDENT.
KR-85	-1.604E+01	1.224E+01	1.868E+01	NOT IDENT.
SR-85	-1.042E-01	7.925E-02	1.209E-01	NOT IDENT.
Y-88	1.017E-04	6.564E-02	1.355E-01	FAIL ABUN
Y-91	6.486E+00	2.516E+01	5.288E+01	NOT IDENT.
NB-94	1.306E-02	5.040E-02	8.476E-02	FAIL ABUN
NB-95	1.135E-02	7.657E-02	1.336E-01	NOT IDENT.
NB-95M	1.599E-01	2.331E-01	4.140E-01	NOT IDENT.
ZR-95	4.506E-02	1.032E-01	2.166E-01	NOT IDENT.
NB-97	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.717E+14	0.000E+00	SHORT HLIF
MO-99	0.000E+00	1.897E+03	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	4.213E+39	0.000E+00	SHORT HLIF
RH-101	9.079E-03	4.678E-02	8.238E-02	NOT IDENT.
RH-102	-1.683E-02	7.134E-02	1.357E-01	NOT IDENT.
RU-103	-4.078E-02	6.340E-02	1.063E-01	FAIL ABUN
RH-106	1.074E-02	4.142E-01	8.159E-01	NOT IDENT.
RU-106	1.074E-02	4.142E-01	8.159E-01	NOT IDENT.
AG-108M	5.752E-03	3.930E-02	7.409E-02	NOT IDENT.
AG-110	-3.006E-01	7.427E-01	1.405E+00	NOT IDENT.
AG-110M	-4.563E-02	7.160E-02	1.245E-01	NOT IDENT.
SN-113	-4.650E-02	6.537E-02	1.109E-01	NOT IDENT.
CD-115	0.000E+00	5.687E+03	0.000E+00	SHORT HLIF
SN-117M	7.362E-02	2.114E-01	4.074E-01	FAIL ABUN
SB-122	0.000E+00	2.920E+02	0.000E+00	SHORT HLIF
TE-123M	6.061E-03	4.575E-02	8.718E-02	NOT IDENT.
SB-124	2.697E-02	1.714E-01	3.609E-01	NOT IDENT.
SB-125	-1.840E-02	1.378E-01	2.486E-01	FAIL ABUN
TE-125M	1.066E+01	1.789E+01	3.066E+01	NOT IDENT.
I-126	1.539E+00	1.306E+00	1.922E+00	FAIL ABUN
SB-126	-9.656E-02	4.711E-01	9.043E-01	FAIL ABUN
SB-127	6.403E+01	9.482E+01	1.106E+02	FAIL ABUN
I-131	2.184E-01	8.560E-01	1.483E+00	NOT IDENT.
I-132	0.000E+00	8.747E+40	0.000E+00	SHORT HLIF
TE-132	0.000E+00	6.367E+01	0.000E+00	SHORT HLIF
BA-133	-4.943E-03	5.549E-02	9.184E-02	NOT IDENT.
I-133	0.000E+00	3.244E+10	0.000E+00	SHORT HLIF
CS-134	-3.637E-03	5.414E-02	1.041E-01	NOT IDENT.
I-135	0.000E+00	6.123E+36	0.000E+00	SHORT HLIF
CS-136	-1.719E-01	3.851E-01	6.843E-01	FAIL ABUN
BA-137M	6.677E-03	3.982E-02	7.351E-02	NOT IDENT.
CS-137	7.054E-03	4.207E-02	7.766E-02	NOT IDENT.
LA-138	-2.061E-02	7.280E-02	1.424E-01	NOT IDENT.
CE-139	-3.356E-02	4.614E-02	8.328E-02	NOT IDENT.
BA-140	9.095E-01	9.872E-01	2.048E+00	NOT IDENT.
LA-140	2.475E-01	3.319E-01	7.904E-01	FAIL ABUN
CE-143	0.000E+00	3.069E+06	0.000E+00	SHORT HLIF
CE-144	-3.155E-02	2.859E-01	4.919E-01	NOT IDENT.
PM-144	-3.349E-03	5.146E-02	8.730E-02	NOT IDENT.
PR-144	-2.419E-01	3.891E+00	6.605E+00	NOT IDENT.
PM-146	1.389E-03	6.225E-02	1.143E-01	NOT IDENT.
ND-147	2.156E+00	2.438E+00	5.048E+00	NOT IDENT.
PM-147	5.620E+02	1.101E+03	1.993E+03	NOT IDENT.
PM-149	0.000E+00	5.127E+04	0.000E+00	SHORT HLIF
EU-150	3.332E-02	4.291E-02	7.759E-02	FAIL ABUN
EU-152	-3.834E-02	1.607E-01	2.568E-01	NOT IDENT.
GD-153	3.597E-02	1.340E-01	2.390E-01	FAIL ABUN
EU-154	7.180E-02	1.330E-01	2.932E-01	NOT IDENT.
EU-155	3.621E-02	1.468E-01	2.635E-01	FAIL ABUN

TB-160	-5.862E-02	2.080E-01	3.360E-01	FAIL ABUN
HO-166M	-2.166E-03	8.318E-02	1.604E-01	NOT IDENT.
TM-171	-2.147E+01	3.850E+01	6.736E+01	NOT IDENT.
HF-172	-7.127E-02	2.723E-01	4.637E-01	FAIL ABUN
LU-172	0.000E+00	6.921E-02	1.377E-01	FAIL ABUN
LU-176	-1.168E-02	3.528E-02	6.370E-02	FAIL ABUN
HF-181	-7.045E-03	8.533E-02	1.538E-01	NOT IDENT.
TA-182	-6.987E-02	2.152E-01	3.929E-01	FAIL ABUN
RE-183	2.625E-02	4.540E-01	8.270E-01	NOT IDENT.
RE-184	1.831E-01	2.226E-01	4.519E-01	NOT IDENT.
W-188	-7.131E+00	1.350E+01	2.104E+01	FAIL ABUN
IR-192	4.428E-02	5.616E-02	1.123E-01	FAIL ABUN
HG-203	-4.634E-02	7.051E-02	1.236E-01	FAIL ABUN
BI-207	8.393E-02	8.426E-02	1.527E-01	FAIL ABUN
PB-211	-1.291E-01	9.774E-01	1.777E+00	NOT IDENT.
BI-212	4.727E-01	6.620E-01	1.397E+00	NOT IDENT.
BI-213	-4.492E-02	1.515E-01	2.682E-01	NOT IDENT.
RN-219	-9.210E-03	5.633E-01	1.037E+00	NOT IDENT.
RA-223	3.741E-01	9.107E-01	1.606E+00	FAIL ABUN
AC-225	-1.506E+00	3.127E+00	5.650E+00	NOT IDENT.
AC-227	1.846E-01	5.214E-01	7.112E-01	FAIL ABUN
TH-227	1.846E-01	5.214E-01	7.112E-01	FAIL ABUN
TH-229	-2.574E-02	7.203E-01	1.352E+00	FAIL ABUN
PA-231	6.547E-01	6.933E-01	1.381E+00	NOT IDENT.
TH-231	3.741E-01	9.107E-01	1.606E+00	FAIL ABUN
PA-233	-2.267E-02	9.074E-02	1.646E-01	FAIL ABUN
PA-234	3.650E-02	3.403E-01	6.870E-01	FAIL ABUN
PA-234M	6.051E+00	9.010E+00	1.313E+01	FAIL ABUN
NP-237	-2.267E-02	9.074E-02	1.646E-01	FAIL ABUN
NP-238	0.000E+00	1.257E+04	0.000E+00	SHORT HLIF
NP-239	-1.001E-01	3.881E-01	6.092E-01	NOT IDENT.
PU-239	4.361E+02	4.964E+02	9.178E+02	NOT IDENT.
AM-241	-3.354E-02	3.087E-01	5.107E-01	NOT IDENT.
CM-243	-6.767E-02	1.441E-01	2.443E-01	NOT IDENT.
BK-247	-3.719E-02	1.126E-01	2.007E-01	NOT IDENT.
CM-247	-1.661E-02	5.223E-02	9.279E-02	NOT IDENT.
CF-249	2.534E-02	5.594E-02	1.082E-01	NOT IDENT.
CF-251	7.745E-02	1.777E-01	3.448E-01	NOT IDENT.
ANH-511	-4.434E-02	5.990E-02	1.233E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	31	10.66*	9.538E-01	1.944E+00	1.944E+00	56.08
GE-68	1077.34	10	3.22*	1.239E+00	1.597E+00	1.743E+00	117.61
RB-86	1077.00	10	8.64*	1.239E+00	5.951E-01	2.124E+00	117.61
CD-109	88.03	49	3.70*	4.572E+00	1.813E+00	1.909E+00	119.24
SN-126	64.28	69	9.60	2.145E+00	2.118E+00	2.118E+00	107.99
	86.94	49	8.90	4.572E+00	7.537E-01	7.537E-01	119.24
	87.57	49	37.00*	4.572E+00	1.813E-01	1.813E-01	119.24
CE-141	145.44	61	48.29*	5.494E+00	1.449E-01	3.006E-01	86.32
TL-204	68.89	31	0.47	2.972E+00	1.407E+01	1.431E+01	115.22
	70.82	31	0.79*	2.972E+00	8.362E+00	8.507E+00	115.22
	80.03	-----	0.28	4.004E+00	-----	Line Not Found	-----
	82.47	-----	0.07	4.220E+00	-----	Line Not Found	-----
TL-208	277.37	-----	6.60	3.683E+00	-----	Line Not Found	-----
	583.19	58	85.00*	2.103E+00	2.047E-01	2.047E-01	58.12
	860.56	11	12.50	1.516E+00	3.563E-01	3.563E-01	142.95
BI-210	46.54	17	4.25*	3.905E-01	6.290E+00	6.309E+00	225.86
PB-210	46.54	17	4.25*	3.905E-01	6.290E+00	6.309E+00	225.86
BI-211	72.87	-----	1.23	3.277E+00	-----	Line Not Found	-----
	351.06	644	12.92*	3.085E+00	1.021E+01	1.021E+01	9.65
PB-212	74.82	163	10.28	3.500E+00	2.854E+00	2.854E+00	34.52
	77.11	255	17.10	3.749E+00	2.517E+00	2.517E+00	24.23
	238.63	157	43.60*	4.107E+00	5.552E-01	5.552E-01	27.99
	300.09	-----	3.30	3.475E+00	-----	Line Not Found	-----
BI-214	609.32	451	45.49*	2.030E+00	3.088E+00	3.088E+00	10.11
	1120.29	92	14.92	1.196E+00	3.240E+00	3.240E+00	26.33
	1764.49	77	15.30	8.411E-01	3.800E+00	3.800E+00	22.38
PB-214	74.82	163	5.80	3.500E+00	5.058E+00	5.058E+00	34.52
	77.11	255	9.70	3.749E+00	4.437E+00	4.437E+00	24.23
	87.09	49	3.41	4.572E+00	1.967E+00	1.967E+00	119.24
	242.00	194	7.25	4.066E+00	4.156E+00	4.156E+00	23.69
	295.22	395	18.42	3.516E+00	3.856E+00	3.856E+00	13.32
	351.93	644	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65
RN-222	609.32	451	45.49*	2.030E+00	3.088E+00	3.088E+00	10.11
	1120.29	92	14.92	1.196E+00	3.240E+00	3.240E+00	26.33
	1764.49	77	15.30	8.411E-01	3.800E+00	3.800E+00	22.38
RA-224	240.99	194	4.10*	4.066E+00	7.349E+00	7.349E+00	23.69
RA-226	74.82	163	5.80	3.500E+00	5.058E+00	5.058E+00	34.52
	77.11	255	9.70	3.749E+00	4.437E+00	4.437E+00	24.23
	87.09	49	3.41	4.572E+00	1.967E+00	1.967E+00	119.24
	242.00	194	7.25	4.066E+00	4.156E+00	4.156E+00	23.69
	295.22	395	18.42	3.516E+00	3.856E+00	3.856E+00	13.32
	351.93	644	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65
AC-228	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	60	11.27	3.173E+00	1.065E+00	1.065E+00	69.82
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	48	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78
	968.97	30	15.80	1.364E+00	8.918E-01	8.918E-01	56.72

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	60	11.27	3.173E+00	1.065E+00	1.065E+00	69.82
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	48	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78
	968.97	30	15.80	1.364E+00	8.918E-01	8.918E-01	56.72
TH-228	74.82	163	10.28	3.500E+00	2.854E+00	2.854E+00	34.52
	77.11	255	17.10	3.749E+00	2.517E+00	2.517E+00	24.23
	238.63	157	43.60*	4.107E+00	5.552E-01	5.552E-01	27.99
	300.09	-----	3.30	3.475E+00	-----	Line Not Found	-----
TH-230	74.82	163	5.80	3.500E+00	5.058E+00	5.058E+00	34.52
	77.11	255	9.70	3.749E+00	4.437E+00	4.437E+00	24.23
	87.09	49	3.41	4.572E+00	1.967E+00	1.967E+00	119.24
	242.00	194	7.25	4.066E+00	4.156E+00	4.156E+00	23.69
	295.22	395	18.42	3.516E+00	3.856E+00	3.856E+00	13.32
	351.93	644	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65
TH-232	105.21	-----	1.10	5.421E+00	-----	Line Not Found	-----
	338.32	60	11.27	3.173E+00	1.065E+00	1.065E+00	69.82
	835.71	-----	1.61	1.556E+00	-----	Line Not Found	-----
	911.20	48	25.80*	1.441E+00	8.111E-01	8.111E-01	45.78
	968.97	30	15.80	1.364E+00	8.918E-01	8.918E-01	56.72
TH-234	63.29	69	3.70*	2.145E+00	5.495E+00	5.495E+00	107.99
	92.59	59	4.23	4.961E+00	1.771E+00	1.771E+00	123.46
U-234	74.82	163	5.80	3.500E+00	5.058E+00	5.058E+00	34.52
	77.11	255	9.70	3.749E+00	4.437E+00	4.437E+00	24.23
	87.09	49	3.41	4.572E+00	1.967E+00	1.967E+00	119.24
	242.00	194	7.25	4.066E+00	4.156E+00	4.156E+00	23.69
	295.22	395	18.42	3.516E+00	3.856E+00	3.856E+00	13.32
	351.93	644	35.60*	3.085E+00	3.704E+00	3.704E+00	9.65
U-235	89.96	-----	3.47	4.768E+00	-----	Line Not Found	-----
	93.35	59	5.60	4.961E+00	1.337E+00	1.337E+00	123.46
	143.76	61	10.96*	5.494E+00	6.386E-01	6.386E-01	86.32
	163.33	-----	5.08	5.223E+00	-----	Line Not Found	-----
	185.72	192	57.20	4.859E+00	4.361E-01	4.361E-01	30.29
	205.31	-----	5.01	4.563E+00	-----	Line Not Found	-----
U-238	63.29	69	3.70*	2.145E+00	5.495E+00	5.495E+00	107.99
	92.59	59	4.23	4.961E+00	1.771E+00	1.771E+00	123.46
AM-243	43.53	-----	5.90	2.524E-01	-----	Line Not Found	-----
	74.66	163	67.20*	3.500E+00	4.365E-01	4.365E-01	34.52

Flag: "*" = Keyline

Total number of lines in spectrum 54
Number of unidentified lines 13
Number of lines tentatively identified by NID 41 75.93%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	1.944E+00	1.944E+00	1.090E+00	56.08	
GE-68	270.95D	1.09	1.597E+00	1.743E+00	2.050E+00	117.61	
RB-86	18.64D	3.57	5.951E-01	2.124E+00	2.498E+00	117.61	
CD-109	461.40D	1.05	1.813E+00	1.909E+00	2.276E+00	119.24	
SN-126	2.30E+05Y	1.00	1.813E-01	1.813E-01	2.162E-01	119.24	
CE-141	32.51D	2.07	1.449E-01	3.006E-01	2.595E-01	86.32	
TL-204	3.78Y	1.02	8.362E+00	8.507E+00	9.801E+00	115.22	
TL-208	1.41E+10Y	1.00	2.047E-01	2.047E-01	1.190E-01	58.12	
BI-210	22.20Y	1.00	6.290E+00	6.309E+00	14.25E+00	225.86	
PB-210	22.20Y	1.00	6.290E+00	6.309E+00	14.25E+00	225.86	
BI-211	7.04E+08Y	1.00	1.021E+01	1.021E+01	0.098E+01	9.65	
PB-212	1.41E+10Y	1.00	5.552E-01	5.552E-01	1.554E-01	27.99	
BI-214	1600.00Y	1.00	3.088E+00	3.088E+00	0.312E+00	10.11	
PB-214	1600.00Y	1.00	3.704E+00	3.704E+00	0.357E+00	9.65	
RN-222	1600.00Y	1.00	3.088E+00	3.088E+00	0.312E+00	10.11	
RA-224	1.41E+10Y	1.00	7.349E+00	7.349E+00	1.741E+00	23.69	
RA-226	1600.00Y	1.00	3.704E+00	3.704E+00	0.357E+00	9.65	
AC-228	1.41E+10Y	1.00	8.111E-01	8.111E-01	3.713E-01	45.78	
RA-228	1.41E+10Y	1.00	8.111E-01	8.111E-01	3.713E-01	45.78	
TH-228	1.41E+10Y	1.00	5.552E-01	5.552E-01	1.554E-01	27.99	
TH-230	7.54E+04Y	1.00	3.704E+00	3.704E+00	0.357E+00	9.65	
TH-232	1.41E+10Y	1.00	8.111E-01	8.111E-01	3.713E-01	45.78	
TH-234	4.47E+09Y	1.00	5.495E+00	5.495E+00	5.934E+00	107.99	
U-234	2.45E+05Y	1.00	3.704E+00	3.704E+00	0.357E+00	9.65	
U-235	7.04E+08Y	1.00	6.386E-01	6.386E-01	5.513E-01	86.32	
U-238	4.47E+09Y	1.00	5.495E+00	5.495E+00	5.934E+00	107.99	
AM-243	7370.00Y	1.00	4.365E-01	4.365E-01	1.507E-01	34.52	
Total Activity :			8.158E+01	8.369E+01			

Grand Total Activity : 8.158E+01 8.369E+01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	112.97	40	112	0.94	226.17	222	8	1.04E-02	99.9	5.57E+00	T
0	156.62	69	275	6.92	313.51	306	18	1.82E-02	****	5.33E+00	T
0	257.42	11	76	1.06	515.16	510	8	2.91E-03	****	3.89E+00	T
0	328.94	20	65	1.28	658.25	653	9	5.45E-03	****	3.25E+00	T
0	368.65	20	37	0.86	737.69	733	9	5.35E-03	****	2.98E+00	
0	448.02	6	19	0.55	896.46	892	7	1.71E-03	****	2.58E+00	
0	463.53	36	15	1.14	927.49	923	11	9.94E-03	54.9	2.51E+00	T
0	547.33	18	18	1.14	1095.11	1092	8	5.11E-03	92.3	2.21E+00	T
3	666.13	24	19	2.40	1332.75	1324	22	6.82E-03	86.6	1.89E+00	T
3	670.70	22	3	2.19	1341.88	1324	22	6.12E-03	62.4	1.88E+00	
0	685.95	15	24	3.69	1372.39	1364	14	4.11E-03	****	1.84E+00	T
0	701.88	4	16	0.60	1404.25	1398	8	1.06E-03	****	1.81E+00	T
0	704.50	5	17	0.93	1409.49	1405	9	1.55E-03	****	1.80E+00	
0	768.46	53	22	1.27	1537.43	1530	13	1.50E-02	45.4	1.67E+00	
1	783.75	27	0	1.90	1568.00	1562	15	7.78E-03	39.8	1.65E+00	T
1	786.06	24	0	2.09	1572.62	1562	15	6.69E-03	49.1	1.64E+00	
0	838.20	12	9	3.03	1676.92	1672	9	3.33E-03	****	1.55E+00	T
0	876.78	12	5	0.67	1754.08	1749	10	3.33E-03	90.5	1.49E+00	T
0	897.68	25	3	3.86	1795.87	1789	15	7.16E-03	50.9	1.46E+00	T
0	933.74	26	9	1.60	1868.00	1862	12	7.47E-03	59.0	1.41E+00	
0	977.60	8	9	0.97	1955.72	1947	11	2.28E-03	****	1.35E+00	
0	1001.24	11	11	1.81	2003.00	1994	15	3.07E-03	****	1.32E+00	T
0	1063.40	12	8	1.94	2127.30	2121	11	3.58E-03	****	1.25E+00	T
0	1134.16	5	10	0.46	2268.81	2261	10	1.33E-03	****	1.18E+00	
0	1173.92	9	8	1.42	2348.33	2344	8	2.50E-03	****	1.15E+00	T
0	1196.70	8	5	0.90	2393.88	2389	10	2.22E-03	****	1.13E+00	
0	1213.35	7	5	1.57	2427.18	2422	10	2.09E-03	****	1.11E+00	
0	1238.84	43	18	2.59	2478.15	2468	19	1.27E-02	54.5	1.09E+00	T
0	1378.08	24	9	1.96	2756.59	2750	13	7.10E-03	63.9	9.99E-01	
0	1583.98	9	0	0.83	3168.30	3162	11	2.78E-03	63.2	8.99E-01	T
0	1729.82	17	0	1.83	3459.89	3455	10	5.00E-03	47.1	8.50E-01	

Flags: "T" = Tentatively associated

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

* DETECTOR AND SAMPLE DATA *
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781344.CNF;1 *
* Acquisition date : 30-JUL-2024 13:39:20 Sensitivity : 3.000 *
* Detector ID : GAM08 Energy tolerance: 1.500 *
* Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 01:00:00.65 Half life ratio : ***** *
* Sample date : 26-JUN-2024 09:03:00 Nuclide Library : SOLID *
* Sample ID : G1205781344 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.1884E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

* CALIBRATION INFORMATION *
* Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
K-40	3.671E-01
GE-68	1.165E+00
RB-86	1.419E+00
CD-109	1.093E+00
SN-126	1.045E-01
CE-141	1.116E-01
TL-204	6.511E+00
TL-208	3.679E-02
BI-210	7.529E+00
PB-210	7.529E+00
BI-211	2.430E-01
PB-212	7.518E-02
BI-214	8.100E-02
PB-214	8.838E-02
RN-222	8.100E-02
RA-224	8.060E-01
RA-226	8.838E-02
AC-228	1.629E-01
RA-228	1.629E-01
TH-228	7.518E-02
TH-230	8.838E-02
TH-232	1.629E-01
TH-234	1.886E+00
U-234	8.838E-02
U-235	2.792E-01
U-238	1.886E+00
AM-243	7.505E-02

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	5.689E-01	NOT IDENT.
NA-22	4.267E-02	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	3.528E-02	NOT IDENT.

SC-46	5.693E-02	FAIL ABUN
V-48	1.741E-01	NOT IDENT.
CR-51	7.135E-01	NOT IDENT.
MN-52	2.768E+00	NOT IDENT.
MN-54	3.866E-02	NOT IDENT.
CO-56	5.813E-02	FAIL ABUN
MN-56	0.000E+00	SHORT HLIF
CO-57	3.352E-02	NOT IDENT.
CO-58	4.791E-02	NOT IDENT.
FE-59	1.010E-01	NOT IDENT.
CO-60	5.005E-02	FAIL ABUN
ZN-65	8.630E-02	NOT IDENT.
AS-73	1.794E+00	NOT IDENT.
AS-74	1.640E-01	NOT IDENT.
SE-75	5.830E-02	NOT IDENT.
BR-77	0.000E+00	SHORT HLIF
SR-82	5.424E-01	NOT IDENT.
RB-83	9.087E-02	NOT IDENT.
RB-84	1.095E-01	NOT IDENT.
KR-85	8.482E+00	NOT IDENT.
SR-85	5.488E-02	NOT IDENT.
Y-88	5.478E-02	FAIL ABUN
Y-91	2.205E+01	NOT IDENT.
NB-94	3.763E-02	FAIL ABUN
NB-95	5.940E-02	NOT IDENT.
NB-95M	1.949E-01	NOT IDENT.
ZR-95	9.487E-02	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	SHORT HLIF
RH-101	3.888E-02	NOT IDENT.
RH-102	5.994E-02	NOT IDENT.
RU-103	4.589E-02	FAIL ABUN
RH-106	3.618E-01	NOT IDENT.
RU-106	3.618E-01	NOT IDENT.
AG-108M	3.344E-02	NOT IDENT.
AG-110	5.924E-01	NOT IDENT.
AG-110M	5.353E-02	NOT IDENT.
SN-113	4.971E-02	NOT IDENT.
CD-115	0.000E+00	SHORT HLIF
SN-117M	1.929E-01	FAIL ABUN
SB-122	0.000E+00	SHORT HLIF
TE-123M	4.121E-02	NOT IDENT.
SB-124	1.497E-01	NOT IDENT.
SB-125	1.132E-01	FAIL ABUN
TE-125M	1.445E+01	NOT IDENT.
I-126	8.748E-01	FAIL ABUN
SB-126	3.907E-01	FAIL ABUN
SB-127	4.931E+01	FAIL ABUN
I-131	6.742E-01	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	0.000E+00	SHORT HLIF
BA-133	4.135E-02	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	4.568E-02	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	2.912E-01	FAIL ABUN
BA-137M	3.172E-02	NOT IDENT.
CS-137	3.351E-02	NOT IDENT.
LA-138	5.775E-02	NOT IDENT.
CE-139	3.916E-02	NOT IDENT.
BA-140	9.231E-01	NOT IDENT.
LA-140	3.312E-01	FAIL ABUN
CE-143	0.000E+00	SHORT HLIF
CE-144	2.307E-01	NOT IDENT.
PM-144	3.860E-02	NOT IDENT.
PR-144	2.921E+00	NOT IDENT.
PM-146	5.190E-02	NOT IDENT.
ND-147	2.273E+00	NOT IDENT.
PM-147	9.412E+02	NOT IDENT.
PM-149	0.000E+00	SHORT HLIF
EU-150	3.600E-02	FAIL ABUN
EU-152	1.180E-01	NOT IDENT.
GD-153	1.131E-01	FAIL ABUN
EU-154	1.236E-01	NOT IDENT.
EU-155	1.240E-01	FAIL ABUN
TB-160	1.415E-01	FAIL ABUN

HO-166M	7.134E-02	NOT IDENT.
TM-171	3.153E+01	NOT IDENT.
HF-172	2.177E-01	FAIL ABUN
LU-172	5.736E-02	FAIL ABUN
LU-176	2.915E-02	FAIL ABUN
HF-181	6.926E-02	NOT IDENT.
TA-182	1.614E-01	FAIL ABUN
RE-183	3.896E-01	NOT IDENT.
RE-184	1.957E-01	NOT IDENT.
W-188	9.674E+00	FAIL ABUN
IR-192	5.186E-02	FAIL ABUN
HG-203	5.702E-02	FAIL ABUN
BI-207	6.722E-02	FAIL ABUN
PB-211	8.064E-01	NOT IDENT.
BI-212	6.251E-01	NOT IDENT.
BI-213	1.214E-01	NOT IDENT.
RN-219	4.719E-01	NOT IDENT.
RA-223	7.372E-01	FAIL ABUN
AC-225	2.639E+00	NOT IDENT.
AC-227	3.323E-01	FAIL ABUN
TH-227	3.323E-01	FAIL ABUN
TH-229	6.345E-01	FAIL ABUN
PA-231	6.442E-01	NOT IDENT.
TH-231	7.372E-01	FAIL ABUN
PA-233	7.564E-02	FAIL ABUN
PA-234	2.924E-01	FAIL ABUN
PA-234M	5.799E+00	FAIL ABUN
NP-237	7.564E-02	FAIL ABUN
NP-238	0.000E+00	SHORT HLIF
NP-239	2.850E-01	NOT IDENT.
PU-239	4.344E+02	NOT IDENT.
AM-241	2.409E-01	NOT IDENT.
CM-243	1.144E-01	NOT IDENT.
BK-247	9.279E-02	NOT IDENT.
CM-247	4.211E-02	NOT IDENT.
CF-249	4.955E-02	NOT IDENT.
CF-251	1.624E-01	NOT IDENT.
ANH-511	5.799E-02	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781344.CNF;1
Acquisition date : 30-JUL-2024 13:39:20 Sensitivity : 3.000
Detector ID : GAM08 Energy tolerance: 1.500
Elapsed live time: 0 01:00:00.00 Abundance limit : 75.000
Elapsed real time: 0 01:00:00.65 Half life ratio : *****
Sample date : 26-JUN-2024 09:03:00 Nuclide Library : SOLID
Sample ID : G1205781344 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1884E+02 GRAM
Quantity Err(%) : 1.6829E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 13-FEB-2024 11:13:03 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM08_CAN.CNF;21

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
K-40	1.944E+00	1.084E+00	1.084E+00
GE-68	1.743E+00	2.014E+00	2.014E+00
RB-86	2.124E+00	2.455E+00	2.455E+00
CD-109	1.909E+00	2.243E+00	2.243E+00
SN-126	1.813E-01	2.128E-01	2.128E-01
CE-141	9.532E-02	2.629E-01	2.629E-01
TL-204	8.507E+00	9.665E+00	9.665E+00
TL-208	2.047E-01	1.180E-01	1.180E-01
BI-210	6.309E+00	1.398E+01	1.398E+01
PB-210	6.309E+00	1.398E+01	1.398E+01
BI-211	1.021E+01	1.389E+00	1.389E+00
PB-212	5.552E-01	1.627E-01	1.627E-01
BI-214	3.088E+00	4.063E-01	4.063E-01
PB-214	3.704E+00	5.005E-01	5.005E-01
RN-222	3.088E+00	4.063E-01	4.063E-01
RA-224	7.349E+00	1.870E+00	1.870E+00
RA-226	3.704E+00	5.005E-01	5.005E-01
AC-228	8.111E-01	3.723E-01	3.723E-01
RA-228	8.111E-01	3.723E-01	3.723E-01
TH-228	5.552E-01	1.627E-01	1.627E-01
TH-230	3.704E+00	5.005E-01	5.005E-01
TH-232	8.111E-01	3.723E-01	3.723E-01
TH-234	5.495E+00	5.967E+00	5.967E+00
U-234	3.704E+00	5.005E-01	5.005E-01
U-235	6.386E-01	5.430E-01	5.430E-01
U-238	5.495E+00	5.967E+00	5.967E+00
AM-243	4.365E-01	1.552E-01	1.552E-01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	5.525E-01	6.206E-01	6.687E-01	NOT IDENT.
NA-22	2.194E-02	4.655E-02	4.759E-02	NOT IDENT.
NA-24	7.187E+13	1.310E+15	1.310E+15	SHORT HLIF

AL-26	-7.523E-03	4.477E-02	4.489E-02	NOT IDENT.
SC-46	5.405E-02	5.832E-02	6.321E-02	FAIL ABUN
V-48	5.840E-02	1.964E-01	1.982E-01	NOT IDENT.
CR-51	1.807E-01	8.169E-01	8.210E-01	NOT IDENT.
MN-52	6.246E-01	3.083E+00	3.095E+00	NOT IDENT.
MN-54	8.470E-03	4.963E-02	4.978E-02	NOT IDENT.
CO-56	-3.005E-02	7.301E-02	7.425E-02	FAIL ABUN
MN-56	-1.000E+41	2.449E+41	0.000E+00	SHORT HLIF
CO-57	5.043E-02	3.678E-02	4.324E-02	NOT IDENT.
CO-58	1.188E-02	5.408E-02	5.434E-02	NOT IDENT.
FE-59	2.114E-02	1.163E-01	1.167E-01	NOT IDENT.
CO-60	3.965E-02	5.231E-02	5.528E-02	FAIL ABUN
ZN-65	2.292E-02	1.120E-01	1.124E-01	NOT IDENT.
AS-73	1.002E+00	2.024E+00	2.074E+00	NOT IDENT.
AS-74	-2.160E-01	2.239E-01	2.441E-01	NOT IDENT.
SE-75	-1.198E-02	6.972E-02	6.993E-02	NOT IDENT.
BR-77	2.258E+04	2.325E+04	2.538E+04	SHORT HLIF
SR-82	-1.490E-02	6.374E-01	6.374E-01	NOT IDENT.
RB-83	-1.225E-02	1.125E-01	1.126E-01	NOT IDENT.
RB-84	5.295E-02	1.331E-01	1.352E-01	NOT IDENT.
KR-85	-1.604E+01	1.232E+01	1.429E+01	NOT IDENT.
SR-85	-1.042E-01	7.979E-02	9.259E-02	NOT IDENT.
Y-88	1.017E-04	6.564E-02	6.564E-02	FAIL ABUN
Y-91	6.486E+00	2.516E+01	2.533E+01	NOT IDENT.
NB-94	1.306E-02	5.041E-02	5.075E-02	FAIL ABUN
NB-95	1.135E-02	7.658E-02	7.675E-02	NOT IDENT.
NB-95M	1.599E-01	2.339E-01	2.447E-01	NOT IDENT.
ZR-95	4.506E-02	1.033E-01	1.053E-01	NOT IDENT.
NB-97	-1.000E+41	3.470E+41	0.000E+00	SHORT HLIF
ZR-97	-4.055E+14	3.735E+14	4.158E+14	SHORT HLIF
MO-99	-8.321E+02	1.898E+03	1.935E+03	SHORT HLIF
TC-99M	2.657E+39	4.225E+39	0.000E+00	SHORT HLIF
RH-101	9.079E-03	4.681E-02	4.699E-02	NOT IDENT.
RH-102	-1.683E-02	7.136E-02	7.177E-02	NOT IDENT.
RU-103	-4.078E-02	6.352E-02	6.612E-02	FAIL ABUN
RH-106	1.074E-02	4.142E-01	4.143E-01	NOT IDENT.
RU-106	1.074E-02	4.142E-01	4.143E-01	NOT IDENT.
AG-108M	5.752E-03	3.930E-02	3.938E-02	NOT IDENT.
AG-110	-3.006E-01	7.431E-01	7.554E-01	NOT IDENT.
AG-110M	-4.563E-02	7.174E-02	7.463E-02	NOT IDENT.
SN-113	-4.650E-02	6.549E-02	6.876E-02	NOT IDENT.
CD-115	-4.628E+03	5.707E+03	6.076E+03	SHORT HLIF
SN-117M	7.362E-02	2.115E-01	2.141E-01	FAIL ABUN
SB-122	6.356E+01	2.921E+02	2.935E+02	SHORT HLIF
TE-123M	6.061E-03	4.575E-02	4.583E-02	NOT IDENT.
SB-124	2.697E-02	1.714E-01	1.719E-01	NOT IDENT.
SB-125	-1.840E-02	1.378E-01	1.381E-01	FAIL ABUN
TE-125M	1.066E+01	1.792E+01	1.855E+01	NOT IDENT.
I-126	1.539E+00	1.314E+00	1.486E+00	FAIL ABUN
SB-126	-9.656E-02	4.712E-01	4.732E-01	FAIL ABUN
SB-127	6.403E+01	9.551E+01	9.977E+01	FAIL ABUN
I-131	2.184E-01	8.562E-01	8.619E-01	NOT IDENT.
I-132	1.000E+41	2.284E+41	0.000E+00	SHORT HLIF
TE-132	4.525E+01	6.394E+01	6.711E+01	SHORT HLIF
BA-133	-4.943E-03	5.549E-02	5.554E-02	NOT IDENT.
I-133	2.355E+10	3.289E+10	3.456E+10	SHORT HLIF
CS-134	-3.637E-03	5.414E-02	5.417E-02	NOT IDENT.
I-135	-4.370E+36	7.008E+36	0.000E+00	SHORT HLIF
CS-136	-1.719E-01	3.856E-01	3.933E-01	FAIL ABUN
BA-137M	6.677E-03	3.983E-02	3.994E-02	NOT IDENT.
CS-137	7.054E-03	4.207E-02	4.219E-02	NOT IDENT.
LA-138	-2.061E-02	7.283E-02	7.342E-02	NOT IDENT.
CE-139	-3.356E-02	4.670E-02	4.909E-02	NOT IDENT.
BA-140	9.095E-01	9.905E-01	1.072E+00	NOT IDENT.
LA-140	2.475E-01	3.326E-01	3.508E-01	FAIL ABUN
CE-143	7.233E+06	3.165E+06	4.544E+06	SHORT HLIF
CE-144	-3.155E-02	2.859E-01	2.862E-01	NOT IDENT.
PM-144	-3.349E-03	5.146E-02	5.148E-02	NOT IDENT.
PR-144	-2.419E-01	3.891E+00	3.893E+00	NOT IDENT.
PM-146	1.389E-03	6.225E-02	6.225E-02	NOT IDENT.
ND-147	2.156E+00	2.446E+00	2.632E+00	NOT IDENT.
PM-147	5.620E+02	1.102E+03	1.130E+03	NOT IDENT.
PM-149	5.035E+03	5.127E+04	5.132E+04	SHORT HLIF
EU-150	3.332E-02	4.304E-02	4.558E-02	FAIL ABUN
EU-152	-3.834E-02	1.608E-01	1.617E-01	NOT IDENT.
GD-153	3.597E-02	1.340E-01	1.350E-01	FAIL ABUN
EU-154	7.180E-02	1.332E-01	1.371E-01	NOT IDENT.
EU-155	3.621E-02	1.469E-01	1.478E-01	FAIL ABUN

TB-160	-5.862E-02	2.081E-01	2.097E-01	FAIL ABUN
HO-166M	-2.166E-03	8.318E-02	8.318E-02	NOT IDENT.
TM-171	-2.147E+01	3.862E+01	3.981E+01	NOT IDENT.
HF-172	-7.127E-02	2.726E-01	2.745E-01	FAIL ABUN
LU-172	0.000E+00	6.921E-02	0.000E+00	FAIL ABUN
LU-176	-1.168E-02	3.530E-02	3.569E-02	FAIL ABUN
HF-181	-7.045E-03	8.534E-02	8.540E-02	NOT IDENT.
TA-182	-6.987E-02	2.153E-01	2.176E-01	FAIL ABUN
RE-183	2.625E-02	4.540E-01	4.541E-01	NOT IDENT.
RE-184	1.831E-01	2.236E-01	2.384E-01	NOT IDENT.
W-188	-7.131E+00	1.354E+01	1.392E+01	FAIL ABUN
IR-192	4.428E-02	5.634E-02	5.977E-02	FAIL ABUN
HG-203	-4.634E-02	7.068E-02	7.370E-02	FAIL ABUN
BI-207	8.393E-02	8.458E-02	9.266E-02	FAIL ABUN
PB-211	-1.291E-01	9.774E-01	9.792E-01	NOT IDENT.
BI-212	4.727E-01	6.634E-01	6.968E-01	NOT IDENT.
BI-213	-4.492E-02	1.515E-01	1.529E-01	NOT IDENT.
RN-219	-9.210E-03	5.633E-01	5.633E-01	NOT IDENT.
RA-223	3.741E-01	9.116E-01	9.271E-01	FAIL ABUN
AC-225	-1.506E+00	3.132E+00	3.205E+00	NOT IDENT.
AC-227	1.846E-01	5.223E-01	5.289E-01	FAIL ABUN
TH-227	1.846E-01	5.223E-01	5.289E-01	FAIL ABUN
TH-229	-2.574E-02	7.203E-01	7.204E-01	FAIL ABUN
PA-231	6.547E-01	7.100E-01	7.689E-01	NOT IDENT.
TH-231	3.741E-01	9.116E-01	9.271E-01	FAIL ABUN
PA-233	-2.267E-02	9.077E-02	9.134E-02	FAIL ABUN
PA-234	3.650E-02	3.429E-01	3.433E-01	FAIL ABUN
PA-234M	6.051E+00	9.027E+00	9.430E+00	FAIL ABUN
NP-237	-2.267E-02	9.077E-02	9.134E-02	FAIL ABUN
NP-238	-2.574E+03	1.258E+04	1.263E+04	SHORT HLIF
NP-239	-1.001E-01	3.882E-01	3.908E-01	NOT IDENT.
PU-239	4.361E+02	4.975E+02	5.350E+02	NOT IDENT.
AM-241	-3.354E-02	3.087E-01	3.091E-01	NOT IDENT.
CM-243	-6.767E-02	1.443E-01	1.475E-01	NOT IDENT.
BK-247	-3.719E-02	1.130E-01	1.142E-01	NOT IDENT.
CM-247	-1.661E-02	5.232E-02	5.285E-02	NOT IDENT.
CF-249	2.534E-02	5.601E-02	5.717E-02	NOT IDENT.
CF-251	7.745E-02	1.780E-01	1.814E-01	NOT IDENT.
ANH-511	-4.434E-02	6.003E-02	6.327E-02	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	73.4378	85.43	126.3854	131.20	103.6262
45.60	76.9747	86.55	141.7411	133.02	75.7867
46.54	78.2170	86.79	138.7899	133.52	79.5113
49.72	0.0000	86.94	138.8311	136.00	66.2929
51.35	74.0722	87.09	138.8713	136.47	68.7943
51.87	78.3566	87.57	139.0004	140.51	0.0000
52.39	85.7909	88.03	139.1240	143.76	81.9119
52.97	76.4946	88.34	139.2073	144.24	81.9662
53.44	70.2958	88.47	139.2419	145.44	89.5649
54.07	73.5667	89.96	159.3703	152.43	79.1095
57.36	0.0000	1093.63	159.5753	153.25	91.7657
57.53	83.7760	91.11	134.6190	323.87	95.6575
57.98	87.0565	92.59	115.9258	156.02	95.8837
59.27	95.1508	93.35	116.0897	158.56	96.2003
59.32	95.1625	94.56	105.6324	159.00	96.2536
59.54	95.2149	94.65	105.6499	162.33	99.2067
60.96	96.9760	94.67	105.6541	162.66	86.5242
61.17	97.0261	94.87	105.6927	163.33	72.5894
62.93	96.7250	97.43	91.1804	165.86	101.3517
63.29	96.8084	98.43	90.1881	176.31	84.5358
63.58	96.8757	98.44	90.1899	176.60	83.7028
64.28	97.0373	99.53	92.6819	177.52	76.8827
66.73	99.7645	100.11	88.1382	181.07	0.0000
67.24	91.1970	102.03	70.9813	181.52	82.0204
125.81	91.2892	103.18	87.4466	184.41	79.6837
67.75	99.9989	103.37	83.9767	143.76	70.6459
68.89	87.1820	105.21	81.9025	193.51	79.1913
69.67	102.6203	105.31	79.5760	197.03	71.5515
70.82	102.8835	106.12	93.7482	198.01	85.7769
70.83	102.8864	106.47	85.5959	201.83	70.1520
72.81	103.3367	109.28	72.2564	203.43	79.1687
72.87	103.3504	111.00	86.6402	205.31	75.7628
74.66	133.5531	111.76	0.0000	210.85	84.2781
74.82	133.5992	114.06	68.0759	215.65	76.5911
74.97	133.6417	116.30	0.0000	218.12	78.5924
77.11	134.2510	116.74	77.9088	222.11	87.0762
78.74	134.7089	119.76	89.8636	227.09	68.3685
79.69	134.9738	121.12	81.6491	227.38	64.7410
80.03	135.0671	121.22	81.6615	228.16	0.0000
80.12	120.5788	121.78	61.2995	228.18	62.0546
80.19	120.5961	122.06	61.3259	116.74	62.0546
80.57	111.7500	122.92	75.8560	235.69	67.5694
81.00	111.8484	123.07	85.5080	235.96	67.5873
81.07	116.3391	265.00	98.8483	238.63	81.1295
81.75	125.4608	125.81	85.8655	238.98	0.0000
82.47	130.1318	127.23	88.4725	240.99	81.3121
83.79	121.4769	127.91	97.0557	242.00	81.3909
84.00	121.5272	129.30	80.2361	244.70	51.4627

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.40	53.2346	344.28	48.3291	563.25	16.0781
252.80	44.8452	345.93	42.3392	564.24	0.0000
254.15	0.0000	351.06	42.4973	569.33	17.2784
256.23	61.8562	351.93	42.5238	946.00	17.2803
260.90	0.0000	355.39	0.0000	569.70	17.2821
264.66	53.8283	356.01	28.9401	583.19	19.7164
264.80	55.7242	364.49	29.1140	584.27	19.7268
265.00	55.7338	366.42	0.0000	595.83	23.6299
269.46	46.4698	372.51	32.3581	427.87	28.9475
270.03	61.6754	375.05	29.8425	602.52	0.0000
271.23	66.4895	377.52	27.8311	604.72	21.0938
273.65	65.6772	356.01	36.2326	607.14	30.9729
276.40	47.7061	388.16	32.1851	609.32	25.5440
277.37	52.5203	388.63	34.2723	610.33	25.5564
277.60	54.4406	391.69	36.4234	614.28	24.0142
278.00	58.2809	264.66	32.4519	618.01	19.4575
279.20	60.2545	401.81	34.5710	620.36	29.2184
279.54	59.3145	402.40	37.7285	621.93	20.3791
279.70	59.3233	404.85	34.6395	630.19	0.0000
280.46	54.5740	410.95	35.8296	631.29	22.2466
283.69	62.4041	413.71	40.1152	633.25	16.0318
284.31	48.9891	414.70	33.8027	634.78	18.7172
285.41	53.8421	423.72	39.3072	635.95	16.9433
285.90	0.0000	427.09	38.3247	636.99	20.5202
287.50	51.0472	427.87	37.2786	657.50	13.5068
290.67	55.0448	433.94	26.7273	657.76	13.3800
293.27	0.0000	439.40	28.9622	657.90	0.0000
351.93	45.5590	440.45	35.4203	661.66	11.5473
295.96	52.3762	453.88	32.4609	664.57	0.0000
879.38	65.6104	463.37	17.4095	666.33	13.5594
299.98	47.8767	468.07	26.1855	666.50	13.5608
300.09	48.6593	473.00	29.5428	667.71	0.0000
300.13	47.6881	475.06	33.9599	677.62	17.2605
301.36	44.8133	476.78	27.4134	685.70	16.4092
302.85	62.4232	477.60	25.2325	692.65	0.0000
256.23	43.9499	482.18	27.4979	695.00	21.9661
304.85	40.0541	487.02	23.1614	696.49	20.5146
306.78	45.0080	492.35	0.0000	696.51	20.5146
308.46	44.0891	497.08	21.0735	697.00	23.4500
311.90	48.1387	505.52	24.5141	697.30	23.4531
316.51	34.5094	507.63	0.0000	697.49	19.0569
319.41	43.4808	511.00	25.7047	702.65	0.0000
320.08	40.5370	514.00	58.2101	706.68	16.1879
321.04	41.5565	514.00	58.2101	711.68	22.1206
323.87	34.2101	520.40	24.7115	720.70	15.7274
325.23	44.6686	520.69	0.0000	721.93	0.0000
328.76	36.8261	522.65	0.0000	722.78	19.4446
333.37	39.9504	527.90	0.0000	722.91	21.2979
333.97	38.9691	528.26	27.0703	723.31	22.2275
334.37	41.9795	529.59	20.3174	724.19	19.4561
338.28	45.1089	529.87	0.0000	727.33	15.7704
338.32	45.1108	531.02	15.8144	733.00	15.8068
311.90	45.1822	537.26	15.8656	735.93	16.7569
340.48	45.1822	546.56	0.0000	333.97	22.3564
340.55	45.1849	552.55	17.8185	739.50	0.0000

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
744.23	14.0108	949.00	5.0317	1384.29	7.5838
747.24	14.9629	667.71	0.0000	1408.01	9.1528
748.06	12.1613	962.31	18.8672	1434.09	5.5257
752.31	10.3078	964.08	8.0908	1435.80	8.2916
753.82	18.7531	966.17	17.8116	1457.56	0.0000
756.73	12.2038	911.20	17.5576	1460.82	6.4870
756.80	12.2038	983.53	10.1773	1489.16	7.4621
884.68	13.5562	984.45	0.0000	1505.03	19.6588
765.81	19.5958	1274.44	21.2551	1584.12	3.1755
766.42	14.1348	1001.03	8.1875	1596.21	3.8205
766.84	14.1376	1002.74	9.8303	1620.50	6.7204
772.60	0.0000	1004.73	6.5576	1621.92	5.7621
776.52	13.2451	507.63	0.0000	1678.03	0.0000
739.50	0.0000	1025.87	0.0000	1690.97	6.8199
778.90	6.0604	1028.54	0.0000	1750.46	0.0000
783.70	12.3331	1037.84	13.4578	1764.49	0.0000
788.74	7.6042	1038.76	0.0000	1063.66	6.5993
792.07	18.0833	631.29	13.4943	1771.35	10.8915
795.86	18.1094	1048.07	15.5777	1791.20	0.0000
810.06	20.1239	1049.04	17.6599	1808.65	4.9868
810.29	18.2085	1050.41	14.5494	1810.72	0.0000
344.28	12.4593	1063.66	11.6860	1836.06	6.0158
810.76	11.5023	1077.00	8.3809		
815.77	16.3256	1077.34	8.3813		
1048.07	17.3035	1085.87	11.5539		
832.01	12.1456	1093.63	8.4219		
834.85	12.3793	1099.45	6.3274		
835.71	17.0269	1112.07	6.3508		
836.80	0.0000	1112.84	10.5872		
846.75	0.0000	1115.54	8.4761		
846.77	25.2549	1120.29	8.4878		
856.80	10.9187	1120.55	8.4883		
860.56	7.8096	1221.41	8.4902		
871.09	17.2455	1129.67	13.6172		
873.19	17.2584	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	12.5789	1173.23	11.8473		
880.51	14.1570	1177.95	5.1765		
881.60	9.4415	1189.05	6.4904		
883.24	10.8248	1204.77	6.5182		
884.68	19.6912	1221.41	9.8218		
889.28	8.8753	1231.02	1.7506		
894.76	4.7426	1235.36	14.0203		
898.04	7.9131	1238.28	9.8657		
900.72	14.2567	1260.41	0.0000		
903.28	5.9456	1271.87	1.1060		
911.20	16.8916	1274.44	5.5334		
912.08	16.8968	1274.54	5.5334		
923.98	0.0000	1291.59	2.2231		
926.50	11.4150	1298.22	0.0000		
929.11	12.7961	1312.11	5.5872		
935.54	16.0293	1332.49	5.6158		
937.49	6.4160	1362.66	0.0000		
944.13	8.0378	1365.19	8.1523		
946.00	10.0534	1368.63	0.0000		

VAX/VMS Nuclide Identification Report Generated 30-JUL-2024 13:55:20.80

* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781345.CNF;1
Background file : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]BKG_GAM10.CNF:712
Background date : 29-JUL-2024 05:36:52
Sample date : 10-JUL-2024 00:00:00 Acquisition date : 30-JUL-2024 13:39:53
Sample ID : G1205781345 Sample quantity : 1.15000E+02 GRAM
Detector name : GAM10 Detector geometry: CAN
Elapsed live time: 0 00:15:00.00 Elapsed real time: 0 00:15:02.58 0.3%
Energy tolerance : 1.50000 keV Analyst Initials : RXF2
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID : 2636542 Detector SN# :
Matrix Spike ID : LCS ID :

BACKGROUND CORRECTED SAMPLE PEAK REPORT

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.94	1351	1826	1.10	93.43	89	9	1.50E+00	6.3	
2	0	59.87	9269	2109	1.22	119.30	112	13	1.03E+01	1.5	
3	0	89.68	40	568	1.34	178.92	175	7	4.41E-02	101.2	
4	0	128.69	49	369	1.51	256.96	254	6	5.43E-02	64.1	
5	0	192.05	31	472	1.35	383.69	383	7	3.49E-02	115.6	
6	0	661.98	10554	262	1.60	1323.76	1317	16	1.17E+01	1.0	
7	0	860.63*	32	96	3.27	1721.20	1715	10	3.52E-02	60.8	
8	0	902.88	9	184	1.05	1805.72	1801	12	1.02E-02	298.1	
9	0	1081.01	26	101	1.52	2162.14	2157	11	2.84E-02	79.0	
10	0	1173.39	2803	116	1.89	2346.99	2339	16	3.11E+00	2.1	
11	0	1250.70	22	8	2.38	2501.66	2495	11	2.42E-02	33.4	
12	0	1254.66	17	0	1.52	2509.59	2506	8	1.89E-02	24.3	
13	0	1332.66	2595	26	2.00	2665.68	2655	20	2.88E+00	2.0	
14	0	1480.82	9	6	0.49	2962.16	2955	13	9.63E-03	69.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781345.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4		
Sample title	: RXF2		
Sample date	: 10-JUL-2024 00:00:00	Acquisition date	: 30-JUL-2024 13:39:53
Sample ID	: G1205781345	Sample quantity	: 115.00 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA10	Detector geometry	: CAN
Elapsed live time	: 0 00:15:00.00	Elapsed real time	: 0 00:15:02.58 0.3%
Energy tolerance	: 1.50 keV	Half life ratio	: 10.00
Errors propagated	: No	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Interference Report

No interference correction performed

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-60	1173.23	2670	99.85	1.258E+00	5.551E+01	5.592E+01	4.15
	1332.49	2458	99.98*	1.115E+00	5.759E+01	5.801E+01	4.04
BA-137M	661.66	10307	89.90*	2.192E+00	1.366E+02	1.368E+02	2.07
CS-137	661.66	10307	85.10*	2.192E+00	1.443E+02	1.445E+02	2.07
BI-210	46.54	1471	4.25*	2.148E-01	4.207E+03	4.214E+03	12.64
PB-210	46.54	1471	4.25*	2.148E-01	4.207E+03	4.214E+03	12.64
AM-241	59.54	9994	35.90*	1.234E+00	5.889E+02	5.890E+02	2.90

Flag: "*" = Keyline

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781345.CNF;1
Acquisition date : 30-JUL-2024 13:39:53 Sensitivity : 3.000
Detector ID : GAM10 Energy tolerance: 1.500
Elapsed live time: 0 00:15:00.00 Abundance limit : 75.000
Elapsed real time: 0 00:15:02.58 Half life ratio : *****
Sample date : 10-JUL-2024 00:00:00 Analyst initials: RXF2
Sample ID : G1205781345 Sample Quantity : 1.1500E+02 GRAM
Batch Number : 2636542 Wet Weight : 0.00000
Wet wt corr : 1.00000 Dry Weight : 0.00000
Nuclide Library : SOLID.NLB;17

CALIBRATION INFORMATION

Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Cnt uncert (1.96-sigma)	MDA (pCi/GRAM)
CO-60	5.801E+01	2.296E+00	4.086E-01
BA-137M	1.368E+02	2.771E+00	6.817E-01
CS-137	1.445E+02	2.927E+00	7.201E-01
BI-210	4.214E+03	5.219E+02	4.548E+02
PB-210	4.214E+03	5.219E+02	4.548E+02
AM-241	5.890E+02	1.674E+01	7.997E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Cnt Uncert (1.96-sigma)	MDA (pCi/GRAM)	
BE-7	2.422E-02	5.460E+00	9.460E+00	NOT IDENT.
NA-22	-2.397E-01	2.302E-01	3.641E-01	NOT IDENT.
NA-24	0.000E+00	1.386E+09	0.000E+00	SHORT HLIF
AL-26	7.932E-03	1.720E-01	3.630E-01	NOT IDENT.
K-40	5.107E-01	1.404E+00	3.311E+00	NOT IDENT.
SC-46	-1.098E-01	5.386E-01	9.686E-01	NOT IDENT.
V-48	3.710E-01	1.125E+00	2.085E+00	NOT IDENT.
CR-51	2.075E+00	5.140E+00	9.278E+00	NOT IDENT.
MN-52	6.858E-01	2.013E+00	4.554E+00	NOT IDENT.
MN-54	6.982E-02	3.960E-01	7.372E-01	NOT IDENT.
CO-56	1.037E-01	4.543E-01	8.473E-01	NOT IDENT.
MN-56	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
CO-57	-3.235E-02	2.888E-01	4.805E-01	NOT IDENT.
CO-58	1.922E-01	4.955E-01	8.727E-01	NOT IDENT.
FE-59	2.511E-02	1.210E+00	2.188E+00	NOT IDENT.
ZN-65	-2.214E-01	1.045E+00	1.859E+00	NOT IDENT.
GE-68	8.049E+00	1.733E+01	2.888E+01	NOT IDENT.
AS-73	-2.653E+00	4.464E+01	7.610E+01	NOT IDENT.
AS-74	1.072E-01	1.202E+00	2.109E+00	NOT IDENT.
SE-75	-1.417E-02	5.493E-01	9.822E-01	NOT IDENT.
BR-77	-3.898E+02	4.661E+02	8.153E+02	NOT IDENT.
SR-82	7.769E-02	4.178E+00	7.216E+00	NOT IDENT.
RB-83	1.008E-01	9.692E-01	1.693E+00	NOT IDENT.
RB-84	5.350E-01	9.113E-01	1.728E+00	NOT IDENT.

KR-85	-4.262E+00	8.480E+01	1.471E+02	NOT IDENT.
SR-85	-2.515E-02	4.759E-01	8.254E-01	NOT IDENT.
RB-86	5.278E+00	1.347E+01	2.226E+01	NOT IDENT.
Y-88	1.682E-02	1.762E-01	3.877E-01	NOT IDENT.
Y-91	-1.394E+01	1.476E+02	2.744E+02	NOT IDENT.
NB-94	-7.586E-02	3.040E-01	5.193E-01	NOT IDENT.
NB-95	2.070E-02	4.250E-01	7.393E-01	NOT IDENT.
NB-95M	4.154E-01	1.301E+00	2.370E+00	NOT IDENT.
ZR-95	-1.503E-01	7.715E-01	1.315E+00	NOT IDENT.
NB-97	0.000E+00	1.660E+41	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.422E+09	0.000E+00	SHORT HLIF
MO-99	-3.389E+02	4.948E+02	8.087E+02	NOT IDENT.
TC-99M	0.000E+00	1.169E+24	0.000E+00	SHORT HLIF
RH-101	3.248E-01	4.078E-01	5.834E-01	FAIL ABUN
RH-102	-1.064E-01	6.161E-01	1.057E+00	NOT IDENT.
RU-103	-7.867E-01	6.007E-01	9.768E-01	NOT IDENT.
RH-106	5.246E-01	3.692E+00	6.457E+00	NOT IDENT.
RU-106	5.246E-01	3.692E+00	6.457E+00	NOT IDENT.
AG-108M	1.414E-01	4.533E-01	7.994E-01	NOT IDENT.
CD-109	3.318E+00	1.015E+01	1.604E+01	NOT IDENT.
AG-110	4.318E+00	1.025E+01	1.625E+01	NOT IDENT.
AG-110M	-3.224E-01	6.237E-01	1.103E+00	NOT IDENT.
SN-113	5.232E-01	6.180E-01	1.123E+00	NOT IDENT.
CD-115	8.162E+02	7.743E+02	1.423E+03	NOT IDENT.
SN-117M	2.100E-01	6.863E-01	1.271E+00	NOT IDENT.
SB-122	2.170E+01	8.747E+01	1.549E+02	NOT IDENT.
TE-123M	6.180E-02	2.790E-01	5.153E-01	NOT IDENT.
SB-124	-3.297E-01	4.810E-01	7.959E-01	NOT IDENT.
SB-125	-4.799E-01	1.431E+00	2.461E+00	NOT IDENT.
TE-125M	-7.717E+01	1.155E+02	1.886E+02	NOT IDENT.
I-126	-1.459E+00	3.111E+00	4.586E+00	NOT IDENT.
SB-126	-5.671E-01	1.832E+00	3.106E+00	NOT IDENT.
SN-126	5.296E-01	9.698E-01	1.550E+00	NOT IDENT.
SB-127	-1.930E+01	3.301E+01	5.480E+01	NOT IDENT.
I-131	-1.324E+00	2.434E+00	4.198E+00	NOT IDENT.
I-132	0.000E+00	1.960E+41	0.000E+00	SHORT HLIF
TE-132	-3.452E+00	2.559E+01	4.592E+01	NOT IDENT.
BA-133	-2.761E-01	5.381E-01	9.303E-01	NOT IDENT.
I-133	0.000E+00	5.692E+06	0.000E+00	SHORT HLIF
CS-134	-2.796E-01	4.249E-01	6.919E-01	NOT IDENT.
I-135	0.000E+00	2.911E+22	0.000E+00	SHORT HLIF
CS-136	-4.917E-01	1.792E+00	3.184E+00	NOT IDENT.
LA-138	2.078E-01	2.543E-01	6.177E-01	NOT IDENT.
CE-139	-1.771E-01	2.965E-01	5.315E-01	NOT IDENT.
BA-140	1.358E+00	4.614E+00	8.137E+00	NOT IDENT.
LA-140	-3.170E-01	5.136E-01	8.805E-01	NOT IDENT.
CE-141	1.656E-01	6.697E-01	1.242E+00	NOT IDENT.
CE-143	0.000E+00	2.125E+04	0.000E+00	SHORT HLIF
CE-144	-9.482E-01	2.228E+00	3.642E+00	NOT IDENT.
PM-144	-1.219E-01	3.006E-01	5.073E-01	NOT IDENT.
PR-144	-8.796E+00	2.259E+01	3.818E+01	NOT IDENT.
PM-146	-8.169E-02	6.925E-01	1.196E+00	NOT IDENT.
ND-147	-1.076E+01	1.015E+01	1.662E+01	FAIL ABUN
PM-147	-6.835E+02	8.501E+03	1.416E+04	NOT IDENT.
PM-149	-8.371E+02	5.683E+03	1.010E+04	NOT IDENT.
EU-150	6.739E-02	3.206E-01	5.737E-01	NOT IDENT.
EU-152	-1.021E+00	1.195E+00	2.040E+00	NOT IDENT.
GD-153	-6.928E-02	1.007E+00	1.695E+00	NOT IDENT.
EU-154	-6.384E-01	6.578E-01	1.060E+00	NOT IDENT.
EU-155	-1.386E+00	1.212E+00	1.942E+00	NOT IDENT.
TB-160	-2.200E+00	1.634E+00	2.730E+00	FAIL ABUN
HO-166M	2.009E-01	5.954E-01	1.062E+00	NOT IDENT.
TM-171	-3.075E+02	9.562E+02	1.621E+03	NOT IDENT.
HF-172	-4.180E-01	2.299E+00	3.494E+00	FAIL ABUN
LU-172	-9.957E-02	8.117E-01	1.453E+00	FAIL ABUN
LU-176	-7.018E-02	3.195E-01	5.638E-01	FAIL ABUN
HF-181	4.179E-01	7.120E-01	1.267E+00	NOT IDENT.
TA-182	3.070E-01	1.091E+00	2.164E+00	NOT IDENT.
RE-183	0.000E+00	9.253E+00	1.910E+01	FAIL ABUN
RE-184	5.549E-01	3.242E+00	3.413E+00	FAIL ABUN
W-188	-4.106E+01	8.814E+01	1.545E+02	NOT IDENT.
IR-192	-1.422E-01	4.356E-01	7.645E-01	NOT IDENT.
HG-203	-1.504E-03	4.820E-01	8.612E-01	NOT IDENT.
TL-204	3.077E+01	7.094E+01	1.233E+02	NOT IDENT.
BI-207	-1.270E-01	6.396E-01	1.143E+00	NOT IDENT.
TL-208	-2.548E-01	3.904E-01	6.529E-01	FAIL ABUN
BI-211	-7.477E-01	2.489E+00	4.355E+00	NOT IDENT.
PB-211	-1.494E+00	9.603E+00	1.673E+01	NOT IDENT.

BI-212	-2.578E+00	4.908E+00	8.149E+00	NOT IDENT.
PB-212	-5.429E-01	6.054E-01	1.057E+00	NOT IDENT.
BI-213	-1.518E+00	1.637E+00	2.744E+00	NOT IDENT.
BI-214	3.511E-02	7.508E-01	1.312E+00	NOT IDENT.
PB-214	3.786E-01	8.976E-01	1.618E+00	NOT IDENT.
RN-219	-4.620E+00	5.510E+00	9.325E+00	NOT IDENT.
RN-222	3.511E-02	7.508E-01	1.312E+00	NOT IDENT.
RA-223	1.110E+00	7.646E+00	1.366E+01	NOT IDENT.
RA-224	9.948E+00	6.595E+00	1.247E+01	NOT IDENT.
AC-225	-2.328E+00	1.001E+01	1.790E+01	NOT IDENT.
RA-226	3.786E-01	8.976E-01	1.618E+00	NOT IDENT.
AC-227	-1.584E+00	2.910E+00	5.115E+00	NOT IDENT.
TH-227	-1.584E+00	2.910E+00	5.115E+00	NOT IDENT.
AC-228	-3.898E-02	1.687E+00	3.080E+00	NOT IDENT.
RA-228	-3.898E-02	1.687E+00	3.080E+00	NOT IDENT.
TH-228	-5.429E-01	6.054E-01	1.057E+00	NOT IDENT.
TH-229	3.573E+00	8.093E+00	1.064E+01	FAIL ABUN
TH-230	3.786E-01	8.976E-01	1.618E+00	NOT IDENT.
PA-231	1.411E+00	5.455E+00	9.822E+00	NOT IDENT.
TH-231	1.110E+00	7.646E+00	1.366E+01	NOT IDENT.
TH-232	-3.898E-02	1.687E+00	3.080E+00	NOT IDENT.
PA-233	-1.412E-01	7.528E-01	1.331E+00	NOT IDENT.
PA-234	1.861E+00	4.092E+00	7.595E+00	NOT IDENT.
PA-234M	-1.524E+01	5.331E+01	9.520E+01	NOT IDENT.
TH-234	4.663E+00	2.495E+01	3.992E+01	NOT IDENT.
U-234	3.786E-01	8.976E-01	1.618E+00	NOT IDENT.
U-235	-7.664E-01	1.947E+00	3.536E+00	FAIL ABUN
NP-237	-1.412E-01	7.528E-01	1.331E+00	NOT IDENT.
NP-238	1.243E+02	1.500E+03	2.740E+03	NOT IDENT.
U-238	4.663E+00	2.495E+01	3.992E+01	NOT IDENT.
NP-239	-1.588E+00	3.094E+00	5.070E+00	NOT IDENT.
PU-239	3.459E+03	4.343E+03	6.162E+03	FAIL ABUN
AM-243	-5.482E-01	7.120E-01	1.177E+00	NOT IDENT.
CM-243	1.324E+00	1.234E+00	2.166E+00	NOT IDENT.
BK-247	-3.322E-01	9.588E-01	1.695E+00	NOT IDENT.
CM-247	-2.705E-01	5.066E-01	8.686E-01	NOT IDENT.
CF-249	-5.122E-02	5.397E-01	9.444E-01	NOT IDENT.
CF-251	-5.397E-01	1.292E+00	2.323E+00	NOT IDENT.
ANH-511	1.187E-01	3.794E-01	6.828E-01	NOT IDENT.

Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-60	1173.23	2670	99.85	1.258E+00	5.551E+01	5.592E+01	4.15
	1332.49	2458	99.98*	1.115E+00	5.759E+01	5.801E+01	4.04
BA-137M	661.66	10307	89.90*	2.192E+00	1.366E+02	1.368E+02	2.07
CS-137	661.66	10307	85.10*	2.192E+00	1.443E+02	1.445E+02	2.07
BI-210	46.54	1471	4.25*	2.148E-01	4.207E+03	4.214E+03	12.64
PB-210	46.54	1471	4.25*	2.148E-01	4.207E+03	4.214E+03	12.64
AM-241	59.54	9994	35.90*	1.234E+00	5.889E+02	5.890E+02	2.90

Flag: "*" = Keyline

Total number of lines in spectrum 14
Number of unidentified lines 4
Number of lines tentatively identified by NID 10 71.43%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.01	5.759E+01	5.801E+01	0.234E+01	4.04	
BA-137M	30.08Y	1.00	1.366E+02	1.368E+02	0.028E+02	2.07	
CS-137	30.08Y	1.00	1.443E+02	1.445E+02	0.030E+02	2.07	
BI-210	22.20Y	1.00	4.207E+03	4.214E+03	0.533E+03	12.64	
PB-210	22.20Y	1.00	4.207E+03	4.214E+03	0.533E+03	12.64	
AM-241	432.60Y	1.00	5.889E+02	5.890E+02	0.171E+02	2.90	

Total Activity : 9.341E+03 9.356E+03

Grand Total Activity : 9.341E+03 9.356E+03

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	89.68	42	603	1.34	178.92	175	7	4.41E-02	****	4.68E+00	T
0	128.69	51	386	1.51	256.96	254	6	5.43E-02	****	6.11E+00	T
0	192.05	32	485	1.35	383.69	383	7	3.49E-02	****	5.36E+00	T
0	860.63	31	92	3.27	1721.20	1715	10	3.52E-02	****	1.72E+00	T
0	902.88	9	177	1.05	1805.72	1801	12	1.02E-02	****	1.64E+00	T
0	1081.01	24	97	1.52	2162.14	2157	11	2.84E-02	****	1.37E+00	
0	1250.70	21	8	2.38	2501.66	2495	11	2.42E-02	66.7	1.18E+00	
0	1254.66	16	0	1.52	2509.59	2506	8	1.89E-02	48.5	1.18E+00	
0	1480.82	8	6	0.49	2962.16	2955	13	9.63E-03	****	1.02E+00	

Flags: "T" = Tentatively associated

*
* GEL Laboratories LLC *
* 2040 Savage Road *
* Charleston, SC 29407 *

*
* DETECTOR AND SAMPLE DATA *
*
* Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781345.CNF;1 *
* Acquisition date : 30-JUL-2024 13:39:53 Sensitivity : 3.000 *
* Detector ID : GAM10 Energy tolerance: 1.500 *
* Elapsed live time: 0 00:15:00.00 Abundance limit : 75.000 *
* Elapsed real time: 0 00:15:02.58 Half life ratio : ***** *
* Sample date : 10-JUL-2024 00:00:00 Nuclide Library : SOLID *
* Sample ID : G1205781345 Analyst initials: RXF2 *
* Batch Number : 2636542 Sample Quantity : 1.1500E+02 GRAM *
* Wet wt corr : 1.00000 Wet Weight : 0.00000 *
* Dry Weight : 0.00000 *

*
* CALIBRATION INFORMATION *
*
* Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN *
* Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5 *

Combined Critical Level Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)
CO-60	1.725E-01
BA-137M	3.230E-01
CS-137	3.412E-01
BI-210	2.232E+02
PB-210	2.232E+02
AM-241	3.916E+00

---- Non-Identified Nuclides ----

Nuclide	Lc (pCi/GRAM)	
BE-7	4.577E+00	NOT IDENT.
NA-22	1.513E-01	NOT IDENT.
NA-24	0.000E+00	SHORT HLIF
AL-26	1.428E-01	NOT IDENT.
K-40	1.335E+00	NOT IDENT.
SC-46	4.593E-01	NOT IDENT.
V-48	9.853E-01	NOT IDENT.
CR-51	4.483E+00	NOT IDENT.
MN-52	1.846E+00	NOT IDENT.
MN-54	3.478E-01	NOT IDENT.
CO-56	3.994E-01	NOT IDENT.
MN-56	0.000E+00	SHORT HLIF
CO-57	2.331E-01	NOT IDENT.
CO-58	4.126E-01	NOT IDENT.
FE-59	1.030E+00	NOT IDENT.
ZN-65	8.740E-01	NOT IDENT.
GE-68	1.360E+01	NOT IDENT.
AS-73	3.738E+01	NOT IDENT.
AS-74	9.989E-01	NOT IDENT.
SE-75	4.756E-01	NOT IDENT.
BR-77	3.945E+02	NOT IDENT.
SR-82	3.392E+00	NOT IDENT.
RB-83	8.123E-01	NOT IDENT.
RB-84	8.169E-01	NOT IDENT.
KR-85	7.055E+01	NOT IDENT.

SR-85	3.958E-01	NOT IDENT.
RB-86	1.049E+01	NOT IDENT.
Y-88	1.492E-01	NOT IDENT.
Y-91	1.231E+02	NOT IDENT.
NB-94	2.427E-01	NOT IDENT.
NB-95	3.467E-01	NOT IDENT.
NB-95M	1.148E+00	NOT IDENT.
ZR-95	6.158E-01	NOT IDENT.
NB-97	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	SHORT HLIF
MO-99	3.781E+02	NOT IDENT.
TC-99M	0.000E+00	SHORT HLIF
RH-101	2.831E-01	FAIL ABUN
RH-102	5.007E-01	NOT IDENT.
RU-103	4.684E-01	NOT IDENT.
RH-106	3.070E+00	NOT IDENT.
RU-106	3.070E+00	NOT IDENT.
AG-108M	3.871E-01	NOT IDENT.
CD-109	7.805E+00	NOT IDENT.
AG-110	7.749E+00	NOT IDENT.
AG-110M	5.209E-01	NOT IDENT.
SN-113	5.428E-01	NOT IDENT.
CD-115	6.822E+02	NOT IDENT.
SN-117M	6.159E-01	NOT IDENT.
SB-122	7.369E+01	NOT IDENT.
TE-123M	2.496E-01	NOT IDENT.
SB-124	2.979E-01	NOT IDENT.
SB-125	1.192E+00	NOT IDENT.
TE-125M	9.138E+01	NOT IDENT.
I-126	2.145E+00	NOT IDENT.
SB-126	1.451E+00	NOT IDENT.
SN-126	7.539E-01	NOT IDENT.
SB-127	2.557E+01	NOT IDENT.
I-131	2.026E+00	NOT IDENT.
I-132	0.000E+00	SHORT HLIF
TE-132	2.224E+01	NOT IDENT.
BA-133	4.491E-01	NOT IDENT.
I-133	0.000E+00	SHORT HLIF
CS-134	3.233E-01	NOT IDENT.
I-135	0.000E+00	SHORT HLIF
CS-136	1.500E+00	NOT IDENT.
LA-138	2.575E-01	NOT IDENT.
CE-139	2.573E-01	NOT IDENT.
BA-140	3.899E+00	NOT IDENT.
LA-140	3.237E-01	NOT IDENT.
CE-141	6.020E-01	NOT IDENT.
CE-143	0.000E+00	SHORT HLIF
CE-144	1.766E+00	NOT IDENT.
PM-144	2.361E-01	NOT IDENT.
PR-144	1.777E+01	NOT IDENT.
PM-146	5.796E-01	NOT IDENT.
ND-147	7.934E+00	FAIL ABUN
PM-147	6.873E+03	NOT IDENT.
PM-149	4.877E+03	NOT IDENT.
EU-150	2.769E-01	NOT IDENT.
EU-152	9.836E-01	NOT IDENT.
GD-153	8.229E-01	NOT IDENT.
EU-154	4.429E-01	NOT IDENT.
EU-155	9.409E-01	NOT IDENT.
TB-160	1.280E+00	FAIL ABUN
HO-166M	4.996E-01	NOT IDENT.
TM-171	7.962E+02	NOT IDENT.
HF-172	1.695E+00	FAIL ABUN
LU-172	6.846E-01	FAIL ABUN
LU-176	2.723E-01	FAIL ABUN
HF-181	6.118E-01	NOT IDENT.
TA-182	9.600E-01	NOT IDENT.
RE-183	9.429E+00	FAIL ABUN
RE-184	1.623E+00	FAIL ABUN
W-188	7.460E+01	NOT IDENT.
IR-192	3.688E-01	NOT IDENT.
HG-203	4.166E-01	NOT IDENT.
TL-204	5.989E+01	NOT IDENT.
BI-207	5.375E-01	NOT IDENT.
TL-208	3.095E-01	FAIL ABUN
BI-211	2.101E+00	NOT IDENT.
PB-211	8.076E+00	NOT IDENT.
BI-212	3.813E+00	NOT IDENT.

PB-212	5.110E-01	NOT IDENT.
BI-213	1.327E+00	NOT IDENT.
BI-214	6.232E-01	NOT IDENT.
PB-214	7.811E-01	NOT IDENT.
RN-219	4.498E+00	NOT IDENT.
RN-222	6.232E-01	NOT IDENT.
RA-223	6.596E+00	NOT IDENT.
RA-224	6.050E+00	NOT IDENT.
AC-225	8.693E+00	NOT IDENT.
RA-226	7.811E-01	NOT IDENT.
AC-227	2.474E+00	NOT IDENT.
TH-227	2.474E+00	NOT IDENT.
AC-228	1.456E+00	NOT IDENT.
RA-228	1.456E+00	NOT IDENT.
TH-228	5.110E-01	NOT IDENT.
TH-229	5.170E+00	FAIL ABUN
TH-230	7.811E-01	NOT IDENT.
PA-231	4.746E+00	NOT IDENT.
TH-231	6.596E+00	NOT IDENT.
TH-232	1.456E+00	NOT IDENT.
PA-233	6.417E-01	NOT IDENT.
PA-234	3.611E+00	NOT IDENT.
PA-234M	4.477E+01	NOT IDENT.
TH-234	1.937E+01	NOT IDENT.
U-234	7.811E-01	NOT IDENT.
U-235	1.715E+00	FAIL ABUN
NP-237	6.417E-01	NOT IDENT.
NP-238	1.293E+03	NOT IDENT.
U-238	1.937E+01	NOT IDENT.
NP-239	2.461E+00	NOT IDENT.
PU-239	2.989E+03	FAIL ABUN
AM-243	5.715E-01	NOT IDENT.
CM-243	1.053E+00	NOT IDENT.
BK-247	8.203E-01	NOT IDENT.
CM-247	4.193E-01	NOT IDENT.
CF-249	4.562E-01	NOT IDENT.
CF-251	1.125E+00	NOT IDENT.
ANH-511	3.285E-01	NOT IDENT.

GEL Laboratories LLC
2040 Savage Road
Charleston, SC 29407

DETECTOR AND SAMPLE DATA

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1205781345.CNF;1
Acquisition date : 30-JUL-2024 13:39:53 Sensitivity : 3.000
Detector ID : GAM10 Energy tolerance: 1.500
Elapsed live time: 0 00:15:00.00 Abundance limit : 75.000
Elapsed real time: 0 00:15:02.58 Half life ratio : *****
Sample date : 10-JUL-2024 00:00:00 Nuclide Library : SOLID
Sample ID : G1205781345 Analyst initials: RXF2
Batch Number : 2636542 Sample Quantity : 1.1500E+02 GRAM
Quantity Err(%) : 1.7391E-03 %
Wet wt corr : 1.00000 Wet Weight : 0.00000
Dry Weight : 0.00000

CALIBRATION INFORMATION

Eff. Cal. date : 14-JUN-2024 04:03:20 Eff. Geometry : CAN
Eff. File : DKA100:[CANBERRA.GAMMA]EFF_GAM10_CAN.CNF;5

Combined Activity-MDA Report

NOTE: Not all "Identified Nuclides" are valid.
Please refer to Certificate of Analysis.

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error (1.96-sigma)	TPU (1.96-sigma)
CO-60	5.801E+01	7.814E+00	7.814E+00
BA-137M	1.368E+02	1.151E+01	1.151E+01
CS-137	1.445E+02	1.215E+01	1.215E+01
BI-210	4.214E+03	8.313E+02	8.313E+02
PB-210	4.214E+03	8.313E+02	8.313E+02
AM-241	5.890E+02	7.796E+01	7.796E+01

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error (1.96-sigma)	TPU (1.96-sigma)	
BE-7	2.422E-02	5.460E+00	5.460E+00	NOT IDENT.
NA-22	-2.397E-01	2.319E-01	2.558E-01	NOT IDENT.
NA-24	-1.656E+08	1.386E+09	1.388E+09	SHORT HLIF
AL-26	7.932E-03	1.720E-01	1.721E-01	NOT IDENT.
K-40	5.107E-01	1.405E+00	1.424E+00	NOT IDENT.
SC-46	-1.098E-01	5.388E-01	5.411E-01	NOT IDENT.
V-48	3.710E-01	1.126E+00	1.138E+00	NOT IDENT.
CR-51	2.075E+00	5.144E+00	5.228E+00	NOT IDENT.
MN-52	6.858E-01	2.015E+00	2.039E+00	NOT IDENT.
MN-54	6.982E-02	3.961E-01	3.974E-01	NOT IDENT.
CO-56	1.037E-01	4.544E-01	4.568E-01	NOT IDENT.
MN-56	1.000E+41	4.351E+41	0.000E+00	SHORT HLIF
CO-57	-3.235E-02	2.888E-01	2.892E-01	NOT IDENT.
CO-58	1.922E-01	4.960E-01	5.035E-01	NOT IDENT.
FE-59	2.511E-02	1.210E+00	1.210E+00	NOT IDENT.
ZN-65	-2.214E-01	1.045E+00	1.050E+00	NOT IDENT.
GE-68	8.049E+00	1.735E+01	1.773E+01	NOT IDENT.
AS-73	-2.653E+00	4.464E+01	4.466E+01	NOT IDENT.
AS-74	1.072E-01	1.202E+00	1.203E+00	NOT IDENT.
SE-75	-1.417E-02	5.493E-01	5.493E-01	NOT IDENT.
BR-77	-3.898E+02	5.217E+02	5.505E+02	NOT IDENT.
SR-82	7.769E-02	4.178E+00	4.178E+00	NOT IDENT.
RB-83	1.008E-01	9.693E-01	9.703E-01	NOT IDENT.
RB-84	5.350E-01	9.139E-01	9.452E-01	NOT IDENT.

KR-85	-4.262E+00	8.481E+01	8.483E+01	NOT IDENT.
SR-85	-2.515E-02	4.759E-01	4.760E-01	NOT IDENT.
RB-86	5.278E+00	1.348E+01	1.369E+01	NOT IDENT.
Y-88	1.682E-02	1.763E-01	1.764E-01	NOT IDENT.
Y-91	-1.394E+01	1.476E+02	1.478E+02	NOT IDENT.
NB-94	-7.586E-02	3.041E-01	3.060E-01	NOT IDENT.
NB-95	2.070E-02	4.250E-01	4.251E-01	NOT IDENT.
NB-95M	4.154E-01	1.302E+00	1.315E+00	NOT IDENT.
ZR-95	-1.503E-01	7.716E-01	7.746E-01	NOT IDENT.
NB-97	1.000E+41	1.662E+41	0.000E+00	SHORT HLIF
ZR-97	-1.535E+09	4.424E+09	4.478E+09	SHORT HLIF
MO-99	-3.389E+02	4.961E+02	5.191E+02	NOT IDENT.
TC-99M	-2.982E+21	1.169E+24	0.000E+00	SHORT HLIF
RH-101	3.248E-01	4.126E-01	4.378E-01	FAIL ABUN
RH-102	-1.064E-01	6.162E-01	6.181E-01	NOT IDENT.
RU-103	-7.867E-01	6.046E-01	7.010E-01	NOT IDENT.
RH-106	5.246E-01	3.692E+00	3.700E+00	NOT IDENT.
RU-106	5.246E-01	3.692E+00	3.700E+00	NOT IDENT.
AG-108M	1.414E-01	4.535E-01	4.579E-01	NOT IDENT.
CD-109	3.318E+00	1.015E+01	1.026E+01	NOT IDENT.
AG-110	4.318E+00	1.025E+01	1.043E+01	NOT IDENT.
AG-110M	-3.224E-01	6.252E-01	6.418E-01	NOT IDENT.
SN-113	5.232E-01	6.195E-01	6.628E-01	NOT IDENT.
CD-115	8.162E+02	7.781E+02	8.607E+02	NOT IDENT.
SN-117M	2.100E-01	6.864E-01	6.929E-01	NOT IDENT.
SB-122	2.170E+01	8.748E+01	8.803E+01	NOT IDENT.
TE-123M	6.180E-02	2.790E-01	2.804E-01	NOT IDENT.
SB-124	-3.297E-01	4.821E-01	5.045E-01	NOT IDENT.
SB-125	-4.799E-01	1.432E+00	1.448E+00	NOT IDENT.
TE-125M	-7.717E+01	1.157E+02	1.208E+02	NOT IDENT.
I-126	-1.459E+00	3.113E+00	3.182E+00	NOT IDENT.
SB-126	-5.671E-01	1.833E+00	1.851E+00	NOT IDENT.
SN-126	5.296E-01	9.708E-01	9.998E-01	NOT IDENT.
SB-127	-1.930E+01	3.311E+01	3.423E+01	NOT IDENT.
I-131	-1.324E+00	2.437E+00	2.509E+00	NOT IDENT.
I-132	1.000E+41	4.431E+41	0.000E+00	SHORT HLIF
TE-132	-3.452E+00	2.560E+01	2.564E+01	NOT IDENT.
BA-133	-2.761E-01	5.386E-01	5.528E-01	NOT IDENT.
I-133	-7.737E+05	5.694E+06	5.704E+06	SHORT HLIF
CS-134	-2.796E-01	4.260E-01	4.443E-01	NOT IDENT.
I-135	8.680E+21	2.941E+22	0.000E+00	SHORT HLIF
CS-136	-4.917E-01	1.793E+00	1.807E+00	NOT IDENT.
LA-138	2.078E-01	2.556E-01	2.722E-01	NOT IDENT.
CE-139	-1.771E-01	2.988E-01	3.093E-01	NOT IDENT.
BA-140	1.358E+00	4.615E+00	4.655E+00	NOT IDENT.
LA-140	-3.170E-01	5.148E-01	5.342E-01	NOT IDENT.
CE-141	1.656E-01	6.698E-01	6.740E-01	NOT IDENT.
CE-143	2.643E+03	2.125E+04	2.128E+04	SHORT HLIF
CE-144	-9.482E-01	2.230E+00	2.270E+00	NOT IDENT.
PM-144	-1.219E-01	3.007E-01	3.057E-01	NOT IDENT.
PR-144	-8.796E+00	2.260E+01	2.295E+01	NOT IDENT.
PM-146	-8.169E-02	6.926E-01	6.935E-01	NOT IDENT.
ND-147	-1.076E+01	1.019E+01	1.128E+01	FAIL ABUN
PM-147	-6.835E+02	8.501E+03	8.506E+03	NOT IDENT.
PM-149	-8.371E+02	5.685E+03	5.697E+03	NOT IDENT.
EU-150	6.739E-02	3.207E-01	3.221E-01	NOT IDENT.
EU-152	-1.021E+00	1.199E+00	1.285E+00	NOT IDENT.
GD-153	-6.928E-02	1.007E+00	1.007E+00	NOT IDENT.
EU-154	-6.384E-01	6.619E-01	7.218E-01	NOT IDENT.
EU-155	-1.386E+00	1.219E+00	1.370E+00	NOT IDENT.
TB-160	-2.200E+00	1.661E+00	1.934E+00	FAIL ABUN
HO-166M	2.009E-01	5.957E-01	6.025E-01	NOT IDENT.
TM-171	-3.075E+02	9.576E+02	9.676E+02	NOT IDENT.
HF-172	-4.180E-01	2.300E+00	2.308E+00	FAIL ABUN
LU-172	-9.957E-02	8.119E-01	8.131E-01	FAIL ABUN
LU-176	-7.018E-02	3.196E-01	3.212E-01	FAIL ABUN
HF-181	4.179E-01	7.129E-01	7.373E-01	NOT IDENT.
TA-182	3.070E-01	1.092E+00	1.101E+00	NOT IDENT.
RE-183	1.062E+02	1.885E+01	5.146E+01	FAIL ABUN
RE-184	5.549E-01	3.243E+00	3.253E+00	FAIL ABUN
W-188	-4.106E+01	8.834E+01	9.026E+01	NOT IDENT.
IR-192	-1.422E-01	4.358E-01	4.405E-01	NOT IDENT.
HG-203	-1.504E-03	4.820E-01	4.820E-01	NOT IDENT.
TL-204	3.077E+01	7.102E+01	7.237E+01	NOT IDENT.
BI-207	-1.270E-01	6.397E-01	6.423E-01	NOT IDENT.
TL-208	-2.548E-01	3.910E-01	4.075E-01	FAIL ABUN
BI-211	-7.477E-01	2.490E+00	2.513E+00	NOT IDENT.
PB-211	-1.494E+00	9.604E+00	9.628E+00	NOT IDENT.

BI-212	-2.578E+00	4.915E+00	5.050E+00	NOT IDENT.
PB-212	-5.429E-01	6.076E-01	6.550E-01	NOT IDENT.
BI-213	-1.518E+00	1.642E+00	1.779E+00	NOT IDENT.
BI-214	3.511E-02	7.508E-01	7.510E-01	NOT IDENT.
PB-214	3.786E-01	8.983E-01	9.144E-01	NOT IDENT.
RN-219	-4.620E+00	5.550E+00	5.928E+00	NOT IDENT.
RN-222	3.511E-02	7.508E-01	7.510E-01	NOT IDENT.
RA-223	1.110E+00	7.647E+00	7.663E+00	NOT IDENT.
RA-224	9.948E+00	6.664E+00	8.033E+00	NOT IDENT.
AC-225	-2.328E+00	1.001E+01	1.007E+01	NOT IDENT.
RA-226	3.786E-01	8.983E-01	9.144E-01	NOT IDENT.
AC-227	-1.584E+00	2.920E+00	3.006E+00	NOT IDENT.
TH-227	-1.584E+00	2.920E+00	3.006E+00	NOT IDENT.
AC-228	-3.898E-02	1.687E+00	1.688E+00	NOT IDENT.
RA-228	-3.898E-02	1.687E+00	1.688E+00	NOT IDENT.
TH-228	-5.429E-01	6.076E-01	6.550E-01	NOT IDENT.
TH-229	3.573E+00	8.098E+00	8.257E+00	FAIL ABUN
TH-230	3.786E-01	8.983E-01	9.144E-01	NOT IDENT.
PA-231	1.411E+00	5.465E+00	5.502E+00	NOT IDENT.
TH-231	1.110E+00	7.647E+00	7.663E+00	NOT IDENT.
TH-232	-3.898E-02	1.687E+00	1.688E+00	NOT IDENT.
PA-233	-1.412E-01	7.530E-01	7.556E-01	NOT IDENT.
PA-234	1.861E+00	4.618E+00	4.694E+00	NOT IDENT.
PA-234M	-1.524E+01	5.335E+01	5.379E+01	NOT IDENT.
TH-234	4.663E+00	2.497E+01	2.506E+01	NOT IDENT.
U-234	3.786E-01	8.983E-01	9.144E-01	NOT IDENT.
U-235	-7.664E-01	1.948E+00	1.979E+00	FAIL ABUN
NP-237	-1.412E-01	7.530E-01	7.556E-01	NOT IDENT.
NP-238	1.243E+02	1.500E+03	1.501E+03	NOT IDENT.
U-238	4.663E+00	2.497E+01	2.506E+01	NOT IDENT.
NP-239	-1.588E+00	3.099E+00	3.181E+00	NOT IDENT.
PU-239	3.459E+03	4.353E+03	4.624E+03	FAIL ABUN
AM-243	-5.482E-01	7.137E-01	7.553E-01	NOT IDENT.
CM-243	1.324E+00	1.243E+00	1.378E+00	NOT IDENT.
BK-247	-3.322E-01	9.616E-01	9.732E-01	NOT IDENT.
CM-247	-2.705E-01	5.090E-01	5.234E-01	NOT IDENT.
CF-249	-5.122E-02	5.397E-01	5.402E-01	NOT IDENT.
CF-251	-5.397E-01	1.294E+00	1.317E+00	NOT IDENT.
ANH-511	1.187E-01	3.796E-01	3.833E-01	NOT IDENT.

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
43.53	935.4927	85.43	408.3674	131.20	332.1702
45.60	903.5371	86.55	402.7285	133.02	339.0131
46.54	905.2366	86.79	377.7773	133.52	361.5521
49.72	932.2790	86.94	377.8545	136.00	351.2693
51.35	942.5680	87.09	377.9330	136.47	356.4221
51.87	932.3575	87.57	373.4705	140.51	344.5406
52.39	998.9623	88.03	397.2556	143.76	356.5384
52.97	1010.0671	88.34	420.9855	144.24	348.3340
53.44	1000.8956	88.47	421.0591	145.44	321.9219
54.07	1002.4160	89.96	357.3546	152.43	308.0727
57.36	0.0000	90.64	360.8292	153.25	321.8292
57.53	726.1167	91.11	340.5564	154.21	328.0381
57.98	726.6835	92.59	387.0319	156.02	320.1295
59.27	728.3074	93.35	364.0917	158.56	300.5168
59.32	728.3690	94.56	376.5415	159.00	302.3378
59.54	728.6450	94.65	376.5875	162.33	294.7498
60.96	730.4070	94.67	361.1531	162.66	294.8377
61.17	730.6658	94.87	358.8692	163.33	286.4941
62.93	340.3187	97.43	364.8131	165.86	329.0304
63.29	340.5218	98.43	391.5370	176.31	322.6009
63.58	333.1130	98.44	391.5420	176.60	322.6808
64.28	374.4254	99.53	343.0678	177.52	330.7088
66.73	364.1174	100.11	345.7077	181.07	334.3182
67.24	326.7162	102.03	393.2962	181.52	352.6389
67.68	362.3835	103.18	320.6029	184.41	350.8986
67.75	362.4222	103.37	330.2866	185.72	359.9800
68.89	369.9473	105.21	383.9891	193.51	392.9390
69.67	386.4552	105.31	385.2393	197.03	362.0327
70.82	354.9756	106.12	366.3356	198.01	389.1076
70.83	352.6851	106.47	335.1454	201.83	338.3164
72.81	356.0601	109.28	360.4592	203.43	340.5104
72.87	343.4144	111.00	295.7368	205.31	344.5468
74.66	404.4285	111.76	351.8025	210.85	383.3042
74.82	435.7308	114.06	346.6566	215.65	382.0432
74.97	435.8286	116.30	379.2495	218.12	378.2979
77.11	364.1477	116.74	385.5397	222.11	348.1112
78.74	447.5472	119.76	337.8806	227.09	347.6008
79.69	384.1356	121.12	386.2062	227.38	351.2652
80.03	375.0038	121.22	360.4995	228.16	320.9056
80.12	375.0541	121.78	349.6790	228.18	320.9092
80.19	372.7637	122.06	349.7878	235.69	288.3149
80.57	364.8053	122.92	342.7473	235.96	277.5223
81.00	397.6842	123.07	342.8027	238.63	324.2445
81.07	397.7232	123.68	338.1125	238.98	328.8543
81.75	403.9430	125.81	351.6293	240.99	276.7041
82.47	395.0055	127.23	345.5833	242.00	310.4907
83.79	347.7319	127.91	363.9506	244.70	324.7224
84.00	365.4012	129.30	344.6978	252.40	307.2549

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
252.80	298.1900	351.06	261.2286	569.33	116.9568
254.15	0.0000	351.93	240.9513	569.50	106.2349
256.23	314.4742	355.39	0.0000	569.70	106.2429
260.90	343.9747	356.01	279.4618	583.19	129.4531
264.66	310.7267	364.49	275.8439	584.27	118.7101
264.80	310.7542	366.42	280.0475	595.83	105.1425
265.00	319.0955	372.51	292.7314	600.60	112.9290
269.46	295.9831	375.05	255.7471	602.52	0.0000
270.03	306.2720	377.52	278.7278	604.72	112.0150
271.23	306.5144	383.85	269.7563	607.14	128.4431
273.65	288.4431	388.16	271.3465	609.32	116.5654
276.40	272.2315	388.63	259.5214	610.33	115.5191
277.37	302.1551	391.69	244.0531	614.28	118.9615
277.60	299.4118	400.66	247.1473	618.01	116.9398
278.00	301.3440	401.81	285.1796	620.36	109.3831
279.20	291.3424	402.40	279.2822	621.93	119.2941
279.54	301.6472	404.85	265.6374	630.19	0.0000
279.70	297.0181	410.95	278.4581	631.29	113.1131
280.46	269.2148	413.71	286.8553	633.25	113.1927
283.69	287.5030	414.70	267.9289	634.78	115.4526
284.31	268.0056	423.72	297.3167	635.95	97.9014
285.41	269.1270	427.09	310.9201	636.99	103.4398
285.90	264.5352	427.87	331.2365	657.50	126.3621
287.50	264.8058	433.94	292.6925	657.76	129.6969
290.67	284.0810	439.40	306.6389	657.90	0.0000
293.27	0.0000	440.45	337.2686	661.66	108.7865
295.22	277.3607	453.88	335.2738	664.57	0.0000
295.96	276.5461	463.37	332.6155	666.33	83.3893
298.58	271.3359	468.07	311.7105	666.50	83.3923
299.98	277.2220	473.00	317.5498	667.71	0.0000
300.09	270.6449	475.06	342.6114	677.62	66.9702
300.13	270.6507	476.78	333.5735	685.70	79.4677
301.36	258.5808	477.60	291.3346	692.65	62.8268
302.85	299.4319	482.18	240.1657	695.00	61.7519
304.50	260.9680	487.02	215.7738	696.49	69.6466
304.85	267.6386	492.35	213.1538	696.51	69.6466
306.78	275.5240	497.08	233.3835	697.00	65.1650
308.46	255.8990	505.52	189.2597	697.30	65.1721
311.90	251.6778	507.63	0.0000	697.49	65.1745
316.51	261.8856	511.00	182.3598	702.65	74.2930
319.41	248.9727	514.00	183.6375	706.68	59.7393
320.08	253.8397	514.00	183.6375	711.68	74.5159
321.04	261.6245	520.40	179.9202	720.70	74.7361
323.87	256.3154	520.69	183.0979	721.93	0.0000
325.23	250.7742	522.65	0.0000	722.78	69.1214
328.76	244.5670	527.90	143.5371	722.91	69.1264
333.37	251.9415	528.26	145.6704	723.31	68.0005
333.97	247.2171	529.59	170.0405	724.19	65.7527
334.37	268.4421	529.87	0.0000	727.33	83.9787
338.28	249.7470	531.02	188.1038	733.00	76.1738
338.32	249.7523	537.26	165.2739	735.93	61.4509
340.48	260.6726	546.56	0.0000	737.46	69.4515
340.55	260.6836	552.55	128.9810	739.50	86.5854
344.28	274.7725	563.25	126.3161	744.23	78.7312
345.93	237.2540	564.24	119.9388	747.24	87.9440

ENERGY	MDA COUNTS	ENERGY	MDA COUNTS	ENERGY	MDA COUNTS
748.06	76.5418	954.55	0.0000	1408.01	5.0427
752.31	88.0850	962.31	102.0947	1434.09	4.0549
753.82	65.2360	964.08	109.4385	1435.80	3.0421
756.73	77.8973	966.17	120.4468	1457.56	0.0000
756.80	77.9001	968.97	96.7936	1460.82	3.0568
763.94	76.9262	983.53	90.7460	1489.16	4.0979
765.81	74.6749	984.45	90.7671	1505.03	6.1652
766.42	68.9429	996.26	103.0005	1584.12	3.1276
766.84	74.6987	1001.03	90.2361	1596.21	6.2688
772.60	0.0000	1002.74	88.4326	1620.50	7.3452
776.52	81.8395	1004.73	81.1062	1621.92	5.2478
777.92	64.5768	1021.30	0.0000	1678.03	0.0000
778.90	79.5931	1025.87	97.2903	1690.97	7.4354
783.70	73.9349	1028.54	86.2339	1750.46	0.0000
788.74	75.2065	1037.84	99.4439	1764.49	3.2261
792.07	76.4414	1038.76	0.0000	1770.23	4.3057
795.86	84.6469	1046.59	92.2083	1771.35	6.4596
801.95	77.8313	1048.07	95.9716	1791.20	0.0000
1093.63	80.3512	1049.04	82.9432	1808.65	4.3328
810.29	80.3568	1050.41	81.1058	1810.72	0.0000
810.45	80.3596	1063.66	88.8538	1836.06	3.2639
810.76	89.6861	1077.00	79.5725		
815.77	90.9873	1077.34	75.0732		
818.51	95.4382	1085.87	79.7433		
832.01	87.0298	1093.63	91.3875		
834.85	87.9822	1099.45	86.7947		
835.71	81.8461	1112.07	92.7363		
836.80	0.0000	1112.84	86.1234		
846.75	0.0000	1115.54	88.0730		
846.77	84.7588	1120.29	73.0052		
856.80	113.3398	1120.55	73.0099		
860.56	80.8409	1121.30	62.5880		
871.09	94.2445	1129.67	55.1113		
873.19	106.7542	1131.51	0.0000		
875.33	0.0000	1147.95	0.0000		
879.38	111.3968	1173.23	57.5867		
880.51	84.6877	1177.95	39.9674		
881.60	85.6055	1189.05	32.7487		
883.24	92.7837	1204.77	27.0635		
884.68	110.6721	1221.41	17.4628		
889.28	117.9613	1231.02	24.3042		
894.76	119.0376	1235.36	18.4886		
898.04	107.5012	1238.28	21.4226		
900.72	127.6637	1260.41	0.0000		
903.28	102.2758	1271.87	13.7308		
911.20	99.8011	1274.44	18.6451		
912.08	93.5295	1274.54	18.6463		
923.98	104.6613	1291.59	15.7588		
926.50	124.5950	1298.22	0.0000		
929.11	108.4204	1312.11	13.8479		
935.54	123.9974	1332.49	9.9335		
937.49	116.8157	1362.66	0.0000		
944.13	117.0244	1365.19	8.9995		
946.00	110.7300	1368.63	0.0000		
949.00	127.1698	1384.29	6.0227		

Continuing Calibration Data

Review of Gamma Spectrometer QA results (Daily calibration & background checks)
30-JUL-2024 09:28:29

Run Date	Detector	Parameter	Flag	Status	Comments
30-JUL-24	GAM01	All Parameters Passed			
30-JUL-24	GAM02	All Parameters Passed			
30-JUL-24	GAM04	Cal Check PSFWHM-59	Investigate		
30-JUL-24	GAM04	Cal Check NLACTVTY-1332	Investigate		
30-JUL-24	GAM05	All Parameters Passed			
30-JUL-24	GAM06	All Parameters Passed			
30-JUL-24	GAM07	All Parameters Passed			
30-JUL-24	GAM08	All Parameters Passed			
30-JUL-24	GAM10	All Parameters Passed			
30-JUL-24	GAM12	All Parameters Passed			
30-JUL-24	GAM16	All Parameters Passed			
14-JUL-24	GAM18	Bkg Check may not have run since 30-JUL-2024			Detector locked out.
30-JUL-24	GAM19	Bkg Check BACKRATE	Investigate		
30-JUL-24	GAM20	All Parameters Passed			
30-JUL-24	GAM21	Cal Check PSFWHM-59	Investigate		
30-JUL-24	GAM22	All Parameters Passed			
30-JUL-24	GAM23	All Parameters Passed			
30-JUL-24	GAM24	Cal Check PSFWHM-662	Investigate		
30-JUL-24	GAM27	Cal Check NLACTVTY-1332	Investigate		
30-JUL-24	GAM28	All Parameters Passed			
16-JUL-24	GAM29	Cal Check may not have run since 30-JUL-2024			Detector locked out.
30-JUL-24	GAM30	All Parameters Passed			
23-MAY-24	GAM31	Cal Check may not have run since 30-JUL-2024			Detector locked out.
22-JUL-24	GAM31	Bkg Check may not have run since 30-JUL-2024			Detector locked out.
30-JUL-24	GAM32	All Parameters Passed			
	GAM33	Cal Check may not have run since 30-JUL-2024			Detector locked out.
03-DEC-23	GAM33	Bkg Check may not have run since 30-JUL-2024			Detector locked out.
16-JUL-24	GAM38	Cal Check may not have run since 30-JUL-2024			Detector locked out.
30-JUL-24	GAM40	All Parameters Passed			
30-JUL-24	GAM41	Bkg Check BACKRATE	Action	Lockout	Detector locked out.
30-JUL-24	GAM43	Cal Check PSFWHM-59	Action		Detector locked out.
30-JUL-24	GAM43	Cal Check PSFWHM-1332	Investigate		
21-JUL-24	GAM43	Bkg Check may not have run since 30-JUL-2024			Detector locked out.

30-JUL-24	GAM46	All Parameters Passed			
22-JUN-24	GAM47	Cal Check may not have run since 30-JUL-2024			Detector locked out.
23-JUN-24	GAM47	Bkg Check may not have run since 30-JUL-2024			Detector locked out.
30-JUL-24	GAM48	All Parameters Passed			
30-JUL-24	GAM50	All Parameters Passed			
30-JUL-24	GAM52	All Parameters Passed			
29-JUL-24	GAM53	Cal Check may not have run since 30-JUL-2024			NOT RUN
28-JUL-24	GAM53	Bkg Check may not have run since 30-JUL-2024			NOT RUN
29-JUL-24	GAM56	Cal Check may not have run since 30-JUL-2024			NOT RUN
28-JUL-24	GAM56	Bkg Check may not have run since 30-JUL-2024			NOT RUN
30-JUL-24	GAM61	Bkg Check BACKRATE	Action	Approved	No spectral abnormalities observed, approved for use.
30-JUL-24	XRAY1	All Parameters Passed			
30-JUL-24	XRAY2	All Parameters Passed			
30-JUL-24	XRAY3	All Parameters Passed			
30-JUL-24	XRAY6	Cal Check NLACTVTY-29	Investigate		
30-JUL-24	XRAY6	Cal Check NLACTVTY-40	Investigate		
30-JUL-24	XRAY7	All Parameters Passed			

APPROVAL DATE: 30-JUL-2024

APPROVAL TIME: 09:38:05

APPROVED BY: Rebekah Futch

PROCEDURE # GL-RAD-I-001

The Investigate flag does not indicate a lockout and is approved for use. Action flags that have not been approved are locked out of service.

Review of Gamma Spectrometer QA results (Daily calibration & background checks)
31-JUL-2024 15:53:14

Run Date	Detector	Parameter	Flag	Status	Comments
31-JUL-24	GAM01	Cal Check NLACTVTY-662	Investigate		
31-JUL-24	GAM02	Bkg Check BACKRATE	Investigate		
31-JUL-24	GAM04	All Parameters Passed			
31-JUL-24	GAM05	Cal Check PSFWHM-59	Investigate		
31-JUL-24	GAM06	All Parameters Passed			
31-JUL-24	GAM07	All Parameters Passed			
31-JUL-24	GAM08	All Parameters Passed			
31-JUL-24	GAM10	All Parameters Passed			
31-JUL-24	GAM12	Cal Check PSFWHM-59	Investigate		
31-JUL-24	GAM12	Cal Check PSFWHM-662	Investigate		
31-JUL-24	GAM16	All Parameters Passed			
31-JUL-24	GAM18	All Parameters Passed			
31-JUL-24	GAM19	Cal Check PSFWHM-59	Investigate		
31-JUL-24	GAM19	Bkg Check BACKRATE	Action	Approved	No spectral abnormalities observed, approved for use.
31-JUL-24	GAM20	All Parameters Passed			
31-JUL-24	GAM21	All Parameters Passed			
31-JUL-24	GAM22	Bkg Check BACKRATE	Investigate		
31-JUL-24	GAM23	All Parameters Passed			
31-JUL-24	GAM24	All Parameters Passed			
31-JUL-24	GAM27	All Parameters Passed			
31-JUL-24	GAM28	Cal Check NLACTVTY-1332	Investigate		
16-JUL-24	GAM29	Cal Check may not have run since 31-JUL-2024			Detector locked out.
31-JUL-24	GAM29	Bkg Check BACKRATE	Investigate		
31-JUL-24	GAM30	Cal Check NLACTVTY-1332	Investigate		
23-MAY-24	GAM31	Cal Check may not have run since 31-JUL-2024			Detector locked out.
22-JUL-24	GAM31	Bkg Check may not have run since 31-JUL-2024			Detector locked out.
31-JUL-24	GAM32	All Parameters Passed			
	GAM33	Cal Check may not have run since 31-JUL-2024			Detector locked out.
31-JUL-24	GAM33	Bkg Check BACKRATE	Action	Lockout	Detector locked out.
31-JUL-24	GAM38	All Parameters Passed			
31-JUL-24	GAM40	Cal Check NLACTVTY-1332	Investigate		
30-JUL-24	GAM41	Cal Check may not have run since 31-JUL-2024			Detector locked out.
29-JUL-24	GAM41	Bkg Check may not have run since 31-JUL-2024			Detector locked out.

30-JUL-24	GAM43	Cal Check may not have run since 31-JUL-2024			Detector locked out.
31-JUL-24	GAM46	All Parameters Passed			
22-JUN-24	GAM47	Cal Check may not have run since 31-JUL-2024			Detector locked out.
23-JUN-24	GAM47	Bkg Check may not have run since 31-JUL-2024			Detector locked out.
31-JUL-24	GAM48	Cal Check PSFWHM-662	Investigate		
31-JUL-24	GAM50	All Parameters Passed			
31-JUL-24	GAM52	All Parameters Passed			
31-JUL-24	GAM53	All Parameters Passed			
31-JUL-24	GAM56	All Parameters Passed			
31-JUL-24	GAM61	Bkg Check BACKRATE	Action	Approved	No spectral abnormalities observed, approved for use.
31-JUL-24	XRAY1	All Parameters Passed			
31-JUL-24	XRAY2	Cal Check PSFWHM-40	Investigate		
31-JUL-24	XRAY3	All Parameters Passed			
31-JUL-24	XRAY6	All Parameters Passed			
31-JUL-24	XRAY7	All Parameters Passed			

APPROVAL DATE: 31-JUL-2024

APPROVAL TIME: 15:59:11

APPROVED BY: Smith Fenner

PROCEDURE # GL-RAD-I-001

The Investigate flag does not indicate a lockout and is approved for use. Action flags that have not been approved are locked out of service.

Review of Gamma Spectrometer QA results (Daily calibration & background checks)
01-AUG-2024 10:31:05

Run Date	Detector	Parameter	Flag	Status	Comments
01-AUG-24	GAM01	All Parameters Passed			
01-AUG-24	GAM02	All Parameters Passed			
01-AUG-24	GAM04	All Parameters Passed			
01-AUG-24	GAM05	All Parameters Passed			
01-AUG-24	GAM06	All Parameters Passed			
01-AUG-24	GAM07	All Parameters Passed			
01-AUG-24	GAM08	All Parameters Passed			
01-AUG-24	GAM10	All Parameters Passed			
01-AUG-24	GAM12	Bkg Check BACKRATE	Investigate		
01-AUG-24	GAM16	All Parameters Passed			
01-AUG-24	GAM18	All Parameters Passed			
01-AUG-24	GAM19	Bkg Check BACKRATE	Investigate		
01-AUG-24	GAM20	All Parameters Passed			
01-AUG-24	GAM21	All Parameters Passed			
01-AUG-24	GAM22	Cal Check PSFWHM-1332	Investigate		
01-AUG-24	GAM23	All Parameters Passed			
01-AUG-24	GAM24	Cal Check PSFWHM-662	Action	Lockout	Detector locked out.
01-AUG-24	GAM27	Cal Check PSFWHM-1332	Investigate		
01-AUG-24	GAM28	All Parameters Passed			
16-JUL-24	GAM29	Cal Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM30	All Parameters Passed			
23-MAY-24	GAM31	Cal Check may not have run since 1-AUG-2024			Detector locked out.
22-JUL-24	GAM31	Bkg Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM32	All Parameters Passed			
	GAM33	Cal Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM33	Bkg Check BACKRATE	Action	Lockout	Detector locked out.
31-JUL-24	GAM38	Cal Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM40	All Parameters Passed			
30-JUL-24	GAM41	Cal Check may not have run since 1-AUG-2024			Detector locked out.
29-JUL-24	GAM41	Bkg Check may not have run since 1-AUG-2024			Detector locked out.
30-JUL-24	GAM43	Cal Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM43	Bkg Check BACKRATE	Investigate		
01-AUG-24	GAM46	All Parameters Passed			

22-JUN-24	GAM47	Cal Check may not have run since 1-AUG-2024			Detector locked out.
23-JUN-24	GAM47	Bkg Check may not have run since 1-AUG-2024			Detector locked out.
01-AUG-24	GAM48	All Parameters Passed			
01-AUG-24	GAM50	Cal Check PSFWHM-59	Action	Approved	Low FWHM, approved for use.
01-AUG-24	GAM52	Cal Check NLACTVTY-662	Investigate		
01-AUG-24	GAM52	Cal Check NLACTVTY-1332	Investigate		
01-AUG-24	GAM53	Cal Check NLACTVTY-1332	Investigate		
01-AUG-24	GAM56	Cal Check PSFWHM-662	Investigate		
01-AUG-24	GAM61	Bkg Check BACKRATE	Action	Approved	No spectral abnormalities observed, approved for use.
01-AUG-24	XRAY1	All Parameters Passed			
01-AUG-24	XRAY2	All Parameters Passed			
01-AUG-24	XRAY3	All Parameters Passed			
01-AUG-24	XRAY6	Cal Check NLACTVTY-29	Investigate		
01-AUG-24	XRAY7	All Parameters Passed			

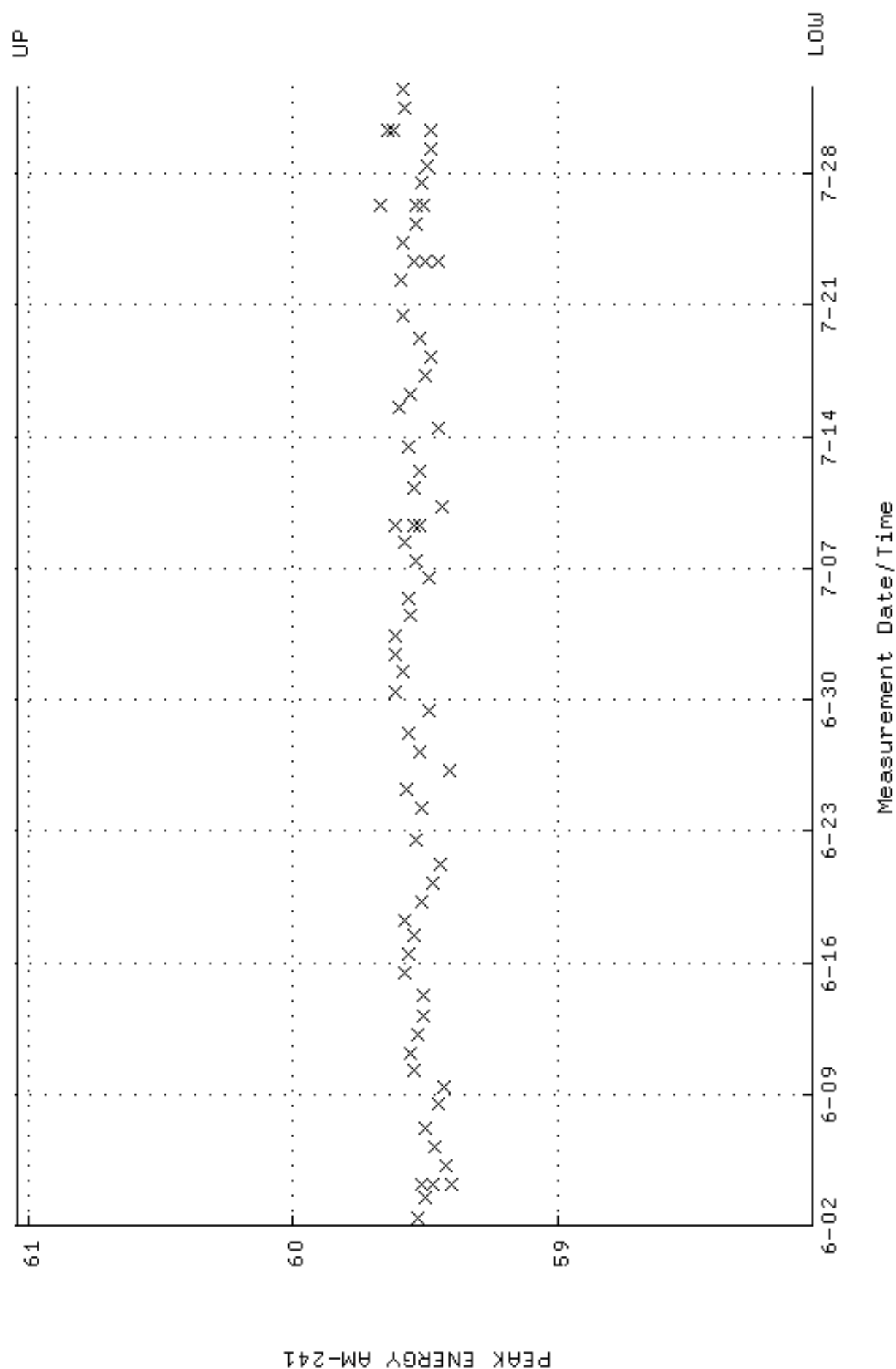
APPROVAL DATE: 01-AUG-2024 APPROVAL TIME: 10:38:25

APPROVED BY: Smith Fenner PROCEDURE # GL-RAD-I-001

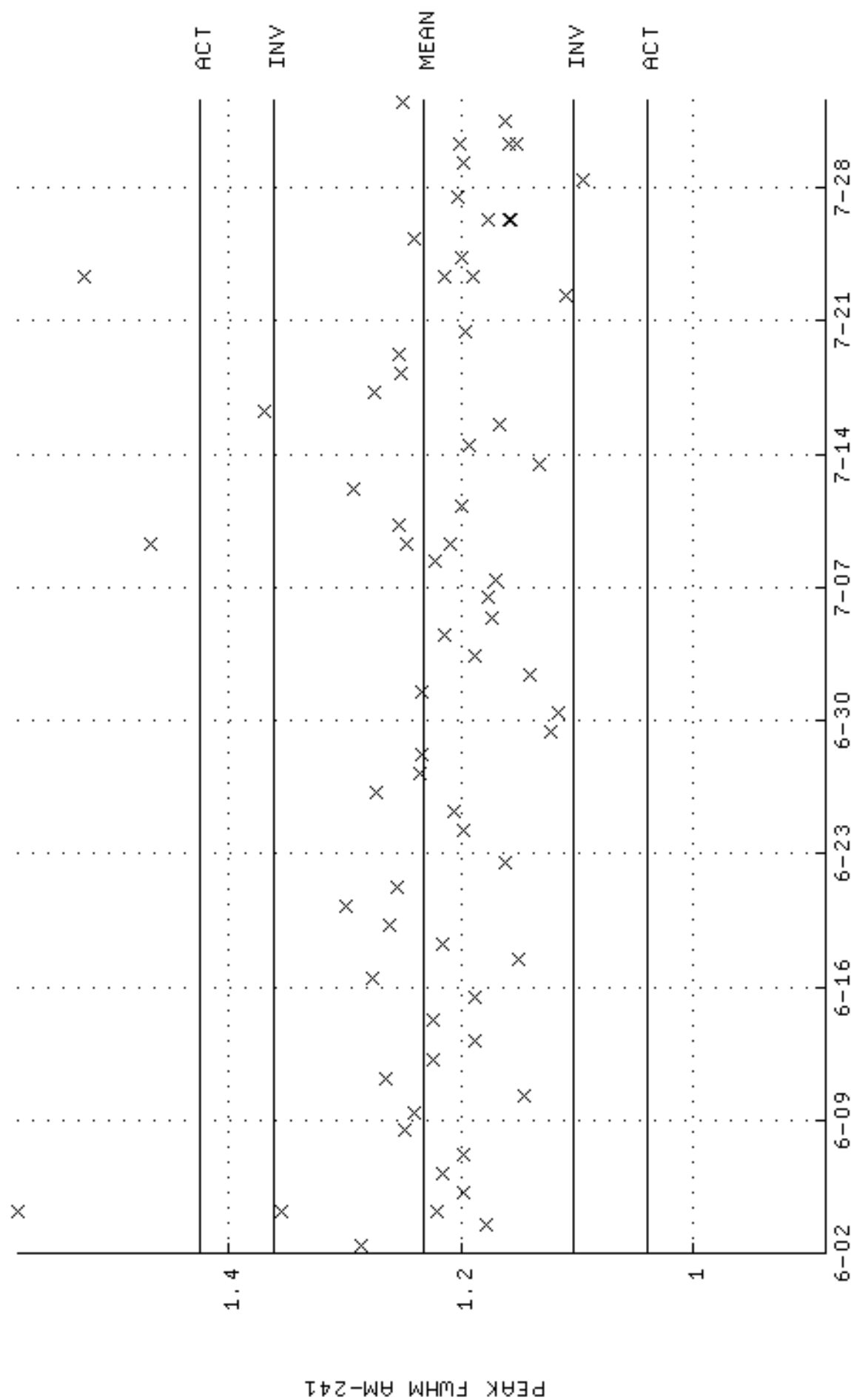
The Investigate flag does not indicate a lockout and is approved for use. Action flags that have not been approved are locked out of service.

Background and Efficiency Data

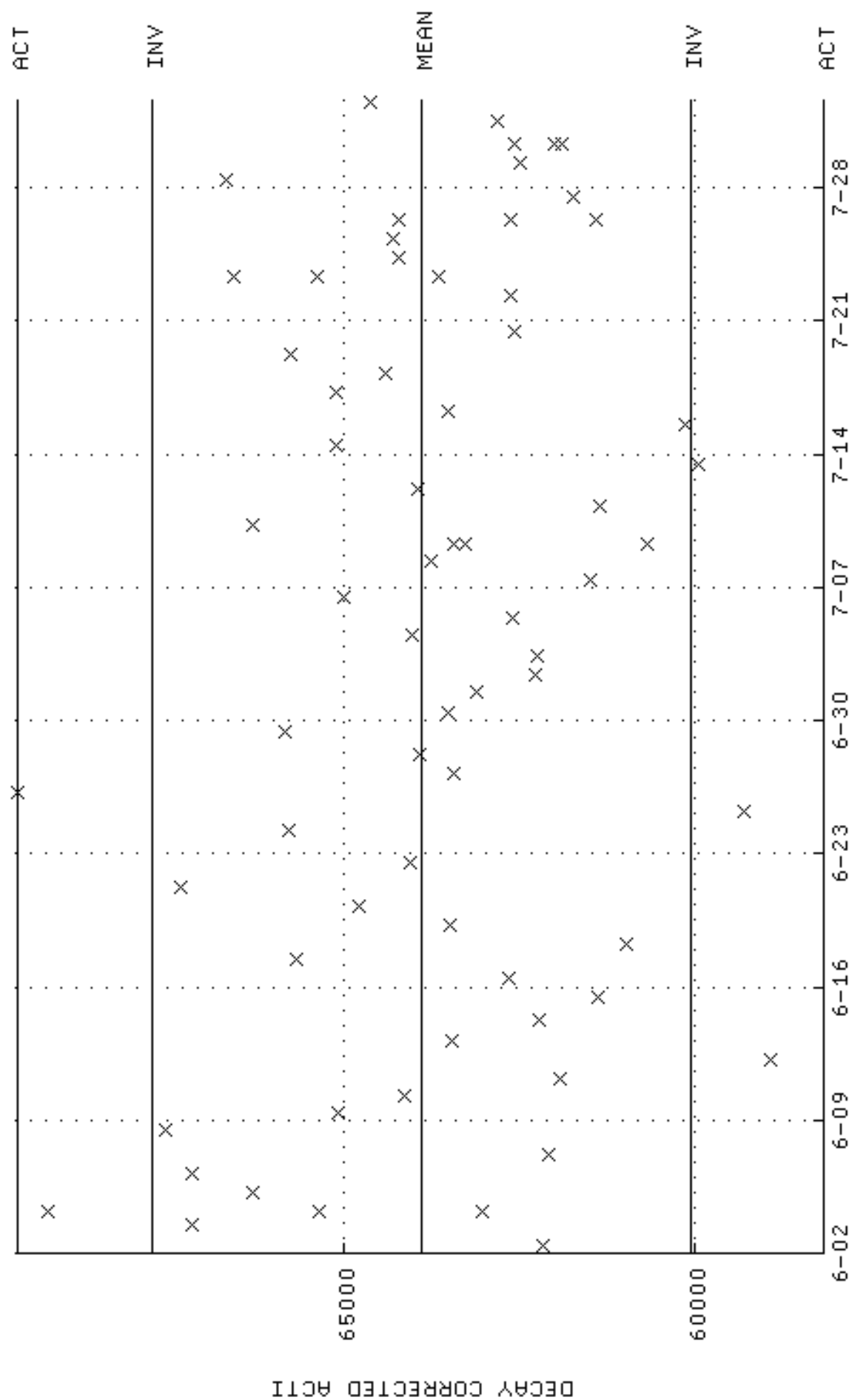
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 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-JUN-2024 09:04:57 through 1-AUG-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



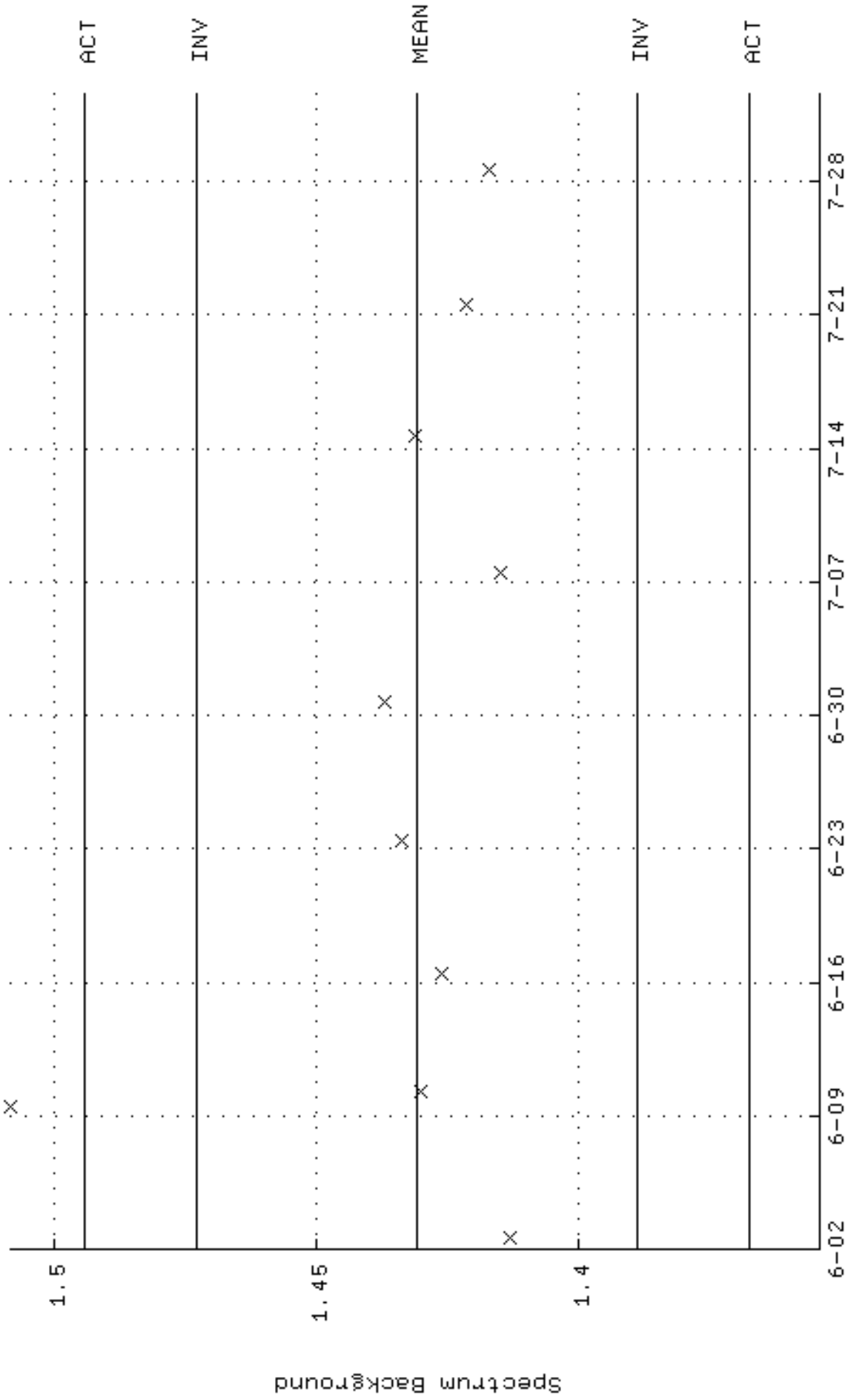
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 Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
 Start/End Dates : 2-JUN-2024 09:04:57 through 1-AUG-2024 12:00:00
 Mean +- Std Dev : 1.23320 +- 6.423878E-02 (5.21 %)



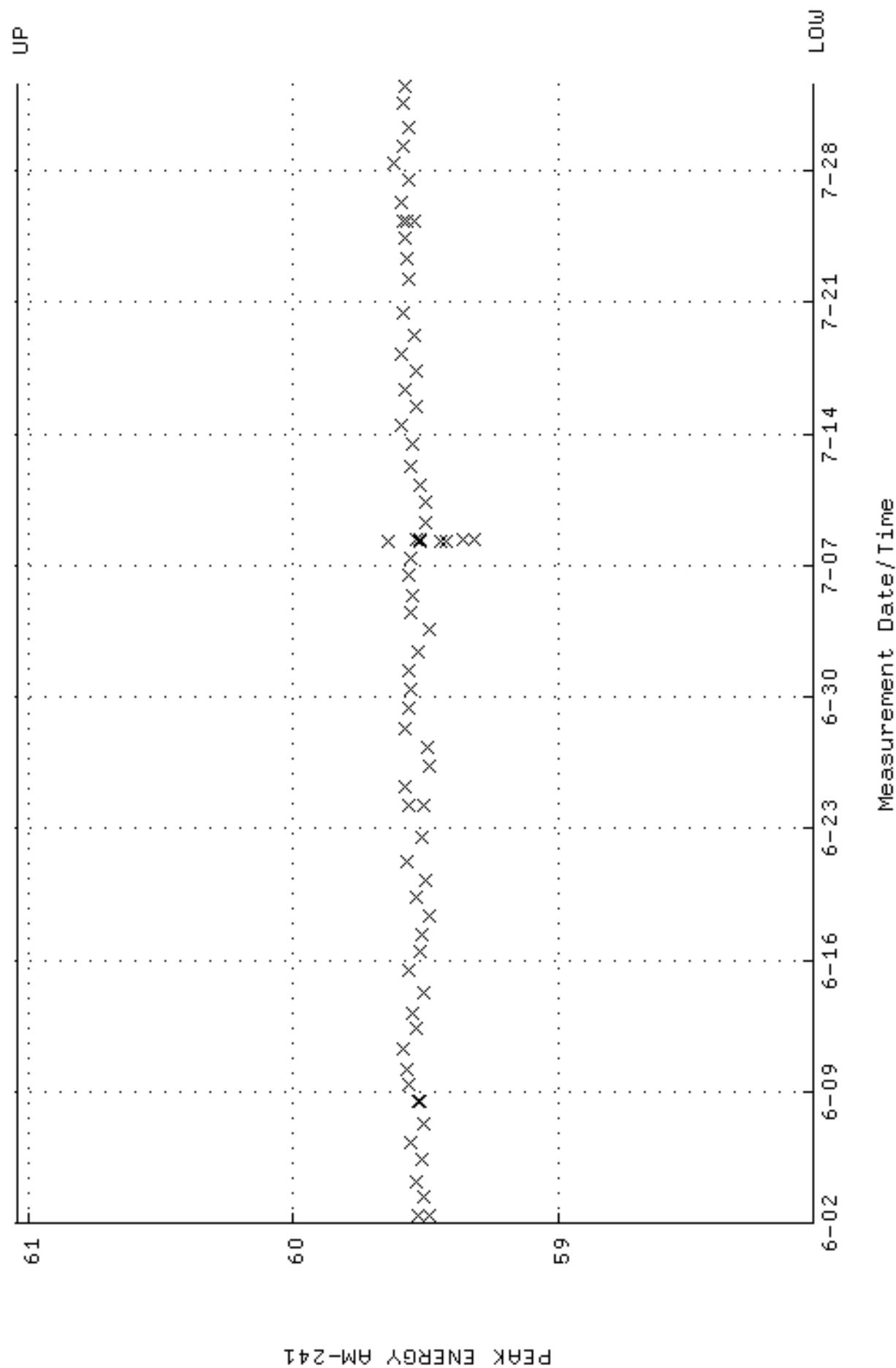
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 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-JUN-2024 09:04:57 through 1-AUG-2024 12:00:00
 Mean +- Std Dev : 63899.8 +- 1914.80 (3.00 %)



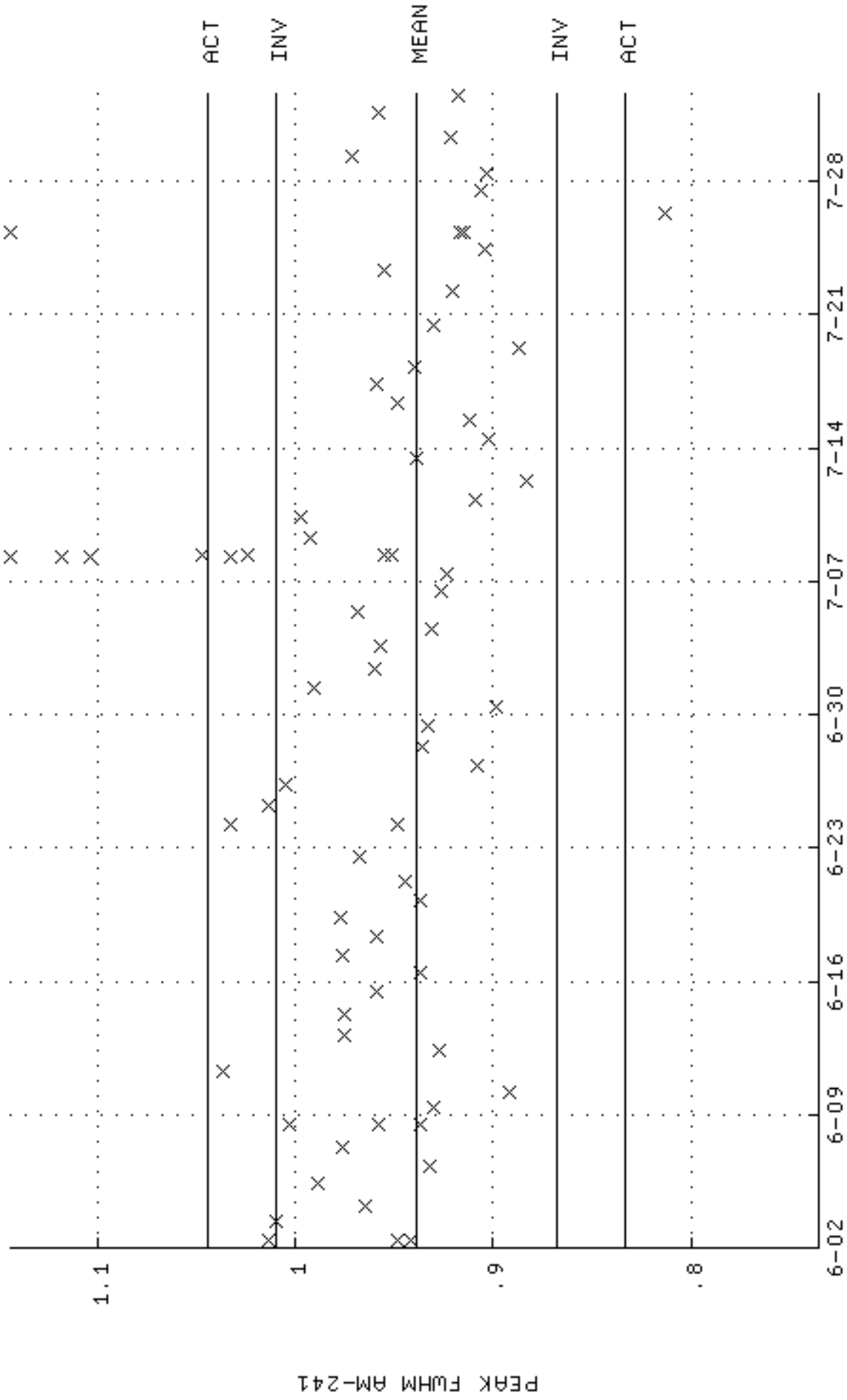
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM01.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
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Mean +- Std Dev : 1.43087 +- 2.109282E-02 (1.47 %)



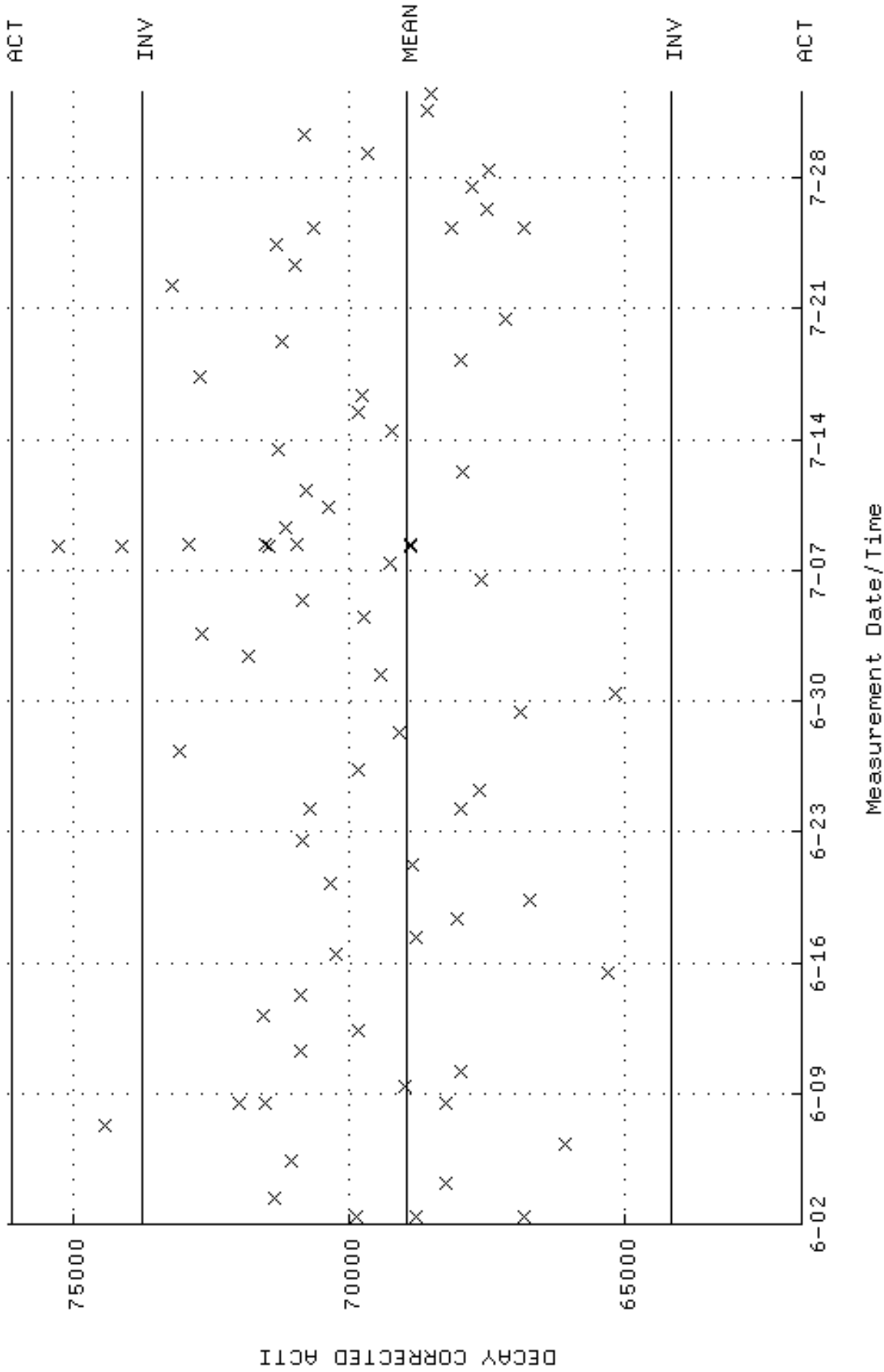
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 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
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 Lower/Upper Lmts: 58.0400 through 61.0400



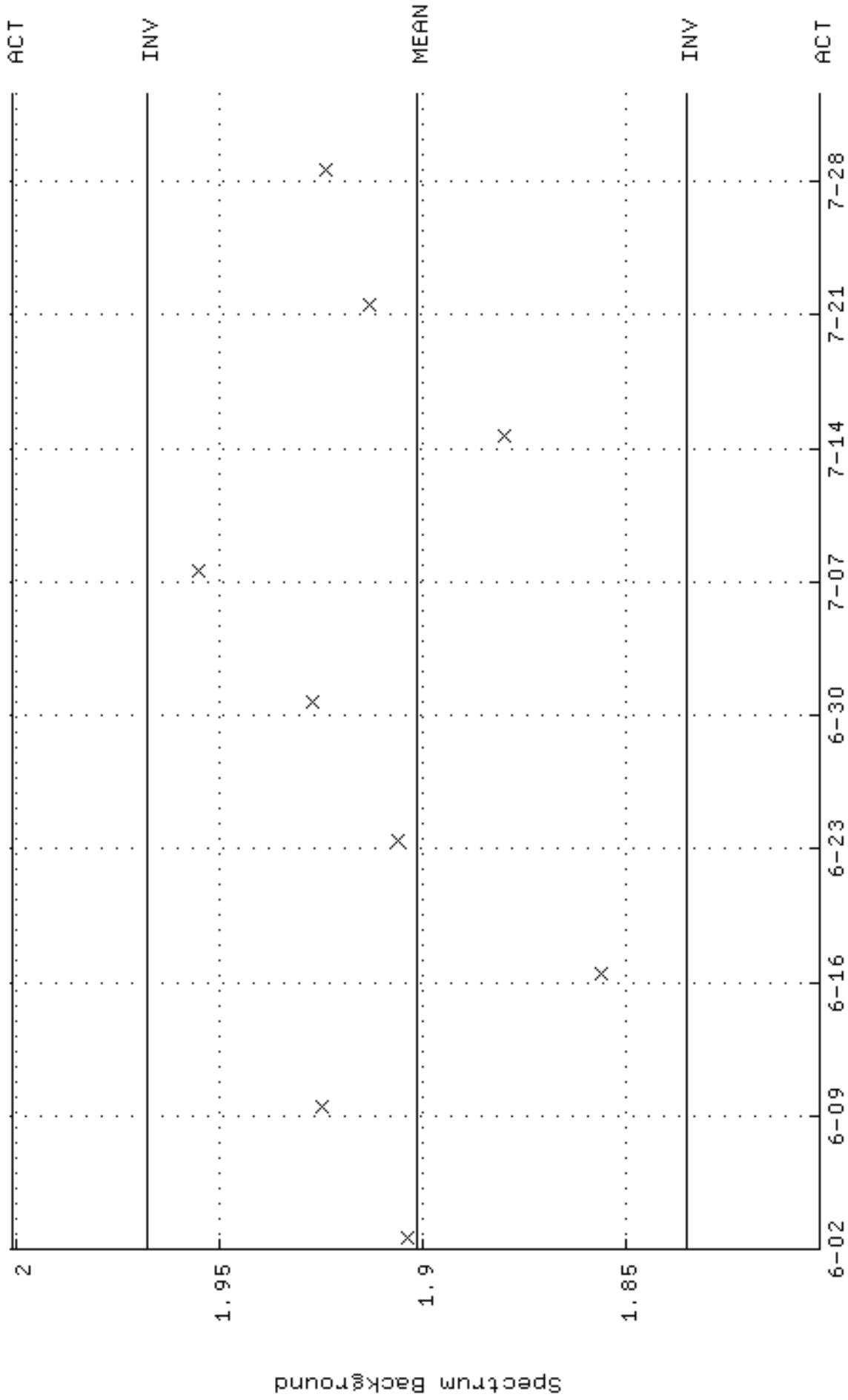
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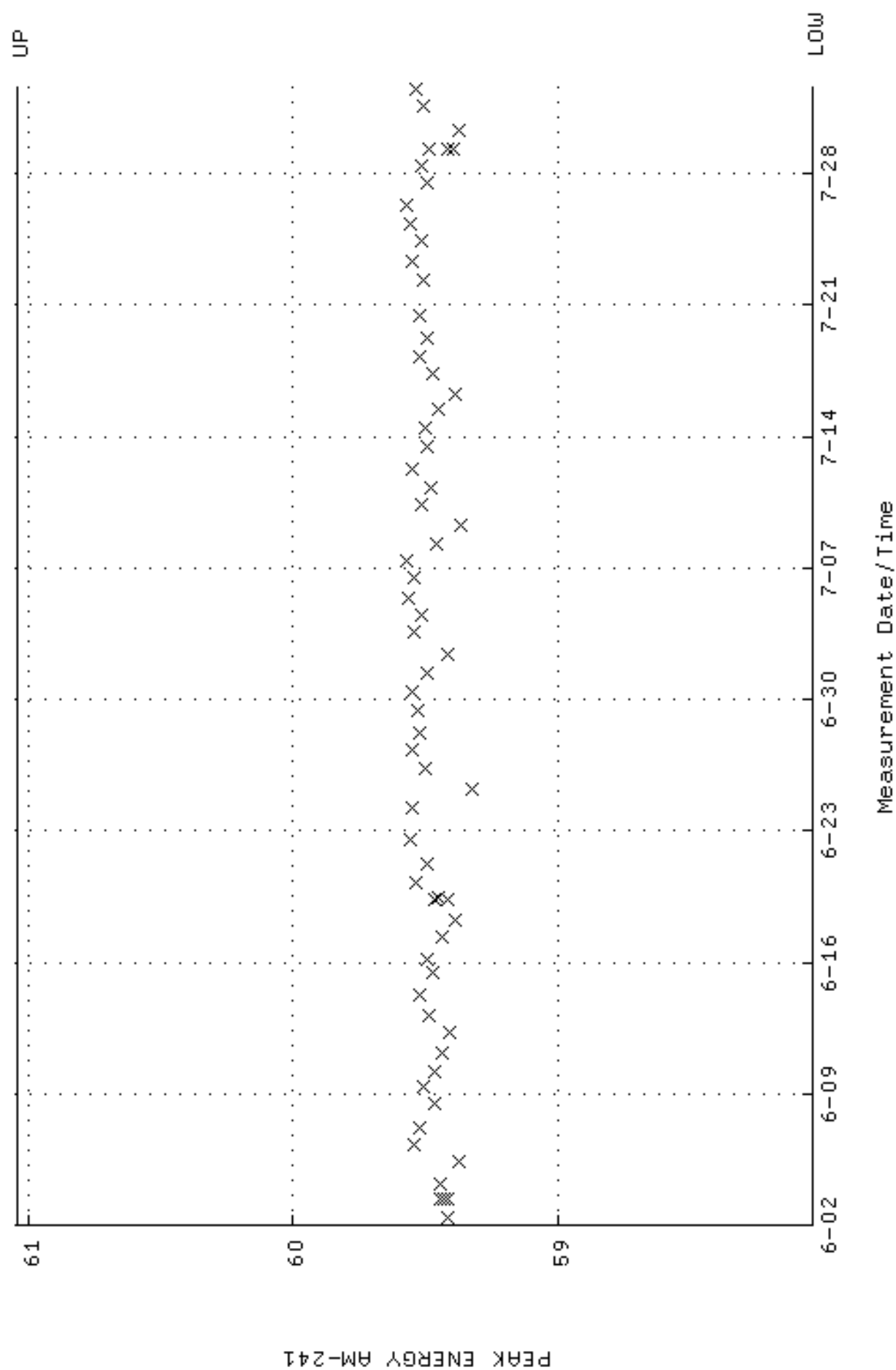
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Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
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Mean +- Std Dev : 68960.1 +- 2392.16 (3.47 %)



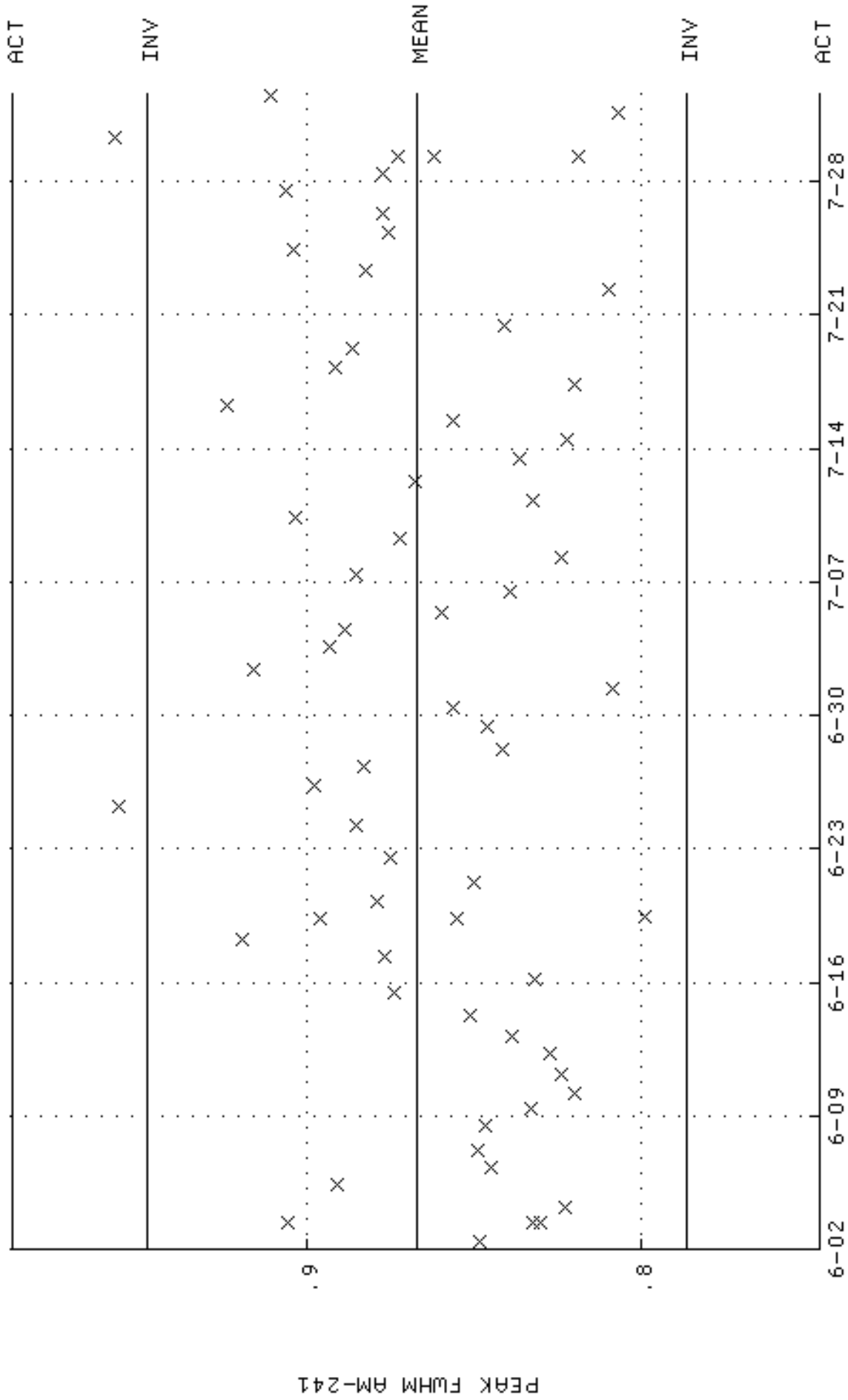
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM02.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 2-JUN-2024 15:22:49 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 1.90144 +- 3.309586E-02 (1.74 %)



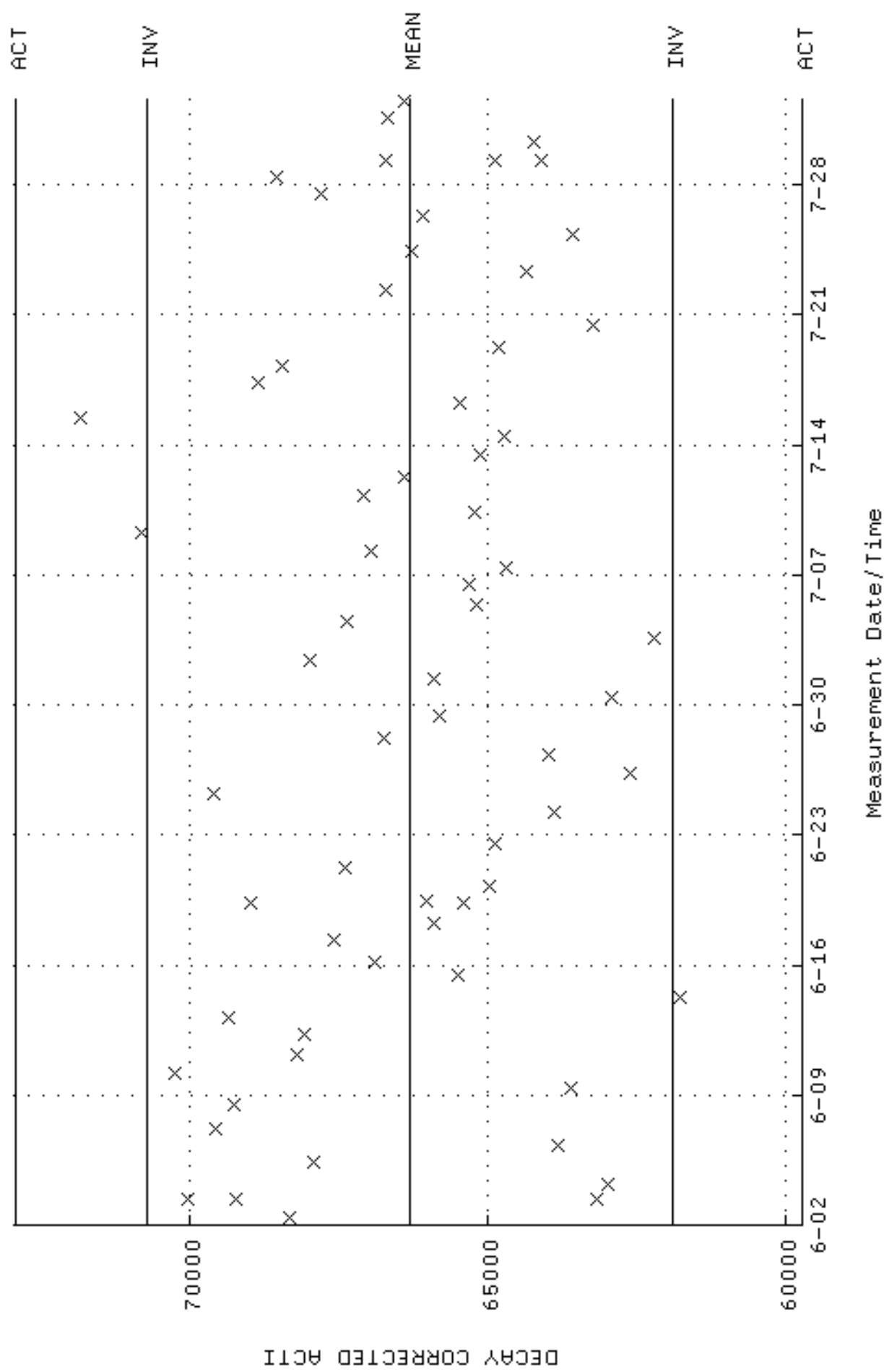
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM04_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-JUN-2024 09:05:02 through 1-AUG-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



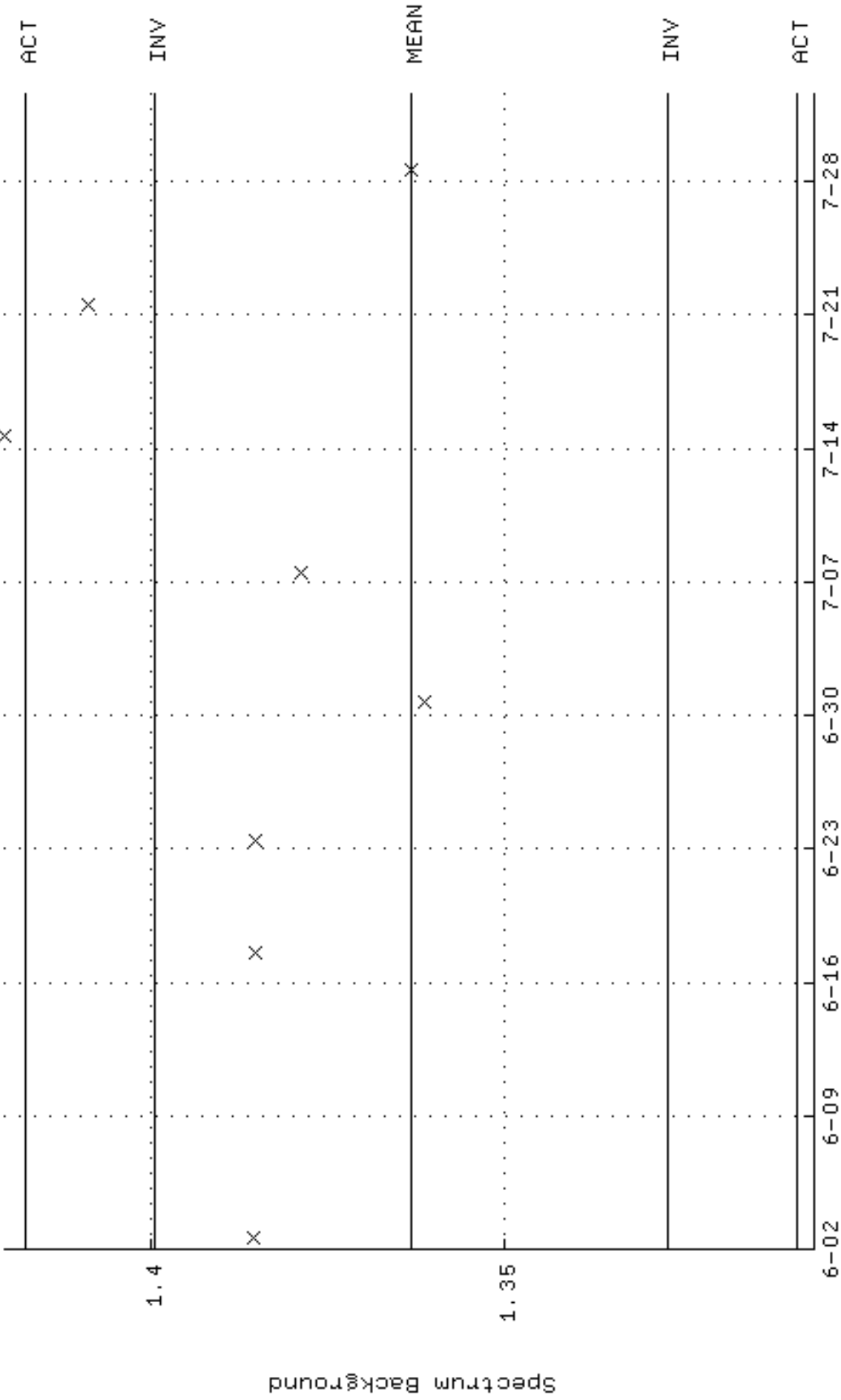
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM04_CAN.QAF;1
Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
Start/End Dates : 2-JUN-2024 09:05:02 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 0.867350 +- 4.018420E-02 (4.63 %)



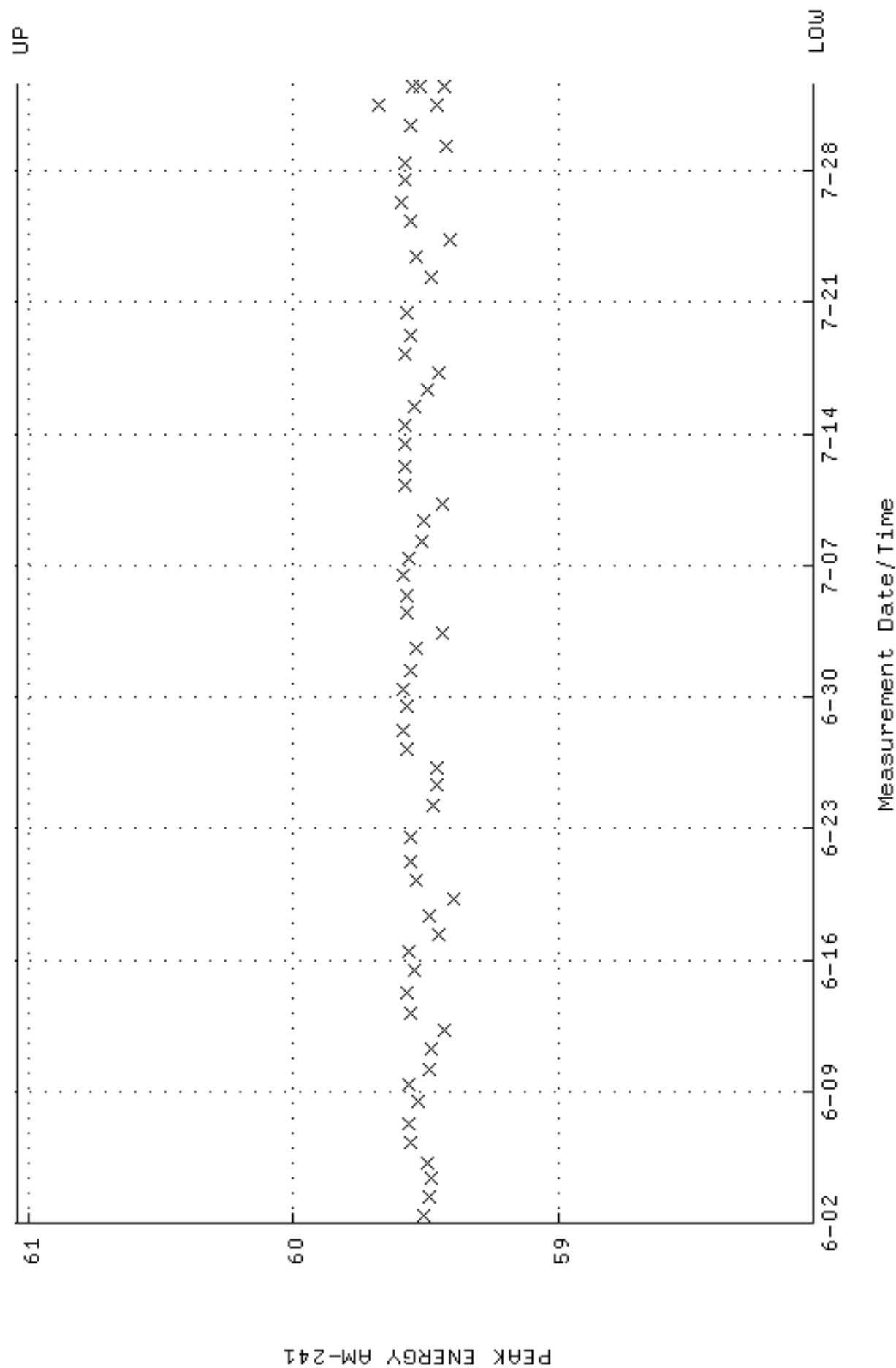
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM04-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-JUN-2024 09:05:02 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 66328.3 +- 2203.49 (3.32 %)



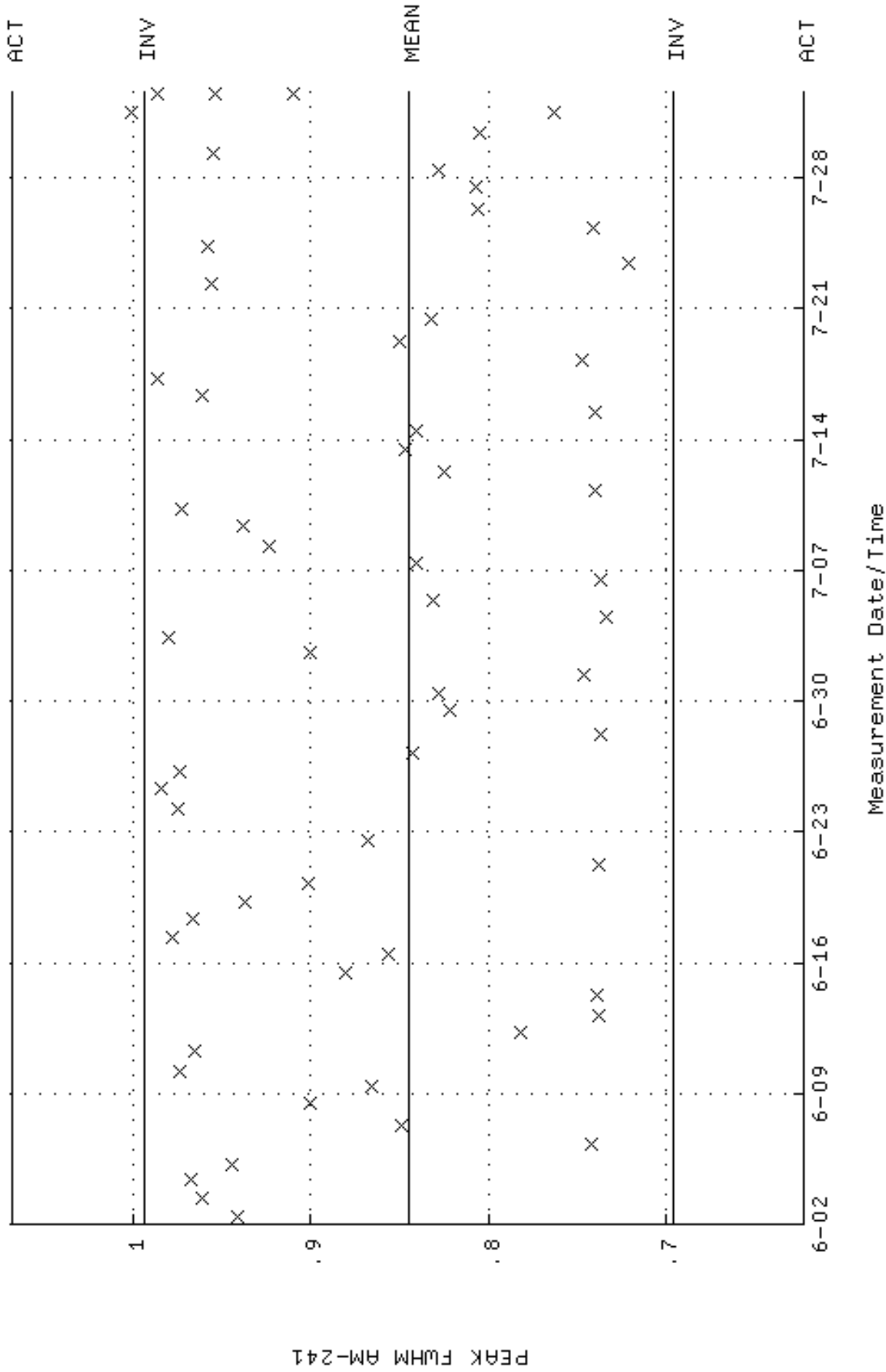
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM04.QAF;1
 Parameter Name : BACKRATE (Spectrum Background Rate)
 Start/End Dates : 2-JUN-2024 15:22:55 through 1-AUG-2024 12:00:00
 Mean +- Std Dev : 1.36338 +- 1.819350E-02 (1.33 %)



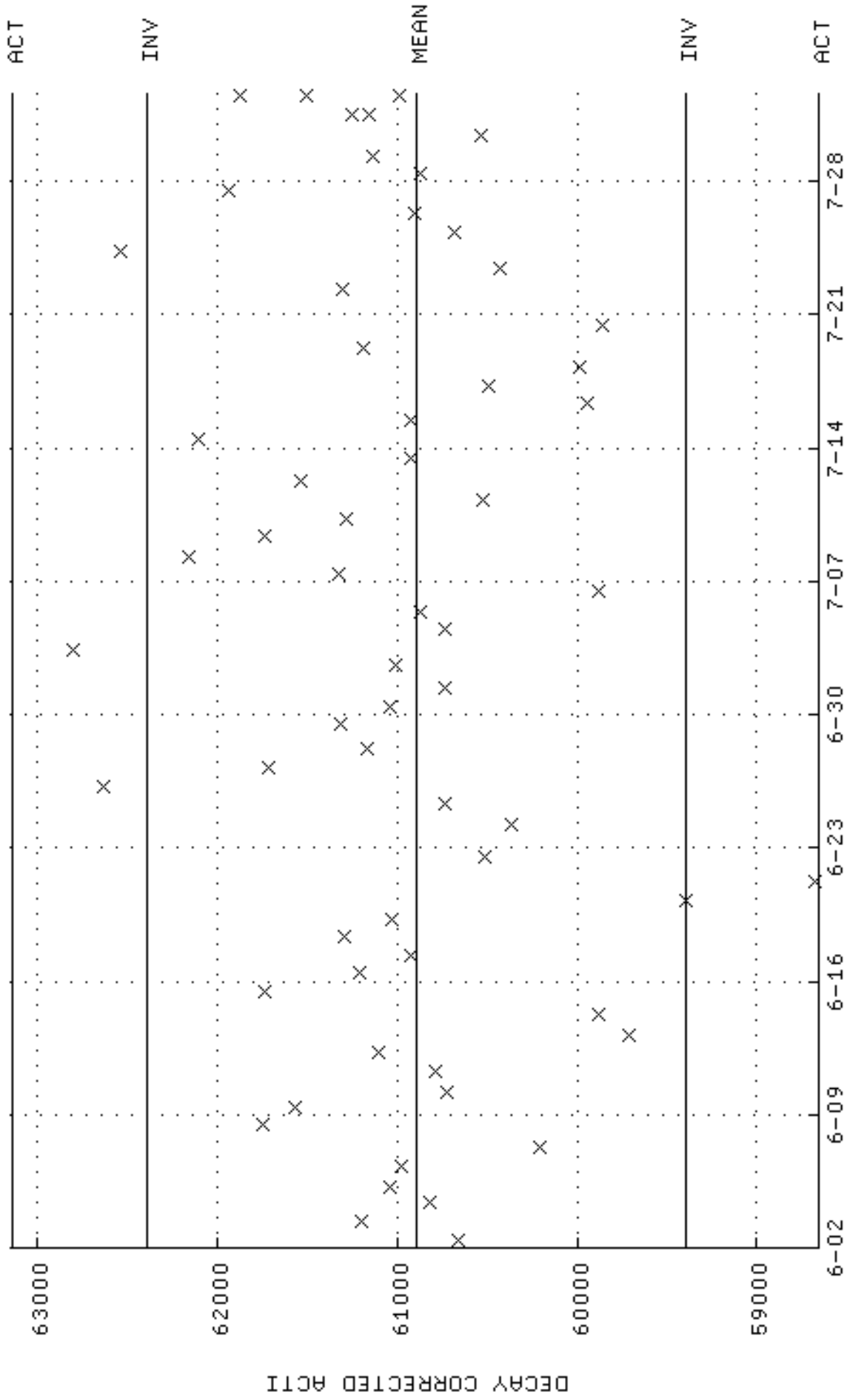
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM05_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-JUN-2024 09:23:03 through 1-AUG-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



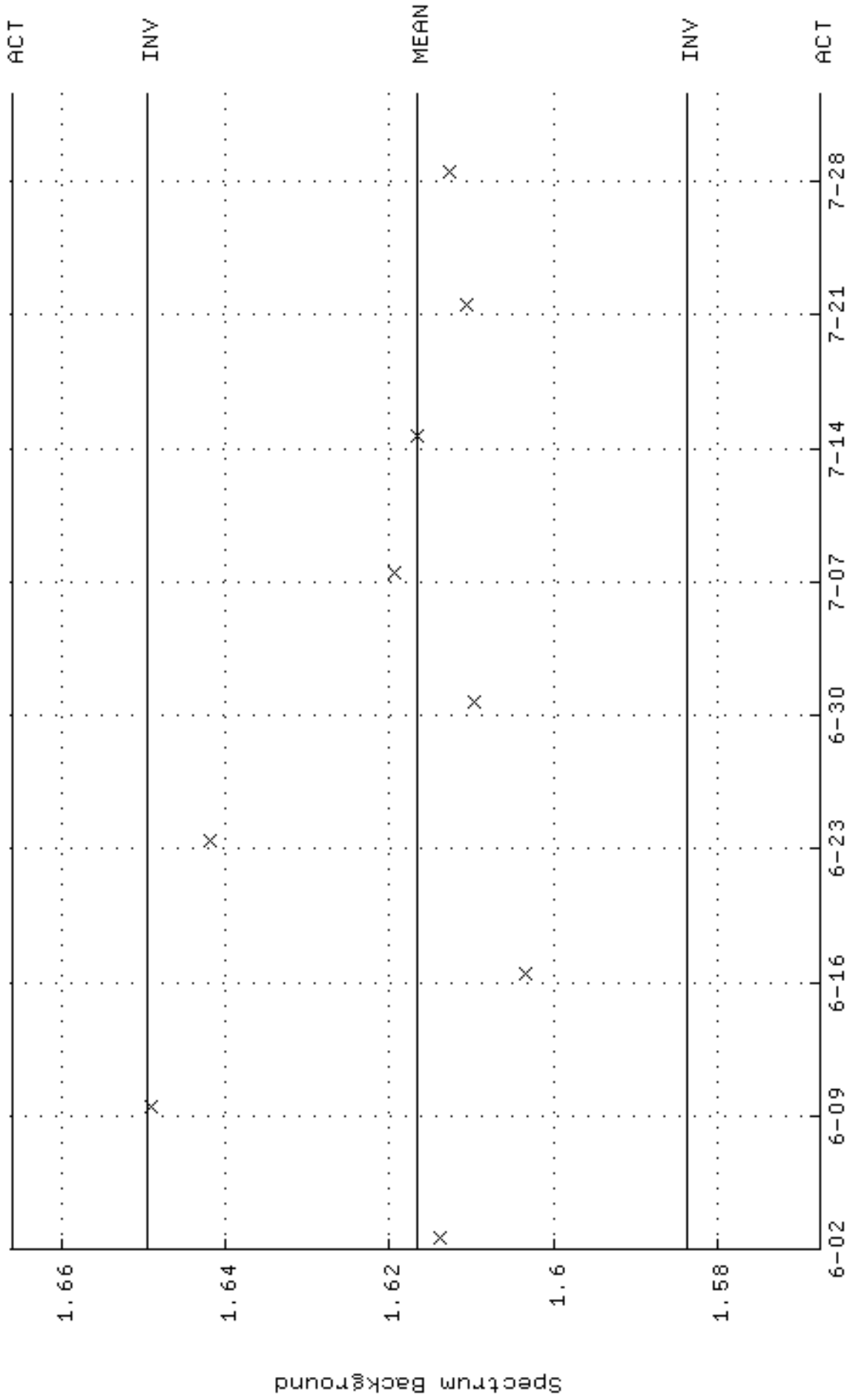
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM05_CAN.QAF;1
Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
Start/End Dates : 2-JUN-2024 09:23:03 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 0.845264 +- 7.424816E-02 (8.78 %)



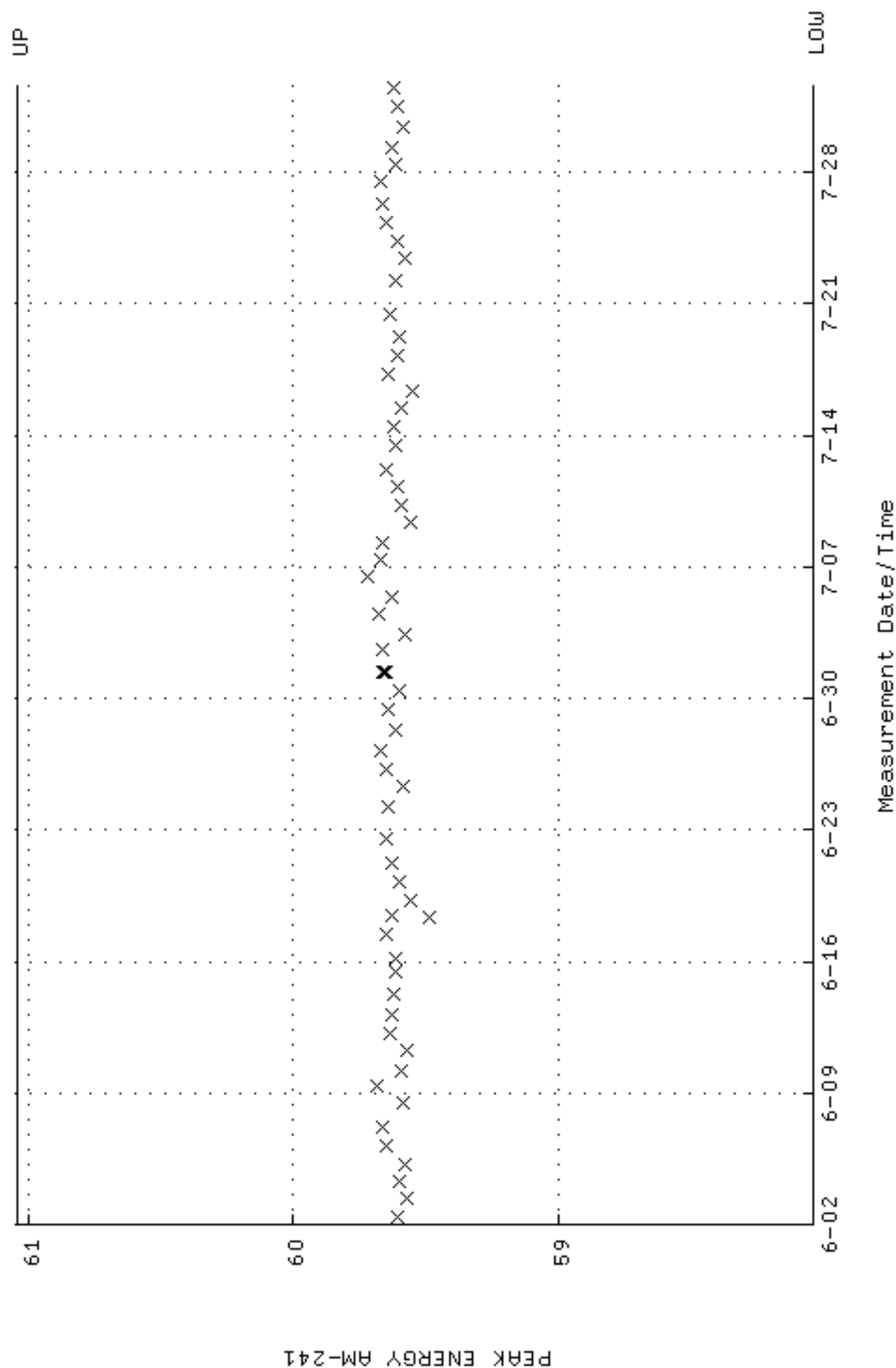
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM05_CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-JUN-2024 09:23:03 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 60897.9 +- 747.003 (1.23 %)



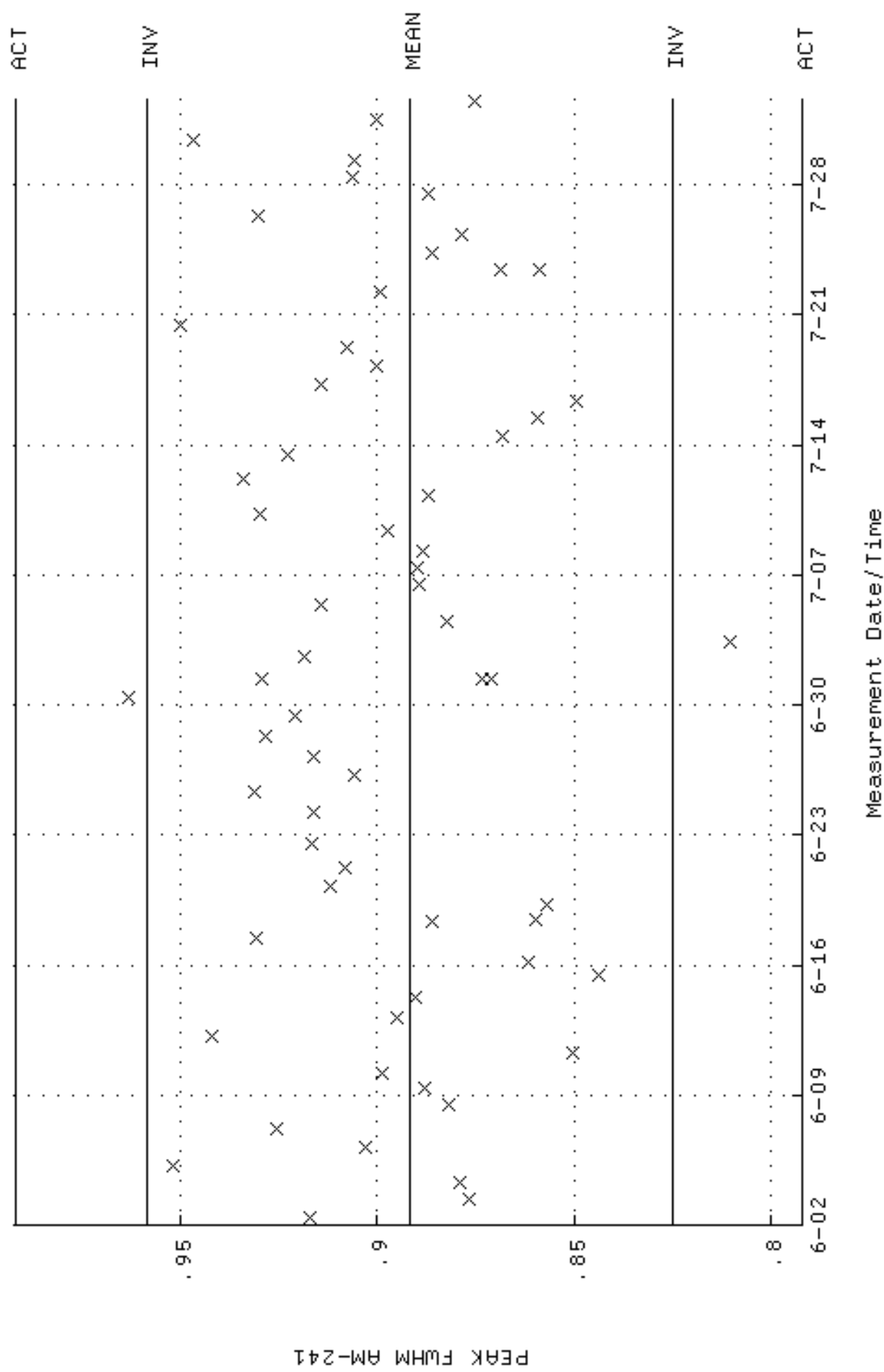
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM05.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 2-JUN-2024 14:09:51 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 1.61674 +- 1.640617E-02 (1.01 %)



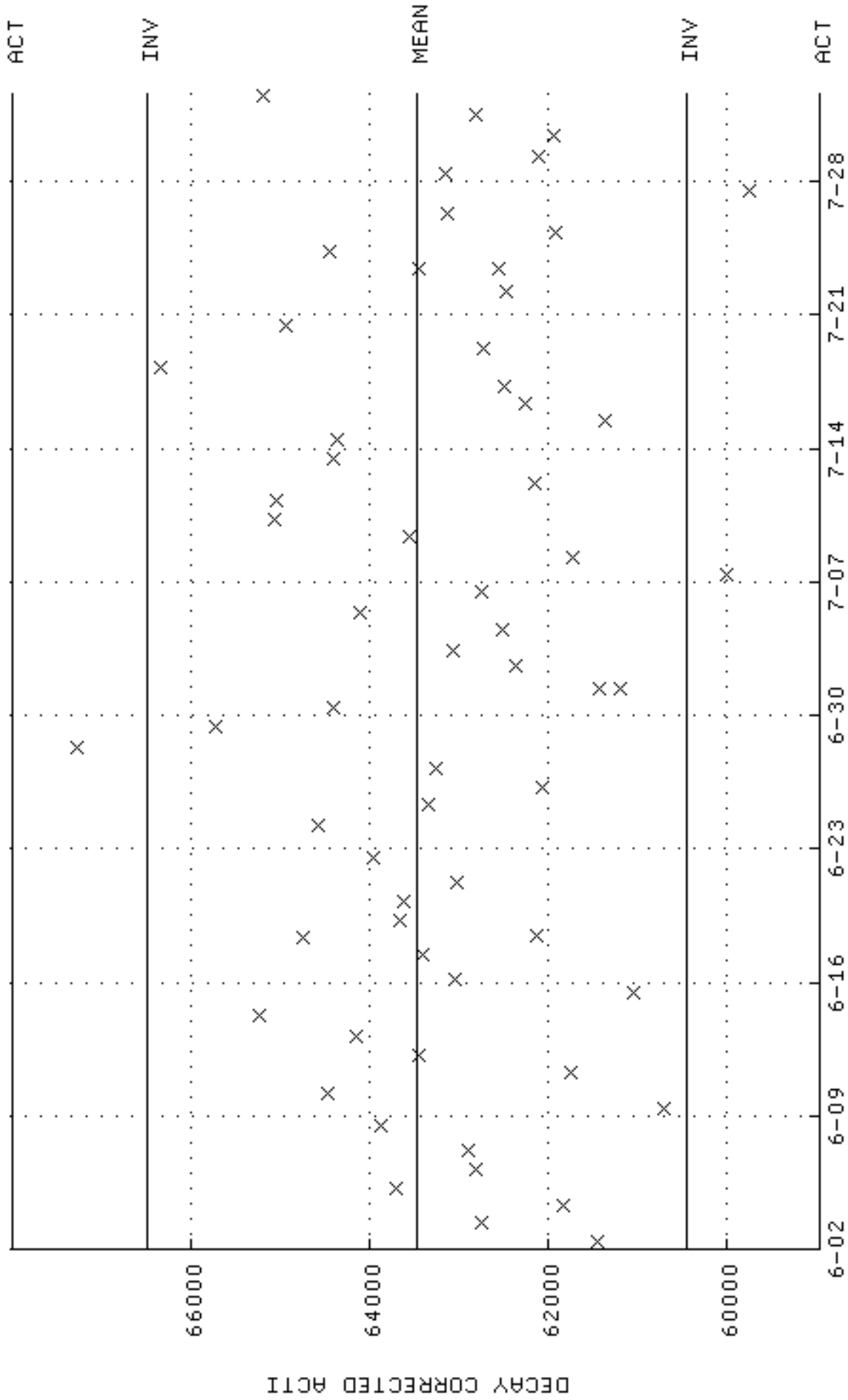
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM06_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-JUN-2024 09:05:06 through 1-AUG-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM06_CAN.QAF;1
Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
Start/End Dates : 2-JUN-2024 09:05:06 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 0.891957 +- 3.327383E-02 (3.73 %)

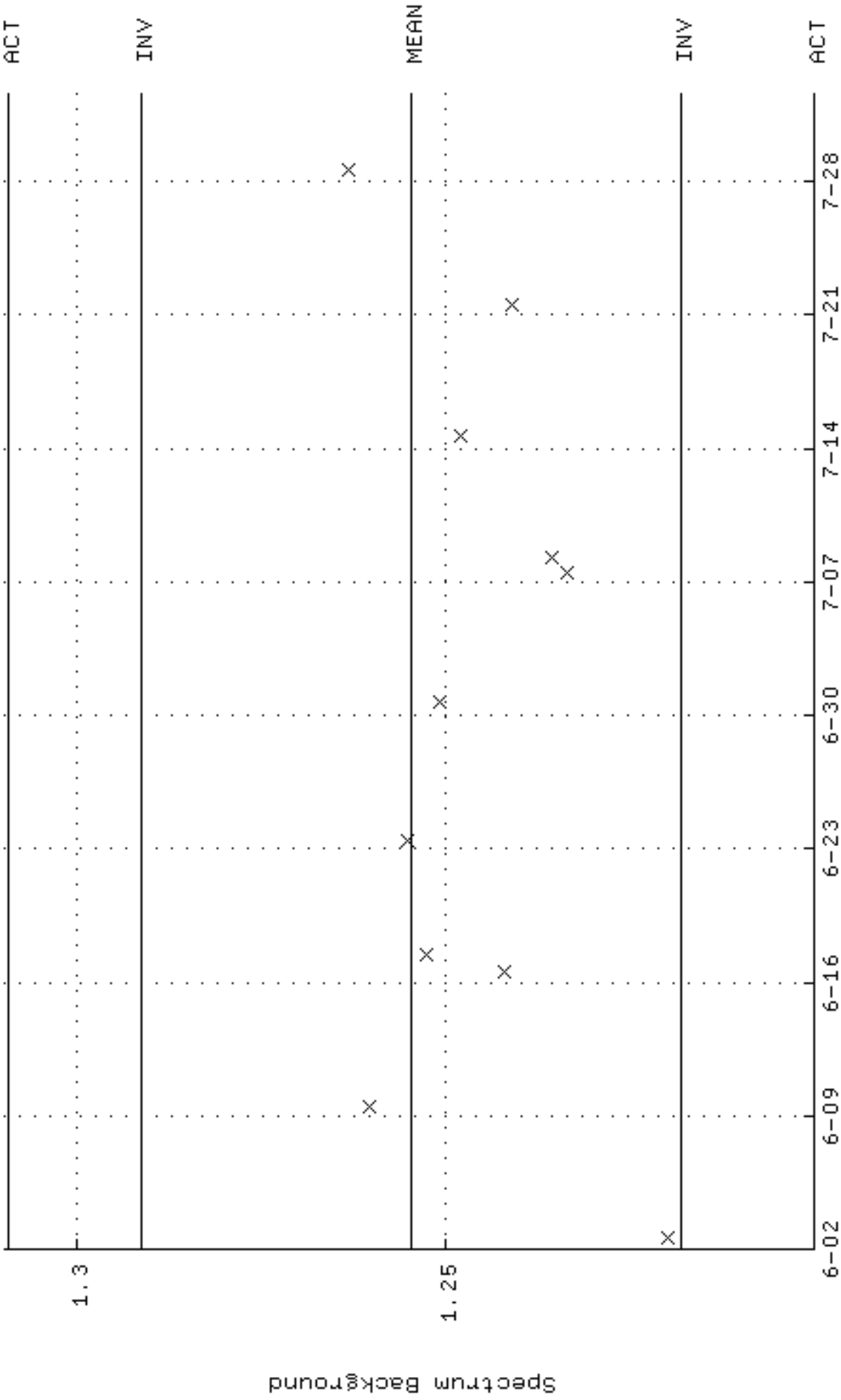


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM06-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-JUN-2024 09:05:06 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 63473.8 +- 1503.81 (2.37 %)

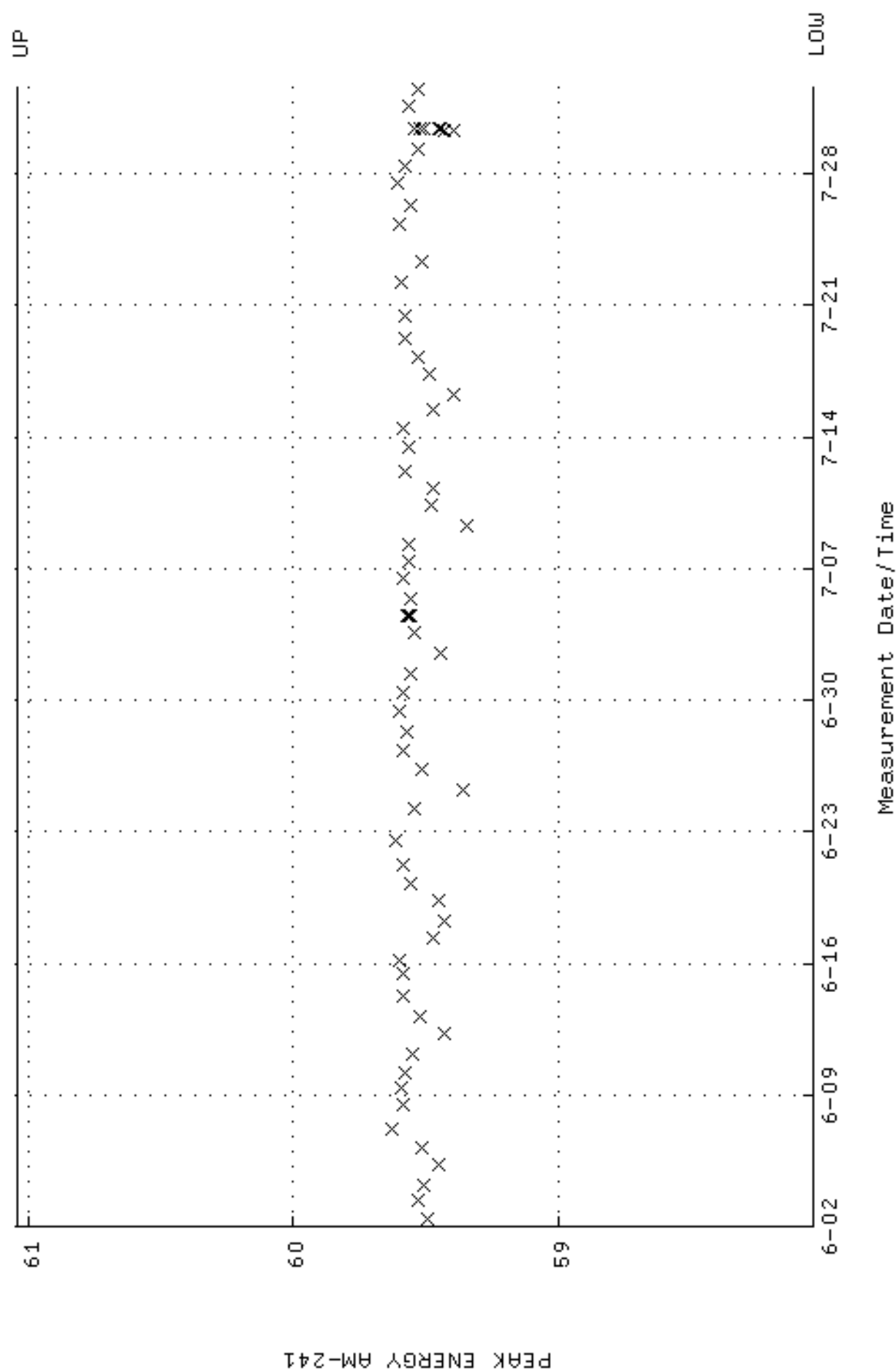


Measurement Date/Time

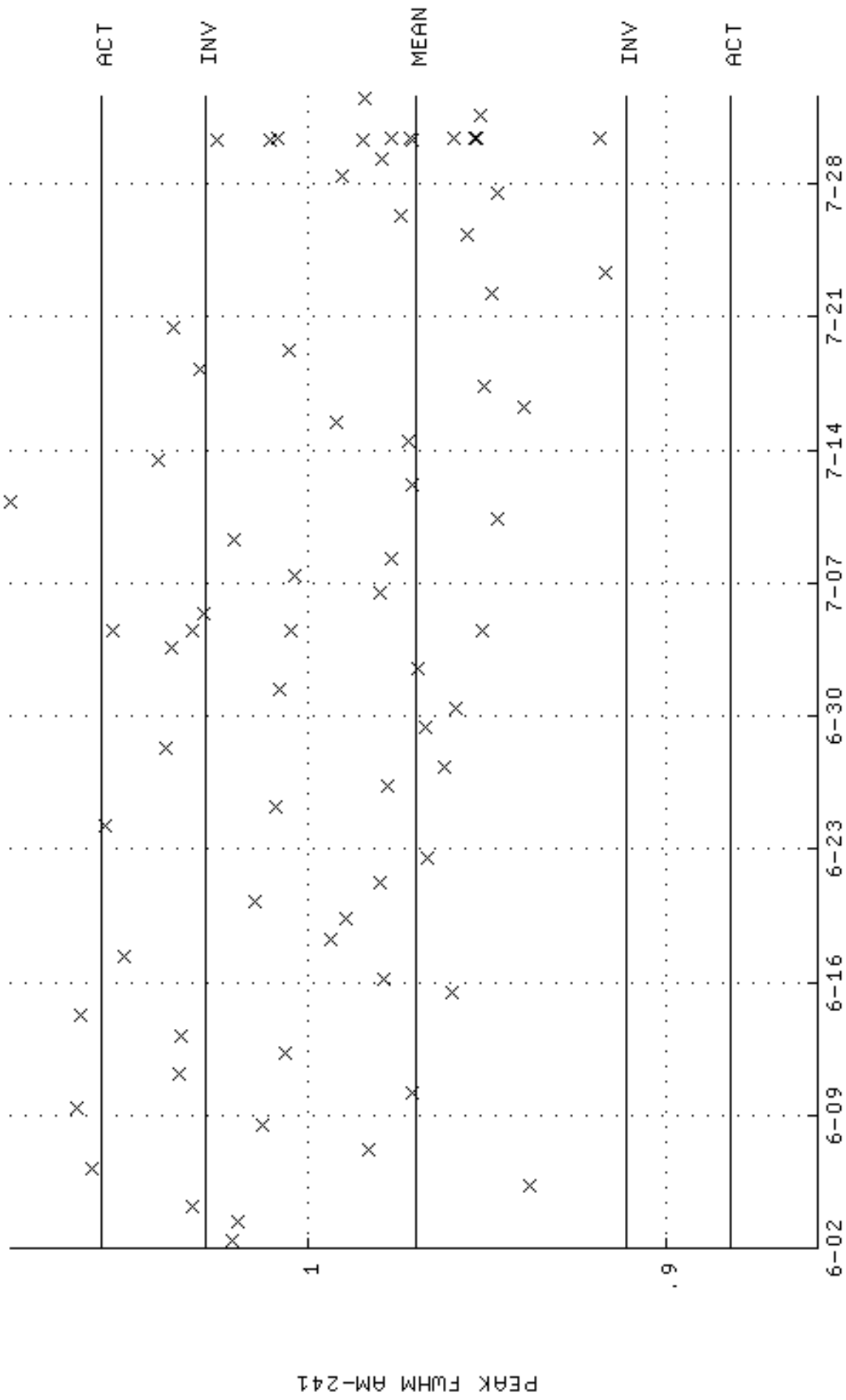
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM06.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 2-JUN-2024 15:22:59 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 1.25484 +- 1.824749E-02 (1.45 %)



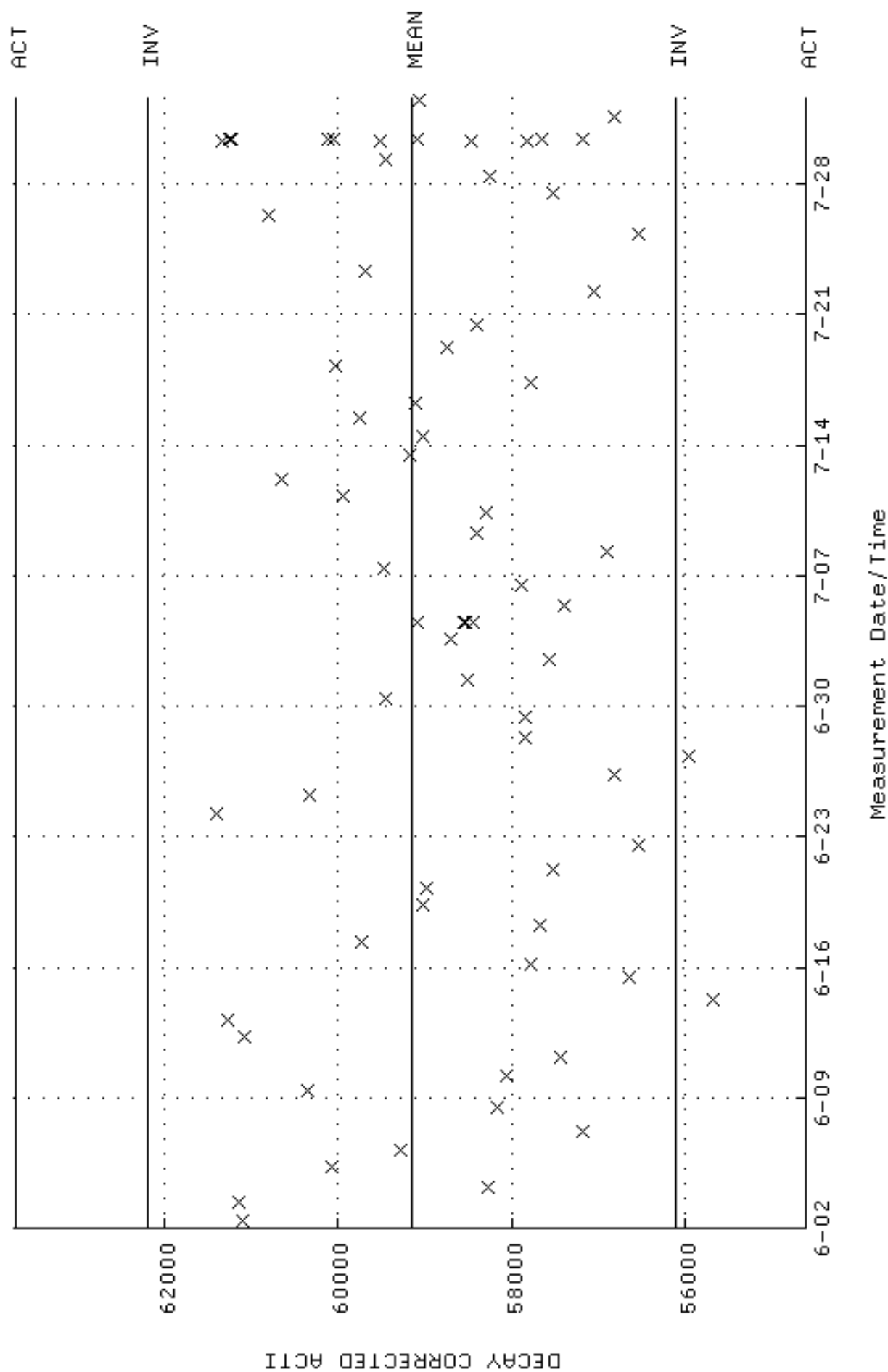
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM07_JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-JUN-2024 09:05:11 through 1-AUG-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



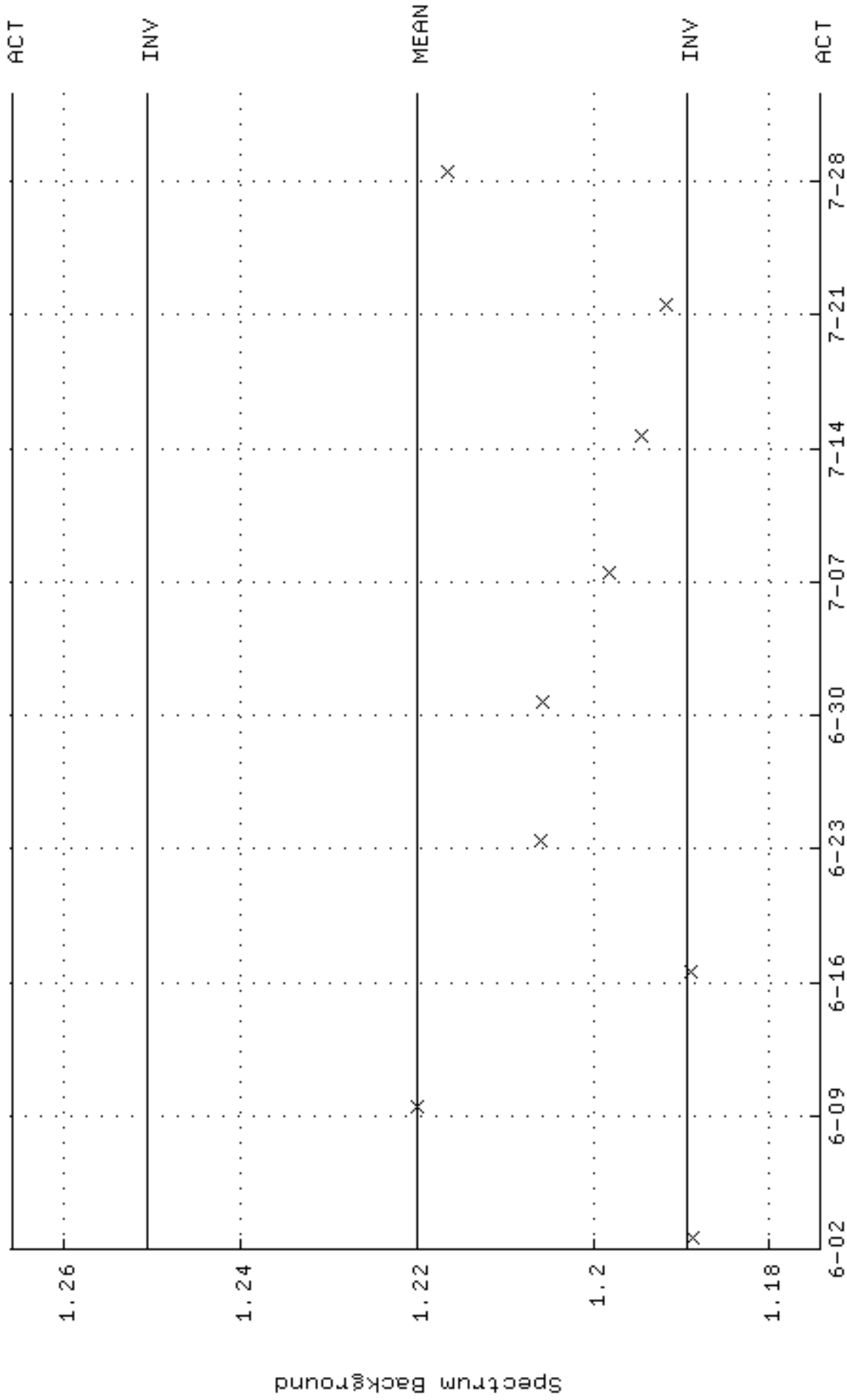
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM07_JAR.QAF;1
Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
Start/End Dates : 2-JUN-2024 09:05:11 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 0.970170 +- 2.928150E-02 (3.02 %)



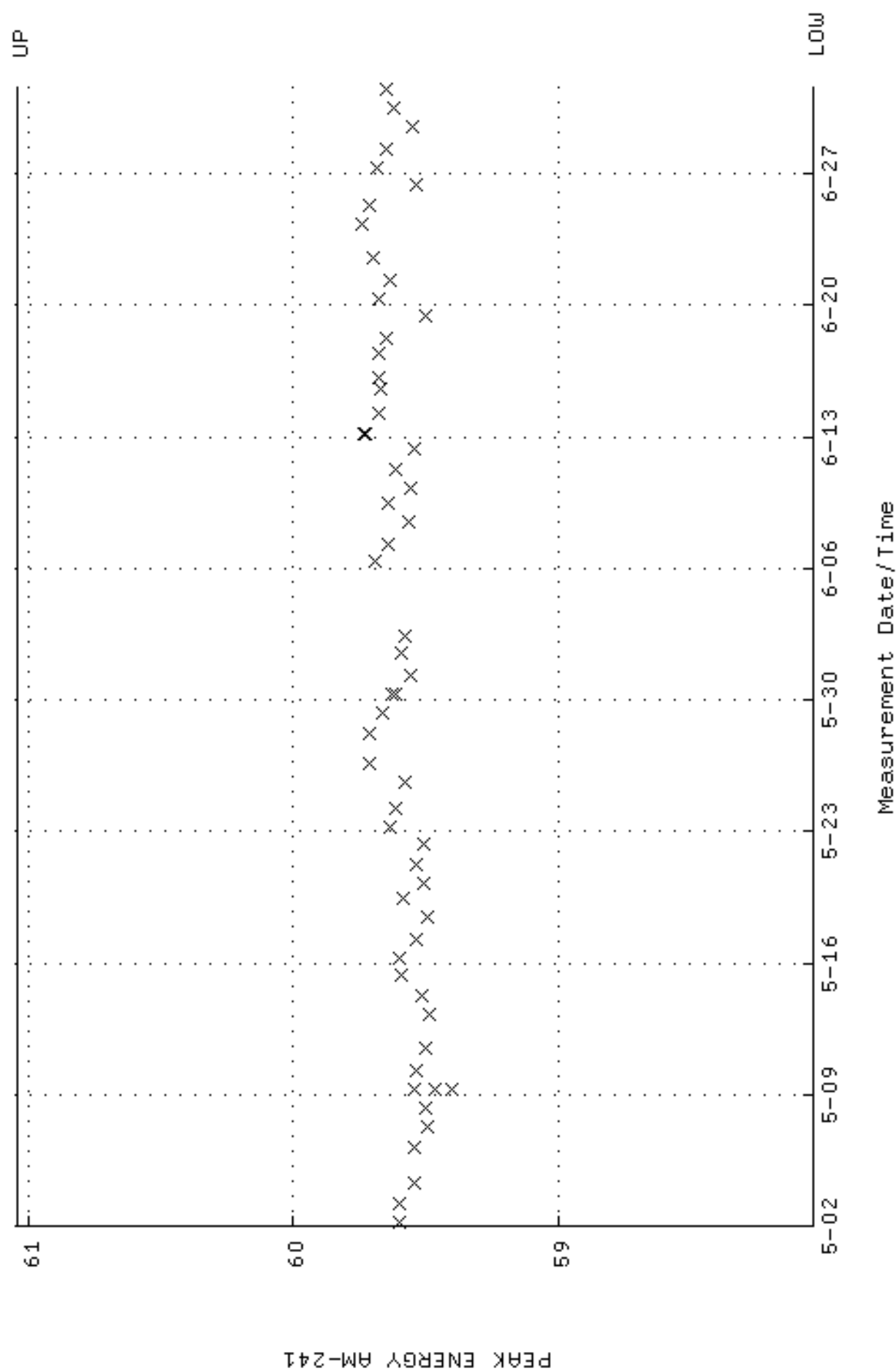
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM07_JAR.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-JUN-2024 09:05:11 through 1-AUG-2024 12:00:00
 Mean +- Std Dev : 59158.0 +- 1515.59 (2.56 %)



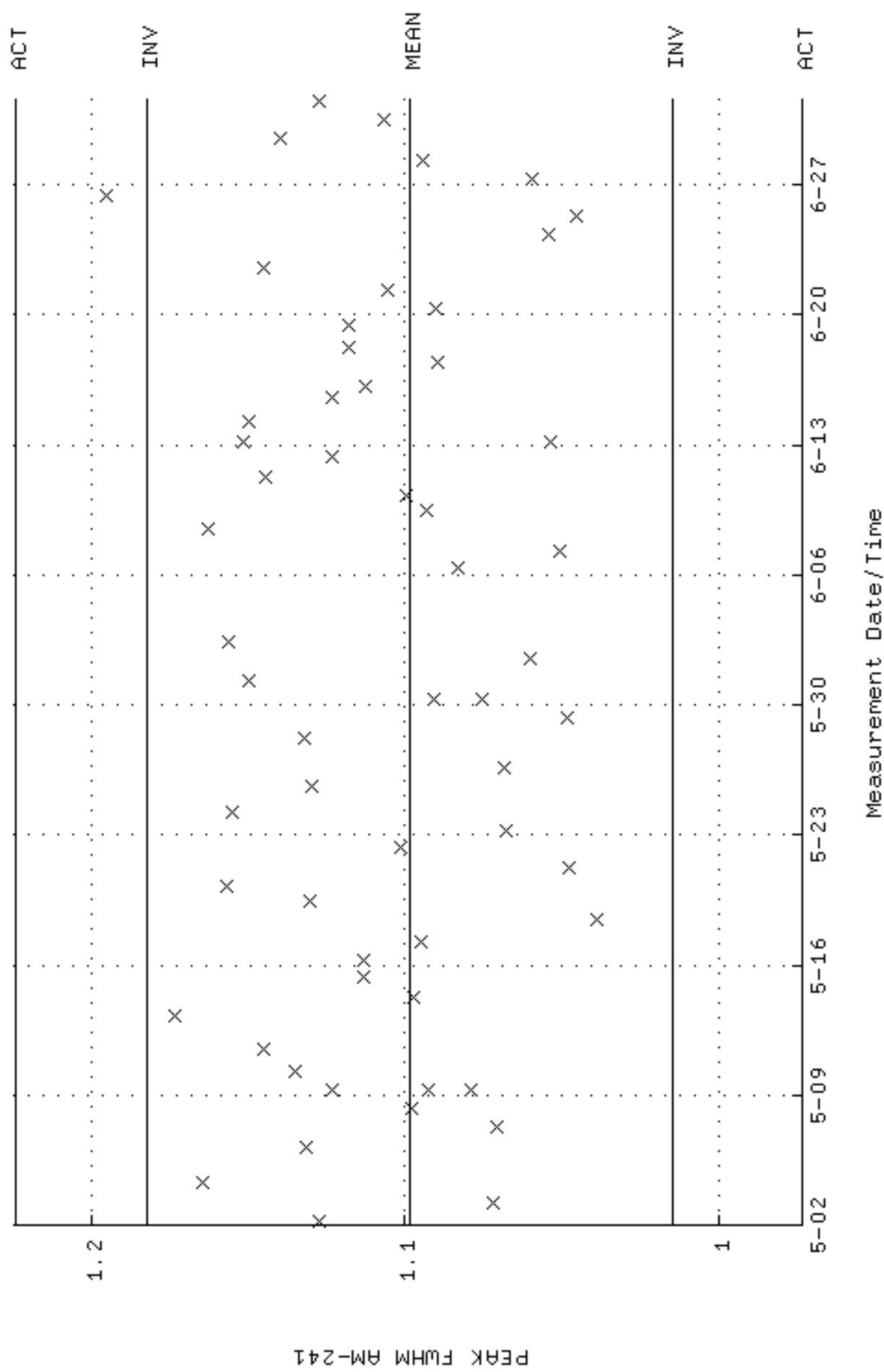
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM07.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 2-JUN-2024 15:23:04 through 1-AUG-2024 12:00:00
Mean +- Std Dev : 1.22007 +- 1.528499E-02 (1.25 %)



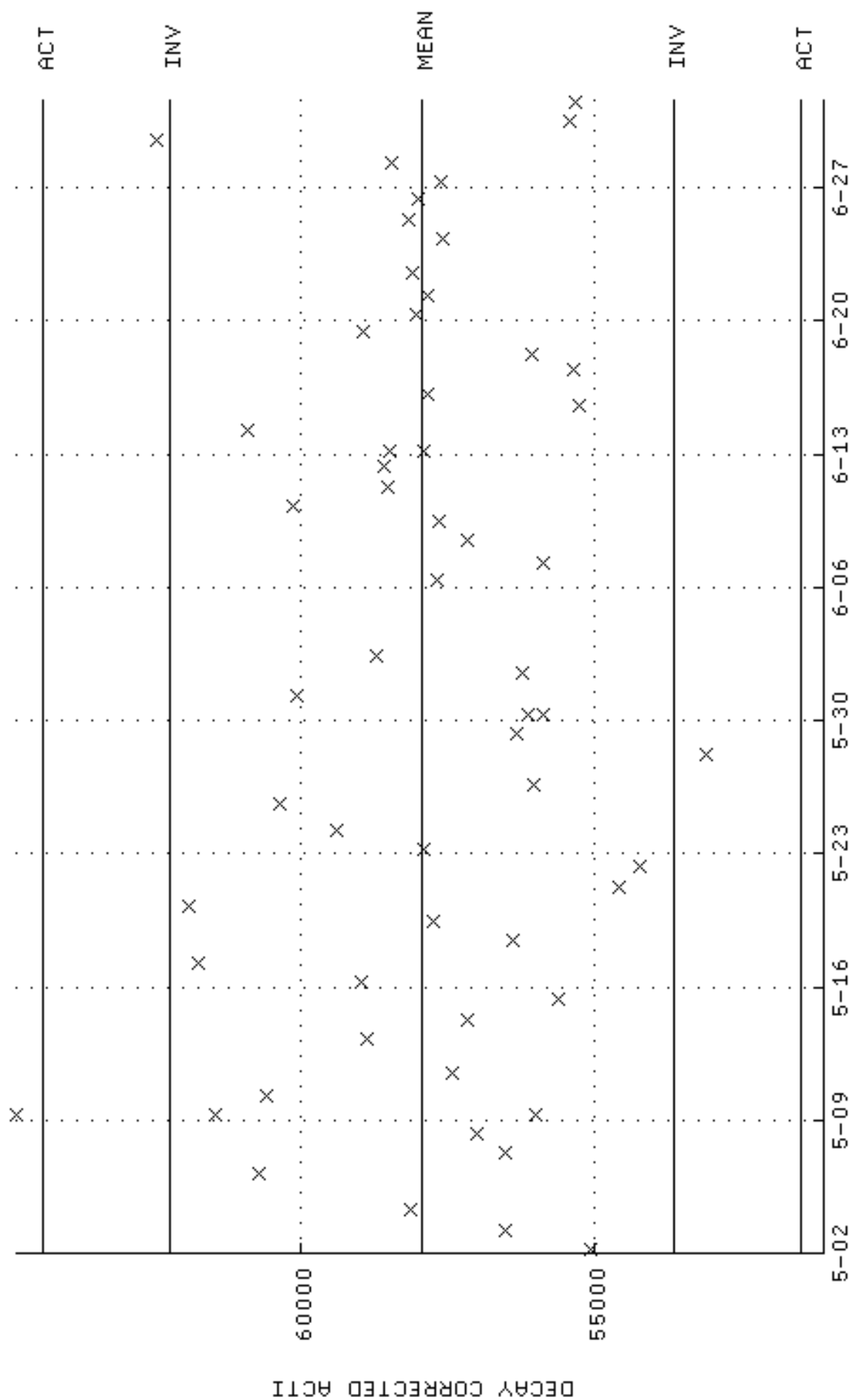
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM08_JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:33 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



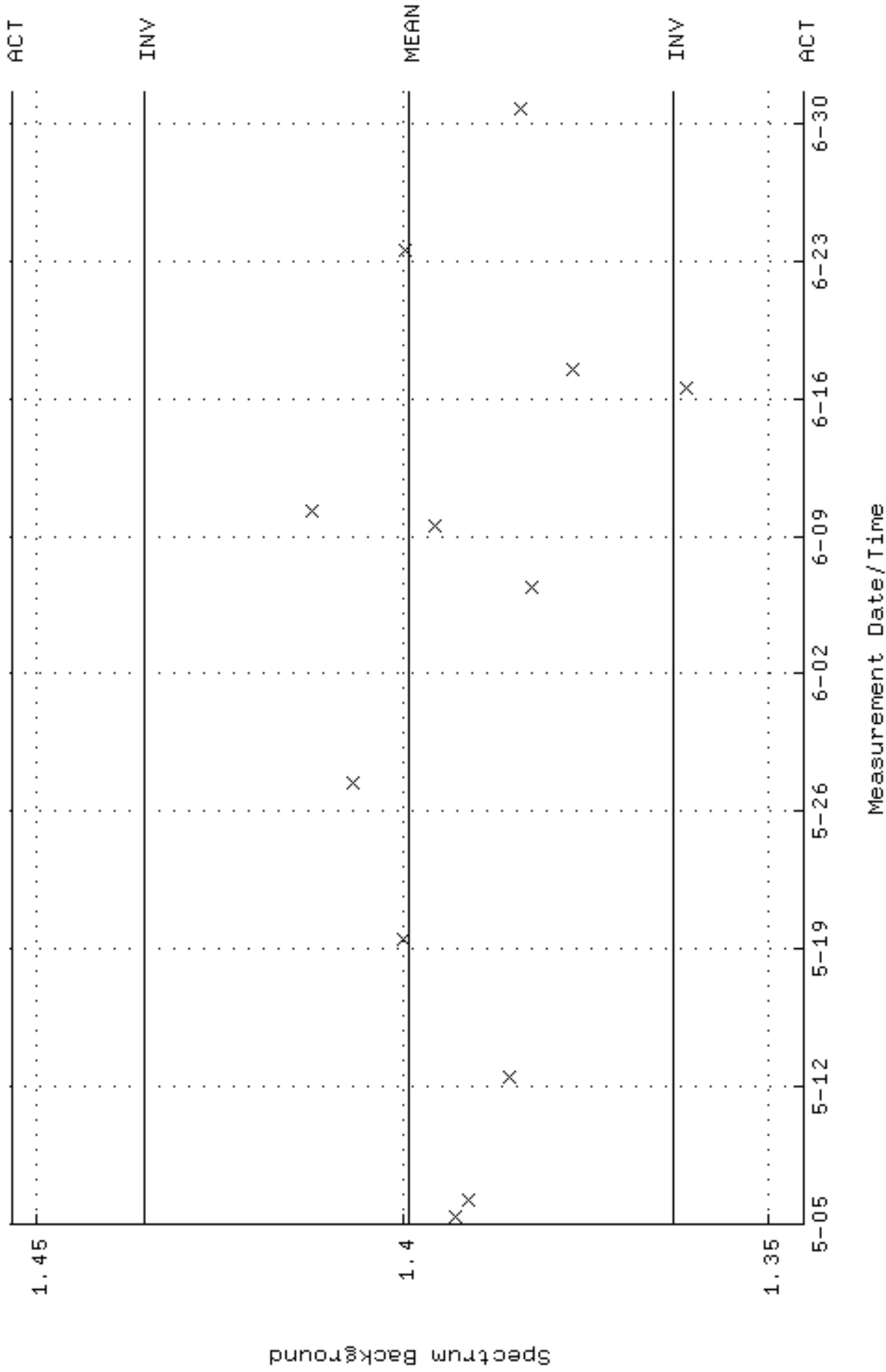
QA filename : DKA100:[CANBERRA,GAMMA,SCUSR,QA]QCC-GAM08-JAR.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:19:33 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.09881 +- 4.174436E-02 (3.80 %)



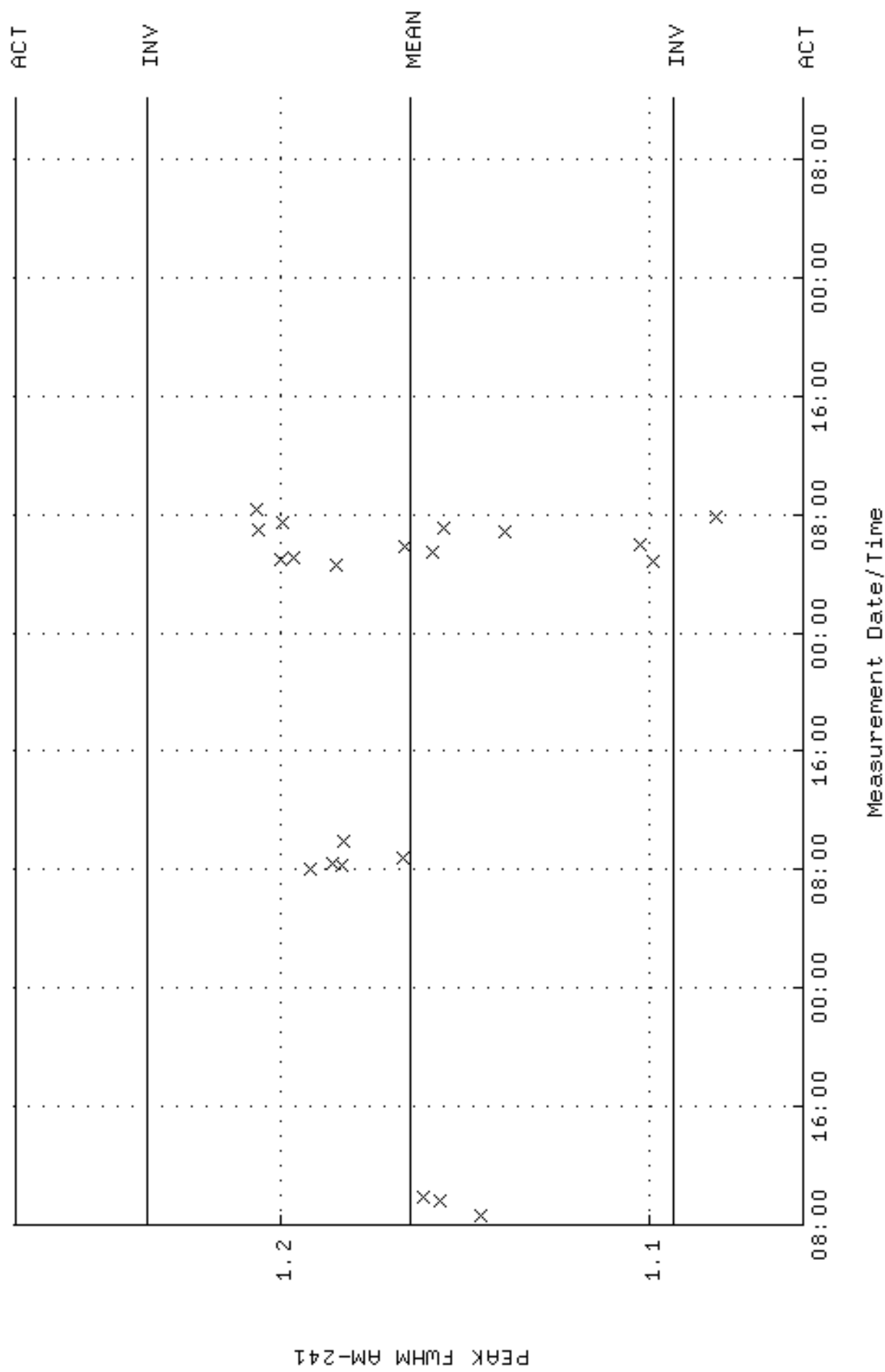
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM08-JAR.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:33 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 57948.3 +- 2156.30 (3.72 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM08.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:14:24 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.39925 +- 1.803552E-02 (1.29 %)



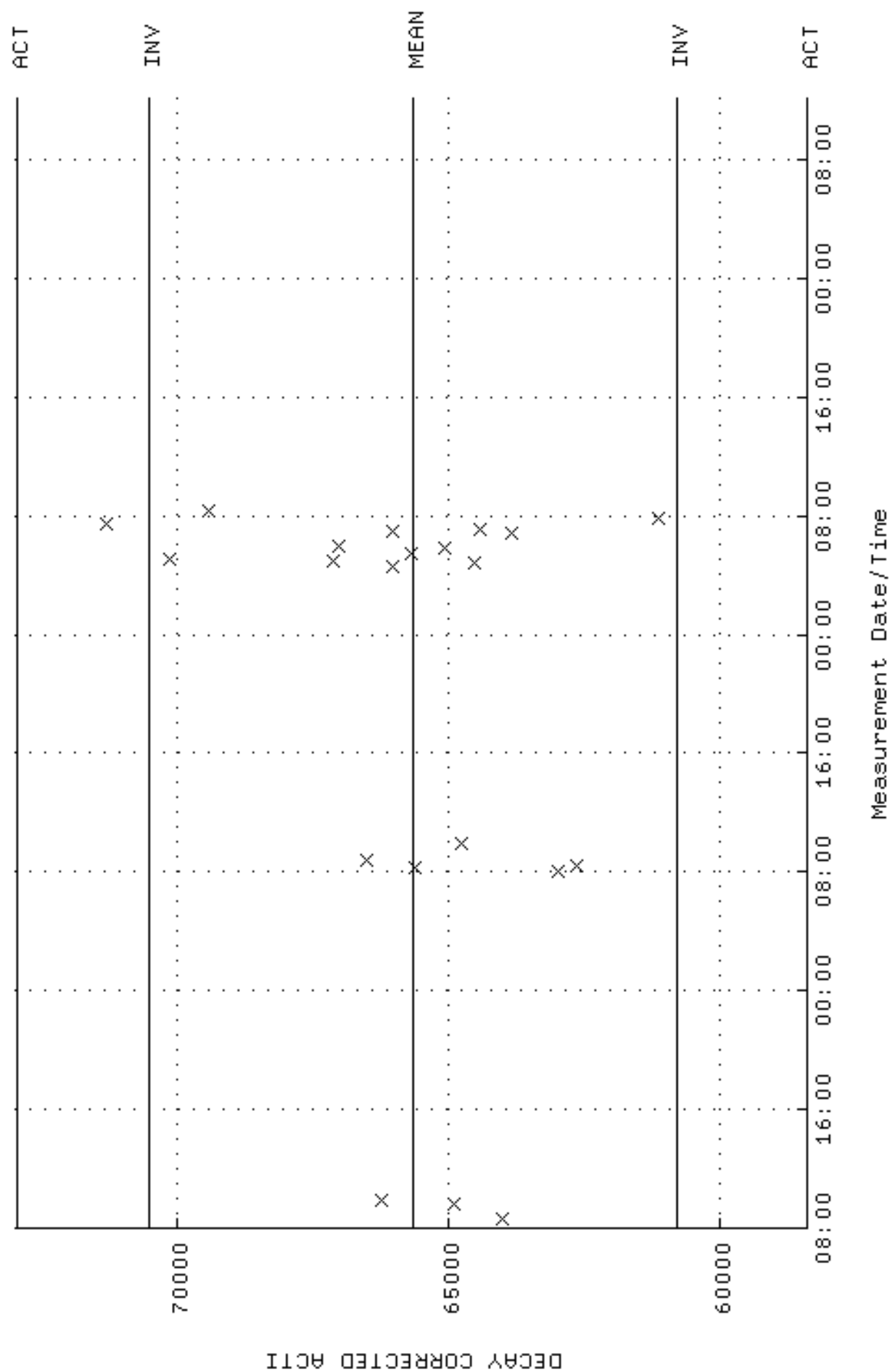
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM10_JAR.QAF;1
 Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
 Start/End Dates : 17-JUL-2024 08:36:24 through 20-JUL-2024 12:00:00
 Mean +- Std Dev : 1.16515 +- 3.570547E-02 (3.06 %)



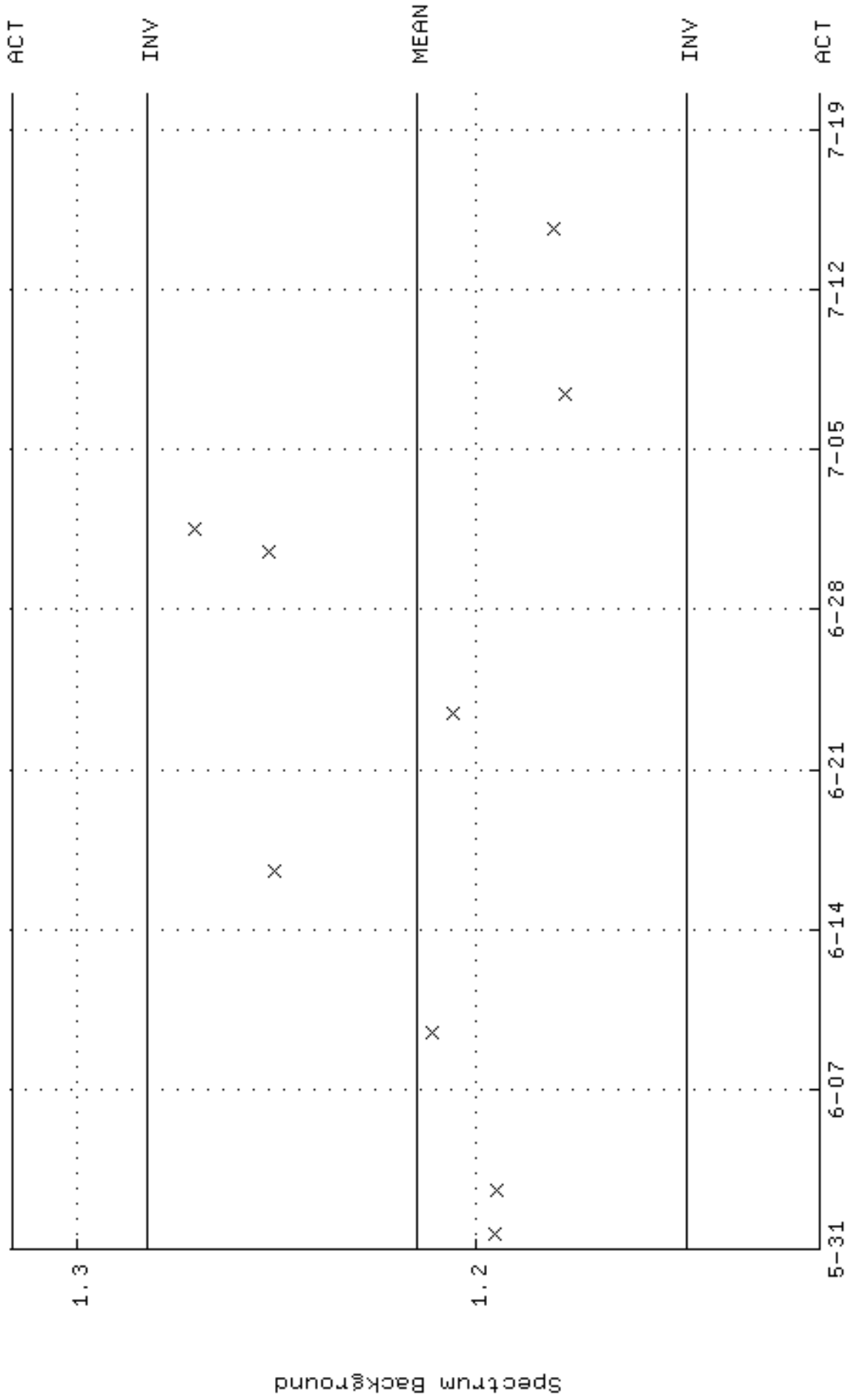
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QA filename      : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM10_JAR.QAF;1
Parameter Name   : NLACTVY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates  : 17-JUL-2024 08:36:24 through 20-JUL-2024 12:00:00
Mean +- Std Dev : 65664.5 +- 2426.36 (3.70 %)

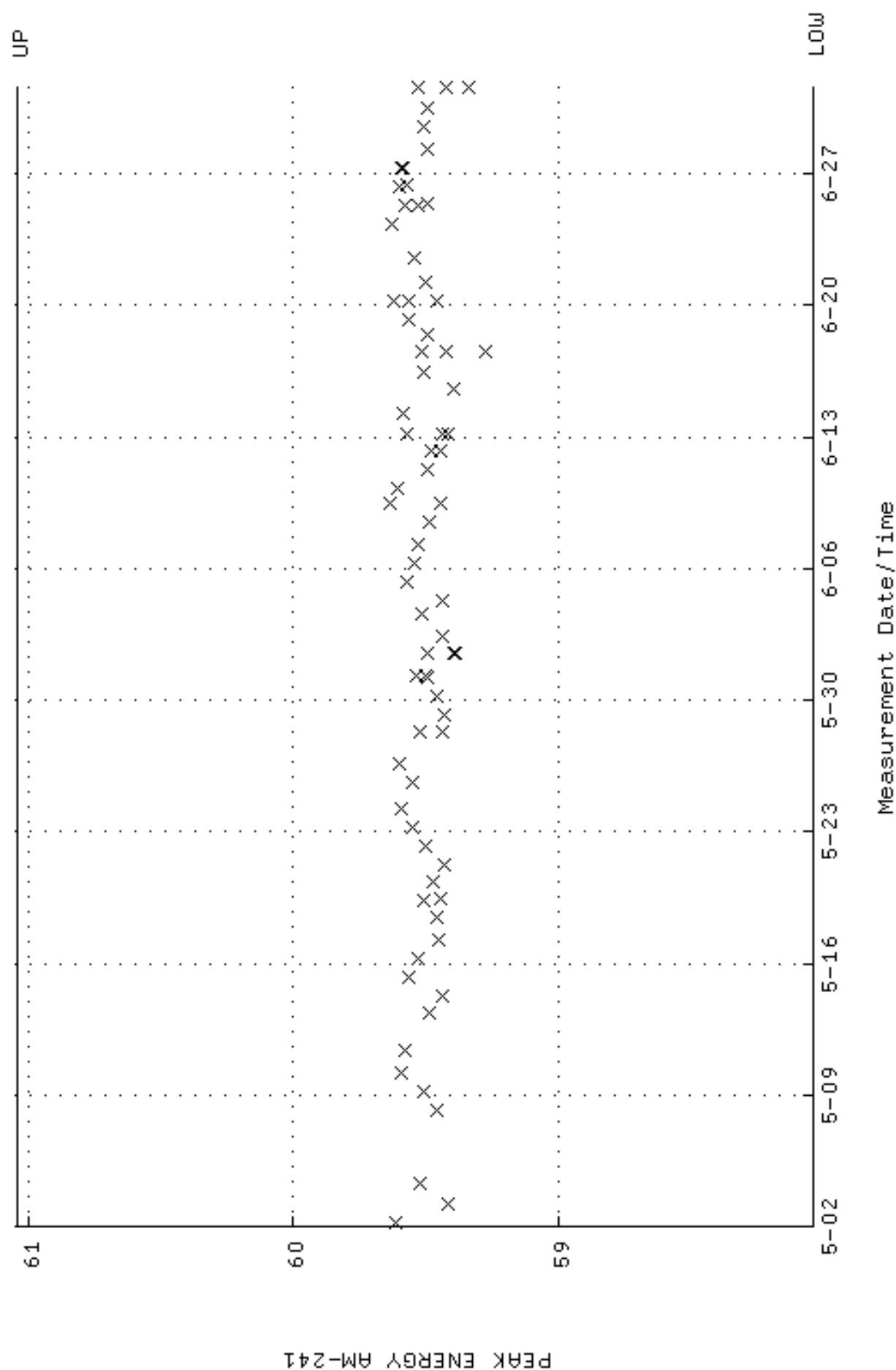
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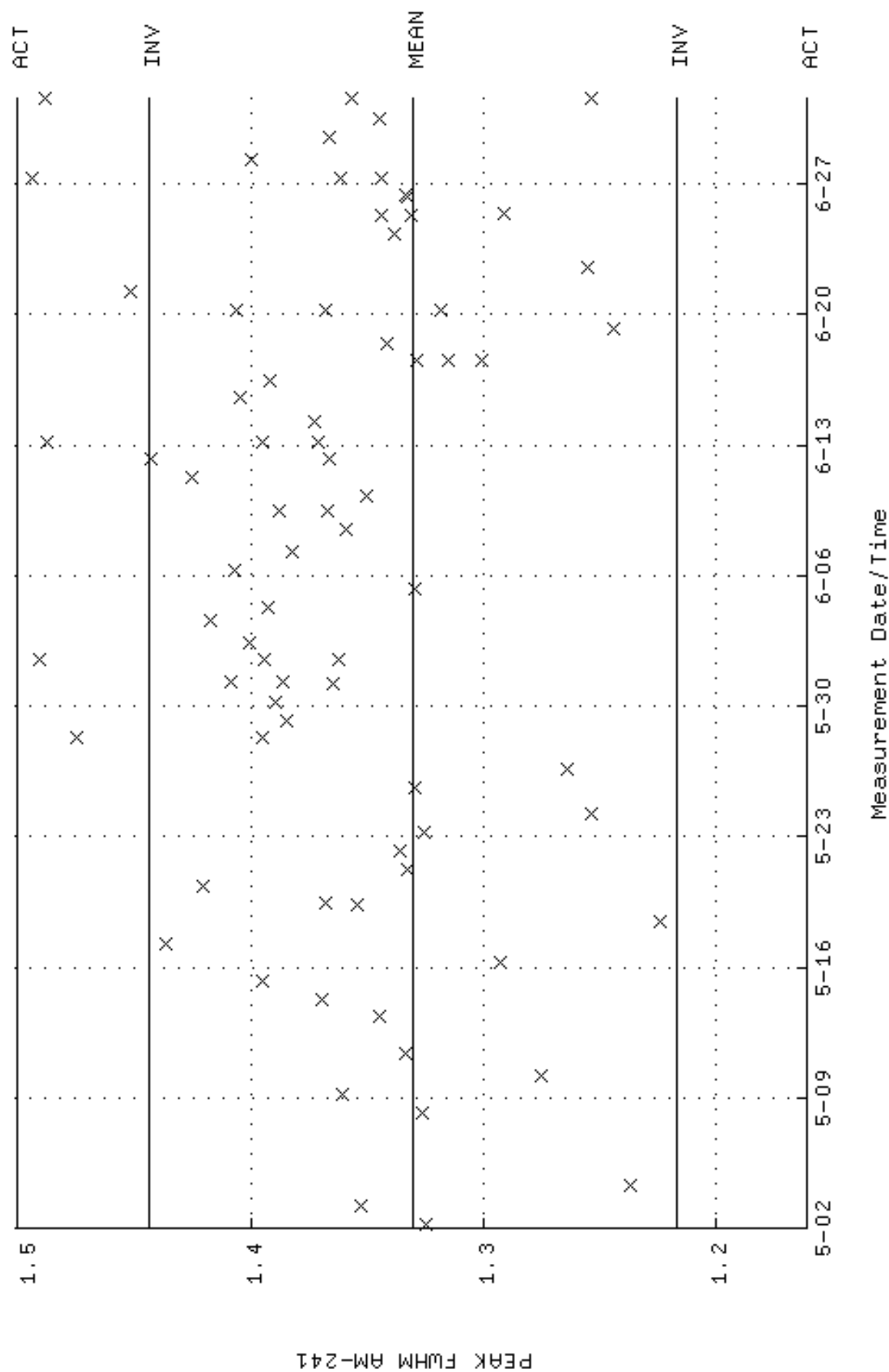
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM10.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 31-MAY-2024 16:49:37 through 20-JUL-2024 12:00:00
Mean +- Std Dev : 1.21518 +- 3.366010E-02 (2.77 %)



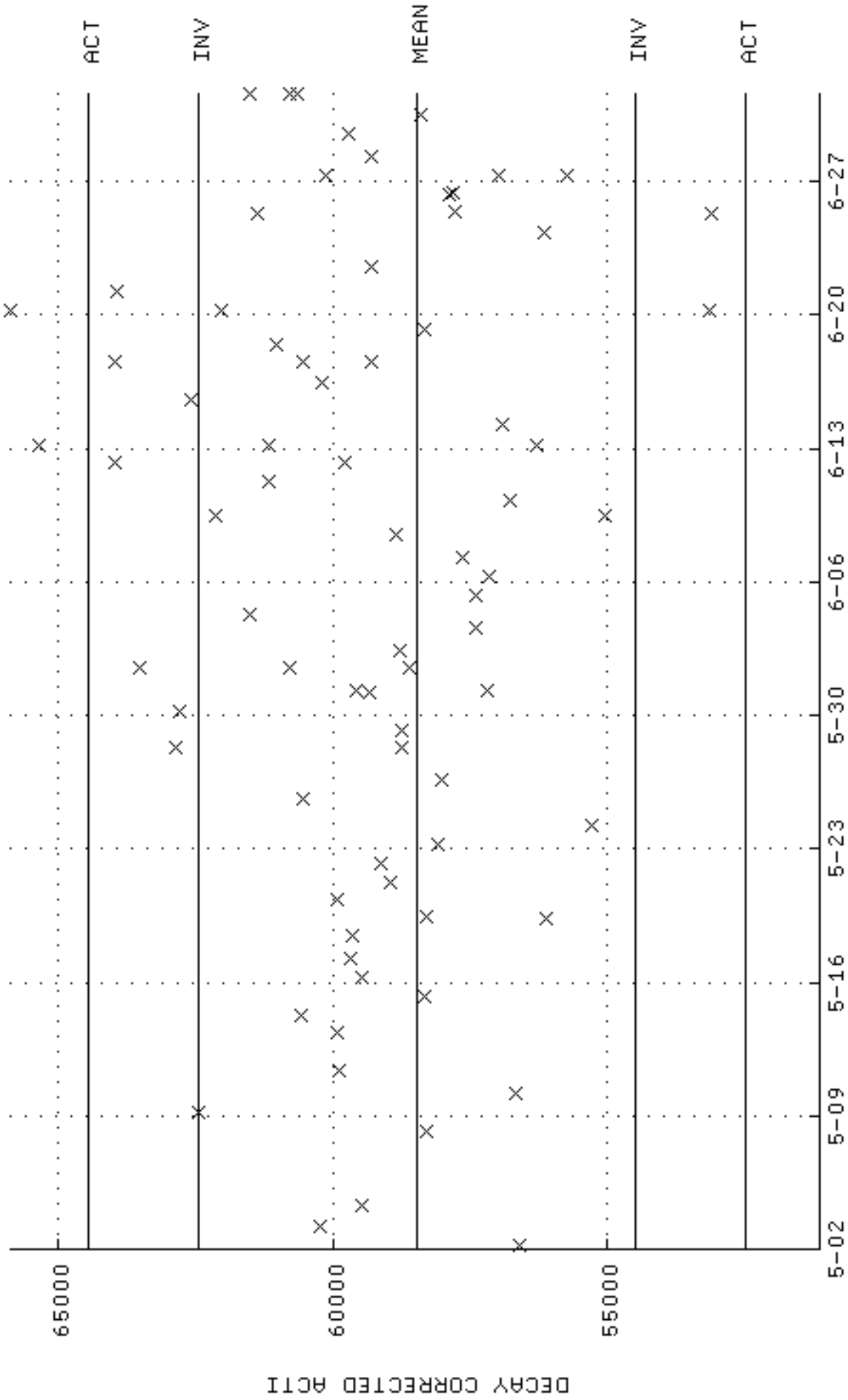
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM12_JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:46:56 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM12-JAR.QAF;1
 Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
 Start/End Dates : 2-MAY-2024 04:46:56 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 1.33054 +- 5.660002E-02 (4.25 %)

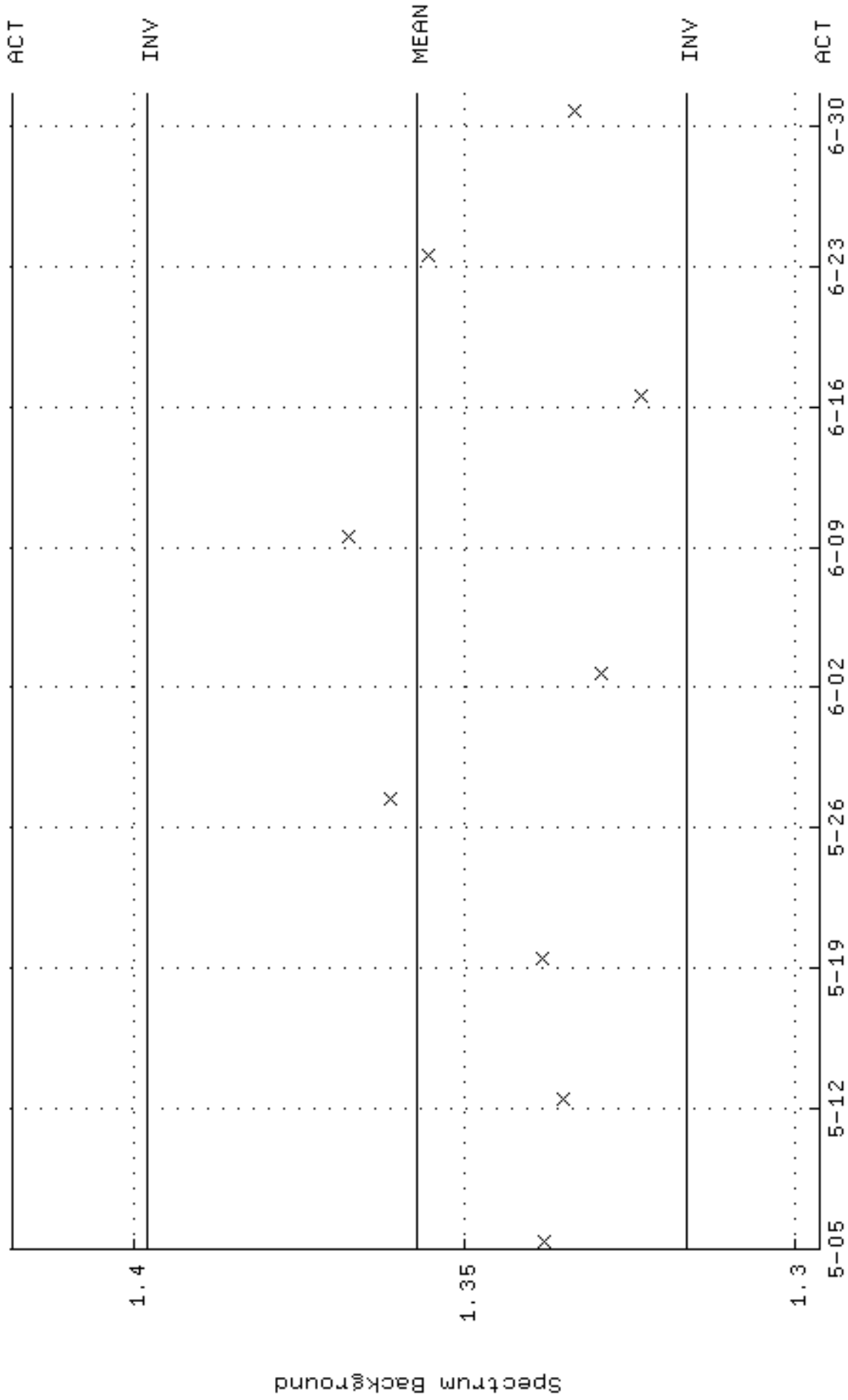


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM12_JAR.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 04:46:56 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 58481.1 +- 1995.94 (3.41 %)

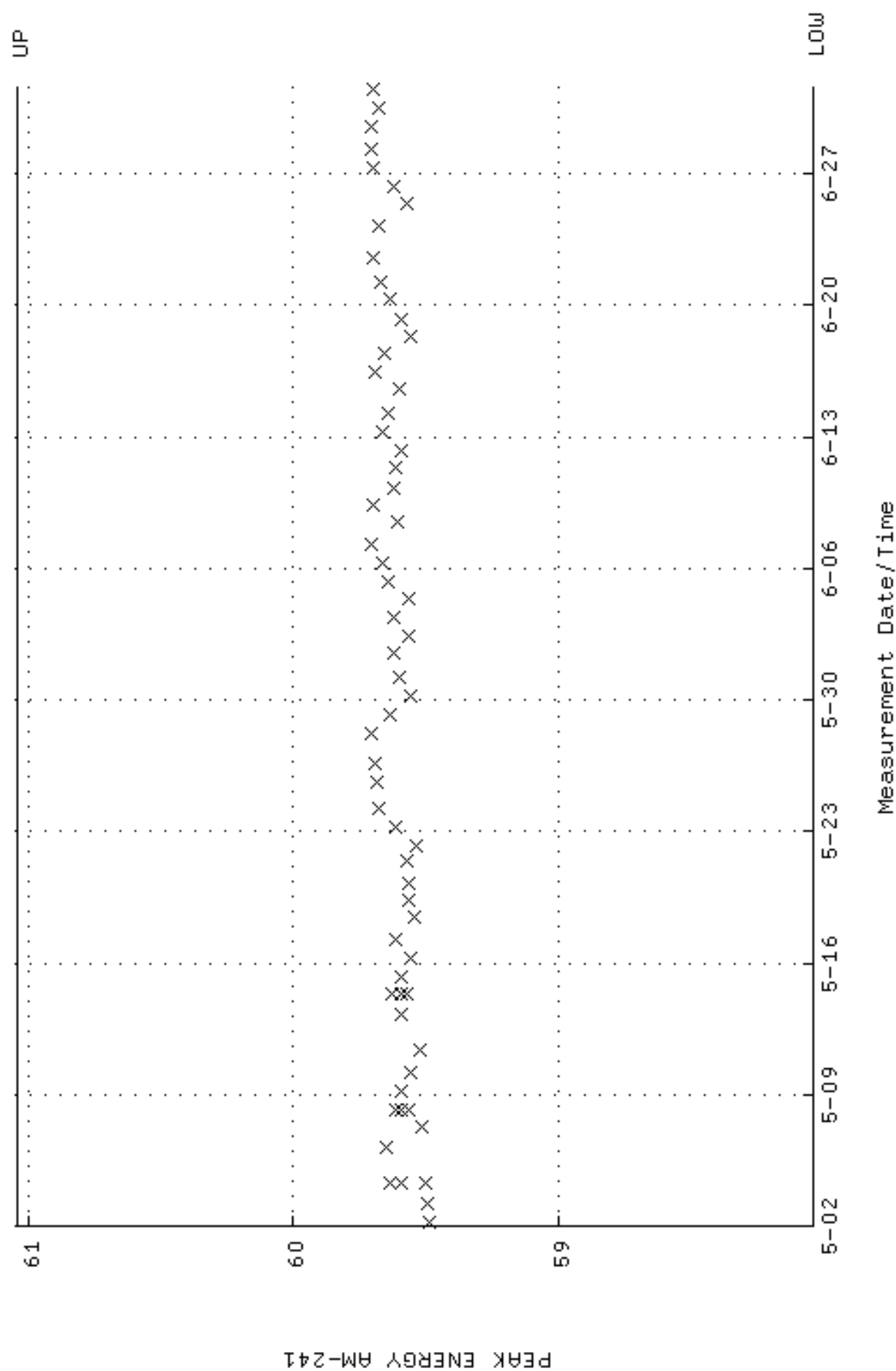


Measurement Date/Time

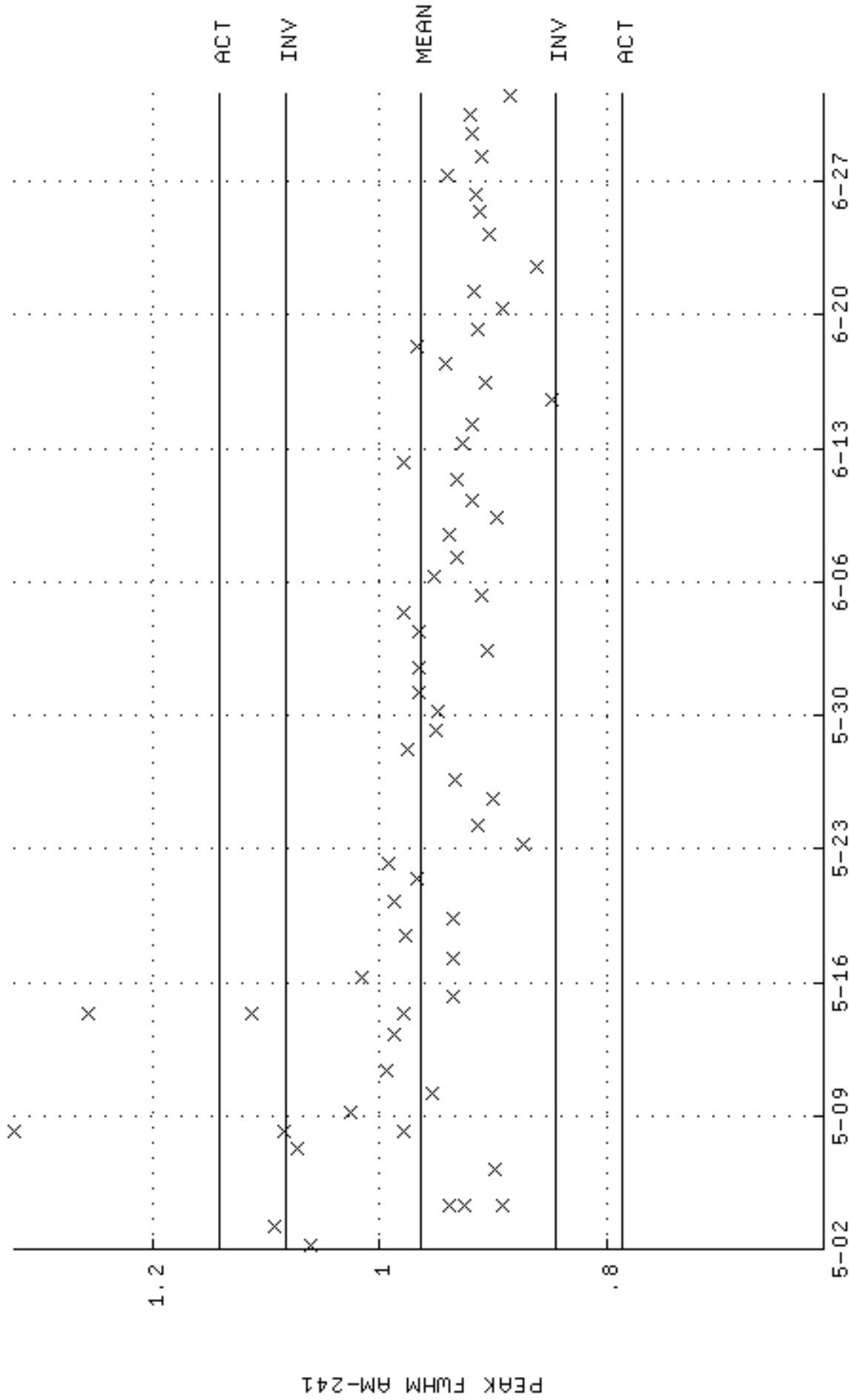
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM12.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:08:38 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.35724 +- 2.036170E-02 (1.50 %)



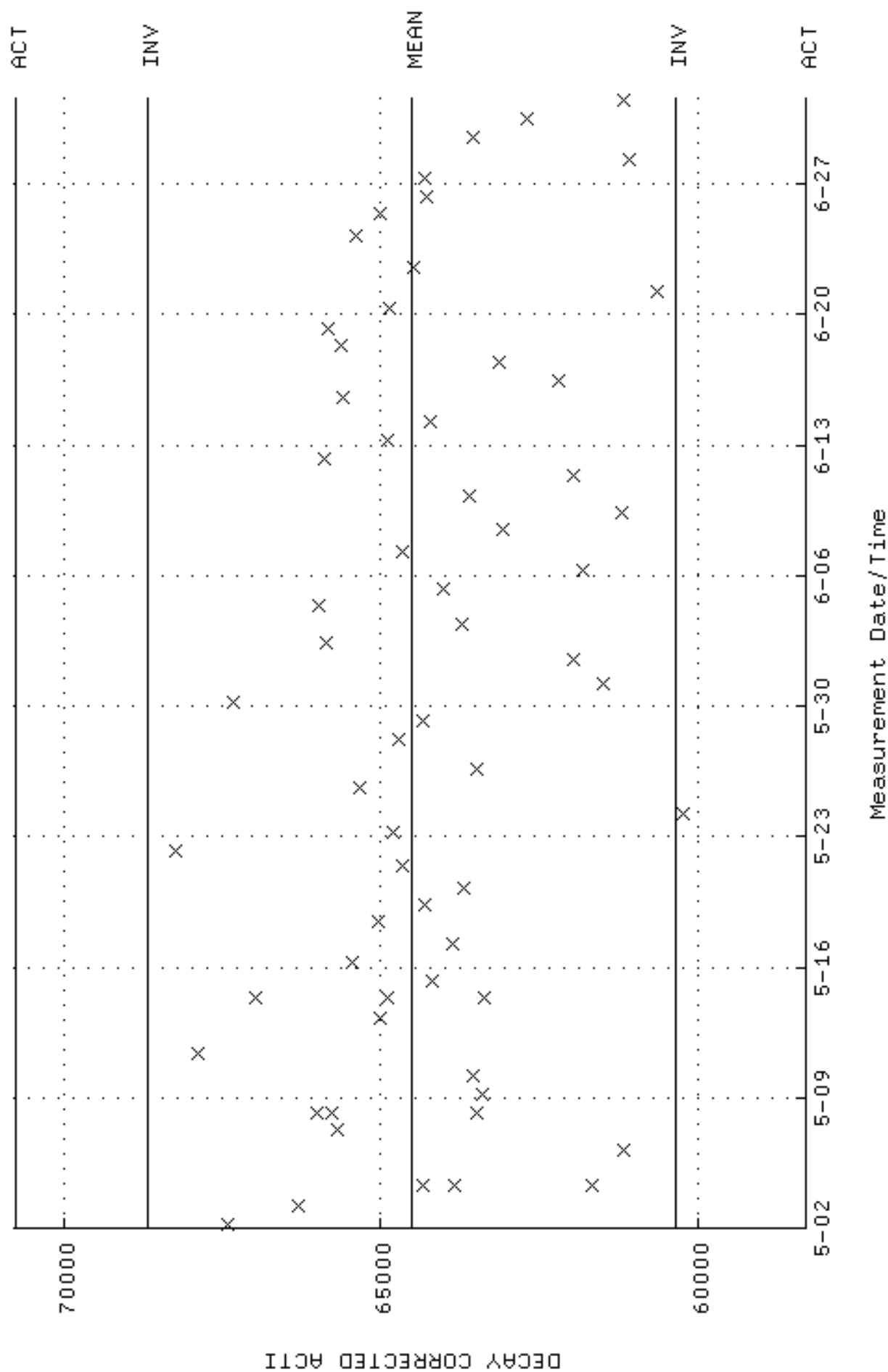
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM16_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:38 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



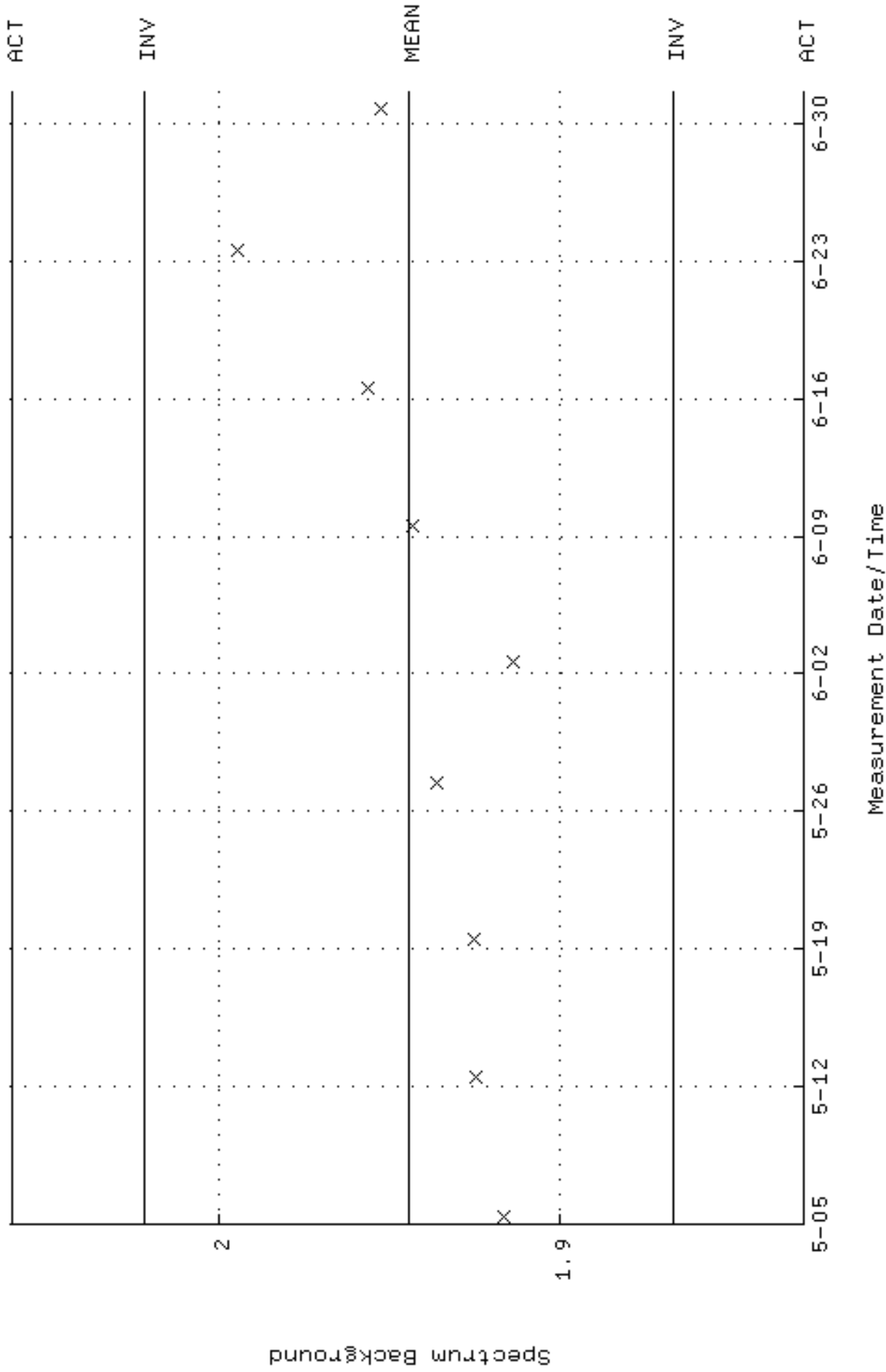
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM16_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:19:38 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.964423 +- 5.930935E-02 (6.15 %)



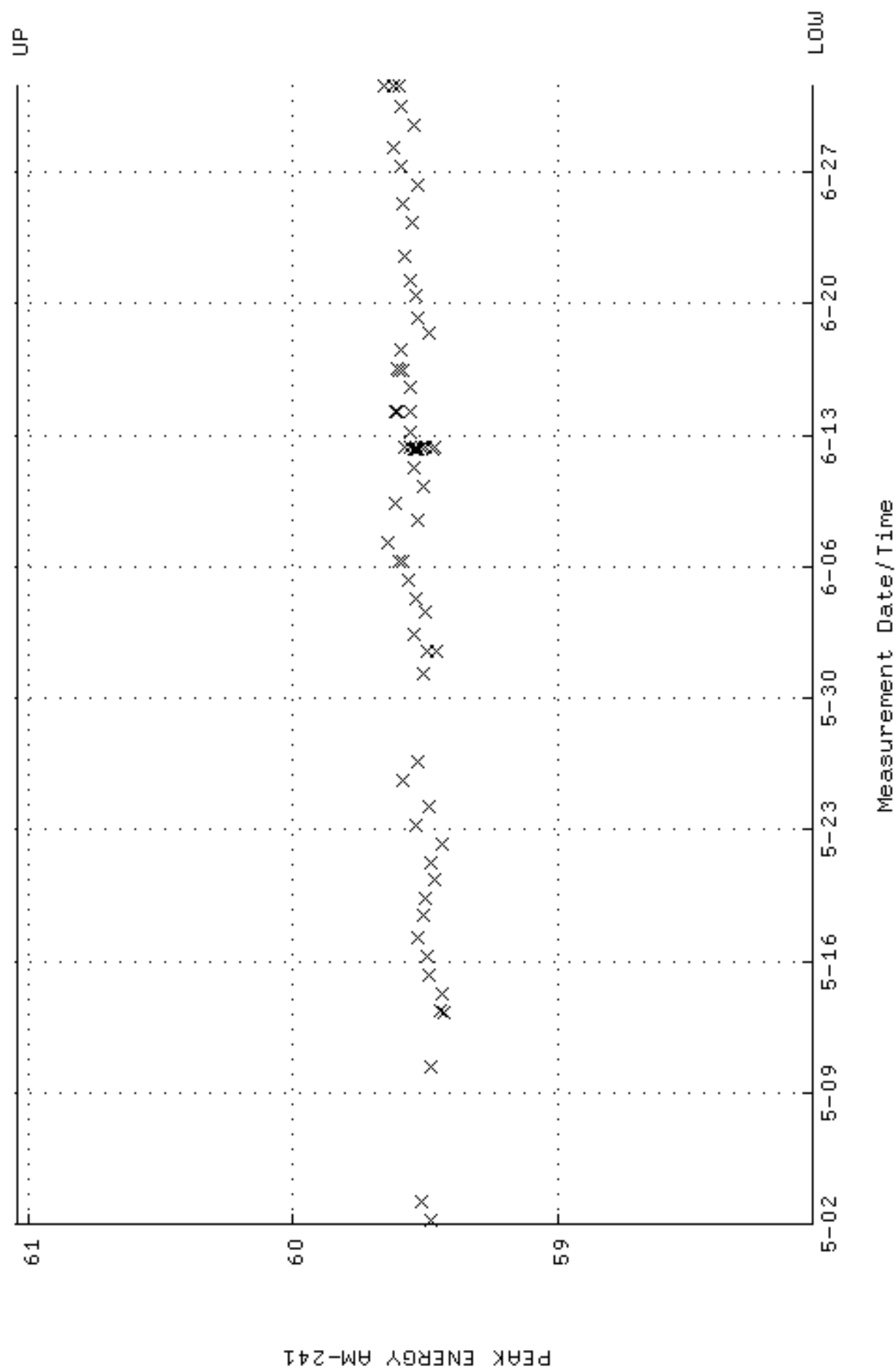
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM16-CAN.QAF;1
 Parameter Name : NLACTVY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:38 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 64519.8 +- 2077.16 (3.22 %)



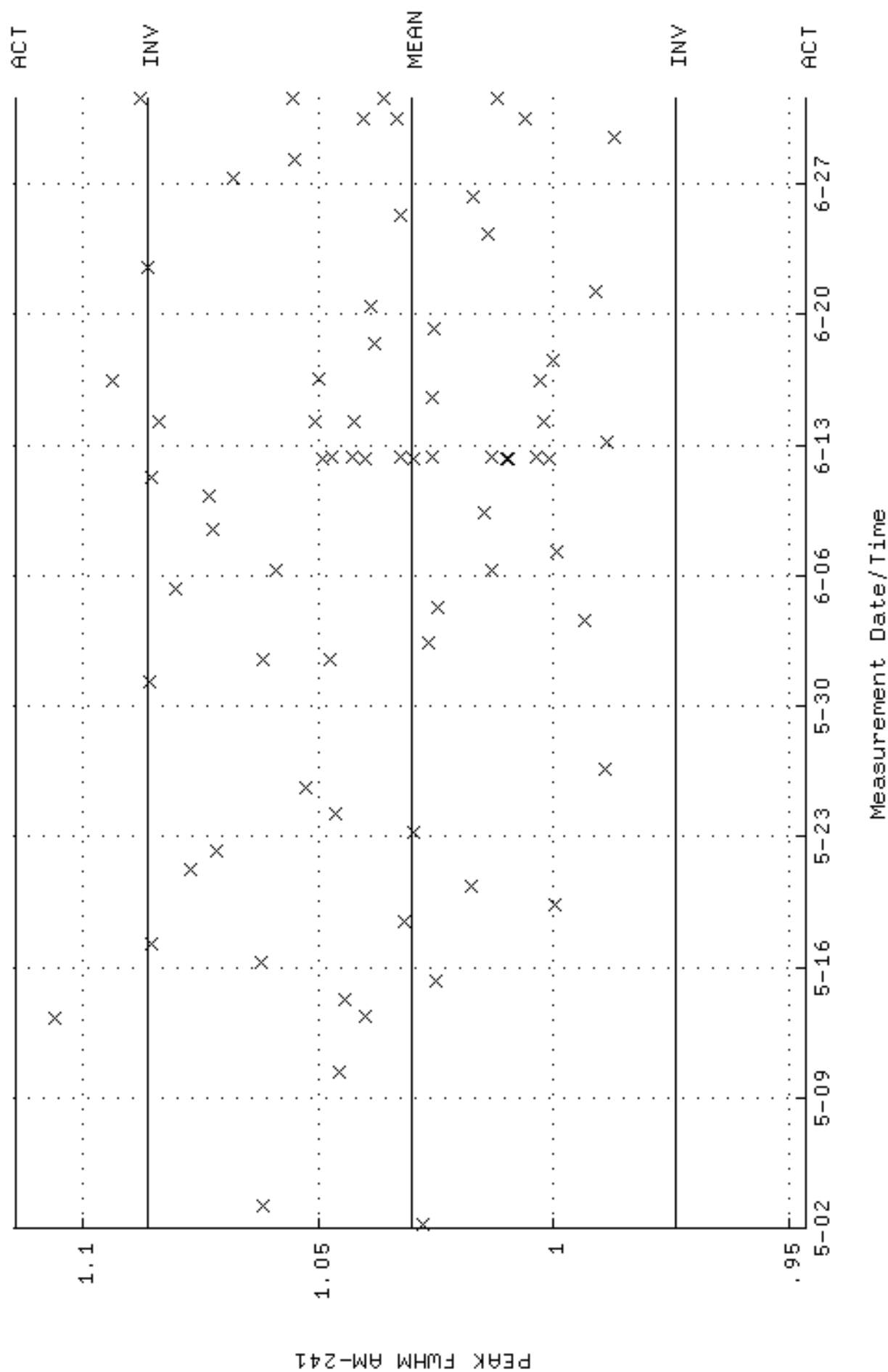
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM16.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:10:19 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.94453 +- 3.864294E-02 (1.99 %)



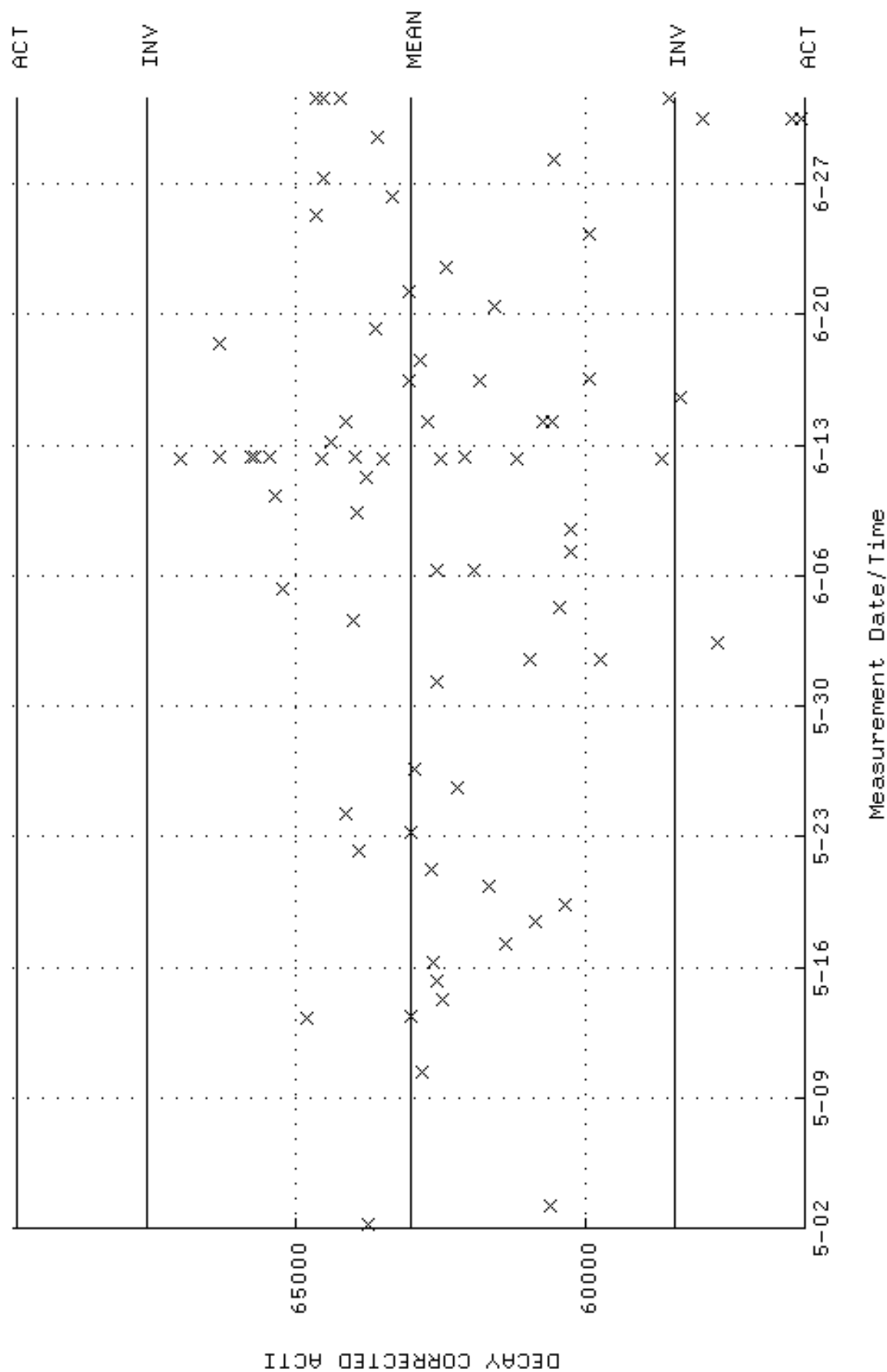
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM18_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:22 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



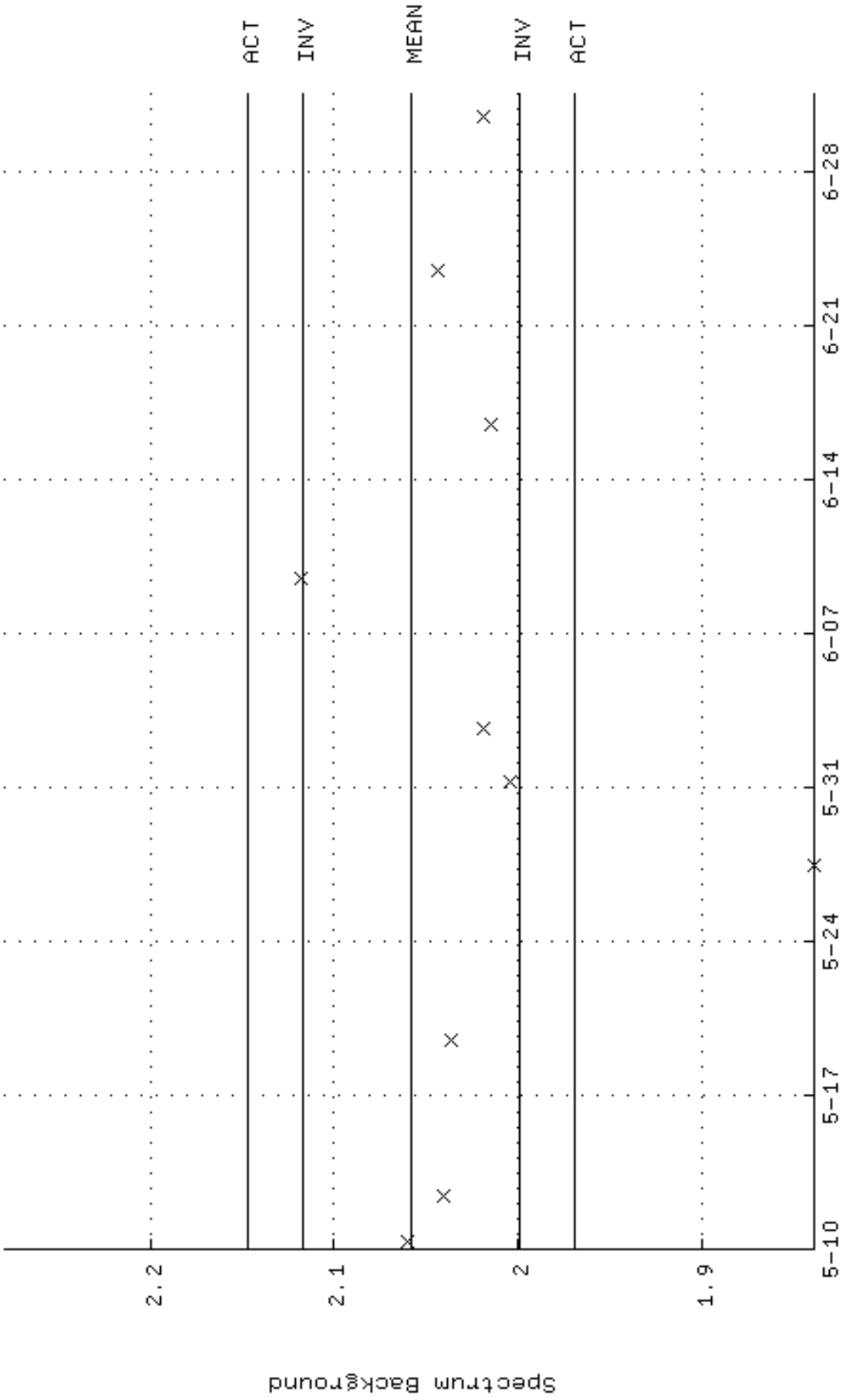
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM18-CAN.QAF;1
 Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
 Start/End Dates : 2-MAY-2024 04:43:22 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 1.03028 +- 2.793404E-02 (2.71 %)



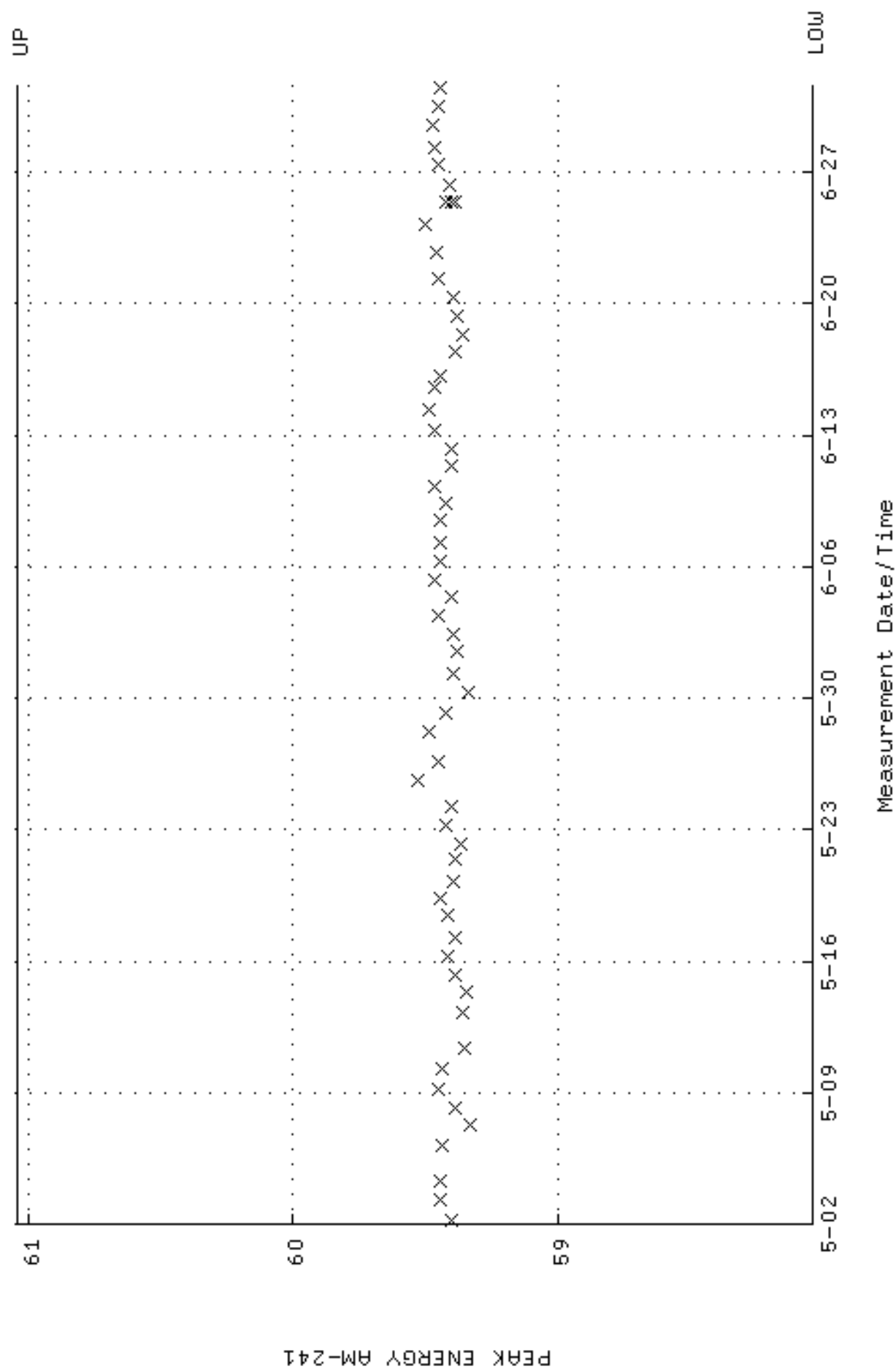
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM18-CAN.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:22 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 63034.2 +- 2266.86 (3.60 %)



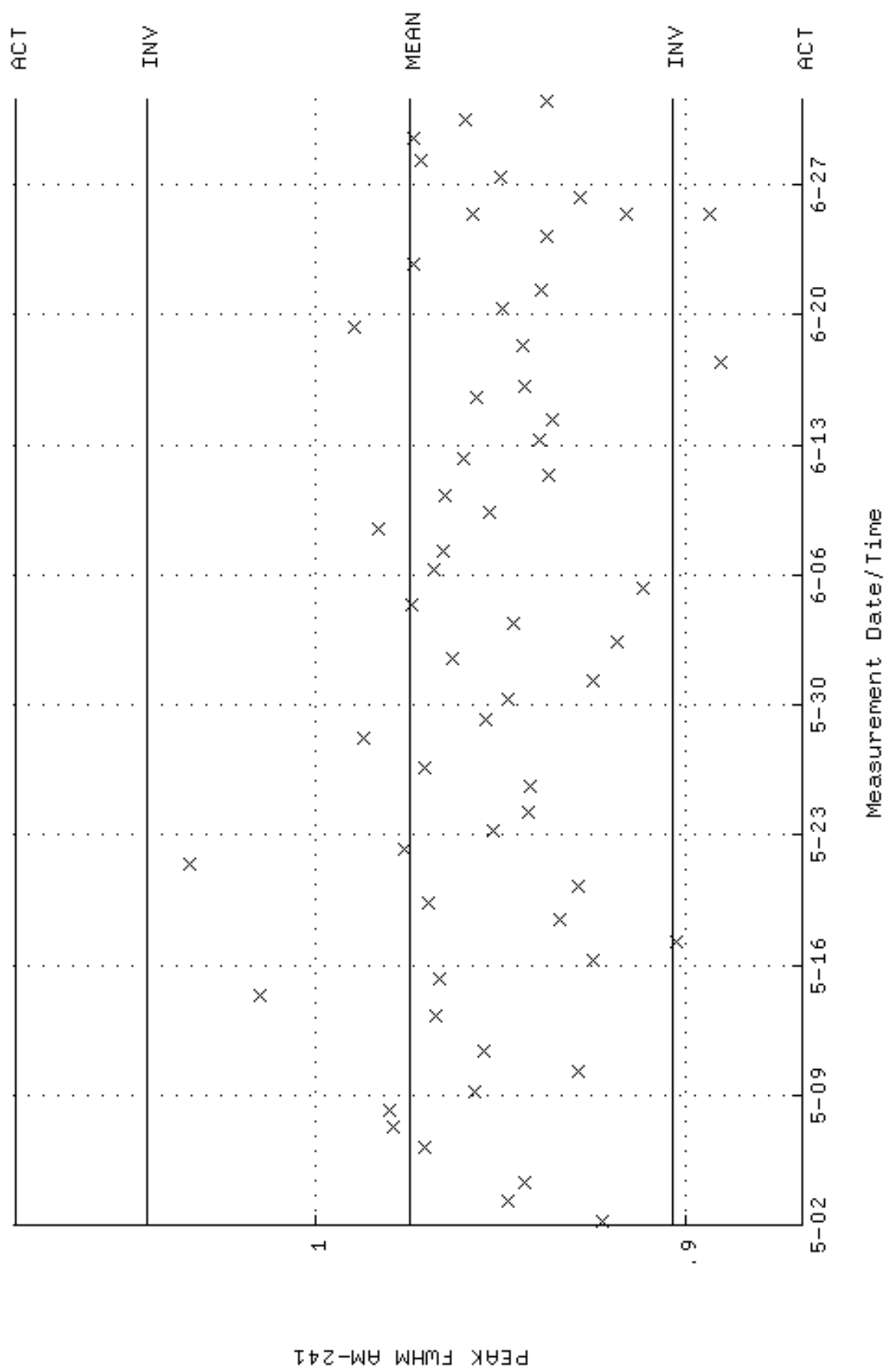
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM18.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 10-MAY-2024 09:01:42 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 2.05854 +- 2.951148E-02 (1.43 %)



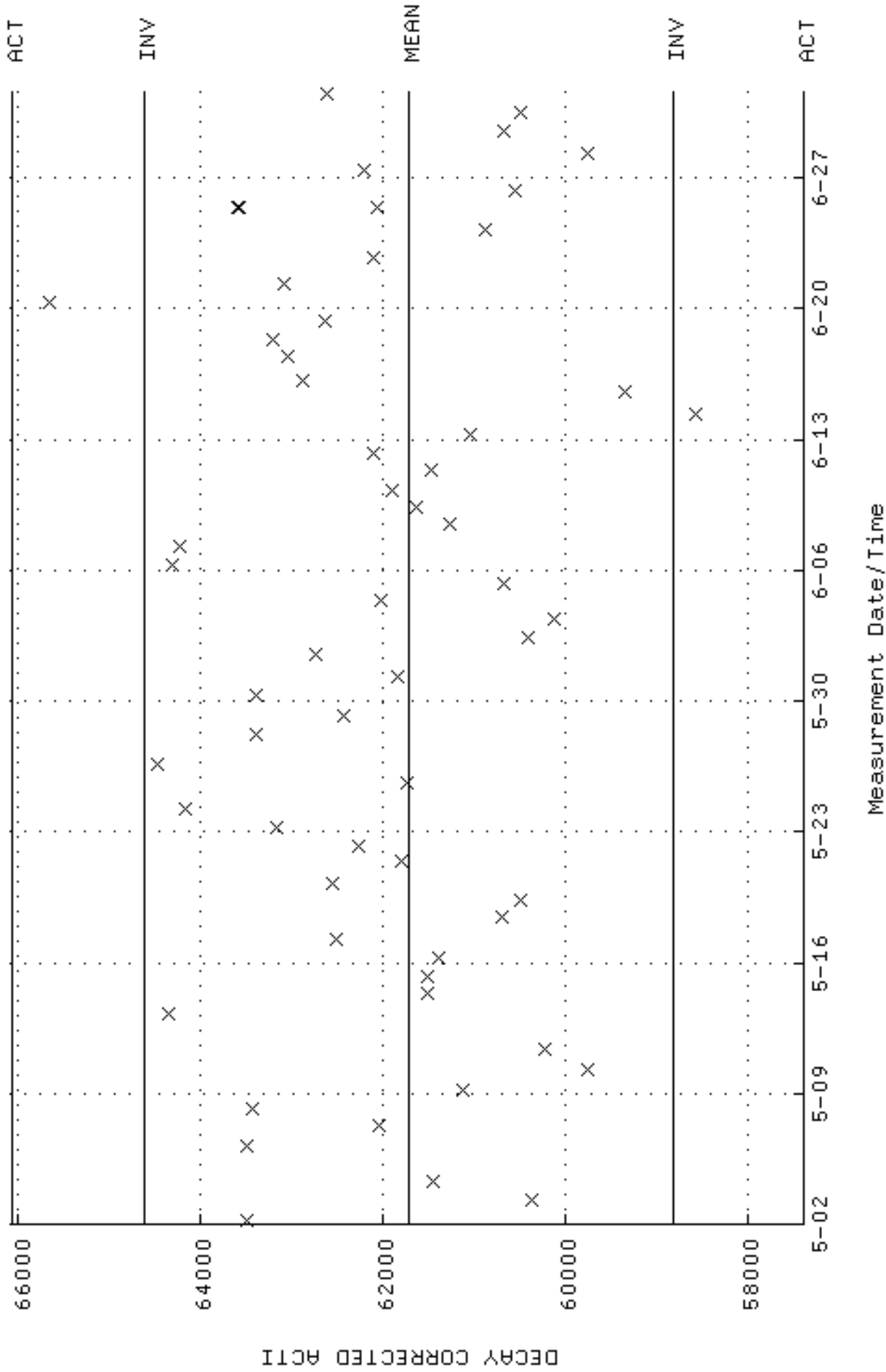
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:43 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



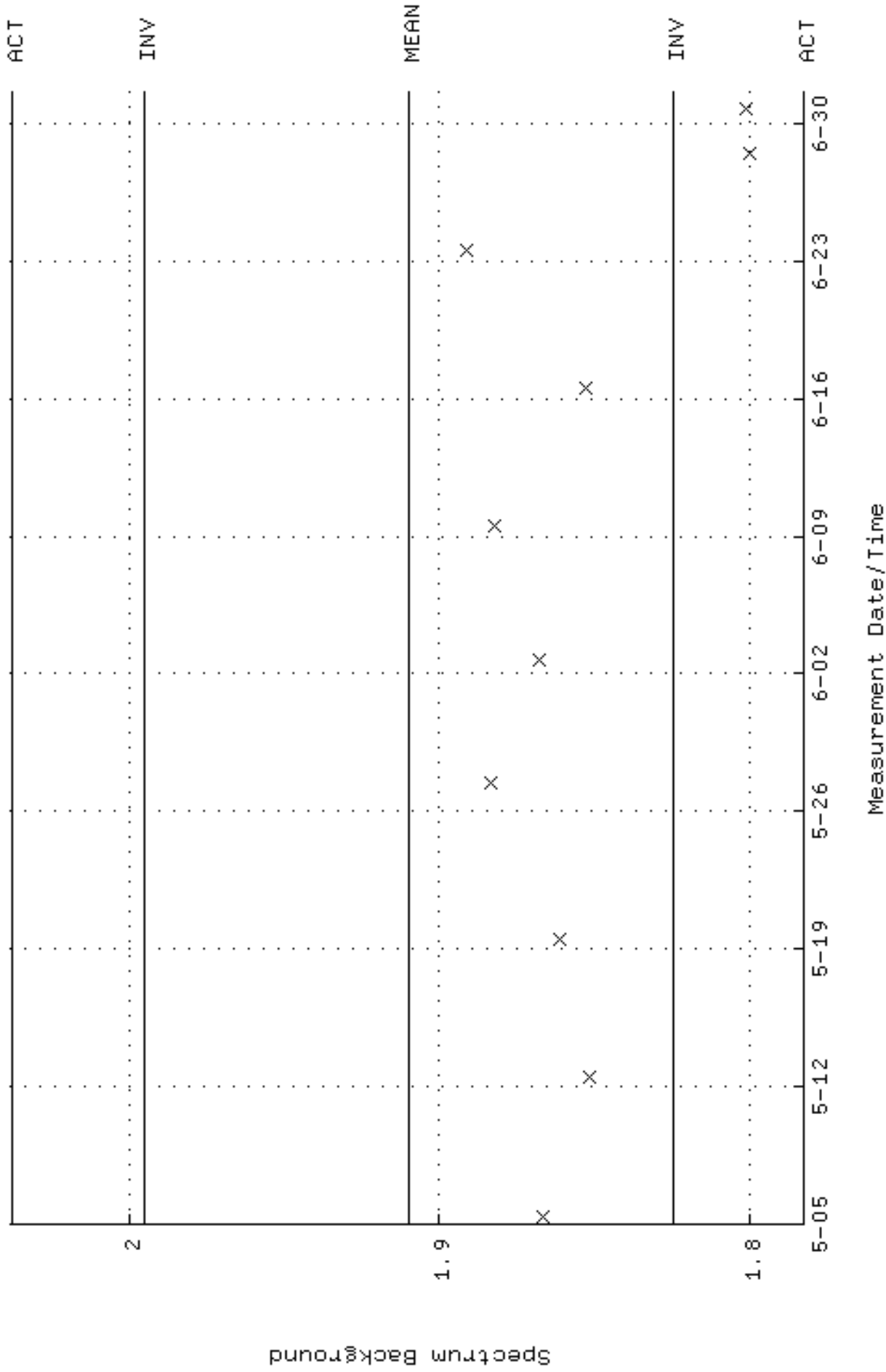
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:19:43 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.974798 +- 3.549832E-02 (3.64 %)



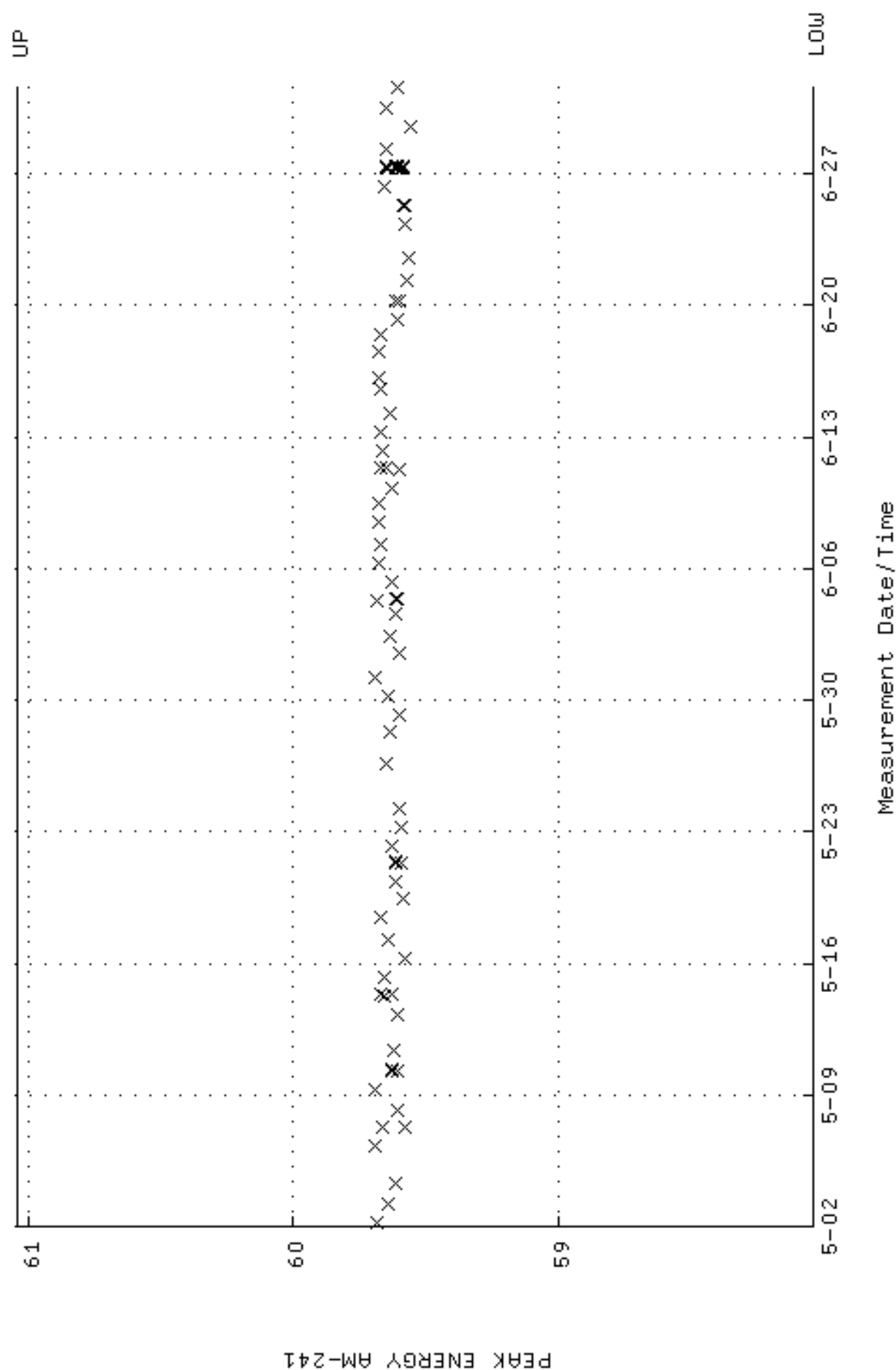
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM19-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 05:19:43 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 61718.1 +- 1444.35 (2.34 %)



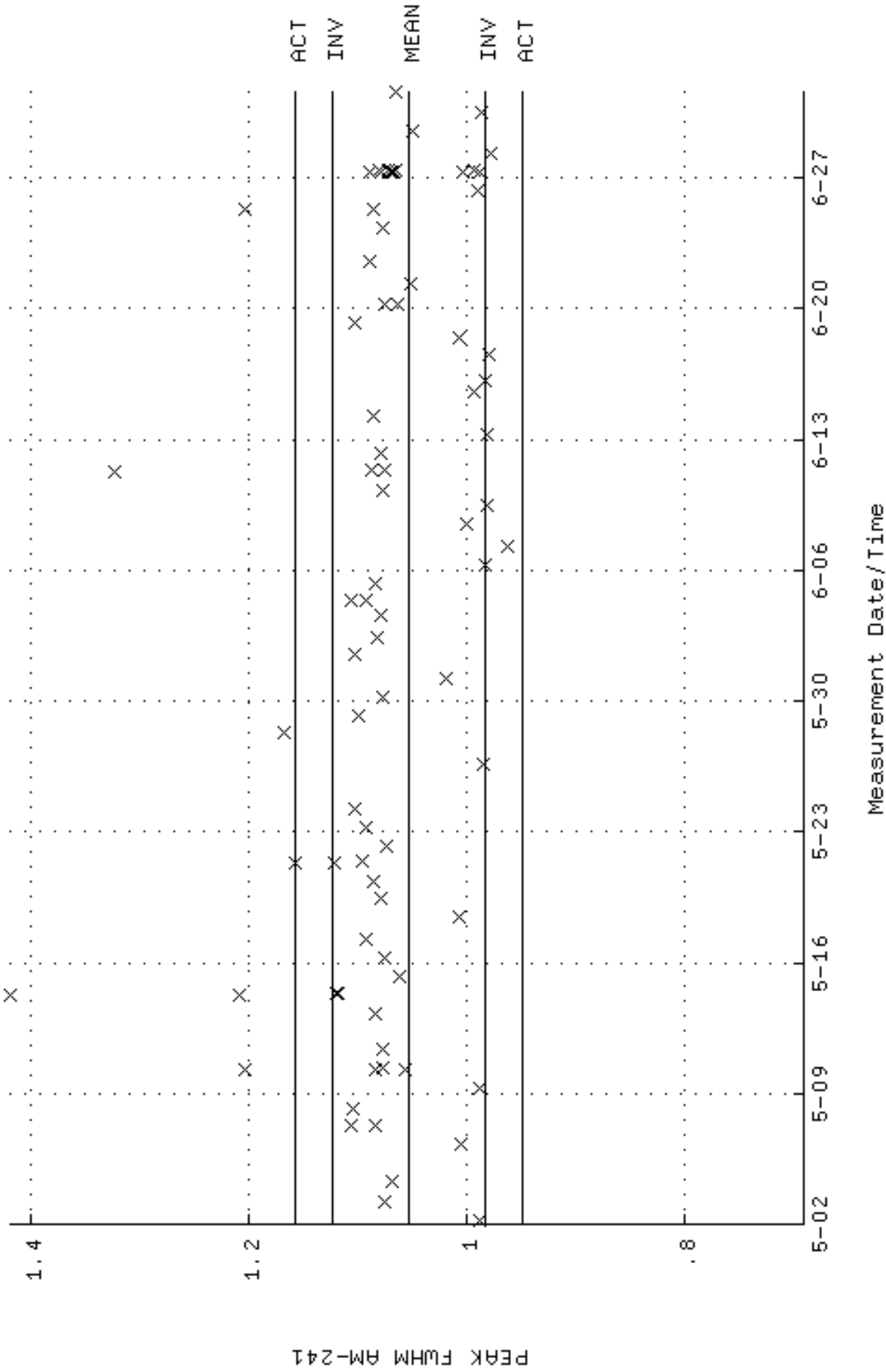
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM19.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:10:24 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.91013 +- 4.261043E-02 (2.23 %)



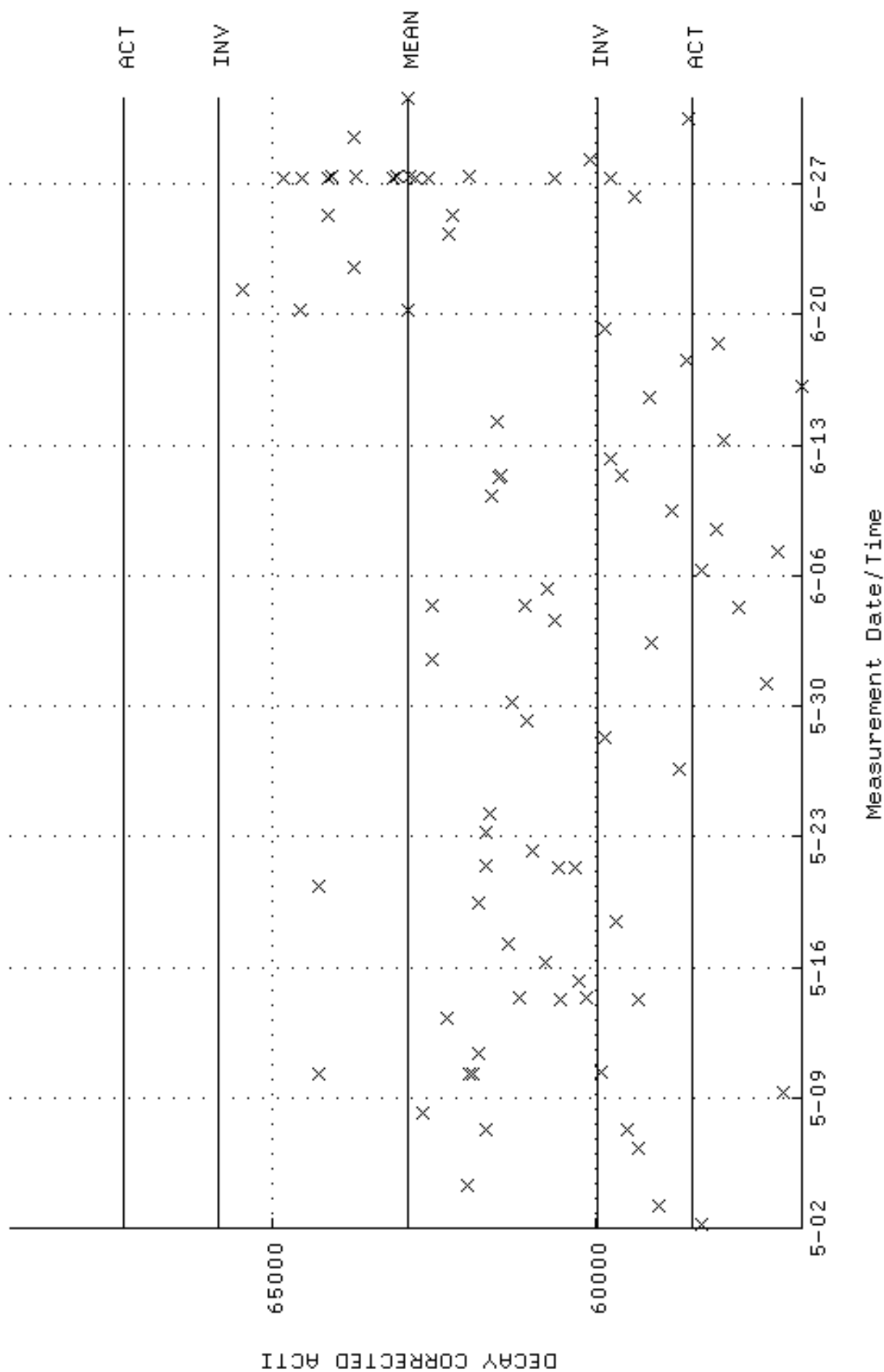
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM20_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:45:02 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



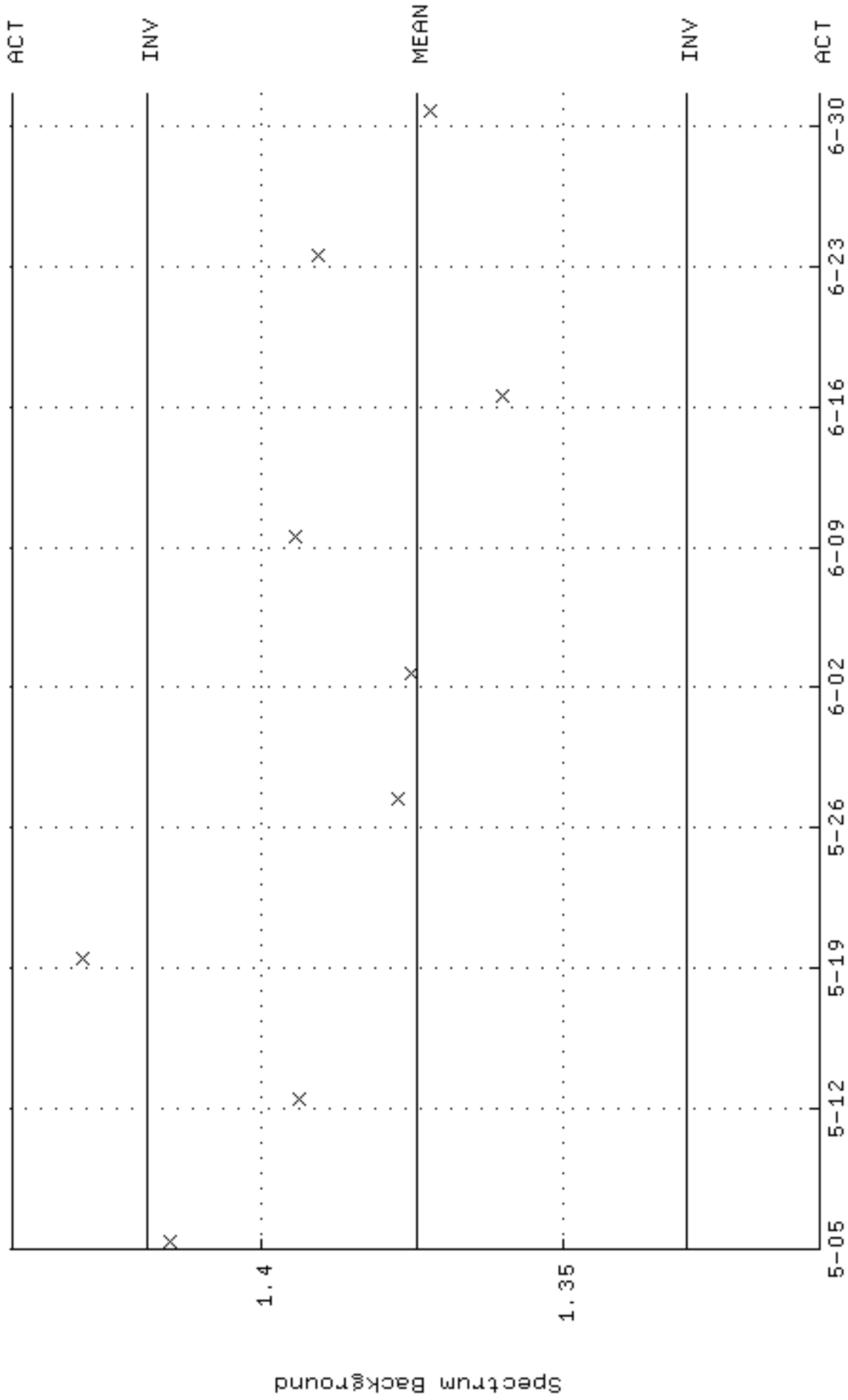
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM20_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 04:45:02 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.05422 +- 3.462778E-02 (3.28 %)



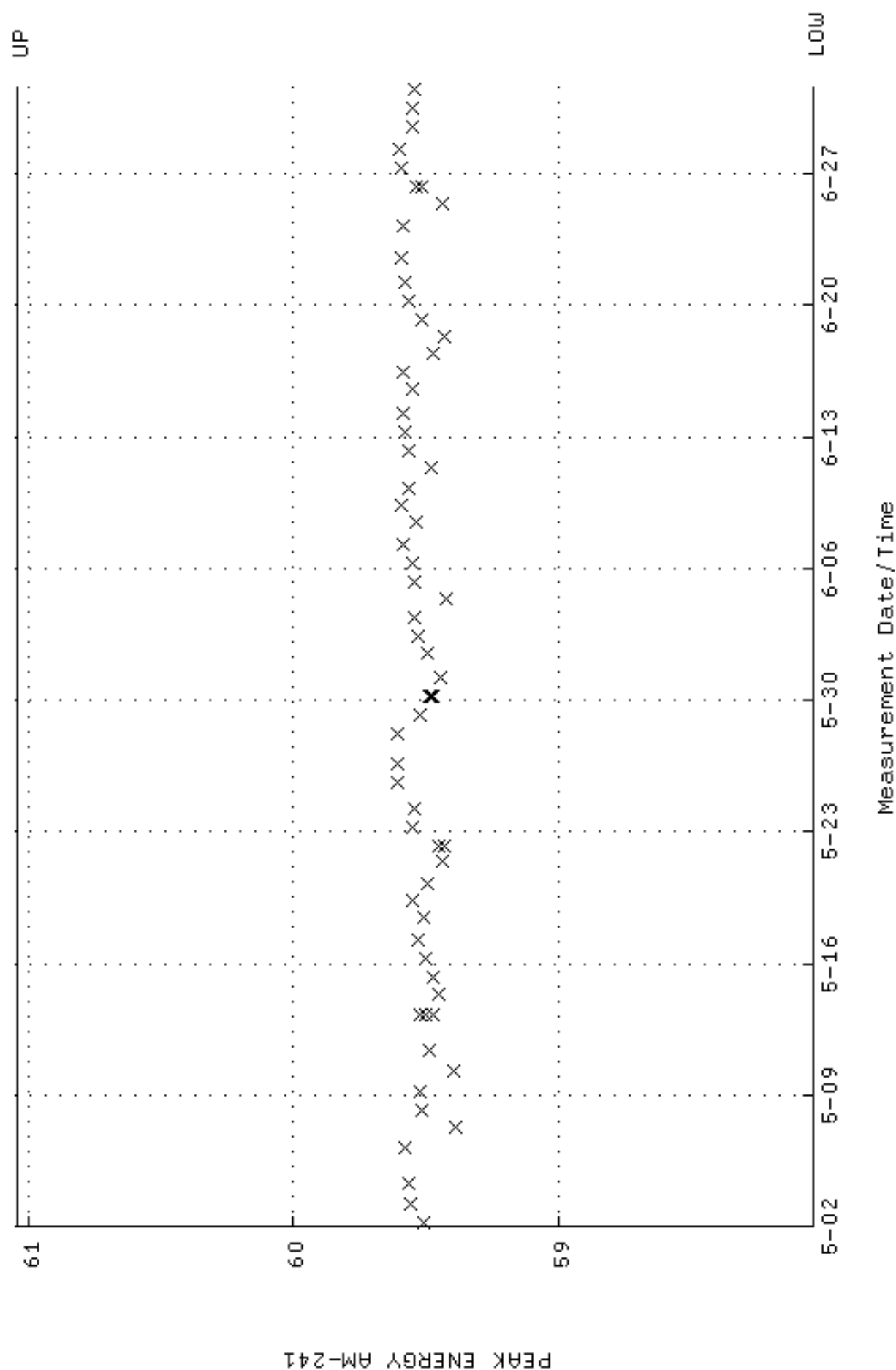
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM20-CAN.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 04:45:02 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 62920.7 +- 1475.47 (2.34 %)



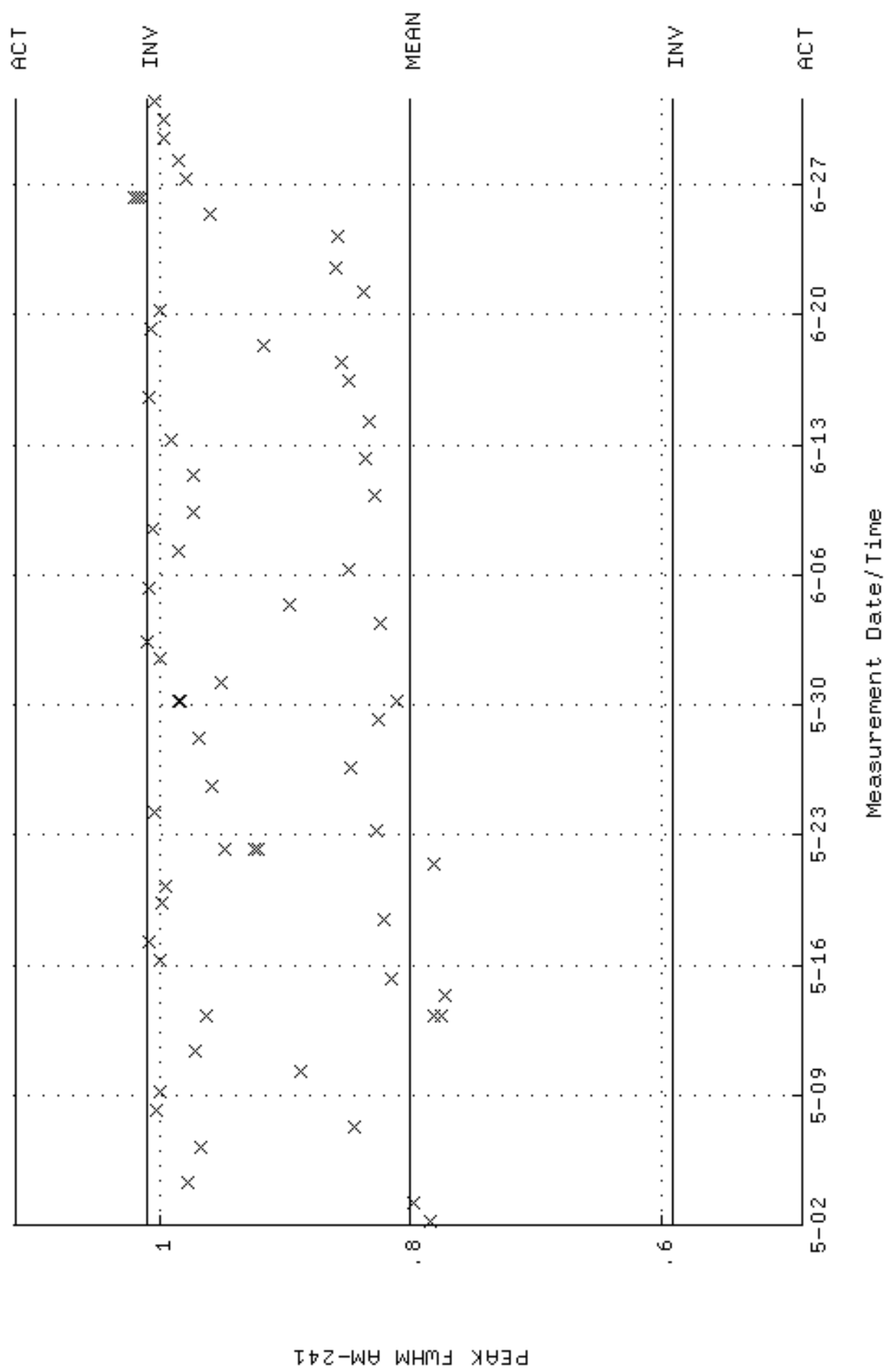
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM20.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:07:39 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.37440 +- 2.217929E-02 (1.61 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM21_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:27 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM21_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 04:43:27 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.801117 +- 0.104588 (13.06 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM21-CAN.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:27 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 59826.6 +- 800.256 (1.34 %)

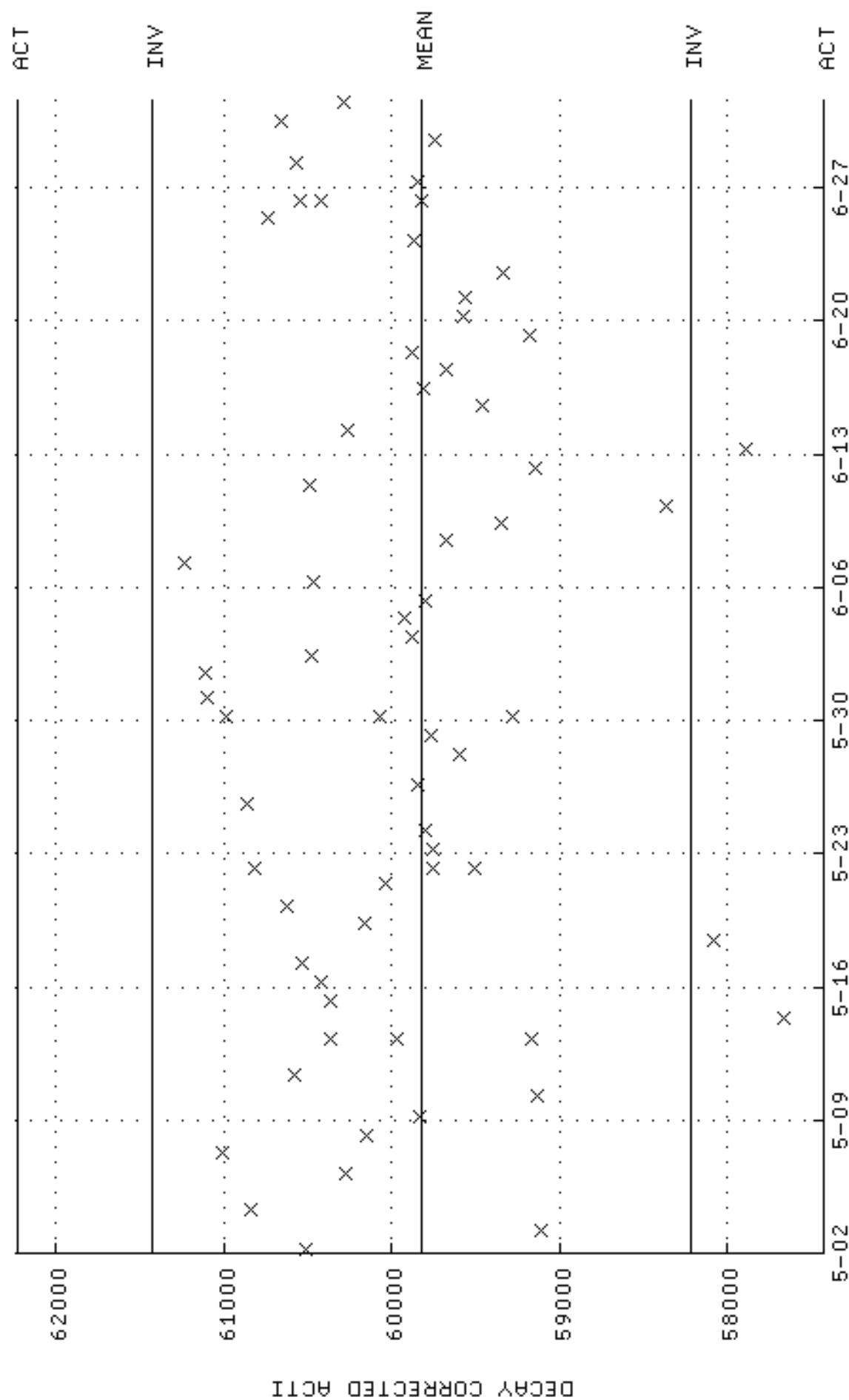
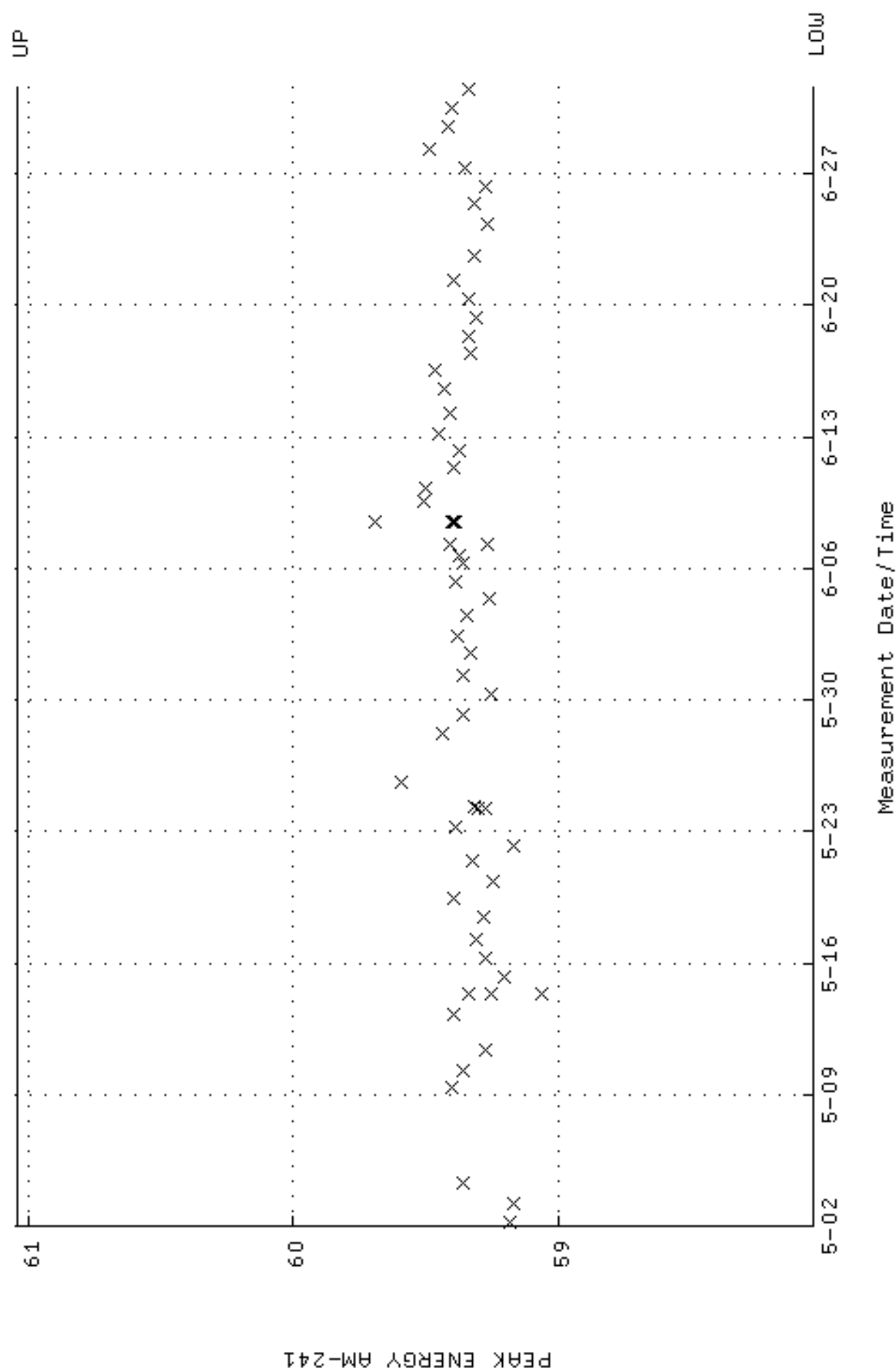
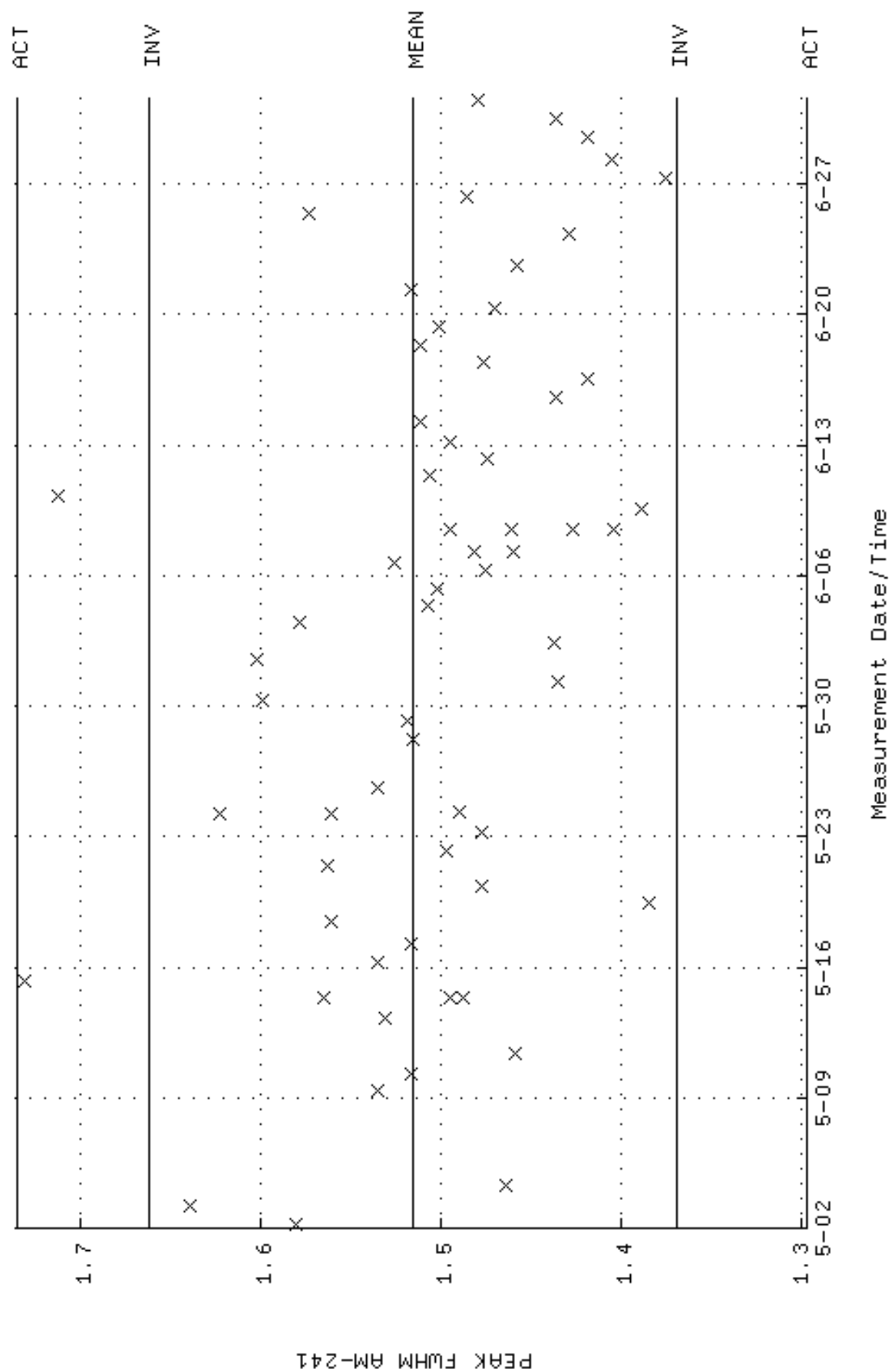


Figure 1 displays the spectrum background for ACT, INV, and MEAN data across different time intervals. The y-axis represents the Spectrum Background, ranging from 1 to 1.15. The x-axis shows time intervals: 5-05, 5-12, 5-19, 5-26, 6-02, 6-09, 6-16, 6-23, and 6-30. The plot consists of five horizontal panels. The top panel is labeled 'ACT' and shows data points for ACT. The second panel is labeled 'INV' and shows data points for INV. The third panel is labeled 'MEAN' and shows data points for MEAN. The fourth panel is labeled 'INV' and shows data points for INV. The bottom panel is labeled 'ACT' and shows data points for ACT. The data points are marked with 'x' and show a general upward trend over time.

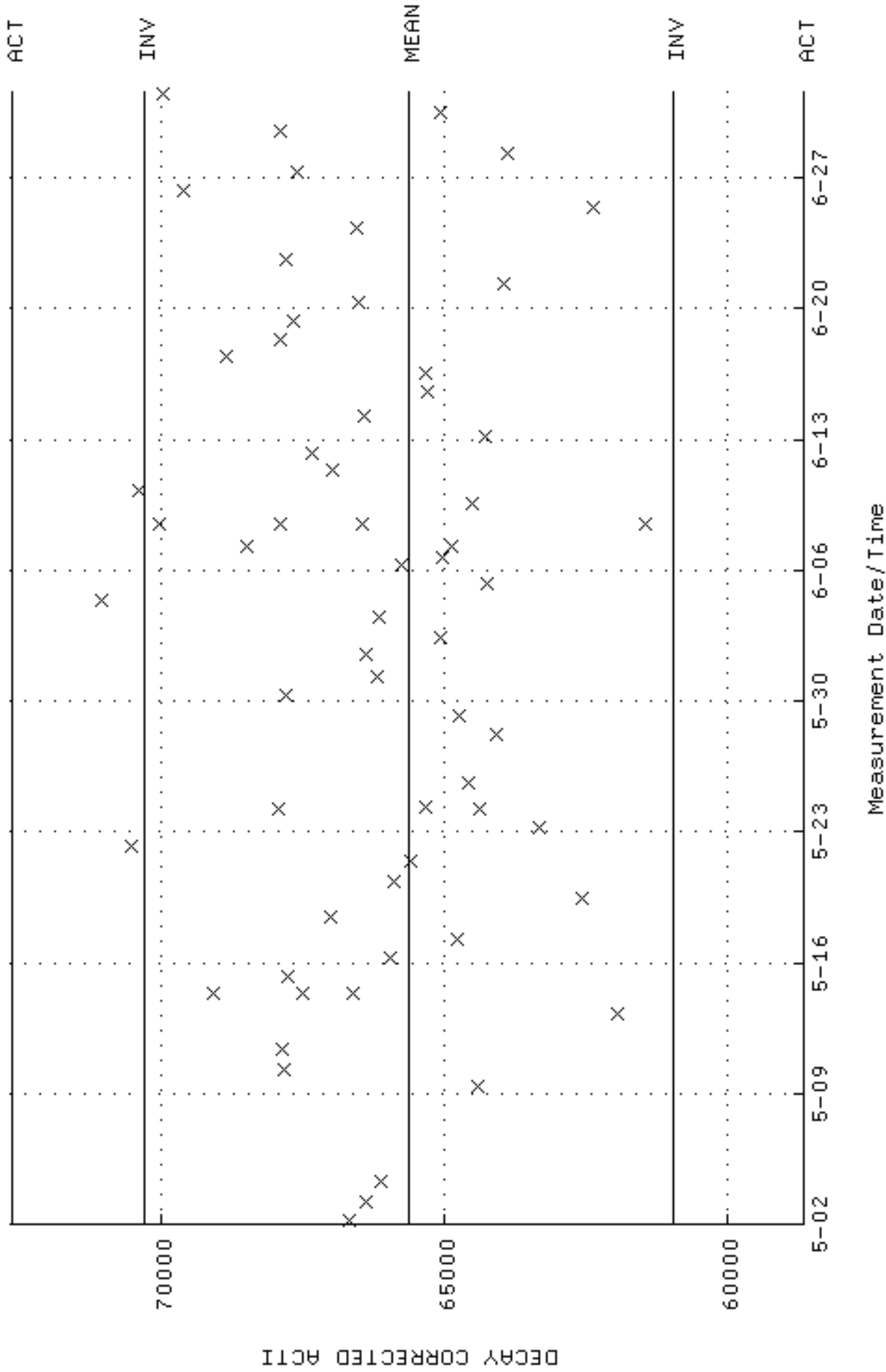
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM22_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:48 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



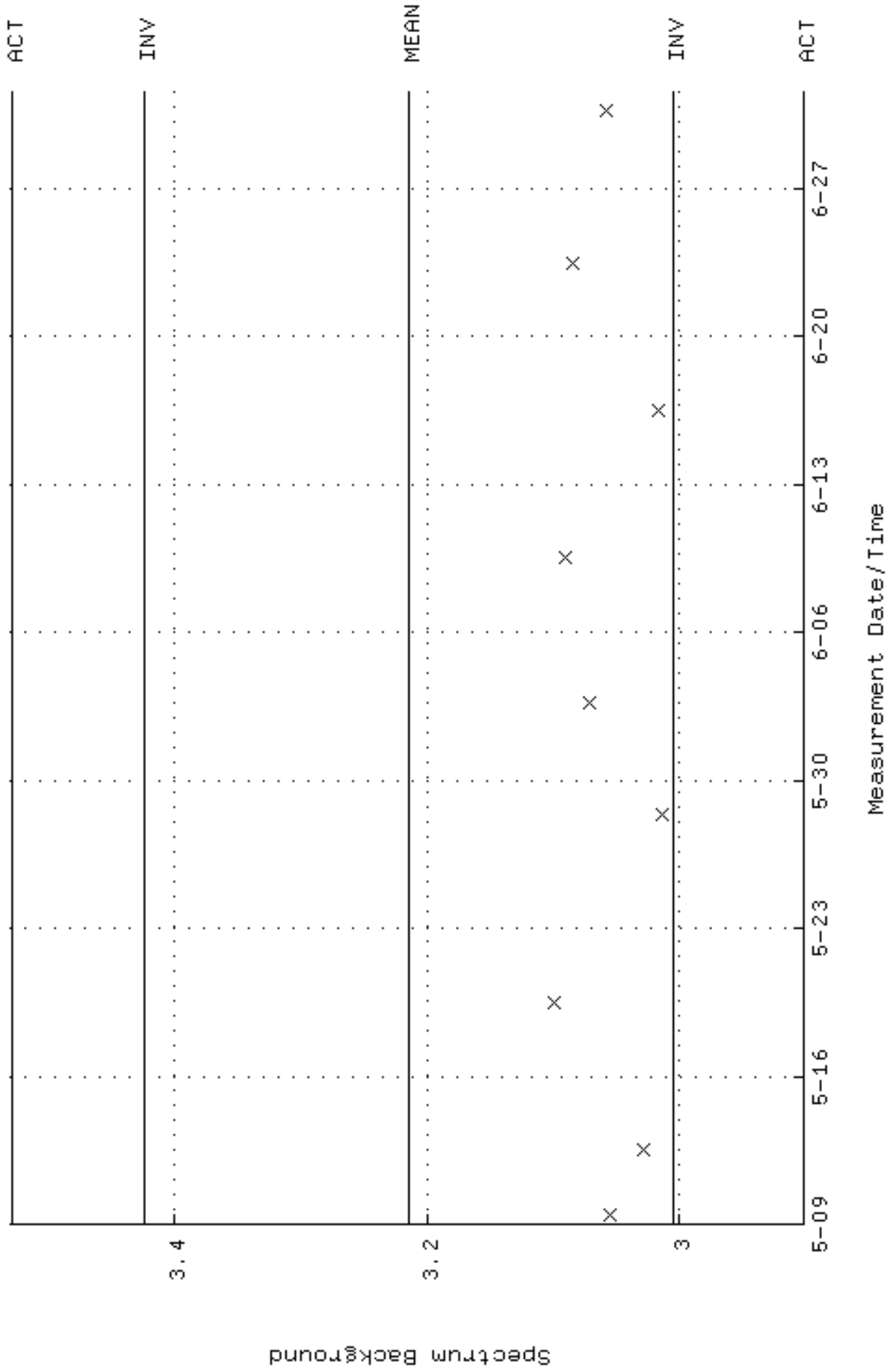
QA filename : DKA100:[CANBERRA,GAMMA,SCUSR,QA]QCC_GAM22_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:19:48 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.51606 +- 7.310749E-02 (4.82 %)



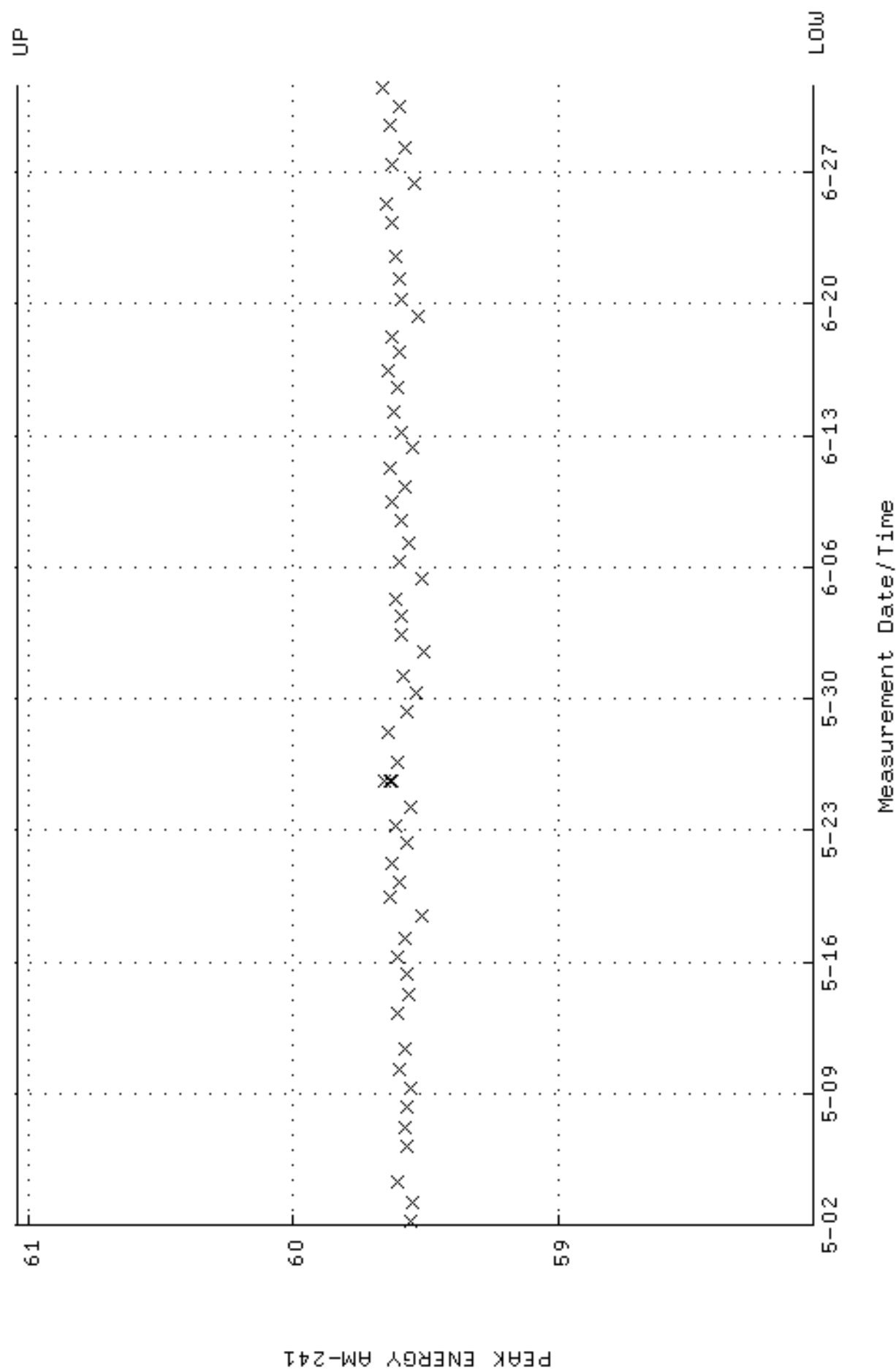
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM22-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 05:19:48 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 65639.4 +- 2326.22 (3.54 %)



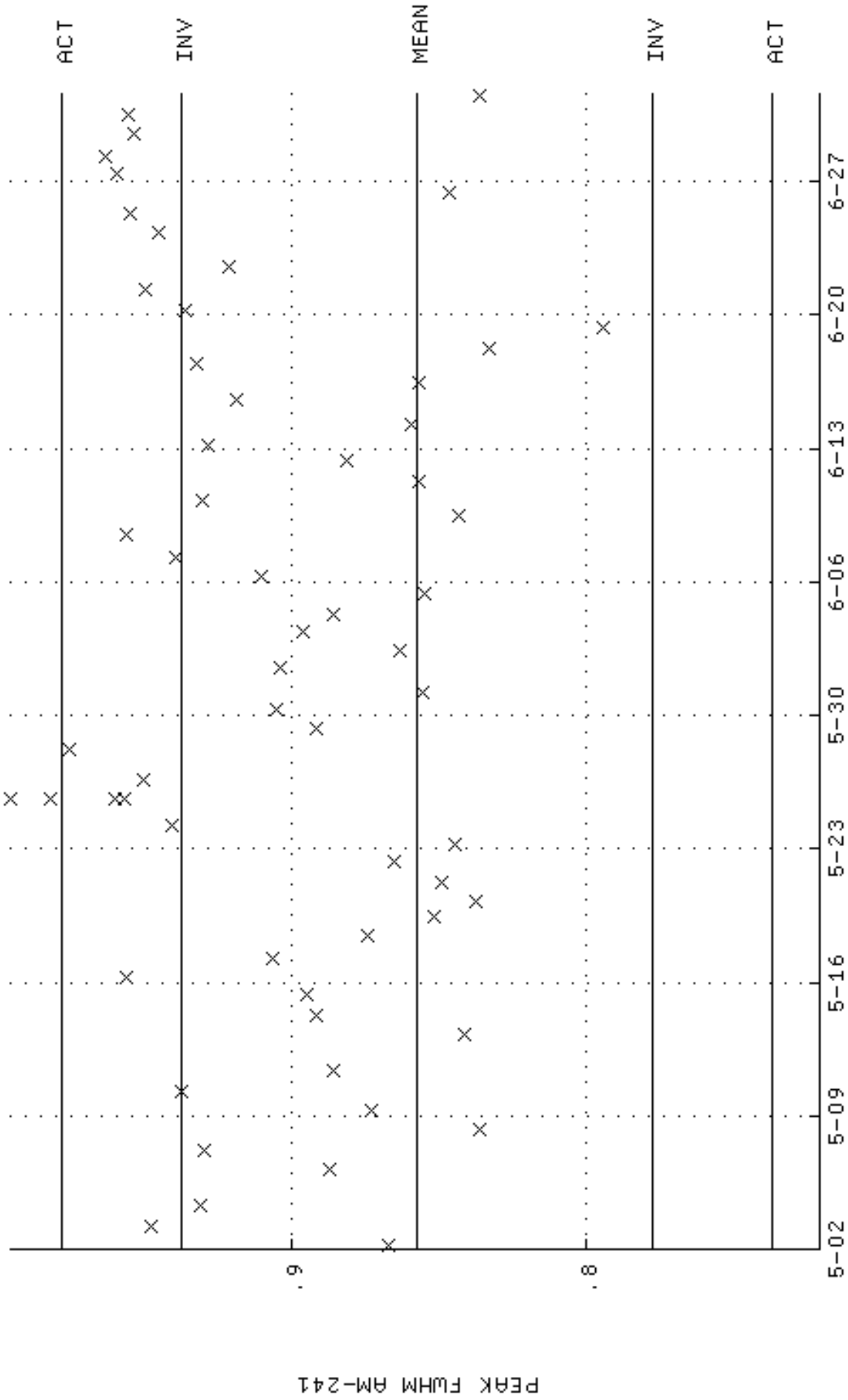
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM22.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 9-MAY-2024 10:22:04 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 3.21480 +- 0.104398 (3.25 %)



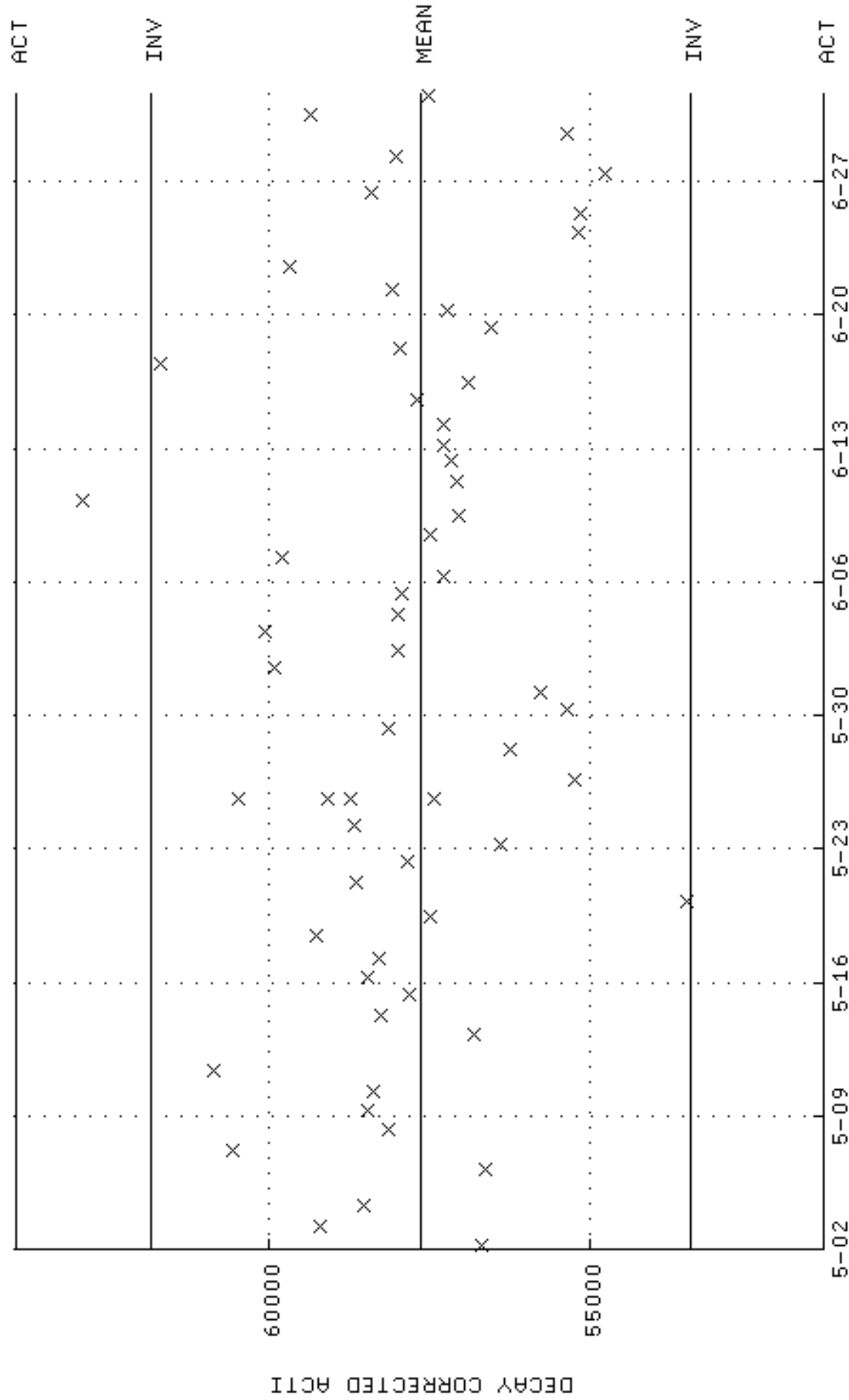
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM23_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:31 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM23-CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 04:43:31 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.857576 +- 4.018595E-02 (4.69 %)

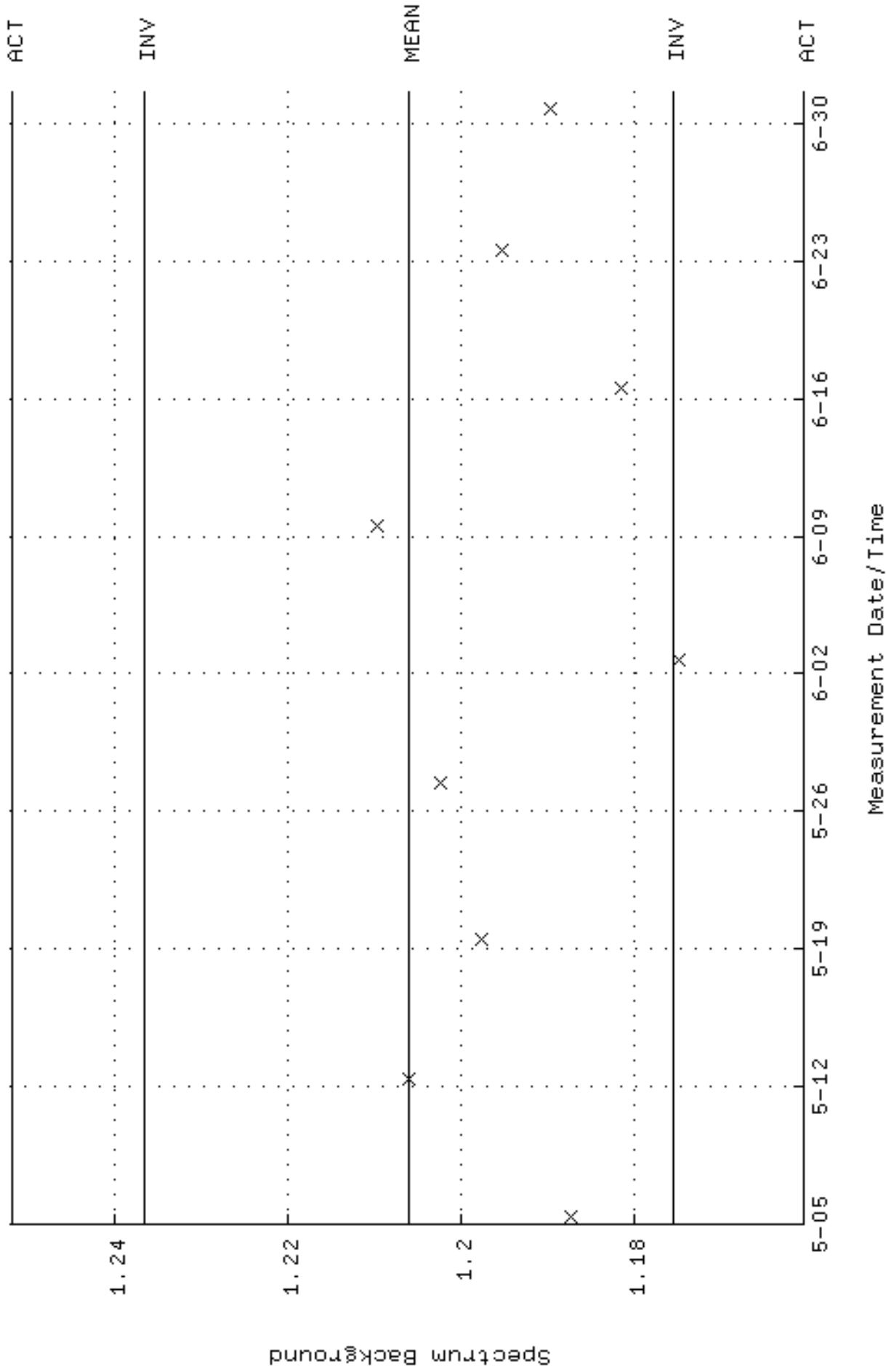


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM23-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 04:43:31 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 57639.9 +- 2100.85 (3.64 %)

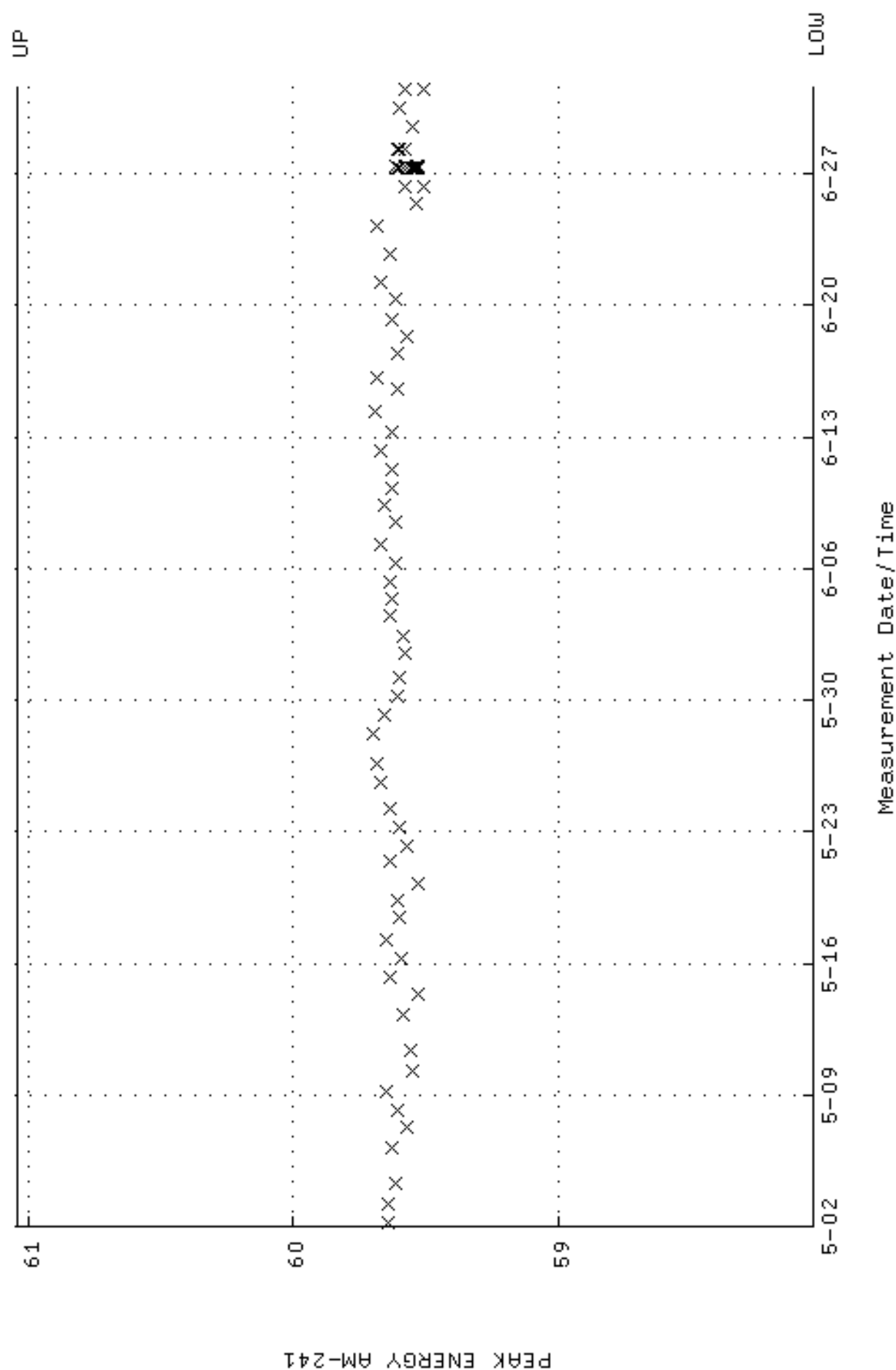


Measurement Date/Time

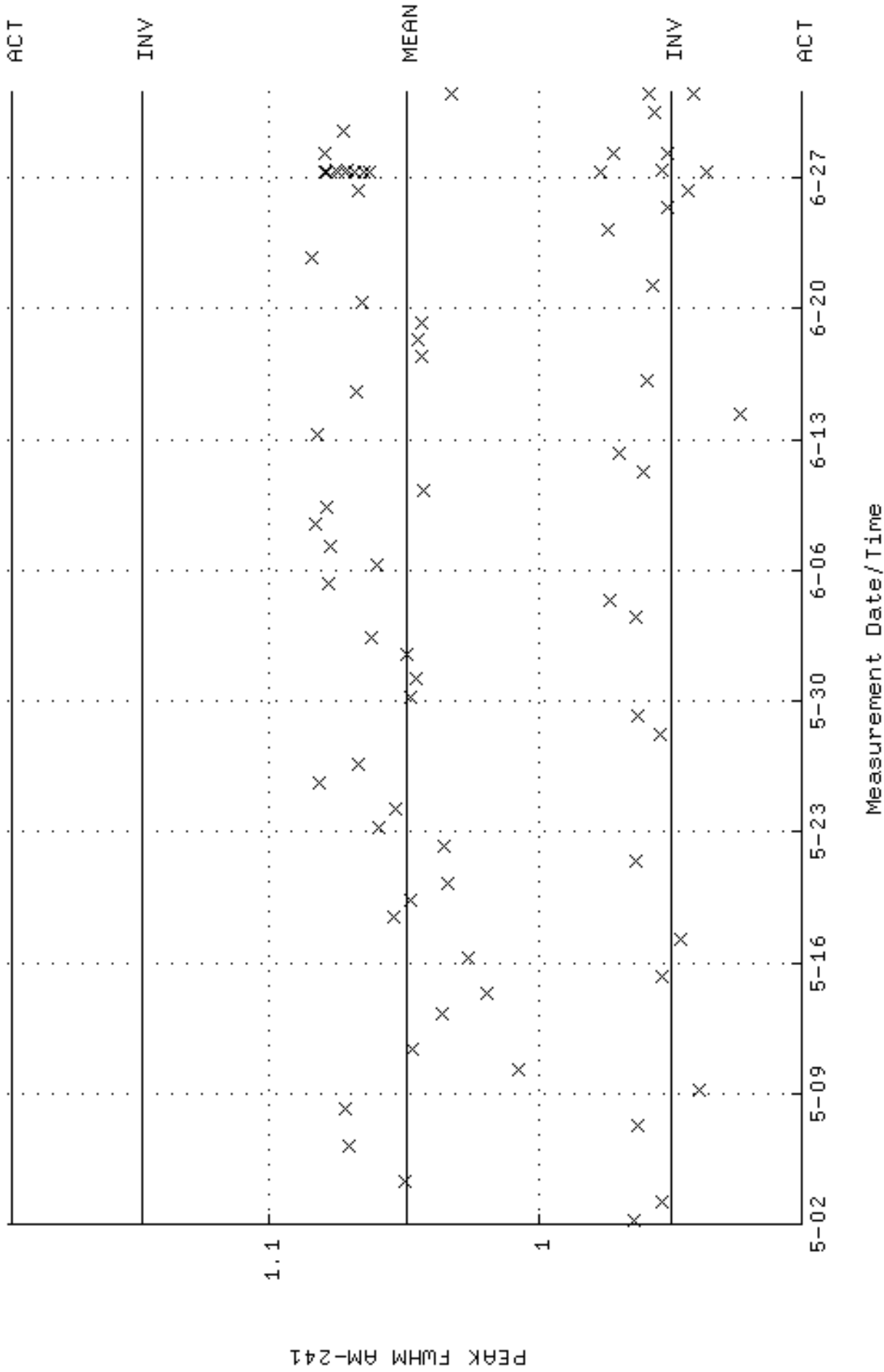
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM23.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:16:41 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.20621 +- 1.524024E-02 (1.26 %)



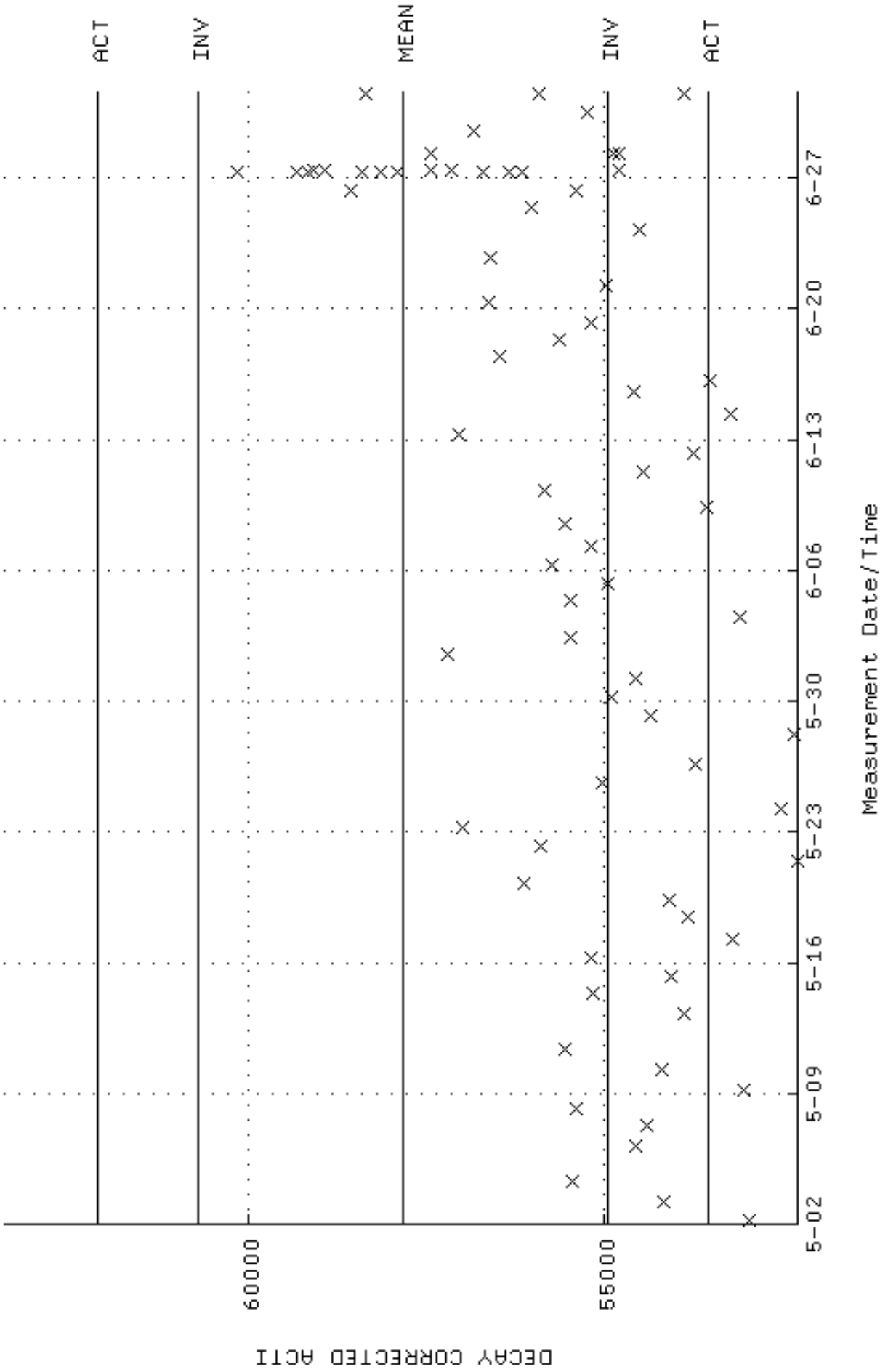
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM24_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:19:53 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



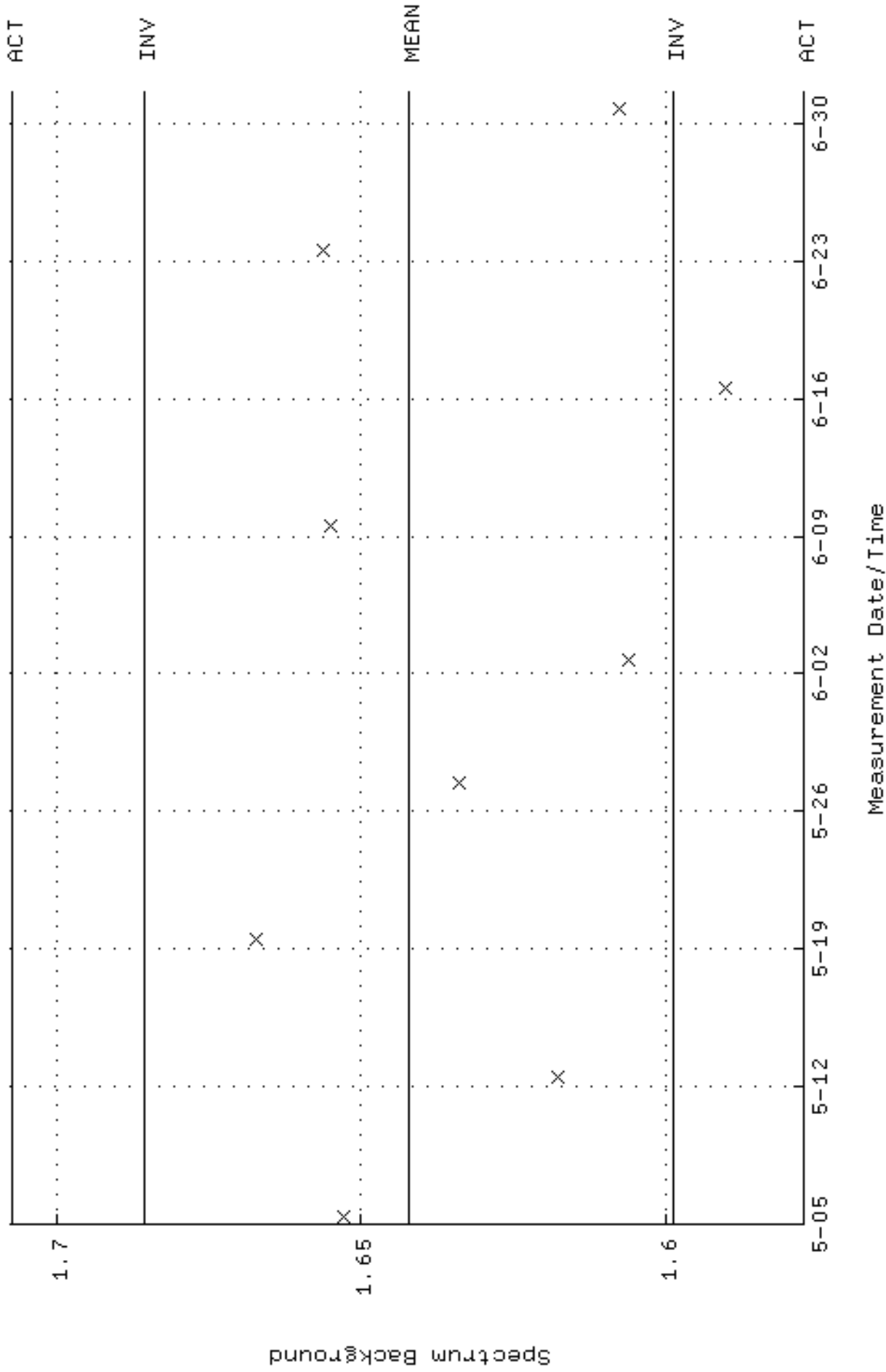
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM24_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:19:53 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.04914 +- 4.873889E-02 (4.65 %)



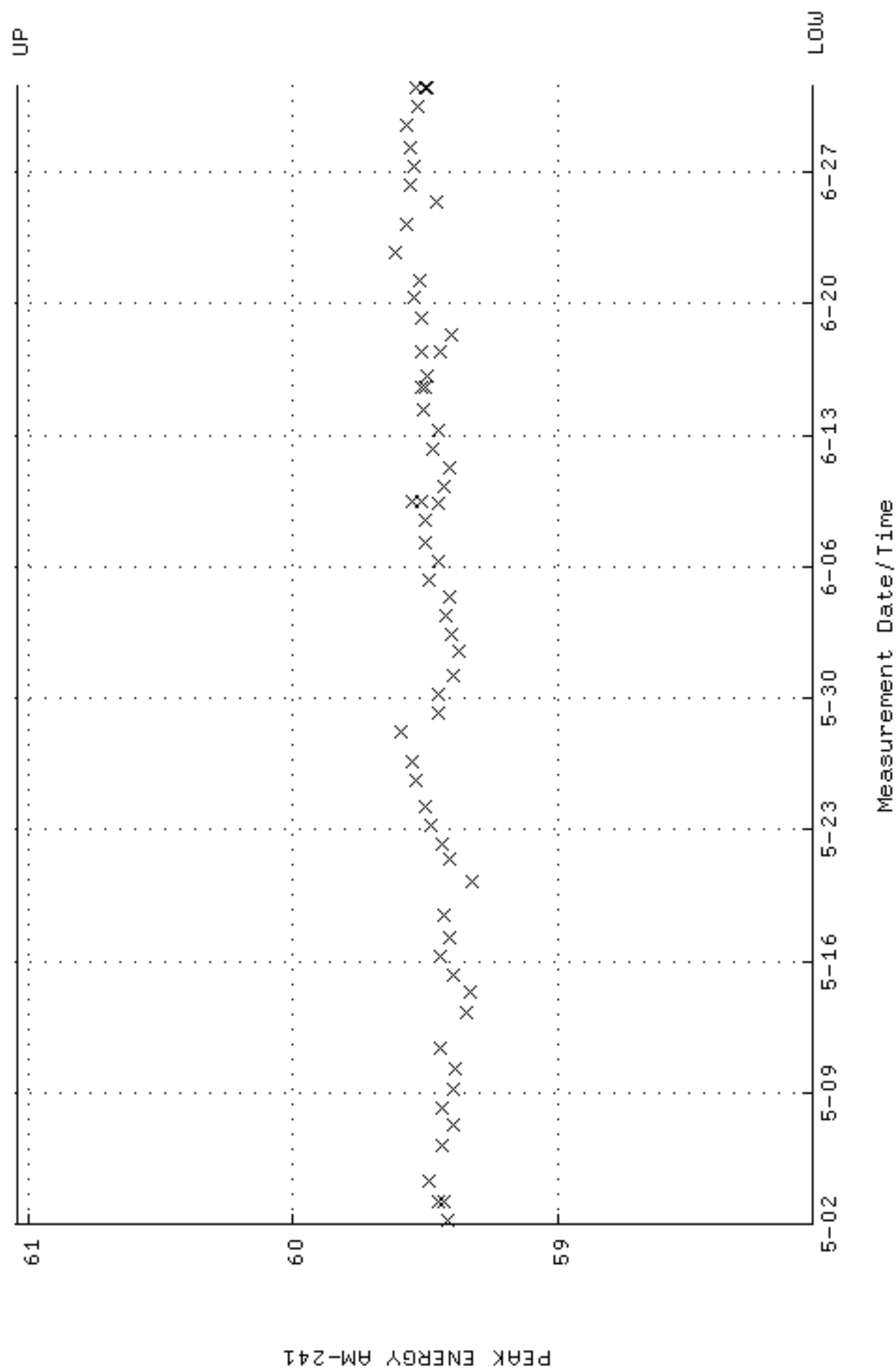
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM24-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 05:19:53 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 57841.3 +- 1436.50 (2.48 %)



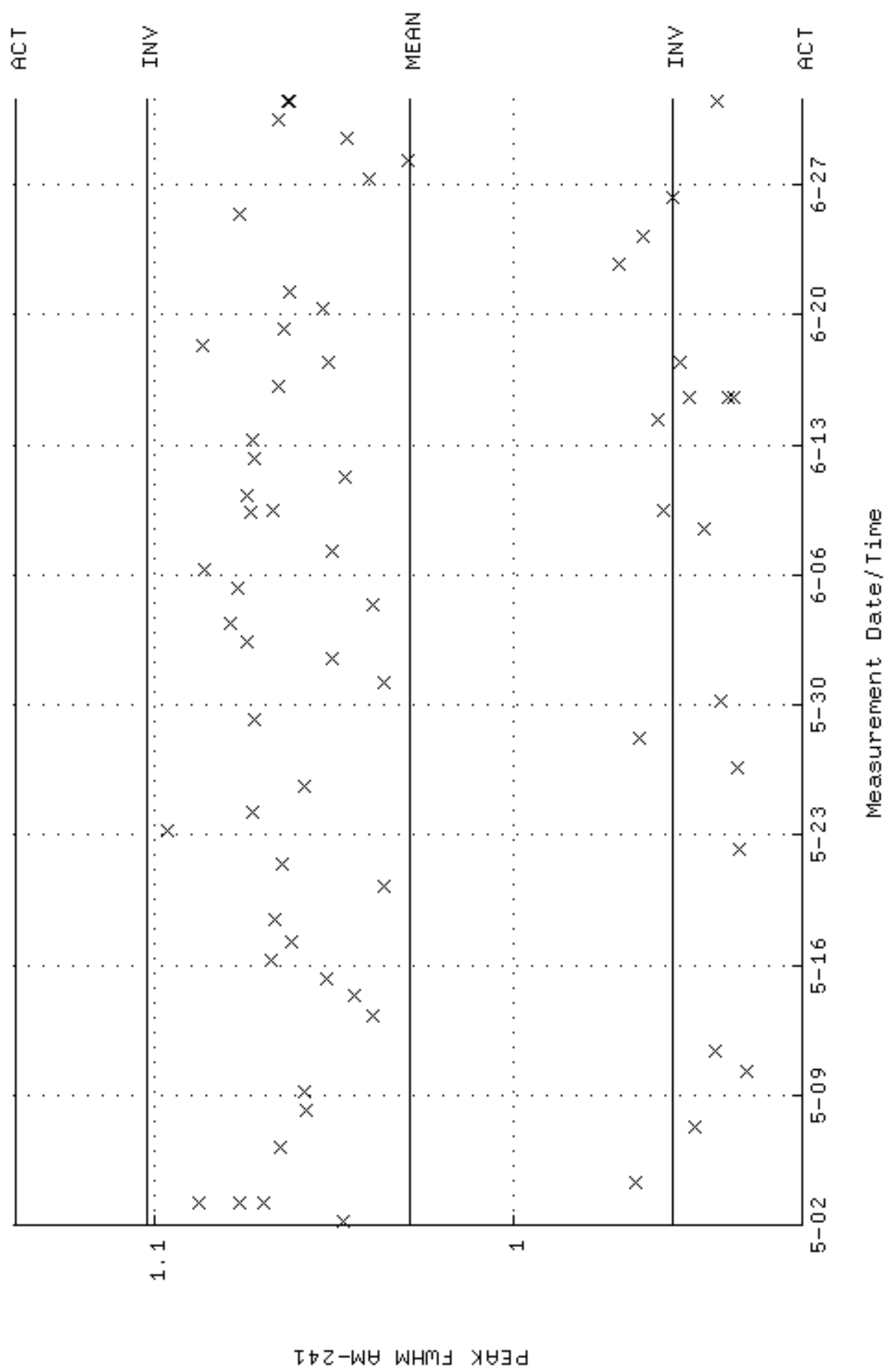
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM24.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:11:10 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.64232 +- 2.167035E-02 (1.32 %)



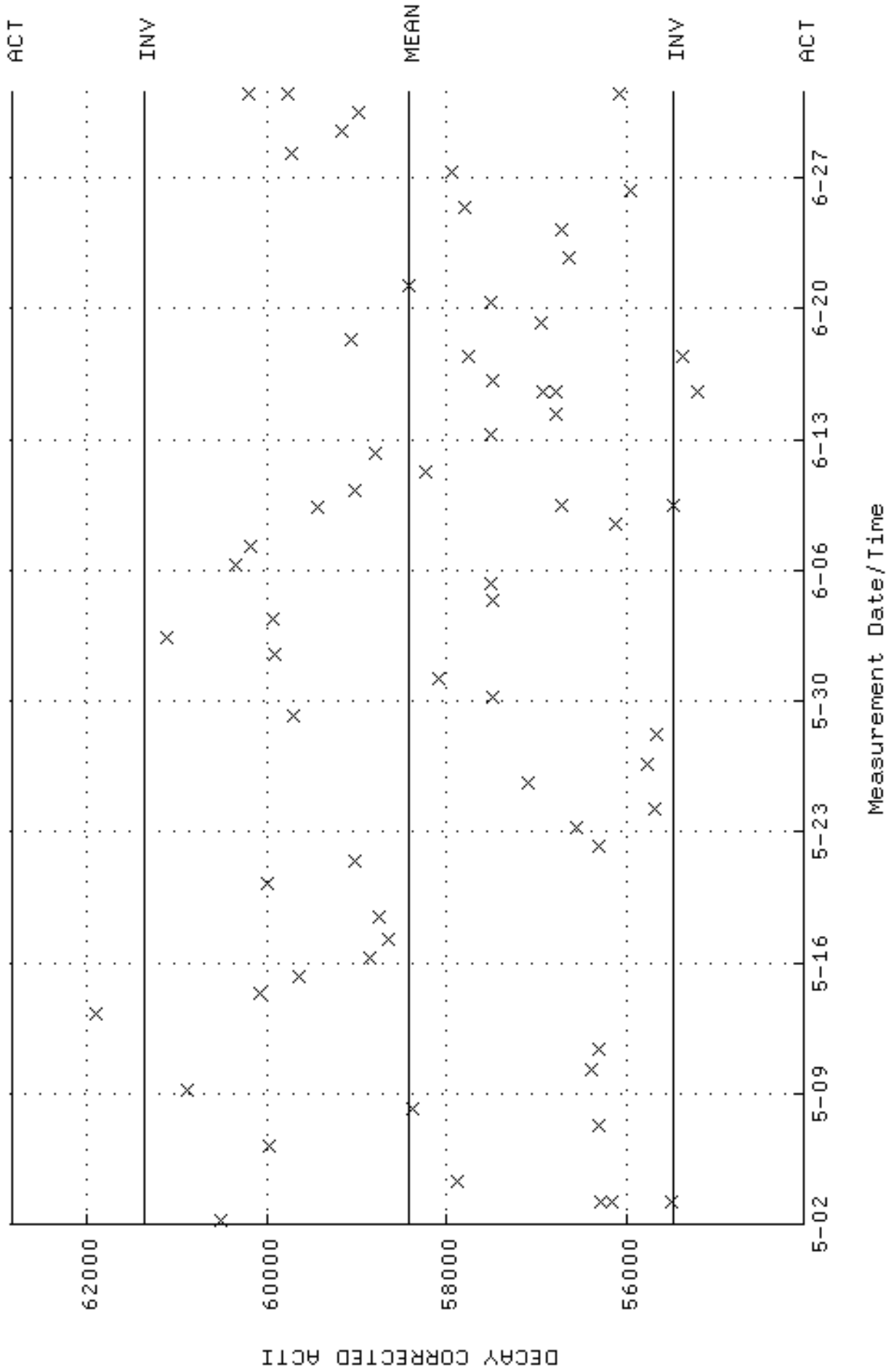
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM27_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:43:37 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



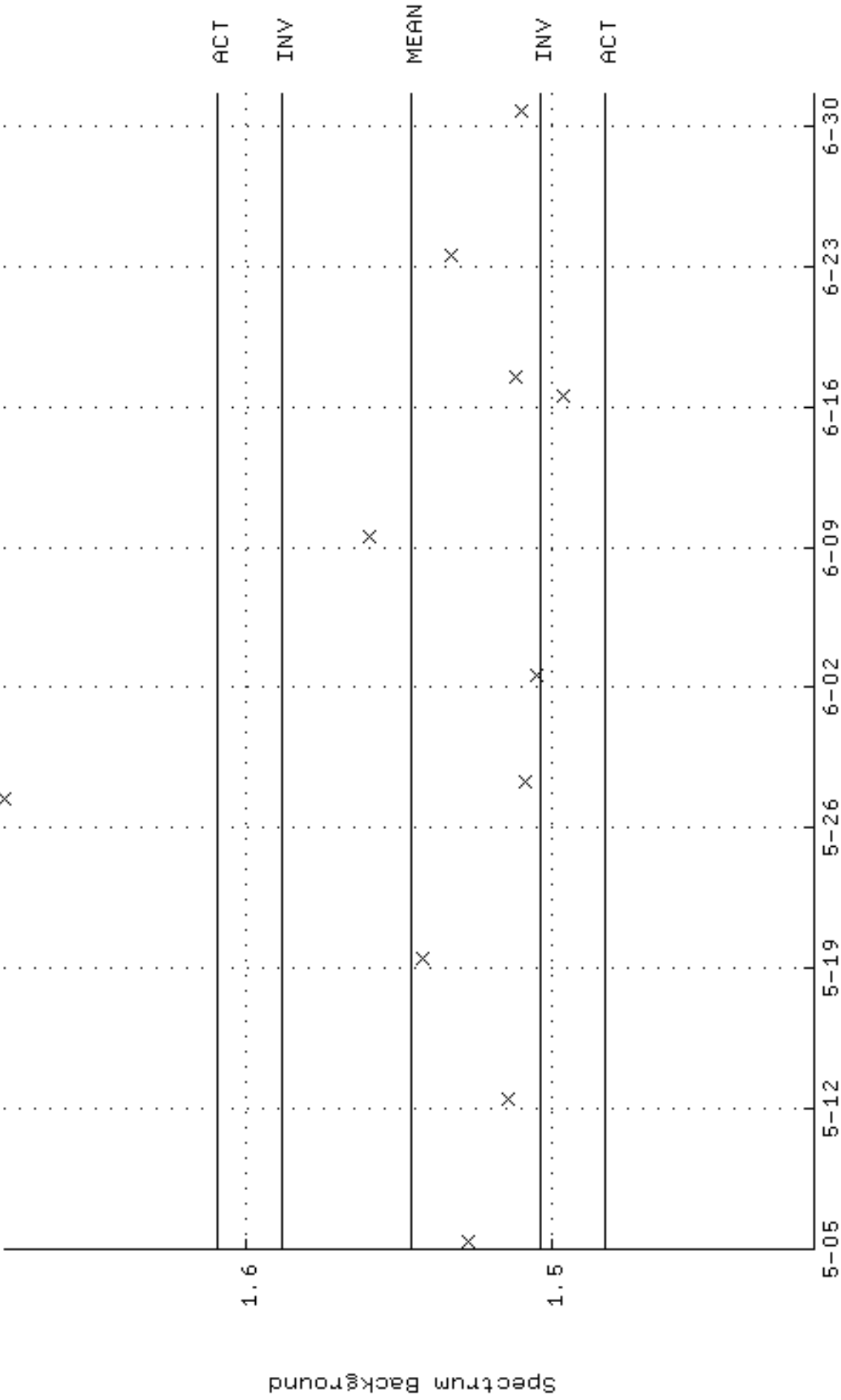
QA filename : DKA100:[CANBERRA,GAMMA,SCUSR,QA]QCC_GAM27_CAN.QAF;1
Parameter Name : PSFWM-59 (PEAK FWHM AM-241)
Start/End Dates : 2-MAY-2024 04:43:37 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.02893 +- 3.657177E-02 (3.55 %)



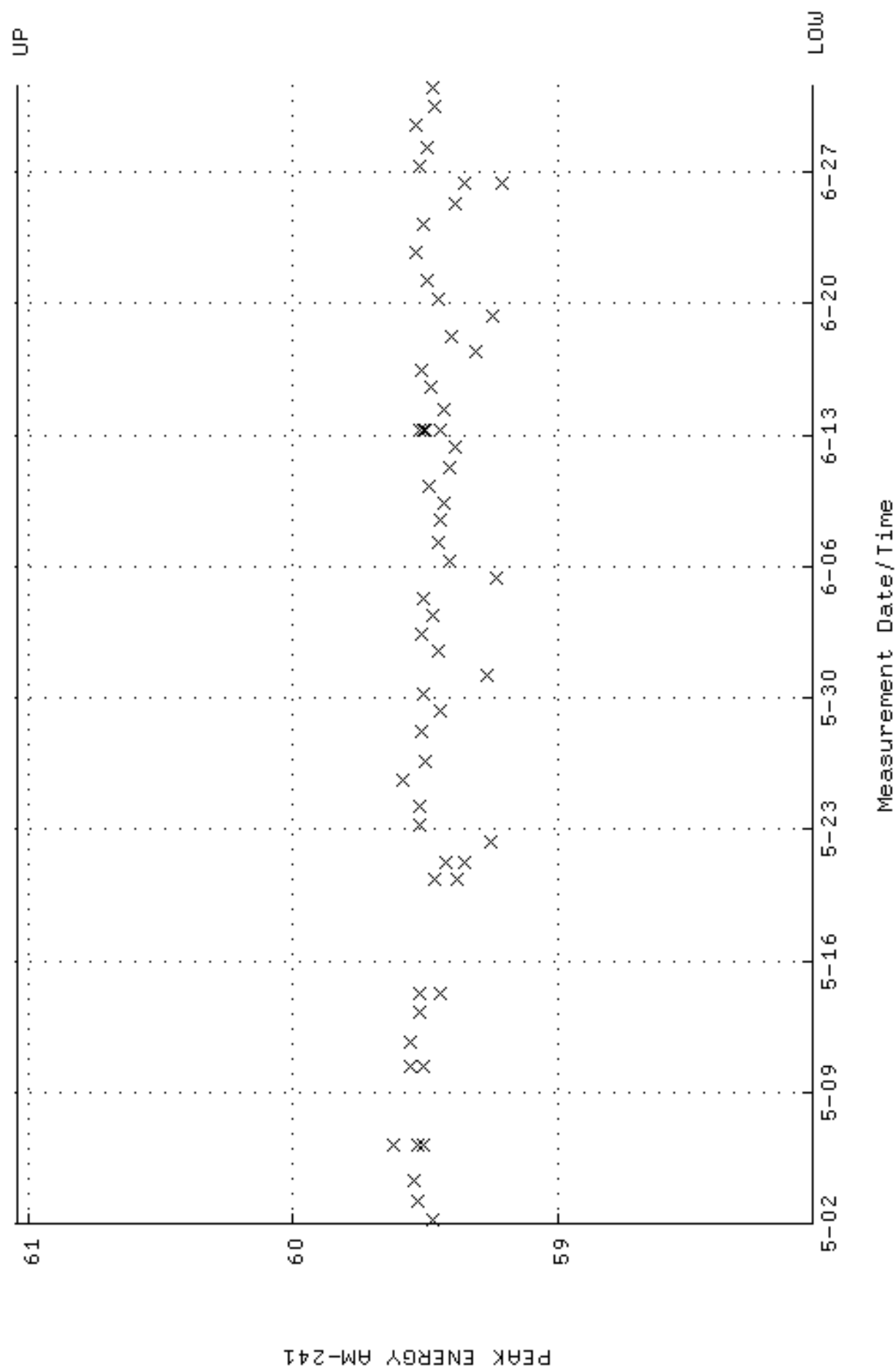
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM27-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 04:43:37 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 58429.9 +- 1469.88 (2.52 %)



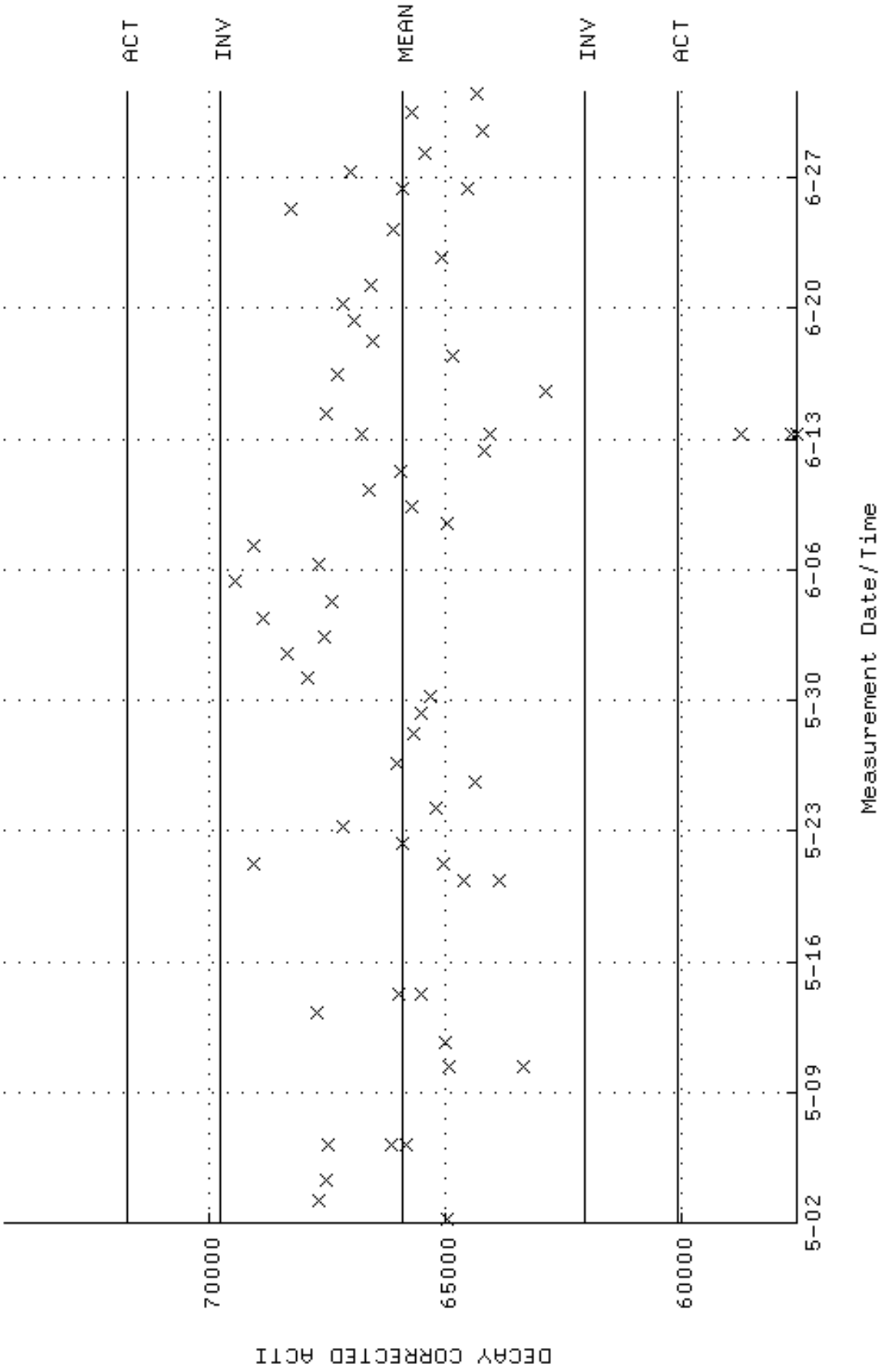
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM27.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:11:15 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.54603 +- 2.114653E-02 (1.37 %)



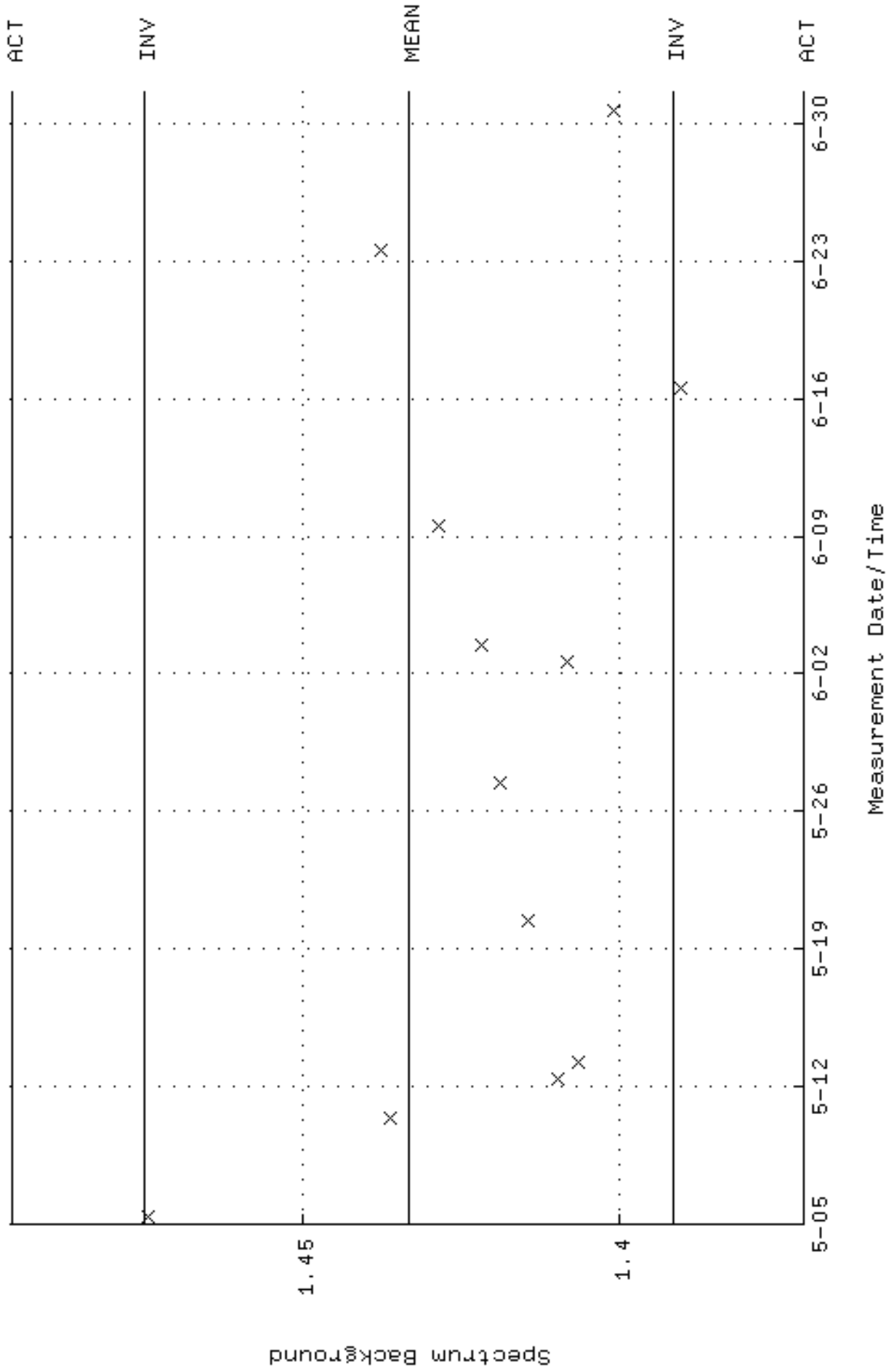
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM28_JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:47:06 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



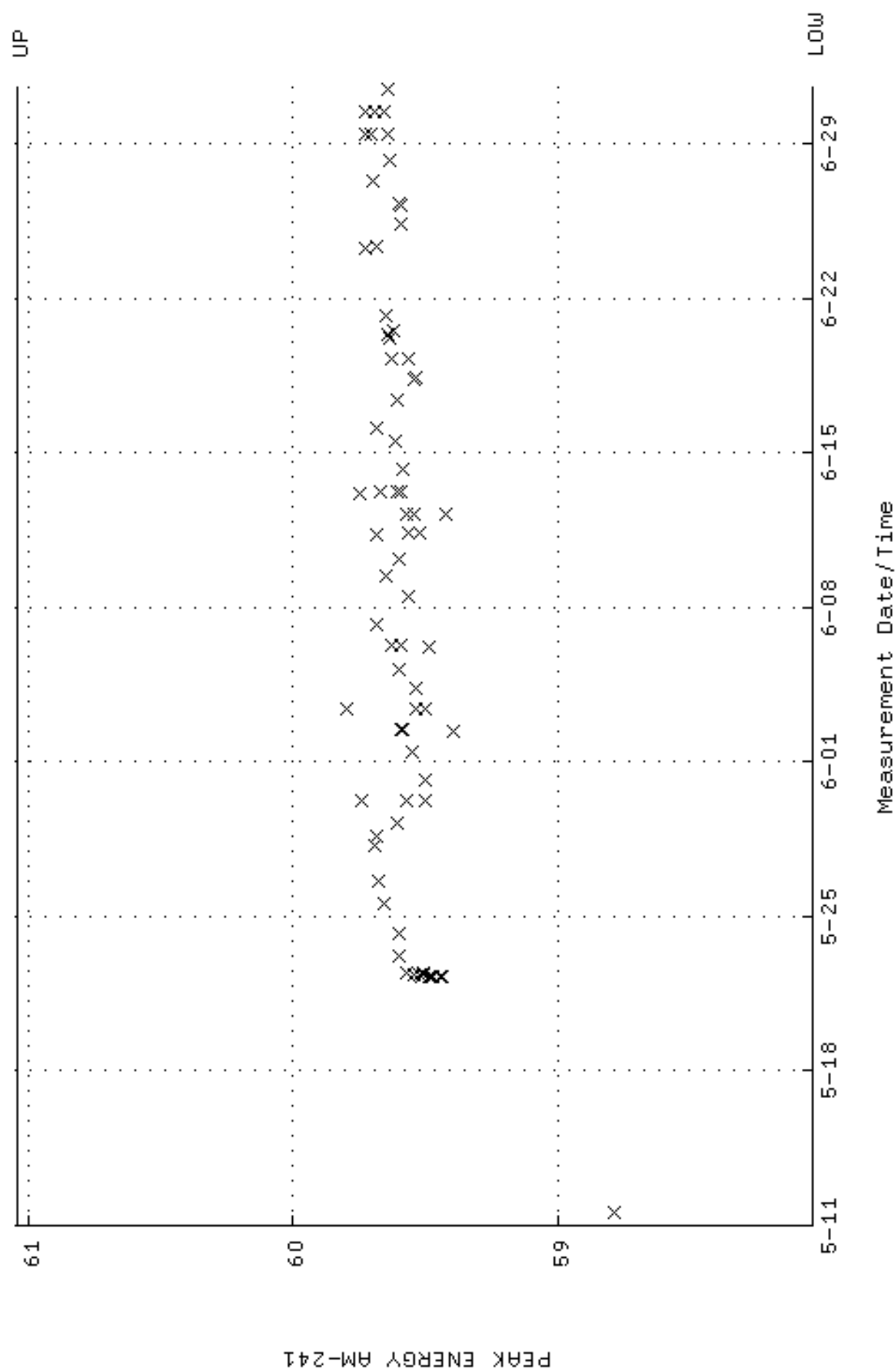
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM28-JAR.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 04:47:06 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 65938.8 +- 1938.67 (2.94 %)



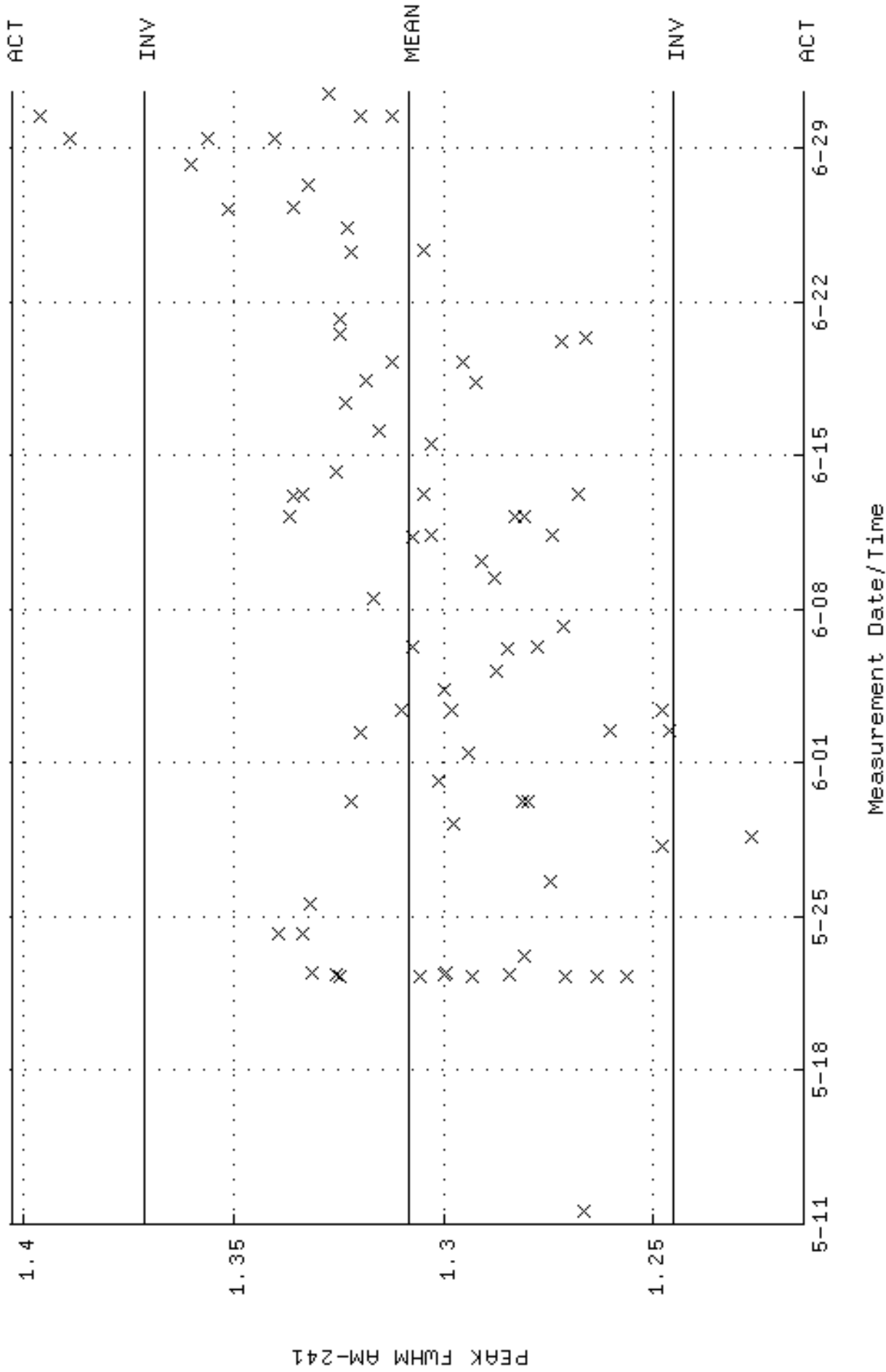
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM28.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:13:12 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.43343 +- 2.079300E-02 (1.45 %)



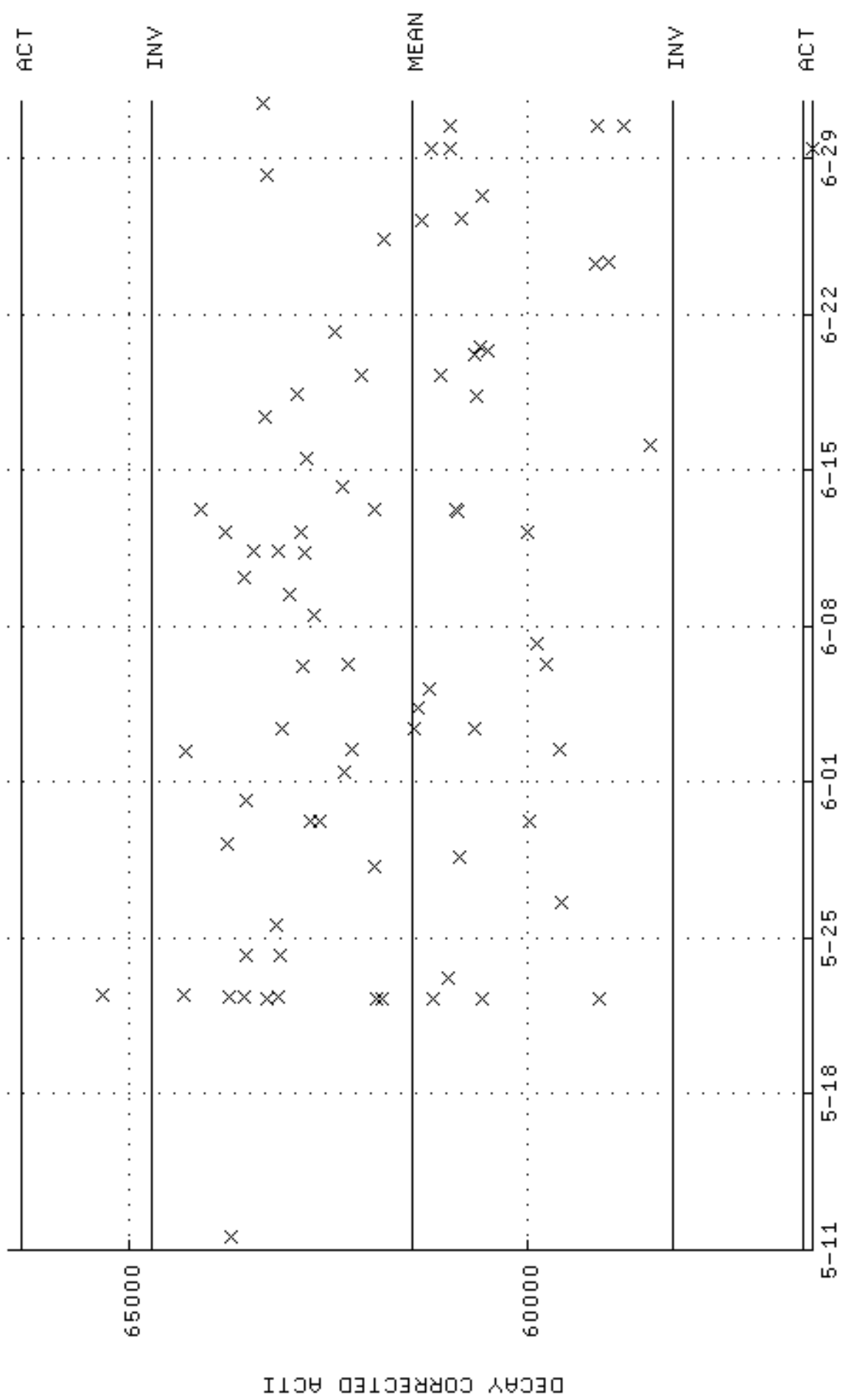
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM30_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 11-MAY-2024 15:05:41 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



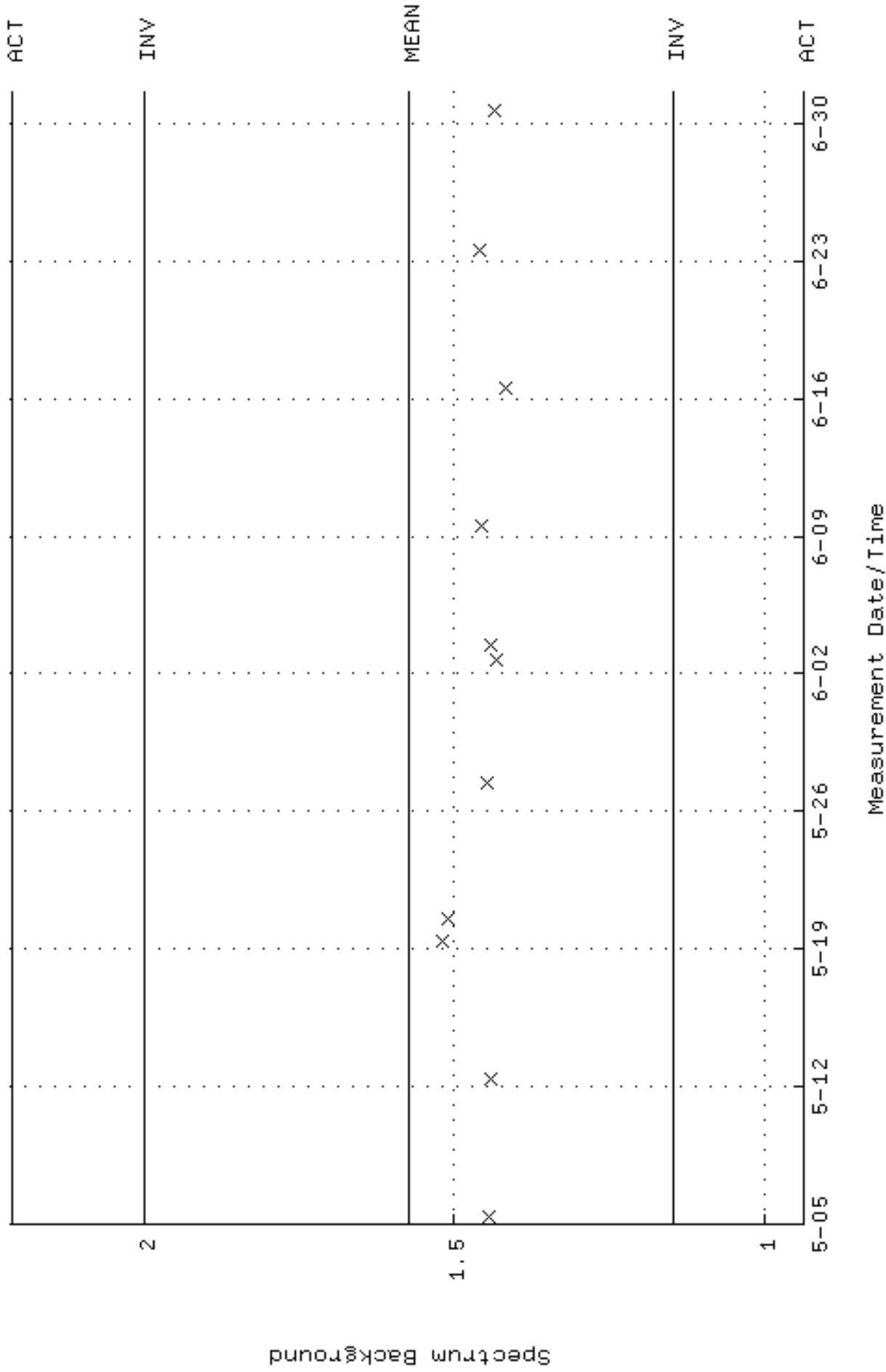
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM30_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 11-MAY-2024 15:05:41 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.30847 +- 3.145364E-02 (2.40 %)



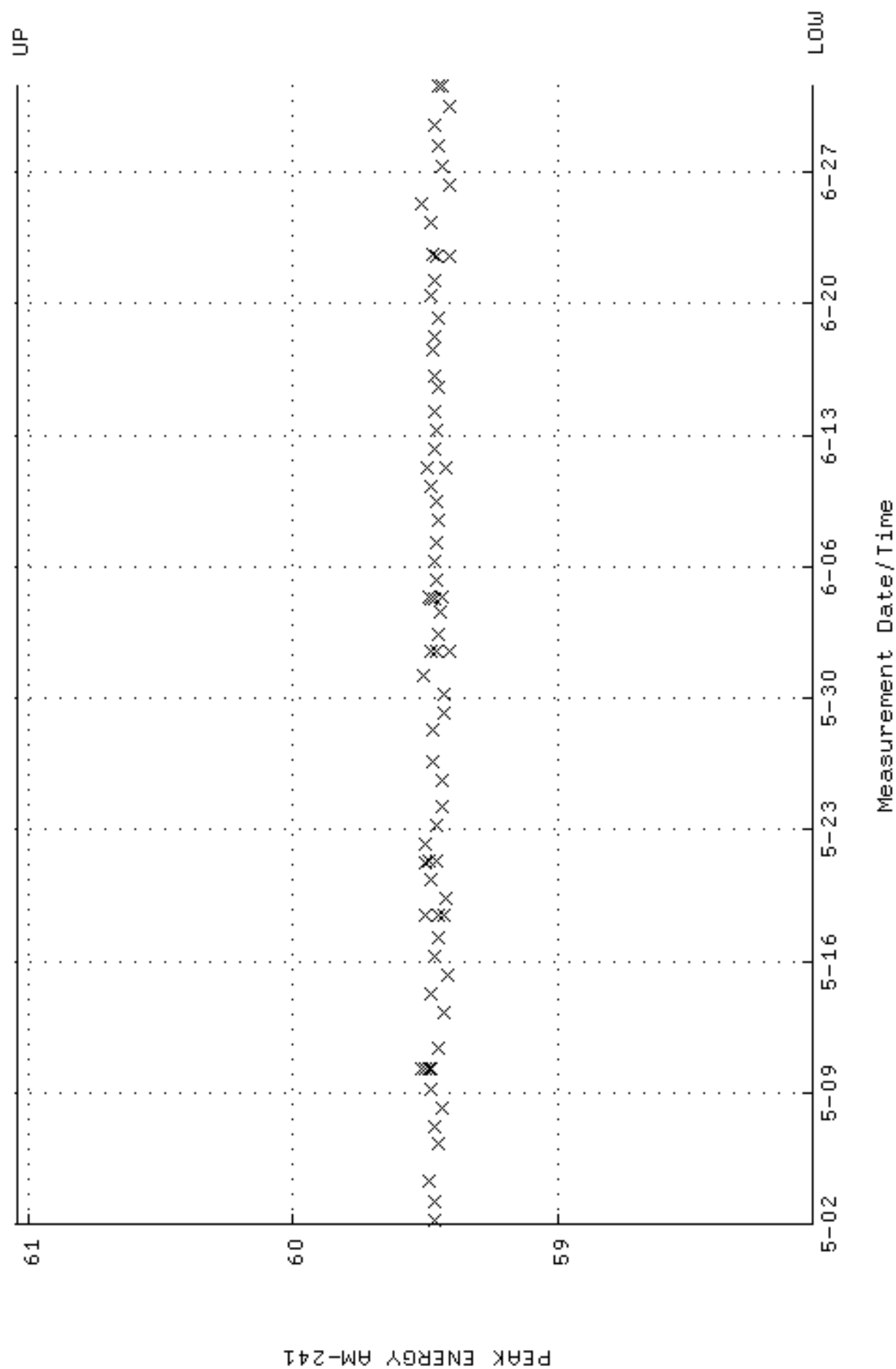
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM30_CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 11-MAY-2024 15:05:41 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 61454.9 +- 1633.92 (2.66 %)



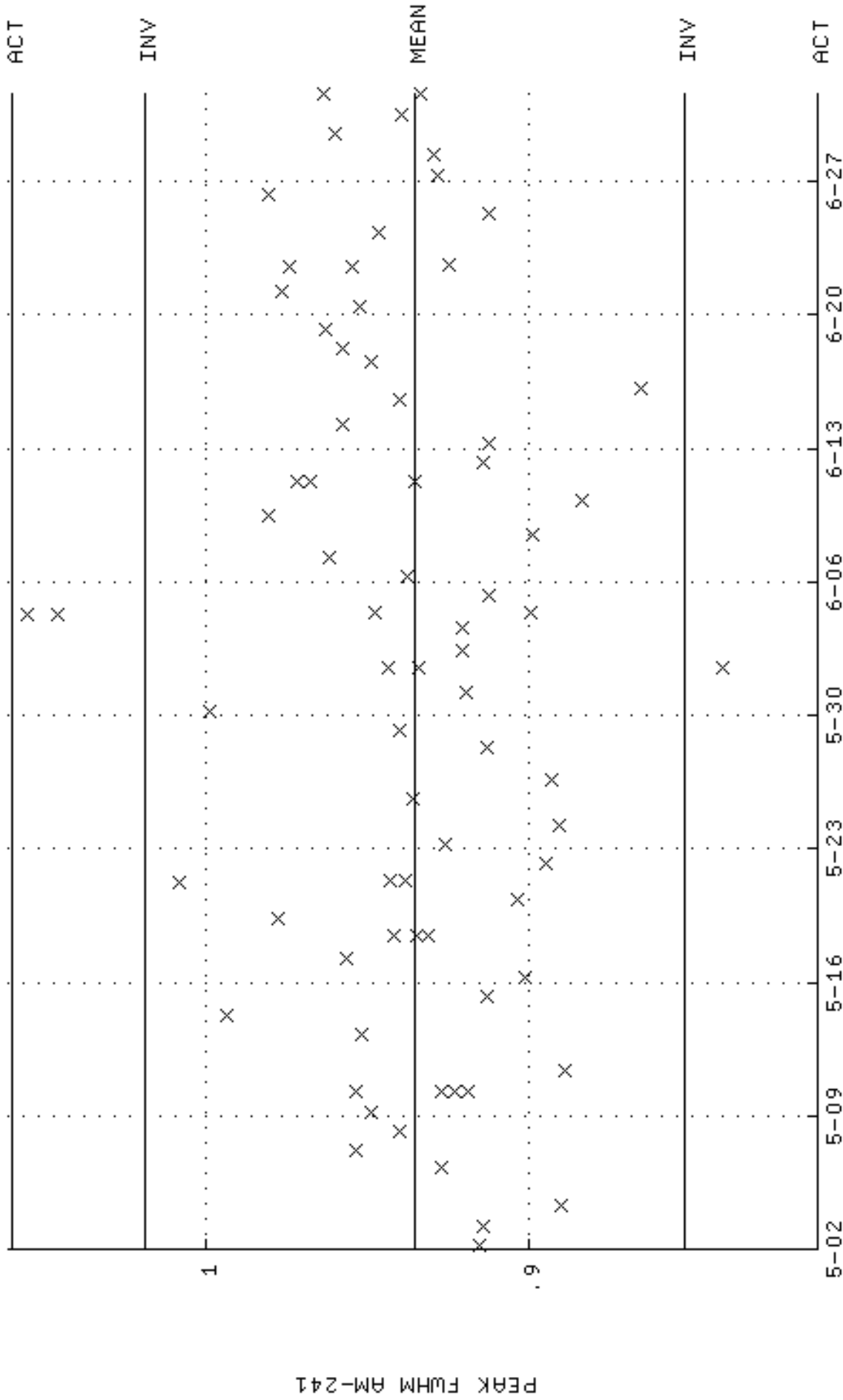
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM30.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:09:32 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.57494 +- 0.212506 (13.49 %)



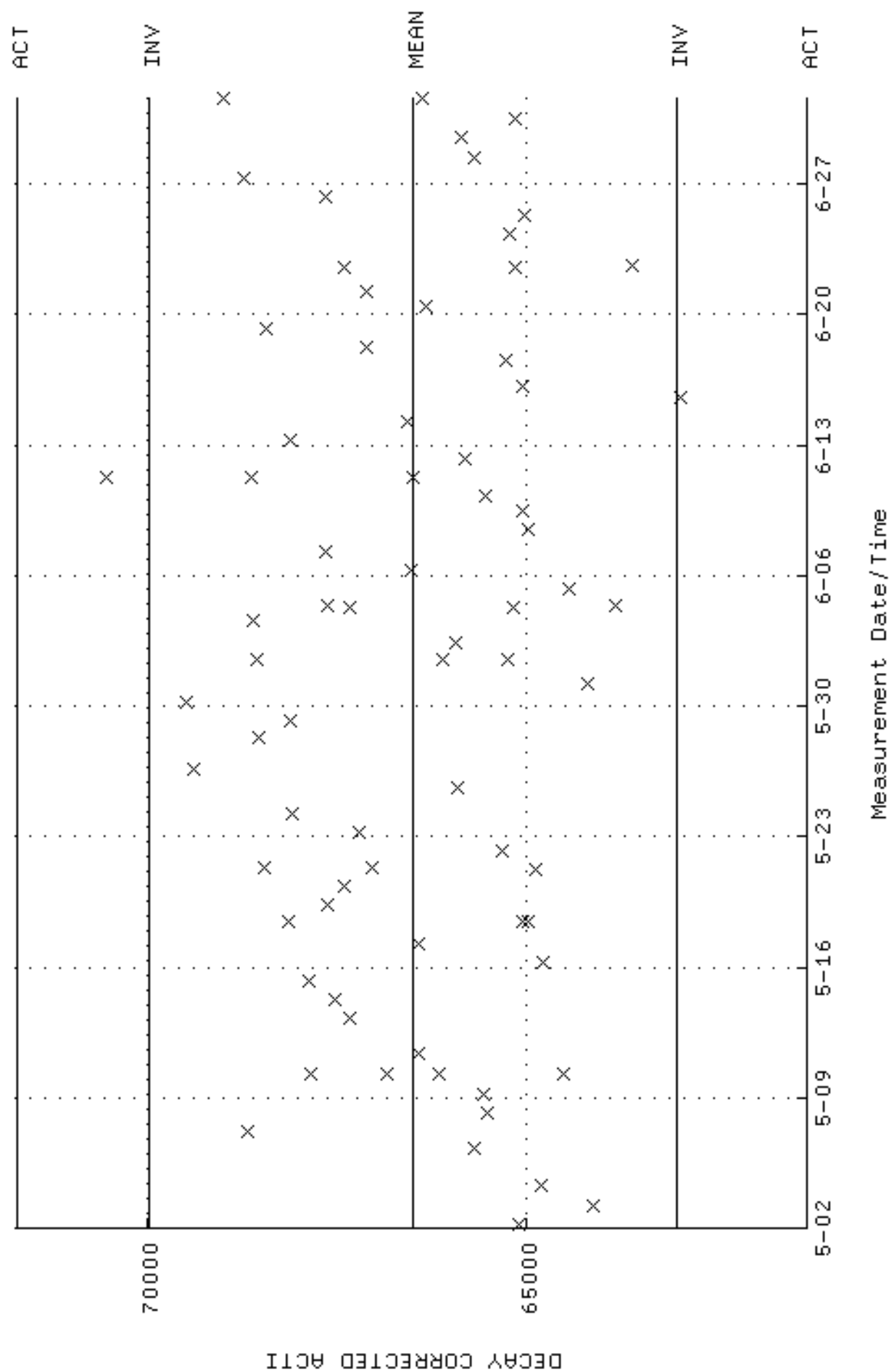
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM40_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:45:07 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



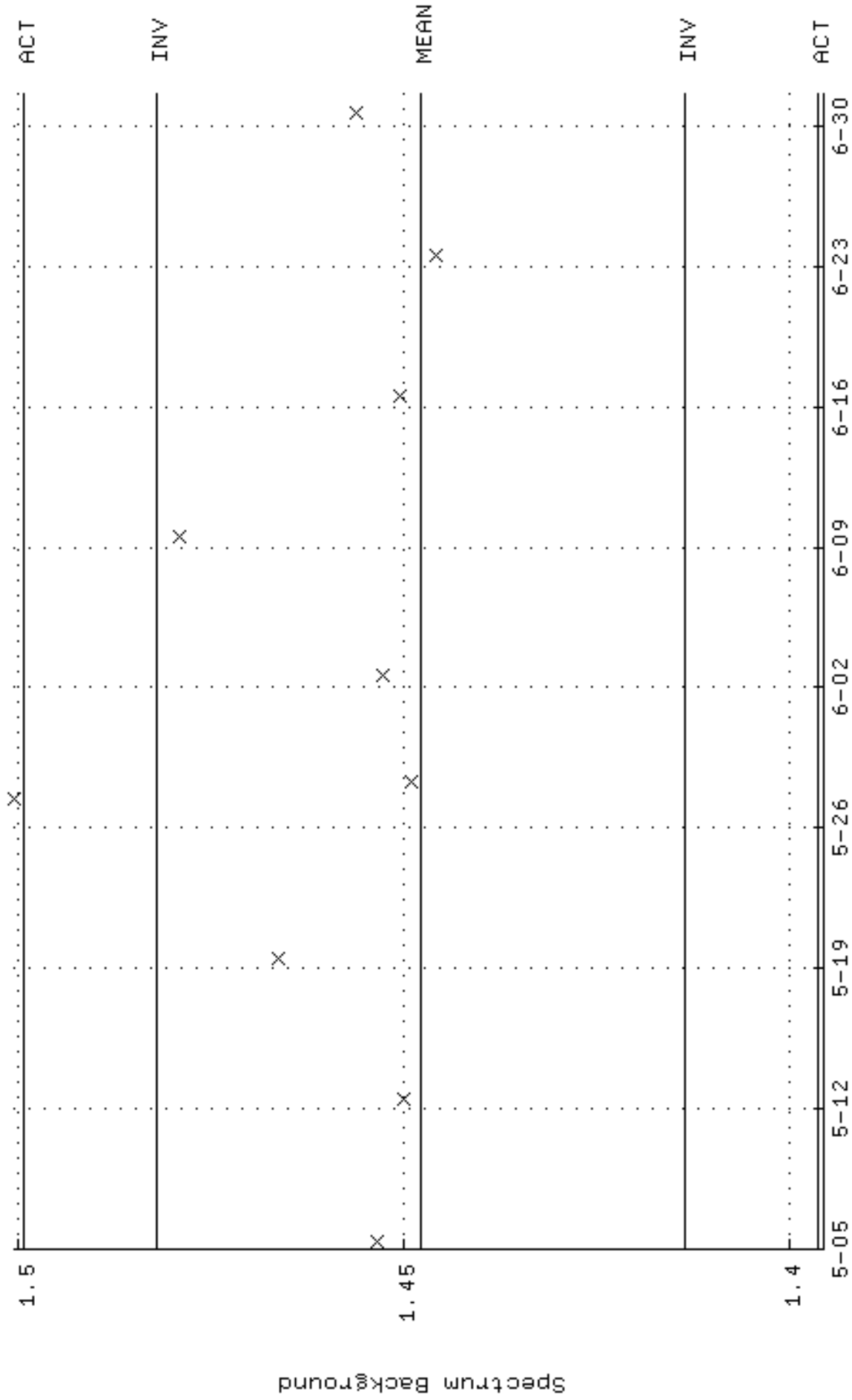
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM40_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 04:45:07 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.935558 +- 4.161524E-02 (4.45 %)



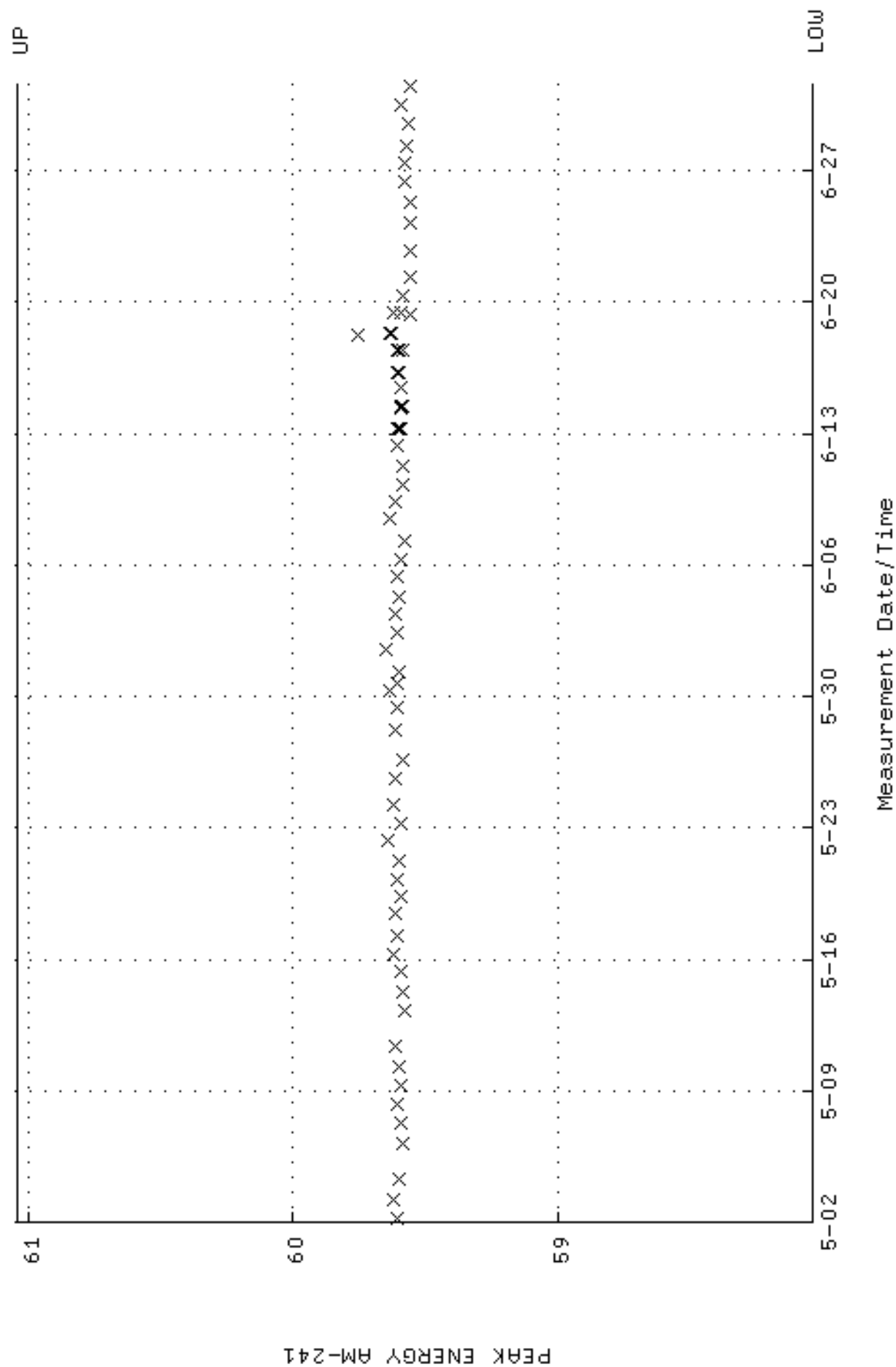
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM40-CAN.QAF;1
 Parameter Name : NLACTVY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 04:45:07 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 66517.3 +- 1734.83 (2.61 %)



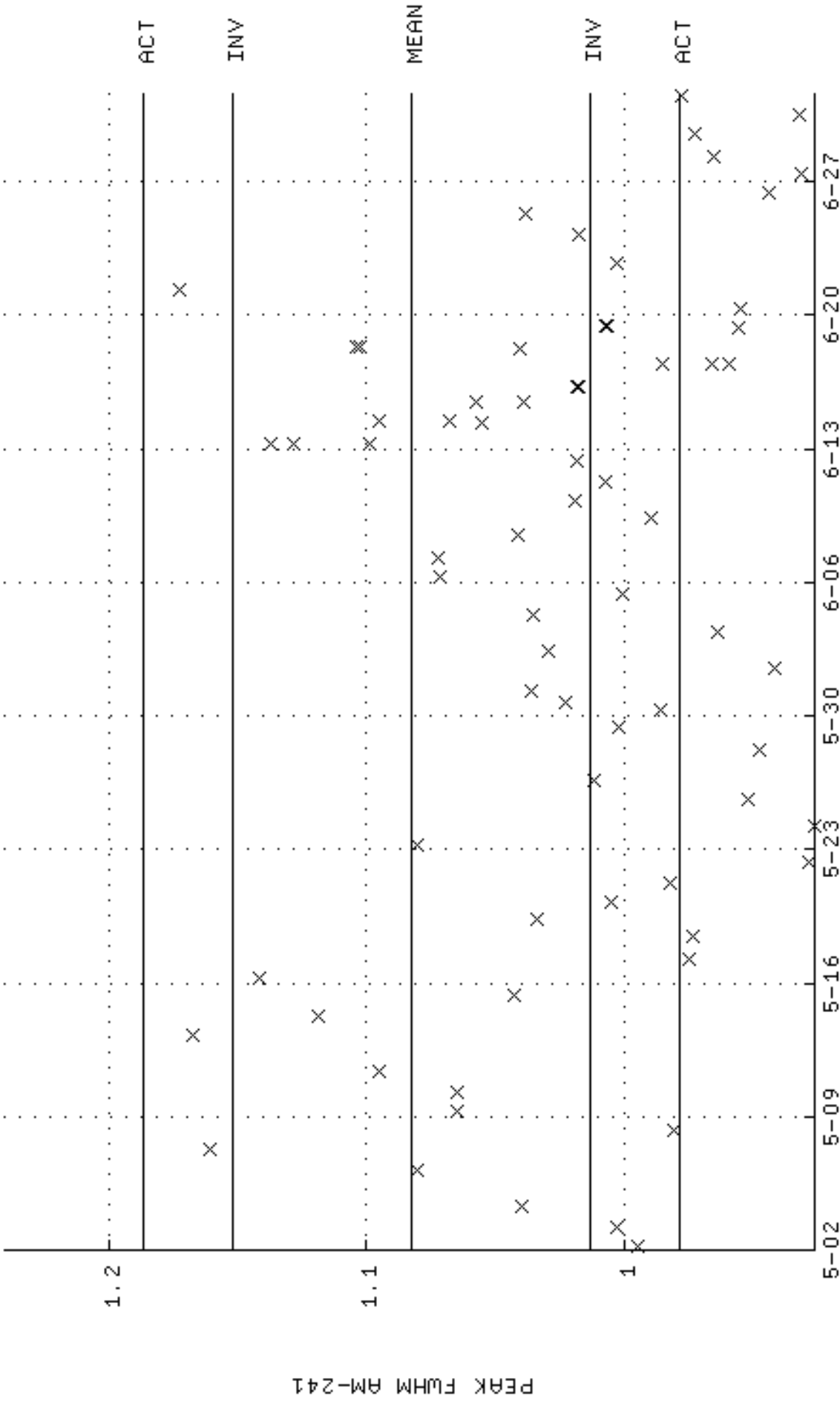
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM40.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:07:17 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.44790 +- 1.717641E-02 (1.19 %)



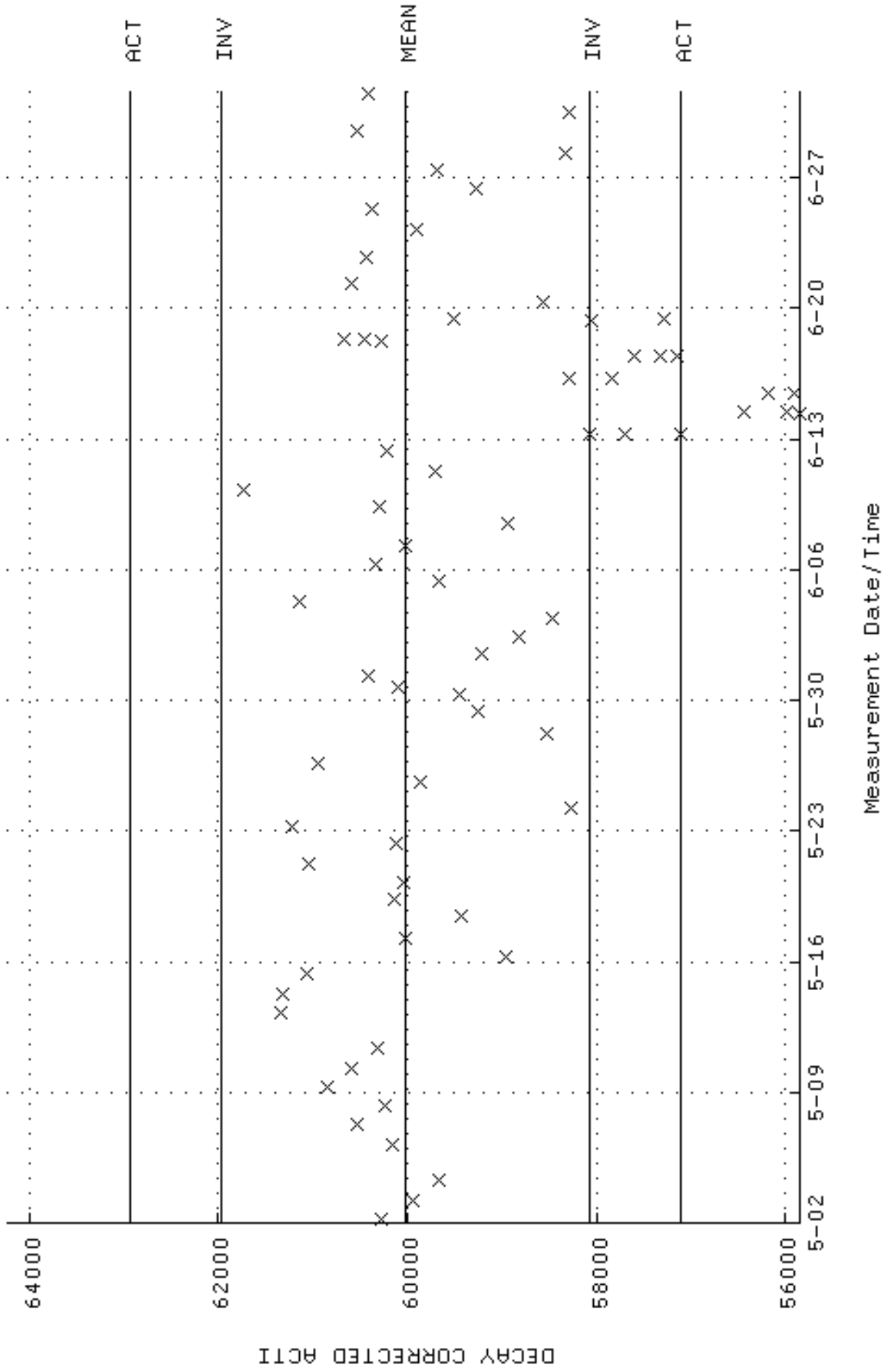
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM46_CAN.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:20:02 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



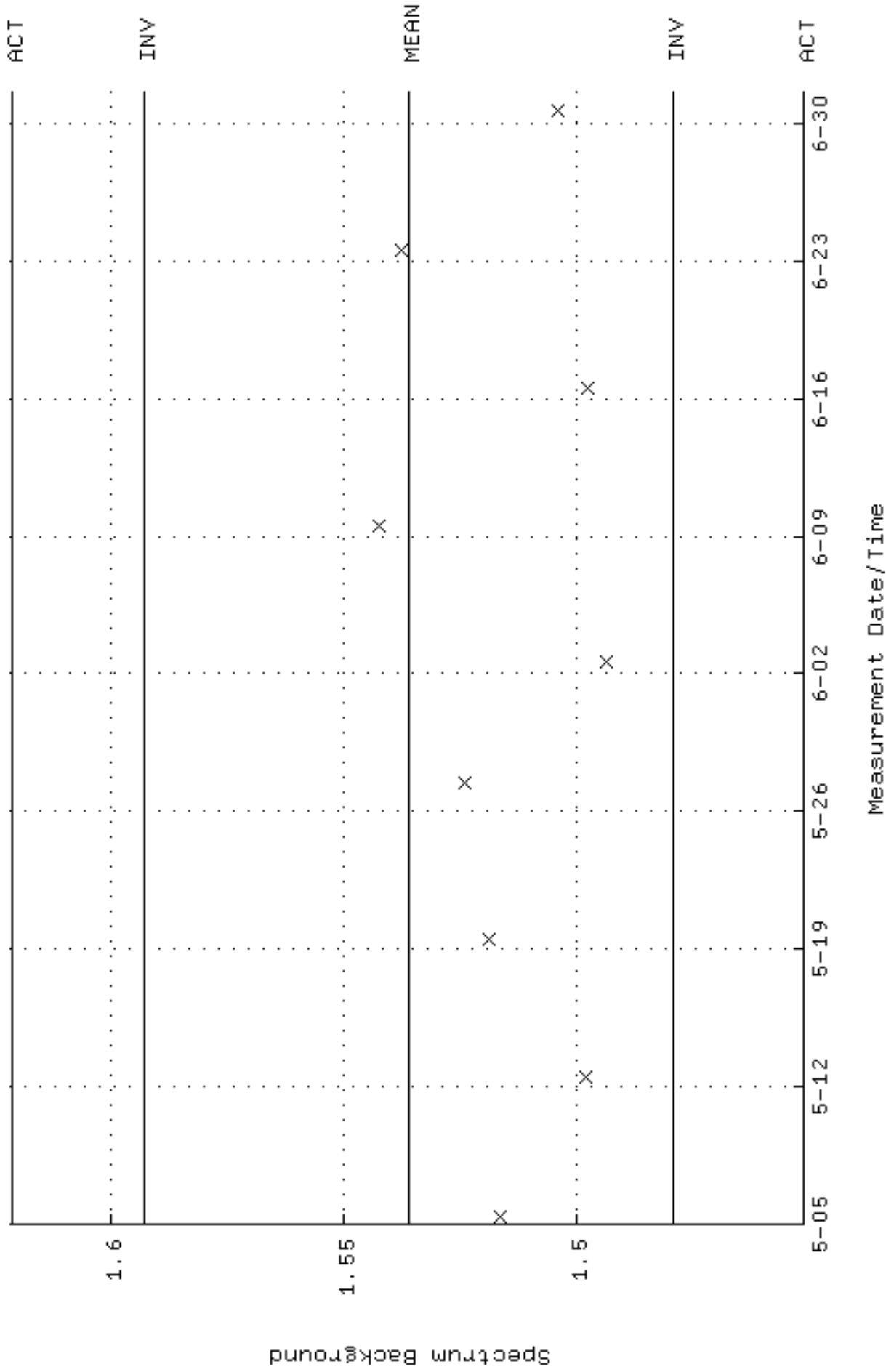
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM46_CAN.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:20:02 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.08306 +- 3.448753E-02 (3.18 %)



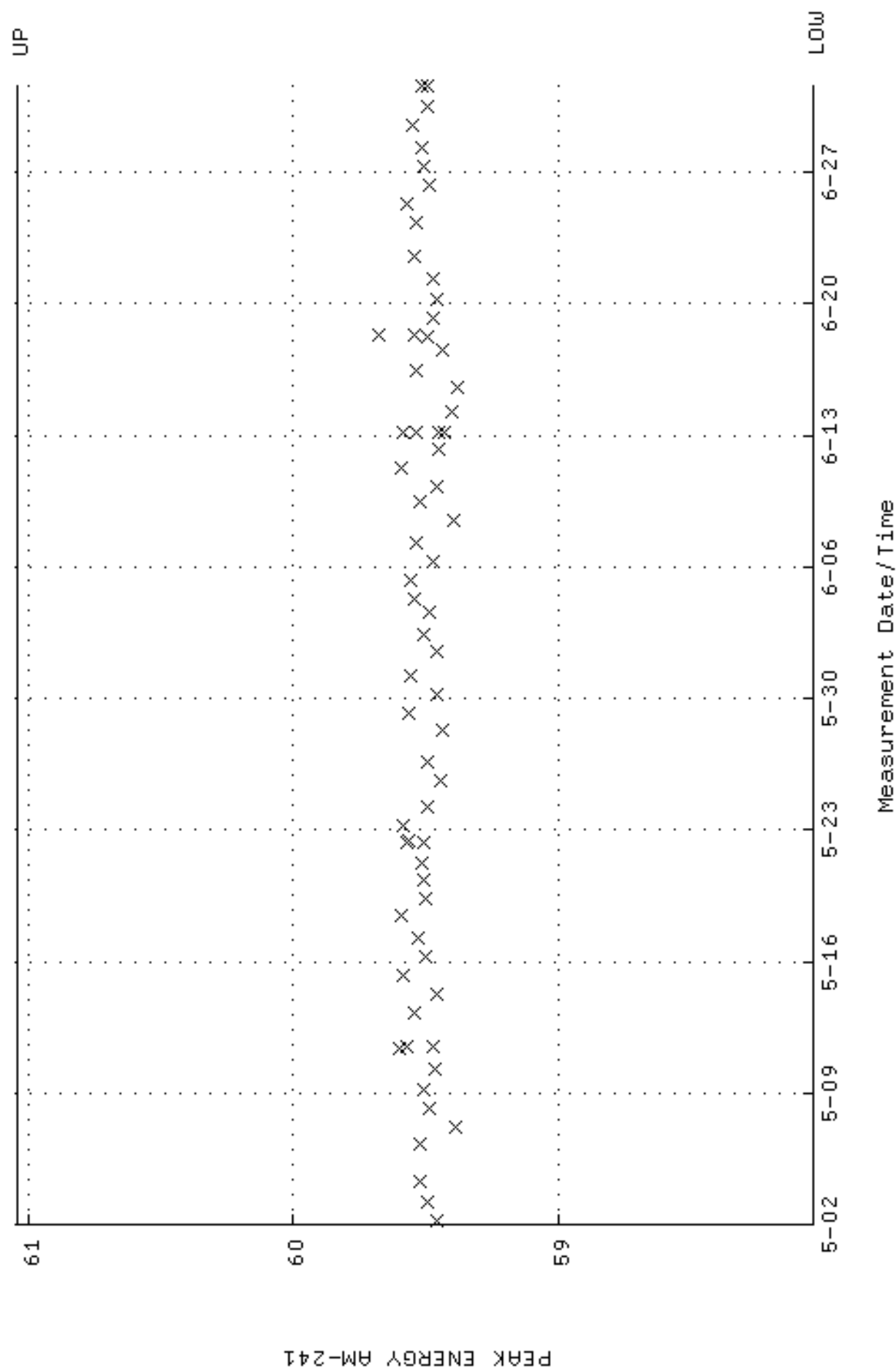
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM46-CAN.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 05:20:02 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 60029.4 +- 972.942 (1.62 %)



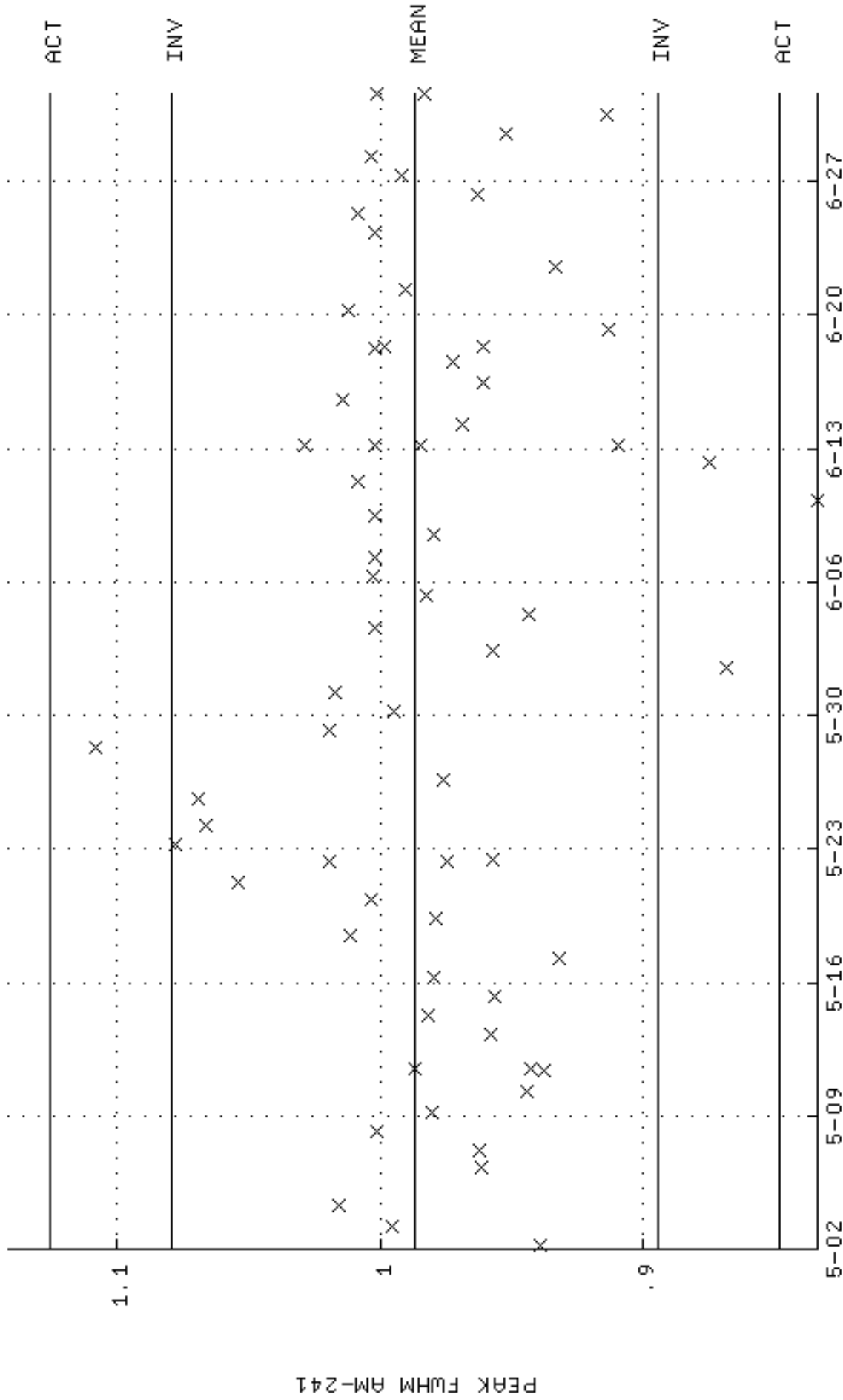
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM46.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:15:35 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.53619 +- 2.830773E-02 (1.84 %)



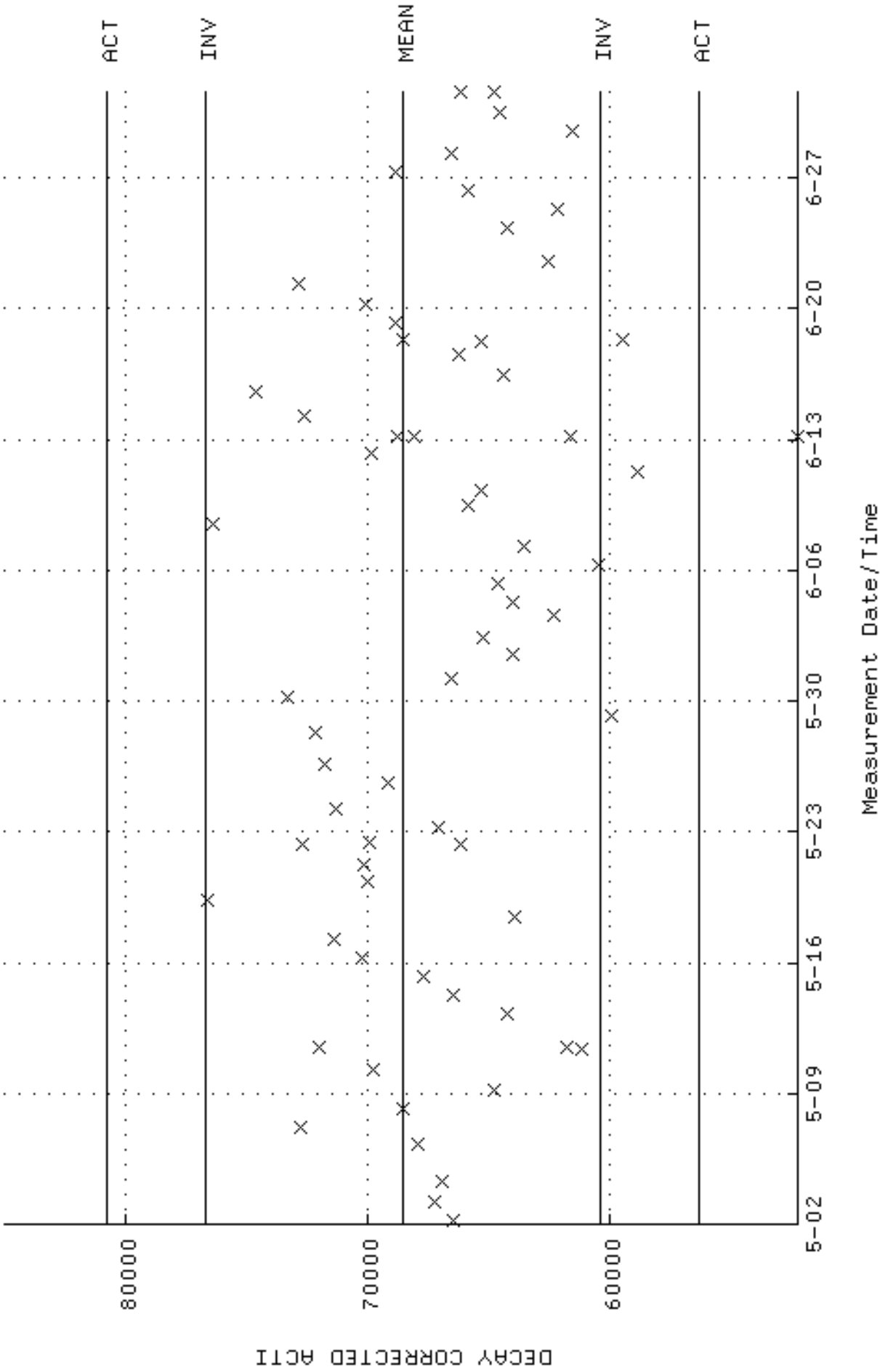
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM50_400JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 04:57:37 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



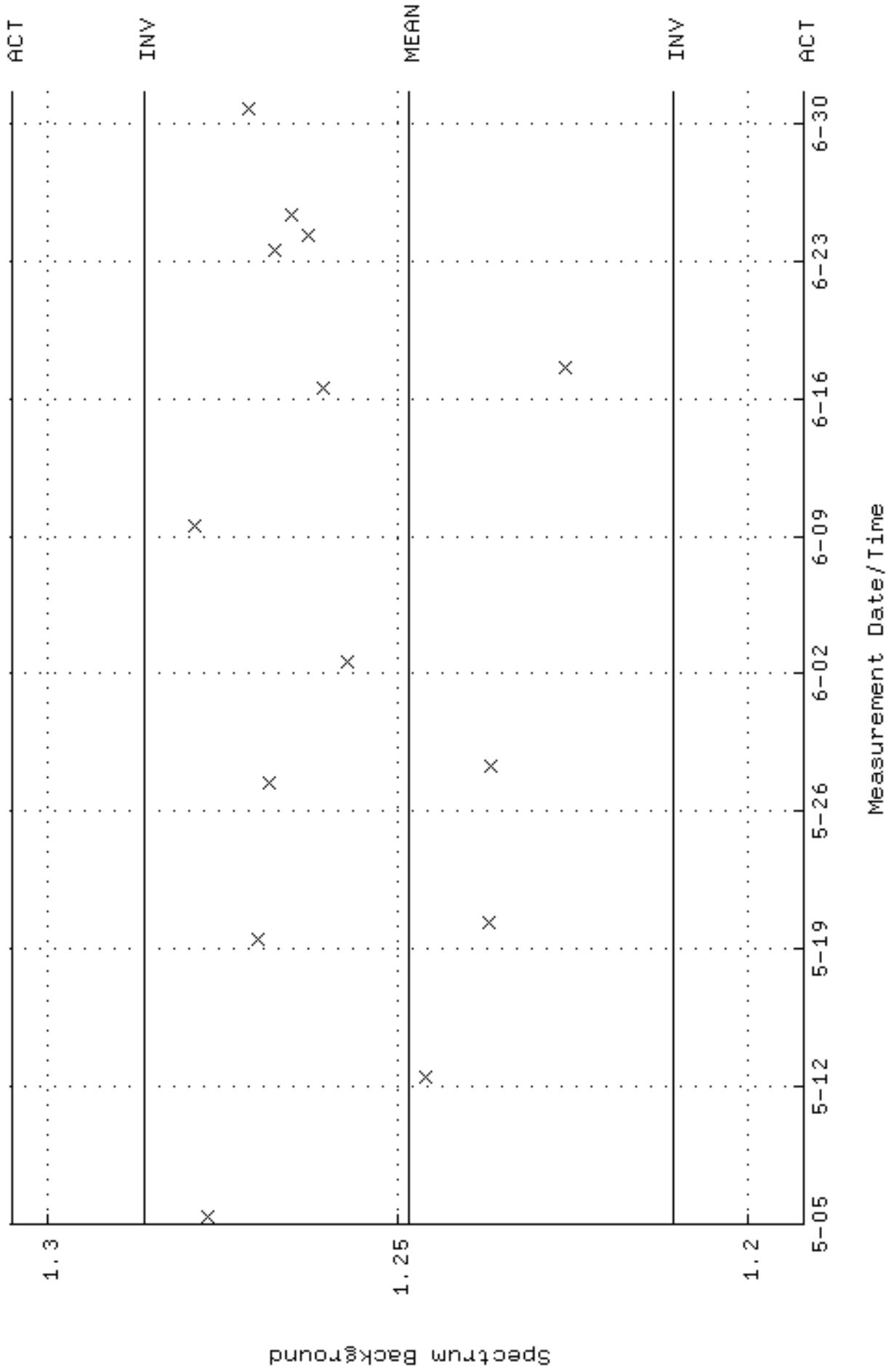
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM50_400JAR.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 04:57:37 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.987067 +- 4.609920E-02 (4.67 %)



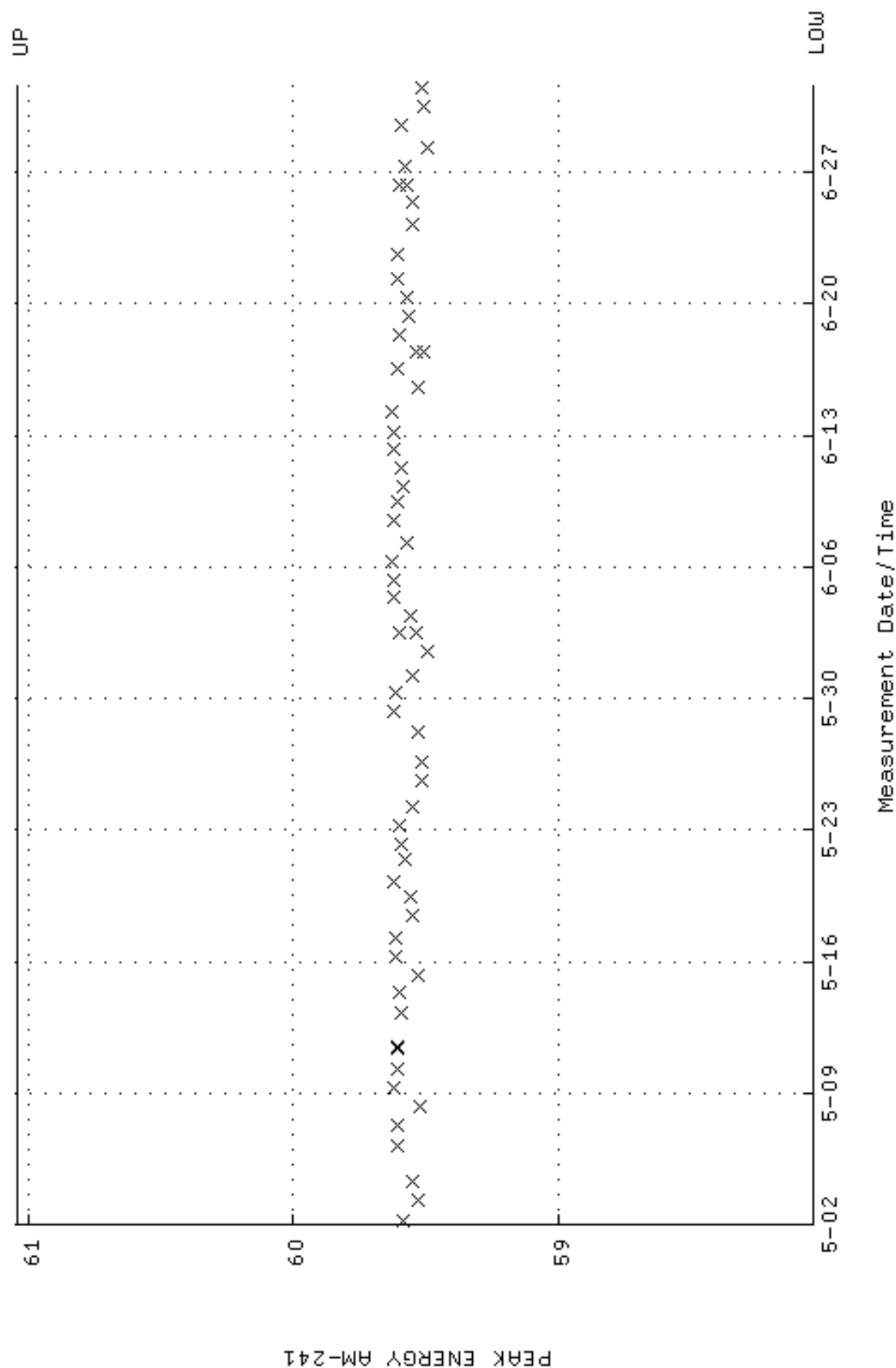
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM50_400JAR.QAF;1
Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
Start/End Dates : 2-MAY-2024 04:57:37 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 68610.4 +- 4085.11 (5.95 %)



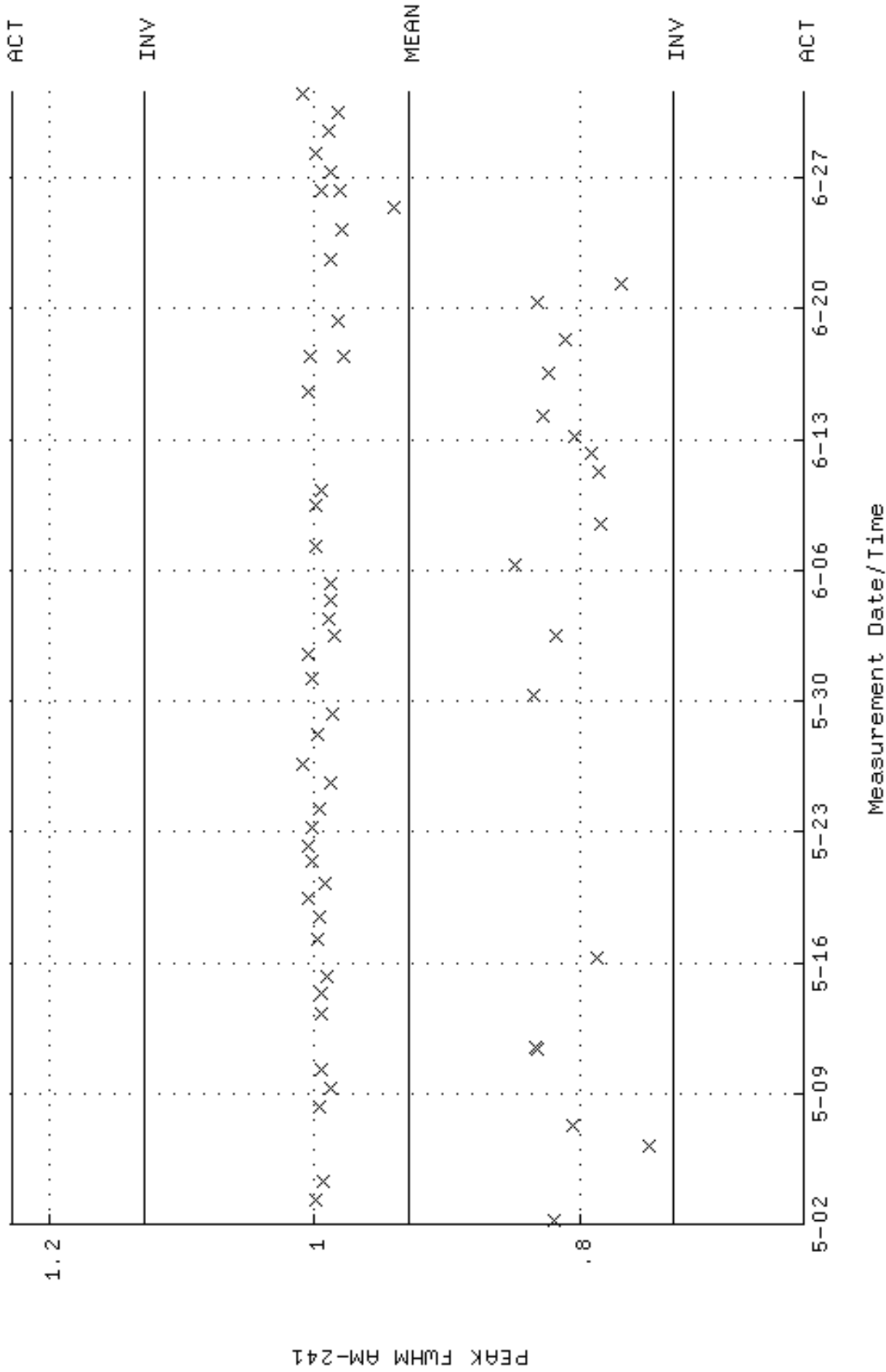
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM50.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:07:23 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.24858 +- 1.883305E-02 (1.51 %)



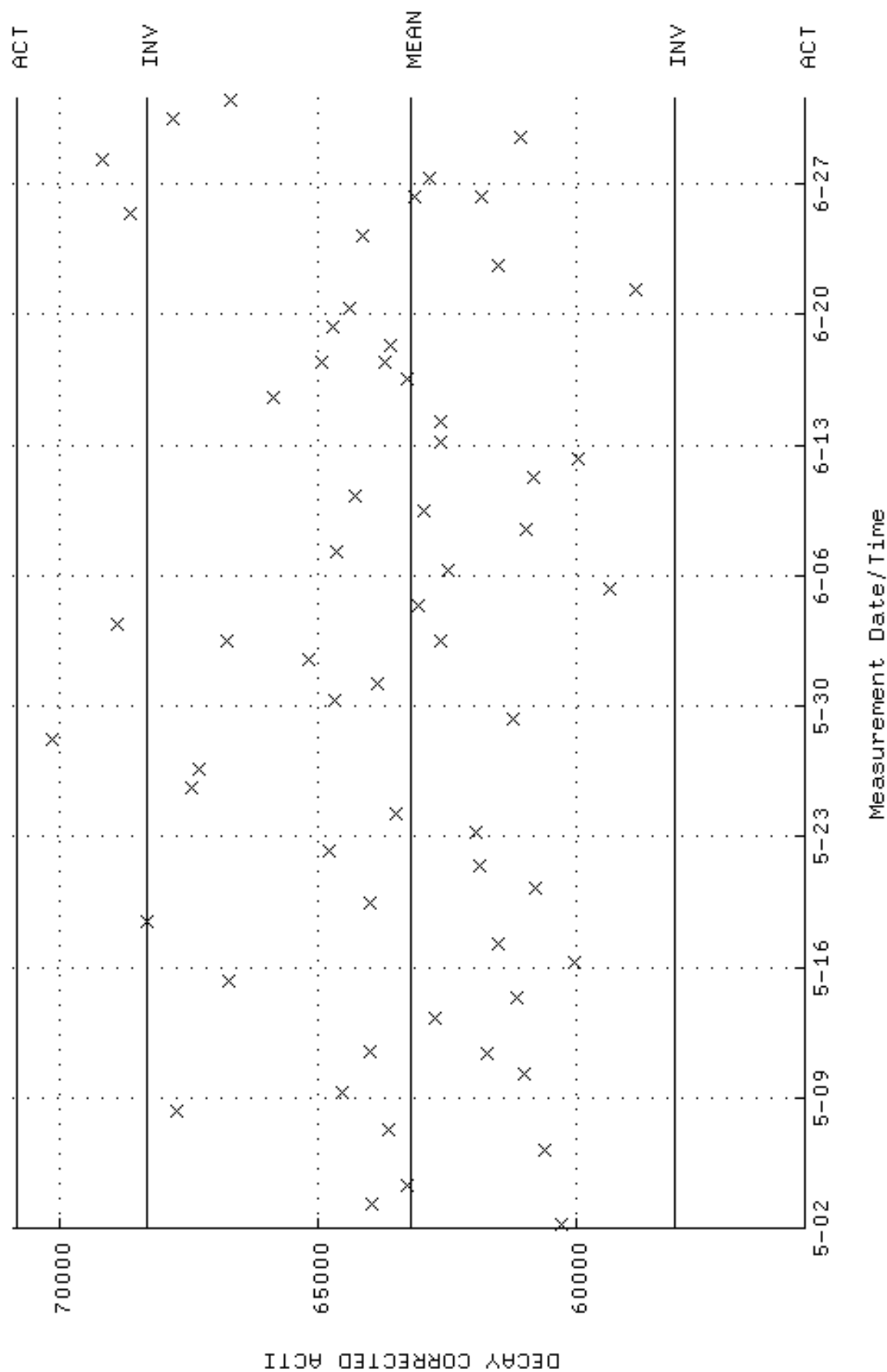
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM52_400JAR.QAF;1
 Parameter Name : PSENERGY-59 (PEAK ENERGY AM-241)
 Start/End Dates : 2-MAY-2024 05:20:07 through 1-JUL-2024 12:00:00
 Lower/Upper Lmts: 58.0400 through 61.0400



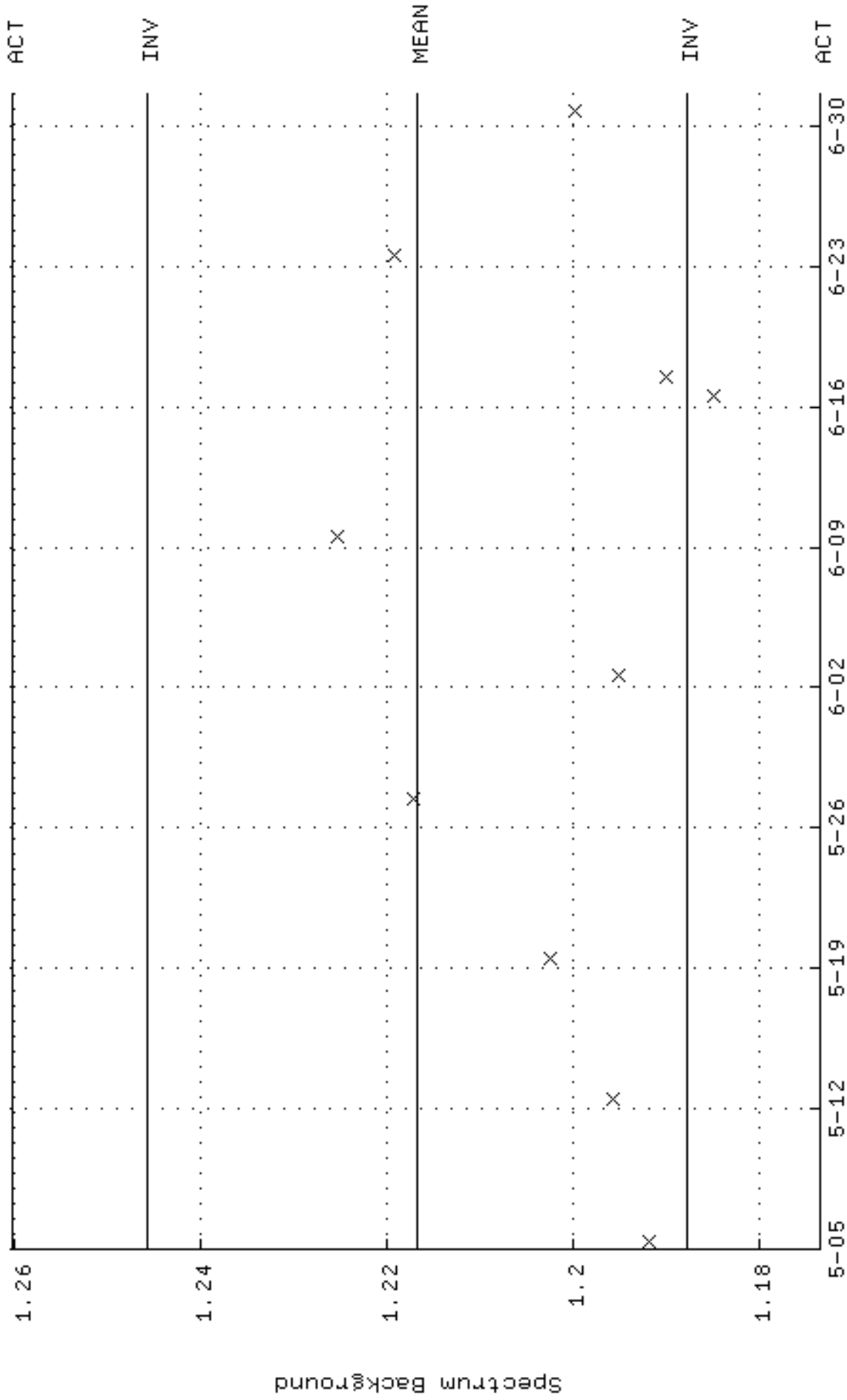
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM52_400JAR.QAF;1
Parameter Name : PSFUHM-59 (PEAK FUHM AM-241)
Start/End Dates : 2-MAY-2024 05:20:07 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 0.929940 +- 9.916964E-02 (10.66 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM52_400JAR.QAF;1
 Parameter Name : NLAIVITY-59 (DECAY CORRECTED ACTIVITY AM-241)
 Start/End Dates : 2-MAY-2024 05:20:07 through 1-JUL-2024 12:00:00
 Mean +- Std Dev : 63224.7 +- 2544.67 (4.02 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM52.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-MAY-2024 09:11:20 through 1-JUL-2024 12:00:00
Mean +- Std Dev : 1.21684 +- 1.447294E-02 (1.19 %)



RAD Standards Traceability

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

1556

84680-278

100 mL Solid in Aluminum Can

Customer: GEL Labs

P.O. No.: 489884RD, Item 3

Reference Date: 01-Apr-2011 12:00 PM EST **Grams of Master Source:** 0.0066498

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101. Density of solid matrix 1.15 g/cc.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* $\mu\text{ps/gram}$	This Source μps	Uncertainty, %			Calibration Method
					u_A	u_B	U	
Pb-210	46.5	8.120E+03	—	1.129E+03	0.1	2.1	4.1	4 π LS
Am-241	59.5	1.580E+05	—	7.538E+02	0.1	1.7	3.5	4 π LS
Cd-109	88.0	4.626E+02	1.659E+05	1.103E+03	0.6	2.3	4.8	HPGe
Co-57	122.1	2.718E+02	8.949E+04	5.951E+02	0.6	2.0	4.2	HPGe
Ce-139	165.9	1.376E+02	1.247E+05	8.292E+02	0.6	1.9	4.0	HPGe
Hg-203	279.2	4.661E+01	2.899E+05	1.928E+03	0.6	1.9	4.0	HPGe
Sn-113	391.7	1.151E+02	1.739E+05	1.156E+03	0.6	1.9	4.0	HPGe
Cs-137	661.7	1.098E+04	1.107E+05	7.361E+02	0.8	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	4.246E+05	2.824E+03	0.6	1.9	4.0	HPGe
Zn-65	1115.6	2.441E+02	—	1.445E+03	0.1	1.7	3.5	IC
Co-60	1173.2	1.925E+03	2.118E+05	1.408E+03	0.7	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.118E+05	1.408E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.495E+05	2.989E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4 π LS - 4 π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)



PC-S-060-101

This standard will expire one year after the reference date.

Source Prepared by: M. Williford
M. Williford, Radiochemist

QA Approved: J. D. McCorvey
J. D. McCorvey, QA Manager Alternate

Date: 6/27/11



Standard Logbook

Serial ID: 1556 Open/Reference Date: 01-APR-11 Aliquot : 1 mL
Name: Mixed Gamma LCS CAN Received: 01-APR-11 Density : Hand Calculated
Type: Source Material Expires: 01-APR-37 Lot Number : 84680-278
Employee: Maggie Stamps Verified: 14-JUL-11
Supplier: Eckert & Zeigler Analytics
Description: 84680-278
Comments: None

Analyte	Concentration	Analyte	Concentration
Americium-241	125983.3 dpm/mL	Cesium-137	51898.9 dpm/mL
Cobalt-60	84496.9 dpm/mL		

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result	Isotopic Abundance:
Pb-210	pCi/L	0.0425
Mixed Gamma N1	722900	1129
Mixed Gamma N2	752300	
Mixed Gamma N3	692100	

Mean Value (Counting) = 100.622 Pass
Stdev = Rule 3 (Pass/Fail)

Certificate Value = 717965.0 pCi/L
Lower Limit = 662227.9072 pCi/L
Upper Limit = 782638.7594 pCi/L
Rule 1 Pass/Fail Pass
Two sigma = 60205.42611
10 % of Mean = 72243.33333
Rule 2 (Pass/Fail) Pass

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

mg
7/20/11
H. Stamp
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Am-241	pCi/L
Mixed Gamma N1	58390
Mixed Gamma N2	60740
Mixed Gamma N3	57770

Isotopic Abundance:
Certificate Value (dps): 0.359
753.8

Mean Value (Counting) = 103.9074 Pass
Sidev = Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 Pass/Fail
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

58966.67	pCi/L
1566.727	pCi/L
56749.2	pCi/L
55833.21277	pCi/L
62100.12057	pCi/L
Pass	
3133.453898	
5896.666667	
Pass	

Verification Rules

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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

msgh
7/20/11
U.S. Stamp
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Cd-109	pCi/L
Mixed Gamma N1	818400
Mixed Gamma N2	798000
Mixed Gamma N3	764700

Isotopic Abundance:
Certificate Value (dps): 0.037
1103

Mean Value (Counting) = 793700.00 pCi/L 98.51091 Pass
Sidev = 27107.010 pCi/L Rule 3 (Pass/Fail)

Certificate Value = 805697.6 pCi/L
Lower Limit = 739485.9797 pCi/L
Upper Limit = 847914.0203 pCi/L
Rule 1 Pass/Fail Pass
Two sigma = 54214.02033
10 % of Mean = 79370
Rule 2 (Pass/Fail) Pass

Verification Rules

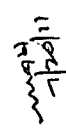
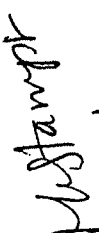
- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

WCH
7/20/11

Stamp
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton 7/14/2011	Isotope	Result	Isotopic Abundance: Certificate Value (dps):	0.856 595.1
	Co-57	pCi/L		
	Mixed Gamma N1	19090		
	Mixed Gamma N2	18820		
	Mixed Gamma N3	18830		
Mean Value (Counting) =		pCi/L	100.6592	Pass
Stdev =		pCi/L		Rule 3 (Pass/Fail)
Certificate Value =		pCi/L		
Lower Limit =		pCi/L		
Upper Limit =		pCi/L		
Rule 1 Pass/Fail				
Two sigma =				
10 % of Mean =				
Rule 2 (Pass/Fail)				



 7/20/11

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result	Isotopic Abundance:
Ce-139	pCi/L	0.8
Mixed Gamma N1	28740	829.2
Mixed Gamma N2	29410	
Mixed Gamma N3	27560	

Mean Value (Counting) = 101.9865 Pass
Stdev = Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 Pass/Fail
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

7/20/11

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Stamp
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result	
Hg-203	pCi/L	
Mixed Gamma N1	66300	Isotopic Abundance:
Mixed Gamma N2	68180	Certificate Value (dps):
Mixed Gamma N3	64480	0.8156
		1928

Mean Value (Counting) = 103.8046 Pass
Stdev = Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 Pass/Fail
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

66320.00	pCi/L
1850.081	pCi/L
63889.3	pCi/L
62619.83784	pCi/L
70020.16216	pCi/L
Pass	
3700.162159	
6632	
Pass	

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

might
7/20/11

W. Stanev
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Sn-113	pCi/L
Mixed Gamma N1	49560
Mixed Gamma N2	49620
Mixed Gamma N3	48300

Isotopic Abundance:
Certificate Value (dps): 0.6497
1156

Mean Value (Counting) = 49160.00
Sidev = 745.386

102.2277

Pass
Rule 3 (Pass/Fail)

Certificate Value = 48088.7
Lower Limit = 47669.22839
Upper Limit = 50650.77161

Rule 1 Pass/Fail Pass
Two sigma = 1490.771612
10 % of Mean = 4916
Rule 2 (Pass/Fail) Pass

Verification Rules

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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

7/20/11
7/20/11
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result	Isotopic Abundance:
Cs-137	pCi/L	
Mixed Gamma N1	23710	0.851
Mixed Gamma N2	23950	736.1
Mixed Gamma N3	24040	

Mean Value (Counting) = 102.2333 Pass
Sidev = pCi/L Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit = 23377.9
Upper Limit = 23558.82556
Rule 1 Pass/Fail 24241.17444
Two sigma = Fail
10 % of Mean = 341.1744422
Rule 2 (Pass/Fail) 2390 Pass

*exception taken due to full recovery of standard

7/20/11

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope
Y-88 (898)
Mixed Gamma N1
Mixed Gamma N2
Mixed Gamma N3

Result
pCi/L
82690
81320
80940

Isotopic Abundance:
Certificate Value (dps):
0.937
2824

Mean Value (Counting) = 81650.00
Sidev = 920.489

100.2381

Pass
Rule 3 (Pass/Fail)

Certificate Value = 81456.1
Lower Limit = 79809.022
Upper Limit = 83490.978

Rule 1 Pass/Fail
Two sigma = 1840.978001
10 % of Mean = 8165
Rule 2 (Pass/Fail) Pass

Verification Rules

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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

7/20/11

7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Co-60 (1173)	pCi/L
Mixed Gamma N1	38910
Mixed Gamma N2	39750
Mixed Gamma N3	38840

Isotopic Abundance:
Certificate Value (dps):
0.9985
1408

Mean Value (Counting) =
Stdev =

102.7694 Pass
Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 Pass/Fail
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

39166.67
506.392

38111.2
38153.88173
40179.45161
Fail
1012.784939
3916.666667
Pass

*exception taken due to full recovery of standard

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

msgr
7/20/11

Stamp
7/20/11

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Co-60 (1332.50)	pCi/L
Mixed Gamma N1	38940
Mixed Gamma N2	40200
Mixed Gamma N3	39150

Isotopic Abundance:
Certificate Value (dps):
0.9998
1408

Mean Value (Counting) =
Stdev =

103.595
Pass
Rule 3 (Pass/Fail)

Certificate Value =
Lower Limit =
Upper Limit =
Rule 1 Pass/Fail
Two sigma =
10 % of Mean =
Rule 2 (Pass/Fail)

38061.7
38079.88889
40780.11111
Fail
1350.111107
3943
Pass

*exception taken due to full recovery of standard

7/20/11
1556 stamp

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1556 CAN

Michael Hilton
7/14/2011

Isotope	Result
Y-88 (1836.1)	pCi/L
Mixed Gamma N1	82870
Mixed Gamma N2	83080
Mixed Gamma N3	84640

Isotopic Abundance:
Certificate Value (dps):

0.992
2989

Mean Value (Counting) = 83530.00 pCi/L 102.5723 Pass
 Stdev = 967.006 pCi/L Rule 3 (Pass/Fail)

Certificate Value = 81435.3 pCi/L
 Lower Limit = 81595.98862 pCi/L
 Upper Limit = 85464.01138 pCi/L
 Rule 1 Pass/Fail Fail
 Two sigma = 1934.011375
 10 % of Mean = 8353
 Rule 2 (Pass/Fail) Pass

*exception taken due to full recovery of standard

mg
7/20/11

W. Stamp
7/20/11

Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
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- Rule 3 = The determined mean value shall be within 5% of the certificate value.

Standard Logbook

Serial ID: 1556 **Open/Reference Date:** 01-APR-11 **Aliquot :** 1 mL
Name: Mixed Gamma LCS CAN **Received:** 01-APR-11 **Density :** Hand Calculated
Type: Source Material **Expires:** 01-APR-37 **Lot Number :** 84680-278
Employee: Maggie Stamps **Verified:** 14-JUL-11
Supplier: Eckert & Zeigler Analytics
Description: 84680-278
Comments: None

Analyte	Concentration	Analyte	Concentration
Americium-241	125983.3 dpm/mL	Cesium-137	51898.9 dpm/mL
Cobalt-60	84496.9 dpm/mL		

Runlogs

Instrument Run Log

Instrument Type: GAMMA SPECTROMETER

Batch ID: 2636542

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
674299001	SAMPLE	RXF2	GAM07	JUL-30-24 11:13:06	DONE CAN		23-JUL-24 00:00
674299002	SAMPLE	RXF2	GAM08	JUL-30-24 11:13:34	DONE CAN		13-FEB-24 00:00
674299003	SAMPLE	RXF2	GAM10	JUL-30-24 11:14:02	DONE CAN		14-JUN-24 00:00
674299004	SAMPLE	RXF2	GAM12	JUL-30-24 11:14:26	DONE CAN		11-OCT-23 00:00
674299005	SAMPLE	RXF2	GAM16	JUL-30-24 11:14:57	DONE CAN		14-NOV-23 00:00
674299006	SAMPLE	RXF2	GAM19	JUL-30-24 11:15:37	DONE CAN		04-DEC-23 00:00
674299007	SAMPLE	RXF2	GAM20	JUL-30-24 11:16:04	DONE CAN		19-JUN-24 00:00
674299008	SAMPLE	RXF2	GAM21	JUL-30-24 11:16:32	DONE CAN		08-JUL-24 00:00
674299009	SAMPLE	RXF2	GAM22	JUL-30-24 11:17:17	DONE CAN		25-JAN-24 00:00
674299010	SAMPLE	RXF2	GAM23	JUL-30-24 11:17:40	DONE CAN		06-SEP-23 00:00
674299011	SAMPLE	RXF2	GAM24	JUL-30-24 11:18:49	DONE CAN		24-JUN-24 00:00
674299012	SAMPLE	RXF2	GAM27	JUL-30-24 11:19:15	DONE CAN		09-JUL-24 00:00
674299013	SAMPLE	RXF2	GAM28	JUL-30-24 11:19:43	DONE CAN		19-MAR-24 00:00
674299014	SAMPLE	RXF2	GAM30	JUL-30-24 11:20:20	DONE CAN		21-MAY-24 00:00
674299015	SAMPLE	RXF2	GAM40	JUL-30-24 11:20:47	DONE CAN		31-OCT-23 00:00
674299016	SAMPLE	RXF2	GAM46	JUL-30-24 11:21:37	DONE CAN		26-SEP-23 00:00
674299017	SAMPLE	RXF2	GAM50	JUL-30-24 11:22:06	DONE CAN		09-JUL-24 00:00
674299018	SAMPLE	RXF2	GAM52	JUL-30-24 11:22:31	DONE CAN		01-SEP-23 00:00
674299019	SAMPLE	RXF2	GAM05	JUL-30-24 13:37:44	DONE CAN		16-AUG-23 00:00
674299020	SAMPLE	RXF2	GAM06	JUL-30-24 13:38:07	DONE CAN		25-SEP-23 00:00
1205781343	MB	RXF2	GAM07	JUL-30-24 13:38:47	DONE CAN		23-JUL-24 00:00
1205781344	DUP	RXF2	GAM08	JUL-30-24 13:39:20	DONE CAN		13-FEB-24 00:00
1205781345	LCS	RXF2	GAM10	JUL-30-24 13:39:53	DONE CAN		14-JUN-24 00:00

Instrument Run Log

Instrument Type: GAMMA SPECTROMETER

Batch ID: 2636543

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
674299021	SAMPLE	MXR1	GAM22	JUL-31-24 14:30:48	DONE CAN		25-JAN-24 00:00
674299022	SAMPLE	MXR1	GAM01	JUL-31-24 15:04:33	DONE CAN		05-JUN-24 00:00
674299023	SAMPLE	MXR1	GAM02	JUL-31-24 15:04:59	DONE CAN		13-SEP-23 00:00
674299024	SAMPLE	MXR1	GAM04	JUL-31-24 16:09:00	DONE CAN		13-DEC-23 00:00
674299025	SAMPLE	MXR1	GAM05	JUL-31-24 16:09:27	DUSE CAN		16-AUG-23 00:00
674299026	SAMPLE	MXR1	GAM06	JUL-31-24 16:09:56	DONE CAN		25-SEP-23 00:00
674299027	SAMPLE	MXR1	GAM08	JUL-31-24 16:10:20	DONE CAN		13-FEB-24 00:00
674299028	SAMPLE	MXR1	GAM10	JUL-31-24 16:10:48	DONE CAN		14-JUN-24 00:00
674299029	SAMPLE	MXR1	GAM12	JUL-31-24 16:11:11	DONE CAN		11-OCT-23 00:00
674299030	SAMPLE	MXR1	GAM16	JUL-31-24 16:11:34	DONE CAN		14-NOV-23 00:00
674299031	SAMPLE	MXR1	GAM18	JUL-31-24 16:12:14	DONE CAN		11-JUN-24 00:00
674299032	SAMPLE	MXR1	GAM19	JUL-31-24 16:12:36	DONE CAN		04-DEC-23 00:00
674299033	SAMPLE	MXR1	GAM20	JUL-31-24 16:12:58	DONE CAN		19-JUN-24 00:00
674299034	SAMPLE	MXR1	GAM21	JUL-31-24 16:13:25	DONE CAN		08-JUL-24 00:00
674299035	SAMPLE	MXR1	GAM22	JUL-31-24 16:13:52	DONE CAN		25-JAN-24 00:00
674299036	SAMPLE	MXR1	GAM23	JUL-31-24 16:14:14	DONE CAN		06-SEP-23 00:00
674299037	SAMPLE	MXR1	GAM24	JUL-31-24 16:14:36	DONE CAN		24-JUN-24 00:00
1205781346	MB	MXR1	GAM27	JUL-31-24 16:15:08	DONE CAN		09-JUL-24 00:00
1205781347	DUP	MXR1	GAM28	JUL-31-24 16:15:47	DONE CAN		19-MAR-24 00:00
1205781348	LCS	MXR1	GAM30	JUL-31-24 16:16:29	DUSE CAN		21-MAY-24 00:00
674299025	SAMPLE	MXR1	GAM06	AUG-01-24 10:04:51	DONE CAN		25-SEP-23 00:00
1205781348	LCS	MXR1	GAM07	AUG-01-24 10:05:23	DONE CAN		23-JUL-24 00:00