DRAFT FINAL

PRELIMINARY ASSESSMENT AND SITE INSPECTION REPORT OF STORM AND SANITARY SEWER LINES ASSOCIATED WITH BUILDING 104

GRIFFISS AIR FORCE BASE, ROME, NEW YORK

Prepared for



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Prepared by:



AUSTIN, TX



October 2005

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Prepared by

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EXECUTIVE SUMMARY

In April 2005 at the former Griffiss Air Force Base in Rome, New York, a radiological characterization and preliminary assessment/site inspection (PA/SI) was performed within sanitary and storm sewers associated with a former radium paint shop (Building 104). The characterization and PA/SI was completed in preparation for the transfer of the sewer lines from Air Force to City of Rome supervision. A previous Air Force investigation within Building 104 indicated the presence of residual radioactive contamination at several locations inside the building near sinks and drains. To further address this residual contamination, an investigation of the sanitary and storm sewers was conducted. The data quality objectives for this characterization survey were established using the process outlined in Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Field alpha, beta, and gamma measurements, material sampling, and smear sampling were performed at access points for each sewer system (i.e., manholes) to determine if radium contamination was present. A visual inspection was also performed on each system using a robotic camera. A background study consisting of measurements at non-impacted sanitary and storm sewers from parallel runs beginning upstream of the potentially impacted sewers was performed.

The characterization survey and PA/SI indicated that the alpha, beta, and gamma radiation measurements at the potentially impacted sewer lines were generally within the range of background measurements. The influence of naturally-occurring radon and radon progeny was seen in both alpha and beta measurements from the background and potentially impacted sanitary sewer lines, and to a lesser degree in the storm sewer lines. Smear sampling did not indicate the presence of any removable contamination. Collected material samples (i.e., sediment from the sewer lines) were analyzed by gamma spectroscopy and/or alpha spectroscopy for Ra-226; analytical results did not indicate the presence of contamination. Based on the results of the characterization survey and PA/SI, it is concluded that the storm and sanitary sewer lines and the surrounding soils, surface water, and groundwater have not been impacted by radium painting activities at Building 104.

TABLE OF CONTENTS

EXECUT	IVE SUM	MARY ES-1
LIST OF	TABLES	
LIST OF	FIGURES	iv
LIST OF	APPENDI	CESii
ACRONY	MS AND	ABBREVIATIONSv
SECTION	1 INTR	ODUCTION1-1
SECTION	2 SITE	DESCRIPTION AND HISTORY
SECTION	3 SURV	EY PROCEDURE
3.1	Data Qual	ity Objectives
3.2	Field Mea	surements
	3.2.1	Alpha Measurements
	3.2.2	Beta Measurements
	3.2.3	Gamma Measurements
	3.2.4	Contamination Monitoring
3.3	Samples	
	3.3.1	Material Samples
	3.3.2	Smear Samples
3.4	Visual Ins	pection
3.5	Data Evalu	uation
3.6	Health and	1 Safety
SECTION	4 RESU	LTS AND ASSESSMENT OF POTENTIAL IMPACTS 4-1
4.1	Backgrour	nd Study Area4-1
	4.1.1	Field Measurements
	4.1.2	Material Sampling
	4.1.3	Smear Sampling
4.2	Storm Sew	ver
	4.2.1	Field Measurements
	4.2.2	Material Sampling Results
	4.2.3	Smear Sampling Results
	4.2.4	Visual Inspection
4.3	Sanitary S	ewer
	4.3.1	Field Measurements
	4.3.2	Material Sampling Results
	4.3.3	Smear Sampling Results

	4.3.4	Visual Insp	pection	
4.4	Data Qual	ity Assessm	ent	
	4.4.1	General Pr	ovisions	
		4.4.1.1	Quality Assurance Records	
		4.4.1.2	Selection of Personnel	
		4.4.1.3	Training	
		4.4.1.4	Written Procedures	
		4.4.1.5	Instrumentation Selection, Calibration, and Operation	
		4.4.1.6	Survey Documentation	
		4.4.1.7	Independent Review of Survey Results	
		4.4.1.8	Chain of Custody	
		4.4.1.9	Sample Analysis	
	4.4.2	Number of	Samples and Measurements	
		4.4.2.1	Background Areas	
		4.4.2.2	Sanitary Sewer System	
SECTION	N 5 ASSE	SSMENT (OF POTENTIAL IMPACTS	5-1
5.1	Soils	•••••		
5.2	Surface W	'ater		
5.3	Groundwa	ıter		
5.4	Impact on	Human Hea	alth	
SECTION	N 6 REFE	RENCES.		6-1

LIST OF APPENDICES

Appendix A	Photo Log
Appendix B	Completed Data Packages
Appendix C	Analytical Data and Quality Control

Appendix D Visual Sewer Inspection (with DVD)

LIST OF TABLES

Table 3-1	Acceptable Surface Contamination Levels ^{a/}	
	Griffiss AFB, New York	
Table 4-1	Alpha Field Measurements Background Storm and	
	Sanitary Sewers Griffiss AFB, New York	
Table 4-2	Beta Field Measurements Background Storm and	
	Sanitary Sewers Griffiss AFB, New York	
Table 4-3	Contact Gamma Field Measurements Background Storm	
	and Sanitary Sewers Griffiss AFB, New York	4-4
Table 4-4	One-Meter Gamma Field Measurements Background Storm	
	and Sanitary Sewers Griffiss AFB, New York	4-4
Table 4-5	Alpha Spectroscopy Ra-226 Results Background Storm	
	and Sanitary Sewers Griffiss AFB, New York	
Table 4-6	Removable Alpha and Beta Results Background Storm	
	and Sanitary Sewers Griffiss AFB, New York	
Table 4-7	Alpha and Beta Field Measurements Impacted Storm	
	Sewer Griffiss AFB, New York	4-7
Table 4-8	Contact Gamma Field Measurements Impacted Storm Sewer	
	Griffiss AFB, New York	
Table 4-9	One Meter Gamma Field Measurements Impacted Storm	
	Sewer Griffiss AFB, New York	
Table 4-10 Al	pha Spectroscopy Ra-226 Results Impacted Storm Sewer	
	Griffiss AFB, New York	
Table 4-11	Removable Alpha and Beta Results Impacted Storm Sewer	
	Griffiss AFB, New York	
Table 4-12	Alpha and Beta Field Measurements Impacted Sanitary Sewer	
	Griffiss AFB, New York	
Table 4-13	Contact Gamma Field Measurements Impacted Sanitary Sewer	
	Griffiss AFB, New York	
Table 4-14	One Meter Gamma Field Measurements Impacted Sanitary	
	Sewer Griffiss AFB, New York	4-14
Table 4-15	Alpha Spectroscopy Ra-226 Results Impacted Sanitary Sewer	
	Griffiss AFB, New York	4-14
Table 4-16	Removable Alpha and Beta Results Impacted Sanitary Sewer	
	Griffiss AFB, New York	
Table 4-17	Number of Measurements and Samples Background Storm	
	and Sanitary Sewers Griffiss AFB, New York	4-18
Table 4-18	Number of Measurements and Samples Impacted Storm	
	Sewer Griffiss AFB, New York	
Table 4-19	Number of Measurements and Samples Impacted Sanitary	
	Sewer Griffiss AFB, New York	

LIST OF FIGURES

Figure 4-1	Approximate Background Storm Sewer Sampling Locations	4-2
Figure 4-2	Approximate Background Sanitary Sewer Sampling Locations	4-2
Figure 4-3	Storm Sewer Sampling Locations	4-7
Figure 4-4	Sanitary Sewer Sampling Locations4	1-12

ACRONYMS AND ABBREVIATIONS

- AFB Air Force Base
- AFI Air Force Instruction
- AFIOH Air Force Institute for Operational Health

AFIOH/SDRO Air Force Institute for Operational Health, Occupational Health

Physics Branch

- BRAC Base Realignment and Closure
 - CHP Certified Health Physicist
- DQO Data Quality Objective

EPA Environmental Protection Agency

Framatome Framatome ANP, Inc.

GM Geiger-Mueller

- HASP Health and Safety Plan
- MBC Material Background Correction
- MDC minimum detectable concentration

mrem/yr millirem per year

- MSA master services agreement
- NaI sodium iodide
- NPL National Priority List
- NRC Nuclear Regulatory Commission

Parsons Parsons Engineering Science, Inc.

PA/SI preliminary assessment/ site inspection

- pCi/g picocuries per gram
- QA/QC Quality Assurance/ Quality Control

Ra-226 radium-226

- RRS Rome Research Site
- SAP Sample and Analysis Plan
- SDMS Survey Data Management System
- SOP standard operating procedure
- TEDE total effective dose equivalent
- USAF United States Air Force
- VOCs volatile organic compounds
 - ZnS Zinc sulfide

SECTION 1 INTRODUCTION

Parsons Engineering Science, Inc. (Parsons) was contracted by the Air Force Institute for Operational Health (AFIOH) to perform a radiological characterization survey and preliminary assessment/site inspection (PA/SI) within the sanitary and storm sewer systems associated with a former radium paint shop, Building 104, on the former Griffiss Air Force Base (AFB), New York. The purpose of this effort was to survey the sanitary and storm sewer systems associated with Building 104 to determine if the systems have been impacted by radioactive contamination from previous site activities.

To assist in this effort, Parsons requested the services of Framatome ANP, Inc., (Framatome) as a Subcontractor to meet Parsons' scope of work under the delivery order from AFIOH. Framatome and Parsons developed the Sample and Analysis Plan (SAP; Parsons/Framatome, 2005) that was followed in performing the PA/SI survey within the sanitary and storm sewer systems associated with Building 104 in April, 2005.

The remainder of this report is organized as follows. Section 2 presents the known history and status of the sewer systems. Section 3 presents the methodologies used to perform the PA/SI survey within the sewer systems. The results of the survey are detailed in Section 4. Finally, Section 5 discusses the potential impacts to soil, surface water, groundwater, and human health.

SECTION 2 SITE DESCRIPTION AND HISTORY

The former Griffiss AFB is located in Rome, New York, in the Mohawk Valley near the Mohawk River, Six Mile Creek, and the New York State Barge Canal. Construction of Griffiss AFB began in 1941 and encompasses 3,552 acres of land. Griffiss AFB was home to the 416th Combat Support Group under the Air Combat Command until the base was designated for realignment under the Base Realignment and Closure Act (BRAC) in 1993 and 1995. Portions of the former Griffiss AFB are currently utilized as the Rome Research Site (RRS).

The former Griffiss AFB is on the Environmental Protection Agency (EPA) National Priority List (NPL) due to the use, handling, and on-site disposal of hazardous substances from operations at the base. According to the EPA Region 2 Fact Sheet (EPA, 2003), various wastes, including solvents and lead from battery acids, were generated from research and development activities and were disposed of in landfills and dry wells located throughout the base. Subsequently volatile organic compounds (VOCs) were detected in groundwater on the base. An Interagency Agreement among the EPA, New York State, and Griffiss AFB to clean up the site was signed in June 1990, and remedial activities at the base are currently ongoing. In conjunction with the cleanups, portions of the base property may be transferred prior to completion of cleanup activities. One potential transfer involves the sanitary and storm sewer systems and associated easements to the City of Rome. To facilitate this transfer and to determine if special precautions are required during intrusive maintenance of these utilities, the radiological characterization and PA/SI presented in this report was conducted.

Building 104 at Griffiss AFB was built in 1941 as the Research and Development Laboratory where, based on historical records, radium was used to conduct instrument repair and luminous painting operations. Currently Building 104 houses the Air Force Research Laboratory as part of the RRS.

In 2003, radiological surveys were performed in Building 104 by the AFIOH Occupational Health Physics Branch (AFIOH/SDRO). The AFIOH/SDRO investigation found low levels of radioactive contamination at several locations in Room 25 (the former luminous painting unit), Room 26 (the former cleaning and spray painting units), and on an exhaust fan in the mezzanine above these two rooms. These results are documented in the Memorandum for Air Force Research Laboratory, Subject: *Consultative Letter, IOH-SD-BR-CL-2004-0004, Radium/Radon Monitoring and Dose Assessment Due to Past Luminous Paint Operations at Rome Research Site, Rome, NY, (Former Griffiss Air Force Base)* (AFIOH/SDRO, 2004; AFIOH Memorandum). The AFIOH Memorandum presents details of the investigation and calculated dose levels for certain areas of Building 104. The AFIOH Memorandum indicates that, with the exception of the exhaust fan, the residual radioactivity was identified at floor locations with the maximum measurement occurring over a former floor drain in Room 26. As a result of these areas of residual radioactivity, the AFIOH Memorandum recommended

that the sanitary and storm sewer systems downstream of Building 104 should be considered to be contaminated until proven otherwise.

The sewer systems associated with Building 104 consist of a sanitary sewer and a storm sewer, which are both currently active. Lavatories in Building 104 feed into the sanitary sewer, which runs approximately 2,000 feet to a lift station (Building 21). The sanitary drainage from Building 104 ties into a 10" pipe east of the building, and runs south, opening into a 15" pipe before arriving at Building 21. The pumps, piping, and appurtenances for Building 21 were completely replaced in 1991. The AFIOH Memorandum indicates that the floor drains and utility sinks in Rooms 25 and 26 feed into the storm sewer system, in addition to roof drains and storm drains. The storm drainage leaving Building 104 ties into a 6" pipe to the west of the building. This line runs south and opens to a 10" line which runs southeast. The 10" line ties into a 36" main, which runs south parallel to the sanitary sewer. This pipe opens to 48" and runs to daylight at the headwaters of Three Mile Creek. The storm sewer system associated with Building 104 consists of approximately 3,000 feet of pipe. Diagrams of the sampling locations along the two impacted sewer lines are presented in Section 4.

During the 2003 AFIOH study, exposure rate measurements apparently exceeding background were collected from manholes within 100 feet of Building 104. However, background within the sewer systems was not well-defined. No other radiological surveys of the sanitary and storm sewer systems have been completed.

SECTION 3 SURVEY PROCEDURE

The procedure described in this section is based on the procedure presented in the SAP (Parsons/Framatome, 2005).

3.1 DATA QUALITY OBJECTIVES

Per MARSSIM (NRC, 2000), the Data Quality Objectives (DQOs) process is to be followed when planning and conducting radiological surveys in order to determine the nature of the problem and collect the required data to effectively solve the problem. As discussed in the SAP, the DQOs for this survey are as follows:

1. State the problem	The presence of residual radioactive contamination from luminous radium paint shop operations at Building 104 within the sewer systems associated with Building 104 is unknown.
2. Identify the decision	Determine if radium-226 (Ra-226) contamination is present. If contamination is present, characterize the nature and extent of contamination within the systems within the sewers, and determine the next steps to further characterize the surrounding soils and water.
3. Identify inputs to the decision	 The following will be collected or performed to characterize potential Ra-226 contamination within the sewer systems: Field alpha, beta, and gamma radiation measurements; Field exposure rate measurements; Smear samples to be evaluated for gross alpha and beta activity; Sediment samples to be evaluated for Ra-226 by alpha spectroscopy and/or gamma spectroscopy; and A background study at a non-impacted sewer system to determine the levels of the radioactivity associated with the sewer construction materials and naturally-occurring Ra-226 in sediments and soils in the surrounding environment. In addition, a visual inspection of the sanitary and storm sewer systems will be performed to determine the potential for migration of contamination outside of the sewer systems.
4. Define the study boundaries	 The study will be limited to the following: Sanitary Sewer: 2000 feet of pipe from Building 104 to the lift station (Building 21);

	• Storm Sewer: 3000 feet of pipe from Building 104 to the
	Three Mile Creek outfall; and
	• Background Area: a non-impacted system of similar
	construction to the systems associated with Building 104.
	For the PA/SI, sampling and measurement will be limited to the
	interiors of the sanitary and storm sewer systems. The entire length
	of each line will be considered to be a separate survey unit.
5. Develop a decision rule	The field measurements and sampling results from the affected sewer systems will be compared with results from the background
	study and with generic contamination limits or screening levels. If
	data from an affected sewer system is above background and above
	the contamination limits, it will be considered to have been
	potentially impacted by activities at Building 104. If contamination
	is found and the visual inspection indicates cracks in the piping
	which would facilitate the migration of contamination, the
	surrounding soils will be considered to be potentially impacted.

The sections that follow describe the survey and statistical methods that were used to achieve the DQOs.

3.2 FIELD MEASUREMENTS

Static field measurements were collected on accessible surfaces (i.e. relatively dry, flat surfaces) within the manhole sampling locations along the affected storm and sanitary sewer systems and in the background systems. The measurements were performed in accordance with the SAP Sections 4.2.4.1 and 4.2.5.1, which states in part that, "The measurements will be performed on dry surfaces." Measurements were collected by lowering the instruments down into the manholes. The count time for each field measurement was 60 seconds. All measurements were coded and logged into a Ludlum Model 2350-1 data logger with specific parameters for type of sewer system, location, surface material type, and measurement number. Each static measurement was logged individually by the data logger. Data were downloaded from the data loggers at the end of each day.

The instruments utilized for the PA/SI survey were leased from Duratek, Inc., under a Master Services Agreement (MSA) with Framatome ANP. The procurement included instrument calibration and was compliant with Sections 3, 3.2, 3.5 and 3.14 of the SAP/QAPP (Parsons/Framatome, 2005) and the Framatome Quality Management Manual (FS-QMM). Under the MSA and purchase order conditions, the Duratek quality program and procedures were in effect for the services. As such, the instruments were calibrated in accordance with approved procedures, by qualified and trained personnel and utilizing sources traceable to NIST standards. Each instrument's certificate of calibration is presented in Section 4.0 of Appendix C and details how each instrument was calibrated and includes the sources used and instrument set-up. For performance of the PA/SI survey, each instrument was operated by qualified and trained personnel in accordance with approved procedures listed in the QAPP. The daily response tests for the instruments for alpha and beta surface activity measurements were conducted using sources traceable to NIST standards and each instruments' daily response test documentation is presented in Section 5.0 of Appendix C and details how instrument were calibrated and includes the sources used and instrument set-up.

Each manhole sampling location was given a unique five character identifier. Storm sewer locations began with "ST," while sanitary sewer locations began with "SA."

3.2.1 Alpha Measurements

Alpha measurements were collected on accessible surfaces with a Ludlum 43-5 zinc sulfide (ZnS) probe. To maintain a consistent geometry to the surface being measured, erasers approximately 0.5 centimeters (cm) thick were affixed to the edges of the probe. The probe was attached to a telescoping pole in order to reach the sides and bottom of each manhole sampling location. The probe was decontaminated if necessary between each measurement location.

3.2.2 Beta Measurements

Beta measurements were collected on surfaces using a Ludlum Model 44-40 shielded Geiger-Mueller (GM) pancake probe. The probe was attached to a telescoping pole in order to reach the sides and bottom of each manhole sampling location. The probe was decontaminated if necessary between each measurement location.

3.2.3 Gamma Measurements

Gamma measurements were collected on surfaces using a Ludlum Model 44-10 2" x 2" sodium iodide (NaI) scintillator. The probe was attached to a telescoping pole in order to reach the sides and bottom of each manhole sampling location. The probe was decontaminated if necessary between each measurement location. In addition, the probe was covered with plastic and dropped into the flow of water to obtain a measurement at the very bottom of the pipe. Given the shallow depth of the water, it was assumed that the geometry of "in-flow" gamma measurements would not negatively impact the measurement. The detector reached the bottom of the pipe and was held stationary by a telescoping pole during the 60-second counting time for each of measurements. An integrated exposure rate measurement was also collected at each location using the Model 44-10.

3.2.4 Contamination Monitoring

Video equipment was surveyed for removable contamination as it was removed from each manhole by taking wipe samples and screening them with a Ludlum Model 44-9 GM pancake probe. The action level was any audibly detectable increase in count rate. In addition, smear samples were collected from accessible surfaces on the cables and camera and counted on a Ludlum Model 2929 smear counter.

3.3 SAMPLES

3.3.1 Material Samples

Material samples were collected from each manhole location using a scoop on a telescoping pole. The material samples were grab samples consisting of mud, sediment, and any other collectible solid material from the bottom of each manhole. All collected samples had sufficient material for alpha spectroscopy. Approximately half of the samples also had sufficient material (i.e., 2,000 grams) to conduct gamma spectroscopy. Sampling equipment was decontaminated after each sample was collected.

3.3.2 Smear Samples

For each sampling location, three smear samples were collected from the accessible bottom surface. Smears were attached to a swiveling pad at the end of a telescoping pole and were carefully wiped over an area of approximately 100 cm^2 . The smear samples were dried and counted on a Ludlum Model 2929 smear counter.

3.4 VISUAL INSPECTION

The visual inspection was conducted by Shamrock Sewer Services of Ilion, New York. Initially a drive mechanism was used to move a robotic mounted camera through each sewer run. However, large pieces of debris within the pipe or the narrow width of the pipe made this method ineffective (because the wheels are designed to ride along the sides of the pipe to be up above the water level). A second process was set up in which a tow line was pushed through the pipe and the camera was pulled through the pipe using a winch system.

The robotic camera had 360-degree movement and was controlled from a console inside a van. One technician monitored the video output for evidence of cracks or infiltration. The output was recorded on videotape and any significant details were noted directly onto the tape. In addition to the video output, a report of the inspection was also provided (see Appendix D).

In the storm sewer run north from location ST013, the pipe reduced in size from 10 inches to 6 inches, and then to 4 inches. A smaller diameter push camera was used to perform the video inspection along this run. The push camera was mounted to the end of a flexible semi-rigid fiberglass rod that was manually fed down the manhole and into the line.

3.5 DATA EVALUATION

After being downloaded from the data loggers, field measurement data were compiled in the Framatome Survey Data Management System (SDMS) in Microsoft Access. Additional measurement data were directly entered into the SDMS. Once the data was in SDMS, it went through the quality assurance and quality control (QA/QC) process specified in the SAP. Reports for field data were generated based on type of measurement, surface material, survey unit, and location.

Surface contamination limits from Air Force Instruction (AFI) 48-148 (USAF, 2001) for Ra-226 for alpha emissions and natural uranium for beta emissions were used (Table 3-1). Field gamma measurements from the potentially impacted areas were compared with an upper estimate of background (*i.e.*, the mean plus two standard deviations). Volumetric Ra-226 results in units of picocuries per gram (pCi/g) were compared with the generic Nuclear Regulatory Commission (NRC) Ra-226 contamination limit of 0.7 pCi/g (NUREG-1757; NRC, 2002). The contamination limit is based on a total effective dose equivalent (TEDE) of 25 millirem per year (mrem/yr), as modeled with a generic "resident farmer" exposure scenario.

Nuclide	Removable ^{b/, c/} (dpm/100 cm ²)	Total (Fixed + Removable) ^{b/, d/, f/} (dpm/100 cm ²)
U-nat, ²³⁵ U, ²³⁸ U, and associated decay products	1,000	5,000
Transuranics, 226 Ra, 228 Ra, 230 Th, 228 Th, 231 Pa, 227 Ac, 125 I, 129 I	20	100
Th-nat, ²³² Th, ⁹⁰ Sr, ²²³ Ra, ²²⁴ Ra, ²³² U, ¹²⁶ I, ¹³¹ I, ¹³³ I	200	1,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except ⁹⁰ Sr and others noted above ^{e/}	1,000	5,000

 Table 3-1

 Acceptable Surface Contamination Levels ^{a/} Griffiss AFB, New York

a/ From AFI 48-148, *Ionizing Radiation Protection* (USAF, 2001). This table is extracted from NRC Reg Guide 1.86. The values in this table apply to radioactive contamination deposited on, but not incorporated into the interior of, the contaminated item. Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, apply the limits established for alpha- and beta-gamma-emitting nuclides independently.

b/ As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

c/ The amount of removable radioactive material per 100 cm^2 of surface area should be determined by swiping the area with dry filter or soft absorbent paper, applying moderate pressure, and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. See additional requirements under Note 3 from Table A4.2 of AFI 48-148.

d/ The levels may be averaged over one square meter provided the maximum surface activity in any area of 100 cm² is less than three times the value specified. For purposes of averaging, see additional requirements under Note 4 from Table A4.2 of AFI 48-148.

e/ This category of radionuclides includes mixed fission products, including the 90 Sr which is present in them. It does not apply to 90 Sr which has been separated from the other fission products or mixtures where the 90 Sr has been enriched.

f/ The average and maximum radiation levels associated with surface contamination resulting from beta and gamma emitting nuclides should not exceed 2 uGy/hr (0.2 mrad/hr) at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through 7 milligrams per square centimeter of total absorber.

3.6 HEALTH AND SAFETY

Prior to the start of the field effort, site-specific safety training was conducted with all personnel working on-site. Safety briefings were also held at the start of each workday.

SECTION 4 RESULTS AND ASSESSMENT OF POTENTIAL IMPACTS

4.1 BACKGROUND STUDY AREA

Three non-impacted storm sewer locations (identified as BKG01 through BKG03; Figure 4-1) and three non-impacted sanitary sewer locations (identified as BKG04 through BKG06; Figure 4-2) were located using historical and current site maps for use in the background study. The background storm sewer locations ran parallel to the impacted systems to the west, while the background sanitary sewer locations ran parallel to the impacted systems to the east. The background sampling locations appeared to be of similar age, size, and construction as the impacted systems. Only field measurements, material sampling, and smear sampling were conducted at the background locations; no background visual inspection was performed.

4.1.1 Field Measurements

Alpha, beta, and gamma measurements were taken on each accessible surface inside the sampling locations. The summary statistics of the background surface measurements are tabulated in Table 4-1 (alpha measurements), Table 4-2 (beta measurements), Table 4-3 (contact gamma measurements), and Table 4-4 (gamma measurements one meter above ground surface). The mean minimum detectable concentration (MDC) of each measurement set is also included. Alpha and beta field measurements were broken down by surface (i.e., brick, concrete, and clay) for each background system (i.e., storm or sanitary sewer). Slightly higher alpha and beta measurements were observed in the background sanitary sewer locations. These higher measurements were attributed to the presence of radon and radon progeny. The sanitary sewer system was 2-3 feet deeper than the background storm sewer locations, and had smaller pipes and fewer openings than the storm sewer system; these factors allowed for greater build-up of radon emanations from the subsurface. The influence of radon was not observed with the gamma field measurements.

The MDC values associated with the alpha and beta field measurements in Tables 4-1, 4-2, 4-7, and 4-12 are *a posteriori* values. Prior to conducting the PA/SI survey, the *a priori* calculation of the alpha MDC showed the value to be less than the alpha contamination limit (i.e., 74 dpm/100 cm²) and within the measurement sensitivity needed for the survey. Please refer to the MARSSIM Section 6.7.1 for additional information regarding *a priori* MDC. The *a posteriori* MDC field measurement values were greater than the acceptable contamination limits due to elevated levels of naturally-occurring radon gas (Rn-222) and radon progeny present in the background reference area and the affected sanitary sewer and storm drain systems. While the mean MDC is above the contamination limit for alpha field measurements, the redundancies in the overall sampling scheme – alpha and gamma measurements for Ra-226 emissions, beta measurements for Ra-228 emissions, gross alpha and beta smear sampling, and material

sampling with alpha spectroscopy analysis for Ra-226 - provide assurance that the site was appropriately characterized.







Figure 4-2 Approximate Background Sanitary Sewer Sampling Locations

	Storm Sewer (dpm/100 cm ²) ^{a/}			Sanitary Sewer (dpm/100 cm ²)		
	Brick	Clay	Concrete	Brick	Clay	Concrete
Number of	0	6	0	0	0	11
Measurements	9	0	9	9	9	11
Mean	52.8	110.8	84.4	683.8	860.3	707.0
Median	47.5	95.0	47.5	427.5	902.5	567.6
Standard Deviation	50.1	71.5	94.3	621.8	554.7	507.5
Minimum	0.0	47.5	0.0	113.5	142.5	75.7
Maximum	142.5	237.5	237.5	1567.5	1662.5	1567.5
Mean MDC	275.3	275.3	275.3	468.5	502.6	474.7
Contamination Limit ^{b/}	100	100	100	100	100	100

Table 4-1 Alpha Field Measurements Background Storm and Sanitary Sewers Griffiss AFB, New York

a/ dpm/100 cm2 = decays per minute per 100 square centimeters. Raw measurement data from the background areas are tabulated in Section 7 of Appendix C.

b/ Acceptable surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

	Storm Sewer (dpm/100 cm ²) ^{a/}			Sanitary Sewer (dpm/100 cm ²)		
	Brick	Clay	Concrete	Brick	Clay	Concrete
Number of Measurements	9	6	9	9	7	9
Mean	5,559.7	5,571.5	4,842.1	7,318.3	8,152.0	6,103.8
Median	5,819.9	5,642.5	4,755.3	7,665.3	8,091.1	6,103.8
Standard Deviation	838.3	623.2	579.6	1,451.7	856.1	1,168.9
Minimum	4,187.5	4,684.3	4,045.6	5,678.0	6,742.6	4,613.4
Maximum	6,600.7	6,174.8	6,103.8	9,439.7	9,510.6	7,665.3
Mean MDC	2,047.9	2,047.9	2,047.9	2,494.0	2,494.0	2,494.0
Contamination Limit ^{b/}	5,000	5,000	5,000	5,000	5,000	5,000

Table 4-2Beta Field MeasurementsBackground Storm and Sanitary Sewers Griffiss AFB, New York

a/ dpm/100 cm2 = decays per minute per 100 square centimeters. Raw measurement data from the background areas are tabulated in Section 7 of Appendix C.

b/ Acceptable total (i.e., removable plus fixed) surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

		Storm and Sanitary Sewer (uR/hr) ^{a/}				
	Brick	Clay	Concrete	Sediment	Total	
Number of Measurements	15	12	15	15	57	
Mean	16.6	15.0	13.9	10.7	14.0	
Median	16.5	14.9	15.7	9.5	15.7	
Standard Deviation	1.6	1.2	2.9	3.9	3.4	
Minimum	12.2	13.7	9.8	7.2	7.2	
Maximum	18.2	16.7	16.7	18.2	18.2	
Reference Value ^{b/}	20.8	20.8	20.8	20.8	20.8	

Table 4-3Contact Gamma Field MeasurementsBackground Storm and Sanitary Sewers Griffiss AFB, New York

a/uR/hr = microRoentgens per hour (dose rate integrated over a one-minute count time).

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

	Gamma (uR/hr) ^{a/}
Number of Samples	17
Mean	5.5
Median	5.4
Standard Deviation	0.7
Minimum	4.4
Maximum	6.9
Reference Value ^{b/}	6.9

Table 4-4One-Meter Gamma Field MeasurementsBackground Storm and Sanitary Sewers Griffiss AFB, New York

a/uR/hr = microRoentgens per hour.

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

4.1.2 Material Sampling

A total of three material samples were collected from the background sewer locations. Analytical results from the background material sampling are presented in Table 4-5. All three samples had detectable levels of Ra-226 (i.e., reported concentrations above the MDC), with an average of 0.34 pCi/g, or about one-half of the generic Ra-226 contamination limit. The upper estimate of Ra-226 in the samples collected from the background locations was calculated to be the mean plus two standard deviations, or 0.50 pCi/g.

Sample Location	Result (pCi/g) ^{a/}	Uncertainty (pCi/g) ^{b/}	MDC (pCi/g) ^{c/}	Flag ^{d/}
BKG01	0.29	0.15	0.24	
BKG06	0.29	0.14	0.22	
BKG04	0.43	0.18	0.28	
Average	0.34		0.25	
Median	0.29			
St Dev	0.08			
Minimum	0.29		0.22	
Maximum	0.43		0.28	

Table 4-5	
Alpha Spectroscopy Ra-226 Results	
Background Storm and Sanitary Sewers Griffiss AFB. New	York

a/ pCi/g = picocuries of Ra-226 per gram of material.

b/ The reported uncertainty is equal to plus or minus one standard deviation.

c/ MDC = minimum detectable concentration reported by the laboratory.

d/ U = nondetected result. The result was U-flagged if the reported result was below the MDC.

4.1.3 Smear Sampling

A total of 18 smears were collected from the non-impacted storm and sanitary sewer locations used for the background study (i.e., three per location). Each smear sample was analyzed for gross alpha and beta radiation. There were no noticeable differences in results from the non-impacted storm and sanitary sewers. All measurements were below the calculated MDC. Results are summarized in Table 4-6.

Table 4-6Removable Alpha and Beta ResultsBackground Storm and Sanitary Sewers Griffiss AFB, New York

	Alpha (dpm/100 cm ²) ^{a/}	Beta (dpm/100 cm ²)
Number of Samples	18	18
Mean	2.2	24.3
Median	2.2	26.7
Standard Deviation	2.0	38.4
Minimum	-0.4	-48.5
Maximum	6.4	106.8
Mean MDC	8.9	131.2
Contamination Limit ^{b/}	20	1,000

a/ dpm/100 cm² = decays per minute per 100 square centimeters.

b/ Acceptable removable surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

4.2 STORM SEWER

Thirteen sampling locations (locations ST001 through ST013; Figure 4-3) were identified along the storm sewer line downstream of Building 104. One manhole displayed on the 1989 site map at the south end of Electronic Parkway could not be found. There has been construction of barrier walls and grassy areas at that end of the site, and presumably the missing manhole was buried or paved over.

Review of the AFIOH Memorandum and as-built drawings of Building 104 indicated that floor drains from the painting facility at Building 104 emptied into the storm sewer system, apparently on the west side of the building. This drainage would have fed into location ST013.

4.2.1 Field Measurements

The measurements for total alpha and beta surface contamination were corrected for naturally-occurring radioactivity in storm sewer building materials (i.e., brick, clay, and concrete) by the material-specific background correction (MBC). The averages of the resulting net alpha and beta surface contamination measurements are below the respective contamination limits. Thirteen alpha measurements out of 26 exceeded the total surface contamination limit of 100 dpm/100 cm² (2 concrete locations at ST001, ST004, ST007, and ST013; 1 concrete location each at ST002, ST003, ST005, and ST010; and 1 brick location at ST012) and ranged to a maximum of $331.8 \text{ dpm}/100 \text{ cm}^2$ after background correction. The mean of all alpha measurements from the impacted storm sewer was $95.5 \text{ dpm}/100 \text{ cm}^2$ after application of MBC, and the median measurement was $85.9 \text{ dpm}/100 \text{ cm}^2$. Both of these values are below the contamination limit of 100 dpm/100 cm². It is likely the elevated alpha measurements were the result of alpha emissions from radon and radon progeny (i.e., Po-218, Bi-214, and Po-214) rather than Ra-226 contamination based on the following lines of evidence: 1) elevated Ra-226 concentrations were not observed in the material samples (see Section 4.2.2); and 2) smear samples (see Section 4.2.3) from the storm sewer locations did not exhibit elevated gross alpha levels after sufficient decay time (i.e., after allowing short-lived radon and radon progeny time to decay, no longer-lived radionuclides such as Ra-226 were present to elevate levels of gross alpha radiation). Elevated radon and radon progeny levels may increase alpha background count rates (Abelquist, 2001).

There were no beta measurements out of 27 that exceeded the total surface contamination limit of 5,000 dpm/100 cm² after the MBC was applied. No contact gamma measurements exceeded the upper background value out of 30 measurements performed. Two out of 26 one-meter exposure rate measurements exceeded the upper background value and both were at ST001 (the Three Mile Creek Outfall). However, the elevated results could be attributed to differences in the outfall area from the background reference area in terrain from recent excavations, elevation, and materials present in the area such as the addition of river rocks placed in the area. Also, a sample collected from the area and analyzed by alpha spectroscopy was less than the 0.7 pCi/gram limit.



Figure 4-3 Storm Sewer Sampling Locations

	Alpha	Alpha MBC ^{b/}	Beta	Beta MBC
	$(dpm/100 cm^2)^{a/2}$	(dpm/100 cm ²)	(dpm/100 cm ²)	$(dpm/100 cm^2)$
	Total	Total	Total	Total
Number of	26	26	77	27
Measurements	20	20	27	27
Mean	177.5	95.5	5,147.0	198.6
Median	170.3	85.9	4,755.3	-94.6
Standard	1166	116 /	1 526 0	1 421 1
Deviation	110.0	110.4	1,550.0	1,421.1
Minimum	37.8	-46.6	3,051.9	-1,790.1
Maximum	416.2	331.8	9,794.5	4,234.8
Mean MDC	343.5	343.5	2,153.5	2,153.5
Contamination	100	100	5 000	5 000
Limit ^{c/}	100	100	3,000	5,000
Measurements				
Exceeding		13		0
Limit				

Table 4-7Alpha and Beta Field MeasurementsImpacted Storm Sewer Griffiss AFB, New York

a/ dpm/100 cm2 = decays per minute per 100 square centimeters. Raw measurement data for the impacted storm sewer are tabulated in Section 8 of Appendix C.

b/ MBC = Material Background Correction. The average material-specific background (i.e., for brick, clay, or concrete) from the background storm sewer locations was subtracted from the field measurement.

c/ Acceptable total surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

Table 4-8 Contact Gamma Field Measurements Impacted Storm Sewer Griffiss AFB, New York

	Gamma
	(uR / hr) ^{a/}
Number of Samples	30
Mean	12.7
Median	11.2
Standard Deviation	2.9
Minimum	10.0
Maximum	18.9
Reference Value ^{b/}	20.8

a/uR/hr = microRoentgens per hour.

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

pacted Storm Sewer Griniss AFB, New To		
	Gamma	
	$(\mu R/hr)^{a/l}$	
Number of Samples	26	
Mean	5.4	
Median	5.0	
Standard Deviation	1.5	
Minimum	4.0	
Maximum	10.6	
Reference Value ^{b/}	6.9	

Table 4-9 One Meter Gamma Field Measurements Impacted Storm Sewer Griffiss AFB, New York

a/ uR/hr = microRoentgens per hour.

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

4.2.2 Material Sampling Results

A total of 10 samples from the 13 measurement locations along the potentially impacted storm sewer line had sufficient material for alpha spectroscopy. Insufficient material was present at locations ST007, ST008, ST009, and ST010 to collect samples. The samples were analyzed by alpha spectroscopy for Ra-226; the results are summarized in Table 4-10. After subtraction of the upper estimate of background (0.5 pCi/g), results from both samples were reduced to below the Ra-226 contamination limit.

Sample Location	Result (pCi/g) ^{a/}	Uncertainty (pCi/g) ^{b/}	MDC (pCi/g) ^{c/}	Flag ^{d/}	Result with Background Correction (pCi/g) ^{e/}
ST001	0.19	0.11	0.21	U	-0.31
ST002	0.128	0.098	0.28	U	-0.372
ST003	0.059	0.063	0.23	U	-0.441
ST004	0.25	0.12	0.19		-0.25
ST005	0.24	0.12	0.19		-0.26
ST006	0.39	0.17	0.32		-0.11
ST011	0.153	0.089	0.16	U	-0.347
ST012	0.34	0.17	0.27		-0.16
ST013	0.92	0.27	0.31		0.42
ST013	1.04	0.35	0.35		0.54

Table 4-10Alpha Spectroscopy Ra-226 ResultsImpacted Storm Sewer Griffiss AFB, New York

Table 4-10Alpha Spectroscopy Ra-226 ResultsImpacted Storm Sewer Griffiss AFB, New York (continued)

Sample Location	Result (pCi/g) ^{a/}	Uncertainty (pCi/g) ^{b/}	MDC (pCi/g) ^{c/}	Flag ^{d/}	Result with Background Correction (pCi/g) ^{e/}
Number of Samples	10				10
Number of Detects	6				6
Average	0.37		0.25		-0.13
Median	0.25				-0.26
St Dev	0.34				0.34
Minimum	0.06		0.16		-0.44
Maximum	1.04		0.35		0.54
Results Greater than Contamination Limit of 0.7 pCi/g ^{f/}					0

a/pCi/g = picocuries of Ra-226 per gram of material.

b/ The reported uncertainty is equal to plus or minus one standard deviation.

c/ MDC = minimum detectable concentration reported by the laboratory.

d/ U = nondetected result. The result was U-flagged if the reported result was below the MDC.

e/ The upper estimate of 0.5 pCi/g of Ra-226 from the background samples was subtracted from each storm sewer result.

f/ Acceptable volumetric contamination limit for Ra-226 corresponding to a dose limit of 25 mrem/yr, per NUREG-1757 (NRC, 2002).

4.2.3 Smear Sampling Results

A total of 35 smear samples were collected from the 13 storm sewer sampling locations. Each smear sample was analyzed for gross alpha and beta radiation. All measurements were below the calculated MDC. Results are summarized in Table 4-11.

Table 4-11 Removable Alpha and Beta Results Impacted Storm Sewer Griffiss AFB, New York

	Alpha (dpm/100 cm ²) ^{a/}	Beta (dpm/100 cm ²)
Number of Samples	35	35
Mean	1.9	5.5
Median	1.8	4.9
Standard Deviation	2.6	29.4
Minimum	-0.4	-68.0
Maximum	8.4	63.1
Mean MDC	9.3	131.2
Contamination Limit ^{b/}	20	1,000

a/ dpm/100 cm2 = decays per minute per 100 square centimeters.

b/ Acceptable removable surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

4.2.4 Visual Inspection

The original visual inspection reports for the storm sewer system are presented in Appendix D. Generally, the storm sewer lines were in good condition, with a few locations within the storm sewer line where debris (e.g., bricks, stones) in the pipe prevented camera access. The visual inspection identified significant blockage in the line between locations ST013 and ST008. The visual run from ST008 proceeded 150 ft northwest (i.e., toward location ST013) prior to stopping as a result of blockage. A jet nozzle fed from ST013 was able to proceed 130 ft southeast (i.e., toward location ST008) before stopping. With the distance between locations ST013 and ST008 measured at 305 ft, a total of 35 ft were not accounted for. The run between locations ST013 and ST008 coincided with the footprint of the former Building 120, which was demolished and replaced by a picnic area. The blockage in the line may have been the result of damage or removal associated with the demolition of Building 120.

Location ST010 was not displayed on the 1989 site map, and was identified in the field as being associated with a French drain system for roof runoff drainage. As such, the visual inspection was not conducted to or from location ST010.

The video inspection also identified significant amounts of rocks and debris at the northern end of the system that impeded camera access. Between locations ST009 and ST008, it appeared that a lateral had been punched into the existing main line and concrete and rebar blocked access. South of Brooks Road, the piping got larger in diameter and the camera was pulled, rather than driven, through the line. No significant blockages were identified south of Brooks Road.

4.3 SANITARY SEWER

Nine sampling locations (locations SA001 through SA009; Figure 4-4) were identified along the sanitary sewer line downstream of Building 104.

4.3.1 Field Measurements

The measurements for total alpha and beta surface contamination were corrected for naturally-occurring radioactivity in sanitary sewer building materials (i.e., brick, clay, and concrete) by the MBC. The averages of the resulting net alpha and beta surface contamination measurements are below the respective contamination limits. Three alpha measurements out of 24 exceeded the total surface contamination limit of 100 dpm/100 cm² (1 concrete location at SA007; and 2 brick locations, at SA009 and SA010) and ranged to 262.1 dpm/100 cm². However, the mean of all alpha measurements from the impacted sanitary sewer was -352.4 dpm/100 cm² after application of MBC, significantly below the contamination limit.

There were no beta measurements out of 25 that exceeded the total surface contamination limit of 5,000 dpm/100 cm² after the MBC was applied. Alpha and beta field measurements are summarized in Table 4-12. One out of 26 contact gamma measurement exceeded the upper background value, at a concrete location at SA005. Two out of 22 one-meter exposure rate measurements exceeded the upper background value and both measurements were collected at the Building 21 lift station.





	Alpha	Alpha MBC ^{b/}	Beta	Beta MBC
	$(dpm/100 cm^2)^{a/}$	$(dpm/100 cm^2)$	(dpm/100 cm ²)	(dpm/100 cm ²)
	Total	Total	Total	Total
Number of	24	24	25	25
Measurements	24	24	23	23
Mean	346.8	-352.4	5,079.0	-1,364.9
Median	302.7	404.3	5,394.1	-1,561.4
Standard	202.8	206.2	1 102 2	1.050.5
Deviation	292.8	290.2	1,195.5	1,039.5
Minimum	0.0	-693.8	2,342.2	-3,761.7
Maximum	945.9	262.1	7,239.4	993.7
Mean MDC	341.0	341.0	2,294.2	2,294.2
Contamination	100	100	5,000	5,000
Limit ^{b/}	100	100	5,000	5,000
Measurements				
Exceeding		3		0
Limit				

Table 4-12Alpha and Beta Field MeasurementsImpacted Sanitary Sewer Griffiss AFB, New York

a/ dpm/100 cm² = decays per minute per 100 square centimeters. Raw measurement data for the impacted sanitary sewer are tabulated in Section 9 of Appendix C.

b/ MBC = Material Background Correction. The average material-specific background (i.e., for brick, clay, or concrete) from the background sanitary sewer locations was subtracted from the field measurement.
c/ Acceptable total surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

Table 4-13 Contact Gamma Field Measurements Impacted Sanitary Sewer Griffiss AFB, New York

	Gamma (µR/hr) ^{a/}
Number of Samples	26
Mean	14.7
Median	15.8
Standard Deviation	3.8
Minimum	6.8
Maximum	23.0
Reference Value ^{b/}	20.8

a/ uR/hr = microRoentgens per hour.

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

	Gamma (µR/hr) ^{a/}
Number of Samples	22
Mean	5.0
Median	4.8
Standard Deviation	1.4
Minimum	3.5
Maximum	9.2
Reference Value ^{b/}	6.9

Table 4-14 One Meter Gamma Field Measurements Impacted Sanitary Sewer Griffiss AFB, New York

a/ uR/hr = microRoentgens per hour.

b/ The reference value is an upper estimate of background, equal to the mean of all background measurements plus two standard deviations.

4.3.2 Material Sampling Results

A total of nine samples from the 11 measurement locations along the potentially impacted sanitary sewer line had sufficient material for alpha spectroscopy. Insufficient material was present at locations SA001 and SA008 to collect samples. The samples were analyzed by alpha spectroscopy for Ra-226, and the results are summarized in Table 4-15. After subtraction of the upper estimate of background (0.5 pCi/g), two of the samples remained above the screening level (locations SA002 and SA004), but the survey unit average (i.e., the average over the impacted sanitary sewer) was reduced from 0.80 pCi/g to 0.30 pCi/g.

Sample Location	Result (pCi/g) ^{a/}	Uncertainty (pCi/g) ^{b/}	MDC (pCi/g) ^{c/}	Flag ^{d/}	Result with Background Correction (pCi/g) ^{e/}
SA002	1.90	0.48	0.39		1.40
SA003	0.11	0.11	0.37	U	-0.39
SA004	2.79	0.58	0.40		2.29
SA005	0.078	0.091	0.36	U	-0.422
SA006	0.33	0.20	0.40	U	-0.17
SA007	0.17	0.12	0.31	U	-0.33
SA009	0.49	0.29	0.59	U	-0.01
SA010	1.03	0.25	0.19		0.53
BLD21	0.31	0.22	0.48	U	-0.19

Table 4-15 Alpha Spectroscopy Ra-226 Results Impacted Sanitary Sewer Griffiss AFB, New York

Table 4-15
Alpha Spectroscopy Ra-226 Results
Impacted Sanitary Sewer Griffiss AFB, New York (continued)

Sample Location	Result (pCi/g) ^{a/}	Uncertainty (pCi/g) ^{b/}	MDC (pCi/g) ^{c/}	Flag ^{d/}	Result with Background Correction (pCi/g) ^{e/}
Number of Samples	9				9
Number of Detects	3				3
Average	0.80		0.39		0.30
Median	0.33				-0.17
St Dev	0.95				0.95
Minimum	0.08		0.19		-0.42
Maximum	2.79		0.59		2.29
Results Greater than Contamination Limit of 0.7 pCi/g ^{f/}	3				2

a/ pCi/g = picocuries of Ra-226 per gram of material.

b/ The reported uncertainty is equal to plus or minus one standard deviation.

c/ MDC = minimum detectable concentration reported by the laboratory.

d/ U = nondetected result. The result was U-flagged if the reported result was below the MDC.

e/ The upper estimate of 0.5 pCi/g of Ra-226 from the background samples was subtracted from each sanitary sewer result.

f/ Acceptable volumetric contamination limit for Ra-226 corresponding to a dose limit of 25 mrem/yr, per NUREG-1757 (NRC, 2002).

4.3.3 Smear Sampling Results

A total of 31 smear samples were collected from the 11 sanitary sewer sampling locations. Each smear sample was analyzed for gross alpha and beta radiation. All measurements were below the calculated MDC. Results are summarized in Table 4-16.

Table 4-16Removable Alpha and Beta ResultsImpacted Sanitary Sewer Griffiss AFB, New York

	Alpha (dpm/100 cm ²) ^{a/}	Beta (dpm/100 cm ²)
Number of Samples	31	31
Mean	1.7	13.5
Median	1.8	14.6
Standard Deviation	1.9	37.0
Minimum	-0.4	-48.5
Maximum	6.6	92.2
Mean MDC	9.3	130.8
Contamination Limit ^{b/}	20	1,000

a/ dpm/100 cm2 = decays per minute per 100 square centimeters.

b/ Acceptable surface contamination limits for Ra-226 (alpha) and natural uranium (beta) per Air Force Instruction (AFI) 48-148 (USAF, 2001).

4.3.4 Visual Inspection

The original visual inspection reports for the sanitary sewer system are presented in Appendix D. Generally, the impacted sanitary sewer had a significant amount of debris and biological material that made access with the camera system difficult. Even the use of a high-pressure jet nozzle was not successful in getting a tow line through for the camera between locations SA002 and SA001 at the south end of Electronic Parkway. At location SA006, the water level was at the top of the pipe, preventing any visual acuity for the camera system entering at that location. Significant amounts of groundwater inflow were noted between SA005 and SA004 and between locations SA004 and SA003, along with a few cracks in the clay piping. The visual inspection contractors, Shamrock Sewer, recommended that the system undergo a thorough cleaning to prevent future plumbing backups due to the amount of material in the lines.

4.4 DATA QUALITY ASSESSMENT

During the implementation phase of the PA/SI, all activities affecting quality were controlled by procedures and the provisions contained in the *Quality Assurance Project Plan for the Griffiss AFB PA/SI Survey, Rev 0, July 2004, Framatome ANP and Parsons* (QAPP). The Quality Control measures of the QAPP were adhered to as an integral part of the survey process as described in the following sections and with documented evidence contained in Appendix C, Analytical Data and Quality Control.

4.4.1 General Provisions

4.4.1.1 Quality Assurance Records

Quality Assurance Records were identified, developed and maintained in accordance with FS-QMM and applicable procedures. Project QA records were specified and documented in the QAPP. These included but were not limited to the following:

- Approved plans and procedures
- Training records
- Daily instrument source checks,
- Survey records and sample logs

Records furnishing documented evidence of the quality of services and activities are presented in Appendix C, Analytical Data and Quality Control.

4.4.1.2 Selection of Personnel

Project management, supervisory personnel and technical staff had extensive experience with Framatome procedures and the QA/QC plan and were familiar with the requirements of the Survey and Sampling Plan. Resumes are presented in Appendix C, Analytical Data and Quality Control. As shown in these resumes, the management and staff have had prior experience with the radionuclide(s) of concern and a working knowledge of the instruments used to detect the radionuclides on site.

Framatome selected supervisory personnel to direct the survey based upon their experience and familiarity with the survey procedures and processes. Likewise, the Health Physics technician and Framatome engineers who performed the survey were selected based upon their qualifications and experience. The Framatome Certified Health Physicist (CHP) provided onsite oversight during survey and sampling activities. In addition, the Framatome CHP performed review of the PA/SI data and report.

4.4.1.3 Training

All project personnel received site-specific training to identify the specific hazards present in the work and survey areas. The training also included a briefing and review of this Plan, Framatome procedures, the QAPP and the Site Health and Safety Plan (HASP). Copies of all training records were maintained through the duration of onsite activities and can be found in Appendix C. During the site orientation and training, survey personnel became familiar with site emergency procedures such that in the event of an emergency, personnel could act in accordance with all applicable site emergency procedures and the HASP.

4.4.1.4 Written Procedures

All survey tasks essential to survey data quality were controlled by standard operating procedures (SOPs) and the SAP. A list of plans and procedures was provided in the QAPP.

4.4.1.5 Instrumentation Selection, Calibration, and Operation

Framatome selected instruments proven to reliably detect the radionuclides present at the Griffiss AFB facility. A list of instrumentation used for the survey is presented in Appendix C, Analytical Data and Quality Control. Instruments were calibrated by a qualified vendor under approved procedures using calibration sources traceable to the NIST. The instrument calibration certifications are presented in Appendix C, Analytical Data and Quality Control.

During the survey, all detectors were subject to daily response checks when in use. The daily response test records are presented in Appendix C, Analytical Data and Quality Control. The alpha and beta check sources used for the daily response test were traceable to the NIST. The instrument check source calibration certifications are presented in Appendix C, Analytical Data and Quality Control.

The procedures used for calibration, maintenance, accountability, operation, and quality control of radiation detection instruments implement the guidelines established in American National Standard Institute (ANSI) standards ANSI N323-1978 and ANSI N42.17A-1989.

4.4.1.6 Survey Documentation

Survey packages were the primary method of controlling and tracking the hard copy records of survey results. Records of surveys were documented and maintained in the survey package for each of the three survey unit according to requirements in the SAP. Each survey measurement was identified by the date, technician, instrument type and serial number, detector type and serial number, location code, type of measurement, mode of instrument operation, and Quality Control (QC) sample number, as applicable. The completed survey packages for the PA/SI survey are presented in Appendix C, Analytical Data and Quality Control.

4.4.1.7 Independent Review of Survey Results

The survey packages and survey data from each survey unit received an independent review by the Framatome CHP to verify all documentation was complete and accurate.

4.4.1.8 Chain of Custody

Procedures established responsibility for the custody of samples from the time of collection until the results were obtained. All samples shipped off site for analysis were accompanied by a chain-of-custody record to track each sample. These chain-of-custody records are included within each of the survey packages presented in Appendix C.

4.4.1.9 Sample Analysis

Framatome performed quality assurance checks on 5% of all sample analyses. This consisted of the analysis of split and duplicate samples. For the samples analyzed by alpha spectroscopy, four duplicate and two split samples were included in the analysis batch. All samples met the quality control criteria specified in the SAP. The quality control summary is presented in Appendix C. The Framatome Environmental Laboratory QA/QC Program was in effect for all offsite sample analysis. Framatome Environmental Laboratory Sample Analysis Results are presented in Appendix C.

4.4.2 Number of Samples and Measurements

4.4.2.1 Background Areas

The number of samples and measurements prescribed for the background study vs. the number of samples and measurements performed or collected for the various background parameters were as indicated in Table 4-17 below:

Survey Measurement Type	Number Prescribed	Number Collected
Contact Exposure Rate Measurements all materials	54	57
Contact Exposure Rate Measurements on Concrete	18	15
Contact Exposure Rate Measurements on Vitrified Clay Pipe	18	12
Contact Exposure Rate Measurements on Brick	18	15
Contact Exposure Rate Measurements on Sediment	0	15
Direct Alpha Measurements all materials	54	53
Direct Alpha Measurements on Concrete	18	20
Direct Alpha Measurements on Vitrified Clay Pipe	18	15
Direct Alpha Measurements on Brick	18	18

Table 4-17Number of Measurements and SamplesBackground Storm and Sanitary Sewers Griffiss AFB, New York

Table 4-17Number of Measurements and SamplesBackground Storm and Sanitary Sewers Griffiss AFB, New York (continued)

Survey Measurement Type	Number Prescribed	Number Collected
Direct Beta Measurements all materials	54	49
Direct Beta Measurements on Concrete	18	18
Direct Beta Measurements on Vitrified Clay Pipe	18	13
Direct Beta Measurements on Brick	18	18
1 Meter Exposure Rate Measurement	0	17
Smear Sample for Removable Alpha/Beta	0	18
Soil/Sediment Samples for Alpha or Gamma Spectroscopy	18	3

4.4.2.2 Storm Sewer System

The number of samples and measurements prescribed for the storm sewer system vs. the number of samples and measurements performed or collected for the PA/SI survey were as indicated in Table 4-18 below:

Table 4-18 Number of Measurements and Samples Impacted Storm Sewer Griffiss AFB, New York

Survey Measurement Type	Number Prescribed	Number Collected
Direct Beta Measurement	18	27
Direct Alpha Measurement	18	26
Smear Sample for Removable Alpha/Beta	18	35
Contact Exposure Rate Measurement	18	30
1 Meter Exposure Rate Measurement	18	26
Soil/material Samples for Alpha or Gamma Spectroscopy Analysis	18	10

4.4.2.3 Sanitary Sewer System

The number of samples and measurements prescribed for the sanitary sewer system vs. the number of samples and measurements performed or collected for the PA/SI survey were as indicated in Table 4-19.

Survey Measurement Type	No. Prescribed	No. Collected
Direct Beta Measurement	18	25
Direct Alpha Measurement	18	24
Smear Sample for Removable Alpha/Beta	18	31
Contact Exposure Rate Measurement	18	26
1 Meter Exposure Rate Measurement	18	22
Soil/material Samples for Alpha or Gamma Spectroscopy Analysis	18	9

Table 4-19 Number of Measurements and Samples Impacted Sanitary Sewer Griffiss AFB, New York

Because the survey measurements were to be corrected for background and the sample analysis was radionuclide specific, the number of measurements was taken from the MARSSIM Table 5.5. This resulted in a value of "N" (prescribed number of samples/measurements) equal to 18 for each survey unit measurement type, with an additional 18 samples/measurements for the reference area. Being the values listed in MARSSIM Table 5.5 include a 20% increase to account for potentially unusable data, the number of measurements collected were of sufficient quantity to achieve the survey objectives for instances where the number of samples collected was greater than the number of samples prescribed. For instances where number of samples prescribed was a minimum number and additional samples were allowed in accordance with the SAP.

For material sample collection, the project team performed sampling as material (e.g., residue, silt, or sludge) was identified at the sample locations. The samples in order of priority were as follows:

- 1. 2 kg Soil/Sediment Samples for Gamma Spectroscopy
- 2. 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy
- 3. Collect residues on smears from each location and from video cable when extracted from sewer for alpha and beta counting.

Material for alpha and/or gamma spectroscopy analysis was available only from the locations indicated with sample results. Smear samples were obtained from all locations and, per the SAP, were considered to be representative of the removable contamination levels within the affected sewer systems as a worst-case – i.e., in the absence of sufficient material to collect for gamma or alpha spectroscopy.

For the samples analyzed by alpha spectroscopy, four duplicate and two split samples were included in the analysis batch. All samples met the quality control criteria specified in the SAP. The quality control summary is presented in Appendix C.
SECTION 5 ASSESSMENT OF POTENTIAL IMPACTS

5.1 SOILS

As discussed in Sections 4.2.4 and 4.3.4, no significant breaks were identified during the visual inspection of the accessible impacted sewer lines. In addition, no significant radioactive contamination was found within the impacted storm and sanitary sewer lines. As such, it is concluded that soils surrounding the impacted sewers have not been impacted by the radium painting operations at Building 104.

5.2 SURFACE WATER

The only surface water potentially affected by the impacted sewer lines is at the storm sewer outfall at Three Mile Creek. Between the initial site visit in June 2004 and the field work conducted in April 2005, the creek was dredged and re-lined with new river rock, significantly reducing the likelihood for any contamination potentially once there to still be present. Given the results of field measurements and sampling within the storm sewer system, there is no impact from Building 104 operations on accessible surface water.

5.3 GROUNDWATER

As discussed in Sections 4.2.4 and 4.3.4, no significant breaks were identified during the visual inspection of the accessible impacted sewer lines. Any small breaks were marked by groundwater infiltration into the system rather than sewer water flowing out. It seems unlikely that a situation would occur that enough water and pressure would be within the sewer systems to force sewer water into the groundwater. In addition, no significant radioactive contamination was found within the impacted storm and sanitary sewer lines. The average Ra-226 concentrations found in material samples collected over the length of the impacted storm and sanitary were below the volumetric contamination limit. As such, it is concluded that groundwater surrounding the impacted sewers has not been impacted by the radium painting operations at Building 104.

5.4 IMPACT ON HUMAN HEALTH

Measurements and analytical results indicated that concentrations of Ra-226 on pipe surfaces and in sediment samples were within background levels and below the contamination limit with two exceptions, at sanitary sewer locations SA002 and SA004. It should be noted that the contamination limit of 0.7 pCi/g is based on a generic exposure scenario equivalent to an annual exposure rate of 25 mrem/yr, and may not represent the actual exposure scenario best suited for the sewer systems at Griffiss AFB. Based on these results, it is concluded that there is no risk to human health from radiological contamination within the storm and sanitary sewer systems.

J:\744\744009 - Griffis AFB Rad Survey\Draft Final PA-SI\Draft_Final_revised.doc

SECTION 6 REFERENCES

- Abelquist, 2001. *Decommissioning Health Physics: A Handbook for MARSSIM Users*, Institute of Physics Publishing, Philadelphia, Pennsylvania.
- AFIOH/SDRO, 2004. Consultative Letter, IOH-SD-BR-CL-2004-0004, Radium/Radon Monitoring and Dose Assessment Due to Past Luminous Paint Operations at Rome Research Site, Rome, NY, (Former Griffiss Air Force Base), Memorandum for Air Force Research Laboratory, Air Force Institute for Operational Health, Occupational Health Physics Branch, February.
- EPA, 2003. National Priorities List Fact Sheet, Griffiss Air Force Base, New York, EPA ID# NY4571924451, EPA Region 2, December.
- NRC, 2000. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), Revision 1, NUREG-1575, August.
- NRC, 2002. Consolidated NMSS Decommissioning Guidance: Characterization, Survey, and Determination of Radiological Criteria, NUREG-1757, Vol. 2, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, September.
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- USAF, 2001. Ionizing Radiation Protection, AFI 48-148, Aerospace Medicine, October.

APPENDIX A PHOTO LOG



A.1 Video camera with drive setup.



A.2 Decontamination of camera cable as it is pulled from manhole.



A.3 Video camera in winch setup.



A.4 Push camera after removal from manhole.



A.5 Conducting measurements within the sanitary sewer lift station (Building 21).



A.6 Smear sampling apparatus (at SA010, downstream of Rome Free Academy).



A.7 Collection of measurements at ST008.



A.8 Collection of beta background measurement at ST010 with Model 44-40.



A.9 Three Mile Creek outfall – June 2004.



A.10 Three Mile Creek outfall – April 2005.



A.11 Collection of gamma measurement at ST001 (outfall location).

APPENDIX B COMPLETED DATA PACKAGES

Background Reference Area (Survey Area F1000) Storm Drain System (Survey Area E2000) Sanitary Sewer System (Survey Area E3000) **Background Reference Area (Survey Area F1000)**

0/8/2005			Page 1 of 2
	Data Analysis Report Coversheet		
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Building 104 Operat	tions	

SURVEY DATA ANALYSIS COMPLETION:

Ihe survey package instructions were implemented, the measurement data analysis completed and results have been reviewed for completeness in accordance with the Sample and Analysis Plan.

Prepared By:	Jan McGehee, Senior Engineer	Date: 6/9/05
Reviewed By:	Donald McGee, Senior Engineer	Date: 6/9/05
Approved By:	Gregory L Courtney Senior Engineer, CHP	Date: 4/9/05
Approved By:	Sand Andrew PARSONS Representative	Date: B/6/05

6/8/2005					Page 2 of 2
		Data Analysi	s Report Parameters		
Survey Area:F1000Survey Area Name:Background ISurvey Package Number and Unit N		F1000 Background Reference Are r and Unit Name:	a	Package Type:	System
F10004	401B1	Drain Section(s) Upstr	eam from Building 104 Operation	ons	
Survey Gro Survey Are Unit Classif MARSSIM	oup: a: fication: FSS Surve	F - Radiological Surv 1000 - Background Refer 4 - Non-Impacted Sys by Unit Size: NA	ey of Non-Impacted Facility rence Area stem	Systems	
Survey Uni Survey Rea Surface(s):	t: son: Code DS1 - DM1 -	 01 - Drain Section(s) U B1 - Background Surve Description Sewer System Drain Storm Drain 	Jpstream from Building 104 (ey Survey Total Area	Dperations Area (M ²) NA NA NA NA	
Materials:	Code - D B1 - Bria C1 - Cor R1 - Sed S1 - Soil V2 - Vita	escription ek icrete (Bare) iment ified Clay Pipe			
Report					
Report Pe	digree:	Final Repo	rt		
Detector I	Efficiency	2-Pi			
Survey Lo	ocation:	LC5			

6/8/2005		Р	age i of xxxii						
	Data Analysis Report Measurement Results								
Survey Area: Survey Area Survey Packs F10004	 F1000 Name: Background Reference Area age Number and Unit Name: 401B1 Drain Section(s) Upstream from Building 104 Operati 	Package Type:	System						
Section	Title								
1.0	Annotated Drawings								
2.0	Direct Beta Measurement Results								
3.0	Direct Alpha Measurement Results								
4.0	Contact Gamma Exposure Rate Measurement Results								
5.0	1 Meter Gamma Exposure Rate Measurement Results								
6.0	Removable Alpha Smear Sample Analysis Results								
7.0	Removable Beta Smear Sample Analysis Results								
8.0	Alpha Spectroscopy Sample Analysis Results								

6/8/2005	Konc, itew Tork	Pa	ge ii of xxxii		
Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Num	ber and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building	104 Operations			

Section 1.0 **Annotated Drawings**





Drawing F1000-2





Rome, New York

9/13/2005

Page iii of xxxii

Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	er and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	18			

Section 2.0 Direct Beta Measurement Results

Section

- 2.1 F1000 401B1 DM1 B1 Brick material
- 2.2 F1000 401B1 DM1 C1 Concrete material
- 2.3 F1000 401B1 DM1 V2 Vitrified Clay Pipe material
- 2.4 F1000 401B1 DS1 B1 Brick material
- 2.5 F1000 401B1 DS1 C1 Concrete material
- 2.6 F1000 401B1 DS1 V2 Vitrified Clay Pipe material

9/13/2005		Pag	ge iv of xxxii			
	Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System			
Survey Area Name:	Background Reference Area					
Survey Package Num	ber and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 104 (Operations				

Section 2.1 F1000 401B1 DM1 B1 Brick material

Rome, New York

9/13/2005

Page 1 of 6

Measurement Sensitivity

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	er and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	ons			

Statistical Summary

	dpm/100cm ²		dpm/100cm ²
Mean	5,559.7	MDC Mean	2,047.9
Median	5,819.9	MDC Minimum	2,047.9
Standard Deviation	838.3	MDC Maximum	2,047.9
Range	2,413.1	DCGL	5,000
Minimum	4,187.5		
Maximum	6,600.7	Tests Performed	
		No. Collected \geq Prescribed	No
Number of Measurements		Max MDC < 50% DCGL	Yes
No. Prescribed	27	Measurements < DCGL	No
No. Collected	9	Measurement Mean < DCGL	No
		No. Measurements > DCGL	7



SDMS Documentation

Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

System

Survey Area:	F1000	PackageType:
Survey Area Name:	Background Reference Area	

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040805-001	4/7/2005	DM1B1	B01FA	BKG01	4	0.0	2,047.9	6,174.8	-1,174.8
DL040805-001	4/7/2005	DM1B1	B01FA	BKG01	5	0.0	2,047.9	4,400.4	599.6
DL040805-001	4/7/2005	DM1B1	B01FA	BKG01	6	0.0	2,047.9	5,039.2	-39.2
DL040805-001	4/7/2005	DM1B1	B01FA	BKG02	7	0.0	2,047.9	6,103.8	-1,103.8
DL040805-001	4/7/2005	DM1B1	B01FA	BKG02	8	0.0	2,047.9	4,187.5	812.5
DL040805-001	4/7/2005	DM1B1	B01FA	BKG02	9	0.0	2,047.9	5,819.9	-819.9
DL041005-003	4/8/2005	DM1B1	B01FA	BKG03	4	0.0	2,047.9	6,600.7	-1,600.7
DL041005-003	4/8/2005	DM1B1	B01FA	BKG03	5	0.0	2,047.9	6,103.8	-1,103.8
DL041005-003	4/8/2005	DM1B1	B01FA	BKG03	6	0.0	2,047.9	5,607.0	-607.0

Rome, New York

9/13/2005

Page 3 of 6

Direct Beta Measurement Results

Survey Area: F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040805-001	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/13/2005

Survey Area:

Page 5 of 6

Direct Beta Measurement Results

F1000 PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numbe	er and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	S			

Field Notes Summary

Download ID	Field Notes
DL040805-001	Background Study
DL041005-003	Background Study.

9/13/2005	Data Analysis Report Measure	P. ment Results	age v of xxxii
Summer Anos	E1000	Deckage Times	Swatam
Survey Area:	F1000	Раскаде Туре:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Buildin	ng 104 Operations	

Section 2.2 F1000 401B1 DM1 C1 Concrete material

Rome, New York

9/13/2005

Survey Area:

Direct Beta Measurement Results PackageType: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations

Statistical Summary dpm/100cm² 4,842.1 Mean N Median 4,755.3 Ν Standard Deviation 579.6 Ν Range 2,058.3 D Minimum 4,045.6 6,103.8 Maximum **Number of Measurements** No. Prescribed 27 No. Collected 9

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	2,047.9
ADC Minimum	2,047.9
ADC Maximum	2,047.9
DCGL	5,000

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	3



SDMS Documentation

Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

System

Survey Area:	F1000	PackageType:
Survey Area Name:	Background Reference Area	

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040805-001	4/7/2005	DM1C1	B01FA	BKG01	1	0.0	2,047.9	4,755.3	244.7
DL040805-001	4/7/2005	DM1C1	B01FA	BKG01	2	0.0	2,047.9	4,400.4	599.6
DL040805-001	4/7/2005	DM1C1	B01FA	BKG01	3	0.0	2,047.9	4,613.4	386.6
DL040805-001	4/7/2005	DM1C1	B01FA	BKG02	1	0.0	2,047.9	6,103.8	-1,103.8
DL040805-001	4/7/2005	DM1C1	B01FA	BKG02	2	0.0	2,047.9	4,613.4	386.6
DL040805-001	4/7/2005	DM1C1	B01FA	BKG02	3	0.0	2,047.9	4,045.6	954.4
DL041005-003	4/8/2005	DM1C1	B01FA	BKG03	1	0.0	2,047.9	5,039.2	-39.2
DL041005-003	4/8/2005	DM1C1	B01FA	BKG03	2	0.0	2,047.9	5,181.2	-181.2
DL041005-003	4/8/2005	DM1C1	B01FA	BKG03	3	0.0	2,047.9	4,826.3	173.7

Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 3 of 6

Survey Area: F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040805-001	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Beta Measurement Results

 Survey Area:
 F1000
 PackageType:
 System

 Survey Area Name:
 Background Reference Area
 Survey Package Number and Unit Name:

 F1000 401B1
 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numbe	er and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	S			

Field Notes Summary

Download ID	Field Notes
DL040805-001	Background Study
DL041005-003	Background Study.

9/13/2005 Page vi of xxx Data Analysis Report Measurement Results						
Survey Area:	F1000	Package Type:	System			
Survey Area Name:	Background Reference Area		-			
Survey Package Num	ber and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 104	Operations				

Section 2.3 F1000 401B1 DM1 V2 Vitrified Clay Pipe material

Rome, New York

9/13/2005

Page 1 of 6 **Direct Beta Measurement Results**

Measurement Sensitivity

Survey Area:	Survey Area: F1000						
Survey Area Name:	Jame: Background Reference Area						
Survey Package Number and Unit Name:							
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	S					

Statistical Summary

	dpm/100cm ²		dpm/100cm ²
Mean	5,571.5	MDC Mean	2,047.9
Median	5,642.5	MDC Minimum	2,047.9
Standard Deviation	623.2	MDC Maximum	2,047.9
Range	1,490.5	DCGL	5,000
Minimum	4,684.3		
Maximum	6,174.8	Tests Performed	
		No. Collected \geq Prescribed	No
Number of Measureme	ents	Max MDC < 50% DCGL	Yes
No. Prescribed	27	Measurements < DCGL	No
No. Collected	6	Measurement Mean < DCGL	No
		No. Measurements > DCGL	5



SDMS Documentation

Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

Survey Area:	F1000	PackageType:	System
Survey Area Name:	Background Reference Area		

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040805-001	4/7/2005	DM1V2	B01FA	BKG01	7	0.0	2,047.9	5,110.2	-110.2
DL040805-001	4/7/2005	DM1V2	B01FA	BKG01	8	0.0	2,047.9	5,323.1	-323.1
DL040805-001	4/7/2005	DM1V2	B01FA	BKG01	9	0.0	2,047.9	6,174.8	-1,174.8
DL040805-001	4/7/2005	DM1V2	B01FA	BKG02	4	0.0	2,047.9	6,174.8	-1,174.8
DL040805-001	4/7/2005	DM1V2	B01FA	BKG02	5	0.0	2,047.9	4,684.3	315.7
DL040805-001	4/7/2005	DM1V2	B01FA	BKG02	6	0.0	2,047.9	5,961.9	-961.9
Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 3 of 6



PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040805-001	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Beta Measurement Results

Survey Area:F1000PackageType:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results						
Survey Area:	F1000	PackageType:	System			
Survey Area Name:	Background Reference Area					
Survey Package Num	ber and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 104 Operat	ions				

Field Notes Summary

Download ID	Field Notes
DL040805-001	Background Study

9/13/2005 Page vii o						
	Data Analysis Report Measuremen	it Results				
Survey Area:	F1000	Package Type:	System			
Survey Area Name:	Background Reference Area					
Survey Package Num	ber and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 10	4 Operations				

Section 2.4 F1000 401B1 DS1 B1 Brick material

Rome, New York

0/1	2/2	005
9/1	3/2	005

Page 1 of 6

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	er and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	ns			

Statistical Summary	Meas	
-	dpm/100cm ²	
Mean	7,318.3	MDC Mean
Median	7,665.3	MDC Minimum
Standard Deviation	1,451.7	MDC Maximum
Range	3,761.7	DCGL
Minimum	5,678.0	
Maximum	9,439.7	Т
		No. Collected \geq Press
Number of Measurements		Max MDC < 50% DC
No. Prescribed	27	Measurements < DCC
No. Collected	9	Measurement Mean <

Measurement Sensitivity

	dpm/100cm ²
IDC Mean	2,494.0
IDC Minimum	2,494.0
IDC Maximum	2,494.0
OCGL	5,000

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	9



Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

Survey Area:	F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location of Item No. LC5	r SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-003	4/8/2005	DS1B1	B01FA	BKG04	8	0.0	2,494.0	8,020.2	-3,020.2
DL041005-003	4/8/2005	DS1B1	B01FA	BKG04	9	0.0	2,494.0	9,439.7	-4,439.7
DL041005-003	4/8/2005	DS1B1	B01FA	BKG04	10	0.0	2,494.0	9,226.7	-4,226.7
DL041005-003	4/8/2005	DS1B1	B01FA	BKG05	4	0.0	2,494.0	7,665.3	-2,665.3
DL041005-003	4/8/2005	DS1B1	B01FA	BKG05	5	0.0	2,494.0	6,458.7	-1,458.7
DL041005-003	4/8/2005	DS1B1	B01FA	BKG05	6	0.0	2,494.0	7,736.3	-2,736.3
DL041305-009	4/12/2005	DS1B1	B01FA	BKG06	1	0.0	2,494.0	5,749.0	-749.0
DL041305-009	4/12/2005	DS1B1	B01FA	BKG06	2	0.0	2,494.0	5,678.0	-678.0
DL041305-009	4/12/2005	DS1B1	B01FA	BKG06	3	0.0	2,494.0	5,890.9	-890.9

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9/13/2005

Page 3 of 6

Direct Beta Measurement Results

Survey Area: F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



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9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Beta Measurement Results

Survey Area:F1000PackageType:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results						
Survey Area:	F1000	PackageType:	System			
Survey Area Name:	Background Reference Area					
Survey Package Number and Unit Name:						
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	ns				

Field Notes Summary

Download ID	Field Notes
DL041005-003	Background Study.
DL041305-009	Background Study

9/13/2005	Data Analyzia Danant Maagumama	Page	e viii of xxxii
	Data Analysis Report Measuremen		
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Building 10	04 Operations	

Section 2.5 F1000 401B1 DS1 C1 Concrete material

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Page 1 of 6

Direct Beta Measurement Results						
Survey Area:	F1000	PackageType:	System			
Survey Area Name:	Background Reference Area					
Survey Package Numb	er and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	ons				

Statistical Summary

Statistical Sum	mary	Measurement Sensitivity		
	dpm/100cm ²		dpm/100cm ²	
Mean	6,103.8	MDC Mean	2,494.0	
Median	6,103.8	MDC Minimum	2,494.0	
Standard Deviation	1,168.9	MDC Maximum	2,494.0	
Range	3,051.9	DCGL	5,000	
Minimum	4,613.4			
Maximum	7,665.3	Tests Performe	d	
		No. Collected \geq Prescribed	No	
Number of Measu	rements	Max MDC < 50% DCGL	Yes	
No. Prescribed	27	Measurements < DCGL	No	
No. Collected	9	Measurement Mean < DCGL	No	
		No. Measurements > DCGL	7	



Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

Survey Area.	E1000
Survey Area.	11000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location of Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-003	4/8/2005	DS1C1	B01FA	BKG04	1	0.0	2,494.0	5,181.2	-181.2
DL041005-003	4/8/2005	DS1C1	B01FA	BKG04	2	0.0	2,494.0	6,103.8	-1,103.8
DL041005-003	4/8/2005	DS1C1	B01FA	BKG04	3	0.0	2,494.0	7,665.3	-2,665.3
DL041005-003	4/8/2005	DS1C1	B01FA	BKG05	1	0.0	2,494.0	6,742.6	-1,742.6
DL041005-003	4/8/2005	DS1C1	B01FA	BKG05	2	0.0	2,494.0	7,168.5	-2,168.5
DL041005-003	4/8/2005	DS1C1	B01FA	BKG05	3	0.0	2,494.0	7,310.4	-2,310.4
DL041305-009	4/12/2005	DS1C1	B01FA	BKG06	4	0.0	2,494.0	5,465.1	-465.1
DL041305-009	4/12/2005	DS1C1	B01FA	BKG06	5	0.0	2,494.0	4,613.4	386.6
DL041305-009	4/12/2005	DS1C1	B01FA	BKG06	6	0.0	2,494.0	4,684.3	315.7

Rome, New York

9/13/2005

Page 3 of 6

Direct Beta Measurement Results

Survey Area: F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Beta Measurement Results

Survey Area:F1000PackageType:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Number	Survey Package Number and Unit Name:				
F1000 401B1 Drain Section(s) Upstream from Building 104 Operations					

Field Notes Summary

Download ID	Field Notes
DL041005-003	Background Study.
DL041305-009	Background Study

9/13/2005 Page ix of xxxi Data Analysis Report Measurement Results					
Sumon Amon		Daskaga Tupa	System		
Survey Area:	F1000	Fackage Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Num	per and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building	104 Operations			

Section 2.6 F1000 401B1 DS1 V2 Vitrified Clay Pipe material

Rome, New York

9/13/2005

Page 1 of 6

Measurement Sensitivity

Direct Beta Measurement Results					
Survey Area:	F1000	PackageType:	System		
Survey Area Name:	Background Reference Area				
Survey Package Number and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Building 104 Operatio	ns			

Statistical Summary

-	dpm/100cm ²		dpm/100cm ²
Mean	8,152.0	MDC Mean	2,494.0
Median	8,091.1	MDC Minimum	2,494.0
Standard Deviation	856.1	MDC Maximum	2,494.0
Range	2,768.0	DCGL	5,000
Minimum	6,742.6		
Maximum	9,510.6	Tests Performed	
		No. Collected \geq Prescribed	No
Number of Measurements	6	Max MDC < 50% DCGL	Yes
No. Prescribed	27	Measurements < DCGL	No
No. Collected	7	Measurement Mean < DCGL	No
		No. Measurements > DCGL	7



Rome, New York

9/13/2005

Direct Beta Measurement Results

Page 2 of 6

Survey Area:	F1000
Summer Area Norman	Deckensund Defense Ano

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location of Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-003	4/8/2005	DS1V2	B01FA	BKG04	4	0.0	2,494.0	8,091.1	-3,091.1
DL041005-003	4/8/2005	DS1V2	B01FA	BKG04	5	0.0	2,494.0	8,020.2	-3,020.2
DL041005-003	4/8/2005	DS1V2	B01FA	BKG04	6	0.0	2,494.0	8,091.1	-3,091.1
DL041005-003	4/8/2005	DS1V2	B01FA	BKG04	7	0.0	2,494.0	7,807.2	-2,807.2
DL041005-003	4/8/2005	DS1V2	B01FA	BKG05	7	0.0	2,494.0	8,800.9	-3,800.9
DL041005-003	4/8/2005	DS1V2	B01FA	BKG05	8	0.0	2,494.0	9,510.6	-4,510.6
DL041005-003	4/8/2005	DS1V2	B01FA	BKG05	9	0.0	2,494.0	6,742.6	-1,742.6

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9/13/2005

Page 3 of 6

Direct Beta Measurement Results

Survey Area: F1000

PackageType: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Beta Measurement Results Survey Area: F1000 PackageType: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

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9/13/2005

Page 5 of 6

Direct Beta Measurement Results

Survey Area:F1000PackageType:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

9/13/2005

Page 6 of 6

Direct Beta Measurement Results				
Survey Area:	F1000	PackageType:	System	
Survey Area Name:	Background Reference Area			
Survey Package Num	ber and Unit Name:			
F1000401B1	Drain Section(s) Upstream from Building 104 Opera	tions		
Field Notes Summary	,			

Field Notes Summary

Download ID	Field Notes
DL041005-003	Background Study.

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9/13/2005

Page x of xxxii

Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Number and Unit Name:					
F1000 401B1 Drain Section(s) Upstream from Building 104 Operations					

Section 3.0 **Direct Alpha Measurement Results**

Section

3.1	F1000 401B1, DM1 Direct Alpha B1 Brick material
3.2	F1000 401B1, DM1 Direct Alpha C1 Concrete material
3.3	F1000 401B1, DM1 Direct Alpha V2 Vitrified Clay Pipe material
3.4	F1000 401B1, DS1 Direct Alpha B1 Brick material
3.5	F1000 401B1, DS1 Direct Alpha C1 Concrete material
3.6	F1000 401B1, DS1 Direct Alpha V2 Vitrified Clay Pipe material

Page xi of xxxii Data Analysis Report Measurement Results						
Survey Area:	F1000	Package Type:	System			
Survey Area Name:	Background Reference Area					
Survey Package Num	ber and Unit Name:					
F1000401B1	Drain Section(s) Upstream from Buildin	g 104 Operations				

Section 3.1 F1000 401B1, DM1 Direct Alpha B1 Brick material

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9/13/2005

Direct Alpha Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Num	ber and Unit Name:			
F1000 401B1	Drain Section(s) Upstream from Building 104 Operation	ions		

Statistical Summary

	dpm/100cm ²
Mean	52.8
Median	47.5
Standard Deviation	50.1
Range	142.5
Minimum	0.0
Maximum	142.5
Number of Measurements	
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	275.3
MDC Minimum	275.3
MDC Maximum	275.3
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	1



Rome, New York

9/13/2005

Survey Area:

Page 2 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040705-002	4/7/2005	DM1B1	A02FA	BKG01	7	0.0	275.3	95.0	5.0
DL040705-002	4/7/2005	DM1B1	A02FA	BKG01	8	0.0	275.3	95.0	5.0
DL040705-002	4/7/2005	DM1B1	A02FA	BKG01	9	0.0	275.3	0.0	100.0
DL040705-002	4/7/2005	DM1B1	A02FA	BKG02	7	0.0	275.3	142.5	-42.5
DL040705-002	4/7/2005	DM1B1	A02FA	BKG02	8	0.0	275.3	0.0	100.0
DL040705-002	4/7/2005	DM1B1	A02FA	BKG02	9	0.0	275.3	47.5	52.5
DL041005-002	4/8/2005	DM1B1	A02FA	BKG03	4	0.0	275.3	0.0	100.0
DL041005-002	4/8/2005	DM1B1	A02FA	BKG03	5	0.0	275.3	47.5	52.5
DL041005-002	4/8/2005	DM1B1	A02FA	BKG03	6	0.0	275.3	47.5	52.5

Rome, New York

9/13/2005

Direct Alpha Measurement Results

Page 3 of 6

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040705-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591
DL041005-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Alpha Measurement Results

Survey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package NumberUnit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Field Notes Summary

Download ID	Field Notes
DL040705-002	Background Study
DL041005-002	Background Study

Page 6 of 6

9/13/2005 Page xii of xx Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Num	ber and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Buildin	g 104 Operations			

Section 3.2 F1000 401B1, DM1 Direct Alpha C1 Concrete material

Rome, New York

9/13/2005

Direct Alpha Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Number and Unit Name:					
F1000 401B1	Drain Section(s) Upstream from Building 104 Operation	ons			

Statistical Summary

	dpm/100cm ²					
Mean	84.4					
Median	47.5					
Standard Deviation	94.3					
Range	237.5					
Minimum	0.0					
Maximum	237.5					
Number of Measurements						
No. Prescribed	27					
No. Collected	9					

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	275.3
MDC Minimum	275.3
MDC Maximum	275.3
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	3



Rome, New York

9/13/2005

Direct Alpha Measurement Results

Page 2 of 6

Survey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040705-002	4/7/2005	DM1C1	A02FA	BKG01	1	0.0	275.3	0.0	100.0
DL040705-002	4/7/2005	DM1C1	A02FA	BKG01	2	0.0	275.3	47.5	52.5
DL040705-002	4/7/2005	DM1C1	A02FA	BKG01	3	0.0	275.3	47.5	52.5
DL040705-002	4/7/2005	DM1C1	A02FA	BKG02	1	0.0	275.3	190.0	-90.0
DL040705-002	4/7/2005	DM1C1	A02FA	BKG02	2	0.0	275.3	190.0	-90.0
DL040705-002	4/7/2005	DM1C1	A02FA	BKG02	3	0.0	275.3	237.5	-137.5
DL041005-002	4/8/2005	DM1C1	A02FA	BKG03	1	0.0	275.3	0.0	100.0
DL041005-002	4/8/2005	DM1C1	A02FA	BKG03	2	0.0	275.3	47.5	52.5
DL041005-002	4/8/2005	DM1C1	A02FA	BKG03	3	0.0	275.3	0.0	100.0
Rome, New York

9/13/2005

Direct Alpha Measurement Results

Page 3 of 6

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040705-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591
DL041005-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Alpha Measurement Results

 Survey Area:
 F1000
 Package Type:
 System

 Survey Area Name:
 Background Reference Area
 Survey Package Number and Unit Name:

 F1000 401B1
 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package NumberUnit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Field Notes Summary

Download ID	Field Notes
DL040705-002	Background Study
DL041005-002	Background Study

Page 6 of 6

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/13/2005		Page	xiii of xxxii
	Data Analysis Report Measure	ment Results	
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Buildin	ng 104 Operations	

Section 3.3 F1000 401B1, DM1 Direct Alpha V2 Vitrified Clay Pipe material

Rome, New York

9/13/2005

Direct Alpha Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Numl	ber and Unit Name:			
F1000401B1	Drain Section(s) Upstream from Building 104 Operati	ons		

Statistical Summary

	dpm/100cm ²
Mean	110.8
Median	95.0
Standard Deviation	71.5
Range	190.0
Minimum	47.5
Maximum	237.5
Number of Measurements	
No. Prescribed	27
No. Collected	6

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	275.3
MDC Minimum	275.3
MDC Maximum	275.3
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	2



Rome, New York

9/13/2005

Survey Area:

Page 2 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL040705-002	4/7/2005	DM1V2	A02FA	BKG01	4	0.0	275.3	47.5	52.5
DL040705-002	4/7/2005	DM1V2	A02FA	BKG01	5	0.0	275.3	47.5	52.5
DL040705-002	4/7/2005	DM1V2	A02FA	BKG01	6	0.0	275.3	142.5	-42.5
DL040705-002	4/7/2005	DM1V2	A02FA	BKG02	4	0.0	275.3	95.0	5.0
DL040705-002	4/7/2005	DM1V2	A02FA	BKG02	5	0.0	275.3	237.5	-137.5
DL040705-002	4/7/2005	DM1V2	A02FA	BKG02	6	0.0	275.3	95.0	5.0

Rome, New York

9/13/2005

Direct Alpha Measurement Results

Page 3 of 6

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package Number Unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL040705-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

System

Direct Alpha Measurement Results

Survey Area:F1000Package Type:Survey Area Name:Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Package Nume: System Survey Package Nume: Drain Section(s) Upstream from Building 104 Operations Package Nume: Survey Summary Field Notes Summary Survey Summary Survey Summary Survey Summary Survey Summary

Download ID	Field Notes

DL040705-002 Background Study

Page 6 of 6

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/13/2005 Pag			e xiv of xxxii
	Data Analysis Report Measurement Resu	llts	
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Building 104 Opera	tions	

F1000 401B1, DS1 Direct Alpha B1 Brick material Section 3.4

Rome, New York

9/13/2005

Direct Alpha Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area		-	
Survey Package Numl	ber and Unit Name:			
F1000 401B1	Drain Section(s) Upstream from Building 104 Operation	ons		

Statistical Summary

	dpm/100cm ²
Mean	683.8
Median	427.5
Standard Deviation	621.8
Range	1,454.0
Minimum	113.5
Maximum	1,567.5
Number of Measurements	
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	468.5
MDC Minimum	400.3
MDC Maximum	502.6
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	9



Rome, New York

9/13/2005

Survey Area:

Page 2 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-002	4/8/2005	DS1B1	A02FA	BKG04	7	0.0	502.6	1,377.5	-1,277.5
DL041005-002	4/8/2005	DS1B1	A02FA	BKG04	8	0.0	502.6	1,567.5	-1,467.5
DL041005-002	4/8/2005	DS1B1	A02FA	BKG04	9	0.0	502.6	1,520.0	-1,420.0
DL041005-002	4/8/2005	DS1B1	A02FA	BKG05	13	0.0	502.6	570.0	-470.0
DL041005-002	4/8/2005	DS1B1	A02FA	BKG05	14	0.0	502.6	427.5	-327.5
DL041005-002	4/8/2005	DS1B1	A02FA	BKG05	15	0.0	502.6	237.5	-137.5
DL041305-008	4/12/2005	DS1B1	A02FA	BKG06	1	0.0	400.3	151.3	-51.3
DL041305-008	4/12/2005	DS1B1	A02FA	BKG06	2	0.0	400.3	189.2	-89.2
DL041305-008	4/12/2005	DS1B1	A02FA	BKG06	3	0.0	400.3	113.5	-13.5

Rome, New York

9/13/2005

Page 3 of 6

Direct Alpha Measurement Results

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591
DL041305-008	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

Rome, New York

9/13/2005

Survey Area:

Page 5 of 6

Direct Alpha Measurement Results

F1000 Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package NumberUnit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Field Notes Summary

Download ID	Field Notes
DL041005-002	Background Study
DL041305-008	Background Study

Page 6 of 6

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/13/2005		Pag	e xv of xxxii
	Data Analysis Report Measure	ment Results	
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Buildir	ng 104 Operations	

Section 3.5 F1000 401B1, DS1 Direct Alpha C1 Concrete material

Rome, New York

9/13/2005

Direct Alpha Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	per and Unit Name:				
F1000 401B1	Drain Section(s) Upstream from Building 104 Operation	ns			

Statistical Summary

	dpm/100cm ²
Mean	707.0
Median	567.6
Standard Deviation	507.5
Range	1,491.9
Minimum	75.7
Maximum	1,567.5
Number of Measurements	
No. Prescribed	27
No. Collected	11

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	474.7
MDC Minimum	400.3
MDC Maximum	502.6
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	10



Page 1 of 6

Rome, New York

9/13/2005

Survey Area:

Page 2 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-002	4/8/2005	DS1C1	A02FA	BKG04	2	0.0	502.6	1,377.5	-1,277.5
DL041005-002	4/8/2005	DS1C1	A02FA	BKG04	3	0.0	502.6	1,567.5	-1,467.5
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	1	0.0	502.6	237.5	-137.5
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	2	0.0	502.6	380.0	-280.0
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	3	0.0	502.6	285.0	-185.0
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	10	0.0	502.6	902.5	-802.5
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	11	0.0	502.6	807.5	-707.5
DL041005-002	4/8/2005	DS1C1	A02FA	BKG05	12	0.0	502.6	1,235.0	-1,135.0
DL041305-008	4/12/2005	DS1C1	A02FA	BKG06	4	0.0	400.3	340.5	-240.5
DL041305-008	4/12/2005	DS1C1	A02FA	BKG06	5	0.0	400.3	567.6	-467.6
DL041305-008	4/12/2005	DS1C1	A02FA	BKG06	6	0.0	400.3	75.7	24.3

Rome, New York

9/13/2005

Page 3 of 6

Direct Alpha Measurement Results

Survey Area:F1000Survey Area Name:Background Refe

Package Type: System

Survey Area Name: Background Reference Area Survey Package Number and Unit Name:

F1000 401B1 D

Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement Results Survey Area: F1000 F1000 Package Type: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591
DL041305-008	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Survey Package Number and Unit Name: F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package NumberF1000 401B1Drain Section(s) Upstream from Building 104 Operations

Field Notes Summary

Download ID	Field Notes
DL041005-002	Background Study
DL041305-008	Background Study

Page 6 of 6

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/13/2005 Page xvi of xxx Data Analysis Report Measurement Results								
Survey Area:	F1000	Package Type:	System					
Survey Area Name:	Background Reference Area							
Survey Package Num	ber and Unit Name:							
F1000401B1	Drain Section(s) Upstream from Building 104	Operations						

Section 3.6 F1000 401B1, DS1 Direct Alpha V2 Vitrified Clay Pipe material

Rome, New York

9/13/2005

Direct Alpha Measurement Results							
Survey Area:	F1000	Package Type:	System				
Survey Area Name:	Background Reference Area						
Survey Package Num	ber and Unit Name:						
F1000401B1	Drain Section(s) Upstream from Building 104 Operation	ns					

Statistical Summary

	dpm/100cm ²
Mean	860.3
Median	902.5
Standard Deviation	554.7
Range	1,520.0
Minimum	142.5
Maximum	1,662.5
Number of Measurements	
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	502.6
MDC Minimum	502.6
MDC Maximum	502.6
DCGL	100

Tests Performed

No. Collected \geq Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	9



FRAMATOME ANP

Rome, New York

9/13/2005

Survey Area:

Page 2 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Background Reference Area

F1000

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-002	4/8/2005	DS1V2	A02FA	BKG04	4	0.0	502.6	1,282.5	-1,182.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG04	5	0.0	502.6	1,662.5	-1,562.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG04	6	0.0	502.6	1,472.5	-1,372.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	4	0.0	502.6	142.5	-42.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	5	0.0	502.6	285.0	-185.0
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	6	0.0	502.6	237.5	-137.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	7	0.0	502.6	902.5	-802.5
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	8	0.0	502.6	760.0	-660.0
DL041005-002	4/8/2005	DS1V2	A02FA	BKG05	9	0.0	502.6	997.5	-897.5

Rome, New York

9/13/2005

Page 3 of 6

Direct Alpha Measurement Results

Survey Area:F1000Survey Area Name:Background Refer

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

9/13/2005

Page 4 of 6

Direct Alpha Measurement ResultsSurvey Area:F1000Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package Number unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-002	120636	1/18/2006	43-5	PR127389	1/18/2006	76	0.1108	JLM0591

Rome, New York

9/13/2005

Page 5 of 6

Direct Alpha Measurement Results

Survey Area:F100Package Type:SystemSurvey Area Name:Background Reference AreaSurvey Package Number and Unit Name:F1000 401B1Drain Section(s) Upstream from Building 104 Operations

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

Rome, New York

9/13/2005

Direct Alpha Measurement Results Survey Area: F1000 Package Type: System Survey Area Name: Background Reference Area Package Numeer System Survey Package Number and Unit Name: Drain Section(s) Upstream from Building 104 Operations Field Notes Summary

Download ID Field Notes

DL041005-002 Background Study

Page 6 of 6

Rome, New York

Page xxiii of xxxii

Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	er and Unit Name:				
F1000 401B1	Drain Section(s) Upstream from Building 104 Operation	ns			

Section 4.0 Contact Gamma Exposure Rate Measurement Results

Section

6/8/2005

4.1	F1000 401B1, Contact Gamma Report - all materials
4.2	F1000 401B1, Contact Gamma Report - Brick.pdf
4.3	F1000 401B1, Contact Gamma Report - Clay Pipe
4.4	F1000 401B1, Contact Gamma Report – Concrete
4.5	F1000 401B1, Contact Gamma Report – Sediment

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005 Page xxiv of xx. Data Analysis Report Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Num	ber and Unit Name:			
F1000401B1	Drain Section(s) Upstream from Build	ling 104 Operations		

Section 4.1 F1000 401B1, Contact Gamma Report - all materials

Rome, New York

5/31/2005			Page 1 of 7
Cont	act Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	e Area	
Survey Package Number	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstre	am from Building 104 Operations	

Statistical Summary Material Background uR/hr uR/hr 14.0 0.0 Mean Mean 15.7 Median N Standard Deviation 3.4 Ν Range 11.0 R Minimum 7.2 Maximum 18.2 **Tests Performed**

Number of Measurements

No. Prescribed	54
No. Collected	57

Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

No. Collected >/= Prescribed	Yes
Measurement Mean < RV	Yes
Measurements < RV	Yes
No. Measurements $> RV$	0



Rome, New York

5/31/2005			Page 2 of 7
Cont	act Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Number	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL040705-001	4/7/2005	DM1B1	BKG01	00007	20.8	12.2	8.6
DL040705-001	4/7/2005	DM1B1	BKG01	00008	20.8	16.4	4.4
DL040705-001	4/7/2005	DM1B1	BKG01	00009	20.8	17.6	3.2
DL040705-001	4/7/2005	DM1B1	BKG02	00004	20.8	16.3	4.5
DL040705-001	4/7/2005	DM1B1	BKG02	00005	20.8	15.2	5.6
DL040705-001	4/7/2005	DM1B1	BKG02	00006	20.8	16.1	4.7
DL040705-001	4/7/2005	DM1C1	BKG01	00001	20.8	10.5	10.3
DL040705-001	4/7/2005	DM1C1	BKG01	00002	20.8	10.5	10.3
DL040705-001	4/7/2005	DM1C1	BKG01	00003	20.8	9.8	11.0
DL040705-001	4/7/2005	DM1C1	BKG02	00010	20.8	10.7	10.1
DL040705-001	4/7/2005	DM1C1	BKG02	00011	20.8	10.7	10.1
DL040705-001	4/7/2005	DM1C1	BKG02	00012	20.8	11.0	9.8
DL040705-001	4/7/2005	DM1R1	BKG01	00010	20.8	7.9	12.9
DL040705-001	4/7/2005	DM1R1	BKG01	00011	20.8	7.8	13.0
DL040705-001	4/7/2005	DM1R1	BKG01	00012	20.8	8.1	12.7
DL040705-001	4/7/2005	DM1R1	BKG02	00001	20.8	8.0	12.8
DL040705-001	4/7/2005	DM1R1	BKG02	00002	20.8	7.2	13.6
DL040705-001	4/7/2005	DM1R1	BKG02	00003	20.8	8.4	12.4
DL041005-001	4/8/2005	DM1R1	BKG03	00001	20.8	9.5	11.3
DL041005-001	4/8/2005	DM1R1	BKG03	00002	20.8	9.4	11.4
DL041005-001	4/8/2005	DM1R1	BKG03	00003	20.8	9.5	11.3
DL041005-001	4/8/2005	DM1R1	BKG03	00004	20.8	10.3	10.5
DL041005-001	4/8/2005	DM1R1	BKG03	00005	20.8	10.3	10.5
DL041005-001	4/8/2005	DM1R1	BKG03	00006	20.8	10.0	10.8
DL041005-001	4/8/2005	DM1R1	BKG03	00007	20.8	18.1	2.7
DL041005-001	4/8/2005	DM1R1	BKG03	00008	20.8	17.7	3.1

FRAMATOME ANP Federal D&D Services SDMS Documentation
Rome, New York

5/31/2005			Page 3 of 7
Cont	act Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL041005-001	4/8/2005	DM1R1	BKG03	00009	20.8	18.2	2.6
DL040705-001	4/7/2005	DM1V2	BKG01	00004	20.8	13.8	7.0
DL040705-001	4/7/2005	DM1V2	BKG01	00005	20.8	14.0	6.8
DL040705-001	4/7/2005	DM1V2	BKG01	00006	20.8	14.0	6.8
DL040705-001	4/7/2005	DM1V2	BKG02	00007	20.8	13.9	6.9
DL040705-001	4/7/2005	DM1V2	BKG02	00008	20.8	13.8	7.0
DL040705-001	4/7/2005	DM1V2	BKG02	00009	20.8	13.7	7.1
DL041005-001	4/8/2005	DS1B1	BKG04	00001	20.8	14.6	6.2
DL041005-001	4/8/2005	DS1B1	BKG04	00002	20.8	17.7	3.1
DL041005-001	4/8/2005	DS1B1	BKG04	00003	20.8	17.8	3.0
DL041005-001	4/8/2005	DS1B1	BKG05	00004	20.8	17.5	3.3
DL041005-001	4/8/2005	DS1B1	BKG05	00005	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1B1	BKG05	00006	20.8	16.0	4.8
DL041305-007	4/12/2005	DS1B1	BKG06	00001	20.8	18.2	2.6
DL041305-007	4/12/2005	DS1B1	BKG06	00002	20.8	18.0	2.8
DL041305-007	4/12/2005	DS1B1	BKG06	00003	20.8	18.1	2.7
DL041005-001	4/8/2005	DS1C1	BKG04	00004	20.8	16.7	4.1
DL041005-001	4/8/2005	DS1C1	BKG04	00005	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1C1	BKG04	00006	20.8	16.3	4.5
DL041005-001	4/8/2005	DS1C1	BKG05	00001	20.8	15.7	5.1
DL041005-001	4/8/2005	DS1C1	BKG05	00002	20.8	16.1	4.7
DL041005-001	4/8/2005	DS1C1	BKG05	00003	20.8	16.2	4.6
DL041305-007	4/12/2005	DS1C1	BKG06	00001	20.8	16.1	4.7
DL041305-007	4/12/2005	DS1C1	BKG06	00002	20.8	15.6	5.2
DL041305-007	4/12/2005	DS1C1	BKG06	00003	20.8	16.1	4.7
DL041005-001	4/8/2005	DS1V2	BKG04	00007	20.8	16.3	4.5

FRAMATOME ANP Federal D&D Services SDMS Documentation

Rome, New York

5/31/2005			Page 4 of 7
Cont	tact Gamma Exposure Rate M	easurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL041005-001	4/8/2005	DS1V2	BKG04	00008	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1V2	BKG04	00009	20.8	16.7	4.1
DL041005-001	4/8/2005	DS1V2	BKG05	00007	20.8	15.8	5.0
DL041005-001	4/8/2005	DS1V2	BKG05	00008	20.8	15.9	4.9
DL041005-001	4/8/2005	DS1V2	BKG05	00009	20.8	15.9	4.9

Rome, New York

5/31/2005			Page 5 of 7
Cont	tact Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL040705-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041005-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 6 of 7
Cont	act Gamma Exposure Rate M	easurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Contact Gamma Background Subtract (uR/hr)
B1	Brick	Brick Description	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.0
R1	Sediment	Sediment Description	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

Rome, New York

5/31/2005			Page 7 of 7
Cont	act Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Field Notes Summary

Download ID	Field Notes
DL040705-001	Background Study
DL041005-001	Archive filename: DL040805-001.TMP
DL041305-007	Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005	Data Analysis Report Measurement Results				
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Num	ber and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Build	ling 104 Operations			

Section 4.2 F1000 401B1, Contact Gamma Report - Brick.pdf

Rome, New York

5/31/2005			Page 1 of 5
Contac	t Gamma Exposure Rate M	easurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Number a	nd Unit Name:		
Survey Package Number a	nd Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	
Statistica	ll Summary	Material Back	ground
	uR/hr		uR/hr
Mean	16.6	Mean	0.0
Median	16.5	Minimum	0.0
Standard Deviation	on 1.6	Maximum	0.0
Range	6.1	Reference Value (RV)	20.8
Minimum	12.2		
Maximum	18.2	Tests Perfor	med
		No. Collected >/= Prescribe	d No
Number of	Measurements	Measurement Mean < RV	Yes
No. Prescribed	54	Measurements < RV	Yes
No. Collected	15	No. Measurements > RV	0
		• • • • •	+
Contact Gamma			
1 1 2	2 3 3 4	4 5 5 6 6	7 8

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Rome, New York

5/31/2005			Page 2 of 5
Con	tact Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	Area	
Survey Package Numbe	er and Unit Name:		
Survey Package Numbe	er and Unit Name:		
F1000 401B1	Drain Section(s) Upstrea	m from Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL040705-001	4/7/2005	DM1B1	BKG01	00007	20.8	12.2	8.6
DL040705-001	4/7/2005	DM1B1	BKG01	00008	20.8	16.4	4.4
DL040705-001	4/7/2005	DM1B1	BKG01	00009	20.8	17.6	3.2
DL040705-001	4/7/2005	DM1B1	BKG02	00004	20.8	16.3	4.5
DL040705-001	4/7/2005	DM1B1	BKG02	00005	20.8	15.2	5.6
DL040705-001	4/7/2005	DM1B1	BKG02	00006	20.8	16.1	4.7
DL041005-001	4/8/2005	DS1B1	BKG04	00001	20.8	14.6	6.2
DL041005-001	4/8/2005	DS1B1	BKG04	00002	20.8	17.7	3.1
DL041005-001	4/8/2005	DS1B1	BKG04	00003	20.8	17.8	3.0
DL041005-001	4/8/2005	DS1B1	BKG05	00004	20.8	17.5	3.3
DL041005-001	4/8/2005	DS1B1	BKG05	00005	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1B1	BKG05	00006	20.8	16.0	4.8
DL041305-007	4/12/2005	DS1B1	BKG06	00001	20.8	18.2	2.6
DL041305-007	4/12/2005	DS1B1	BKG06	00002	20.8	18.0	2.8
DL041305-007	4/12/2005	DS1B1	BKG06	00003	20.8	18.1	2.7

Rome, New York

Contact Gamma Exposure Rate Measurement Results					
F1000	Package Type:	System			
Background Reference Area					
d Unit Name:					
d Unit Name:					
Drain Section(s) Upstream from	n Building 104 Operations				
	t Gamma Exposure Rate F1000 Background Reference Area d Unit Name: d Unit Name: Drain Section(s) Upstream from	Fackage Type: F1000 Package Type: Background Reference Area Package Type: Ind Unit Name: Package Type: Drain Section(s) Upstream from Building 104 Operations			

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL040705-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041005-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5		
Contact Gamma Exposure Rate Measurement Results					
Survey Area LC1:	F1000	Package Type:	System		
Survey Area Name:	Background F	Reference Area			
Survey Package Numbe	er and Unit Name:				
Survey Package Numbe	er and Unit Name:				
F1000 401B1	Drain Section(s)) Upstream from Building 104 Operations			
Material Background S	ummary				
Matanial	K 1	Material Careford			

Material	Material	Material Surface	Contact Gamma
LC3_P45	Description	Description	Background
			Subtract (uR/hr)
B1	Brick	Brick Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
	Contact Gamma Exposure	Rate Measurement Results	
Survey Area LC	F1000	Package Type:	System
Survey Area Na	me: Background Reference	ee Area	
Survey Package	Number and Unit Name:		
Survey Package	Number and Unit Name:		
F1000 401	B1 Drain Section(s) Upstre	am from Building 104 Operations	
Field Notes Sum	mary		
Download ID	Field Notes		
DL040705-001	Background Study		
DL041005-001	Archive filename: DL040805-001.TM	p	

DL041305-007 Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005	Data Analysis Report Measure	Page ement Results	xxvi of xxxii
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Build	ing 104 Operations	

Section 4.3 F1000 401B1, Contact Gamma Report - Clay Pipe

Rome, New York

5/31/2005				Page 1 of 5
Con	tact Gamma Exposu	re Rate Measurem	ent Results	
Survey Area LC1: Survey Area Name: Survey Package Numbe	F1000 Background Refer er and Unit Name:	Packa ence Area	ge Type:	System
Survey Package Numbe	er and Unit Name:			
F1000 401B1	Drain Section(s) Ups	tream from Building 10	4 Operations	
Statis	tical Summary		Material Ba	ckground
	uR/hr			uR/hr
Mean	15.0	Mea	n	0.0
Median	14.9	Mini	imum	0.0
Standard Dev	iation 1.2	Max	imum	0.0
Range	2.9	Refe	erence Value (RV)	20.8
Minimum	13.7			
Maximum	16.7		Tests Per	formed
		No.	Collected >/= Prescr	ribed No
Number	of Measurements	Mea	surement Mean < R	V Yes
No. Prescribe	d 54	Meas	surements < RV	Yes
	• •	•	• •	• •
Contact Gamma		7 7 8		9 9

Measurement Location

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FRAMATOME ANP Federal D&D Services

Rome, New York

5/31/2005			Page 2 of 5
Cont	act Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	e Area	
Survey Package Number	and Unit Name:		
Survey Package Number	and Unit Name:		
F1000 401B1	Drain Section(s) Upstre	am from Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL040705-001	4/7/2005	DM1V2	BKG01	00004	20.8	13.8	7.0
DL040705-001	4/7/2005	DM1V2	BKG01	00005	20.8	14.0	6.8
DL040705-001	4/7/2005	DM1V2	BKG01	00006	20.8	14.0	6.8
DL040705-001	4/7/2005	DM1V2	BKG02	00007	20.8	13.9	6.9
DL040705-001	4/7/2005	DM1V2	BKG02	00008	20.8	13.8	7.0
DL040705-001	4/7/2005	DM1V2	BKG02	00009	20.8	13.7	7.1
DL041005-001	4/8/2005	DS1V2	BKG04	00007	20.8	16.3	4.5
DL041005-001	4/8/2005	DS1V2	BKG04	00008	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1V2	BKG04	00009	20.8	16.7	4.1
DL041005-001	4/8/2005	DS1V2	BKG05	00007	20.8	15.8	5.0
DL041005-001	4/8/2005	DS1V2	BKG05	00008	20.8	15.9	4.9
DL041005-001	4/8/2005	DS1V2	BKG05	00009	20.8	15.9	4.9

Rome, New York

Contact Gamma Exposure Rate Measurement Results					
Survey Area LC1:	F1000	Package Type:	System		
Survey Area Name:	Background Referen	ce Area			
Survey Package Numbe	r and Unit Name:				
Survey Package Numbe	r and Unit Name:				
F1000 401B1	Drain Section(s) Upstre	eam from Building 104 Operations			

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL040705-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041005-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5			
Contact Gamma Exposure Rate Measurement Results						
Survey Area LC1:	F1000	Package Type:	System			
Survey Area Name:	Background Re	eference Area				
Survey Package Numbe	er and Unit Name:					
Survey Package Numbe	er and Unit Name:					
F1000 401B1	Drain Section(s)	Upstream from Building 104 Operations				
Material Background S	ummary					
Matanial	Keterial	Material Conference	Contract Contract			

Material	Material	Material Surface	Contact Gamma
LC3_P45	Description	Description	Background Subtract (uR/hr)
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

Rome, New York

5/31/2005			Page 5 of 5			
Contact Gamma Exposure Rate Measurement Results						
Survey Area LC	F1000	Package Type:	System			
Survey Area Na	me: Background Reference	ee Area				
Survey Package	Number and Unit Name:					
Survey Package	Number and Unit Name:					
F1000 401	B1 Drain Section(s) Upstre	am from Building 104 Operations				
Field Notes Sum	mary					
Download ID	Field Notes					
DL040705-001	Background Study					
DL041005-001	Archive filename: DL040805-001.TM	p				

DL041305-007 Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

5/8/2005 Page xxvii of xxxi Data Analysis Report Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Num	ber and Unit Name:			
F1000401B1	Drain Section(s) Upstream from Building	104 Operations		

Section 4.4 F1000 401B1, Contact Gamma Report – Concrete

Rome, New York

	00111100	Guilling Emposare Rad		
Survey Area L(C1:	F1000	Package Type: Sy	vstem
Survey Area Na	urvey Area Name: Background Reference Area		a	
Survey Package	e Number an	d Unit Name:		
Survey Package	e Number an	d Unit Name:		
F1000 401	1B1	Drain Section(s) Upstream fro	om Building 104 Operations	
	Statistical	Summary	Material Backgrou	nd
		uR/hr		uR/
Mea	ın	13.9	Mean	0
Med	lian	15.7	Minimum	0
Stan	dard Deviation	ı 2.9	Maximum	0
Ran	ge	7.0	Reference Value (RV)	20
Min	imum	9.8		
Max	timum	16.7	Tests Performed	
			No. Collected >/= Prescribed	N
	Number of N	Aeasurements	Measurement Mean < RV	Ye
No.	Prescribed	54	Measurements < RV	Ye
Na	Collected	15	No. Measurements $> RV$	

0 -**Measurement Location** CG -- RV

FRAMATOME ANP Federal D&D Services

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

5/31/2005			Page 2 of 5			
Contact Gamma Exposure Rate Measurement Results						
Survey Area LC1:	F1000	Package Type:	System			
Survey Area Name:	Background Reference	e Area				
Survey Package Numbe	er and Unit Name:					
Survey Package Numbe	er and Unit Name:					
F1000 401B1	Drain Section(s) Upstrea	am from Building 104 Operations				

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL040705-001	4/7/2005	DM1C1	BKG01	00001	20.8	10.5	10.3
DL040705-001	4/7/2005	DM1C1	BKG01	00002	20.8	10.5	10.3
DL040705-001	4/7/2005	DM1C1	BKG01	00003	20.8	9.8	11.0
DL040705-001	4/7/2005	DM1C1	BKG02	00010	20.8	10.7	10.1
DL040705-001	4/7/2005	DM1C1	BKG02	00011	20.8	10.7	10.1
DL040705-001	4/7/2005	DM1C1	BKG02	00012	20.8	11.0	9.8
DL041005-001	4/8/2005	DS1C1	BKG04	00004	20.8	16.7	4.1
DL041005-001	4/8/2005	DS1C1	BKG04	00005	20.8	16.5	4.3
DL041005-001	4/8/2005	DS1C1	BKG04	00006	20.8	16.3	4.5
DL041005-001	4/8/2005	DS1C1	BKG05	00001	20.8	15.7	5.1
DL041005-001	4/8/2005	DS1C1	BKG05	00002	20.8	16.1	4.7
DL041005-001	4/8/2005	DS1C1	BKG05	00003	20.8	16.2	4.6
DL041305-007	4/12/2005	DS1C1	BKG06	00001	20.8	16.1	4.7
DL041305-007	4/12/2005	DS1C1	BKG06	00002	20.8	15.6	5.2
DL041305-007	4/12/2005	DS1C1	BKG06	00003	20.8	16.1	4.7

Rome, New York

Contact Gamma Exposure Rate Measurement Results					
F1000	Package Type:	System			
Background Reference Area					
d Unit Name:					
d Unit Name:					
Drain Section(s) Upstream from	n Building 104 Operations				
	t Gamma Exposure Rate F1000 Background Reference Area d Unit Name: d Unit Name: Drain Section(s) Upstream from	Fackage Type: F1000 Package Type: Background Reference Area Package Type: Ind Unit Name: Package Type: Drain Section(s) Upstream from Building 104 Operations			

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL040705-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041005-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5		
Contact Gamma Exposure Rate Measurement Results					
Survey Area LC1:	F1000	Package Type:	System		
Survey Area Name:	Background	Reference Area			
Survey Package Numbe	er and Unit Name:				
Survey Package Numbe	er and Unit Name:				
F1000 401B1	Drain Section	(s) Upstream from Building 104 Operations			
Material Background Summary					
	<i>K</i> , 1				

Material	Material	Material Surface	Contact Gamma
LC3_P45	Description	Description	Background
	-	-	Subtract (uR/hr)
C1	Concrete (Bare)	Concrete (Bare) Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
	Contact Gamma Exposure	Rate Measurement Results	
Survey Area LC	F1000	Package Type:	System
Survey Area Na	me: Background Reference	ee Area	
Survey Package	Number and Unit Name:		
Survey Package	Number and Unit Name:		
F1000 401	B1 Drain Section(s) Upstre	am from Building 104 Operations	
Field Notes Sum	mary		
Download ID	Field Notes		
DL040705-001	Background Study		
DL041005-001	Archive filename: DL040805-001.TM	p	

DL041305-007 Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005	Data Analysis Report Measure	Page x	xviii of xxxii
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		-
Survey Package Num	ber and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Buildi	ing 104 Operations	

Section 4.5 F1000 401B1, Contact Gamma Report – Sediment

Rome, New York

Survey Area LO	~1• F	1000	Package Type	System
Survey Area Na	ame: B	ackground Reference Area	Tuchuge Type.	by stelli
Survey Package	e Number and U	nit Name:		
Survey Package	Number and U	nit Name•		
F1000 401	1B1 Dra	in Section(s) Upstream from	Building 104 Operations	
	Statistical Sur	nmary	Material Backgro	ound
		uR/hr		uR/
Mea	ın	10.7	Mean	0
Med	lian	9.5	Minimum	0
Stan	dard Deviation	3.9	Maximum	0
Ran	ge	11.0	Reference Value (RV)	20
Min	imum	7.2		
Max	timum	18.2	Tests Perform	ed
			No. Collected >/= Prescribed	Ν
	Number of Meas	surements	Measurement Mean < RV	Y
No.	Prescribed	54	Measurements < RV	Y
No.	Collected	15	No. Measurements > RV	



FRAMATOME ANP Federal D&D Services

Rome, New York

5/31/2005			Page 2 of 5
Con	tact Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	ce Area	
Survey Package Numbe	er and Unit Name:		
Survey Package Numbe	er and Unit Name:		
F1000 401B1	Drain Section(s) Upstre	am from Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL040705-001	4/7/2005	DM1R1	BKG01	00010	20.8	7.9	12.9
DL040705-001	4/7/2005	DM1R1	BKG01	00011	20.8	7.8	13.0
DL040705-001	4/7/2005	DM1R1	BKG01	00012	20.8	8.1	12.7
DL040705-001	4/7/2005	DM1R1	BKG02	00001	20.8	8.0	12.8
DL040705-001	4/7/2005	DM1R1	BKG02	00002	20.8	7.2	13.6
DL040705-001	4/7/2005	DM1R1	BKG02	00003	20.8	8.4	12.4
DL041005-001	4/8/2005	DM1R1	BKG03	00001	20.8	9.5	11.3
DL041005-001	4/8/2005	DM1R1	BKG03	00002	20.8	9.4	11.4
DL041005-001	4/8/2005	DM1R1	BKG03	00003	20.8	9.5	11.3
DL041005-001	4/8/2005	DM1R1	BKG03	00004	20.8	10.3	10.5
DL041005-001	4/8/2005	DM1R1	BKG03	00005	20.8	10.3	10.5
DL041005-001	4/8/2005	DM1R1	BKG03	00006	20.8	10.0	10.8
DL041005-001	4/8/2005	DM1R1	BKG03	00007	20.8	18.1	2.7
DL041005-001	4/8/2005	DM1R1	BKG03	00008	20.8	17.7	3.1
DL041005-001	4/8/2005	DM1R1	BKG03	00009	20.8	18.2	2.6

Rome, New York

Cont	act Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Referen	ce Area	
Survey Package Numbe	r and Unit Name:		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstre	eam from Building 104 Operations	

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL040705-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041005-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5
Con	tact Gamma Ex	posure Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background	Reference Area	
Survey Package Numbe	er and Unit Name:		
Survey Package Numbe	er and Unit Name:		
F1000 401B1	Drain Section(s	s) Upstream from Building 104 Operations	
Material Background S	ummary		
Matanial	Kerren 1		C

Material	Material	Material Surface	Contact Gamma
LC3_P45	Description	Description	Background
		-	Subtract (uR/hr)
R1	Sediment	Sediment Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
	Contact Gamma Exposure	Rate Measurement Results	
Survey Area LC	F1000	Package Type:	System
Survey Area Na	me: Background Reference	ee Area	
Survey Package	Number and Unit Name:		
Survey Package	Number and Unit Name:		
F1000 401	B1 Drain Section(s) Upstre	am from Building 104 Operations	
Field Notes Sum	mary		
Download ID	Field Notes		
DL040705-001	Background Study		
DL041005-001	Archive filename: DL040805-001.TM	p	

DL041305-007 Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005	Konic, ivew fork	Page	xxix of xxxii
	Data Analysis Report Measureme	ent Results	
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numl	per and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Building 1	04 Operations	

Section 5.0 1 Meter Gamma Exposure Rate Measurement Results

F1000 401B1, 1 Meter Gamma Report.pdf Section 5.1

Rome, New York

5/31/2005			Page 1 of 5
1 Me	ter Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Referen	ce Area	
Survey Package Number	and Unit Name:		
F1000 401B1	Drain Section(s) Upstr	eam from Building 104 Operations	

Statistical Summary Material Background uR/hr uR/hr Mean 5.5 Mean 0.0 Median 5.4 Minimum 0.0 0.7 Standard Deviation Maximum 0.0 Reference Value (RV) 6.9 Range 2.4 4.4 Minimum **Tests Performed** Maximum 6.9 No. Collected >/= Prescribed No **Number of Measurements** Measurement Mean < RV Yes No. Prescribed 18 Measurements < RV Yes 17 0 No. Collected No. Measurements > RV



Rome, New York

5/31/2005			Page 2 of 5
1 Me	eter Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	1 Meter Result (uR/hr)	Reference - 1M (uR/hr)
DL041005-001	4/8/2005	DM1S1	BKG01	00005	6.9	5.2	1.7
DL041005-001	4/8/2005	DM1S1	BKG01	00006	6.9	5.3	1.6
DL041005-001	4/8/2005	DM1S1	BKG02	00007	6.9	5.4	1.5
DL041005-001	4/8/2005	DM1S1	BKG02	00008	6.9	5.4	1.5
DL041005-001	4/8/2005	DM1S1	BKG02	00009	6.9	5.5	1.4
DL041005-001	4/8/2005	DM1S1	BKG03	00001	6.9	5.5	1.4
DL041005-001	4/8/2005	DM1S1	BKG03	00002	6.9	5.4	1.5
DL041005-001	4/8/2005	DM1S1	BKG03	00003	6.9	5.4	1.5
DL041305-007	4/12/2005	DS1C1	BKG06	6 00001	6.9	5.6	1.3
DL041305-007	4/12/2005	DS1C1	BKG06	6 00002	6.9	5.6	1.3
DL041305-007	4/12/2005	DS1C1	BKG06	6 00003	6.9	5.5	1.4
DL041005-001	4/8/2005	DS1S1	BKG04	00001	6.9	6.6	0.3
DL041005-001	4/8/2005	DS1S1	BKG04	00002	6.9	6.9	0.0
DL041005-001	4/8/2005	DS1S1	BKG04	00003	6.9	6.6	0.3
DL041005-001	4/8/2005	DS1S1	BKG05	00001	6.9	4.4	2.5
DL041005-001	4/8/2005	DS1S1	BKG05	00002	6.9	4.5	2.4
DL041005-001	4/8/2005	DS1S1	BKG05	00003	6.9	4.5	2.4

Rome, New York

5/31/2005			Page 3 of 5
1 Me	ter Gamma Exposure Ra	te Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference A	rea	
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream	from Building 104 Operations	

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL041005-001	95358	1/17/2006	6 44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-007	95358	1/17/2006	6 44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5
1 Me	eter Gamma Exposure Rate M	leasurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Number	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from	Building 104 Operations	

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Gamma Background Subtract 1M (uR/hr)
C1	Concrete (Bare)	Concrete (Bare) Description	0.0
S 1	Soil	Soil Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
1 Me	ter Gamma Exposure	Rate Measurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Referenc	e Area	
Survey Package Number	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream	am from Building 104 Operations	

Field Notes Summary

Download ID	Field Notes
DL041005-001	Archive filename: DL040805-001.TMP
DL041305-007	Archive filename: DL041205-007.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005		Page	e xxx of xxxii		
Data Analysis Report Measurement Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Num	per and Unit Name:				
F1000401B1	Drain Section(s) Upstream from Building 104 Operat	ions			

Section 6.0 **Removable Alpha Smear Sample Analysis Results**

Section

F1000 401B1, Removable Alpha Report 6.1
4/26/2005			Page 1 of 4
	Removable Alpha Me	asurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	Area	
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream	n from Building 104 Operations	

Measurement Sensitivity

	dpm/100cm2	dpm/1	00cm2
Mean	2.2	MDC Mean	8.9
Median	2.2	MDC Minimum	8.3
Standard Deviation	2.0	MDC Maximum	9.3
Range	6.8	DCGL	20.0
Minimum	-0.4		
Maximum	6.4	Tests Performed	
		No. Collected >/= Prescribed	Yes
		Max MDC < 50% DCGL	Yes
Number of Mea	surements	Measurements < DCGL	Yes
No. Prescribed	18	Measurement Mean < DCGL	Yes
No. Collected	18	No. Measurements > DCGL	0



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	Rome, New York	

4/26/2005			Page 2 of 4
	Removable Alpha Meas	urement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Are	ea	
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream fr	rom Building 104 Operations	

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Alpha Result (dpm/ 100cm2)	Test DCGL-Result (dpm/100cm2)
CS042505-001	4/14/2005	DM1	BKG03	3	93	2.2	17.8
CS042505-001	4/14/2005	DM1	BKG01	2	9.3	2.2	17.8
CS042505-001	4/14/2005	DM1	BKG01	3	9.3	2.2	17.8
CS042505-001	4/14/2005	DM1	BKG02	1	9.3	2.2	17.8
CS042505-001	4/14/2005	DM1	BKG02	2	9.3	0.0	20.0
CS042505-001	4/14/2005	DM1	BKG02	3	9.3	4.4	15.6
CS042505-001	4/14/2005	DM1	BKG03	1	8.3	6.4	13.6
CS042505-001	4/14/2005	DM1	BKG01	1	9.3	2.2	17.8
CS042505-001	4/14/2005	DM1	BKG03	2	9.3	0.0	20.0
CS042505-002	4/14/2005	DS1	BKG06	3	9.3	-0.4	20.4
CS042505-002	4/14/2005	DS1	BKG04	2	8.3	4.2	15.8
CS042505-002	4/14/2005	DS1	BKG04	3	8.3	2.0	18.0
CS042505-002	4/14/2005	DS1	BKG05	1	8.3	2.0	18.0
CS042505-002	4/14/2005	DS1	BKG05	2	8.3	4.2	15.8
CS042505-002	4/14/2005	DS1	BKG05	3	83	4.2	15.8
CS042505-002	4/14/2005	DS1	BKG06	1	9.3	-0.4	20.4
CS042505-002	4/14/2005	DS1	BKG06	2	93	-0.4	20.1
CS042505-002	4/14/2005	DS1	BKG04	- 1	8.3	2.0	18.0

	Rome, New York		
4/26/2005			Page 3 of 4
	Removable Alpha Measurer	ment Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Cal Due Date	Survey Technician
CS042505-001	F1000 401B1 DM1 removable	Ludlum	M2929	152202	1/19/2005	JLM0591
CS042505-002	F1000 401B1 DS1 removable	Ludlum	M2929	152202	1/19/2005	JLM0591

	Kome, New Tork		
4/26/2005			Page 4 of 4
	Removable Alpha Measurer	ment Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from H	Building 104 Operations	

Field Notes Summary

Sample ID	Field Notes
CS042505-001	Allow 24 hr decay period before counting
CS042505-002	Allow 24 hr decay period before counting

6/8/2005		Page	xxxi of xxxii	
Data Analysis Report Measurement Results				
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Numl	per and Unit Name:			
F1000401B1	Drain Section(s) Upstream from Building 104 Opera	tions		

Section 7.0 **Removable Beta Smear Sample Analysis Results**

Section

7.1 F1000 401B1, Removable Beta Report

Rome, New York

4/26/2005			Page 1 of 4
	Removable Beta Me	easurement Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference	Area	
Survey Package Number	and Unit Name:		
F1000 401B1	Drain Section(s) Upstrea	m from Building 104 Operations	

Statistical Summary Measurement Sensitivity dpm/100cm2 dpm/100cm2 24.3 MDC Mean Mean 131.2 26.7 Median MDC Minimum 131.2 Standard Deviation 38.4 MDC Maximum 131.2 Range 155.3 DCGL 1000.0Minimum -48.5 Maximum 106.8 **Tests Performed** No. Collected >/= Prescribed Yes Number of Measurements Max MDC < 50% DCGL Yes No. Prescribed 18 Measurements < DCGL Yes No. Collected 18



SDMS Documentation

Measurement Mean < DCGL

No. Measurements > DCGL

Yes

0

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Rome, New York	

4/26/2005			Page 2 of 4
	Removable Beta Measuren	nent Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	er and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Beta Result (dpm/ 100cm2)	Test DCGL-Result (dpm/ 100cm2)
CS042505-001	4/14/2005	DM1	BKG03	3	131.2	-9.7	1010
CS042505-001	4/14/2005	DM1	BKG01	2	131.2	29.1	971
CS042505-001	4/14/2005	DM1	BKG01	3	131.2	4.9	995
CS042505-001	4/14/2005	DM1	BKG02	1	131.2	0.0	1000
CS042505-001	4/14/2005	DM1	BKG02	2	131.2	24.3	976
CS042505-001	4/14/2005	DM1	BKG02	3	131.2	0.0	1000
CS042505-001	4/14/2005	DM1	BKG03	1	131.2	82.5	917
CS042505-001	4/14/2005	DM1	BKG01	1	131.2	0.0	1000
CS042505-001	4/14/2005	DM1	BKG03	2	131.2	-29.1	1029
CS042505-002	4/14/2005	DS1	BKG06	3	131.2	38.8	961
CS042505-002	4/14/2005	DS1	BKG04	2	131.2	53.4	947
CS042505-002	4/14/2005	DS1	BKG04	3	131.2	38.8	961
CS042505-002	4/14/2005	DS1	BKG05	1	131.2	9.7	990
CS042505-002	4/14/2005	DS1	BKG05	2	131.2	43.7	956
CS042505-002	4/14/2005	DS1	BKG05	3	131.2	63.1	937
CS042505-002	4/14/2005	DS1	BKG06	1	131.2	-48.5	1049
CS042505-002	4/14/2005	DS1	BKG06	2	131.2	106.8	893
CS042505-002	4/14/2005	DS1	BKG04	1	131.2	29.1	971

	Kome, new Tork		
4/26/2005			Page 3 of 4
	Removable Beta Measuren	nent Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	r and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Rome. New York

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Cal Due Date	Survey Technician
CS042505-001	F1000 401B1 DM1 removable A-B resul	Ludlum	M2929	152202	1/19/2005	JLM0591
CS042505-002	F1000 401B1 DS1 removable A-B result	Ludlum	M2929	152202	1/19/2005	JLM0591

	Rome, recordens		
4/26/2005			Page 4 of 4
	Removable Beta Measuren	nent Results	
Survey Area LC1:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numbe	er and Unit Name:		
F1000 401B1	Drain Section(s) Upstream from I	Building 104 Operations	

Rome, New York

Field Notes Summary

Sample ID	Field Notes
CS042505-001	Allow 24 hr decay period before counting
CS042505-002	Allow 24 hr decay period before counting

6/8/2005	Konk, itew Tork	Page x	xxii of xxxii
	Data Analysis Report Measurement F	Results	
Survey Area:	F1000	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Package Numb	per and Unit Name:		
F1000401B1	Drain Section(s) Upstream from Building 104 C	operations	

Section 8.0 Alpha Spectroscopy Sample Analysis Results

Section

F1000 401B1, DM1 & DS1 Alpha Spec RL 8.1

Rome, New York

5/26/2005

	Alpha Spectroscopy Analysis Results F1000 Package Type: System ne: Background Reference Area System Number and Unit Name: System System			
Survey Area:	F1000	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Package Num	ber and Unit Name:			
F1000 401B1	Drain Section(s) Upstream from Building	g 104 Operations		

Statistical Summary

Statistical Summary		Measurement Sensitivity			
	pCi/gram		pCi/gram		
Mean	0.34	MDC Mean	0.25		
Median	0.29	MDC Minimum	0.22		
Standard Deviation	0.08	MDC Maximum	0.28		
Range	0.14	DCGL	0.70		
Minimum	0.29				
Maximum	0.43	Tests Performed			
		No. Collected \geq Prescribed	No		
Number of Measurements		Max MDC < 50% DCGL	Yes		
No. Prescribed	18	Measurements < DCGL	Yes		
No. Collected	3	Measurement Mean < DCGL	Yes		
		No. Measurements > DCGL	0		



Page 1 of 5

5/26/2005

			Alj	pha Spe	ctrosco	opy Ana	lysis Ro	esults			
Survey A Survey A	rea: rea Name:	F1000 Backg) round Refe	erence Are	a			Р	ackage T	уре:	System
Survey Pa	ackage Nun	iber and	Unit Name								
F10	00 401B1	D	rain Sectio	n(s) Upstr	eam from	m Buildin	g 104 Op	erations			
Sample A	nalysis Res	ult Listin	5								
Laboratory File Name	Analysis Date	Weight (g)	LC3 Surface	LC5 SML	LC6 No.	Nuclide	Activity Results (pCi/g)	Activity +/- 1s Error (pCi/g)	MDC (pCi/g)	DCGL* (pCi/g)	Result - DCGL (pCi/g)
Sample II	D: CS0	52005-00	1								
L9126-22	5/10/2005	1	DM1	BKG01	1	RA-226	2.90E-01	1.50E-01	2.40E-01	7.00E-01	-4.10E-01
Sample II	D: CSO	52005-00	2								
L9126-21	5/10/2005	1	DM1	BKG06	1	RA-226	2.90E-01	1.40E-01	2.20E-01	7.00E-01	-4.10E-01
Sample II	D: CSO	52005-00	3								
L9126-20	5/10/2005	1	DM1	BKG04	1						
						RA-226	4.30E-01	1.80E-01	2.80E-01	7.00E-01	-2.70E-01

* NuReg 1757 Generic Screening DCGL

Page 2 of 5

Rome, New York

5/26/2005

Alpha Spectroscopy Analysis Results

Page 3 of 5

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations



Rome, New York

5/26/2005

Page 4 of 5

Alpha Spectroscopy Analysis Results

Survey Area: F1000

Package Type: System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Instrument and Calibration Summary

Sample ID	Laboratory File Name	Analyzer/ System	Model Number	Serial Number	Calibration Date	Collection Date	Collection Time	Collection Technician
CS052005-001	L9126-01	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/13/200	11:40 AM	JLM0591
CS052005-002	L9126-02	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	4:20 PM	JLM0591
CS052005-003	L9126-03	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/8/2005	2:30 PM	JLM0591

5/26/2005

Page 5 of 5

Alpha Spectroscopy Analysis Results					
Survey Area:	F1000	Package Type:	System		
Survey Area Name:	Background Reference Area				
Survey Package Numb	er and Unit Name:				
F1000 401B1	Drain Section(s) Upstream from Buil	lding 104 Operations			
Field Notes Summary					

Sample ID	Field Notes	Comments On Samples
CS052005-001	Storm Drain Background Reference Area	Sludge/sediment sample from BKG01, sample media not available from BKG02 or BKG03, rely on smear data for these locations.
CS052005-002	Sanitary Sewer Background Reference Area	Sludge/sediment sample from BKG06, media not available from BKG05, rely on smear data from this location.
CS052005-003	Sanitary Sewer Background Reference Area	Sludge/sediment sample from BKG04, media not available from BKG05, rely on smear data from this location.

Storm Drain System (Survey Area E2000)

Data Analysis Report Coversheet						
Survey Area:	E2000	Package Type:	System			
Survey Area Name:	Storm Drain System					
Survey Package Num	ber and Unit Name:					
E2000 201C1	Storm Drain System Section Down Stream of Bu	ilding 104 Operations				

SURVEY DATA ANALYSIS COMPLETION:

6/8/2005

The survey package instructions were implemented, the measurement data analysis completed and results have been reviewed for completeness in accordance with the Sample and Analysis Plan.

Prepared By:	John L. McGehee, Senior Engineer	Date: 6/9/05
Reviewed By:	Donald McGee, Senior Engineer	Date: 6/9/05
Approved By:	Gregory L. Courarey, Senior Engineer, CHP	Date: 6/9/05
Approved By:	PARSONS Representative	Date: B/6/DF

Page 1 of 2

6/8/2005						Page 2 of 2
		Da	ıta Analysis H	Report Parameters		
Survey Area:		E2000			Package Type:	System
Survey Area	Name:	Storm Drain S	System			
Survey Packa	ige Numbe	er and Unit Na	me:			
E2000 2	201C1	Storm Dra	ain System Secti	on Down Stream of Buil	ding 104 Operations	
Survey Grou	up:	E - Radio	logical Survey	of Impacted Facility S	Systems	
Survey Area	a:	2000 - Storm	Drain System			
Unit Classif	ication:	2 - Impac	ted System			
MARSSIM	FSS Surv	ey Unit Size (M^2): NA			
Survey Unit Survey Reas	t: son:	01 - Storm C1 - Chara	Drain System cterization Sur	Section Down Stream vey	of Building 104 Oper	ations
Surface(s):	Code	Description		Sur	vey Area (M ²)	
	DM1 -	Storm Drain	l	Total Area	NA NA	
				Total Alea	INA	
Materials:	Code - I B1 - Bri C1 - Con R1 - Sec S1 - Soi V2 - Vit	Description ck ncrete (Bare) liment l rified Clay Pij	pe			
Report						
Report Peo	digree:		Final Report			
Detector E	Efficiency		2-Pi			
Survey Lo	ocation:		LC5			

6/8/2005	·		Page i of xiii
	Data Analysis Report Measurement Results		
Survey Area: Survey Area N Survey Packag	E2000 Jame: Storm Drain System ge Number and Unit Name: NIC1 Storm Drain System Section Down Stream of Building 1	Package Type:	System
		of operations	
Section	Title		
1.0	Annotated Drawings		
2.0	Direct Beta Measurement Results		
3.0	Direct Alpha Measurement Results		
4.0	Contact Gamma Exposure Rate Measurement Results		
5.0	1 Meter Gamma Exposure Rate Measurement Results		
6.0	Removable Alpha Smear Sample Analysis Results		
7.0	Removable Beta Smear Sample Analysis Results		
8.0	Alpha Spectroscopy Sample Analysis Results		

6/8/2005	Kome, New Tor	ĸ	Page ii of xiii
	Data Analysis Report Measu	rement Results	
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numl	per and Unit Name:		
E2000 201C1	Storm Drain System Section Down	Stream of Building 104 Operations	

Section 1.0 **Annotated Drawings**





Drawing E2000-2





Rome, New York

9/14/2005 **Data Analysis Report Measurement Results** E2000 Package Type: **Survey Area:** System Survey Area Name: Storm Drain System Survey Package Number and Unit Name: E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Section 2.0 **Direct Beta Measurement Results**

Section

- E2000 201C1, Direct Beta all materials 2.1
- E2000 201C1, Direct Beta all materials wMBC 2.2

9/14/2005			Page iv of xiii
	Data Analysis Report M	leasurement Results	
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section D	own Stream of Building 104 Operations	

Section 2.1 E2000 201C1, Direct Beta all materials

Rome, New York

9/1	4/2	005
11	-	005

Page 1 of 7

Direct Beta Measurement Results					
Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Number and Unit Name:					
E2000 201C1	Storm Drain System Section Down Stream of Buildin	g 104 Operations			

Statistical Summa	ary	Measurement Sensi	itivity
	dpm/100cm ²		dpm/100cm ²
Mean	5,147.0	MDC Mean	2,153.5
Median	4,755.3	MDC Minimum	2,153.5
Standard Deviation	1,536.0	MDC Maximum	2,153.5
Range	6,742.6	DCGL	5,000
Minimum	3,051.9		
Maximum	9,794.5	Tests Performe	d
		No. Collected \geq Prescribed	Yes
Number of Measurements		Max MDC < 50% DCGL	Yes
No. Prescribed	18	Measurements < DCGL	No
No. Collected	27	Measurement Mean < DCGL	No
		No. Measurements > DCGL	11



Rome, New York

9/14/2005

Direct Beta Measurement Results

Page 2 of 7

Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Number and Unit Name:					

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-006	4/9/2005	DM1C1	B01FA	ST008	1	0.0	2,153.5	6,245.8	-1,245.8
DL041005-006	4/9/2005	DM1C1	B01FA	ST008	2	0.0	2,153.5	6,387.7	-1,387.7
DL041005-006	4/9/2005	DM1C1	B01FA	ST009	1	0.0	2,153.5	4,968.2	31.8
DL041005-006	4/9/2005	DM1C1	B01FA	ST009	2	0.0	2,153.5	3,406.8	1,593.2
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	1	0.0	2,153.5	7,310.4	-2,310.4
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	2	0.0	2,153.5	5,394.1	-394.1
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	3	0.0	2,153.5	5,465.1	-465.1
DL041005-006	4/9/2005	DM1C1	B01FA	ST011	1	0.0	2,153.5	4,755.3	244.7
DL041005-006	4/9/2005	DM1C1	B01FA	ST011	2	0.0	2,153.5	5,252.1	-252.1
DL041105-003	4/10/2005	DM1C1	B01FA	ST006	1	0.0	2,153.5	3,051.9	1,948.1
DL041105-003	4/10/2005	DM1C1	B01FA	ST006	2	0.0	2,153.5	3,193.9	1,806.1
DL041105-003	4/10/2005	DM1C1	B01FA	ST007	1	0.0	2,153.5	4,187.5	812.5
DL041105-003	4/10/2005	DM1C1	B01FA	ST007	2	0.0	2,153.5	4,684.3	315.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST001	1	0.0	2,153.5	4,258.5	741.5
DL041205-002	4/11/2005	DM1C1	B01FA	ST001	2	0.0	2,153.5	3,406.8	1,593.2
DL041205-002	4/11/2005	DM1C1	B01FA	ST002	1	0.0	2,153.5	4,613.4	386.6
DL041205-002	4/11/2005	DM1C1	B01FA	ST002	2	0.0	2,153.5	5,465.1	-465.1
DL041205-002	4/11/2005	DM1C1	B01FA	ST003	1	0.0	2,153.5	5,252.1	-252.1
DL041205-002	4/11/2005	DM1C1	B01FA	ST003	2	0.0	2,153.5	5,465.1	-465.1
DL041205-002	4/11/2005	DM1C1	B01FA	ST004	1	0.0	2,153.5	4,329.5	670.5
DL041205-002	4/11/2005	DM1C1	B01FA	ST004	2	0.0	2,153.5	4,755.3	244.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST005	1	0.0	2,153.5	4,542.4	457.6
DL041205-002	4/11/2005	DM1C1	B01FA	ST005	2	0.0	2,153.5	4,542.4	457.6
DL041205-002	4/11/2005	DM1C1	B01FA	ST013	1	0.0	2,153.5	4,755.3	244.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST013	2	0.0	2,153.5	4,684.3	315.7

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E2000 201C1, Direct Beta all materials.doc

SDMS Documentation

Rome, New York

9/14/2005

Direct Beta Measurement Results

Page 3 of 7

Survey Area: E2000

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041305-003	4/12/2005	DM1C1	B01FA	ST012	1	0.0	2,153.5	8,800.9	-3,800.9
DL041305-003	4/12/2005	DM1B1	B01FA	ST012	2	0.0	2,153.5	9,794.5	-4,794.5

Rome, New York

9/14/2005

Survey Area:

Page 4 of 7

Direct Beta Measurement Re	esults
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Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations



Rome, New York

Direct Beta Measurement Results

9/14/2005

Page 5 of 7

Survey Area:E2000Package Type:SystemSurvey Area Name:Storm Drain SystemSurvey Package Number and Unit Name:

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041105-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041205-002	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

9/14/2005

Page 6 of 7

Direct Beta Measurement Results				
Survey Area:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Num	ber and Unit Name:			
E2000 201C1	Storm Drain System Section Down Stream of Building	ng 104 Operations		

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

9/14/2005

Page 7 of 7

Direct Beta Measurement Results				
Survey Area:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Numbe	er and Unit Name:			
E2000 201C1	Storm Drain System Section Down Stream of Building	104 Operations		

Field Notes Summary

Download ID	Field Notes
DL041005-006	Archive filename: DL040905-003.TMP
DL041105-003	Archive filename: DL041005-003.TMP
DL041205-002	Archive filename: DL041105-003.TMP
DL041305-003	Archive filename: DL041205-003.TMP

9/14/2005	Data Analysis Report N	leasurement Results	Page v of xiii
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104 Operations	

Section 2.2 E2000 201C1, Direct Beta all materials - wMBC

Rome, New York

9/1	4/2	005
11	-	005

Page 1 of 7

Direct Beta Measurement Results				
Survey Area:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Numb	per and Unit Name:			
E2000 201C1	Storm Drain System Section Down Stream of Buildi	ng 104 Operations		

	dpm/100cm ²					
Mean	198.6					
Median	-94.6					
Standard Deviation	1,421.1					
Range	6,025.0					
Minimum	-1,790.1					
Maximum	4,234.8					
Number of Measurements						
No. Prescribed	18					
No. Collected	27					

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	2,153.5
MDC Minimum	2,153.5
MDC Maximum	2,153.5
DCGL	5,000

Tests Performed

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	Yes
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	0



Rome, New York

9/14/2005

Direct Beta Measurement Results

Page 2 of 7

Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-006	4/9/2005	DM1C1	B01FA	ST008	1	0.0	2,153.5	1,403.7	3,596.3
DL041005-006	4/9/2005	DM1C1	B01FA	ST008	2	0.0	2,153.5	1,545.7	3,454.3
DL041005-006	4/9/2005	DM1C1	B01FA	ST009	1	0.0	2,153.5	126.2	4,873.8
DL041005-006	4/9/2005	DM1C1	B01FA	ST009	2	0.0	2,153.5	-1,435.3	6,435.3
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	1	0.0	2,153.5	1,750.7	3,249.3
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	2	0.0	2,153.5	-165.6	5,165.6
DL041005-006	4/9/2005	DM1B1	B01FA	ST010	3	0.0	2,153.5	-94.6	5,094.6
DL041005-006	4/9/2005	DM1C1	B01FA	ST011	1	0.0	2,153.5	-86.7	5,086.7
DL041005-006	4/9/2005	DM1C1	B01FA	ST011	2	0.0	2,153.5	410.1	4,589.9
DL041105-003	4/10/2005	DM1C1	B01FA	ST006	1	0.0	2,153.5	-1,790.1	6,790.1
DL041105-003	4/10/2005	DM1C1	B01FA	ST006	2	0.0	2,153.5	-1,648.2	6,648.2
DL041105-003	4/10/2005	DM1C1	B01FA	ST007	1	0.0	2,153.5	-654.5	5,654.5
DL041105-003	4/10/2005	DM1C1	B01FA	ST007	2	0.0	2,153.5	-157.7	5,157.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST001	1	0.0	2,153.5	-583.6	5,583.6
DL041205-002	4/11/2005	DM1C1	B01FA	ST001	2	0.0	2,153.5	-1,435.3	6,435.3
DL041205-002	4/11/2005	DM1C1	B01FA	ST002	1	0.0	2,153.5	-228.7	5,228.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST002	2	0.0	2,153.5	623.0	4,377.0
DL041205-002	4/11/2005	DM1C1	B01FA	ST003	1	0.0	2,153.5	410.1	4,589.9
DL041205-002	4/11/2005	DM1C1	B01FA	ST003	2	0.0	2,153.5	623.0	4,377.0
DL041205-002	4/11/2005	DM1C1	B01FA	ST004	1	0.0	2,153.5	-512.6	5,512.6
DL041205-002	4/11/2005	DM1C1	B01FA	ST004	2	0.0	2,153.5	-86.7	5,086.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST005	1	0.0	2,153.5	-299.7	5,299.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST005	2	0.0	2,153.5	-299.7	5,299.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST013	1	0.0	2,153.5	-86.7	5,086.7
DL041205-002	4/11/2005	DM1C1	B01FA	ST013	2	0.0	2,153.5	-157.7	5,157.7

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E2000 201C1, Direct Beta all materials - wMBC.doc

SDMS Documentation

Rome, New York

9/14/2005

Direct Beta Measurement Results

Page 3 of 7

Survey Area: E2000

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041305-003	4/12/2005	DM1C1	B01FA	ST012	1	0.0	2,153.5	3,958.8	1,041.2
DL041305-003	4/12/2005	DM1B1	B01FA	ST012	2	0.0	2,153.5	4,234.8	765.2
Rome, New York

9/14/2005

Page 4 of 7

Direct Beta Measurement Results

Survey Area: E2000

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations



Rome, New York

Direct Beta Measurement Results

9/14/2005

Page 5 of 7

Survey Area:E2000Package Type:SystemSurvey Area Name:Storm Drain SystemSurvey Package Number and Unit Name:

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041105-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041205-002	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Rome, New York

9/14/2005

Page 6 of 7

Direct Beta Measurement Results			
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream of Buildi	ng 104 Operations	

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	5,559.7
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	4,842.1
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	5,571.5

9/14/2005

Page 7 of 7

Direct Beta Measurement Results			
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream of Building	104 Operations	

Field Notes Summary

Download ID	Field Notes
DL041005-006	Archive filename: DL040905-003.TMP
DL041105-003	Archive filename: DL041005-003.TMP
DL041205-002	Archive filename: DL041105-003.TMP
DL041305-003	Archive filename: DL041205-003.TMP

9/14/2005		P	age vi of xiii
	Data Analysis Report Measure	ement Results	
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numb	er and Unit Name:		
E2000 201C1	Storm Drain System Section Down Str	eam of Building 104 Operations	

Section 3.0 **Direct Alpha Measurement Results**

Section

- E2000 201C1 Direct Alpha all materials 3.1
- E2000 201C1 Direct Alpha all materials wMBC 3.2

9/14/2005	Data Analysis Report Measureme	ent Results	age vii of xiii
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numb	er and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream	of Building 104 Operations	

Section 3.1 E2000 201C1 Direct Alpha all materials

Rome, New York

9/1	4/2	005
11	-7/2	005

Page 1 of 6

Direct Alpha Measurement Results			
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numl	ber and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream of Bu	ilding 104 Operations	

Statistical Summary

	dpm/100cm ²
Mean	177.5
Median	170.3
Standard Deviation	116.6
Range	378.4
Minimum	37.8
Maximum	416.2
Number of Measurements	
No. Prescribed	18
No. Collected	26

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	343.5
MDC Minimum	343.5
MDC Maximum	343.5
DCGL	100

Tests Performed

No. Collected > Prescribed	Yes
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	17



SDMS Documentation

Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 2 of 6

Survey Area:E2000Package Type:SystemSurvey Area Name:Storm Drain SystemSurvey Package Number and Unit Name:

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-005	4/9/2005	DM1C1	A02FA	ST008	1	0.0	343.5	37.8	62.2
DL041005-005	4/9/2005	DM1C1	A02FA	ST008	2	0.0	343.5	37.8	62.2
DL041005-005	4/9/2005	DM1C1	A02FA	ST009	1	0.0	343.5	113.5	-13.5
DL041005-005	4/9/2005	DM1C1	A02FA	ST009	2	0.0	343.5	75.7	24.3
DL041005-005	4/9/2005	DM1C1	A02FA	ST010	1	0.0	343.5	378.4	-278.4
DL041005-005	4/9/2005	DM1B1	A02FA	ST010	2	0.0	343.5	37.8	62.2
DL041005-005	4/9/2005	DM1C1	A02FA	ST011	1	0.0	343.5	75.7	24.3
DL041005-005	4/9/2005	DM1C1	A02FA	ST011	2	0.0	343.5	151.3	-51.3
DL041105-002	4/10/2005	DM1C1	A02FA	ST006	1	0.0	343.5	151.3	-51.3
DL041105-002	4/10/2005	DM1C1	A02FA	ST006	2	0.0	343.5	75.7	24.3
DL041105-002	4/10/2005	DM1C1	A02FA	ST007	1	0.0	343.5	227.0	-127.0
DL041105-002	4/10/2005	DM1C1	A02FA	ST007	2	0.0	343.5	264.9	-164.9
DL041205-001	4/11/2005	DM1C1	A02FA	ST001	1	0.0	343.5	378.4	-278.4
DL041205-001	4/11/2005	DM1C1	A02FA	ST001	2	0.0	343.5	340.5	-240.5
DL041205-001	4/11/2005	DM1C1	A02FA	ST002	1	0.0	343.5	113.5	-13.5
DL041205-001	4/11/2005	DM1C1	A02FA	ST002	2	0.0	343.5	189.2	-89.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST003	1	0.0	343.5	189.2	-89.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST003	2	0.0	343.5	75.7	24.3
DL041205-001	4/11/2005	DM1C1	A02FA	ST004	1	0.0	343.5	189.2	-89.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST004	2	0.0	343.5	416.2	-316.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST005	1	0.0	343.5	189.2	-89.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST005	2	0.0	343.5	37.8	62.2
DL041205-001	4/11/2005	DM1C1	A02FA	ST013	1	0.0	343.5	227.0	-127.0
DL041205-001	4/11/2005	DM1C1	A02FA	ST013	2	0.0	343.5	302.7	-202.7
DL041305-002	4/12/2005	DM1C1	A02FA	ST012	1	0.0	343.5	75.7	24.3
DL041305-002	4/12/2005	DM1B1	A02FA	ST012	2	0.0	343.5	264.9	-164.9

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E2000 201C1 Direct Alpha all materials.doc

SDMS Documentation

Rome, New York

9/14/2005

Page 3 of 6

Survey Area: E2000

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations



Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 4 of 6

	1		
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream	m of Building 104 Operations	

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041105-002	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041205-001	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041305-002	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

9/14/2005

Page 5 of 6

Direct Alpha Measurement Results					
Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Num	ber and Unit Name:				
E2000 201C1	Storm Drain System Section Down Stream of Buildir	g 104 Operations			

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

9/1	4/2005
11	7/2005

Page 6 of 6

Direct Alpha Measurement Results					
Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Number and Unit Name:					
E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations					

Field Notes Summary

Download ID	Field Notes
DL041005-005	Storm Drain System
DL041105-002	Storm Drain System
DL041205-001	Storm Drain System
DL041305-002	Storm Drain System

9/14/2005			Page viii of xiii
	Data Analysis Report	Measurement Results	
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section	n Down Stream of Building 104 Operations	

Section 3.2 E2000 201C1 Direct Alpha all materials wMBC

Rome, New York

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11	-1/20	$\mathcal{O}\mathcal{O}$

Direct Alpha Measurement Results					
Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System		2		
Survey Package Numb	er and Unit Name:				
E2000 201C1	Storm Drain System Section Down Stream of Building	g 104 Operations			

Statistical Summary

	dpm/100cm ²
Mean	95.6
Median	85.9
Standard Deviation	116.4
Range	378.4
Minimum	-46.6
Maximum	331.8
Number of Measurements	
No. Prescribed	18
No. Collected	26

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	343.5
MDC Minimum	343.5
MDC Maximum	343.5
DCGL	100

Tests Performed

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	13



Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 2 of 6

Survey Area:E2000Package Type:SystemSurvey Area Name:Storm Drain SystemSurvey Package Number and Unit Name:

E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-005	4/9/2005	DM1C1	A02FA	ST008	1	0.0	343.5	-46.6	146.6
DL041005-005	4/9/2005	DM1C1	A02FA	ST008	2	0.0	343.5	-46.6	146.6
DL041005-005	4/9/2005	DM1C1	A02FA	ST009	1	0.0	343.5	29.1	70.9
DL041005-005	4/9/2005	DM1C1	A02FA	ST009	2	0.0	343.5	-8.7	108.7
DL041005-005	4/9/2005	DM1C1	A02FA	ST010	1	0.0	343.5	294.0	-194.0
DL041005-005	4/9/2005	DM1B1	A02FA	ST010	2	0.0	343.5	-15.0	115.0
DL041005-005	4/9/2005	DM1C1	A02FA	ST011	1	0.0	343.5	-8.7	108.7
DL041005-005	4/9/2005	DM1C1	A02FA	ST011	2	0.0	343.5	66.9	33.1
DL041105-002	4/10/2005	DM1C1	A02FA	ST006	1	0.0	343.5	66.9	33.1
DL041105-002	4/10/2005	DM1C1	A02FA	ST006	2	0.0	343.5	-8.7	108.7
DL041105-002	4/10/2005	DM1C1	A02FA	ST007	1	0.0	343.5	142.6	-42.6
DL041105-002	4/10/2005	DM1C1	A02FA	ST007	2	0.0	343.5	180.5	-80.5
DL041205-001	4/11/2005	DM1C1	A02FA	ST001	1	0.0	343.5	294.0	-194.0
DL041205-001	4/11/2005	DM1C1	A02FA	ST001	2	0.0	343.5	256.1	-156.1
DL041205-001	4/11/2005	DM1C1	A02FA	ST002	1	0.0	343.5	29.1	70.9
DL041205-001	4/11/2005	DM1C1	A02FA	ST002	2	0.0	343.5	104.8	-4.8
DL041205-001	4/11/2005	DM1C1	A02FA	ST003	1	0.0	343.5	104.8	-4.8
DL041205-001	4/11/2005	DM1C1	A02FA	ST003	2	0.0	343.5	-8.7	108.7
DL041205-001	4/11/2005	DM1C1	A02FA	ST004	1	0.0	343.5	104.8	-4.8
DL041205-001	4/11/2005	DM1C1	A02FA	ST004	2	0.0	343.5	331.8	-231.8
DL041205-001	4/11/2005	DM1C1	A02FA	ST005	1	0.0	343.5	104.8	-4.8
DL041205-001	4/11/2005	DM1C1	A02FA	ST005	2	0.0	343.5	-46.6	146.6
DL041205-001	4/11/2005	DM1C1	A02FA	ST013	1	0.0	343.5	142.6	-42.6
DL041205-001	4/11/2005	DM1C1	A02FA	ST013	2	0.0	343.5	218.3	-118.3
DL041305-002	4/12/2005	DM1C1	A02FA	ST012	1	0.0	343.5	-8.7	108.7
DL041305-002	4/12/2005	DM1B1	A02FA	ST012	2	0.0	343.5	212.1	-112.1

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E2000 201C1 Direct Alpha all materials wMBC.doc

SDMS Documentation

Rome, New York

9/14/2005

Survey Area:

Page 3 of 6

Direct Alpha Measurement Results

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations



Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 4 of 6

	1		
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Num	ber and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream	n of Building 104 Operations	

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041105-002	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041205-001	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041305-002	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

9/14/2005

Page 5 of 6

Direct Alpha Measurement Results				
Survey Area:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Numb	per and Unit Name:			
E2000 201C1	Storm Drain System Section Down Stream of Buildir	g 104 Operations		

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	52.8
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	84.4
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	110.8

9/1	4/2005
11	7/2005

Page 6 of 6

Direct Alpha Measurement Results				
Survey Area:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Number and Unit Name:				
E2000 201C1	Storm Drain System Section Down Stream of Build	ling 104 Operations		

Field Notes Summary

Field Notes
Storm Drain System

Rome, New York

Data Analysis Report Measurement Results Survey Area: E2000 Package Type: System Storm Drain System Survey Area Name: Survey Package Number and Unit Name: Storm Drain System Section Down Stream of Building 104 Operations E2000 201C1

Section 4.0 **Contact Gamma Exposure Rate Measurement Results**

Section

4.1 E2000 201C1, Contact Gamma Report

6/8/2005

Page ix of xiii

Rome, New York

5/31/2005			Page 1 of 6		
Contact Gamma Exposure Rate Measurement Results					
Survey Area LC1:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Number	r and Unit Name:				
E2000 201C1	Storm Drain System Section	on Down Stream of Building 104 O	perations		

Statistical Summary

Material Background

	uR/hr		uR/hr
Mean	12.7	Mean	0.0
Median	11.2	Minimum	0.0
Standard Deviation	2.9	Maximum	0.0
Range	8.9	Reference Value (RV)	20.8
Minimum	10.0		
Maximum	18.9	Tests Performed	
		No. Collected >/= Prescribed	Yes

Number of MeasurementsMeasurement Mean < RV</th>YesNo. Prescribed18Measurements < RV</td>YesNo. Collected30No. Measurements > RV0



Rome, New York

5/31/2005			Page 2 of 6
Cont	tact Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL041005-004	4/9/2005	DM1B1	ST010	00001	20.8	16.8	4.0
DL041005-004	4/9/2005	DM1B1	ST010	00002	20.8	17.1	3.7
DL041005-004	4/9/2005	DM1B1	ST010	00003	20.8	17.5	3.3
DL041005-004	4/9/2005	DM1B1	ST010	00004	20.8	17.3	3.5
DL041105-007	4/11/2005	DM1C1	ST001	00001	20.8	12.2	8.6
DL041105-007	4/11/2005	DM1C1	ST001	00002	20.8	11.5	9.3
DL041105-007	4/11/2005	DM1C1	ST002	00001	20.8	11.7	9.1
DL041105-007	4/11/2005	DM1C1	ST002	00002	20.8	11.6	9.2
DL041105-007	4/11/2005	DM1C1	ST003	00001	20.8	10.5	10.3
DL041105-007	4/11/2005	DM1C1	ST003	00002	20.8	10.5	10.3
DL041105-007	4/11/2005	DM1C1	ST004	00001	20.8	10.8	10.0
DL041105-007	4/11/2005	DM1C1	ST004	00002	20.8	10.7	10.1
DL041105-007	4/11/2005	DM1C1	ST005	00001	20.8	11.6	9.2
DL041105-007	4/11/2005	DM1C1	ST005	00002	20.8	11.2	9.6
DL041105-001	4/10/2005	DM1C1	ST006	00001	20.8	10.9	9.9
DL041105-001	4/10/2005	DM1C1	ST006	00002	20.8	10.9	9.9
DL041105-001	4/10/2005	DM1C1	ST007	00001	20.8	11.2	9.6
DL041105-001	4/10/2005	DM1C1	ST007	00002	20.8	10.4	10.4
DL041005-004	4/9/2005	DM1C1	ST008	00001	20.8	10.2	10.6
DL041005-004	4/9/2005	DM1C1	ST008	00002	20.8	10.4	10.4
DL041005-004	4/9/2005	DM1C1	ST009	00001	20.8	10.6	10.2
DL041005-004	4/9/2005	DM1C1	ST009	00002	20.8	10.0	10.8
DL041005-004	4/9/2005	DM1C1	ST010	00005	20.8	11.9	8.9
DL041005-004	4/9/2005	DM1C1	ST010	00006	20.8	11.1	9.7
DL041005-004	4/9/2005	DM1C1	ST011	00001	20.8	11.0	9.8
DL041005-004	4/9/2005	DM1C1	ST011	00002	20.8	11.2	9.6

FRAMATOME ANP Federal D&D Services

SDMS Documentation

Rome, New York

5/31/2005			Page 3 of 6
Cont	tact Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL041305-001	4/12/2005	DM1C1	ST012	00001	20.8	16.6	4.2
DL041305-001	4/12/2005	DM1C1	ST012	00002	20.8	16.7	4.1
DL041105-007	4/11/2005	DM1C1	ST013	00001	20.8	18.9	1.9
DL041105-007	4/11/2005	DM1C1	ST013	00002	20.8	17.1	3.7

Rome, New York

5/31/2005			Page 4 of 6
Cont	act Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL041005-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 5 of 6	
Contact Gamma Exposure Rate Measurement Results				
Survey Area LC1:	E2000	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Package Numbe	r and Unit Name:			
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations	

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Contact Gamma Background Subtract (uR/hr)
B1	Brick	Brick Description	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.0

Rome, New York

5/31/2005			Page 6 of 6
Cont	tact Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Field Notes Summary

Download ID	Field Notes
DL041005-004	Archive filename: DL040905-001.TMP
DL041105-001	Archive filename: DL041005-001.TMP
DL041105-007	Archive filename: DL041105-001.TMP
DL041305-001	Archive filename: DL041205-001.TMP

6/8/2005			Page x of xiii		
Data Analysis Report Measurement Results					
Survey Area:	E2000	Package Type:	System		
Survey Area Name:	Storm Drain System				
Survey Package Num	per and Unit Name:				
E2000 201C1	Storm Drain System Section Down Strea	m of Building 104 Operations			

Section 5.0 1 Meter Gamma Exposure Rate Measurement Results

Section 5.1 E2000 201C1, 1 Meter Gamma Report

Rome, New York

5/31/2005			Page 1 of 6
1 Me	ter Gamma Exposure Rat	e Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Number	r and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	Operations

Statistical Summary Material Background uR/hr uR/hr Mean 5.4 Mean 0.0 Median 5.0 Minimum 0.0 Standard Deviation 1.5 Maximum 0.0 Reference Value (RV) 6.9 Range 6.6 4.0 Minimum **Tests Performed** Maximum 10.6 No. Collected >/= Prescribed Yes Number of Measurements Measurement Mean < RV Yes No. Prescribed 18 Measurements < RV No 2 No. Collected 26 No. Measurements > RV



Rome, New York

5/31/2005			Page 2 of 6
1 Me	eter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	1 Meter Result (uR/hr)	Reference - 1M (uR/hr)
DL041105-007	4/11/2005	DM1C1	ST001	00001	6.9	9.5	-2.6
DL041105-007	4/11/2005	DM1C1	ST001	00002	6.9	10.6	-3.7
DL041105-007	4/11/2005	DM1C1	ST002	00001	6.9	4.9	2.0
DL041105-007	4/11/2005	DM1C1	ST002	00002	6.9	4.9	2.0
DL041105-007	4/11/2005	DM1C1	ST003	00001	6.9	5.0	1.9
DL041105-007	4/11/2005	DM1C1	ST003	00002	6.9	5.2	1.7
DL041105-007	4/11/2005	DM1C1	ST004	00001	6.9	4.9	2.0
DL041105-007	4/11/2005	DM1C1	ST004	00002	6.9	4.9	2.0
DL041105-007	4/11/2005	DM1C1	ST005	00001	6.9	5.0	1.9
DL041105-007	4/11/2005	DM1C1	ST005	00002	6.9	4.9	2.0
DL041105-001	4/10/2005	DM1C1	ST006	00001	6.9	5.0	1.9
DL041105-001	4/10/2005	DM1C1	ST006	00002	6.9	4.7	2.2
DL041105-001	4/10/2005	DM1C1	ST007	00001	6.9	4.1	2.8
DL041005-004	4/9/2005	DM1C1	ST008	00001	6.9	4.0	2.9
DL041005-004	4/9/2005	DM1C1	ST008	00002	6.9	4.1	2.8
DL041005-004	4/9/2005	DM1C1	ST010	00001	6.9	6.5	0.4
DL041005-004	4/9/2005	DM1C1	ST010	00002	6.9	6.5	0.4
DL041005-004	4/9/2005	DM1C1	ST010	00003	6.9	6.2	0.7
DL041005-004	4/9/2005	DM1C1	ST011	00001	6.9	4.9	2.0
DL041005-004	4/9/2005	DM1C1	ST011	00002	6.9	5.0	1.9
DL041305-001	4/12/2005	DM1C1	ST012	00001	6.9	5.3	1.6
DL041305-001	4/12/2005	DM1C1	ST012	00002	6.9	5.5	1.4
DL041105-007	4/11/2005	DM1C1	ST013	00001	6.9	5.2	1.7
DL041105-007	4/11/2005	DM1C1	ST013	00002	6.9	4.8	2.1

FRAMATOME ANP

Federal D&D Services

SDMS Documentation

Rome, New York

5/31/2005						Page	e 3 of 6
1	Meter Ga	mma Ex	posure l	Rate Me	asurement Resu	lts	
Survey Area LC1:	E	2000			Package Type:	S	ystem
Survey Area Name:	S	torm Drain	System				
Survey Package Nur	nber and U	nit Name:					
E2000 201C1	Sto	rm Drain S	ystem Sec	tion Down	Stream of Building	104 Operation	18
DL041005-004	4/9/2005	DM1S1	ST009	00001	6.9	4.4	2.5
DL041005-004	4/9/2005	DM1S1	ST009	00002	6.9	4.5	2.4

Rome, New York

5/31/2005			Page 4 of 6
1 Me	eter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL041005-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-001	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 5 of 6
1 Me	ter Gamma Exposure Rate	e Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	Operations

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Gamma Background Subtract 1M (uR/hr)
C1	Concrete (Bare)	Concrete (Bare) Description	0.0
S 1	Soil	Soil Description	0.0

Rome, New York

5/31/2005			Page 6 of 6
1 Me	eter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Number	r and Unit Name:		
E2000 201C1	Storm Drain System Section I	Down Stream of Building 104	Operations

Field Notes Summary

Field Notes
Archive filename: DL040905-001.TMP
Archive filename: DL041005-001.TMP
Archive filename: DL041105-001.TMP
Archive filename: DL041205-001.TMP

6/8/2005		I	Page xi of xiii
Data Analysis Report Measurement Results			
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream of Buildin	g 104 Operations	

Section 6.0 **Removable Alpha Smear Sample Analysis Results**

Section

6.1 E2000 201C1, Removable Alpha Report

Rome, New York

4/26/2005			Page 1 of 5
	Removable Alpha Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Number	r and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	Operations

Statistical Summary		Measurement Sensitivity		
C	lpm/100cm2	dpm/100cm2		
Mean	1.9	MDC Mean	9.3	
Median	1.8	MDC Minimum	9.3	
Standard Deviation	2.6	MDC Maximum	9.3	
Range	8.8	DCGL	20.0	
Minimum	-0.4			
Maximum	8.4	Tests Performed		
		No. Collected >/= Prescribed	Yes	
		Max MDC < 50% DCGL	Yes	
Number of Measurements		Measurements < DCGL	Yes	
No. Prescribed	18	Measurement Mean < DCGL	Yes	
No. Collected	35	No. Measurements > DCGL		



FRAMATOME ANP Federal D&D Services SDMS Documentation

Rome, New York

4/26/2005			Page 2 of 5				
Removable Alpha Measurement Results							
Survey Area LC1:	E2000	Package Type:	System				
Survey Area Name:	Storm Drain System						
Survey Package Numbe	er and Unit Name:						
E2000 201C1	Storm Drain System Section Down Stream of Building 104 Operations						

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Alpha Result (dpm/ 100cm2)	Test DCGL-Result (dpm/100cm2)
CS042505-003	4/14/2005	DM1	ST004	1	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST007	2	9.3	6.6	13.4
CS042505-003	4/14/2005	DM1	ST007	1	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST006	2	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST006	1	9.3	4.4	15.6
CS042505-003	4/14/2005	DM1	ST005	3	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST005	2	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST001	1	9.3	4.0	16.0
CS042505-003	4/14/2005	DM1	ST004	2	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST008	2	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST003	2	9.3	6.2	13.8
CS042505-003	4/14/2005	DM1	ST003	1	9.3	6.2	13.8
CS042505-003	4/14/2005	DM1	ST002	2	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST002	1	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST001	3	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST001	2	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST005	1	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST010	3	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST013	2	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST013	1	9.3	8.4	11.6
CS042505-003	4/14/2005	DM1	ST012	3	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST012	2	9.3	0.0	20.0
CS042505-003	4/14/2005	DM1	ST012	1	9.3	4.4	15.6
CS042505-003	4/14/2005	DM1	ST011	3	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST007	3	9.3	2.2	17.8
CS042505-003	4/14/2005	DM1	ST011	1	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST008	1	9.3	-0.4	20.4

FRAMATOME ANP Federal D&D Services SDMS Documentation
Rome, New York

4/26/2005			Page 3 of 5
	Removable Alpha Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	4 Operations

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Alpha Result (dpm/ 100cm2)	Test DCGL-Result (dpm/100cm2)
CS042505-003	4/14/2005	DM1	ST010	2	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST010	1	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST009	3	9.3	6.2	13.8
CS042505-003	4/14/2005	DM1	ST009	2	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST009	1	9.3	-0.4	20.4
CS042505-003	4/14/2005	DM1	ST008	3	9.3	1.8	18.2
CS042505-003	4/14/2005	DM1	ST013	3	9.3	4.0	16.0
CS042505-003	4/14/2005	DM1	ST011	2	9.3	4.0	16.0

Rome, New York

4/26/2005			Page 4 of 5
	Removable Alpha Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	r and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	Operations

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Calibration Date	Survey Technician
CS042505-003	E2000 201C1 removable A-B	Ludlum	M2929	152202	1/19/2005	JLM0591

Rome, New York

4/26/2005			Page 5 of 5
	Removable Alpha Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	4 Operations

Field Notes Summary

Sample ID	Field Notes
CS042505-003	Allow 24 hr decay period before counting

6/8/2005		Pa	age xii of xiii
	Data Analysis Report Measureme	nt Results	
Survey Area:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numb	er and Unit Name:		
E2000 201C1	Storm Drain System Section Down Stream	of Building 104 Operations	

Section 7.0 **Removable Beta Smear Sample Analysis Results**

Section

7.1 E2000 201C1, Removable Beta Report

Rome, New York

4/26/2005			Page 1 of 5
	Removable Beta Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Number	r and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	4 Operations

Statistical Sum	mary	Measurement Sensitivity	
(lpm/100cm2	d	pm/100cm2
Mean	5.5	MDC Mean	131.2
Median	4.9	MDC Minimum	131.2
Standard Deviation	29.4	MDC Maximum	131.2
Range	131.1	DCGL	1000.0
Minimum	-68.0		
Maximum	63.1	Tests Performed	
		No. Collected >/ = Prescribed	Yes
Number of Measu	rements	Max MDC < 50% DCGL	Yes
No. Prescribed	18	Measurements < DCGL	Yes
No. Collected	35	Measurement Mean < DCGL	Yes
		No. Measurements > DCGL	0



SDMS Documentation

Rome, New York

4/26/2005			Page 2 of 5
	Removable Beta Measu	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Number	er and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	4 Operations

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Beta Result (dpm/ 100cm2)	Test DCGL-Result (dpm/ 100cm2)
CS042505-003	4/14/2005	DM1	ST004	1	131.2	-14.6	1015
CS042505-003	4/14/2005	DM1	ST007	2	131.2	29.1	971
CS042505-003	4/14/2005	DM1	ST007	1	131.2	24.3	976
CS042505-003	4/14/2005	DM1	ST006	2	131.2	-14.6	1015
CS042505-003	4/14/2005	DM1	ST006	1	131.2	-68.0	1068
CS042505-003	4/14/2005	DM1	ST005	3	131.2	38.8	961
CS042505-003	4/14/2005	DM1	ST005	2	131.2	0.0	1000
CS042505-003	4/14/2005	DM1	ST001	1	131.2	0.0	1000
CS042505-003	4/14/2005	DM1	ST004	2	131.2	63.1	937
CS042505-003	4/14/2005	DM1	ST008	2	131.2	-34.0	1034
CS042505-003	4/14/2005	DM1	ST003	2	131.2	24.3	976
CS042505-003	4/14/2005	DM1	ST003	1	131.2	-9.7	1010
CS042505-003	4/14/2005	DM1	ST002	2	131.2	9.7	990
CS042505-003	4/14/2005	DM1	ST002	1	131.2	-19.4	1019
CS042505-003	4/14/2005	DM1	ST001	3	131.2	43.7	956
CS042505-003	4/14/2005	DM1	ST001	2	131.2	24.3	976
CS042505-003	4/14/2005	DM1	ST005	1	131.2	9.7	990
CS042505-003	4/14/2005	DM1	ST010	3	131.2	48.5	951
CS042505-003	4/14/2005	DM1	ST013	2	131.2	4.9	995
CS042505-003	4/14/2005	DM1	ST013	1	131.2	-43.7	1044
CS042505-003	4/14/2005	DM1	ST012	3	131.2	-9.7	1010
CS042505-003	4/14/2005	DM1	ST012	2	131.2	-14.6	1015
CS042505-003	4/14/2005	DM1	ST012	1	131.2	4.9	995
CS042505-003	4/14/2005	DM1	ST011	3	131.2	4.9	995

FRAMATOME ANP Federal D&D Services SDMS Documentation

Rome, New York

4/26/2005			Page 3 of 5
	Removable Beta Measur	rement Results	
Survey Area LC1:	E2000	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Package Numbe	er and Unit Name:		
E2000 201C1	Storm Drain System Section	Down Stream of Building 104	4 Operations

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Beta Result (dpm/ 100cm2)	Test DCGL-Result (dpm/ 100cm2)
CS042505-003	4/14/2005	DM1	ST007	3	131.2	38.8	961
CS042505-003	4/14/2005	DM1	ST011	1	131.2	-29.1	1029
CS042505-003	4/14/2005	DM1	ST008	1	131.2	4.9	995
CS042505-003	4/14/2005	DM1	ST010	2	131.2	-19.4	1019
CS042505-003	4/14/2005	DM1	ST010	1	131.2	9.7	990
CS042505-003	4/14/2005	DM1	ST009	3	131.2	24.3	976
CS042505-003	4/14/2005	DM1	ST009	2	131.2	-19.4	1019
CS042505-003	4/14/2005	DM1	ST009	1	131.2	58.3	942
CS042505-003	4/14/2005	DM1	ST008	3	131.2	-24.3	1024
CS042505-003	4/14/2005	DM1	ST013	3	131.2	24.3	976
CS042505-003	4/14/2005	DM1	ST011	2	131.2	24.3	976

Rome, New York

4/26/2005			Page 4 of 5			
Removable Beta Measurement Results						
Survey Area LC1:	E2000	Package Type:	System			
Survey Area Name:	Storm Drain System					
Survey Package Numbe	er and Unit Name:					
E2000 201C1	Storm Drain System Section Down Stream of Building 104 Operations					

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Calibration Date	Survey Technician
CS042505-003	E2000 201C1 removable A-B results.xls	Ludlum	M2929	152202	1/19/2005	JLM0591

Rome, New York

4/26/2005			Page 5 of 5				
Removable Beta Measurement Results							
Survey Area LC1:	E2000	Package Type:	System				
Survey Area Name:	Storm Drain System						
Survey Package Numbe	r and Unit Name:						
E2000 201C1	Storm Drain System Section Down Stream of Building 104 Operations						

Field Notes Summary

Sample ID	Field Notes
CS042505-003	Allow 24 hr decay period before counting

6/8/2005 Page							
Data Analysis Report Measurement Results							
Survey Area:	E2000	Package Type:	System				
Survey Area Name:	Storm Drain System						
Survey Package Numb	per and Unit Name:						
E2000 201C1	Storm Drain System Section Down Stream of	Building 104 Operations					

Section 8.0 Alpha Spectroscopy Sample Analysis Results

Section

8.1 E2000 201C1 Alpha Spec RL

Rome, New York

Page 1 of 6

Alpha Spectroscopy Analysis Results						
Survey Area:	E2000	Package Type:	System			
Survey Area Name:	Storm Drain System					
Survey Package Number and Unit Name:						
E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations						

Statistical Summary

5/26/2005

Statistical Summary		Measurement Sensitivity		
	pCi/gram		pCi/gram	
Mean	0.37	MDC Mean	0.25	
Median	0.25	MDC Minimum	0.16	
Standard Deviation	0.34	MDC Maximum	0.35	
Range	0.98	DCGL	0.70	
Minimum	0.06			
Maximum	1.04	Tests Performed		
		No. Collected \geq Prescribed	No	
Number of Measurements		Max MDC < 50% DCGL	Yes	
No. Prescribed	18	Measurements < DCGL	No	
No. Collected	10	Measurement Mean < DCGL	Yes	
		No. Measurements > DCGL	2	



SDMS Documentation

5/26/2005)					Р	age 2 of 6	
			Alp	oha Spec	ctrosco	opy Ana	alysis Ro	esults				
Survey A Survey A Survey Pa E20	rea: rea Name: ackage Num)00 201C1	E2000 Storm I Iber and U Sto	Drain Syst J nit Name orm Drain	em : System Se	ection D	Down Strea	am of Bu	Pa ilding 104	ackage T Operatio	ype: ns	System	
Sample A	analysis Res	ult Listing										
Laboratory File Name	Analysis Date	Weight (g)	LC3 Surface	LC5 SML	LC6 No.	Nuclide	Activity Results (pCi/g)	Activity +/- 1s Error (pCi/g)	MDC (pCi/g)	DCGL* (pCi/g)	Result - DCGL (pCi/g)	
Sample I	D: CS0	52005-004	ļ									
L9126-01	5/9/2005	1	DM1	ST001	1	RA-226	1.90E-01	1.10E-01	2.10E-01	7.00E-01	-5.10E-01	
Sample I	D: CS0	52005-005	i									
L9126-02	5/9/2005	1	DM1	ST002	1	RA-226	1.28E-01	9.80E-02	2.80E-01	7.00E-01	-5.72E-01	
Sample I	D: CS0	52005-006										
L9126-03	5/9/2005	1	DM1	ST003	1	RA-226	5.90E-02	6.30E-02	2.30E-01	7.00E-01	-6.41E-01	
Sample I	D: CS0	52005-007	,									
L9126-04	5/10/2005	1	DM1	ST004	1	RA-226	2.50E-01	1.20E-01	1.90E-01	7.00E-01	-4.50E-01	
Sample I	D: CS0	52005-008	;									
L9126-05	5/9/2005	1	DM1	ST005	1	RA-226	2.40E-01	1.20E-01	1.90E-01	7.00E-01	-4.60E-01	
Sample I	D: CS0	52005-009)									
L9126-06	5/9/2005	1	DM1	ST007	1	RA-226	3.90E-01	1.70E-01	3.20E-01	7.00E-01	-3.10E-01	
Sample I	D: CS0	52005-010)									
L9126-07	5/9/2005	1	DM1	ST011	1	RA-226	1.53E-01	8.90E-02	1.60E-01	7.00E-01	-5.47E-01	

Rome, New York

Page 3 of 6 **Alpha Spectroscopy Analysis Results Survey Area:** E2000 **Package Type:** System Survey Area Name: Storm Drain System Survey Package Number and Unit Name: E2000 201C1 Storm Drain System Section Down Stream of Building 104 Operations DCGL* Laboratory Analysis Weight LC3 LC5 LC6 Nuclide Activity Activity MDC Result -SML (pCi/g) DCGL File Name Date Surface Results +/- 1s (g) No. (pCi/g) Error (pCi/g) (pCi/g) (pCi/g) Sample ID: CS052005-011 L9126-08 5/9/2005 1 DM1 ST012 1 RA-226 3.40E-01 1.70E-01 2.70E-01 7.00E-01 -3.60E-01 Sample ID: CS052005-012 L9126-09 5/10/2005 DM1 ST013 1 1 3.10E-01 7.00E-01 2.20E-01 RA-226 9.20E-01 2.70E-01 Sample ID: CS052005-013 L9126-10 5/9/2005 1 DM1 ST013 2

RA-226 1.04E+00 3.50E-01 3.50E-01 7.00E-01 3.40E-01

* NuReg 1757 Generic Screening DCGL

5/26/2005

Rome, New York

5/26/2005

Page 4 of 6

Alpha Spectroscopy Analysis Results

Survey Area: E2000

Package Type: System

Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations



Rome, New York

5/26/2005

Alpha Spectroscopy Analysis Results

Page 5 of 6

Survey Area:E2000Package Type:SystemSurvey Area Name:Storm Drain System

Survey Package Number and Unit Name:

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations

Instrument and Calibration Summary

Sample ID	Laboratory File Name	Analyzer/ System	Model Number	Serial Number	Calibration Date	Collection Date	Collection Time	Collection Technician
CS052005-004	L9126-01	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	2:40 PM	JLM0591
CS052005-005	L9126-02	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	12:00 PM	JLM0591
CS052005-006	L9126-03	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	11:20 AM	JLM0591
CS052005-007	L9126-04	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	10:40 AM	JLM0591
CS052005-008	L9126-05	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	9:55 AM	JLM0591
CS052005-009	L9126-06	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/10/200	1:30 PM	JLM0591
CS052005-010	L9126-07	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/9/2005	1:45 PM	JLM0591
CS052005-011	L9126-08	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	8:55 AM	JLM0591
CS052005-012	L9126-09	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	3:40 PM	JLM0591
CS052005-013	L9126-10	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	2:50 PM	JLM0591

Rome, New York

5/26/2005

Page 6 of 6

Alpha Spectroscopy Analysis Results Survey Area: E2000 Package Type: System Survey Area Name: Storm Drain System E2000 Package Type: System Survey Area Name: Storm Drain System E2000 Package Type: System Survey Area Name: Storm Drain System E2000 E2000 E2000 E2000 Survey Area Name: Storm Drain System E2000 E

E2000 201C1

Storm Drain System Section Down Stream of Building 104 Operations

Field Notes Summary

Sample ID	Field Notes	Comments On Samples
CS052005-004	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-005	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-006	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-007	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-008	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-009	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-010	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-011	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-012	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-013	Impacted Storm Drain System	Sludge/sediment sample, rely on smear data for locations where media not available.

Sanitary Sewer System (Survey Area E3000)

6/8/2005		-	Page 1 of 2				
Data Analysis Report Coversheet							
Survey Area:	E3000	Package Type:	System				
Survey Area Name:	Sanitary Sewer System						
Survey Package Num	ber and Unit Name:						
E3000 201C1	Sanitary Sewer System Section Down	n Stream of Building 104					

SURVEY DATA ANALYSIS COMPLETION:

The survey package instructions were implemented, the measurement data analysis completed and results have been reviewed for completeness in accordance with the Sample and Analysis Plan.

Prepared By:	Com J. McGehee Senior Engineer	Date: 6/9/05
Reviewed By:	Donald McGee, Senior Engineer	Date: 6/9/65
Approved By:	Gregory 1 Courtney Senior Engineer, CHP	Date: 6/9/05
Approved By:	PARSONS Representative	Date: 8/6/05

Data Analysis Report Parameters Survey Area: E3000 Package Type: System Survey Area Name: Sanitary Sewer System Package Type: System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104 Velocity Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA NA Survey Reason: C1 - Characterization Survey Survey Area (M ²) NA Surface(s): Code Description Survey Area (M ²) NA Materials: Code - Description NA Total Area NA Materials: Code - Description NA Total Area NA Materials: Code - Description R1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil Velocity Pipe	6/8/2005			Kome, New 1	01K		Page 2 of 2
Survey Area: E300 Sourcey System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104 Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe			Data A	nalysis Report	t Parameters		
Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104 Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Neason: C1 - Characterization Survey Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe V2 - Vitrified Clay Pipe	Survey Area:		E3000			Package Type:	System
Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104 Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Survey Area	Name:	Sanitary Sewer Sys	tem			
E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104 Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Survey Packa	age Numb	er and Unit Name:				
Survey Group: E - Radiological Survey of Impacted Facility Systems Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	E3000 2	201C1	Sanitary Sewer	System Section I	Oown Stream of Buil	ding 104	
Survey Area: 3000 - Storm Drain System Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Survey Gro	up:	E - Radiologic	al Survey of Imp	acted Facility Syst	tems	
Unit Classification: 2 - Impacted System MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Survey Area	a:	3000 - Storm Drai	n System			
MARSSIM FSS Survey Unit Size (M ²): NA Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Unit Classif	fication:	2 - Impacted S	ystem			
Survey Unit: 01 - Sanitary Sewer System Section Down Stream of Building 104 Operations Survey Reason: C1 - Characterization Survey Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description NA B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe V2 - Vitrified Clay Pipe	MARSSIM	FSS Surv	ey Unit Size (M ²):	NA			
Surface(s): Code Description Survey Area (M ²) DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe Pipe	Survey Unit Survey Reas	t: son:	01 - Sanitary Se C1 - Characteri	wer System Sect zation Survey	ion Down Stream	of Building 104 Op	perations
DS1 - Sewer System Drain NA Total Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe	Surface(s):	Code	Description		Survey	v Area (M ²)	
Iotal Area NA Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe		DS1 -	Sewer System D	rain	T (1 A	NA	
Materials: Code - Description B1 - Brick C1 - Concrete (Bare) R1 - Sediment S1 - Soil V2 - Vitrified Clay Pipe					Total Area	NA	
	Materials:	Code - I B1 - Bri C1 - Co R1 - Sec S1 - Soi V2 - Vit	Description ck ncrete (Bare) liment l rified Clay Pipe				
Keport	Report						
Report Pedigree: Final Report	Report Pe	digree:	Fina	al Report			
Detector Efficiency 2-Pi	Detector E	Efficiency	2-P	i			
Survey Location: LC5	Survey Lo	ocation:	LCS	5			

6/8/2005			Page i of xiii
	Data Analysis Report Measurement Results		
Survey Area Survey Area Survey Packs	E3000 Pack Name: Sanitary Sewer System age Number and Unit Name: 201C1 Sanitary Sewer System Section Down Stream of Building 10/	cage Type:	System
	20101 Saintary Sewer System Section Down Stream of Building 10-	r	
Section	Title		
1.0	Annotated Drawings		
2.0	Direct Beta Measurement Results		
3.0	Direct Alpha Measurement Results		
4.0	Contact Gamma Exposure Rate Measurement Results		
5.0	1 Meter Gamma Exposure Rate Measurement Results		
6.0	Removable Alpha Smear Sample Analysis Results		
7.0	Removable Beta Smear Sample Analysis Results		
8.0	Alpha Spectroscopy Sample Analysis Results		

6/8/2005	- ,		Page ii of xiii
	Data Analysis Report Measur	ement Results	
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Num	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Dowr	Stream of Building 104	

Section 1.0 **Annotated Drawings**

6/8/2005

Drawing E3000-1













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Data Analysis Report Measurement Results E3000 Package Type: **Survey Area:** Survey Area Name: Sanitary Sewer System

Survey Package Number and Unit Name:

E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Section 2.0 **Direct Beta Measurement Results**

Section

- E3000 201C1, Direct Beta all materials 2.1
- E3000 201C1, Direct Beta all materials wMBC 2.2

9/14/2005

Page iii of xiii

System

9/14/2005			Page iv of xiii
	Data Analysis Report Measure	ement Results	
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Num	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Down	Stream of Building 104	

Section 2.1 E3000 201C1, Direct Beta all materials

Rome, New York

9/1	$\Delta/2$	005
	-7/2	00.

Direct Beta Measurement Results

Survey Area:	E3000	PackageType:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numl	per and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Down Stream	of Building 104	

Statistical Summary

	dpm/100cm ²	
Mean	5,079.0	MDC Mean
Median	5,394.1	MDC Minimum
Standard Deviation	1,193.3	MDC Maximum
Range	4,897.3	DCGL
Minimum	2,342.2	
Maximum	7,239.4	Tests Performed
		No. Collected \geq Prescribed
Number of Measurements	5	Max MDC < 50% DCGL
No. Prescribed	18	Measurements < DCGL
No. Collected	25	Measurement Mean < DCGL

Measurement Sensitivity

	dpm/100cm ²
IDC Mean	2,294.2
ADC Minimum	2,294.2
IDC Maximum	2,294.2
DCGL	5,000

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	16



Rome, New York

9/14/2005

Page 2 of 6

Direct Beta Measurement Results

Survey Area:	E3000	PackageType:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		

E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-009	4/9/2005	DS1C1	B01FA	SA008	1	0.0	2,294.2	4,329.5	670.5
DL041005-009	4/9/2005	DS1B1	B01FA	SA008	2	0.0	2,294.2	5,749.0	-749.0
DL041005-009	4/9/2005	DS1B1	B01FA	SA009	1	0.0	2,294.2	5,678.0	-678.0
DL041005-009	4/9/2005	DS1C1	B01FA	SA009	2	0.0	2,294.2	4,684.3	315.7
DL041105-006	4/10/2005	DS1C1	B01FA	SA006	1	0.0	2,294.2	3,761.7	1,238.3
DL041105-006	4/10/2005	DS1C1	B01FA	SA006	2	0.0	2,294.2	4,329.5	670.5
DL041105-006	4/10/2005	DS1B1	B01FA	SA006	3	0.0	2,294.2	5,536.0	-536.0
DL041105-006	4/10/2005	DS1B1	B01FA	SA006	4	0.0	2,294.2	5,536.0	-536.0
DL041105-006	4/10/2005	DS1C1	B01FA	SA007	1	0.0	2,294.2	5,536.0	-536.0
DL041105-006	4/10/2005	DS1C1	B01FA	SA007	2	0.0	2,294.2	6,032.9	-1,032.9
DL041205-005	4/11/2005	DS1C1	B01FA	SA005	1	0.0	2,294.2	5,465.1	-465.1
DL041205-005	4/11/2005	DS1C1	B01FA	SA005	2	0.0	2,294.2	5,181.2	-181.2
DL041205-005	4/11/2005	DS1B1	B01FA	SA005	3	0.0	2,294.2	7,239.4	-2,239.4
DL041305-006	4/12/2005	DS1C1	B01FA	BLD21	1	0.0	2,294.2	2,342.2	2,657.8
DL041305-006	4/12/2005	DS1C1	B01FA	BLD21	2	0.0	2,294.2	2,839.0	2,161.0
DL041305-006	4/12/2005	DS1C1	B01FA	SA001	1	0.0	2,294.2	5,039.2	-39.2
DL041305-006	4/12/2005	DS1C1	B01FA	SA001	2	0.0	2,294.2	4,542.4	457.6
DL041305-006	4/12/2005	DS1C1	B01FA	SA002	1	0.0	2,294.2	5,749.0	-749.0
DL041305-006	4/12/2005	DS1C1	B01FA	SA002	2	0.0	2,294.2	7,097.5	-2,097.5
DL041305-006	4/12/2005	DS1C1	B01FA	SA003	1	0.0	2,294.2	5,394.1	-394.1
DL041305-006	4/12/2005	DS1C1	B01FA	SA003	2	0.0	2,294.2	4,045.6	954.4
DL041305-006	4/12/2005	DS1C1	B01FA	SA004	1	0.0	2,294.2	3,548.7	1,451.3
DL041305-006	4/12/2005	DS1C1	B01FA	SA004	2	0.0	2,294.2	5,465.1	-465.1
DL041305-006	4/12/2005	DS1B1	B01FA	SA010	1	0.0	2,294.2	6,813.6	-1,813.6
DL041305-006	4/12/2005	DS1B1	B01FA	SA010	2	0.0	2,294.2	5,039.2	-39.2

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E3000 201C1, Direct Beta all materials.doc

SDMS Documentation

Rome, New York

9/14/2005

Page 3 of 6



Survey Area: E3000

PackageType: System

Survey Area Name: Sanitary Sewer System

Survey Package Number and Unit Name:

E3000 201C1

Sanitary Sewer System Section Down Stream of Building 104



Rome, New York

Direct Beta Measurement Results

9/14/2005

Page 4 of 6

Survey Area: E3000 PackageType: System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041105-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041205-005	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

9/14/2005

Page 5 of 6

Direct Beta Measurement Results						
Survey Area:	E3000	PackageType:	System			
Survey Area Name:	Sanitary Sewer System					
Survey Package Number and Unit Name:						
E3000 201C1	Sanitary Sewer System Section Down Stream of Bui	ilding 104				

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

9/14/2005

Page 6 of 6

Direct Beta Measurement Results						
Survey Area:	E3000	PackageType:	System			
Survey Area Name:	Sanitary Sewer System					
Survey Package Number and Unit Name:						
E3000 201C1	Sanitary Sewer System Section Down Stream of Buildin	g 104				

Field Notes Summary

Download ID	Field Notes
DL041005-009	Archive filename: DL040905-006.TMP
DL041105-006	Archive filename: DL041005-006.TMP
DL041205-005	Archive filename: DL041105-006.TMP
DL041305-006	Archive filename: DL041205-006.TMP

9/14/2005	Data Analysis Report Measu	irement Results	Page v of xiii
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Num	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Dow	vn Stream of Building 104	

Section 2.2 E3000 201C1, Direct Beta all materials - wMBC

Rome, New York

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Direct Beta Measurement Results

Survey Area:	E3000	PackageType:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numl	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Down Stream of Buildi	ng 104	

Statistical Summary

	dpm/100cm ²
Mean	-1,364.9
Median	-1,561.4
Standard Deviation	1,059.5
Range	4,755.3
Minimum	-3,761.6
Maximum	993.7
Number of Measurements	
No. Prescribed	18
No. Collected	25

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	2,294.2
MDC Minimum	2,294.2
MDC Maximum	2,294.2
DCGL	5,000

Tests Performed

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	Yes
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	0



Rome, New York

9/14/2005

Direct Beta Measurement Results

Page 2 of 6

Survey Area:E3000PackageType:SystemSurvey Area Name:Sanitary Sewer SystemSurvey Package NumberSurvey Package NumberSurvey Package Number

E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-009	4/9/2005	DS1C1	B01FA	SA008	1	0.0	2,294.2	-1,774.3	6,774.3
DL041005-009	4/9/2005	DS1B1	B01FA	SA008	2	0.0	2,294.2	-1,569.3	6,569.3
DL041005-009	4/9/2005	DS1B1	B01FA	SA009	1	0.0	2,294.2	-1,640.3	6,640.3
DL041005-009	4/9/2005	DS1C1	B01FA	SA009	2	0.0	2,294.2	-1,419.5	6,419.5
DL041105-006	4/10/2005	DS1C1	B01FA	SA006	1	0.0	2,294.2	-2,342.1	7,342.1
DL041105-006	4/10/2005	DS1C1	B01FA	SA006	2	0.0	2,294.2	-1,774.3	6,774.3
DL041105-006	4/10/2005	DS1B1	B01FA	SA006	3	0.0	2,294.2	-1,782.3	6,782.3
DL041105-006	4/10/2005	DS1B1	B01FA	SA006	4	0.0	2,294.2	-1,782.3	6,782.3
DL041105-006	4/10/2005	DS1C1	B01FA	SA007	1	0.0	2,294.2	-567.8	5,567.8
DL041105-006	4/10/2005	DS1C1	B01FA	SA007	2	0.0	2,294.2	-70.9	5,070.9
DL041205-005	4/11/2005	DS1C1	B01FA	SA005	1	0.0	2,294.2	-638.7	5,638.7
DL041205-005	4/11/2005	DS1C1	B01FA	SA005	2	0.0	2,294.2	-922.6	5,922.6
DL041205-005	4/11/2005	DS1B1	B01FA	SA005	3	0.0	2,294.2	-78.9	5,078.9
DL041305-006	4/12/2005	DS1C1	B01FA	BLD21	1	0.0	2,294.2	-3,761.6	8,761.6
DL041305-006	4/12/2005	DS1C1	B01FA	BLD21	2	0.0	2,294.2	-3,264.8	8,264.8
DL041305-006	4/12/2005	DS1C1	B01FA	SA001	1	0.0	2,294.2	-1,064.6	6,064.6
DL041305-006	4/12/2005	DS1C1	B01FA	SA001	2	0.0	2,294.2	-1,561.4	6,561.4
DL041305-006	4/12/2005	DS1C1	B01FA	SA002	1	0.0	2,294.2	-354.8	5,354.8
DL041305-006	4/12/2005	DS1C1	B01FA	SA002	2	0.0	2,294.2	993.7	4,006.3
DL041305-006	4/12/2005	DS1C1	B01FA	SA003	1	0.0	2,294.2	-709.7	5,709.7
DL041305-006	4/12/2005	DS1C1	B01FA	SA003	2	0.0	2,294.2	-2,058.2	7,058.2
DL041305-006	4/12/2005	DS1C1	B01FA	SA004	1	0.0	2,294.2	-2,555.1	7,555.1
DL041305-006	4/12/2005	DS1C1	B01FA	SA004	2	0.0	2,294.2	-638.7	5,638.7
DL041305-006	4/12/2005	DS1B1	B01FA	SA010	1	0.0	2,294.2	-504.7	5,504.7
DL041305-006	4/12/2005	DS1B1	B01FA	SA010	2	0.0	2,294.2	-2,279.1	7,279.1

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E3000 201C1, Direct Beta all materials - wMBC.doc

SDMS Documentation
Rome, New York

9/14/2005

Page 3 of 6



Survey Area: E3000

PackageType: System

Survey Area Name: Sanitary Sewer System

Survey Package Number and Unit Name:

E3000 201C1

Sanitary Sewer System Section Down Stream of Building 104



Rome, New York

Direct Beta Measurement Results

9/14/2005

Page 4 of 6

Survey Area: E3000 PackageType: System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041105-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041205-005	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591
DL041305-006	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005

Page 5 of 6

Direct Beta Measurement Results						
Survey Area:	E3000	PackageType:	System			
Survey Area Name:	Sanitary Sewer System					
Survey Package Number and Unit Name:						
E3000 201C1	Sanitary Sewer System Section Down Stream of Bu	ilding 104				

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.5	7,318.3
C1	Concrete (Bare)	Concrete (Bare) Description	0.5	6,103.8
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	8,152.0

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005

Page 6 of 6

Direct Beta Measurement Results						
Survey Area:	E3000	PackageType:	System			
Survey Area Name:	Sanitary Sewer System					
Survey Package Number and Unit Name:						
E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104						

Field Notes Summary

Download ID	Field Notes
DL041005-009	Archive filename: DL040905-006.TMP
DL041105-006	Archive filename: DL041005-006.TMP
DL041205-005	Archive filename: DL041105-006.TMP
DL041305-006	Archive filename: DL041205-006.TMP

Rome, New York

Page vi of xiii **Data Analysis Report Measurement Results** E3000 Package Type: **Survey Area:** System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Section 3.0 **Direct Alpha Measurement Results**

Section

- E3000 201C1 Direct Alpha all materials 3.1
- E3000 201C1 Direct Alpha all materials wMBC 3.2

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005 Page vii of x. Data Analysis Report Measurement Results								
Survey Area:	E3000	Package Type:	System					
Survey Area Name:	Sanitary Sewer System							
Survey Package Num	ber and Unit Name:							
E3000 201C1	Sanitary Sewer System Section Down Stream	n of Building 104						

Section 3.1 E3000 201C1 Direct Alpha all materials

Rome, New York

9/14/2005

Direct Alpha Measurement Results							
Survey Area:	E3000	Package Type:	System				
Survey Area Name:	Sanitary Sewer System						
Survey Package Num	ber and Unit Name:						
E3000 201C1	Sanitary Sewer System Section Down Stream of Bui	lding 104					

Statistical Summary

	dpm/100cm ²
Mean	346.8
Median	302.7
Standard Deviation	292.8
Range	945.9
Minimum	0.0
Maximum	945.9
Number of Measurements	
No. Prescribed	18
No. Collected	24

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	341.0
MDC Minimum	341.0
MDC Maximum	341.0
DCGL	100

Tests Performed

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	19



Rome, New York

9/14/2005

E3000 201C1

Direct Alpha Measurement Results

Page 2 of 6

Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		

Sanitary Sewer System Section Down Stream of Building 104

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID	Date	Surface/ Material LC3	Detector Type/Count Type LC4	Location or Item No. LC5	SML LC6	Ave or SP Background dpm/100cm ²	Measurement MDC dpm/100cm ²	Measurement Result dpm/100cm ²	Test (DCGL-Result) dpm/100cm ²
DL041005-008	4/9/2005	DS1C1	A02FA	SA008	1	0.0	341.0	113.5	-13.5
DL041005-008	4/9/2005	DS1C1	A02FA	SA008	2	0.0	341.0	113.5	-13.5
DL041005-008	4/9/2005	DS1B1	A02FA	SA009	1	0.0	341.0	378.4	-278.4
DL041005-008	4/9/2005	DS1B1	A02FA	SA009	2	0.0	341.0	794.6	-694.6
DL041105-005	4/10/2005	DS1C1	A02FA	SA006	1	0.0	341.0	340.5	-240.5
DL041105-005	4/10/2005	DS1C1	A02FA	SA006	2	0.0	341.0	37.8	62.2
DL041105-005	4/10/2005	DS1B1	A02FA	SA006	3	0.0	341.0	151.3	-51.3
DL041105-005	4/10/2005	DS1C1	A02FA	SA007	1	0.0	341.0	529.7	-429.7
DL041105-005	4/10/2005	DS1C1	A02FA	SA007	2	0.0	341.0	908.1	-808.1
DL041205-004	4/11/2005	DS1C1	A02FA	SA005	1	0.0	341.0	605.4	-505.4
DL041205-004	4/11/2005	DS1C1	A02FA	SA005	2	0.0	341.0	416.2	-316.2
DL041205-004	4/11/2005	DS1B1	A02FA	SA005	3	0.0	341.0	491.9	-391.9
DL041305-005	4/12/2005	DS1C1	A02FA	BLD21	1	0.0	341.0	75.7	24.3
DL041305-005	4/12/2005	DS1C1	A02FA	BLD21	2	0.0	341.0	113.5	-13.5
DL041305-005	4/12/2005	DS1B1	A02FA	SA001	1	0.0	341.0	189.2	-89.2
DL041305-005	4/12/2005	DS1B1	A02FA	SA001	2	0.0	341.0	0.0	100.0
DL041305-005	4/12/2005	DS1C1	A02FA	SA002	1	0.0	341.0	378.4	-278.4
DL041305-005	4/12/2005	DS1C1	A02FA	SA002	2	0.0	341.0	529.7	-429.7
DL041305-005	4/12/2005	DS1C1	A02FA	SA003	1	0.0	341.0	37.8	62.2
DL041305-005	4/12/2005	DS1C1	A02FA	SA003	2	0.0	341.0	113.5	-13.5
DL041305-005	4/12/2005	DS1C1	A02FA	SA004	1	0.0	341.0	37.8	62.2
DL041305-005	4/12/2005	DS1C1	A02FA	SA004	2	0.0	341.0	264.9	-164.9
DL041305-005	4/12/2005	DS1B1	A02FA	SA010	1	0.0	341.0	945.9	-845.9
DL041305-005	4/12/2005	DS1B1	A02FA	SA010	2	0.0	341.0	756.7	-656.7

Rome, New York

9/14/2005

Page 3 of 6

Direct Alpha Measurement Results

Survey Area: E3000

Package Type: System

Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name:

E3000 201C1

Sanitary Sewer System Section Down Stream of Building 104



Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 4 of 6

Survey Area: E3000 Package Type: System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-008	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041105-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041205-004	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041305-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

Rome, New York

9/14/2005

Page 5 of 6

Direct Alpha Measurement Results			
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numl	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Down Stream of Buil	ding 104	

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005

Page 6 of 6

Direct Alpha Measurement Results				
Survey Area:	E3000	Package Type:	System	
Survey Area Name:	Sanitary Sewer System			
Survey Package Numb	er and Unit Name:			
E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104				

Field Notes Summary

Download ID	Field Notes
DL041005-008	Sanitary Sewer System
DL041105-005	Sanitary Sewer System
DL041205-004	Sanitary Sewer System
DL041305-005	Sanitary Sewer System

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005	Data Analysis Report Measu	Pa rement Results	ge viii of xiii
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		j a t
Survey Package Num	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Dow	n Stream of Building 104	

Section 3.2 E3000 201C1 Direct Alpha all materials wMBC

Rome, New York

9/1	4/2.0)05
11	-1/20	$\mathcal{O}\mathcal{O}$

Direct Alpha Measurement Results			
Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Num	ber and Unit Name:		
E3000 201C1	Sanitary Sewer System Section Down Stream of B	uilding 104	

Statistical Summary

	dpm/100cm ²
Mean	-352.4
Median	-404.3
Standard Deviation	296.2
Range	945.9
Minimum	-683.8
Maximum	262.1
Number of Measurements	
No. Prescribed	18
No. Collected	24

Measurement Sensitivity

	dpm/100cm ²
MDC Mean	341.0
MDC Minimum	341.0
MDC Maximum	341.0
DCGL	100

Tests Performed

No. Collected \geq Prescribed	Yes
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	3



Page 1 of 6

Rome, New York

9/14/2005

E3000 201C1

Direct Alpha Measurement Results

Page 2 of 6

Survey Area:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		

Sanitary Sewer System Section Down Stream of Building 104

Survey Measurement Results by Download File, Surface/Material, Room/Item and SML

Download ID Date Surface/ Detector Location or SML Ave or SP Measurement Measurement Test (DCGL-Result) Material Type/Count Item No. LC6 Background MDC Result Type LC4 dpm/100cm² dpm/100cm² LC3 LC5 $dpm/100cm^2$ $dpm/100cm^2$ DL041005-008 4/9/2005 DS1C1 A02FA SA008 1 0.0 341.0 -593.5 693.5 DS1C1 A02FA 2 341.0 -593.5 693.5 DL041005-008 4/9/2005 SA008 0.0 DL041005-008 DS1B1 0.0 341.0 -305.4 405.4 4/9/2005 A02FA SA009 1 DL041005-008 DS1B1 2 4/9/2005 A02FA SA009 0.0 341.0 110.8 -10.8 DL041105-005 4/10/2005 DS1C1 A02FA SA006 1 0.0 341.0 -366.5 466.5 DL041105-005 DS1C1 2 0.0 341.0 -669.2 769.2 4/10/2005 A02FA SA006 DL041105-005 4/10/2005 DS1B1 A02FA SA006 3 0.0 341.0 -532.5 632.5 DL041105-005 4/10/2005 DS1C1 A02FA SA007 1 0.0 341.0 -177.3 277.3 DL041105-005 4/10/2005 DS1C1 A02FA SA007 2 0.0 341.0 201.1 -101.1 DL041205-004 4/11/2005 DS1C1 A02FA SA005 1 0.0 341.0 -101.6 201.6 2 DL041205-004 4/11/2005 DS1C1 A02FA SA005 0.0 341.0 -290.8 390.8 DL041205-004 4/11/2005 DS1B1 A02FA SA005 3 0.0 341.0 -191.9 291.9 DS1C1 DL041305-005 4/12/2005 A02FA BLD21 1 0.0 341.0 -631.3 731.3 DL041305-005 4/12/2005 DS1C1 A02FA BLD21 2 0.0 341.0 -593.5 693.5 DL041305-005 4/12/2005 DS1B1 A02FA SA001 1 0.0341.0 -494.6 594.6 DL041305-005 4/12/2005 DS1B1 A02FA SA001 2 0.0 341.0 -683.8 783.8 DL041305-005 4/12/2005 DS1C1 A02FA SA002 1 0.0 341.0 -328.6 428.6 DL041305-005 4/12/2005 DS1C1 A02FA SA002 2 0.0 341.0 -177.3 277.3 DL041305-005 4/12/2005 DS1C1 A02FA SA003 1 0.0 341.0 -669.2 769.2 DL041305-005 DS1C1 SA003 4/12/2005 A02FA 2 0.0 341.0 -593.5 693.5 DL041305-005 4/12/2005 DS1C1 A02FA SA004 1 0.0 341.0 -669.2 769.2 DL041305-005 4/12/2005 DS1C1 A02FA 2 0.0 341.0 -442.1 542.1 SA004 DL041305-005 4/12/2005 DS1B1 A02FA SA010 1 0.0 341.0 262.1 -162.1 2 27.1 DL041305-005 4/12/2005 DS1B1 A02FA SA010 0.0341.0 72.9

Rome, New York

9/14/2005

Survey Area:

Page 3 of 6

Direct Alpha Measurement Results

Survey Area Name: Sanitary Sewer System

Package Type: System

Survey Package Number and Unit Name:

E3000

E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104



Rome, New York

Direct Alpha Measurement Results

9/14/2005

Page 4 of 6

Survey Area: E3000 Package Type: System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det Cal Due	Detector Area	Efficiency*	Survey Technician
DL041005-008	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041105-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041205-004	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591
DL041305-005	120636	1/18/2006	43-5	PR172236	1/18/2006	76	0.1391	JLM0591

Rome, New York

9/14/2005

Page 5 of 6

Direct Alpha Measurement Results					
Survey Area:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Numl	ber and Unit Name:				
E3000 201C1	Sanitary Sewer System Section Down Stream of Build	ding 104			

Material Background Summary

Material LC3 P45	Material Description	Material Surface Description	Material Surface – Beta Source Efficiency	Material Background Contribution dpm/100cm2
B1	Brick	Brick Description	0.25	683.8
C1	Concrete (Bare)	Concrete (Bare) Description	0.25	707.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	860.3

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

9/14/2005

Page 6 of 6

Direct Alpha Measurement Results					
Survey Area:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Numb	er and Unit Name:				
E3000 201C1	Sanitary Sewer System Section Down Stream of Buildi	ng 104			

Field Notes Summary

Download ID	Field Notes
DL041005-008	Sanitary Sewer System
DL041105-005	Sanitary Sewer System
DL041205-004	Sanitary Sewer System
DL041305-005	Sanitary Sewer System

Rome, New York

Page ix of xiii

Data Analysis Report Measurement Results					
Survey Area:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Numb	er and Unit Name:				
E3000 201C1	Sanitary Sewer System Section Down Stream of Buildin	ng 104			

Section 4.0 Contact Gamma Exposure Rate Measurement Results

Section

6/8/2005

4.1 E3000 201C1, Contact Gamma Report

Rome, New York

5/31/2005			Page 1 of 5
Cont	act Gamma Exposure F	Rate Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Se	ection Down Stream of Building 104	4 Operations

Statistical Summary

Material Background

Maximum	23.0	Tests Performed	
Range	16.3	Reference Value (RV)	20.8
Standard Deviation	3.8	Maximum	0.0
Median	15.8	Minimum	0.0
Mean	14.7	Mean	0.0
	uR/hr		uR/hr

Number of Measurements

No. Prescribed	18
No. Collected	26

No. Collected >/= PrescribedYesMeasurement Mean < RV</td>YesMeasurements < RV</td>NoNo. Measurements > RV1



Rome, New York

5/31/2005			Page 2 of 5
Cont	tact Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name: Sanitary Sewer System			
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	Down Stream of Building 1	04 Operations

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	Contact (C) Result (uR/hr)	Reference - C (uR/hr)
DL041305-004	4/12/2005	DS1B1	SA001	00001	20.8	16.9	3.9
DL041305-004	4/12/2005	DS1B1	SA001	00002	20.8	13.4	7.4
DL041005-007	4/9/2005	DS1B1	SA009	00001	20.8	16.5	4.3
DL041305-004	4/12/2005	DS1C1	BLD21	00001	20.8	8.3	12.5
DL041305-004	4/12/2005	DS1C1	BLD21	00002	20.8	7.3	13.5
DL041305-004	4/12/2005	DS1C1	SA002	00001	20.8	17.0	3.8
DL041305-004	4/12/2005	DS1C1	SA002	00002	20.8	15.1	5.7
DL041305-004	4/12/2005	DS1C1	SA002	00003	20.8	17.0	3.8
DL041305-004	4/12/2005	DS1C1	SA003	00001	20.8	15.7	5.1
DL041305-004	4/12/2005	DS1C1	SA003	00002	20.8	15.6	5.2
DL041305-004	4/12/2005	DS1C1	SA004	00001	20.8	17.0	3.8
DL041305-004	4/12/2005	DS1C1	SA004	00002	20.8	16.9	3.9
DL041205-003	4/11/2005	DS1C1	SA005	00001	20.8	23.0	-2.2
DL041205-003	4/11/2005	DS1C1	SA005	00002	20.8	17.4	3.4
DL041105-004	4/10/2005	DS1C1	SA006	00001	20.8	15.5	5.3
DL041105-004	4/10/2005	DS1C1	SA007	00001	20.8	7.2	13.6
DL041105-004	4/10/2005	DS1C1	SA007	00002	20.8	6.8	14.0
DL041005-007	4/9/2005	DS1C1	SA008	00001	20.8	16.7	4.1
DL041005-007	4/9/2005	DS1C1	SA009	00002	20.8	16.1	4.7
DL041305-004	4/12/2005	DS1C1	SA010	00001	20.8	13.1	7.7
DL041305-004	4/12/2005	DS1C1	SA010	00002	20.8	13.2	7.6
DL041205-003	4/11/2005	DS1V2	SA005	00003	20.8	15.9	4.9
DL041105-004	4/10/2005	DS1V2	SA006	00002	20.8	14.3	6.5
DL041105-004	4/10/2005	DS1V2	SA006	00003	20.8	18.0	2.8
DL041105-004	4/10/2005	DS1V2	SA007	00003	20.8	12.5	8.3
DL041005-007	4/9/2005	DS1V2	SA008	00002	20.8	16.7	4.1

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Rome, New York

5/31/2005			Page 3 of 5
Cont	tact Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	Down Stream of Building 1	04 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350 Cal Due	Det Model	Detector SN	Det. Cal Due	Gamma Cal Factor	Survey Technician
DL041005-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041205-003	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5		
Contact Gamma Exposure Rate Measurement Results					
Survey Area LC1:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Number and Unit Name:					
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building 10	04 Operations		

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Contact Gamma Background Subtract (uR/hr)
B1	Brick	Brick Description	0.0
C1	Concrete (Bare)	Concrete (Bare) Description	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
Cont	act Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	Down Stream of Building 1	04 Operations

Field Notes Summary

Download ID	Field Notes
DL041005-007	Archive filename: DL040905-004.TMP
DL041105-004	Archive filename: DL041005-004.TMP
DL041205-003	Archive filename: DL041105-004.TMP
DL041305-004	Archive filename: DL041205-004.TMP

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

6/8/2005			Page x of xiii		
Data Analysis Report Measurement Results					
Survey Area:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Num	ber and Unit Name:				
E3000 201C1	Sanitary Sewer System Section Down	1 Stream of Building 104			

Section 5.0 **1 Meter Gamma Exposure Rate Measurement Results**

Section 5.1 E3000 201C1, 1 Meter Gamma Report

Rome, New York

5/31/2005			Page 1 of 5			
1 Meter Gamma Exposure Rate Measurement Results						
Survey Area LC1:	E3000	Package Type:	System			
Survey Area Name:	Sanitary Sewer Syste	m				
Survey Package Number	r and Unit Name:					
E3000 201C1	Sanitary Sewer System	Section Down Stream of Building 104	4 Operations			

Statistical Summary		Material Background		
	uR/hr		uR/hr	
Mean	5.0	Mean	0.0	
Median	4.8	Minimum	0.0	
Standard Deviation	1.4	Maximum	0.0	
Range	5.7	Reference Value (RV)	6.9	
Minimum	3.5	Tests Performed		
Maximum	9.2			
		No. Collected >/= Prescribed	Yes	
Number of Measurements		Measurement Mean < RV	Yes	
No. Prescribed	18	Measurements < RV	No	
No. Collected	22	No. Measurements > RV	2	



Rome, New York

5/31/2005			Page 2 of 5
1 Me	eter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	Down Stream of Building 1	04 Operations

Measurement Results Listing by Download File

Download ID	Survey Date	LC3	LC5	LC6	Reference Value (uR/hr)	1 Meter Result (uR/hr)	Reference - 1M (uR/hr)
DL041305-004	4/12/2005	DS1C1	BLD21	00001	6.9	9.2	-2.3
DL041305-004	4/12/2005	DS1C1	BLD21	00002	6.9	8.9	-2.0
DL041305-004	4/12/2005	DS1C1	SA001	00001	6.9	5.1	1.8
DL041305-004	4/12/2005	DS1C1	SA001	00002	6.9	5.1	1.8
DL041305-004	4/12/2005	DS1C1	SA002	00001	6.9	5.3	1.6
DL041305-004	4/12/2005	DS1C1	SA002	00002	6.9	5.1	1.8
DL041305-004	4/12/2005	DS1C1	SA003	00001	6.9	4.9	2.0
DL041305-004	4/12/2005	DS1C1	SA003	00002	6.9	4.8	2.1
DL041305-010	4/13/2005	DS1C1	SA004	00001	6.9	5.1	1.8
DL041305-010	4/13/2005	DS1C1	SA004	00002	6.9	5.1	1.8
DL041205-003	4/11/2005	DS1C1	SA005	00001	6.9	4.8	2.1
DL041205-003	4/11/2005	DS1C1	SA005	00002	6.9	4.9	2.0
DL041105-004	4/10/2005	DS1C1	SA007	00001	6.9	3.8	3.1
DL041105-004	4/10/2005	DS1C1	SA007	00002	6.9	3.7	3.2
DL041005-007	4/9/2005	DS1C1	SA008	00001	6.9	4.2	2.7
DL041005-007	4/9/2005	DS1C1	SA008	00002	6.9	4.3	2.6
DL041305-004	4/12/2005	DS1C1	SA010	00001	6.9	3.5	3.4
DL041305-004	4/12/2005	DS1C1	SA010	00002	6.9	3.6	3.3
DL041005-007	4/9/2005	DS1S1	SA009	00001	6.9	4.7	2.2
DL041005-007	4/9/2005	DS1S1	SA009	00002	6.9	4.7	2.2
DL041105-004	4/10/2005	DS1V2	SA006	00001	6.9	4.2	2.7
DL041105-004	4/10/2005	DS1V2	SA006	00002	6.9	4.4	2.5

Rome, New York

5/31/2005			Page 3 of 5
1 Me	eter Gamma Exposure Rate	e Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	on Down Stream of Building 1	04 Operations

Download File, Instrumentation Calibration Summary and Survey Technician

Download ID	M2350 SN	M2350	Det Model	Detector SN	Det. Cal Due	Gamma Cal	Survey
		Cal Due				Factor	Technician
DL041005-007	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041105-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041205-003	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-004	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591
DL041305-010	95358	1/17/2006	44-10	PR192598	1/17/2006	6.13E+10	JLM0591

Rome, New York

5/31/2005			Page 4 of 5
1 Me	ter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	Down Stream of Building 1	04 Operations

Material Background Summary

Material LC3_P45	Material Description	Material Surface Description	Gamma Background Subtract 1M (uR/hr)
C1	Concrete (Bare)	Concrete (Bare) Description	0.0
S 1	Soil	Soil Description	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

Rome, New York

5/31/2005			Page 5 of 5
1 Me	eter Gamma Exposure Rate	Measurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building 1	04 Operations

Field Notes Summary

Download ID	Field Notes
DL041005-007	Archive filename: DL040905-004.TMP
DL041105-004	Archive filename: DL041005-004.TMP
DL041205-003	Archive filename: DL041105-004.TMP
DL041305-004	Archive filename: DL041205-004.TMP
DL041305-010	Archive filename: DL041305-001.TMP

Rome, New York

Page xi of xiii **Data Analysis Report Measurement Results Survey Area:** E3000 Package Type: System Sanitary Sewer System Survey Area Name: Survey Package Number and Unit Name: Sanitary Sewer System Section Down Stream of Building 104 E3000 201C1

Section 6.0 **Removable Alpha Smear Sample Analysis Results**

Section

6.1 E3000 201C1, Removable Alpha Report

6/8/2005

Rome, New York

4/26/2005			Page 1 of 5
	Removable Alpha Measur	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building 1	04 Operation

Statistical Summ	nary	Measurement Sensitivity	
d	lpm/100cm2	dpm/.	100cm2
Mean	1.7	MDC Mean	9.3
Median	1.8	MDC Minimum	9.3
Standard Deviation	1.9	MDC Maximum	9.3
Range	7.1	DCGL	20.0
Minimum	-0.4		
Maximum	6.6	Tests Performed	
		No. Collected >/= Prescribed	Yes
		Max MDC < 50% DCGL	Yes
Number of Measu	rements	Measurements < DCGL	Yes
No. Prescribed	18	Measurement Mean < DCGL	Yes
No. Collected	31	No. Measurements > DCGL	0



Rome, New York

4/26/2005			Page 2 of 5
	Removable Alpha Measur	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building	104 Operation

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Alpha Result (dpm/ 100cm2)	Test DCGL-Result (dpm/100cm2)
CS042505-004	4/14/2005	DS1	SA005	3	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	BLD21	2	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	BLD21	3	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA001	1	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA001	2	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA001	3	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA002	1	9.3	4.0	16.0
CS042505-004	4/14/2005	DS1	SA002	2	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA003	1	9.3	6.6	13.4
CS042505-004	4/14/2005	DS1	SA003	2	9.3	4.4	15.6
CS042505-004	4/14/2005	DS1	SA003	3	9.3	4.4	15.6
CS042505-004	4/14/2005	DS1	SA004	1	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA004	2	9.3	4.0	16.0
CS042505-004	4/14/2005	DS1	SA004	3	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	BLD21	1	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA007	3	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA010	2	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA010	1	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA009	3	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA009	2	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA009	1	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA005	1	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA008	1	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA005	2	9.3	4.0	16.0
CS042505-004	4/14/2005	DS1	SA007	2	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA007	1	9.3	4.0	16.0
CS042505-004	4/14/2005	DS1	SA006	3	9.3	-0.4	20.4

FRAMATOME ANP Federal D&D Services SDMS Documentation

Rome, New York

4/26/2005			Page 3 of 5
	Removable Alpha Measu	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	er and Unit Name:		
E3000 201C1	Sanitary Sewer System Sectio	n Down Stream of Building 1	04 Operation

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Alpha Result (dpm/ 100cm2)	Test DCGL-Result (dpm/100cm2)
CS042505-004	4/14/2005	DS1	SA006	2	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA006	1	9.3	1.8	18.2
CS042505-004	4/14/2005	DS1	SA010	3	9.3	-0.4	20.4
CS042505-004	4/14/2005	DS1	SA008	2	9.3	1.8	18.2

Rome, New York

4/26/2005			Page 4 of 5
	Removable Alpha Measur	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building	04 Operation

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Calibration Date	Survey Technician
CS042505-004	E3000 201C1 removable A-B	Ludlum	M2929	152202	1/19/2005	JLM0591
Rome, New York

4/26/2005			Page 5 of 5
	Removable Alpha Mea	asurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Se	ction Down Stream of Building 1	04 Operation

Field Notes Summary

Sample ID	Field Notes
CS042505-004	Allow 24 hr decay period before counting

Rome, New York

Page xii of xiii **Data Analysis Report Measurement Results** Package Type: **Survey Area:** E3000 System Sanitary Sewer System Survey Area Name: Survey Package Number and Unit Name: Sanitary Sewer System Section Down Stream of Building 104 E3000 201C1

Section 7.0 **Removable Beta Smear Sample Analysis Results**

Section

7.1 E3000 201C1, Removable Beta Report

6/8/2005

Rome, New York

4/26/2005			Page 1 of 5
	Removable Beta Me	asurement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	and Unit Name:		
E3000 201C1	Sanitary Sewer System S	Section Down Stream of Building 10	04 Operation

Statistical Summary		Measurement Sensitiv	vity
Ċ	lpm/100cm2	d	pm/100cm2
Mean	13.5	MDC Mean	130.8
Median	14.6	MDC Minimum	127.7
Standard Deviation	37.0	MDC Maximum	131.2
Range	140.8	DCGL	1000.0
Minimum	-48.5		
Maximum	92.2	Tests Performed	
		No. Collected >/ = Prescribed	Yes
Number of Measur	rements	Max MDC < 50% DCGL	Yes
No. Prescribed	18	Measurements < DCGL	
No. Collected	31	Measurement Mean < DCGL	Yes
		No. Measurements > DCGL	0



SDMS Documentation

Rome, New York

4/26/2005			Page 2 of 5
	Removable Beta Measur	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Number	er and Unit Name:		
E3000 201C1	Sanitary Sewer System Sectio	n Down Stream of Building	104 Operation

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Beta Result (dpm/ 100cm2)	Test DCGL-Result (dpm/ 100cm2)
CS042505-004	4/14/2005	DS1	SA005	3	131.2	14.6	985
CS042505-004	4/14/2005	DS1	BLD21	2	131.2	0.0	1000
CS042505-004	4/14/2005	DS1	BLD21	3	131.2	48.5	951
CS042505-004	4/14/2005	DS1	SA001	1	131.2	34.0	966
CS042505-004	4/14/2005	DS1	SA001	2	131.2	34.0	966
CS042505-004	4/14/2005	DS1	SA001	3	131.2	24.3	976
CS042505-004	4/14/2005	DS1	SA002	1	131.2	92.2	908
CS042505-004	4/14/2005	DS1	SA002	2	131.2	0.0	1000
CS042505-004	4/14/2005	DS1	SA003	1	131.2	0.0	1000
CS042505-004	4/14/2005	DS1	SA003	2	131.2	-4.9	1005
CS042505-004	4/14/2005	DS1	SA003	3	131.2	4.9	995
CS042505-004	4/14/2005	DS1	SA004	1	127.7	43.7	956
CS042505-004	4/14/2005	DS1	SA004	2	127.7	58.3	942
CS042505-004	4/14/2005	DS1	SA004	3	127.7	63.1	937
CS042505-004	4/14/2005	DS1	BLD21	1	131.2	-29.1	1029
CS042505-004	4/14/2005	DS1	SA007	3	131.2	34.0	966
CS042505-004	4/14/2005	DS1	SA010	2	131.2	-9.7	1010
CS042505-004	4/14/2005	DS1	SA010	1	131.2	-48.5	1049
CS042505-004	4/14/2005	DS1	SA009	3	131.2	-24.3	1024
CS042505-004	4/14/2005	DS1	SA009	2	131.2	87.4	913
CS042505-004	4/14/2005	DS1	SA009	1	131.2	14.6	985
CS042505-004	4/14/2005	DS1	SA005	1	131.2	14.6	985
CS042505-004	4/14/2005	DS1	SA008	1	131.2	68.0	932
CS042505-004	4/14/2005	DS1	SA005	2	131.2	29.1	971

FRAMATOME ANP Federal D&D Services SDMS Documentation

Rome, New York

4/26/2005			Page 3 of 5
	Removable Beta Measur	ement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building	104 Operation

Measurement Results Listing by Sample ID and Excel Filename

SampleID	Sample Collection Date	LC3	LC5	LC6	MDC (dpm/ 100cm2)	Net Beta Result (dpm/ 100cm2)	Test DCGL-Result (dpm/ 100cm2)
CS042505-004	4/14/2005	DS1	SA007	2	131.2	-9.7	1010
CS042505-004	4/14/2005	DS1	SA007	1	131.2	-38.8	1039
CS042505-004	4/14/2005	DS1	SA006	3	131.2	14.6	985
CS042505-004	4/14/2005	DS1	SA006	2	131.2	-29.1	1029
CS042505-004	4/14/2005	DS1	SA006	1	131.2	-4.9	1005
CS042505-004	4/14/2005	DS1	SA010	3	131.2	-38.8	1039
CS042505-004	4/14/2005	DS1	SA008	2	131.2	-24.3	1024

Rome, New York

4/26/2005			Page 4 of 5
	Removable Beta Measur	rement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	on Down Stream of Building	104 Operation

Sample ID, Excel File, Instrumentation Calibration Summary and Survey Technician

Sample ID	ExcelFilename	A/B Counter	Model Number	Serial Number	Calibration Date	Survey Technician
CS042505-004	E3000 201C1 removable A-B results.xls	Ludlum	M2929	152202	1/19/2005	JLM0591

Rome, New York

4/26/2005			Page 5 of 5
	Removable Beta Measur	ement Results	
Survey Area LC1:	E3000	Package Type:	System
Survey Area Name:	Sanitary Sewer System		
Survey Package Numbe	r and Unit Name:		
E3000 201C1	Sanitary Sewer System Section	n Down Stream of Building	104 Operations

Field Notes Summary

Sample ID	Field Notes
CS042505-004	Allow 24 hr decay period before counting

Rome, New York

Data Analysis Report Measurement Results Survey Area: E3000 Package Type: System Sanitary Sewer System Survey Area Name: Survey Package Number and Unit Name: Sanitary Sewer System Section Down Stream of Building 104 E3000 201C1

Section 8.0 Alpha Spectroscopy Sample Analysis Results

Section

8.1 E3000 201C1 Alpha Spec RL

6/8/2005

Page xiii of xiii

Rome, New York

5/26/2005

Alpha Spectroscopy Analysis Results					
Survey Area:	E3000	Package Type:	System		
Survey Area Name:	Sanitary Sewer System				
Survey Package Num	ber and Unit Name:				
E3000 201C1	Sanitary Sewer System Section Down Stream of Build	ling 104			

Statistical Summary

	pCi/gram		pCi/gram	
Mean	0.80	MDC Mean	0.39	
Median	0.33	MDC Minimum	0.19	
Standard Deviation	0.95	MDC Maximum	0.59	
Range	2.71	DCGL	0.70	
Minimum	0.08			
Maximum	2.79	Tests Performed		
		No. Collected \geq Prescribed	No	
Number of Measurements		Max MDC < 50% DCGL	No	
No. Prescribed	18	Measurements < DCGL	No	
No. Collected	9	Measurement Mean < DCGL	No	
		No. Measurements > DCGL	3	



SDMS Documentation

Page 1 of 6

Measurement Sensitivity

Rome, New York

5/26/2005

Page 2 of 6

			Alp	oha Spec	etrosco	opy Ana	alysis Re	esults			
Survey A Survey A Survey P	.rea: .rea Name: ackage Nun	E3000 Sanitar Iber and U	ry Sewer S <u>y</u> U nit Name	ystem				Р	ackage T	уре:	System
E30	000 201C1	Sa	unitary Sew	er System	Section	n Down S	tream of E	Building	104		
Sample A	Analysis Res	ult Listing	5								
Laboratory File Name	Analysis Date	Weight (g)	LC3 Surface	LC5 SML	LC6 No.	Nuclide	Activity Results (pCi/g)	Activity +/- 1s Error (pCi/g)	MDC (pCi/g)	DCGL* (pCi/g)	Result - DCGL (pCi/g)
Sample I	D: CS052	2005-014									
L9126-12	5/10/2005	1	DS1	SA002	1	RA-226	1.90E+00	4.80E-01	3.90E-01	7.00E-01	1.20E+00
Sample I	D: CS052	2005-015									
L9126-13	5/10/2005	1	DS1	SA003	1	RA-226	1.10E-01	1.10E-01	3.70E-01	7.00E-01	-5.90E-01
Sample I	D: CS052	2005-016									
L9126-14	5/10/2005	1	DS1	SA004	1	RA-226	2.79E+00	5.80E-01	4.00E-01	7.00E-01	2.09E+00
Sample I	D: CS052	2005-017									
L9126-15	5/10/2005	1	DS1	SA005	1	RA-226	7.80E-02	9.10E-02	3.60E-01	7.00E-01	-6.22E-01
Sample I	D: CS052	2005-018									
L9126-16	5/10/2005	1	DS1	SA006	1	RA-226	3.30E-01	2.00E-01	4.00E-01	7.00E-01	-3.70E-01
Sample I	D: CS052	2005-019									
L9126-17	5/10/2005	1	DS1	SA007	1	RA-226	1.70E-01	1.20E-01	3.10E-01	7.00E-01	-5.30E-01
Sample I	D: CS052	2005-020									
L9126-18	5/10/2005	1	DS1	SA009	1	RA-226	4.90E-01	2.90E-01	5.90E-01	7.00E-01	-2.10E-01

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

5/26/2005										Р	age 3 of 6
			Alp	oha Spec	ctrosco	opy Ana	ulysis Ro	esults			
Survey A	rea:	E3000)					Р	ackage T	уре:	System
Survey A	rea Name:	Sanita	ry Sewer S	ystem							
Survey Pa	ackage Nun	iber and ¹	Unit Name	•							
E30	000 201C1	Sa	unitary Sew	ver System	Section	n Down S	tream of l	Building	104		
			2	2				U			
Laboratory	Analysis	Weight	LC3	LC5	LC6	Nuclide	Activity	Activity	MDC	DCGL*	Result -
File Name	Date	(g)	Surface	SML	No.		Results (pCi/g)	+/- 1s Error	(pCi/g)	(pCi/g)	DCGL (pCi/g)
								(pCi/g)			
Sample I	D: CS052	2005-021									
L9126-19	5/10/2005	1	DS1	SA010	1						
						RA-226	1.03E+00	2.50E-01	1.90E-01	7.00E-01	3.30E-01
с I Т											
Sample I	D: CS052	2005-022									
L9126-11	5/9/2005	1	DS1	BLD21	1						
						RA-226	3.10E-01	2.20E-01	4.80E-01	7.00E-01	-3.90E-01

* NuReg 1757 Generic Screening DCGL

Rome, New York

5/26/2005

Page 4 of 6

Alpha Spectroscopy Analysis Results

Survey Area: E3000

Package Type: System

Survey Area Name: Sanitary Sewer System

Survey Package Number and Unit Name:

E3000 201C1

Sanitary Sewer System Section Down Stream of Building 104



Rome, New York

5/26/2005

Survey Area:

Page 5 of 6

Alpha Spectroscopy Analysis Results

Package Type: System

Survey Area Name: Sanitary Sewer System

E3000

Survey Package Number and Unit Name:

E3000 201C1 Sanitary Sewer System Section Down Stream of Building 104

Instrument and Calibration Summary

Sample ID	Laboratory File Name	Analyzer/ System	Model Number	Serial Number	Calibration Date	Collection Date	Collection Time	Collection Technician
CS052005-014	L9126-12	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	11:05 AM	JLM0591
CS052005-015	L9126-13	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	10:30 AM	JLM0591
CS052005-016	L9126-14	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	9:40 AM	JLM0591
CS052005-017	L9126-15	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/11/200	9:00 AM	JLM0591
CS052005-018	L9126-16	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/10/200	1:45 PM	JLM0591
CS052005-019	L9126-17	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/10/200	1:30 PM	JLM0591
CS052005-020	L9126-18	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/9/2005	4:35 PM	JLM0591
CS052005-021	L9126-19	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	3:10 PM	JLM0591
CS052005-022	L9126-11	FANP Lab	Alpha Spec	Elab 1	5/9/2005	4/12/200	2:25 PM	JLM0591

Rome, New York

5/26/2005

Page 6 of 6

Alpha Spectroscopy Analysis Results Survey Area: E3000 Package Type: System Survey Area Name: Sanitary Sewer System Survey Package Number and Unit Name: Survey Package Number and Unit Name:

E3000 201C1

Sanitary Sewer System Section Down Stream of Building 104

Field Notes Summary

Sample ID	Field Notes	Comments On Samples
CS052005-014	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-015	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-016	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-017	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-018	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-019	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-020	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-021	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.
CS052005-022	Impacted Sanitary Sewer System	Sludge/sediment sample, rely on smear data for locations where media not available.

Appendix C

Analytical Data and Quality Control

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section	Title
1.0	Griffiss Project Log and Summary of Activities
2.0	Framatome ANP Staff Resumes
3.0	Survey Instrumentation
4.0	Instrument Calibration Certifications
5.0	Instrument Daily Response Test Records
6.0	Instrument Check Source Calibration Certifications
7.0	Survey Package F1000 401B1, Background Reference Area
8.0	Survey Package E2000 201C1, Storm Drain System
9.0	Survey Package E3000 201C1, Sanitary Sewer System
10.0	Framatome ANP Environmental Laboratory Sample Analysis Results
11.0	Framatome ANP Environmental Laboratory Quality Control Summary

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 1.0 **Griffiss Project Log and Summary of Activities**

Griffiss Project Log and Summary of Activities April 4, 2005 through April 14, 2005

Preliminary summary of activities and results for Griffiss AFB PA/SI of sewer lines associated with Building 104 follows:

Monday April 4, 2005:

John Hackett (Parsons), John McGehee, Mike Taber, and Greg Courtney (Framatome) arrive onsite. Brief meeting with Mark Rabe (AFRPA). Instruments and sample jars have arrived, but no consumable safety supplies or check sources. Also missing are 25 ft cables. Vendors are contacted and missing items should be arriving shortly.

Tuesday April 5, 2005:

Steve Rembish (Parsons) and Buck Saunders (AFIOH) arrive onsite. Also, Shamrock Sewer team (Sean McMahon, Jake Pickett, and Tim Garbin) arrive onsite. Buck briefs the survey team on the history of the different AF radium projects. Meeting with Mark Rabe, Mike McDermott (AFRPA), and Bill Brain (Rome Labs). Perform walkover of site and observe the affected rooms within Building 104. Health and Safety training is conducted with Shamrock, Parsons, and Framatome personnel. We identify three background sanitary sewer locations (east and south of Bldg 112) and three background storm sewer locations (along Chappie James Rd). Training on the HASP and survey plan was completed in the afternoon. No check sources, so initial instrument function checks cannot be performed. The Shamrock team will not be back until Thursday since the supplies will not be here until then.

Wednesday April 6, 2005:

Check sources and consumable supplies to arrive today. After Buck arrives at office we arrange for additional as-built drawings of Building 104 to determine where material from within the building would be going. After sources arrive, John M. works on setting initial parameters and instrument checks are performed, which takes most of the day. At about 4:30 pm, we do a track on the FedEx shipment of supplies, and find out that it will not be in until later on Thursday. In order to keep moving, we proceed with a demonstration/test run of the video robot Thursday morning to get us familiar with what will happen and to allow Buck to see the robot in action. Greg and John buy needed supplies while John M. continues setting up instruments.

Thursday April 7, 2005:

Safety tailgate meeting and planned work briefing was conducted. Set demonstration at background location 1 (corner of Chappie James and Brooks Rds). When robot is set up, the camera does not work. The robot is still put down the manhole to demonstrate the process for Buck. Buck indicates that he has a de-briefing with Mark Rabe and he intends to tell them he is very comfortable with what we are doing and having such an experienced team shows that Parsons is committed to doing a good job on the project. Decontamination/replacement of the camera cable is discussed – the cable comes in 1000 ft rolls at \$2000 per. At most we will use about 400 ft. Shamrock indicates another camera has been purchased and should arrive Friday AM. Survey team proceeds to take background survey measurements at Location 1 and Location 2 (storm sewer). Don McGee (Framatome) arrives in the afternoon. First downloading of data loggers is performed.

Griffiss Project Log and Summary of Activities April 4, 2005 through April 14, 2005

Friday April 8, 2005:

Safety tailgate meeting and planned work briefing was conducted. Expecting Shamrock around noon. After morning response checks, the survey team performs background measurements at Location 3 (storm sewer). Original material/smear sampling tools are not working so John H. goes to hardware store to buy additional tools. John H. calls the Rome Labs security to notify them that we will be onsite in the afternoon. A few additional phone calls are necessary before weekend access is granted. Building key from Yvonne is obtained. About noon, Shamrock calls John M. and informs him that the replacement camera was attempted to be delivered to a wrong address and was sent back to the manufacturer. They will get a second camera sent out to arrive Saturday morning. In the afternoon, the survey team completes background measurements at Locations 4 and 5 (sanitary sewers).

Saturday April 9, 2005:

Survey team arrives at site at 8:00 for morning response checks. Shamrock arrives at 9:30 with new camera. Safety tailgate meeting and planned work briefing was conducted. After some initial adjustments, the camera is ready to go. Location ST010 (storm sewer immediately east of Building 104) is actually a French drain and is not inspected by the video unit. We decide to work in the area nearest the buildings and parking lot during the weekend to minimize impact on parking and foot traffic. The video survey team completes 6 locations – finds no evidence of contamination on the robot or cable. The survey team completes 5 locations – no evidence of contamination found.

Sunday April 10, 2005:

Survey team arrives at site at 10:00 – no Shamrock today. Safety tailgate meeting and planned work briefing was conducted. Mike counts smears and John M. QC's data collected so far, while Greg, Don, and John H. go to lab area and perform measurements at 4 locations. Still no evidence of contamination as we work southward. Leave site at 4:00 pm.

Monday April 11, 2005:

Safety tailgate meeting and planned work briefing was conducted. Continue with video surveys at storm and sanitary sewer locations. The south run of storm sewer is too wide for the drive mechanism of the camera, so a second system using a flexible fiberglass rod pushed through the line will be brought tomorrow. Field measurements continue.

Tuesday April, 12, 2005:

Safety tailgate meeting and planned work briefing was conducted. The second system is onsite to obtain video of remaining storm sewer lines – however, the rod is stopped partway through each run. It is assumed that the end is being caught on something and the rod is too flexible to push through. Shamrock will return tomorrow with a jet nozzle system which will push the hose through with better results. Field measurements are completed today.

Wednesday April 13, 2005:

Griffiss Project Log and Summary of Activities April 4, 2005 through April 14, 2005

Safety tailgate meeting and planned work briefing was conducted. The jet nozzle system is used to successfully feed a line through the storm sewer runs to use a winch to pull the camera through. Because there are more items entering and exiting the lines, setup, monitoring, and decontamination is more extensive during this process.

Thursday April 14, 2005:

Safety tailgate meeting and planned work briefing was conducted. One final run of sanitary sewer is inspected using the jet nozzle process. In addition a smaller push camera is used to obtain additional video from the lines originating from ST013 (located at the southwest corner of Building 104). In the afternoon, a debrief is held with Parsons, Framatome, Shamrock, and Air Force personnel.

Preliminary Summary of Results:

- 22 material samples were taken from the sanitary, storm, and background sewer locations. All have sufficient material for alpha spectroscopy; about half also have sufficient material for gamma spectroscopy analysis.
- Exposure rate levels 1 meter above each manhole along the impacted lines appeared to be at background levels.
- Smear sampling results from the bottom of each manhole were at background levels.
- Smears and wipes taken from the video inspection equipment exiting the impacted lines were at background levels.
- Field measurements for alpha, beta, and gamma radiation taken at manholes associated with the impacted lines appeared to be at background levels.

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 2.0 **Framatome ANP Staff Resumes**



Harvey F. Story

Title/Position:Project ManagerYears of Experience:35

Summary

Mr. Story's responsibilities have included development, implementation and management of various commercial and government programs. Specifically, Mr. Story has expertise in the areas of project management, remediation, waste management, and radiation protection programs. He has a broad base of nuclear power plant and D&D experience in operations, waste processing, emergency response, effluent releases, environmental services and site characterization. He is well versed in the disciplines of waste management, including contract procurement, negotiation and administration, characterization, packaging, volume reduction processing, and shipping. Mr. Story's DOE experience includes designing and implementing the waste characterization program for shipping B25 boxes to Envirocare from the Paducah D&D site. The Paducah D&D program included assessing and evaluating the radiation protection program and radiological characterization data. Additional DOE experience while at Oak Ridge National Laboratory (ORNL), included logistics for inventory and radiological dose assessment for packaging TRU contaminated soil into containers for shipment to NTS. Also while at ORNL he performed multiple management assessments and programmatic evaluations of the radiation protection, waste management, and radiological characterization programs.

Education/Training

- > ME, Nuclear Engineering, Texas A&M University, 1971
- > BS, Chemical Engineering, Georgia Institute of Technology, 1967
- > Radioactive Material Shipping Course, 2000
- > Certified Health Physicist in 1976
- > Computer Skills: Microshield, RESRAD, Microsoft Office and additional applications

Relevant Experience

NASA, Plum Brook Decommissioning Project, Sandusky, OH. Served as Project Manager and was responsible for D&D activities on this 60 megawatt NASA research reactor project. The scope of work included reactor dismantlement, reactorgical characterization and final survey of site IAW MARSSIM guidelines, waste management and disposal program and radiation protection program.

Bechtel Jacobs, LLC, Paducah Gaseous Diffusion Plant and Oak Ridge National Lab, Oak Ridge, TN. Radiological Consultant responsible for technical oversight of subcontracted radiation protection program and evaluating and rating the radiation protection, operational and waste management programs of more than a dozen decommissioning subcontractors. Developed and implemented Technical Basis Document, procedures and instrumentation to analyze packaged waste for shipment to Envirocare of Utah, in compliance with U.S. Department of Transportation requirements. Provided management assessments of various elements of Radiation Protection program, such as technician training and monitoring of radioactive airborne contamination. Activities included reviewing and evaluating procedures, developing internal dosimetry protocol programs, preparing ALARA reviews, developing and implementing management assessments and providing consulting expertise to the Project Health Physicist and Subcontractor Technical Representatives for both site D&D Projects. Supported waste shipping personnel in evaluating shipments of transuranic waste for interstate transport to Nevada Test Site.



Duratek, Connecticut Yankee D&D Project, Haddam Neck, CT. Responsibilities included developing and implementing a \$50 million waste management and shipping program. Activities included negotiating contract issues with the prime contractor, Bechtel Power Corp., staffing/managing waste engineers & technicians, developing and implementing a QA Project Plan, a Waste Management Plan and implementing procedures. Scheduled waste containers, transportation and delivery for waste shipments. Coordinated loading of sea-vans with contaminated metal, containers of contaminated asbestos, and contaminated soil. Managed preparation of shipping papers and provided on-site invoicing for waste transportation and disposal.

Scientific Ecology Group/Duratek, Manager of Radiological Engineering & Decommissioning Services, Oak Ridge, TN. Responsibilities included preparing proposals and securing contracts for radiological engineering and decommissioning and radioactive waste projects, and directing the activities of three group managers and up to 100 managers, supervisors, technicians in the development, implementation and management of multiple projects. Typical projects were evaluation/development of RP programs, managing radioactive waste, steel-mill clean up, D&D, and radiological characterization and final survey in accordance with MARSSIM guidelines.

Scientific Ecology Group, Fort St. Vrain D&D Project, Project Manager/Certified Health Physicist responsible for all Radiation Protection, Radiochemistry, Waste Management and Final Site Survey activities in the implementation of this \$50 million fixed price contract. Responsible for oversight and approval of waste packaging and shipping to Benton County waste disposal site in compliance with U.S. Department of Transportation requirements. Staffing consisted of up to 125 managers, supervisors, engineers and technicians. The project was completed safely, on schedule and within budget.

Scientific Ecology Group/Delphi Group, Various Projects, Throughout the U.S. Radiological Consultant/Certified Health Physicist for Delphi Group and S.E.G. included assignments supporting Wolf Creek Generating Station, Florida Power & Light Turkey Point Plant, Trojan Nuclear Site, Rancho Seco Nuclear Site, Pantex DOE facility, Fort St. Vrain and Limerick Power Station. Assignments included Mentor to Radiation Protection Managers, program recovery & development, and Project Manager.

C.M.A., Various Projects, Throughout the U.S. Start-up Manager/Certified Health Physicist supporting Chem Nuclear, Inc., including Waterford-3 Nuclear, Shearon Harris, and Vogtle. Primary responsibility at all three nuclear sites was installation, testing, calibration and management of multi-million dollar process & area radiation monitoring systems. Managed I&C technicians, HP technicians and start-up engineers.

Florida Power and Light, Start-up Engineer, Health Physicist and Corporate Health Physicist, Various Locations. Hired as start-up engineer and progressively promoted to the Corporate Health Physicist, responsible for Radiation Protection, Radiochemistry, and Waste Management & Emergency Planning at both Florida Power and Light nuclear plants.

GREGORY L. COURTNEY, CHP FRAMATOME ANP

Title/Position: Technical Services Manager

Years of Experience: 23

SUMMARY

Mr. Courtney has more than 23 years of experience in the nuclear field, and has held positions as Staff Health Physicist, Radiological Protection Staff Coordinator, Corporate Health Physicist and Radiological Control Manager and Environmental, Safety and Health Manager. He also possesses over 16 years of health physics (HP) operational experience in the commercial industry, and over 7 years in the government sector.

Mr. Courtney has supervised complex and varied radiation protection programs at commercial and Department of Energy (DOE) sites. He has also developed and implemented new programs related to new 10CFR20 and 10CFR835 regulations on radiation protection for occupational workers. In addition, he has supervised up to 265 radiation protection personnel, including radiological control technicians, health physicists, radiological engineers, radiological supervisors and foreman, and has held responsibility for a \$30 million operating and capital budget. The safety performance index of programs managed by Mr. Courtney has been excellent compared to industry standards.

EDUCATION/TRAINING

BS, Radiation and Nuclear Technology with Health Physics Option, Oklahoma State University, 1979

40-hr Internal Dosimetry, 1986 Dr. Kenneth Scrabble
40-hr Internal and External Dosimetry, 1991 Dr. John Poston
40-hr Biological Effects from Radiation, 1991 Dr. Genevieve S. Roessler
40-hr Statistics, 1991 Dr. Michael Bolch
Guidelines for 10CFR50.59 Safety Reviews and Evaluations Seminar
INPO Radiological Protection Managers WorkShop

PROFESSIONAL AFFILIATIONS/CERTIFICATIONS

Duke Power Nuclear Safety Review Board Member 1991-1994 Certified Health Physicist (CHP), American Board of Health Physics, 1992 Eastern Idaho Chapter of the Health Physics Society, Newsletter Editor, 1997-1999 Idaho State University Health Physics Program, Advisory Committee, 1995-2000 Eastern Idaho Chapter of the Health Physics Society, President, 1996-1997 PWR/ALARA Committee Vice-Chairman 1993-1994 Health Physics Society Member

PUBLICATIONS/ARTICLES

Protective Clothing Specification For Radiation-Contaminated Environments, March, 1993, Safety & Protective Frabics

EXPERIENCE

Technical Services Manager Duke Engineering & Services

Serves as Environmental, Safety and Health Manager for DE&S Site Restoration projects and manages technical services in environmental, safety, industrial hygiene, radiological protection, licensing, civil/structural engineering, safety engineering and quality assurance. Actively supporting the development of the Radiological Protection Program for the Mixed Oxide Fuel Fabrication Facility (MOX) in Aiken, South Carolina. Provides support for the decommissioning efforts for the NASA Plum Brook Reactor Facility in the areas of ES&H services and engineering services. Provided technical support for the Yankee Rowe Independent Spent Fuel Storage Facility.

Radiological Protection Director **Duke Engineering & Services**

Managed a 200 member work force providing all radiological control services, including radiological control supervision, job coverage, dosimetry, audits and assessments, radiological engineering, dose reconstruction and additional services at the Idaho National Engineering and Environmental Laboratory (INEEL). Managed the radiological control activities for the decontamination and decommissioning closure of the SL-1 Reactor facility, the ROVER graphite fuel facility and the Old Waste Calcine facility. Responsibilities also included managing the site's radiological control programs at the Transuranic Waste Storage facility, Waste Incineration facility, Idaho Nuclear Engineering And Environmental Laboratory (which originally conducted fuel reprocessing), Test Reactor facility (which produces medical isotopes and conducts U. S. Navy research) and the Special Manufacturing Complex (which manufactures the uranium protective armor for the U.S. Army's M1-A1 and M1-A2 Abrams tanks). The Radiological Control Organization successfully helped meet the state and federal government milestone for moving the Three Mile Island spent fuel to a dry fuel storage facility. Managed the initial implementation of DOE's 10CFR835 regulation.

Corporate Health Physicist, Nuclear Support Services Duke Power

Managed 10 staff members supporting radiological protection activities for Duke Power's Radiological Protection Program. Activities included providing program direction and policy to Duke Power's three nuclear sites. Managed the early implementation of the new 10CFR20 regulation.

Radiological Protection Staff Coordinator11/86-11/91Catawba Nuclear Generating Station, Duke Power11/86-11/91

10/99-present

08/94-09/99

11/91-07/94

Managed eight staff members for the Radiological Protection Organization consisting of 120 personnel providing radiological protection support.

Staff Health Physicist

08/79-11/86

Catawba Nuclear Generating Station, Duke Power

Progressed from Junior Health Physicist to Senior Scientist. Provided technical support in radiochemistry, external and internal dosimetry, emergency planning, instrument calibration, and as-low-as-is-reasonably-achievable (ALARA) planning and training. Also, wrote Duke Power's first PC-based dose projection model used for emergency incidents.

Title/Position: Radiation Protection Manager

SUMMARY

Mr. McGee has 27 years of experience in the field of Radiation Safety in the nuclear power industry. He has been involved in several nuclear plant start-ups and numerous refueling and maintenance outages. In addition, Mr. McGee has specialized in decommissioning activities. He has spent the past eight years in support of various D&D projects. He has recently the completed an assignment as the Radiation Safety Officer and Radiological Engineer which included directing the Final Status Survey at the Omega West Reactor Decommissioning at the Los Alamos National Laboratory in New Mexico.

Mr. McGee has served as a Health Physics Specialist at Duke Power's McGuire Nuclear Station, as the Radiation Protection (RP) Support Supervisor and the ALARA/Radiological Engineering & Outage Planning Supervisor at Arizona Public Service's Palo Verde Nuclear Station and the Final Survey Manager at the CP-5 research reactor at the Argonne National Laboratory. In addition, he has attended numerous specialized training courses on the operation, calibration and maintenance of counting equipment and survey instrumentation.

EDUCATION/TRAINING

SADA Workshop NRC Office of Nuclear Regulatory Research workshop on the "Review and Status of Surface and Volumetric Survey Design and Analysis Using Spatial Analysis and Decision Assistance (SADA) Methods." May, 2004, NRC headquarters in Rockville, Maryland.

Value Engineering Workshop A Technical Assistance / Value Management (TA/VM) study sponsored by the Closure Site Technical Assistance Program of the Department of Energy (DOE) Office of Science and Technology (EM-50)1, Miamisburg, Ohio, November 2003. NASA Continuous Risk Management Course, Glen Research Center MARSSIM Implementation Course, Oak Ridge Associated Universities ResRad, ResRad-Build, ResRad-Recycle Training Workshop, Argonne National Laboratory ISOCS Portable Gamma Spectroscopy System Course, Canberra Instruments Inc. Managerial Excellence Training Program, Arizona Public Service Company 40-Hour HazMat Emergency Scene Management, Phoenix College (OSHA CFR1910.120) 40-Hour Personal Protective Equipment for HazMat Response, Phoenix College (OSHA CFR1910.120) Hazardous Waste Operations and Emergency Response 8 hour (OSHA CFR1910.120) Hot Particle Workshop, San Diego State University/Southern California Edison 16-Hour Advanced Liquid Scintillation Counting Course, North Carolina State University 16-Hour Beta Dosimetry Workshop, Porter Associates FANP Advanced Project Management Training Course, 7/23/02-7/27/02

PROFESSIONAL AFFILIATIONS/CERTIFICATIONS

Certified, National Registry of Radiological Protection Technologists (NRRPT), 1989 DOE Radiological Controls Technician Core Qualified, 1999

EXPERIENCE

Radiation Protection Manager Framatome ANP

Currently acting as the project lead on the Radiological Characterization Survey and Preliminary Assessment/Site sanitary/storm drain system at Griffiss AFB for the Air Force Institute for Operation Health (AFIOH). The Survey and Sampling Plan is based on guidance provided in NUREG-1575, MARSSIM and is intended to determine the extent of Ra-226 contamination at the facility.

Radiation Protection Manager

Framatome ANP

Connecticut Yankee Atomic Power Plant, Haddam Neck, CT

Served as member of FSS Program Assessment Team for CYAPCo self assessment of current FSS program. The assessment evaluated the FSS program and the implementation of CYAPCo License Termination Plan (LTP) requirements, .specifically the adequacy of FSS procedures and their implementation; instrument selection, calibration, inventory, maintenance and control; management of FSS data and records; quality of technical support documents; and training and qualification of FSS personnel.

Radiation Protection Manager

Framatome ANP

Served as the Radiation Safety Officer at the Omega West Research Reactor D&D project. Directed the activities of the radiological engineering staff in support of decommissioning activities including dismantlement and packaging of high level and low level radioactive material. Provided technical direction in the development of the implementing procedures. Directed the conduct of radiological controls and surveillance activities as well as Final Status Surveys in accordance with MARSSIM guidance.

Radiation Protection Manager

Framatome ANP

Responsible for implementation of the Radiation Protection Program at the NASA Plum Brook Research Reactor D&D project. Directed the activities of the radiological engineering staff. Provide technical direction in the development of the implementing procedures. Directed the conduct of radiological controls and surveillance activities.

Final Status Survey Manager

Duke Engineering & Services

Responsible for radiological characterization and health physics support at the NASA Plum Brook Research Reactor D&D project. Provided technical direction in the development of the MARSSIM based Final Status Survey Plan and all associated implementing procedures. Directed

07/04 - present

06/04

08/02 - 09/03

04/02-08/02

09/00-3/02

the conduct of characterization surveys and sampling as well as the implementation of Final Status Surveys.

Final Status Survey Technical Advisor

Duke Engineering & Services

Provided technical support for the Final Status Survey design, implementation and preparation of the Final Status Survey Report for the Iowa State University Research Reactor at Ames, Iowa. Provided technical support for the initial radiological characterization of the facility.

Final Status Survey Manager

Duke Engineering & Services

Responsible for radiological characterization and health physics support at Argonne National Laboratory CP-5 D&D project. Provided technical direction in the development of survey methodology and directed the conduct of characterization surveys and sampling. Responsibilities included the implementation of the Final Status Survey of the CP-5 facility and development of the Final Status Survey Plan and implementing procedures.

06/00-08/00

06/99-5/00

Technical Specialist

Duke Engineering & Services

Responsible for the selection, usage and maintenance of survey instrumentation used for site characterization efforts at Connecticut Yankee. Provided technical direction in the development of survey methodology and directed the conduct of the site characterization surveys and sampling activities. Assisted in the review and evaluation of survey and sample data generated in the course of site characterization. Provided technical direction in the development of the Characterization/Final Survey Database.

Responsible for the maintenance, control and calibration of survey instrumentation used for site characterization efforts at Connecticut Yankee. Provided assistance in the development of survey methodology and directed the conduct of characterization surveys and sampling. Assisted in the review and evaluation of survey and sample data generated in the course of site characterization.

Radiological Engineer

Yankee Atomic Electric Company

Radiological Engineer

Yankee Nuclear Power Station, Yankee Atomic Electric Company

Directed the implementation of Final Status Surveys. Responsible for the maintenance, control and calibration of survey instrumentation. Performed review of survey data and coordinated technician support for surveys and sampling activities.

Radiological Engineer

Yankee Nuclear Power Station, Yankee Atomic Electric Company Contract Solutions Inc.

Responsible for the development of instrument calibration and operation procedures. Assisted in the development of the Final Status Survey Plan.

Radiological Engineer

Contract Solutions Inc.

Responsible for the development of Radiation Protection Procedures for the site remediation efforts at the Kerr-McGee Cushing Site (uranium processing facility). Duties included the review of existing programs and procedures, revision of existing procedures and the development of new procedures. Also, served as technical consultant to the Health Physics staff.

Chemistry Technical Advisor

Palo Verde Nuclear Station, Arizona Public Service Company

Supported the Radiological Effluents Monitoring and Radiological Environmental Monitoring Program. Duties included preparation of reports such as Annual Radiological Environmental Operating Report, technical evaluations, review and evaluation of effluent and environmental sampling results and procedural development. Served in an advisory and oversight capacity to unit chemistry groups.

12/97-06/99

08/97-11/97

02/96-02/97

02/97-07/97

02/95-09/95

07/92-06/94

Radiological Engineering/ALARA Supervisor

Palo Verde Nuclear Station, Arizona Public Service Company

Supervised the conduct of activities such as implementation of the Site Radiation Exposure Program, review of plant design changes and the provision of radiological assessment and dose evaluation of internal and external radiation exposure. Performed technical evaluation of all procedures and instrumentation used by the RP Department. Also, responsible for compiling and trending of data and documents in various reports.

Radiation Protection Support Supervisor

Palo Verde Nuclear Station, Arizona Public Service Company

Supervised the implementation of the Site Respiratory Protection Program and supervised the Site's Radiological Engineering staff and Instrument Calibration technicians. Responsible for the site outage planning (radiological controls) and balance of site radiological protection. Responsible for administration of all Health Physics service and labor contracts.

Unit Radiation Protection Lead/Technician

Palo Verde Nuclear Station, Arizona Public Service Company

Directed RP technicians in all aspects of applied radiation protection on a daily basis. Also, coordinated RP outage planning activities, directed RP count room operations, including MCA setup and calibration and review of all analysis results. As a technician, performed routine surveillance, job coverage and sample analysis.

Health Physics Specialist/Technician

McGuire Nuclear Station, Duke Power

Performed various Health Physics duties including routine surveillance and job coverage during numerous outages at ONS and MNS. Directed counting room activities, environmental sampling, instrument calibration and radiological effluent monitoring.

07/90-07/92

09/87-07/90

02/77-08/82

09/82-09/87

FRAMATOME ANP JOHN L. McGEHEE

Title/Position: Decommissioning Program Engineer

Years Experience: 30

SUMMARY

Mr. McGehee has thirty years of experience in the nuclear industry. The past twelve years of experience have been related to decommissioning, characterization and final status survey (FSS) activities of nuclear facilities. Experiences include applying NUREG-1575, MARSSIM and supporting regulatory guidance in preparation of survey plans and development/management of infrastructure (program, procedures and protocol) to implement plans. Decommissioning characterization and FSS experience included roles as FSS/Characterization Manager, Onsite Project Manager, FSS Data Evaluation Engineer, Survey and Survey Package Development Engineer, Report and Procedure Writer for characterization and FSS, Gamma Spectroscopy Laboratory Analyst, Proposal and Projects Cost Estimator and Procurement Specialist. Experience also includes FSS program assessment; waste and waste stream characterization planning; implementation and evaluation for disposal facility WAC (waste acceptance criteria); and coauthor for patent obtained May 24, 2002 for invention disclosure titled "An Improved Process Method and Equipment for Bulk Assaying Waste/Materials for "Clean" Release Using a Standardized Box Counting Geometry." Eighteen years of experience is related to nuclear measurements, instrumentation production manufacturing and R&D. The experience focus was in the solid state radiation detectors (SSRD), advanced materials and detector systems for the measurement of radioactivity. Included in the nuclear instrumentation experience are thirteen years as High Purity Germanium (HPGe) Material Manufacturing Process Engineer, Manager/Supervisor. Five years of experience was as SSRD System Test Technologist, for silicon charged particle (alpha/beta) surface barrier, x-ray silicon/lithium (SiLi), photon germanium/lithium (GeLi) and photon high purity germanium (HPGe) detectors and included experience as a SSRD Manufacturing Technologist for silicon surface barrier detectors.

EDUCATION/TRAINING

University of Tennessee, Knoxville, TN, Attended 1975-1979 - Electrical Engineering

Implementing the MARSSIM Approach for Design and Conduct of Radiological Surveys conducted by Radiation Safety, Assessment and Training, Oak Ridge Institute for Science and Education (ORISE)
30 Hour Radioactive and Hazardous Material Transportation and Disposal and Refresher Training
40 Hour HAZWOPER OSHA Safety and Health and current annual 8 Hour HAZWOPER Refresher Training
Hazardous Waste Operations Supervisor 8 Hr Training (HAZWOPER Supervisor)
Radiation Worker Training at various sites and Annual Radiation Worker Refresher Training

Radiation Protection Technologist for NRRPT certification (Scientific Ecology Group)

American Red Cross First Aid and CPR

Gamma Spectroscopy and Spectroscopy Applications (EG&G ORTEC)

Spatial Analysis and Decision Assistance (SADA) workshop sponsored by NRC Office of Nuclear Regulatory Research: "Review and Status of Surface and Volumetric Survey Design and Analysis Using SADA Methods."

Solid State Radiation Detector/System Applications (EG&G ORTEC and Tennelec, Inc.)

Solid State Radiation Detector Manufacturing Techniques (EG&G ORTEC and Tennelec Inc.)

- High Purity Germanium Semiconductor Material Manufacturing including; High Vacuum Systems Technology; RF Induction Heating Systems Technology; High Purity Gas/Cryogenic Liquid Handling Systems; Semiconductor Material Machining and Clean Room/Environment Technology (EG&G ORTEC and Tennelec, Inc.)
- U.S. Naval Air Training Center: Memphis TN. 1971-72 AV"A" Avionics (Aviation Electronics); "C" training for specific ASW systems; ASA-16/Radar, Sensor stations I & II ASW localization system; Air crewman Radio Operator and In-flight Technician.
- Computer Skills: DOE RESRAD Computer Code; NRC DandD Computer Code; Word Perfect; MS Word; QuattroPro; Excel; Paradox; MS Access; Milestones; MS Project; MS Visio and IMSI TurboCAD.

John L. McGehee

EXPERIENCE

Decommissioning Program Engineer Framatome ANP

Framatome ANP Technology Base Improvements

Serving as Responsible Engineer for development and documentation of the FANP Survey Data Management System (SDMS). Responsibilities include: development of technical specifications and design; performance testing, development of User's manual, verification documentation and implementation of SDMS. The SDMS process greatly increases efficiency and data quality with lower operating cost during Characterization and FSS following guidance provided in NUREG-1575, MARSSIM and other supporting NRC regulatory guidance for license termination.

Griffiss Air Force Base, Rome New York

Serving as Senior Survey Design Engineer during planning stage of project, responsible for development of Sample and Analysis Plan (SAP) documents following guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance. The purpose of the SAP was for the characterization survey and preliminary assessment/site inspection of storm drain and sanitary sewer systems at the facility, Ra-226 contamination suspected. Performed site walk down and historical document review in support of planning effort. Also developed a Quality Assurance Project Plan and assisted with development of a Site Specific Health and Safety Plan and implementing procedures for plans. Current status of project is that all plans have been reviewed and approved by the Air Force Institute for Operational Health (AFIOH) and the prime contractor, awaiting approval from the EPA prior to implementing the planed surveys.

Connecticut Yankee Atomic Power Plant, Haddam Neck, CT

Served as member of FSS Program Assessment Team for CYAPCo self assessment of current FSS program. The assessment was concentrated in the areas of the effectiveness of the FSS program to implement NUREG-1575, MARSSIM and CYAPCo License Termination Plan (LTP) requirements and involved a review of the LTP for FSS requirements and assessment of the program for: implementation of LTP requirements; adequacy of FSS procedures and their implementation; instrument selection, calibration, inventory, maintenance and control; management of FSS data and records; quality of technical support documents; and training and qualification of FSS personnel. Responsibilities included review of LTP and supporting documents and co-author for report development to present assessment results and findings.

Final Status Survey/Characterization Manager Framatome ANP

NASA Plum Brook Reactor Facility Decommissioning Project, Sandusky Ohio, Serving as Final Status Survey/Characterization Manager responsible for providing technical direction and management support for characterization survey activities; implement characterization plan following guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance, direction and technical lead for development of survey procedures and survey data management system (SDMS) database.

Characterization/FSS Design Engineer

Framatome ANP DE&S (formerly Duke Engineering & Services)

NASA Plum Brook Reactor Facility Decommissioning Project, Sandusky Ohio,

Serving as Characterization/FSS Design Engineer responsible for providing technical support for characterization survey activities; prepared and developed characterization plan following guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance, technical lead for development of survey procedures and survey data management system (SDMS) database. Assisting team with evaluation, specification and procurement of project analytical and portable survey instrumentation. Also served as interim Waste Management Coordinator for project assisting with program needs, definition and development.

9/03 to Present

10/01 to 2/03

3/03 to 8/03

Project Manager Duratek, Inc.,

Ameristeel, Jacksonville Florida

Emergency Response supported Client request to identify unknown radioactive source that caused alarm at plant rail exit portal monitor. Supported remediation activities for Cs-137 contamination of steel mill site. Served as Characterization/FSS Design Engineer responsible for development of Site Specific Health and Safety Plan and FSS Plan, developed survey package instructions, assisted in procurement of subcontractors, equipment, supplies and setup of mobile count room.

Project Manager Duratek, Inc., (formerly GTS Duratek, Inc.)

Providencia Holdings, Burbank California

Served as Project Manager and Characterization/FSS Design Engineer during planning stage of project, responsible for development of Decommissioning Plan, Supplemental Characterization Plan, Site Specific Health and Safety Plan, FSS Plan and prepared supplemental characterization Survey Package Instructions following guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance. Also responsible for providing technical direction and support for developing Providencia Holdings Decommissioning Cost Estimate Report and the Providencia Holdings Decommissioning Derived Concentration Guideline Levels Report. All deliverables were met on time, within budget and exceeded or met project requirements.

Project Manager GTS Duratek, Inc.

Westinghouse Science and Technology Center, Open Land Areas Final Status Survey, Pittsburgh, PA Served as Onsite Project Manager responsibilities included; primary point of contact and interface with the WEC Staff; responsible for overseeing the FSS activities; providing schedule, progress and budgetary reports to Duratek management; maintained and controlled project records; set-up and calibration of gamma spectroscopy system and over-site for operation of count room gamma spectroscopy counting system and portable survey instrumentation. Also provided technical support for the FSS following plans developed with guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance. Developed survey instructions/packages for environmental areas for radiological surveys utilizing Duratek Automatic Report Generator (ARGEN) computer program. Performed data reduction and analysis, maintained project files and databases, developed and transmitted the FSS report. All deliverables were met on time, within budget and exceeded or met project requirements. In addition, there were no Notices of Violation (NOVs) injuries or safety violations issued. The FSS report was utilized to support request for license termination.

Project Manager GTS Duratek, Inc.

ENSR Project, Combustion Engineering Facility and Site Characterization Survey, Windsor Locks CT Served as Technical Support Engineer for the ENSR Project for gamma spectroscopy laboratory deployment and setup. Involved setup and calibration of GeniPC and Inspector systems, procedure updates on each system for Genie2000 Software platform and operator training for systems operation, sample preparation, sample analysis and data management functions. QA audit of gamma spectroscopy laboratory resulted in no findings for the overall QA audit and Duratek's onsite gamma spectroscopy operation was described as the best operation observed by the auditing QA Engineer.

Project Manager GTS Duratek, Inc.

Duratek Technology Base Improvements

Served as Technical Support Engineer, successfully developed and implemented Duratek's automated gamma spectroscopy data management process for ORTEC and Canberra gamma spectroscopy systems. Involved developing technical specifications, evaluating vendor computer programs, writing procedures and

01/01 to 07/00

09/00 to 12/00

08/00 to 09/00

02/00 to 07/00

07/01 to 09/01

implementing process. The process and program(s) copies data from individual sample analyzes and writes the data to MS Access database. Later, successfully deployed and used data extraction programs and processes for the Canberra systems at ENSR Project and for the EG&G NOMAD system at Westinghouse Science and Technology Center Project. The process greatly increased efficiency and improved data quality and lowered operating cost.

Project Manager GTS Duratek, Inc.,

Westinghouse Waltz Mill, Reactor Facility Decommissioning, Monroeville, PA Developed plans and implemented waste and waste stream characterization and evaluation for disposal facility WAC (waste acceptance criteria). Characterized WTR bioshield materials for composition and for potential contaminants that may be present in the waste for Duratek and for Envirocare of Utah acceptance.

Project Manager GTS Duratek, Inc.

University of Virginia Reactor (UVAR) Facility and Site Characterization, Charlottesville, VA Served as Characterization Supervisor and Project Engineer responsibilities included: primary point of contact and interface with the UVAR Director and Staff; responsible for overseeing the site characterization activities; providing schedule, progress and budgetary reports to GTSD management and UVAR Director; maintained and controlled project records; set-up and calibration of gamma spectroscopy system and over-site for operation of count room gamma spectroscopy, alpha/beta low background counting systems and portable survey instrumentation. As Project Engineer provided technical support for the characterization survey following plans developed with guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance. Developed survey instructions/packages for surfaces and structures, environs and systems for radiological and hazardous material surveys. Performed data reduction and analysis, maintained project files and databases, developed UVAR Characterization Survey Report. Utilized GTS Duratek Automatic Report Generator (ARGEN) computer program for survey package development/generation, for data analysis function, data QA/QC, survey package closure and report generation. All deliverables were met on time, within budget and exceeded or met project requirements. In addition, there were no Notices of Violation (NOVs) injuries or safety violations issued. The characterization report was utilized as FSS data and constituted approximately 80% of the final FSS report to support request for license termination.

Project Manager GTS Duratek, Inc.

Big Rock Point (BRP), Charlevoix, MI, NGS Facility Decommissioning

Served as Procedure Writer, reported to clients' Technical Support Superintendent, revised/rewrote some of BRP's administrative and working level operational HP procedures in accordance with regulatory requirements and with regard to BRP's PSDAR, Tech Specs and License Termination Plan. All deliverables were met on time, within budget and met project requirements.

Project Manager GTS Duratek, Inc.

Interstate Nuclear Services Portsmouth VA, Facility Decommissioning

Served as Onsite Project Manager, Project Engineer primary point of contact and interface with the INS Project Manager responsible for overseeing subcontractor performing facility demolition and site remediation activities; progress and budgetary reports to INS and GTSD management; maintaining and controlling project records; and performed duties of Site Health and Safety Officer. As Project Engineer provided technical support for final status survey; collected and analyzed samples utilizing EG&G NOMAD HPGe detector based gamma spectroscopy system for licensed radionuclides in soil and water; supervised radioactive waste packaging and shipment; maintained project files and data; and provided support for final report. All deliverables were met on

4 of 8

07/99 to 11/99

12/99 to 01/00

05/99 to 07/99

03/99 to 05/99

time, within budget and met project requirements. In addition, there were no Notices of Violation (NOVs) injuries or safety violations issued. The FSS report was utilized to support request for license termination.

Project Manager GTS Duratek, Inc.

Connecticut Yankee Atomic Power Plant, Haddam Neck, CT

Served as onsite Project Manager/Project Engineer primary point of contact and interface with the CYAPCo Project Manager responsible for overseeing characterization of bulky waste landfill (AKA, Shooting Range Landfill - SRL), site characterization activities; providing schedule, progress and budgetary reports to GTSD and CYAPCo management; and maintaining and controlling project records. Served as Project Engineer for scoping survey of the land areas conducted inside the facility industrial area. As Project Engineer responsible for providing technical support for the characterization survey; prepared characterization plan following guidance provided in NUREG-1575, MARSSIM and other supporting regulatory guidance, developed work packages and instructions, performed data reduction and analysis, maintained project files and databases, prepared the SRL Characterization Survey Report. Presented plan to CYAPCo management, NRC, CDEP and local community/township stakeholder prior to implementing plan, obtained approval and/or concurrence from each. All deliverables were met on time, within budget and exceeded or met project requirements. In addition, there were no Notices of Violation (NOVs) injuries or safety violations issued.

Radiological Engineer GTS Duratek, Inc.

Nuclear Services Operations Green Is Clean Process

Development Engineer responsible for technical basis, design, cost estimating and development of Large Volume Assay System utilizing HPGe detector based gamma spectrometry system. This system in 2000 became the work horse for processing materials through Duratek's Green Is Clean material release program.

Radiological Engineer GTS Duratek, Inc.

Maine Yankee Atomic Power Plant Site Characterization project

Nov.-Dec. 1997 – Served as Survey Package Development Engineer with responsibilities for survey instructions and survey package development for surfaces and structures and environmental radiological surveys. Utilized GTS Duratek Automatic Report GENERATOR (ARGEN) computer program for survey package development and generation. Jan.-May 1998 – Served as Data Engineer with responsibility for producing characterization report. Implemented and utilized GTS Duratek ARGEN (Automatic Report GENERATOR) computer program for data analysis function and report generation. Performed data analysis and reduction of characterization data, developed characterization report, responded to client and decommissioning contractor comments. All deliverables were met on time and met project requirements.

Radiological Engineer GTS Duratek, Inc.

Pacific Gas & Electric Humboldt Bay Power Plant Site Characterization project, Eureka, CA Served as Laboratory Analyst for support of site characterization activities of former nuclear generating Unit #3. Performed and reviewed all count room gamma spectroscopy analyses utilizing two EG&G NOMAD HPGe detector based gamma spectroscopy systems for analysis of licensed radionuclides in soil and water. All deliverables were met on time, within budget and met project requirements.

Radiological Engineer GTS Duratek, Inc. (formerly Scientific Ecology Group, Inc.)

Alliant Techsystems Twin Cities Army Ammunition Plant, Minneapolis, MN

11/97 to 06/98

06/98 to 08/98

08/98 to 02/99

09/97 to 10/97

06/97 to 08/97
Served as Laboratory Analyst for support of site characterization activities for DU contaminated weapons manufacturing facility. Perform count room gamma spectroscopy utilizing Canberra InspectorTM HPGe detector based portable system for sample analysis as to DU in soils, sample collection and preparation and assist in writing and presenting data in Characterization Study Report. All deliverables were met on time, within budget and met project requirements.

Radiological Engineer Scientific Ecology Group, Inc.

Westinghouse Waltz Mill WTR Facility Decommissioning, Monroeville, PA. Support Client request to disposition piles of disturbed soil on site. Develop survey plan, collect samples, perform survey, compile data and produce technical basis document in support of identifying licensed radionuclide in soil utilizing BTI MicroSpec-2TM NaI (Tl) detector based gamma spectroscopy instrument. All deliverables were met on time, within budget and met project requirements.

Radiological Engineer Scientific Ecology Group, Inc.

Ameristeel Jackson, TN

Emergency Response, support Client request to identify unknown radioactive source causing alarm at plant baghouse conveyor monitor utilizing BTI MicroSpec-2TM NaI (Tl) detector based gamma spectroscopy instrument. Investigation identified problem due to natural Radon, produced final report.

Radiological Engineer Scientific Ecology Group, Inc.

Kentucky Electric Steel Ashland, KY

Emergency Response, support Client request to identify unknown radioactive source that caused alarm at plant rail exit portal monitor utilizing BTI MicroSpec-2TM NaI (Tl) detector based gamma spectroscopy instrument. Supported remediation activities for Cs-137 contamination of steel mill site. Assist in writing Health and Safety Plan and various work plans and setup of count room utilizing EG&G NOMAD HPGe gamma spectroscopy system for sample analysis.

Radiological Engineer Scientific Ecology Group, Inc.

Scientific Ecology Group Bear Creek Rd. Operations Development Engineer and team member for technical basis, design, procedure development and assembly of Envirocare Assay System utilizing Bubble Technology Industries (BTI) MicroSpec-2TM NaI (Tl) detector based gamma spectroscopy instrument.

Radiological Engineer Scientific Ecology Group, Inc.

Fort St. Vrain Nuclear Generating Station Decommissioning Project

Served as Data Evaluation Engineer, responsibilities included performance of data evaluation for final survey of structural and environmental survey areas/units, reviewed and closed survey packages, developed final survey release records, initiated and performed investigations. Coauthor and assisted with development of final report for termination of the NRC license.

05/97 to 05/97

05/97 to 06/97

05/97 to 05/97

02/97 to 05/97

02/96 to 02/97

Radiological Engineer Scientific Ecology Group, Inc.

Alliant Techsystems, Wilmington Il

Projects Cost Estimator and Procurement Specialist

Supported remediation activities for extensive Depleted Uranium (DU) contamination of weapons test site. Performed count room gamma spectrometry utilizing EG&G NOMAD for sample analysis as to release limits and natural vs. DU not differentiated by portable survey instruments.

Scientific Ecology Group, Inc.

Prepared cost estimates for SEG Radiological Engineering and Decommissioning Services (RE&DS) for labor, materials, supplies, equipment and instrumentation for proposals. Procurement of same at awarding of project. Also responsible for projects cost tracking and client invoicing for RE&DS projects.

Production Supervisor, High-Purity Germanium Department07/85 to 04/92Oxford Instruments (formerly Tennelec, Inc.) Oak Ridge, TN (now Canberra Nuclear)07/85 to 04/92

Served as Production Supervisor responsible for management, engineering and supervision of successful High-Purity Germanium (HPGe) Material Manufacturing Lab. Supervised personnel in HPGe crystal production, developed and maintained germanium crystal growing, zone refining, crystal characterization, wet chemical processes, clean room design and management, hired, scheduled, trained and supervised personnel. Responsibilities included: process control; customer service; design, development, operation, and maintenance of rough-vacuum and high-vacuum systems, high purity gas handling systems, RF induction heating units and clean room system. Also was responsible for qualifying vendors for and procurement of gases, chemicals, raw materials, equipment and services. Today, this laboratory is owned and operated by Canberra Nuclear and produces all HPGe material used in their detector manufacturing operation.

Production Supervisor, Charged Particle Detector Department09/83 to 07/85Tennelec, Inc., Oak Ridge, TN (now Canberra Nuclear)09/83 to 07/85

Served as Detector Test and Quality Assurance Specialist responsible for engineering and supervision of silicon surface barrier detector manufacturing and test lab. Responsibilities included scheduling, training and supervision of personnel; quality assurance testing of nuclear spectroscopy measurement systems for silicon surface barrier charged particle detectors. Also shared responsibility for process control and customer service.

Lead Technician, Germanium Material Production Laboratory EG&G ORTEC, Oak Ridge, TN (now AMATEK Instruments) 09/77 to 09/83

Served as Lead Technician responsible for engineering and supervision of a successful High-Purity Germanium (HPGe) Material Manufacturing Lab. Supervised five personnel in HPGe crystal production, shared responsibility for development and maintenance germanium crystal growing, zone refining, crystal characterization, wet chemical processes, clean room design and management, scheduled, trained and supervised personnel, operation and maintenance of rough-vacuum and high-vacuum systems, high purity gas handling systems, RF induction heating units, clean room system, handled high purity hazardous gases and chemicals, also shared responsibility for process control. Responsibilities similar to those at Tennelec/Nucleus Inc. with the exception of customer services. Germanium materials were used in internal processing and were not routinely sold outside the company. Today, this laboratory is owned and operated by AMATEK Instruments and produces all HPGe material used in their detector manufacturing operation.

Test Technician, Solid State Detector Division EG&G ORTEC, Oak Ridge, TN (now AMATEK Instruments)

Served as Detector Test and Quality Test Technician, responsible for testing of silicon surface barrier, position sensitive, SiLi and HPGe detectors. Trained other personnel in detector production test. Quality assurance

06/92 to 10/95

10/74 to 09/77

testing of nuclear spectroscopy measurement systems for silicon surface barrier charged particle detectors. Also shared responsibility for process control and customer service.

Anti-Submarine Warfare Technician U.S. Navy

09/71 to 09/74

Attained rank of Anti-submarine Warfare Technician, Petty Officer Third Class (AX3) during active duty, attained and was eligible for AX2 rank prior to discharge from active duty. Job responsibilities included antisubmarine warfare (ASW) and other aircraft avionics equipment maintenance, trouble-shooting and repair, Radio Operator and In-flight Technician in patrol squadron of P3-A ASW aircraft. Attained rank of AX2 as reservist and served as active reservist until 09/77.

ACHIEVEMENTS

Coauthor for patent obtained May 24, 2002. While with Duratek, Inc., in June 2000, the Duratek patent committee recommended and the Senior Leaders concurred that Duratek file for patent protection for invention disclosure titled "An Improved Process Method and Equipment for Bulk Assaying Waste/Materials for "Clean" Release Using a Standardized Box Counting Geometry". Served as Development Engineer responsible for development of the B12/B25 Box Counter System for initial design, including drawings, technical specifications and process. This system in the year 2000 became the primary analytical system for processing materials through Duratek's Green Is Clean material release process and program.

While with Scientific Ecology Group, Inc., (SEG) in 1995 was presented George Westinghouse "Signature of Excellence Award" for contribution resulting in development and implementation of HPGe Detector Based, High Density, Low Level Waste Assay System, the High Density Material 55 Gallon Drum Counter System. The system was deployed and utilized at various field project sites as well as with the primary low density analytical system for processing materials through Duratek's Green Is Clean material release process and program up to introduction of B12/B25 Box Counter System in 2000.

While with Tennelec, Inc., received "Employee Contribution Award" in 1987 for technical and financial successes in the High-Purity Germanium Manufacturing Department.

While with EG&G ORTEC, twice won the "Employee Contribution Award" in 1980 and in 1982 for troubleshooting major yield problems and excellence in production output in the High-Purity Germanium Manufacturing Department.

REPORTS, PRESENTATIONS AND PAPERS

Coauthor of the report: Assessment Report Final Status Survey Program Haddam Neck Plant (HNP), June 2004

Presenter and coauthor of the paper: *Management of Characterization and Final Status Survey Data in the U.S.*, J. McGehee, H. Story and D. McGee, November 2003, presented at the SFEN (French Nuclear Energy Society) conference "Waste Management and Decommissioning," November 23 to 28, 2003 Avignon, France

Author of the report: *Characterization Survey Report for the University of Virginia Reactor Facility,* Charlottesville Virginia, March 2000

Author of the report: *Shooting Range Landfill Characterization Survey Report for the Connecticut Yankee Atomic Power Plant*, Haddam Neck Connecticut, November 1999

Coauthor of the report: Characterization Survey of the Maine Yankee Atomic Power Plant, Wiscasset Maine, June 1998

Coauthor of the report: Final Status Survey of the Fort St. Vrain Atomic Power Plant, Platteville Colorado, 1996

Hudson

MICHAEL A. TABER

SUMMARY OF QUALIFICATIONS:

Over 25 years of experience in radiation protection, chemistry, plant operations, maintenance, and decommissioning activities for over 30 nuclear facilities nationwide, both commercial and military. Specialized experience includes:

- Navy Nuclear Engineering Laboratory Technician (ELT)
- Senior Health Physics Technician
- NRRPT Certified (National Registry of Radiation Protection Technologists)
- RCT Certified (Radiological Control Technician), Department of Energy (DOE)
- Hazardous Waste Operations & Emergency Response Certified

PROFESSIONAL EXPERIENCE:

Radiation Protection:

- Performed routine, job specific, and job coverage surveys to analyze radiation, contamination, and airborne activity levels during typical plant operations and maintenance outages for 30 facilities (nuclear plants and government/military facilities).
- Utilized various count room equipment to analyze results including count rate meters, scalers, multi-channel analyzers (MCA), and liquid scintillation counters (LSC).
- Served as an ALARA technician to create radiation work permits to ensure radiological work evolutions were in compliance with NRC licensing requirements.
- Evaluated work evolutions and prepared Radiation Work Permits for scheduled work activities. Conducted pre-job and post-job debriefings to compile job history files to enhance efficiency for future work evolutions.
- Revised plant procedures related to the ALARA program to reflect lessons learned and procedural changes.
- Designed and delivered an experimental, hands on training course to train inexperienced workers in radiation worker practices.
- Represented the radiation protection group at the Work Control Center at the Comanche Peak Steam Electric Station to evaluate scheduling requirements and determine resource loading for the initial start-up and refueling outages of the plant.
- Taught 2 courses (Radiation Worker Training and General Employee Training, 8 hour courses) to 600
 employees for the St. Lucie Nuclear Power Plant.

Chemistry:

- Monitored and maintained reactor and steam plant chemistry at a pressurized water reactor (Westinghouse PWR). Performed chemical analyses of reactor plant fluids, recommending chemical additions as necessary to meet licensing requirements.
- Supervised the transfer of primary demineralizer resin to shipyard facilities and replacement of radioactive waste filters in the onboard retention system.
- Performed primary coolant analyses to successfully complete two Operational Reactor Safeguards Examinations (ORSE).
- Conducted chemical analyses to support shipyard maintenance activities for reactor plant systems.

Licensed Facility Remediation/Decommissioning:

• Participated in the dismantling and decommissioning of 6 licensed nuclear facilities. Conducted radiation and contamination surveys, analyzed samples, coordinated clean up and disposal of contaminated soil, radioactive materials, and hazardous waste, and verified that facilities met free release requirements for unrestricted use.

MICHAEL A. TABER

Page two

EMPLOYMENT HISTORY:

Sr. Health Physics Technician

Contracted Nuclear Power Generation/DOE Assignments

- Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID (2004)
- Point Beach Nuclear Plant (W-PWR), Two Rivers, WI (2004)
- Columbia Generating Station (GE-BWR), Richland, WA (2003)
- Hunter's Point Naval Shipyard, San Francisco, CA (2002)
- Kewanee Nuclear Power Plant (W-PWR), Kewanee, WI (2001, 2003)
- Byron Nuclear Generating Station(W-PWR), Byron, IL(2001)
- Los Alamos National Laboratory (LANL), Los Alamos, NM (2000, 2001)
- Darlington Nuclear Generating Station (CANDU) Ontario, Canada (2000)
- Nevada Test Site, Mercury, NV (2000, 2001,2003)
- Diablo Canyon Nuclear Power Plant (W-PWR), Avila Beach, CA (1999, 2000,2001)
- Laboratory for Energy Related Health Research (LEHR), Davis, CA (1999, 2000, 2002, 2003)
- San Onofre Nuclear Generating Station (CE-PWR), San Clemente, CA (1982, 1995,96,97,98,99)
- Calvert Cliffs Nuclear Plant (CE-PWR), Lusby, MD (1984, 1999)
- Palo Verde Nuclear Generating Station (CE-PWR), Wintersburg, AZ (1998)
- General Atomics, San Diego, CA (1998)
- South Texas Project (W-PWR), Bay City, TX (1997, 1999)
- Wolf Creek Nuclear Power Plant (W-PWR), Burlington, KS (1996, 1997)
- Seabrook Nuclear Power Plant (W-PWR), Seabrook, NH (1992, 1995)
- D.C. Cook Nuclear Power Plant (W-PWR), Benton Harbor, MI (1994)
- Shearon Harris Nuclear Power (W-PWR), Columbia, SC (1994)
- Connecticut Yankee Atomic Power Co. (W-WPR), Haddam Neck, CT (1983, 1984, 1993)
- U.S. Army Materials and Technology Laboratory, Watertown, MA (1992, 1993)

ALARA Technician/Sr. Radiation Protection Technician

Texas Utilities Comanche Peak Steam Electric Station (W-PWR), Glen Rose, TX

Sr. Health Physics Technician

Contracted Nuclear Power Generation Assignments:

- Joseph M. Farley Nuclear Power (W-PWR), Dothan, AL (1984)
- St. Lucie Nuclear Plant (W-PWR), Fort Pierce, FL (1984)
- Sequoyah Nuclear Plant (W-PWR), Chattanooga, TN (1984)
- Brunswick Steam Electric Station (GE-BWR), Southport, NC (1982)
- Nine Mile Point Nuclear Plant (GE-BWR), Oswego, NY (1982)
- Edwin I. Hatch Nuclear Plant (GE-BWR), Baxley, GA (1982)
- Oconee Nuclear Plant U-1&2 (B&W-PWR), Seneca, SC (1981 & 1982)

U.S. Navy

1976 to 1981

Engineering Laboratory Technician, USS Long Beach, CGN-9 (1978 to 1981) *Mechanical Operator Instructor,* A1W/NPTU, Idaho Falls, ID (1976 to 1978)

EDUCATION:

- Certificate, DOE Radiological Control Technician (RCT), (1999, 2001, 2003)
- HAZWOPER 8 hour Refresher 2004
- Certificate (40 hour), Hazardous Waste Operations and Emergency Response, 1996
- National Registry of Radiation Protection Technologists, 1994
- U.S. Navy Engineering Laboratory Technician School, Idaho Falls, ID, 1978
- U.S. Navy Nuclear Power Training Unit, Idaho Falls, ID, 1976

1992 to Present

1981 to 1985

1985 to 1992

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 3.0 **Survey Instrumentation**

	INSTRUMENTS AND EQ	UIPMENT	INVENT	ORY	
		QTY	Unit	QTY	Commnets
ltem	Equipment Description	Ordered		Received	
1	Ludlum Data Logger, Model 2350-1 with case, 25' det cables, keypad, download cable and barcode pen	3	each	3	
2	Ludlum 50cm2 Alpha Scintillator, Model 43-5				Ordered and received 1
		2	each	3	replacement
3	Ludlum Gamma Scintillator Detector, Model				
	44-10	2	each	2	
4	Ludlum Shielded Pancake GM Detector,				
	Model 44-40	2	each	2	
5	Ludlum MicroR Meter, Model 19	1	each	1	
6	Ludlum Alarm Ratemeter, Model 177	2	each	2	
7	Ludlum Pancake GM Detector, Model 44-9	2	each	2	
8	TC-99 47mm, Beta Source	1	each	1	
9	Th-230 47mm, Alpha Source	1	each	1	
10	CS-137 Gamma Button Source	1	each	1	
11	Ludlum Model 2929 w/43-10-1 Alpha-Beta				
	Counter	1	each	1	

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 4.0 **Instrument Calibration Certifications**



CALIBRATION CERTIFICATE

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTO	INSTRUMENT INFORMATION				
Customer Name: Duratek li	Manufacturer:	Ludlum			
Address: 628 Gallaher Road	l, Kingston, IN 37763		Model: 2350-1	Serial Number: 953	349
Contact Name: Thomas Scott			Probe: N/A	Serial Number: N/.	A
Customer Purchase	Work C	Calibration Met	hod: Electronic and Sou	rce	
Order Number: N/A		<u>r: 2005-02479</u> NT CALIBRAT	LION INFORM	TION	de de la composition
	INSTRUME			T	- <u></u>
	Calibration Standard	Instrume	nt Response	Cor	nments
Instrument Range (CPM)	M) (CPM)		After Calibration	Calibrated in accord CP-IN-WI-239 Rev 0	ance with
400	400	398	398	Pulser: 101500	Cal Due: 09/24/05
4,000	4,000	3,982	3,982	D-812: 2816	Cal Due: 04/15/05
40,000	40,000	39,695	39,695	DIH-1A: 100799	Cal Due: 11/11/05
400.000	400,000	398,719	398,719	DVM: IW12663	Cal Due: 03/22/05
HV Cal Values (M2350 HV Entry)	Desired HV (Voltmeter) (VDC)	As Found (VDC)	As Left (VDC)	EPPROM Version: 3	37122N21
500 (490-510)	500	505	505	Iemp: 22.8	°C
1,500 (1,498-1,502)	1,500	1,501	1,501	Pressure: 758 n	nmHg
2,000 (1,940-2,060)	2,000	1,994	1,994	Humidity: 20%	
Parameter	Tolerance (±10%)	As Found	As Left		
Low End Threshold	4 ± (3.6 to 4.4) mVDC	4.4	4.4	Geotropism: SAI	ACK/Scroll: SAT
Midpoint Threshold	20 ± (18 to 22) mVDC	20.4	20.4	BAT>4.5: SAT	Volume: SAI
High End Threshold	40 ± (36 to 44) mVDC	39.4	39.4	Count: SAT	Audio Divide: SAT
Window Width	4 ± (3.6 to 4.6) mVDC	4	4	Alarms: SAT	Lamp: SAI
Display-to-mV ratio:	1	00 to 4 mV		Overload Test: SAT	
	STAT	EMENT OF C	ERTIFICATIO	N	
We Certify that the instrument I We further certify that our Calib incurred during shipment or use	isted above was calibrated and im ration Measurements are traceable of this instrument).	spected prior to ship le to the National In-	ment and that it met a stitute of Standards ar	Ill the Manufacturers publish nd Technology. (We are not n	ed operating specifications responsible for damage
Instrument		/	~ ~	71.H	1 - CB- Down
Calibrated By:	Rev.	iewed By: 📿	unos V-	Cell Date:	17000

Calibration Date: 01/18/05

Calibration Due: 01/18/06



CALIBRATION CERTIFICATE

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

Ihis Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTO	MER INFORMATION	Enterange von Sydere Gestingen Versionen	INS	STRUMENT INFOR	MATION	
Customer Name: Duratek In	ac Instrument Services F	Manufacturer:	Ludlum			
Address: 628 Gallaher Road	, Kingston, IN 37763	Model: 2350-1	Serial Number: 12	0636		
Contact Name: Thomas Scot	tt	Probe: N/A	Serial Number: N/	/A		
Customer Purchase	Order	Calibration Met	hod: Electronic and So	urce		
Order Number: N/A	INSTRUME	NT CALIBRAT	ION INFORMA	TION	an a	
	A. 19 A. 19				•	
Instrument Panga	Calibration Standard	Instrumen	t Response	Co	mments	
(CPM)	Value (CPM)	Before Calibration	After Calibration	Calibrated in accord CP-IN-WI-239 Rev (ance with	
400	400	395	395	Pulser: 101500	Cal Due: 09/24/05	
4,000	4,000	3,954	3,954	D-812: 2816	Cal Due: 04/15/05	
40,000	40,000	39,679	39,679	DTH-1A: 100799	Cal Due: 11/11/05	
400,000	400,000	400,540	400,540	DVM: IW12663	Cal Due: 03/22/05	
HV Cal Values	Desired HV (Voltmeter) (VDC)	As Found (VDC)	As Left (VDC)	EPPROM Version:	37122N28	
500 (490-510)	500	503	504	Iemp: 25.1°C		
1,500 (1,498-1,502)	1,500	1,496	1,500	Pressure: 755 mmHg		
2,000 (1,940-2,060)	2,000	1,989	1,996	Humidity: 22%		
Parameter	Tolerance (±10%)	As Found	As Left		······································	
Low End Threshold	4 ± (3.6 to 4.4) mVDC	3.2	4.3	Geotropism: SAT	ACK/Scroll: SAT	
Midpoint Threshold	20 ± (18 to 22) mVDC	14.7	20.0	BAT>4.5: SAT	Volume: SAT	
High End Threshold	40 ± (36 to 44) mVDC	28.6	38.5	Count: SAI	Audio Divide: SAT	
Window Width	4 ± (3.6 to 4.6) mVDC	3	4	Alarms: SAI	Lamp: SAT	
Display-to-mV ratio:]	100 to 4 mV	a na sa	Overload Test: SAT		
	STA	FEMENT OF CH	RTIFICATION	<u>t</u>		
We Certify that the instrument li We further certify that our Calibri incurred during shipment or use	sted above was calibrated and ir ration Measurements are traceat of this instrument).	spected prior to shipn ole to the National Inst	nent and that it met al itute of Standards and	l the Manufacturers publish d Technology (We are not	ned operating specifications. responsible for damage	
Instrument		1		1	· · · · · · · · · · · · · · · · · · ·	
Calibrated By: M	taut Rev	viewed By: Mrs	ras U. Klau	Date:	1-18-05	
Calibration Date: 01/17/05			Calibration Du	e: 01/17/06	<u></u>	



CALIBRATION CERTIFICATE

فالمفاحق يعن

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

<u>I</u>	his Certificate will be accomp	amed by Canolaud	States of rectain	Charles and the second second	WATTON STREET		
CUSTON	TER INFORMATION	A Barrow Arm	INS	TRUMENT INFOR	MATION		
Customer Name: Duratek In	Manufacturer:	Ludlum					
Address: 628 Gallaher Road	, Kingston, IN 37763		Model: 2350-1	Serial Number: 95358			
Contact Name: Thomas Scot	t		Probe: N/A	Serial Number: N/A			
Customer Purchase	Work O)rder 2005 02479	Calibration Meth	od: Electronic and Sou	1rce		
Order Number: N/A	INSTRUMEN	T CALIBRATI	ON INFORMA	TION			
	Ligitation .				•		
	Calibration Standard	Instrument	Response	Cor	mments		
Instrument Range (CPM)	nent Range Value Before CPM) (CPM) Calibration		After Calibration	Calibrated in accordance with CP-IN-WI-239 Rev 0			
400	400	406	406	Pulser: 101500	Cal Due: 09/24/05		
4.000	4,000	3,984	3,984	D-812: 2816	Cal Due: 04/15/05		
40,000	40,000	39,821	39,821	DIH-1A: 100799	Cal Due: 11/11/05		
400,000	400,000	400,222	400,222	DVM: 1W12663	Cal Due: 03/22/05		
HV Cal Values	Desired HV (Voltmeter) (VDC)	As Found (VDC)	As Left (VDC)	EPPROM Version: 37122N28			
500 (490-510)	500	503	506	Temp: 25.1	°C		
1 500 (1.498-1.502)	1,500	1,488	1,499	Pressure: 755 r	nmHg		
2.000 (1.940-2.060)	2,000	1,976	1,990	Humidity: 22%	ó		
Parameter	Tolerance (±10%)	As Found	As Left				
Low End Ihreshold	4±(3.6 to 4.4) mVDC	4.2	4.2	Geotropism: SAT	ACK/Scroll: SAT		
Midpoint Threshold	20 ± (18 to 22) mVDC	20.7	20.7	BAT>4.5: SAI	Volume: SAI		
High End Threshold	40 ± (36 to 44) mVDC	40.8	40.8	Count: SAI	Audio Divide: SAI		
Window Width	$4 \pm (3.6 \text{ to } 4.6) \text{ mVDC}$	4	4	Alarms: SAI	Lamp: SAI		
Display-to-mV ratio:	1(00 to 4 mV		Overload Test: SAT			
	STAT	EMENT OF CE	RTIFICATION	l).			
We Certify that the instrument li We further certify that our Calib- incurred during shipment or use	sted above was calibrated and instation Measurements are traceabl of this instrument)	spected prior to shipm e to the National Insti	ent and that it met al tute of Standards and	i the Manufacturers publish i Technology. (We are not	ned operating specifications. responsible for damage		
Instrument		$\sim \Omega$	Ch.	1A Data	1-18-05		
Calibrated By:	. Laul Revi	iewed By:	Calibratian Day	<u>. 01/17/06</u>	1-10-55		
Calibration Date: 01/17/05 Calibration Due: 01/17/06							



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

	CUSTOMER I	NFORMATION		DETECTOR	R INFORMATION
Customer Name: Du	ıratek Instrument Se	ervices		Manufacturer: Lu	dlum
Address: 628 Galla	her Rd Kingston, TN	37763		Detector Model: 43-	-5
Contact Name: Tho	mas Scott			Serial Number: 12	7389
Customer Purchase (Number: N/A	Drder	Work Order Number: 2005-0	2479	Evaluation Method: Source	
	DETECTO	R EFFICIENCY	/RESPONSE/PRECISI	ON INFORMATION	
Source Nuclide	Serial Numbe	er: 119709	Activity: 2,442 dpm	Certificatio	on Date: 10/14/97
Source Nuclide	Serial Numbe	er: 119706	Activity: 21,240 dpm	Certificatio	on Date: 10/14/97
Source# 119709	As Found	As Left	Linearity	y Test	СРМ
Gross CPM	277	277	Count 1	(Heel)	2,016
Background CPM	1.2	1.2	Count 2 (C	Center)	2,102
Net CPM	276	276	Count 3	(Ioe)	2,005
Efficiency	11.3%	11.3%	Avera	ige	2,041
Source# 119706	As Found	As Left	Tolerance	PASS	
Gross CPM	2,102	2,102	High Vo	ltage	750V
Background CPM	1.2	1.2			
Net CPM	2,101	2,101			
Efficiency	9.9%	9.9%			
S	caler Information			Detector Informatio	n
Model	Serial Number	Due Date	Background	Operating Voltage	Ihreshold/Input Sens.
2350-1	120636	01/17/06	1.2cpm	750V	10mV
	Attachments	·····································		Comments	
Voltage Plateau:	YES 🗸	NO	Cable Length: 5ft.		
STREET,		Dead	Time and Cal Constant		
Low Sample Activity	Source #	N/A	Dead Time (DI)	1E ⁻⁶	
High Sample Activit	y Source #	N/A	Cal. Constant (CC)	1.0	in and show the linear states in the states and the states of the states o
We Certify that the detect further certify that our Ca shipment or use of this det	or listed above was evalua libration Measurements as tector).	State ted for proper operation traceable to the Nation	ement of Certification on prior to shipment and that it n ional Institute of Standards and T	net all the Manufacturers pub Fechnology. (We are not resp	lished operating specifications. We onsible for damage incurred during
Detector Certified By: N	1. Paul	Reviewed By:	Jerros G. Ac	al Date:	1-18-05
Certification Date:	01/18/05			Certification Due: ()1/18/06

	BACKGRC	UND	PLATEAU	43-5#127389	5FT	CABLE	1/18/2005
	400	0					
	450	0					
	500	0					
	550	1					
	600	0					
	650	0					
	700	1					
1	750	0)				
	800	4					
	850	3					
	900	5					

ALPHA PLATEAU TH-230#119739 18,600DPM <u>700</u> 750 2080 2077 2082

Glores F. Salt 1-18-05

DETECTOR SETUP CHECK LIST REPORT

The following list is stored as detector setup D2 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 12:05:38.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE: MP

Comments:

120636. Model 2350 Serial # = User I.D. = 750 volts. High Voltage = 250. Threshold = 1000,Off. Window = 40.0 micro amperes. Overload Current = 60 seconds. Scaler Count Time = counts. Readout Units = Readout Time Base = min. auto. Readout Range Multiplier = 9.999999E-07 Detector Dead Time = Detector Calibration Constant = 1.000000E+00. 43-5 Detector Serial # = Detector Model = 127389. 1_000000E+09 Ratemeter Alarm Setting = Scaler Alarm Setting = 1000000. Integrated Dose Alarm Setting = 1.000000E+09. Low Count Alarm Setting = X. Operating Battery Voltage = 5.7 volts.

Generated: 01/18/2005 12:15:45.

DET2

- - - - - - -

Model 2350 Serial #120636 *H750\$P* Set High Voltage: 750 *W1000\$WOFF\$P* Set Window: 1000,OFF *0400\$00FF\$C* Set Overload: 400,0FF *SU7\$I* Set Readout Units = counts *F60\$H* Set Scaler Count Time: 60 *SB1\$-* Set Readout Time Base = min *SL9_9999998-07\$U* Set Dead Time: 9_9999998-07 *SC1.000000E+00\$0* Set Calibration Constant: 1.000000E+00 *M43-5\$N* Set Detector Model: 43-5 *N127389\$6* Set Detector Serial #: 127389 *J1.000000E+09\$V* Set Ratemeter Alarm: 1.000000E+09 *K1000000\$H* Set Scaler Alarm: 1000000 *P1.000000E+09\$.* Set Dose Alarm: 1.000000E+09









SM0\$3 Set Readout Range Multiplier = auto





SP2\$8 SAVE PARAMETERS AS D2



.

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

	CUSTOMER I	NFORMATION	N	DETECTO	R INFORMATION
Customer Name: D	uratek Instrument So	ervices		Manufacturer: Lu	ıdlum
Address: 628 Galls	aher Rd Kingston, IN	N 37763		Detector Model: 43	-5
Contact Name: The	omas Scott	<u> </u>		Serial Number: 17	2236
Customer Purchase Number: N/A	Order	Work Order Number: 2005-0)2479	Evaluation Method: Source	
	DETECTO	R EFFICIENCY	RESPONSE/PRECISI	ON INFORMATION	l
Source Nuclide	Serial Numbe	er: 119709	Activity: 2,442 dpm	Certificati	on Date: 10/14/97
Source Nuclide	Serial Numbe	er: 119706	Activity: 21,240 dpm	Certificati	on Date: 10/14/97
Source# 119709	As Found	As Left	Linearity	y Test	СРМ
Gross CPM	289	289	Count 1 ((Heel)	2,187
Background CPM	4.8	4.8	Count 2 (C	Center)	2,140
Net CPM	284.2	284.2	Count 3	(Ioe)	2,104
Efficiency	11.6%	11.6%	Average		2,144
Source# 119706	As Found	As Left	Tolerance ±10%		PASS
Gross CPM	2,140	2,140	High Vo	ltage	650V
Background CPM	4.8	4.8		<u> </u>	
Net CPM	2,135	2,135			
Efficiency	10.1%	10.1%	-		-
	icaler Information			Detector Informatio	n see state of the second s
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold/Input Sens.
2350-1	95358	01/17/06	4.8 cpm	650V	10mV
	Attachments	a Charles and Server.		Comments	A CONTRACTOR OF THE
Voltage Plateau:	YES 🗸	NO	Cable Length: 5ft.	an a tra constant and in the second of the state of the	a na sana na sana na kata na kata na kata na fara na kata na ka
		Dead	Time and Cal Constant		
Low Sample Activity	/ Source #	N/A	Dead Time (DT)	1E**	
High Sample Activit	y Source #	N/A	Cal. Constant (CC)	1.0	
We Certify that the detect further certify that our Ca shipment or use of this det	or listed above was evalua libration Measurements ar tector).	Statu ted for proper operation e traceable to the Nati	ement of Certification on prior to shipment and that it m ional Institute of Standards and T	et all the Manufacturers pub echnology. (We are not resp	lished operating specifications. We onsible for damage incurred during
Detector Certified By: N	1. Pul'	Reviewed By: (Turros (7-Deal	Date:	1-18-05
Certification Date:	01/18/05			Certification Due: (11/18/06

-

	BACK	GROUND	PLATEAU	43-5#172236	5FT	CABLE	1/18/2005
	400	7					
	450	0					
	500	1					
	550	0					
	600	1					
Ć	650	1					
	700	7					
	750	20					
	800	173	3				
	850	723	3				
	900	204	14				

SOURCE PLATEAU TH-230#119706 21,240DPM

400	0
450	551
500	1806
550	2035
600	2235
650	2201
700	2179
750	2343
800	3288
850	7757
000	01001

Tomos G. Deall 1-18-05

DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D2 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 12:08:40.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE:

Comments:

95358. Model 2350 Serial # = User I.D. = 650 volts. High Voltage = 250. Threshold = 1000,Off. Window = 40.0 micro amperes. Overload Current = 60 seconds. Scaler Count Time = Readout Units = counts. min. Readout Time Base = auto. Readout Range Multiplier = Detector Dead Time = 9.999999E-07. Detector Calibration Constant = 1.000000E+00. 43-5. Detector Model = Detector Serial # = PR172236. Ratemeter Alarm Setting =1.000000E+09Scaler Alarm Setting =1000000 Integrated Dose Alarm Setting = 1.000000E+09 Low Count Alarm Setting = X. Operating Battery Voltage = 5.6 volts.

Generated: 01/18/2005 12:12:39

Model 2350 Serial #95358

H650\$O Set High Voltage: 650

W1000\$WOFF\$P 1000,OFF

Set Window:



F60\$H Set Scaler Count Time: 60



SB1\$- Set Readout Time Base = min







O400\$OOFF\$C Set Overload: 400,OFF



SU7\$I Set Readout Units = counts



SM0\$3 Set Readout Range Multiplier = auto



SL9 999999E-07\$U Set Dead Time: 9 999999E-07

SC1_00000E+00\$0 Set Calibration Constant: 1_00000E+00

		 	~ ~ .	

M43-5\$N Set Detector Model: 43-5



NPR172236\$6 Set Detector Serial #: PR172236

J1.000000E+09\$V Set Ratemeter Alarm: 1 000000E+09



K1000000\$H Set Scaler Alarm: 1000000

P1.000000E+09\$. Set Dose Alarm: 1.000000E+09



SP2\$8 SAVE PARAMETERS AS D2



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

	STOMER I	NFORM	ATION	Calibration Charis of Read	DETECTOR	R INFORMATION	
CUSTOMER INFORMATION Customer Name: Duratek Instrument Services				Manufacturer: Lu	dlum		
Address: 628 Gallaher Rd Kingston, IN 37763					Detector Model: 43-	5	
Contact Name: Ihomas Scott					Serial Number: 117	7588X	
Customer Purchase Order		Work (Order		Evaluation Method:		
Number: N/A	DETECTOI	Numbe	r: 2005-0	2730	N INFORMATION		
	DEILCIU	11070		A stivitur 2 442 dam	Certificatio	on Date: 10/14/97	
Source Nuclide	Seriai Number: 115703		Activity: 2,442 upm				
Source Nuclide	Serial Number: 119702		Activity: 20,580 dpm	Certificatio	on Date: 10/14/97		
Source# 119709 A	s Found	As	Left	Linearity	Test	СРМ	
Gross CPM	323	323		Count 1 (l	Heel)	2,622	
Background CPM	1.4 1.4		Count 2 (C	enter)	2,572		
Net CPM	321.6	321.6		Count 3 (Toe)	2,384	
Efficiency	13.2%	13 2%		Avera	Average		
Source# 119706 A	s Found	As Left		Iolerance	Iolerance ±10%		
Gross CPM	2,572	2,	572			·	
Background CPM	1.4	1	4		Comments		
Net CPM	2,570 6	2,5	70.6		Cable Length: 25ft		
Efficiency	12:5%	12	.5%	Backg	round performed for :	5 minutes	
Scaler L	nformation				Detector Informatio	<u>h</u>	
Model Seri	al Number	Due	Date	Background	Operating Voltage	Threshold/Input Sens	
2350-1	129395	10/	06/05	cpm	800V	10mV	
				Attachments			
Detector Setup Report	YES √	NO	Barco	de Report YES 🗸	NO Voltage	Plateau YES√ NO	
			Dead	Time and Cal Constant			
Low Sample Activity Source	e#	N/2	1	Dead Time (DT)	1E ⁶		
and the second se				1			
High Sample Activity Sourc	:e #	N/A	`	Cal. Constant (CC)	1.0		
High Sample Activity Sourc	:e #	N/A	Stat	Cal. Constant (CC) ement of Certification	1.0		
High Sample Activity Source We Certify that the detector listed a further certify that our Calibration shipment or use of this detector).	e # above was evalua Measurements a	N/A ated for pro re traceable	State oper operation to the Nat	Cal. Constant (CC) ement of Certification on prior to shipment and that it me ional Institute of Standards and T	1.0 et all the Manufacturers pub echnology. (We are not resp	lished operating specifications. We onsible for damage incurred during	
High Sample Activity Source We Certify that the detector listed is further certify that our Calibration shipment or use of this detector). Detector	ze # above was evalua Measurements a	N/A ated for pro- re traceable Review	State oper operations to the Nations red Bv:	Cal. Constant (CC) ement of Certification on prior to shipment and that it me ional Institute of Standards and To Comes C-As	1.0 et all the Manufacturers pub echnology. (We are not resp Date:	lished operating specifications. We onsible for damage incurred during $\frac{2}{4} - 11 - 05$	

	DACKCRO	TIND	рњат	FAÜ	43-	5 :	#117	588X	25FT	CABLE	4/11/	05
	AUU AUU		T TI * T									
	400	ñ										
	500	ñ										
	550	õ										
	600	Õ										
	650	Ō										
	700	0										
	750	1										
	800	0										
	850	4										
	900	4					0701		EOAP	DM		
	SOURCE	PLA	TEAU	TH2	30 Ħ	FTT	970.	2 020	, 3800	E 14		
	400	0										
	450	0										
	500	0										
	550	10	~									
	600	86	8									
	650	20	53									
	700	23	93									
	/50	20	0/4 02									
-7	> 800 0 E 0	20	100									
	000 000	20	69									

Umos G. Seet 4-11-05

BACKGRC	UND PLAT	reau 43	8-5	S/N	1273	389X	25FT	CABLE	4/11/2005
400	0								
450	0								
500	0								
550	1								
600	0								
650	2								
700	2								
750	0								
800	1								
850	0								
900	2					00		DDM	
SOURCE	PLATEAU	Th-230	Ħ	119	/02	20,:	080	DPM	
400	0								
450	0								
500	0								
550	2								
600	578								
650	1989								
700	2388								
750	2619								
800	2662								
850	2658								
900	2743								

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DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D1 in the Model 2350. Today's date is 04/11/2005. The current time of day is: 09:59:53.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE:

Comments:

129395. Model 2350 Serial # = User I.D. = 800 volts. 250 High Voltage = Threshold = 1000,Off Window = 40.0 micro amperes. 60 seconds. counts Overload Current = Scaler Count Time = Readout Units = Readout Time Base = min. Readout Range Multiplier = 'auto Detector Dead Time = 9.999999E-07. Detector Calibration Constant = 1.000000E+00. Detector Model = 43-5 Detector Serial # = 117588X Detector Serial # = 117588X. Ratemeter Alarm Setting = 1.000000E+09 Scaler Alarm Setting = 1000000. Integrated Dose Alarm Setting = 1.000000E+09. Low Count Alarm Setting = X. Operating Battery Voltage = 6.3



SP1 \$2 SAVE PARAMETERS AS D1

DET1



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CU	ISTOMER II	FORMATI	DETECTOR INFORMATION				
Customer Name: Duratek I	instrument Sei	vices	Manufacturer: Ludlum				
Address: 628 Gallaher Rd K	Kingston, IN 3'	7763	Detector Model: 44	1-40			
Contact Name: Ihomas F. S	Scott		Serial Number: 0	94971			
Customer Purchase Order Number: N/A		Work Order Number: 20	05-02479	Evaluation Method: 5-02479 Source			
	DETECI	OR EFFIC	ENCY/RESPONSE/PREC	CISION INFORMA	TION		
1) Source Nuclide: Ic ⁹⁹	Serial Num	per: 119720	Activity (dpm): 2,562	Certi	fication Date: 10/	14/97	
2) Source Nuclide: 1c ⁹⁹	Serial Num	per: 119718	Activity (dpm): 20,520	Certi	fication Date: 10/	14/97	
3) Source Nuclide: Ic ⁹⁹	Serial Num	per: 089508	Activity (dpm): 2,257,800	Certi	fication Date: 07/	20/95	
Parameter	As Found	As Left	Precision I	[est	CPM (Source #2)	
Count 1	1,912	1,912	Count 1		1	,930	
Count 2	1,935	1,935	Count 2		1,881		
Count 3	1,871	1,871	Count 3		1,922		
Average	Average 1,906 1,906		Average		1,911		
Background(cpm)	31.6	31.6	Pass/Fai	1	PASS		
Net Counts	1,874	1,874			I olerance ±10%		
Efficiency (%)	9.1%	9.1%			Min: 1,720	Max: 2,102	
Low Sample Activ Source #1: 239	rity:)	Hiş S	gh Sample Activity: ource #3: 171,130	Dead Time (DT): Calibration Constant (Constant) 6.581499E-05 1.0		Constant (CC): 1.0	
Attach	ments		Detect	or Data: Dose Rate Pr	obes (mR/Hr)		
Detector Setup Report	YES √	NO	Desired Exposure	Iolerance ±10%	As Found	As Left	
Barcode Report	YES √	NO	N/A	N/A	N/A	N/A	
Voltage Plateau:	YES	NO √	N/A	N/A	N/A	N/A	
High Voltage: 900 volts	Cable Lengt	th=5Ft	N/A	N/A	N/A	N/A	
			COMMENTS				
-Average of 10 minute back ** Calibrated with 5Ft. Cab	ground ole***	-Efficien	ncy determined w/ 180-15 jig a	& source in 1/8" plane	het on 3/16" space	er	
STATEMENT OF CERTIFICATION							
We Certify that the detector listed above was evaluated for proper operation prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not							
Detector		Davie J D	dame La	M Data	1-10-65		
Certification Date: 01/18/05	<u>aul</u>	Keviewed By	WIN WAS (J. Man	Certification Due: 01/18/06			

DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D3 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 12:04:18.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE: MP

Comments:

120636. Model 2350 Serial # = User I.D. = 900 volts. High Voltage = 1,000. Threshold = 1000,Off 40.0 micro amperes. 60 seconds counts Window = Overload Current = Scaler Count Time = Readout Units = Readout Time Base = min. Readout Range Multiplier = auto Detector Dead Time = 6.581 6.581499E-05. Detector Calibration Constant = 1.000000E+00. 44-40. Detector Model = PR094971 Detector Serial # = Ratemeter Alarm Setting =1.000000E+09.Scaler Alarm Setting =1000000.Integrated Dose Alarm Setting =1.000000E+09. Low Count Alarm Setting = X. Operating Battery Voltage = 5.8 volts.

Generated: 01/18/2005 12:16:52.

Model 2350 Serial #120636

H900\$M Set High Voltage: 900

W1000\$WOFF\$P 1000,OFF

Set Window:

F60\$H Set Scaler Count Time: 60



SB1\$- Set Readout Time Base = min



T1000\$Q Set Threshold: 1000



0400\$OOFF\$C Set Overload: 400,OFF



SU7\$I Set Readout Units = counts



SM0\$3 Set Readout Range Multiplier = auto



SC1.000000E+00\$0 Set Calibration Constant: 1.000000E+00

M44-40\$N Set Detector Model: 44-40



NPR094971\$F Set Detector Serial #: PR094971

J1.000000E+09\$V Set Ratemeter Alarm: 1.000000E+09



K1000000\$H Set Scaler Alarm: 1000000

P1.00000E+09\$. Set Dose Alarm: 1.00000E+09



SP3\$9 SAVE PARAMETERS AS D3



.

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

Ihis Certificate will be accompanied by Calibration Charts or Readings where applicable

CU	STOMER IN	FORMATI	DETECTOR INFORMATION				
Customer Name: Duratek I	nstrument Ser	vices	Manufacturer: Ludlum				
Address: 628 Gallaher Rd K	ingston, IN 37	763	Detector Model: 44-40				
Contact Name: Thomas F. S	cott		Serial Number: 12	5865			
Customer Purchase Order		Work Orden Number: 20	105-02479	Evaluation Method: Source			
	DETECT	OR EFFIC	IENCY/RESPONSE/PREC	ISION INFORMA	FION		
1) Source Nuclide: Tc ⁹⁹	Serial Numb	per: 119720	Activity (dpm): 2,562	Activity (dpm): 2,562 Certification Date: 10/14/97			
2) Source Nuclide: Ic ⁹⁹	Serial Numb	er: 119718	Activity (dpm): 20,520	Certi	fication Date: 10/1	4/97	
3) Source Nuclide: Ic ⁹⁹	Serial Numb	er: 089508	Activity (dpm): 2,257,800	Certi	fication Date: 07/2	0/95	
Parameter	As Found	As Left	Precision T	est	CPM (S	Source #2)	
Count 1	1,895	1,895	Count 1		1	812	
Count 2	1,839	1,839	Count 2		1	844	
Count 3	1,826	1,826	Count 3		1,787		
Average	1,853	1,853	Average		1,814		
Background(cpm)	25.0	25.0	Pass/Fai	1	PASS		
Net Counts	1,828	1,828		Tolerance ±		nce ±10%	
Efficiency (%)	8.9%	8.9%			Min: 1,633	Max: 1,995	
Low Sample Activ Source #1: 272	ity:	Hi	gh Sample Activity:Dead Timeource #3:168,9051.050399H): Calibration Constant (CC): 1.0		
Attach	ments		Detecto	or Data: Dose Rate Pr	obes (mR/Hr)		
Detector Setup Report	YES √	NO	Desired Exposure	Tolerance ±10%	As Found	As Left	
Barcode Report	YES √	NO	N/A	N/A	N/A	N/A	
Voltage Plateau:	YES	NO √	N/A	N/A	N/A	N/A	
High Voltage: 900 volts	Cable Lengt	h=5Ft.	N/A N/A		N/A	N/A	
and the second second	leg Bryter en e	이는 것이 있다. 같은 것이 있는 것이 같이 있는 것이 있는 것이 같이 있는 것이 같이 있는 것이 같이 있는 것이 같이 않는 것이 같이 않는 것이 같이 않는 것이 같이 않는 것이 없다. 같이 많이 많이 많이 없는 것이 같이 많은 것이 같이 많이 없다. 것이 없는 것이 없는 것이 없이	COMMENTS				
-Average of 10 minute backg ** Calibrated with 5Ft. Cab	ground le***	-Efficie	ncy determined w/ 180-15 jig a	& source in 1/8" plane	het on 3/16" space	r	
STATEMENT OF CERTIFICATION							
We Certify that the detector listed above was evaluated for proper operation prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this detector).							
Detector	> .]		CI CA	a 1 fr -	10-15-		
Certified By: U.T	and	Reviewed B	y: (lowos (t-A	Certification Due	<u> </u>		
Certification Date: 01/18/05							

DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D3 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 12:09:56.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE: MP

Comments:

95358. Model 2350 Serial # =User I.D. = High Voltage = 900 volts. Threshold = 1000. 1000,Off Window = 40.0 micro amperes Overload Current = 60 seconds. Scaler Count Time = Readout Units = counts Readout Time Base = min Readout Range Multiplier = auto. 1.050399E-04. Detector Dead Time = Detector Calibration Constant = 1.000000E+00. Detector Serial # = Detector Model = 44-40. PR125865. Ratemeter Alarm Setting =1.000000E+09Scaler Alarm Setting =1000000 Integrated Dose Alarm Setting = 1.000000E+09. Low Count Alarm Setting = X. Operating Battery Voltage = 5.6 volts.

Generated: 01/18/2005 12:13:24

Model 2350 Serial #95358 *T1000\$Q* Set Threshold: 1000 *H900\$M* Set High Voltage: 900 *W1000\$WOFF\$P* 1000,OFF *0400\$00FF\$C* Set Overload: 400,0FF Set Window: *SU7\$I* Set Readout Units = counts *F60\$H* Scaler Count Time: 60 Set *SM0\$3* Set Readout Range Multiplier = auto *SB1\$-* Set Readout Time Base = min *SL1_050399E-04\$Y* Set Dead Time: 1_050399E-04 *SC1.000000E+00\$0* Set Calibration Constant: 1.000000E+00 *M44-40\$N* Set Detector Model: 44-40 *NPR125865\$C* Set Detector Serial #: PR125865 *J1.000000E+09\$V* Set Ratemeter Alarm: 1.000000E+09 *K1000000\$H* Set Scaler Alarm: 1000000 *P1.000000E+09\$.* Set Dose Alarm: 1.000000E+09

DET3

SP3\$9 SAVE PARAMETERS AS D3



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CU	STOMER INF	ORMAT	ION	DETEC	TOR INFORMA	TION
Customer Name: Durate	k Instrument Ser	vices	Manufacturer: Ludlum			
Address: 628 Gallaher Rd	l Kingston, TN 37	763	Detector Model: 4	4-10		
Contact Name: Thomas S	cott			Serial Number: 1	92598	
Customer Purchase	<u></u>	Work O	Irder 2004_02479	Evaluation Method: Sou	rce	
URGE FUILIDEL IVA	DETECTOR	EFFIC	ENCY/RESPONSE/PRE	LISION INFORM	ATION	
1) Source Nuclide: Cs ¹³⁷	Serial Number:	: 019455	Activity: 5µCi	Certification Da	nte: N/A (Used for I	Plateau Only)
2) Source Nuclide: Cs ¹³⁷	Serial Number:	: 049711	Activity: Variable	Certif	fication Date: 04/09	/04
Scaler Inf	formation		Precision	Test	mR/Hr (S	Source #2)
2350-1	#95358		Count 1	1		
Due Date	01/17/06	5	Count 2	2		
Threshold	I=250 (10r	nV)	Count :	3		
Cable Length	5ft.		Averag	e		
N/A	N/A		Tolerance ±	-10%	All counts within	±10% of Average
N/A	N/A		Pass/Fa	il	Pa	ISS
N/A	N/A					
Low Sample Activity Using Source #2 :	(400uR/hr): = 73,156	High S Usi	Sample Activity (2mR/hr) Dead Time (DT): ng Source #2 = 257,149 1.732369E-05		Calibration Constant (CC): 6.134582E+10	
ATTACI	IMENTS	SA NGEN ASK	DETECTOR DATA: DOSE I		PROBES (mR	/Hr)
Detector Setup Report	YES 🗸 🛛 P	10	Desired Exposure	Tolerance ±10%	As Found	As Left
Barcode Report	YES √ N	10	0.400	0.360-0.440	0.399	0.404
Voltage Plateau:	YES 🗸 🛛 N	10	1	0.90-1.10	0.973	0.973
High Voltage: 1050	JV		2	1.8-2.2	2.00	2.04
	Marine de la compositione de la com		COMMENTS			는 사람이 있는 것은 가운 가슴이 가지? (1.15%) 이 가지 않는 것이 가지 않는 것이 있는 것이 같은 것이 같은 것이 같은 것이 같은 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 없는 것
**Detectors set up with	a 2350-1 may h	e used w	rith any 2350-1 provided f	that the setup parar	neters are scanne	d into the
2350-1 prior to use with	a that specific de	etector**	ė			
Calibrated with 5ft. Cable	; 	ST /	TENTENT OF CEDTIEL	CATION		
We Certify that the detector lis	ted above was evalue	ated for pro	per operation prior to shipment an	d that it met all the Manu	facturers published ope	rating
specifications. We turther certin damage incurred during shipm	fy that our Cambrano ent or use of this dete	n Measurei ector).	ments are traceable to the mational	I Institute of orangeros an	a recimotogy (we are	Hot responsive xe.
Detector				71 /		
Certified By: Md	tan!	Reviewe	ed By: (lomos (r-	Acent 1	Date: 1-17-2	25
Certification Date: 01/17/	05	-	Certification Due: 01/17/06			

	DITOICOLC	JOIND LINA	1 11 10	± +	TOUT	
	700	79				
	750	125				
	800	236				
	850	389				
	900	539				
	950	576				
	1000	665				
	1050	673				
	1100	689				
	1150	700				
	1200	644				
	1250	631				
	1300	721				
	1350	725				
	SOURCE	PLATEAU	CS-1	3/#	01945	55
	700	1127				
	750	1681				
	800	2321				
	850	2776				
	900	3097				
	950	3334				
	1000	3457				
ζ	1050	3427				
	1100	3252				
	1150	3285				
	1200 '	3228				
	1250	3778				
	1300	2871				
	1350	2998				

Clones & Sealt

L

DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D1 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 12:07:32.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE: _____

Comments:

95358. Model 2350 Serial # = User I.D. = High Voltage = 1050 volts. Threshold = 250. 1000,Off. Window = 40.0 micro amperes 12 seconds Overload Current = Scaler Count Time = R . Readout Units = hr Readout Time Base = Detector Colling = 1.7323 1.732369E-05. Detector Calibration Constant = 6.134582E+10 Detector Model = Detector Serial # = Detector Model = 44-10. PR192598. Ratemeter Alarm Setting =1.000000E+09Scaler Alarm Setting =1000000. Integrated Dose Alarm Setting = 1.000000E+09. Low Count Alarm Setting = X. Operating Battery Voltage = 5.6 volts.

Generated: 01/18/2005 12:11:23



SP1\$7 SAVE PARAMETERS AS D1

DET1



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CU	STOMER INFO	DRMAT	ION	DETEC	TOR INFORMA	TION	
Customer Name: Duratek Instrument Services				Manufacturer: Ludlum			
Address: 628 Gallaher Rd	Detector Model: 44-10						
Contact Name: Ihomas S	cott			Serial Number: 1	85852		
Customer Purchase	<u>., , </u>	Work O Number	rder : 2004-02479	Evaluation Method: Sou	irce		
	DETECTOR	CISION INFORM	ATION	an a			
1) Source Nuclide: Cs ¹³⁷	Serial Number:	019455	Activity: 5µCi	Activity: 5µCi Certification Date: N/.			
2) Source Nuclide: Cs ¹³⁷	Serial Number:	049711	Activity: Variable	Certi	fication Date: 04/09)/04	
Scaler Int	formation		Precision	Test	mR/Hr (Source #2)	
2350-1	#120636		Count	1	2.	04	
Due Date	01/17/06		Count	2	2.	03	
Ihreshold	T=250 (10n	aV)	Count	3	2.02		
Cable Length	5ft.		Average		2.03		
N/A	N/A		Tolerance ±10%		All counts within ±10% of Average		
N/A	N/A		Pass/Fail		Pass		
N/A	N/A				n an		
Low Sample Activity Using Source #2:	(400uR/hr): = 72.255	High S Usin	Sample Activity (2mR/hr) Dead Time (DT): ng Source #2 = 259.681 1.624356E-05		Calibration Constant (CC): 6.006612E+10		
ATTACI	IMENTS		DETECTOR DATA: DOSE		TE PROBES (mR/Hr)		
Detector Setup Report	YES 🗸 N	ю	Desired Exposure	Tolerance ±10%	As Found	As Left	
Barcode Report	YES 🗸 N	í O	0.400	0.360-0.440	0.403	0.407	
Voltage Plateau:	YES √ N	0	1	0.90-1.10	0.942	0.960	
High Voltage: 1000)V ·		2	1.8-2.2	1.99	2.03	
			COMMENTS			ne strang name en stander fan En sky ferste fan de strange	
**Detectors set un with	a 2350-1 may h	e used w	ith any 2350-1 provided	that the setup param	neters are scanne	ed into the	
2350-1 prior to use with	that specific de	etector**	• •	* *			
Calibrated with 5ft. Cable							
STATEMENT OF CERTIFICATION							
We Certify that the detector listed above was evaluated for proper operation prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for demand insurance during shipment or use of this detector)							
Detector				<u>, , , , , , , , , , , , , , , , , , , </u>			
Certified By: Mil	etan!	Reviewe	d By: (Ilomas (T-s	Scalt	Date: 1-17-	-15	
Certification Date: 01/17/	15		Certification Due: 01/17/06				

	700	320	
	750	458	
	800	562	
	850	618	
	900	628	
	950	634	
(1000	641)	
	1050	694	
	1100	691	
	1150	653	
	1200	758	
	1250	636	
	1300	908	
	1350	2933	
		ז מידות זרו	00 127#010455
	SOURCE	PLATEAU	CS-T2/#019400
	700	2250	
	750	2543	
	800	2797	
	850	2818	
	900	3323	
,	<u>950</u>		
(1000		

,00	2230	
750	2543	
800	2797	
850	2818	
900	3323	
950	32.65	
1000	3333)	
1050	3339	
1100	3341	
1150	3477	
1200	3368	
1250	3439	
1300	3527	
1350	4341	

Clomes & Sect 1.17.05

BACKGROUND PLATEAU 44-10#185852 5FT CABLE 01/17/2005
DETECTOR SETUP CHECK LIST REPORT The following list is stored as detector setup D1 in the Model 2350. Today's date is 01/18/2005. The current time of day is: 11:58:06.

I have verified the list below has NO discrepancies with the DETECTOR SETTINGS TABLE:

Comments:

Model 2350 Serial # = 120636. User I.D. = 1000 volts High Voltage = 250. Threshold = 100,Off. Window = 40 0 micro amperes 12 seconds Overload Current = Scaler Count Time = R. Readout Units = Readout Time Base = hr. auto. Readout Range Multiplier = Detector Dead Time = 1.624356E-05. Detector Calibration Constant = 6.006611E+10. Detector Model = 44-10. PR185852. Detector Serial # = Ratemeter Alarm Setting =1.000000E+09Scaler Alarm Setting =1000000 Integrated Dose Alarm Setting = 1.000000E+09. Low Count Alarm Setting = Χ., Operating Battery Voltage = 5.8 volts.

Generated: 01/18/2005 12:14:54

Model 2350 Serial #120636





W100\$WOFF\$P v: 100,OFF Set Window:

F12\$E Set Scaler Count Time: 12



*SB25 * Set Readout Time Base = hr



SL1_624356E-05\$Z Set Dead Time: 1.624356E-05

SC6.006611E+10\$K Set Calibration Constant: 6.006611E+10

M44-10\$K Set Detector Model: 44-10



NPR185852\$E Set Detector Serial #: PR185852

J1.000000E+09\$V Set Ratemeter Alarm: 1.000000E+09

K1000000\$H Set Scaler Alarm: 1000000

*P1.000000E+09\$ * Set Dose Alarm: 1.000000E+09



SP1\$7 SAVE PARAMETERS AS D1



T250\$W Set Threshold: 250



O400\$OOFF\$C Set Overload: 400,OFF



SU4\$F Set Readout Units = R



SM0\$3 Readout Range Multiplier = auto Set

DET1



×. 2

CALIBRATION CERTIFICATE

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

	1 mis Certificate with	ATION		TNS	TRUMENT INFORM	IATION				
	CUSTOMER INFORM	ATION		Monufacturer.	Ludium					
Customer Name:	Duratek Instrument Servi	ces		Model: 19	Serial Number: 87157					
Address: 628 Gal	laher Rd Kingston, TN 377	63		Probe: N/A	Serial Number: N/A					
Contact Name: I	homas F. Scott	- West Orde		Calibration Me	thod:					
Customer Purchas	se VA	Number: 20	»r 005-02479	Electro	nic And Source					
Order Number: N	/AINS'	TRUMENT CA	LIBRATIO	N INFORMAT	ION					
		Toloroncog	Inst	trument	Comments					
Range (µR/hr)	Calibration Standard Value	(µR/hr)	As Found (µR/hr)	As Left (µR/hr)	Calibrated in accordance with CP-IN-WI-211 Rev 1					
	4000 µR/hr	3600 - 4400	4000	4000	Pulser: 101500	Cal Due: 09/24/05				
5000 Black	2500 μ R /hr	2250 - 2750	2550	2550	D-812: 2816	Cal Due: 04/15/05				
	1000 μR/hr	900 - 1100	950	950	DVM: TW12663	Cal Due: 03/22/05				
	400 µR/hr	360 - 440	380	380	DIH-1A: 100799	Cal Due: 11/11/05				
500 Block	250 μR/hr	225 - 275	240	240						
Black	100 µR/hr	90 - 110	100	100	Temp: 22.8°C	Humidity: 20%				
	Input cpm = 40,600	180 - 220	200	200	Pressure: 758mmHg					
250 Dod	Input cpm = 24,400	108 - 132	120	120						
Keu	Input cpm = 10,200	45 - 55	50	50	Geotropism: SAI	Over Range: SAT				
	Input cpm = 8,130	36 - 44	40	40	Batteries: SAT	Mech. Zero: SAT				
50 Block	Input cpm = 5,080	22.5 - 27.5	24.5	24.5	F/S Response: SAI	Audio: SAI				
Diack	Input cpm = 1,980	9 - 11	10	10	Light: SAT	Precision Test: SAT				
	Input cpm = 4,060	18 - 22	20	20	Source: Cs-137 04971	1 Cert. Date: 04/09/04				
25 Bod	Input cpm = 2,440	10.8-13.2	12	12	High As Found: 700V	As Left: 700V				
Kcu	Input cpm = 1,020	4.5 - 5.5	5	5	cpm/µR/hr: As Foun	d:180 As Left: 203.2				
			COMMENI	"S						
		Special Remarks:	HV: 700Volt	s 203.2 cpm/µl	R/br					
a an an an air air an		CITE & THE REPORT	NT OF CFP	THICATION	New York Charles of Constants					
We Certify that the i	nstrument listed above was calibration Measurements are t	SIAIEWE ated and inspected prio	or to shipment as	nd that it met all the tandards and Techno	Manufacturers published oper ology (We are not responsible	ating specifications. We for damage incurred during				
shipment or use of th	nis instrument).		· · · · · ·	·····						
Instrument		D	Bun dia	An An	Date:	1-18-05				
Calibrated By:	Nulle and	Keviewed	by. Jum	Calibration I	Due: 01/18/06					
I Calibration Date	e: U1/10/U3									



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

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an a	STOMER INFORMAT	TON		INSTI	RUMENT INFORM	IATION				
Customer Name: Dura	tek Instrument Services	· · · · · · · · · · · · · · · · · · ·		Manufacturer: 1	udlum					
Address: 628 Gallaber	Road, Kingston, TN 37763	3	<u> </u>	Model: 177	Serial Number:	03275				
Contact Name: Thoma	s Scott			Probe: 44-9	Serial Number: 1	N/A				
Customer Purchase		Work O Number	rder : 2005-02479	Calibration Metho	ce					
Order Humber, 1978	INSTR	UMEN'	r calibratio	ON INFORMATIC	N.					
		<u></u>	Inst Re	rument	Con	nments				
Instrument Range	Calibration Standard	Value	Before Calibration	After Calibration	Calibrated in accor CP-IN-WI-223 Rev	rdance with 7 0				
V 1	100		100	100	Pulser: 101500	Cal Due: 09/24/05				
X 1	250		250	250	DVM: TW12663	Cal Due: 03/22/05				
X 1	400	<u></u>	390	390	D-812: 2816	Cal Due: 04/15/05				
X 10	1.000		1,000	1,000	DIH-1A: 100799	Cal Due: 11/11/05				
× 10	2,500		2,500	2,500						
X 10	4 000		3,900	3,900	Iemp: 22.8°C	Humidity: 20%				
X 10	10.000		10,000	10,000	Pressure: 758mm	Bg				
X 100	25.000	<u> </u>	25,000	25,000	Background: 40pr	n				
X 100		<u> </u>	39.000	39,000	Ihreshold: As Fo	und: 10mV				
X 100	100.000		100.000	100,000	As Le	ft: 35mV				
X 1000	258.000		250.000	250,000	HV (As found = 6	50V) (As left = $901V$)				
X 1000	400.000		390,000	390,000	BAI: SAI	Volume: SAT				
X 1000	400,000	formet	ion at a state	1 Constant of the part of the	Audio: SAT	Geotropism: SAT				
Instrument	Source Informati	on	Net Counts	Efficiency	F/S Resp: SAT	Alarm: SAT				
Range	To 00#110720 at 2.56	2dpm	290	11.3%	HV Test: SAT	Precision Test: SAT				
X 1 EFF	To 00#119718 at 20 5	20dpm	2,760	13.5%	Limited Use: X1k	scale for information				
X IU EFF	To 90#109408 at 259 5	18dpm	35,460	13.7%	only Use with 44	-9 probe				
A 100 EFF	11-77#107400 # 237,-	STATI	MENT OF CE	RTIFICATION						
We Certify that the instru We further certify that ou incurred during shipment	ment listed above was calibrate r Calibration Measurements are or use of this instrument).	d and insp traceable	ected prior to shipmo to the National Instit	ent and that it met all the tute of Standards and Te	Manufacturers published chnology (We are not res	operating specifications. ponsible for damage				
Instrument										
Calibrated By:	M. Paul'	Review	ved By:	omo (J. A	Date:	1-18-05				
Calibration Date: 01/	/18/05			Calibration Due:	01/18/06					



Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

Ihis Certificate will be accompanied by Calibration Charts or Readings where applicable

CHIS	TOMER INFORMAT	ION		INSTI	RUMENT INFORM	IATION
Customer Name: Durat	tek Instrument Services			Manufacturer: I	udlum	
Address: 628 Gallaher I	Road, Kingston, TN 37763	3		Model: 177	Serial Number:	124586
Contact Name: Thomas	Scott	· · · · ·		Probe: 44-9	Serial Number:	N/A
Customer Purchase		Work O Number	rder : 2005-02479	Calibration Metho	d: Electronic and Sour	ce
Citici I danisti I dani	INSTR	UMEN'	Г CALIBRATI	ON INFORMATIC)N	and the set of the set of the
		1999 (<u>1997)</u> 1999 (<u>1997)</u> 1999 (1997)	Inst Re	rument sponse	Cor	nments
Instrument Range	Calibration Standard	Value	Before Calibration	After Calibration	Calibrated in accord CP-IN-WI-223 Rev	rdance with v 0
X 1	100		100	100	Pulser: 101500	Cal Due: 09/24/05
X1	250		250	250	DVM: TW12663	Cal Due: 03/22/05
X 1	400		400	400	D-812: 2816	Cal Due: 04/15/05
X 10	1,000		1,000	1,000	DTH-1A: 100799	Cal Due: 11/11/05
X 10	2,500		2,500	2,500		
X 10	4,000		4,000	4,000	Temp: 22.8°C	Humidity: 20%
X 100	10,000		10,000	10,000	Pressure: 758mm	Hg
X 100	25,000		25,000	25,000	Background: 60pr	n
X 100	40,000	_	40,000	40,000	Threshold: As Fo	und: 35mV
X 1000	100,000		100,000	100,000	As Le	ft: 35mV
X 1000	250,000		250,000	250,000	HV (As found = 8	(As left = 900V)
X 1000	400,000		400,000	400,000	BAT: SAT	Volume: SAI
1.28 storemented	Efficiency I	nformati	on		Audio: SAI	Geotropism: SAI
Instrument	Source Information	<u>n</u>	Net Counts (cpm)	Efficiency	F/S Resp: SAT	Alarm: SAI
X 1 EFF	Tc-99#119720 at 2,56	2dpm	330	12.9%	HV Iest: SAI	Precision Test: SAT
X 10 EFF	Tc-99#119718 at 20,52	20dpm	2,840	13.8%	Limited Use: X1k	scale for information
X 100 EFF	Tc-99#109408 at 259,5	 18dpm	32,940	12.7%	only Use with 44	-9 probe.
		STATE	MENT OF CE	RTIFICATION	an an an Argenta Carlos an Argenta	
We Certify that the instrum We further certify that our incurred during shipment of	tent listed above was calibrated Calibration Measurements are r use of this instrument).	d and insp traceable	ected prior to shipme to the National Instit	nt and that it met all the ute of Standards and Teo	Manufacturers published chnology (We are not res	operating specifications. ponsible for damage
Instrument				~ 1		
Calibrated By:	N. Haul'	Review	ved By: Clern	nes 6. Aceu	Date:	1-18-05
Calibration Date: 01/1	8/05			Calibration Due:	01/18/06	



CALIBRATION CERTIFICATE

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

	Cueta	mer Information	kanakoz 1990k	ahat (S. E. S.			Instrument Informa	ution					
	D	net mont Corri	nes 1985	1990年1月1日日1月1日	Manufacturer:	Ludi	<u>um</u>						
Customer Name:	Duratek 1	LIVIngeton TN	37763		Model: 2929	Serial	Number: 152202	2					
Address: 628 Gal	laher Roa	d, Kingston, 11			Drobe: 43-10-1	Serial	Number: 144756						
Contact Name: T	homas F. S	Scott	Work Order		Calibration Met	hod:							
Customer Purchas	se N/A		Number: 20	05-02 <u>479</u>	Electronic And	Sourc	e	e a construinte anna e a anna an					
	C 1 (1534)	and the deal	INSTRUMEN	T CALIB	RATION INFORM	MATION							
M&TE		ID Numb	per	Calibra	tion Due Date		Environmen	tal Conditions					
Thermomete	r	2816		(04/15/05	Temp	erature (°C)						
Barometer		2816		()4/15/05	Press	ure (mmHg)	746					
DITUMO		100799	, , , , , , , , , , , , , , , , , , , ,	1	1/11/05	Humi	idity (%)	22%					
Dill-1A Dulse Constat	tor:	101500	<u>+</u>	(9/24/05								
T uise Generat		TW1266	53		09/24/05	Calib	rated in accordance	9 WILH CT-ILY- WI-4J4.					
		Source ID N	umber	Original	Activity (dpm)	So	urce Cert. Date	Decayed Activity (dpm)					
ть 230		119739			18,600	and sugarable	10/20/97	18,600					
<u>In</u>		019415	2		23.465		10/01/92	23,465					
		019413	,		13 613		06/01/92	13,613					
Pu		017442		OUENCY	CALIBRATION								
Desired (cpm)	Iolera	nces (cpm)	Alpha As Fo	und	Alpha As Left (cpm)		Beta As Found (cpm)	Beta As Left (cpm)					
40	<u></u>	40	(cpm)		40		40	40					
40	(30	12_408)	399		399		398	398					
400	(3.07	0 4 080)	3.988		3.988		3,981	3,981					
4,000	(3,32	V 40.9K)	39,987		39.907		39,836	39,836					
40,000	(39.2	V 409V)	399 187		399.187		398,264	398,264					
400,000	(392 3 Datas	IX-TUOIX)	Ainha As Fo	bau	Alpha As Lef	t State	Beta As Found	Beta As Left					
Backgroun		manon	4		<u>, es estri, • i cara trastan</u> 3	an a	998	856					
	шиз, Сь ————————————————————————————————————	(min)	20		20		20	20					
11me,	<u>1</u> b ((mm) (0.15		49.9	42.8					
Kate,	<u>ть (</u>	<u>(hm)</u>	STATE	EMENT O	F CERTIFICATI	ON							
We Certify that the specifications We responsible for dar	e instrumer further cer nage incur	t listed above was tify that our Calib red during shipme	s calibrated and oration Measure ont or use of this	l inspected ements are s instrume	prior to shipment a traceable to the National International Internationa	nd that tional I	it met all the Manufa nstitute of Standards	acturers published operating and Technology (We are not					
Instrument		_			- 7		1						
Calibrated By:	<u> </u>	HAuli'	Reviewed B	sy:(//	mas (r.A	tal	<u>Date:</u>	1-19-05					
Calibration Date:	01/19/05		<u></u>			LION D	40: 01/13/00						

Initials/Date: MP 1-	-19-05		A.c.T	eff Alpha Threshold (my)
As Foun	d Alpha Threshold (n	BV)		170	
	170		B 239	10//1	
n an an an an an an Alban an A Alban an Alban an Alb	Alpha S	ource: Cross Talk-	Performed using Pu	19442	Reta As Left
Paramter and Tolerance	Alpha As Four	ıd Alpha	As Left I	seta As Found	800
Source Count, C _s	25,397	26,	343	761	5
Time, T's (min)	5		5	5	D - 160
Rate, R _s (cpm)	$\mathbf{R}_{\mathbf{s}[\alpha]} = 5079.4$	$\mathbf{R}_{\mathbf{s}[\alpha]} =$	5268.6	$\mathbf{R}_{\mathbf{s}[\boldsymbol{\beta}]} = 152.2$	$\mathbf{R}_{\mathbf{s}[\boldsymbol{\beta}]} = 100$
EFF (% c/d) (>25%)	N/A	N	/A	N/A	INA
%Crosstalk [α to β] (< 10%)		H R	$\frac{\mathbf{R}_{\mathbf{s}[\boldsymbol{\beta}]} - \mathbf{R}_{\mathbf{b}[\boldsymbol{\beta}]}}{\mathbf{s}[\boldsymbol{\alpha}] - \mathbf{R}_{\mathbf{b}[\boldsymbol{\alpha}]}} = \frac{169 - \alpha}{5268.6}$	$\frac{42.8}{-0.15} = 2.22\%$	
As Found Bate Low The	esheld As Left]	Beta Low Threshold	As Found Beta High 7	Threshold As Left B	eta High Threshold
AS FOUND DELA LOW IM		4.3mv	47mv		47mv
4.3шү	Refa S	Source: Cross Talk	c-Performed using Tc ⁹⁹ 0	19418	
n	Ainha As Fou	nd Alpha	As Left	Beta As Found	Beta As Left
Paramter and Tolerance	1		8	16,474	24,401
Source Count, Cs	5		5	5	5
Time, 1 _s (min)	D -02		al 1.6	$R_{s[B]} = 3294.8$	$R_{s[\beta]} = 4880.2$
Rate, R _s (cpm)		اد م	N/A	N/A.	N/A
EFF (% c/d) (>10%)	IVA			<u> </u>	
%Crosstalk [β to α] (< 1%)		R _{s[i}] R _{s[b]}	$\frac{\alpha_{l}-R_{b}[\alpha]}{R_{b}[\beta]} = \frac{1}{4880}$	$\frac{6-0.13}{0.2-42.8} = 0.03\%$	
		HIGH VOL/	TAGE POWER		
Desired Voltage	Tolerance	DVM As Found	DVM As Left	2929 Meter As Found	2929 Meter As Left
600	540 - 660	550	550	600	600
800	720 - 880	756	756	800	800
1 000	900-1.100	969	969	1,000	1,000
1,000	1 080 - 1.320	1,176	1,176	1,200	1,200
1,200	1 1 70 - 1 430	1,281	1,281	1,300	1,300
1,300	1,170 1,170	As Found	Vern Dial Reading	As Left	Vern Dial Reading
High Vo	ltage	745V	3.50	850V	4.02
		STATEMENT O	FCERTIFICATION		ra published operating
We Certify that the instru- specifications. We further	ment listed above was certify that our Calibra curred during shipmen	calibrated and inspected p ation Measurements are t t or use of this instrumen	prior to shipment and that raceable to the National I t).	it met all the Manufacture astitute of Standards and T	echnology (We are not
Instrument	A Darly'	Reviewed By:	Tomo G. Acre	b Date: j-	19-05
	/ · · · · · · · · · · · ·				

CROSS TALK SHEET

Instrument ID: 152202

EFFICIENCY	SHEE I	
Initials/Date:	ND	1.19 55

,

Instrument ID: <u>152202</u>

<u> MP 1-19-0</u>		en og herrigerede og	As and as a set	As Leff	Alpha T	hreshold (n	1V)
As Found Al	pha Inreshold (my)		AND	ing the second from	<u>17</u>))	and in the first sector of the
an an ann ann an ann ann an ann ann ann	170	D 69 at an and d	starminad usir	or Th ²³⁰ #119	739	Tender van de kaarde Service en de kaarde de kaarde Service de kaarde de k	
	Alpha Source:	Linciency u	A a T off	Bet	a As Foll	nd	Beta As Left
Paramter and Iolerance	Alpha As Found	Alpha	As Lett		N/A		2.471
Source Count, Cs	N/A		,914	<u> </u>	N/A		5
Time, T _s (min)	N/A		5		N/A		
Rate, R _s (cpm)	$\mathbf{R}_{\mathbf{s}[\alpha]} = \mathbf{N}/\mathbf{A}$	$\mathbf{R}_{\mathbf{s}[\alpha]} =$	- 6182.8	F F	$R_{s[\beta]} = N/A$	·	$R_{s[\beta]} = 494.2$
EFF (% c/d) (>25%)	N/A	45	.4%		N/A		N/A
]	$R_{s[\beta]} - R_{b[\beta]}$	N/A		N T/ A	-
%Crosstalk [α to β] (< 10%)			$\frac{1}{R_{s[\alpha]}-R_{b[\alpha]}} =$	N/A	=	NA	
						As Left	Reta High Threshold
As Found Beta Low Thresho	old As Left Beta Low	Threshold	As Found B	eta Hign 1 n	resnutu		47mv
4.3mv	4.3mv			47mv	e na statistica da se su s	主治法法法规	471117
	Beta Source:	Efficiency	determined usi	ing Tc ²² #019	418	her der Schule der	nessenti de la constance de la
Paramter and Iolerance	Alpha As Found	Alpha	As Left	Be	ta As Fou	nd	Beta As Len
Source Count, Cs	1		8		16,474		24,401
Time, T _s (min)	5		5	5			5
Rate, R. (cpm)	$\mathbf{R}_{s[\alpha]}=0.2$	R _{s[0}	_d = 1.6	$\mathbf{R}_{\mathbf{s}[\beta]} = 329$.8	$R_{s[\beta]} = 4880.2$
EFF (% c/d) (>10%)	N/A	1	N/A		13.8%		20.6%
9/ Crosstolly [8 to g]			$R_{s[\alpha]} - R_{b[\alpha]}$	N/A	=	N/A	
(<1%)			$R_{s[\beta]} - R_{b[\beta]}$	N/A			
	STA'	TEMENT OF	CERTIFICA	TION		8.52	
We Certify that the instrument	listed above was calibrated a	ind inspected p	prior to shipmen	it and that it n	net all the	Manufactur	ers published operating
specifications. We further certif	fy that our Calibration Measu	urements are t	raceable to the I	National Instit	tute of Sta	ndards and	rechnology (we are not
responsible for damage incurrent	d during shipment or use of t	inis instrument	<u>. </u>			· · · · · · · · · · · · · · · · · · ·	
Instrument			r	The e	4	Date:	-19-05
Calibrated By: M .+	Auli Review	ved By: (10	nos (ibration Due	: 01/19/	<u></u>	
Calibration Date: 01/19/05		<u> </u>				 9	

Initials/Date: MP 1-19-05

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Instrument ID: <u>152202</u>

	SC	OURCE AND	BACKGROUI	ND PLATEAU	WORKSHEP	ζ T		an an de standarde Al de Canadard Santa Al de Canadard Santa
High Voltage	Backg	round	Alpha	Source	Beta S	Source	Cros	s Talk
	Alpha	Beta	Alpha	Beta	Alpha	Beta	α to β	βtoα
700	0	9	4194	245	0	1464	5.6%	0%
750	0	24	4961	138	1	3150	2.3%	0.03%
800	2	29	5169	129	0	3902	1.9%	-0.05%
850	0	64	5352	156	0	4955	1.7%	0%
900	0	59	5395	413	5	5964	6.6%	0.09%
950	1	78	5273	1996	3	6526	36.3%	0.03%
							· · · · · · · · · · · · · · · · · · ·	
			· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		
	- · · · ·							
		STA	FEMENT OF	CERTIFICAT	ION	in finer rengentin	States and	
We Certify that the instrument specifications. We further cert responsible for damage incurr	t listed above w ify that our Cal ed during shipt	as calibrated a libration Measument or use of t	nd inspected pr rements are tra his instrument).	ior to shipment ceable to the Na	and that it met ational Institute	all the Manufa e of Standards a	cturers publishe and Technology	ed operating (We are not
Instrument Calibrated By:	. Pauli	Review	ed By: <i>A</i>	mes t. +	Sent	Date:	1-19-0	,5
Calibration Date: 01/19/05				Calib	ration Due: (01/19/06		

Chi-Square Test

Duratek

MODEL 2929	Serial #	152202	Tc 99 - Source #09960	8 21,312 DPM
Background Cou	unts =	42.8 CPM		
Count Number (<u>N)</u>	Source Count (x)	<u>x-Mean</u>	(x-Mean) ²
	1	4879	66.65	4442.22
	1 2	4930	117.65	13841.52
	2	4779	-33,35	1112.22
	3	4761	-51.35	2636.82
	4	4854	41.65	1734.72
	5	4775	-37,35	1395.02
	0	4849	36.65	1343.22
	<i>I</i>	4776	-36,35	1321.32
	0	4811	-1.35	1.82
	9	4862	49.65	2465.12
· · · ·	10	4944	131.65	17331.72
	11	4847	34.65	1200.62
	12	4778	-34.35	1179.92
	13	4813	0.65	0.42
	14 15	4575	-237.35	56335.02
	10	4839	26.65	710.22
	10	4791	-21,35	455 82
	11	4756	-56.35	3175 32
	10	4927	114.65	13144.62
	19	4701	-111.35	12398.82
	20			
	Σ	= 96247	$(x-Mean)^2 =$	136226.55
	Mean	= 4812.35	Chi ² = 28.31	
	σ	= 84.67	2 0 = 169 349	5
	Reduce (Reduced	Chi Square= 1.489 Chi Pass/Fail= PASS	879 3σ= 254.02	
Performed	By/Date	MikeTan	L' / 1-19-05	
Reviewed	By/Date	alernos &= Ace	et 1 1-20-05	











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Chi-Square Test

Duratek

MODEL 2929	Serial #	152202	Th230	- Source #119706	21,240 DPM
Background Cour	nts =	0.15 CPM			
Count Number (N	D	Source Count (x)	<u>x-M</u>	ean_	<u>(x-Mean)²</u>
1		6555	-12	21.75	14823.06
2	,	6652	-2	24,75	612.56
2	-	6734	5	57.25	3277.56
4	Ĺ	6742	6	5.25	4257.56
F	<u></u>	6632	4	4.75	2002.56
e F	, i	6626	5	50,75	2575.56
7	-	6613	-6	3.75	4064.06
8	3	6626	-5	50.75	2575.56
ç	}	6764	8	37.25	7612.56
10	}	6607	-6	39.75	4865.06
11		6711	3	34.25	1173.06
12	, ,	6770	ç	3,25	8695.56
12	-	6787	11	0.25	12155.06
14	, L	6544	-13	32.75	17622.56
1-	5	6713	3	36.25	1314.06
16	\$	6761	8	34.25	7098.06
17	7	6816	13	39.25	19390.56
ر، 1۶	2	6556	-12	20.75	14580.56
10	, ,	6637	-3	39.75	1580.06
20	,)	6689		12.25	150.06
	Σ=	133535	(x-Me	ean) ² =	130425.75
	Mean =	6676.75	C	chi² = 19.53	
	σ=	82.85		2 0= 165.7047	
	Reduce Cl Reduced (hi Square= 1.028122 Chi Pass/Fail= PASS	2	3o= 248.56	
Performed E	By/Date _	NikePaul	/	1-19-05	
Reviewed B	y/Date <u>(</u>	Tames F. Aul		-20-05	







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Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 5.0 **Instrument Daily Response Test Records**

4/6/0-	Date: 1/ 1/05	SOURCE INFORMATION		FANP I/D No. 675/8	Certificate U/A	Nuclide	05 157	Activity in µCi Suc.	$\frac{f_{1}}{f_{1}}$	I I Connect				Performed by	See Note 1	Technician Printed & Initialed Date/	McLekela	m. h.s.	1/2/05 0805	Amo 4/1/05 1756	Mr6 0 1.11 4/8/05 0850	1 Mile IN 4/6/ 1830	Wildry # 4/6/05 Lach	LON 121. 1. 12/ 11 VOR			
ION FORM				et Counts	191	60	000	31	a Altitude		ed above.			: ;	ss Fail	Namo	1 50hn	2.2		vuo (TOMU	395	Salve				
CONTINUAT	in month	ANGES	, i i i i i i i i i i i i i i i i i i i	Plus 20 %N	1 032		121	6,9	Abnormal: ZS ft.	02-	istrument SNs list	ONSE		Position 3 © 18 Freese	a ro menes	iross Net Dunts CPM	1 812 mo	101 101	1125-201	237 5860 4	v 7435547 v	16315280 V	8535220 1		correct.	22/20-	
PONSE - EST (· · · · · · · · · · · · · · · · · · ·	NT RESPONSE R	Nat Counts		064	0.11		654		Date: 4/7/	guning, verify the II	TRUMENT RESP		Position 2 @ 6 Inches	CUBART A RAN	Gross Net C Counts CPM C	41529 36400 1°		4101356, 11	408(4 35437 11	41438-3610110	414243607314	41996 3636310		ked and are verified to be	c: 4/2/05	*/11/02
TECTOR RES		LE INSTRUME	Minus 20 %		689	62		7	nditions:	Ŕ	can). Prior to be	ACTUAL INS		Position 1 @ Contact		CPM CPM	18008/1175	8012/11 1142	Lungas / Lung	746878	MT1/994663	600 858248	874/834241		meters have been chec	Dat	
AMMA DE7 al Recept Resp		ACCEPTAF	Geometry		Position I @ Contact	Position 2 @ 6 Inches		Position 3 @ 18 Inches	Operating Co	2 m 2 m	a by KP Lechn			BKG CPM		Gross	129 869	369 86	0000	21/10 01	336 473	351.4 863	633,4839	C	Ane instrument para	4-0	ł
G onpleted at Int	CTOR				Cal Due Date	1-17-05		Cal Due Date	90-61-1	eviewed By:	To be complete	NOT CONTINUE.	at	e Gross BKG () Counts			25648 5	26848 5	1 25.896		2	261965	281675	And resident news	ICIAIN INUICARES INAL	kr:kan	
ION 1 (To be c	MENT & DETH	FORMATION			2350-1	95358		44-10	192598	SECTION LR		on is incorrect, DO	Cou	Tim Test Type (mir		Pre Post	7 2	5	V X			~ ^ /		this block the techn	MI 7 Reviews		
SECT	INSTRUM	4		-	Instrument Model Number	Instrument Serial Number	Detector Model	Number	Detector Serial Number			IF the above informati		Alarm Test		Sat/ Unsat	Sat	Six	4.5	414	12.	1.61	SWT	Komarks: NOTE 1: By initialing	SHCTIC		

PBRF-CS-011, Rev. 0

A-5

GAMMA DETECTOR RESPONSE TEST CONTINUATION FORM

SECTION 2 (To be completed by RP Technician).

Detector Serial # 192598 Source Serial # G-7318 20-11-05 Ř 4-12-05 1700 4-12-0 112/ 0730 4-13-0 4-10-0 145 1-1001 1-1200 013 1030 Date/ Time 30hu mas due Performed by Jon Call D. melee /2m D. Mr. Grefelm an lee ha See Note 1 Technician (Name Printed & Initialed) Om Ce (202 D. m. Cue / 2m ž D. milee / Dm Dincleer Oprilee & Tolerance Fail Pass 7 \geq 7 7 7 7 7 7 7 5676 Cal Due Date 1-17-06 Detector Model # 44-10 5521 5-757 5805 5589 5661 NOTE 1: By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct Net CPM 5701 5317 5616 Position 3 @ 18 inches 845871 41692 36356 11012 42235 36735 11305 11256 11169 11389 11512 10926 11279 Gross Cnts 382910 1080330 HIGH X252 11035 28653 156 31621 12010 120108 120108 3239 41826 3248 86 22.00 456614 41530 35935 34947 Net CPM Position 2 @ 6 inches Source Count Data 15/04 00224 P31248 288788 41994 HOSSE Gross Cnts 87/162 965662 881075 875508 857850 An CPM CPM Position 1 @ contact Instrument Serial # 95 358 821208 888-788 863459 100 2182 58 Gross Cnts 4 Time (min) Count 24 2694 500 A [< 2668 5336 28999 500 BKG CPM 28774 4753 27500 5500 20045 S609 4-29-215595 2 7888 5579 **Background Data** 14282 Instrument Model 2350-I 26681 Gross BKG Counts у, Count Time \mathcal{P} *1*0 5 **SECTION 2** 5 5 5 Ŷ Post 2 Test Type 7 7 - ----Pre 7 REMARKS: See! Alarm Test Sat/ Unsat الخ Safe 55 £ ž Ř

PBRF-CS-011, Rev. 0

Reviewed By:

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Date:

LMI 43-5 ALPHA SCINTILLAT, UNDETECTOR RESPONSE FORM

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SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: $\mathcal{AMMM}\mathcal{MM} = \frac{1}{2000}$

		<u> </u>	~		<u> </u>			=	9	8		6	9				-7	1
	ATION	55	0-199	130	07.0	CONTIN		by	at D	4	•	1/4	62					
	FORM	21	9.3	14				erformed See Note 1	ntcian	100 M 100	and a second	Set C	, ,					
ר	URCE IN	/ Serial No.	on Date		n dpm	icorrect. T		đ	Tech	m 440		NW 40						
1 4 0	SO	FANP ID	Certificat	Nuclide	Activity i	('S') ove is in		ncy	, ,	r v		3					1	
	ΓF	SFF	75		<u></u>	mation at		Efficie	EE	0.0		10.0						ect.
	EF	Net 1	0'0		Ĥ	the infor		olerance	Pail Pail							$\left \right $	مر ا	d to be corr
					titude	tbove. IF		lean Vot	arte Parte	200		42	 				4/2/0	l are verifie
1	UES	lus 10%	6.09		ΠV	listed a		2*	'Sŭ¤§	9 }	10/0	3 15			+		R.	ecked and
	CE VAI		126		tai	S nent SNs	19	Count 3 (SCR3)	SS Ne	4 93	14 2	5 83			2 2		50	ve been ch ate:
	ERAN				a Abnorm	Instruct	Count Da		Cğ ⊻at	493	Â	10			Ś	~	1/1	Dimeters ha
	OR TOI	us 10%	4.0,	nditions:	通びな	Date:	Source	Count 2 (SCR2)	oss CF N	88/ 188	tet	C2 186			¥/	R R	er /	ument par
	ETECT	Mìn	144	perating Cc	Normal Cable Len	einning,		1	Net G	81 180	6	335 18				240	5000	nat the instr
	DN D	Date	90	Date O	وو	lor to be		Count (SCRI)	Gross Cuts	989 19	939	937 19			/ · · ·	M	(// "	Midicates II
	RMATIC	Cal Due I	- 11 -	Cal Due I	1-18-	ician) Pr			BKG CPM	017 1	24	h		1			ryw	technicar
	LINFOI	5	se Se	У	80			ound Data	iross 8KG ounts	000	20 7 8	4		7			eomet	block, the 1 d By:
	ECTOF	2350	206	43-	273	ted by R		Backgro	C B C F B C	/ (20 20	0		\vdash			et ge	ialing this l Reviewed
	& DET				<u>~</u>	ed By: complet			t Tion	ŏ9	3	m	_				er di	L By initi ON 2 F
	IMENT	fodel No.	erial No.	del No.	ial No.	Review (To be		Fest Type	re Pos		1	<u>\</u>	-				hang	NOTE: SECTI
	NSTRU	strument N	strument S	tector Mo	stector Ser	TION 1 TION 2		larm Čest	lat/ nsat P	at	$\frac{1}{1}$	+	+				ARKS: CI	
		Ins	Ins	പ്	മ്	SEC SEC		4 m	ς Σ	N N	1	S .	1]		REM	

DD-CS-011, Rev. 0

B-1

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: $MMMCahuu - 4/\gamma/oS$

INSTRUMENT & DE	ETECTOR INFC	DRMATION	DETECTOR TOLERA	NCE VALUES	R.F.F.		NOTE & MOON
						SOUNCE IN	NUTIVIN
Instrument Model No.	2350-1	Cal Due Date	Minus 10%	Plus 10%	Net EFF	FANP ID / Serial No.	2 77 2
Tratement C - 1 MT							
instrument Serial No.	120636	90-11-1	787.3	(JNC /	0,052	Certification Date	9-20-1000
	1						1111-06-1
Detector Model No.	43-5	Cal Due Date	Operating Conditions:			Nuclide	71.1230
ć			Normal DAbio	rmai 🗆 🗆 Altitude	4	-	
Detector Serial No.	127389	1-18-06	Cable Length 25'			Activity in dpm	21 240
SECTION I Reviewed By			Date:				
SECTION 2 (To be comp	vieted by RP Tech	mician) Prior to	beginning, verify the Instru	ument SNs listed above TF	the information a	Morro in incoment D	
					ure muerination a	DOVE IS IIICOLLECI, D	J NUT CUNITNUE.

	=	·····		- 0		-	1				7	
		Date/	0/2/0	10,97,	afor Sec	4/8-0	4/5/6					
	Performed by See Note 1	Technician	John McGale	no P	Som miledie	JOMURA CLUC	Jain Wildere	har				
	Efficiency	BFF	0.152	2	0.050	2044	0,045				sct.	
	ince	Fail					*				e corre	
	Tolera	Pass	7		2	E.					fied to b	5
	Mean	Source Count Rate	160)		1069	935.7	949				ed and are veri	0/0/0
	nt 3 R3)	Net CPM	506		4[2	265	266			۶	en check	
t Data	Cou (SC	Gross Cnts	506		412	267	248			alulo	rs have be Date:	
rce Coun	nt 2 R2)	Net CPM	1338		09721	1991	1188			e Jun	paramete	
Sou	Cou (SC	Gross Cnts	1338	65	1261	1201	1190		1	Janeco	nstrument	
	nt 1 R1)	Net CPM	1447	4/8/	1531	1343	1393			Lom ¹	that the	
	Cou (SC	Gross Cnts	いよ	gn	1535	1345	1395				fi indicate	
	ata	BKG CPM	0.4	\$	ļ	2.2	د و		10.040	desteut	he technicia	ر ۲
	ground D	Gross BKG Counts	Ч	9	5,	11	×		10/1	0 0 000	his block, t wed By:_	
	Bacl	Count Time	300	404	300	300	300		1 . T. /	to ba	Jy initialing 1 2 Revie	
	Type	Post	7			7			10.40	have a	CTION	
	Test	Pre		1	7		7			- *	SES	
	Alarm Test	Sat/ Unsat	sat	5at	Jet	sut	sut			REMARKS:		

DD-CS-011, Rev. 0

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LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: MUI UNAMUU - 4/9/05

TRU	MENT &	DETEC	FOR INF	ORMAT	ION	DETEC	CTOR J	OLER	ANCE	VALUE	y		rer.					,
t M	odel No.	235	1-05	Cal Du	e Date		Minus 10%	~		Plus 1	%0		Net EFF	EAND	DURUE IN			
nt Se	rial No.	120	636	.1 - 1	1-06		6	8		151	14.7		200	Certifi	cation Date	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100	
Mod	el No.	4	5-5	Cal Du	e Date	Operating	Condition	ns:					6			-26-4		
Seria	I No.	11	2236	- 18	105	tr Normal	ength	u Abi	normal		Altítude	E		Activit	e vin dnm	501 2 1	2	
	Reviewed	By:						,						('S		4212	0.0	
N2	(To be co	mpleted b	y RP Tecl	hnician) l	Prior to b	eginnin	yerify	the Inst	trument	SNs list	ed above.	IF the	informatio	n above is	incorrect D			
							Sou	rce Count	t Data						1			
T	est Type	Bac	kground Dr	ita	Cour	nt 1 Rt)	Cour	11 2 2)	Cour (SCI	at 3 8)	Mean Net	Tolera	nce Ef	ficiency	Per	rformed by See Note 1		
Ŀ	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Gross Cuts	Net CPM	C Gross Cutts	CPM CPM	Gross Onts	Det Net	Source Count Rate				Techn	Ician	Date/	
<u>></u>		5	01	9	1430	1428	1407	401	1304	302	MUNUK				(Name Printed	& Initialed)	Time 4-4	۱
	7	5	m	0,6	1446	7441	14.7%	364	1747	4761	138%	2	<u>> c</u>	100	mones	un coelec	2-0-2	Ř
7		2	-	0.2	tosi	1500	1384 1	387	1239	1238	1021	• 7	5 <	220		And	4.10-4	۱
47	1	the stand	Н	0.8	1468	1467	Inhi	04/1	1268	1267	1201	7		24	R/ Michel	in and	1-11-0	لې
<u>د</u>		5	4	0,8	1460	pchi	464	163	र र	121	1378		50	765	And.		1450	15
	>	S	11	2.2	1427	schi	1409	107	23	1221	1351	. >	0	0(4	a meleral	we	272 	
																		、 、
					 												ſ	
	VOTE: 1. B	3y initialing	this block, the weed By:	ie technicia	n Indicates	that the ir	istrument	parameter	s have bee	an checked	and are ver	fied to be	correct.					
				X					_uate:	2	() /							

DD-CS-011, Rev. 0

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B-1

105 MB las 1655 Date/ Time 4/12 2 Performed by See Note 1 Source Serial # n. m. clee /2m Las Technician (Nune Printed & Initialed) Dh Ce Tolerance Fail Detector Serial # Pass 7 *2*23 *R*t Eff indipates that the instrument parameters have been checked and are verified to be correct. Mean Net Source Count Rate MNSCR 1349 BHS 8 1210 P 1236 Net CPM Detector Model # Count 3 (SCR3) 1237 Source Count Data Gross Crts 1444 1214 Date: 1417 Net CPM Count 2 (SCR2) 14 01 MOD 1413 Gross 1.381 1448 Cal Due Date CPM Count 1 (SCR1) 1385 Gross Cnts SECTION 2 (To be completed by RP Technician) NOTE: 1. By initialing this block, the technicial SECTION 2 Reviewed By: Count Time (min) BKG % % 5 Instrument Serial # **Background Data** 0 Gross BKG Counts ン Count Time h Å, Post Test Type Instrument Model Pre REMARKS: Alarm Test Sat/ Unsat Sat Set

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

DD-CS-011, Rev. 0

B-12

LMI 44-40 SHIELDED GM DETECTOR RESPONSE FORM

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SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: RMU MULLUM 4/6/05

										7		3	/			
ITSUI	RUMENT	& DET	ECTOR INF	ORMAT	ION	DETE	TOR T	OLER	ANCE V	/ALUE	5	E	FFF	SOURCE IN	FODMATIO	
Instrumer	nt Model No.		2350-1	Cal Due	e Date		Minus 10%		 	Plus 1()%	Zet	FFF	ANP ID / Serial No		
Instrumer	it Serial No.	_	95349	91-1	206	1	17.9			209	5.7		200	ertification Date	410 2	10
Detector 1	Model No.	7	oh ht	Cal Due	Date	Operating	Conditions					1	, , ,	-	1010	<u> </u>
Detector ?	Serial No.		ML646C	1-18-1	06	Cable I	ength 5		lormal	L	1 Altitude	Ĥ.	Z	uciide cfivity in dom	1010	~ ~
SECTION	1 Review	ved Rv [.]	11				4	9					S)		-1,501	5
SECTION	12 (To be	complet	ed by RP Tecl	Mician) P	rior to b	eginnin	g, verify 1	the list	No.	SNs liste	d above.	IF the info	rmation abo	ve is incorrect F	NO NOT CONT	
							Sourc	te Count	Data					T (100110011 01 01		
Alarm Test	Test Type	A).	Background Da	ta ta	Cour	at 1	Count	t 2	Count	t3	Mean				erformed by	
							(SCR2		(SCR:	<u>(</u>	Net	1 olerance	Efficienc		See Note 1	
Sat/ Unsat	Pre Po	Cour Tim (min)	nt Gross le BKG	BKG CPM	Gross Cnts	Net CPM	Gross	Net CPM	Gross Crits	Net	Source Count Rate	Date		Tech	nicran	Date/
Sat	7	29	161	382	(898	18598	1621	332.5	97216	733.8	908.8		0 08	A John Mill	d & Initialed) Gelace 4	
Sut 1	7	УV	168	33.6	1883	5481)964 1º	330	8621	828	698	<u> </u>		N NADE	1.6elica	12/0/2/
Sut		5	- 169	33,8	1859	1825	1955 1	126	925	198	668	7		Joh med	enec x	-20/2/
Set	7	Ś	202	40,4	2116	202	2012	471	1 46	933 (993	>	0000	3 Jahn M	Getur 4	and and
	`	, N	195	39	2023	1984	19861	341 2	208	979 1	968	>	0.09	Innal 2	Carce 4	ster.
Surt Surt	7	M	183	36.6	1983	1947	18081	8721	1 646	913 1	910		0.08	300 mg	Gener #	10.00
sat	7	<u>``</u>	151	30.2	1954	1924	12161	8822	1024	9999	935	7	0.09	Dunde 1	Icselver 4	
REMARKS:					0							-			tan 10	
	NOTE: SECTI	I. By mittic ON 2 R	aling this block, the eviewed By:	he techniciae	And Cates	that the i	istrument p	arameters	s have beer Date:	n checked	and are veri	fied to be cor	rect.			
				~ ~ ~	•				,	11		210				

DD-CS-011, Rev. 0

B-1

- AC

LMI 44-40 SHIELDED GM DETECTOR RESPONSE FORM

Source Serial # FD145 4/12/05 4-12.05 111-02 4-12-05 4-11-05 イン・0や 1030 Date/ Time Performed by See Note 1 m(7) O.mclee / Jm D millee / 2m D. Miles 62m D. milee let m D. m Ceelon Technician Name Printed & Initialed) D. miles Cal Due Date 1-18-66 Detector Model # 44-40 Detector Serial # 08497/ Tolerance Fail 7 1 600 Pass 7 7 7 7 IN PA 1 100% 1 BOD Eff log E 1973 1999-24 Mean Net Source Count Rate MNSCR 1957 1954 1907 1965 1291 10hD 6061 1933 1940 1971 1963 CPM Count 3 (SCR3) 1961 1968 1972 1939 1954 2005 979 Source Count Data 1976 Gross Crats 1963 1426 2054 2017 H161 1987 19 79 1944 1905 1869 1925 1889 469 CPM Count 2 (SCR2) 1993 2004 2003 1969 1988 1855 12005 Gross Cuts CPM CPM Count 1 (SCRI) 2025 Gross Cats 1691 Instrument Serial # 95349 SECTION 2 (To be completed by RP Technician) Count Time (min) 36.2 158 31,6 172 34.4 38.6 BKG 181 36.2 27 15 4 **Background Data** /8/ Gross BKG Counts 183 Count Time (min) 5 S 5 5 5 Instrument Model 2350-1 Post 7 Test Type 7 Pre REMARKS Alarm Test Sat/ Unsat Sat 597 Sct T K t s 547

DD-CS-011, Rev. 0

B-12

t.

Operation of the Ludlum Model 2929 Dual Channel Scaler DD-RP-049, Rev. 0

Framatome ANP, Inc. Federal D&D Services Procedure Manual

ATTACHMENT 6.1 PERFORMANCE DATA SHEET (example)

Ludlum Model	2929 Alpha/B	eta Counter	Background	Count Time	minutes
Sources Used:	4.0	a 119706	B099608	Source Coun	t Time min
Date	Source (PM 2C Check	Backg	.Pm ground	Performed by
	α	β	α	β	
4-6-05	6578	4645	0.3	51 -	Motor
4-7-05	6809	4916	0.1	57 1	March
4-8-05	6784	4915	0,3	54	march
4-9-05	6752	4833	0,1	52.5 1	Mygon
4-9-05	6788	4952	0.1	52 -	Masch
4-10-03	6827	4886	0.2	52	Mach
4/10/05			0.5	54	JRH
4/11/05	6800	4819	0.4	\$154	snert
4/11/05	6811	4903	0,3	52	Mr
4112/05	6766	4866	0,2	49	Mrs
4/12/05	6800	4907	0.7	54	MART
4/13/05	6824	4882	0.3	56	MAK
4/13/05	6802	4828	0.2	55	mar
4/14/05	6771	4928	0.2	52	Dm
41405	6750	4855	0.2	49	Mas
				-	
					••• • ·
	· · · ·	~ .			
					,
	~				
· · · ·	JIC.	1 11	1-	<u>_</u>	

* INGN INTERANTION PREVENTED SOMECE COUNTS BENG OBTAINED, DD-RP-049, Rev Oa doc Page 1 of 1

Page 1 of 1

A - 6572 to 6842 (6677 ± 20) B - 4643 to 4982 (4812 - 20)

APPENDIX A

Instrument Type / SN: # /9 BAILY INSTRUMENT CHECK sheet Instrument Type / SN: # /9 /9 /57 /57 Technician
 CK sheet
 M. TABER

 Technician:
 M. TABER

 Source Type / #:
 Cs ^{137 #} 1296118
Probe Type / SN: ~/A Cal Date: 1/18/05 Cal Due Date: 1/18/06 Source Activity: 5uli units:(dpm, mR/h, µR/h) Source Date/Time Cal BKG Check BKG Batt. Source Technician Remarks or Comments Sat/UnSat Check Check Check cpm / Sat/unsat Signature Adjustments, Corrective Actions, Sat/Unsat Sat/Unsat mR/hr cpm or mR/hr etc. SAT 547 SAT 4-6-05 370 SAT b March 1220 390 SAT SAS -7-05 545 SAT 390 545 SAT SAJ SAJ 7 SA7 KAT. SAT 300 9105 SAT SAT 4-12-05 SAT 7 400 SAT SAT mach 0810 MATT 4-13-05 SAT 7 SAT SAT SAT 480 0810 ia: mean = 6 upper = 4.7.2 lower = 4.8mean = 370 upper = 296 lower = 4.44+20% or +3 σ lower = 4444-20% or -3 σ **Response Check Criteria:** Background (BKG) -Source -

Velcro side down front of Lehcher A

DD-RP-010, Rev 0a doc

A CALL STREET

A-2

Reviewed by: 49 Date: 6/13/05

APPENDIX A

Instrument Type / SN: #177 124556	Iechnician: M. TABER
Probe Type / SN: 44-9/#134623	Source Type / #: 10 99 # 099608
Cal. Date: 1/18/05 Cal. Due Date: 1/18/06	Source Activity: $2/3/2$ DPm

Date/Time	Cał Check Sat/Unsat	Batt. Check Sat/Unsat	BKG Check cpm / mR/hr	BKG Sat/unsat	Source Check cpm or mR/hr	Source Sat/UnSat	Technician Signature	Remarks or Comments Adjustments, Corrective Actions, etc.
4-6-05	SAT-	SAT	50	547-	2500	SAT	Thread	
4-7-05	54-5-	SAT	70	547	2400	SAS	MATCH	
4-8-05	SAT	SAT	80	SAT	2700	SAT!	Wasse	
4-9-05	545	SAT	70	SAT	2400	545	Morigh-	
4-9-05	547	547	80	SAT	7600	<u>84</u> 7	JIfelt	·······
4-10-05	Str	SAJ	80	SAT	2500	sa s -	More	
4-11-05	SAT	Ar	80	A 5-	2500	545	Myra-	
4-12-05	847	545	80	SAT-	2500	SA	Myst	
4/13/05 0748	5A7	SAT.	70	AT	1600	SAT.	Stedelt	
								· · · · · · · · · · · · · · · · · · ·

ere: 17.

Response Check Criteria: ria: mean = $\frac{80}{2500}$ upper = $\frac{96}{1600}$ lower = $\frac{64}{-20\% \text{ or } -3\sigma}$ mean = $\frac{2500}{-20\% \text{ or } +3\sigma}$ upper = $\frac{3000}{+20\% \text{ or } +3\sigma}$ lower = $\frac{2000}{-20\% \text{ or } -3\sigma}$ Background (BKG) -Source -4th shelf on Model 180-2 (PR 089759) sample holder -sett (from bottom) P-010 Rev Da doc A-2 Date: 4/13/ DD-RP-010, Rev 0a doc

APPENDIX A

Instru	ment Typ	e / SN:	77 PAI	ILY IN: 327	STRUMEN	T CHE	CK sheet Technician: <u>M.</u>	TABER
Probe	Type/S]	N: <u>44</u> -	-9#0	837:	58-		Source Type / #:	TC 99 #
Cal D	vate: 1/1	8/05	_Cal Due I	Date: //	18/06	1	Source Activity: units:(dpm, mR/h, µR/h	21312
Date/Time	Cal Check Sat/Unsa	Batt. Check tt Sat/Unsat	BKG Check cpm / mR/hr	BKG Sat/unsat	Source Check cpm or mR/hr	Source Sat/UnSat	I echnician Signature	Remarks or Comments Adjustments, Corrective Actions etc.
46-05	\$17	547	50	547	2500	547	Month	· · · · · · · · · · · · · · · · · · ·
4-7-05	SAT	SAS	50	SAT	2500	SA-	Mont	
4-8-05	Ar	SAS	40	547	2500	SAT	Maria	
1905 DEDO	SAT	SAT	50	SAS	2400	SAT	White	
1-9-05 1750	SAT	SAT	50	547	2400	5A7	Jdi Hel-	
-10-05	SAT	SAT	50	SAT	2500	54-7-	Mart-	-
1/11/05 0740	SAT	JAT	40	547	2400	SAT	J.Hacket	
1-12-05 0745	SAT	SAS	50	SAT	2400	SAT	Mont	
113105	SAT	5AT	50	SAT	2500	SAT .	Julabet	
1/14/05	<u>541</u>	SAT.	40 (SAT	2400	SAT	Staket	
							······	

Response Check Criteria: $mean = 50 \quad upper = 60 \quad lower = 70$ $mean = 2500 \quad upper = 3000 \quad lower = 20\% \text{ or } -3\sigma$ $lower = 20\% \text{ or } -3\sigma$ $lower = 20\% \text{ or } -3\sigma$ Background (BKG) -Source -

4th shelf from bottom on Model 180-2 (PR 089759) sample holder - Jest Rev Oa.doc A-2 Reviewed by: 145 Date: 6/13/25

DD-RP-010, Rev 0a.doc
Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 6.0 **Instrument Check Source Calibration Certifications**

	;	<u> </u>	2		V 8.01E-U3		U 8.00E-U3
Activity	Calibration Certificatio	<u> </u> 	2	00.10	00,1.4	¥C ¥C	z 1,z4
	2-Pi Emission Pate (com)			10 500	222		0,000
2-pi emmission rate	Calibration Certification (cns)	NA		175	2	165	
	Calibration Certification (Boi)	NA		355		354	
	Calibration Certificate	not required		NIST		NIST	
Duratek	Cal Lab Serial Number	GTS10		099608		119706	
	Mfg. Serial Number	1296118		FD145		FS442	
	Dimensions	Button	47 mm	Diameter	47 mm	Diameter	
	Nuclide	Cs-137		Tc-99		Th-230	

Griffiss Project Check Sources Received 4/6/05

15 August 1996 Men/wo Page 1 of 2 pages, Issue 07/95

CERTIFICATE

No. 206427

for a Sealed Radioactive Source

4

Amersham Buchler GmbH & Co KG Gieselweg 1 D-38110 Braunschweig Postfach 11 49 D-38001 Braunschweig

Tei. (05307) 930-0 Fax (05307) 930-293 Fax-Zentrale 930-237



Source Type: Beta Wide Area Reference Source

Product CodeTCRX1896DrawingVZ-1368Dimensions of Active SurfaceØ 36 mmOverall DimensionsØ 47 mm x 3 mmSource NoFD 145NuclideTechnetium-99

Measurement Data

Activity Overall Uncertainty* Beta Surface Emission Rate Reference Date Traceability*

Leakage and Contamination Test(s)

Test Method(s)* Test(s) passed on

Additional Information

ISO Classification* Recommended Working Life* Remark 355 Bq
± 10 %
175 s⁻¹ ± 10 % in 2 π steradian
8 August 1996
Defined on page 2

\$999608

I + 14 August 1996

C 34645 10 years

* see page 2 for explanation

Amersham Buchler

(Production Manager)

Amersham Quality Assurance System Page 2 of 2 pages In Health Science Group Traue 01/96 The quality assurance system of Amerikam Buckler GubH & Co KO was certified by Lloyd's Register Quality Assorance (LRQA) according 10 130 9001, Junie 1994. Traceability Overall Uncertainty Ameraham Buchler OmbH & Co KO This product complies with the The declared appertainty U is an This certificate documents the tracerequirements for traceability to NIST has been accredited as DKD (Deutscher ability of measurement results to empanded uncertainty $\mathbf{U}=\mathbf{k}^{*}\mathbf{u}_{z}$ with zspecified in the American National Kalibrierdieast) calibration laboratory setional standards, standard measuring coverage factor of k = 3. The combined Standard Traceability of Radioactive equipment and methods for the resiby the Physikallich-Technische Bundesuncertainty us in the sum of all Sources to the NIST and Associated intion of physical unim of measurement ansuit (PTB) and is authorized to issue uncertainties which can be evaluated by Instrument Quality Control (ANSI according to the International System of reference sources which are unceshie to statistical means (sportulaty type A N42.22-1995)* pational standards held at the FIB in and all other uncertainties Unin (SD. Germany. (uncertainty type B, ug) whereby As a requirement of the ANSI N42.22-Tracasbilly is defined as 'the property u³ = u_A³ + u_S³ is (Ref: NIST Technical Note 1297 / 1995 Amerikan participates in the NEU Because of the Europeas Cooperados of a result of a measurement whereby it NIST Messurements Assurance for Accreditation of Laboratorica can be related to appropriate standarda, Program of the Nuclear Power Industry WECC-Doc. 19-1990) (EAL) mutual recognition agreement generally interactional or automaistanthe sertificates are also accepted by all dards, through an unbroken chain of EAL members (a g NAMAS, UK) comparisons' Laskage and Contamination Tests Suringent term for leakage are an essential feature of radioactive sources production. They are based on ISO 9978. Some standard methods used for testing radiation woled botel one monitor Emanation Test IV Bubble Test III Immeralog Test II Wipe Test I

moistcard with sthand or water, the liquid at 50 °C for 4 hours and the suitable liquid and the pressure in the activity removed is measured. Linic 185 Ba

activity removed is measured. Limin 185 Bq.

The source lawiped with a swab or time. The source is immersed in a suitable. The source is immersed in water or a voted reduced to 13 kPs (100 mm Hz). No bubbles must be observed. (This test coaforms to ISC) 9978 except that for some sources, the 100 mm³ free volume requirement is not stat.)

The source is placed in a gas tight enclosure with aduvated carbon 24 absorber and is left there for at least 3 h. The source is considered least tight when aot more than 185 Bq Rados related to a collection time of 12 h can be measured afterwards.

ISO Classification

The International Organization for Standardization (ISO) has proposed a system of classification of sealed radioactive sources based on safety requirements for typical uses (see 150 2919), This system provides a manufacturer of sealed radioaccive sources with a set of uses to evaluate the safety of his products. It also assists a user of such sealed sources to select types which suit the application be has in mind. The tests to which specimen sources are subjected are listed in the following table

Classification of scaled source performance standards according to ISO 2919

Teaz	Case	2	3	4	5	6
Tesperature	אפט סא	- 40 ℃ (Zi min) - 60 ℃ (18)	40 °C (20min.) → 180 °C (1 b)	د منع 20 °C (20 منه) + 400 °C (15) me نکمتها المحط 400 °C (25 °C	(北田 (王) プ (2) + 600 で (12) 300 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	- 49 °C (Dein) + 800 °C (16) دمان فحساء المصلا 200 °C الم D °C
Exernel	No unit	25 kPs simplute	25 the absolute to 2 MPs absolute	25 LP2 absolute to 7 bCP3 absolute	25 LPs shealure to 70 MPs sheatur	25 kPs sensitive to 170 MPs attociute
	Notes	So g (rom 1 m	200 ; from 1 m	213 (run 1 m	Styfrom 1 m	2011(10413
Vibratios	Мо сана	3 z 10 cún 25 Hz 10 303 Hz 11 5 g part emplicade	3 x 10 min 3 X 10 min 3 Yea as 30 Hea as 3 y perk amplitude and 30 Hz as 90 Hz as 0 431 mm amplitude perk to penk and 90 Hz as 300 Hz as 10 y penk penyfitude) r. 30 min 25 Ha to 20 Ha sa 15 mm scopilaria pert to pert and 30 Ha to 2000 Ha sa 32 pert resplaces		
		t c from 1 th	19 g from 1 as	jog grown i an	200 E from 1 m	11;from 1m

Special Applications

No last programme can cover all possible combinations of savironments to which a source may be exposed.

Users should therefore consult our exparts before using sources in potentially adverse anvironments.

• • • • • • • •

• ----

LAEA Special Form

Special Form is a past specification for sealed sources gives in the LAEA trans-Libbeling in more (LAFA Safaty Sarias No. 5. 1985 revised

divian)

It is used in determining the maximum acceptable activities for various sypes of masiport costalizara

Recommended Working Life

The 'recommended working life' is our recommendation of the period within which the source should be replaced. The period gives has been assessed on the basis of such factors as, insicily of auclide, mtal laitial activity, murce construction (e.g. capsule design. source lasers type, atc.), typical application environments, operational esperiezos, unt performance data, etc.

The usage of a source is, however, quite often limited by the half-life of the audide.

Adverse ravironments sould affect the appearance and integrity of a source. It is the user's responsibility to regularly inspect and test the source in order to answe at what point during the "rotommanded working life" the source should be replaced.

12100

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• 70.

35:4P ЪM

96 '90 '10

CERTIFICATE



No. 363229 for a Sealed Radioactive Source D-38110 Braunschweig Postfach 11 49 D-38001 Braunschweig

Tel. (05307) 930-0 Fax (05307) 930-293 Fax-Zentrale 930-237



Source Type: Alpha Wide Area Reference Source

Product CodeTZRX1922DrawingVZ-1368Dimensions of Active SurfaceØ 36 mmOverall DimensionsØ 47 mm x 3 mmSource No.FS 442NuclideThorium-230

Measurement Data

Activity Overall Uncertainty* Alpha Surface Emission Rate Reference Date Traceability*

Leakage and Contamination Test(s)

Test Method(s)* Test(s) passed on

Additional Information

ISO Classification* Recommended Working Life* Remark 354 Bq ± 10 % 165 s⁻¹± 5 % in 2π steradian 30 September 1997 Defined on page 2

I 13 October 1997

C 34645 10 years

* see page 2 for explanation

Amersham Buchler

i.A. Pet

(Production Manager)

Amersham Buchler GmbH & Co KG Sitz Braunschweig, Registergericht Braunschweig, HRA 8621 Persönlich haftende Gesellschafterin: Amersham Buchler GmbH Sitz Braunschweig, Registergericht Braunschweig HRB 638

Geschäftsführer: Dr Anthony J D'Eustachio Vorsitzender des Aufsichtsrates: Wolfgang Büsselberg

Deutsche Bank AG Braunschweig BLZ 270 700 30, Konto 0168815 Postgiroamt Hannover BLZ 250 100 30, Konto 3133 30-300 Page 2 of 2 pages Issue 01/96

Quality Assurance System

The quality assurance system of Amerikam Buckler OutbH & Co KO was cartified by Lloyd's Register Quality Assorance (LRQA) according to [SO 900], Janua 1994.



mersham be Health Science Group

Overall Uncertainty

The declared excertainty U is an expended uncertainty U = k * n with a coverage factor of k = 3. The combined uscertalaty us is the sum of all uncertaindes which can be evaluated by maindeal means (uncertainty type A und all other uncertainties (uncertainty type B, ug) whereby u³ = u³ + u³ + u³ in (Ref: NIST Technical Nom 1297 / WECC-Doc 19-1990)

This certificate documents the trace-

Traceability

ability of measurement results to netional standarda, standard measuring equipment and methods for the realinsticat of physical naim of measurement according to the International System of Unin (SD.

Tracarbilly is defined as the property of a result of a measurement whereby it can be related to appropriate standards, generally international or national standards, through an unbrokan cheln of comparisons.

has been accredited as DKD (Deutscher Kalibrierdienst) calibration laboratore by the Physikalisch-Technische Bundesassult (PTB) and is authorized to issue reference sources which are traceable to national standards held at the FIB in Germany

Because of the European Cooperation for Accreditation of Laboratories (EAL) mutual recognition agreement the destificates are also accepted by all EAL members (z 5 NAMAS, UK)

volume requirement is not met.)

Amerikam Buchler OmbH & Co KO This product complies with the requirements for traceability to NIST specified in the American National Standard Traceability of Radioactive Sources to the NIST and Associated Insuranest Quality Control (ANSI X42.22-1995)*.

> As a requirement of the ANSI N42.22-1995 Amerikan participates in the NEU NIST Measurements Assurance Program of the Nuclear Power Industry

measured afterwards.

Laskage and Contamination Tests

Suringent trats for leakage are an essential feature of radioactive sources production. They are based on ISO 9978. Some standard methods used for testing radiation sources are listed below.

Wipe Test I	Immension Test II	Bubble Test III	Emanation Test IV
The source is wiped with a reaber tissue, moistened with sthanol or water, the activity removed is measured. Limit: 185 Eq.	The source is lamersed in a suitable liquid at 50 ∞ for 4 bours and the activity removed is measured. Limit 185 Bq.	The source is immersed in water or a suitable liquid and the pressure in the vessel reduced to 13 kPs (100 mm Hg). No bubbles must be observed. (This test conforms to LSC 9978 except that (or some sources, the 100 mm ² free	The source is placed in a gas tight enclosure with activated carbon as absorber and is left there for at least 3 b. Theseurce is considered leak tight when not more than 185 Bq. Radon related to a collection time of 12 h can be

ISO Classification

The International Organization for Standardization (ISO) has proposed a system of classification of scaled radioactive sources based on safety requirements for typical uses (see ISO 2919). This system provides a manufacturer of sealed redioactive sources with a set of teru to evaluate the tafety of his products. It also assists a user of such seried sources to select types which suit the application he has in mind. The test to which specimen sources are subjected are listed in the following table.

Classification of sealed source performance standards according to ISO 2919

Tex	Cus 1	. 2	3	•	S	6
Tragersum	Na uast	- 40 ℃ (25 min) • 60 ℃ (1 t)	- 40 ℃ (20min) - 196 ℃ (1 b)	- ۲۵ ۲ (۵۵ میله) + ۲۵۵ ۲ (۱۶) ۲۳۶ که میله کمی ۲۰۰۰ ۲ ۲ ۲ ۲	(内田田) (12 日本) + 600 で (15) かか Ibernal sboot 600 で 単 30 で	49°C (20 ± in) + 500°C (15) und the mai short 200°C in 20°C
Example Present	No see	25 kPa zimolute	25 kPa sheciute to 2 MPa absolute	25 LPs sheriviz to 7 MPs abaritie	25 UPs shoolinte to 70 MPs shoolinte	25 t.Fz atmotive to 170 MPs absolute
(aper	No case	Só g from 1 m	200 g from 1 m 1	2 tg (rom 1 m	Sişíran in	Digimela
Vibration	No tak) x 10 min 25 Hz to 500 Hs at 5 g peak amplitude	3 x 10 min 25 He as 50 He as 5 y perch scriptionies and 50 He to 90 He as 0,615 mp zer poincie perch to perch and 90 He or 500 He at 10 perch at perch at perch	J z 30 mia 25 Hz to 20 Hz 21 15 mm serpitoria jank to park 244 20 Hz to 2020 Hz 24 20 jank mapitunia		
Pungura	No unit	lgfrom 1 th	19 g from 1 m	Sogiroes 1 ze	300 g franz 1 as	ilgirocia

Special Applications

No test programme can cover all possible combinations of savironments to which a source may be exposed.

Users should therefore mosult our experts before using sources in pountially adverse anyironment.

IAEA Special Form

sealed sources gives in the IAEA transport regulations. (LAEA Safety Series No. 6. 1985 revised

edition)

It is used in determining the maximum acceptable activities for various types of TREEDOR COLUMNER.

Recommended Working Life

Special Form is a met specification for The 'recommanded working life' is out recommendation of the period within which the source should be replaced. The period gives has been assessed on the basis of such factors as, mainly of auclide, mtal initial activity, source construction (a.g. espaule design. source lasert type, etc.), typical application environments, operational experience, best performance data, etc.

The usage of a source is, however, quite often limited by the half-life of the gyclide.

Advente environments souid affect the appearance and integrity of a source. It where or willdimore repairing inspect and test the source in order to asses at what point during the "roommanded working life" the source should be replaced.

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 7.0 Survey Package F1000 401B1 **Background Reference Area**

1/21/2205		Rome No	ew York		
1/21/2005			· -		Page 1 of 15
		Survey Packag	e Cover Sl	neet	
Survey Packag	e Number:	F1000 401B1	Pa	ackage Type:	System
Survey Area N	ame:	Background Referen	nce Area		
Survey Unit Na	ame:	Drain Section(s) Up	stream from E	Building 104 Opera	tions
Survey Packag	e Preparati	ion:			
The survey pack	kage instruct	tions are prepared and	l ready for imp	olementation	
Prepared By:	John MeGehee	Senior Engineer	hw	Date:	3/11/05
Reviewed By:	Don McGee S	mb-		Date:	3/28/05
Approved By:	Greg Courtiey	Sepior Engineer, CHP		Date:	3/20/05
Survey Comple	etion:				
The survey pack reviewed for con collected has be instructions. Reviewed By:	tage instruct mpleteness i en reviewed	tions were implement in accordance with the for completeness in a <u>MMDE</u> Senior Engineer	ed and the sur e Sample and accordance wi	vey measurements Analysis Plan. The th the survey packa	have been $\frac{1}{2}$ data $\frac{1}{2}$ $\frac{1}{2}$
Reviewed By:	Δ	man		Date:	6/9/05

Reviewed By:

Greg Courtney, Senior Engineer, CHP

Approved By:

PARSONS Repersentative

Don McGee, Senior Engineer

05

6,

_____ Date:

Date:

Rome New York

1/21/2005			Page 2 of 15
	Table of Con	tents	
Survey Package Number	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference A	area	
Survey Unit Name: Drain Section(s) Upstream from Building 104 Operation		tions	
Section Title		Page	
1.0 Survey Area His	story	3	
2.0 Survey Unit Des	cription and History	4	
3.0 References		5	
4.0 Safety		6	
5.0 Support		7	
6.0 Procedures		8	
7.0 General Survey	Package Instruction	9	
8.0 Specific Survey	Package Instruction	11	
9.0 Location Codes		13	
10.0 Appendix A, Dra	wings		
11.0 Appendix B, Pho	otographs		
12.0 Appendix C, Sur	vey Results		

Rome New York

1/21/2005

Page 3 of 15

Survey Area History

Survey Package Number:	F1000 401B1	Package Type:	System	
Survey Area Name:	Background Reference Area			
Survey Unit Name:	Drain Section(s) Upstream from Building 104 Operations			

Survey Area Description:

A non-impacted portion of the storm drain and sanitary sewer systems or other appropriate reference area

Survey Area History Information:

The survey team will conduct a background study to determine environmental nuclide concentrations and direct measurement levels from areas similar but not associated with the subject storm drain and sanitary sewer systems downstream from the former Radium Paint Shop, Building 104 operations. The local background determination will serve as the baseline for evaluating survey measurement results and survey reference values. Because the background study results will be used in the evaluation of the onsite survey data, measurements, sampling, sample preparation, and sample analysis will be similar to those to be used for the onsite measurements.

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1/21/2005			Page 4 of 15
· · · · · · · · · · · · · · · · · · ·	Survey Unit I	Description and History	
Survey Package	Number: F1000 401B	1 Package Type:	System
LC1: F1000	Survey Area Name:	Background Reference Area	
LC2: 401B1	Survey Unit Name:	Drain Section(s) Upstream from Build Operations	ing 104

LC3 - Surface Category (P1-3) and Associated Area:

LC3_P1_3	Surface Description Di (Y	mensions 7 es or No) /	'otal Area (m2)
DM1	Storm Drain	No	0
DS1	Sewer Drain	No	0

Work Breakdown Structure Information:

WBS ID: 10001 PA/SI Background Study

Survey Unit Description:

Background study survey unit unaffected by Building 104 operations

Survey Unit Historical Information: Operational History, etc.

The background study survey unit will be within storm drain and sanitary sewer lines which have common characteristics with the samples to be collected from the impacted sewer and storm drain lines and outfall to Three Mile Creek but which are unaffected by Building 104 operations.

Additional Information Regarding Survey Unit Classification:

No
No
No

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1/21/2005

Page 5 of 15

Survey Package References

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	m Building 104 Operations	\$

References:

- 1. Sample and Analysis Plan for the Griffiss AFB PA/SI Survey, Rev 0, August 2004, Framatome ANP
- 2. Site Safety and Health Plan for the Griffiss AFB PA/SI Survey, August 2004, Framatome ANP
- 3. Quality Assurance Project Plan for the Griffiss AFB PA/SI Survey, Rev 0, July 2004, Framatome ANP
- 4. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), EPA402-R-97-016 (NUREG-1575), August 2000

Rome New York

1/21/2005

Page 6 of 15

Survey Safety Requirements

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	m Building 104 Operations	1

Safety Requirement and Considerations:

- 1. During the daily meetings, the team will be briefed concerning on the planned activities and any anticipated hazards due to site investigation activities as presented in the Site Safety and Health Plan, Job Safety Analysis
- 2. During the daily meetings, the team will be briefed concerning necessary precautions to minimize exposure to potential and identified hazards as presented in the Site Safety and Health Plan, Job Safety Analysis.
- 3. Conduct and document daily tailgate safety meetings as required in the Site Safety and Health Plan.

Rome New York

1/21/2005

Page 7 of 15

Survey Support Requirements

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	Building 104 Operations	

Survey Support Requirements and Considerations:

- 1. Project Team to provide support for opening and closing systems (manhole covers) to facilitate survey.
- 2. Health and Safety to review requirements for Confined Space Entry.

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1/21/	2005			Page 8 of 15
		Survey Package	Procedures	
Sur Sur	vey Package Nun vey Area Name:	ber: F1000 401B1 Background Referenc	Package Type: e Area	System
Sur	vey Unit Name:	Drain Section(s) Upst	ream from Building 104 Operati	ions
Sui	vey Package Proc	cedures:		
1.	DD-CS-001	Sample Identification and	Chain of Custody	
2.	DD-CS-011	Operation of Ludlum Mod	el 2350 Data Logger	
3.	DD-RP-010	Portable Instrument Procee	lure	
4.	DD-RP-011	Receipt and Handling of R	adioactive Material and Equip	
5.	DD-RP-039	Quality Control of Countin	g Systems and Portable Counte	rs
6.	DD-RP-049	Operation of the Ludlum M	Iodel 2929	
7.	DD-WM-003	Packaging and Shipment o Material Samples	f Limited Quantity Radioactive	

Rome New York

1/21/2005			Page 9 of 15
Ge	neral Survey Pack	age Instructions	
Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference	Area	
Survey Unit Name:	Drain Section(s) Upstr	eam from Building 104 Operat	tions
1 The primary Data (PA/SI survey is to p of the storm drain a	Quality Objective (DQO) perform measurements an nd sanitary sewer system	of the Background Study port ad collect samples in a non-imp as	ion of the pacted portion
The Background St determine the natur construction of the sediments and soils subject of the PA/S	udy measurements and s al background radioactiv storm drain and sanitary of the environs surround I survey	amples will be of sufficient qu vity associated with the materia sewer systems and Ra-226 pre ling or associated with the imp	antity to ils of esent in the pacted systems
2. If materials that are stop work, report th note this in the "Fie	potentially hazardous m e location of the materia ld Notes" section	aterials are encountered during I to Supervisory personnel and	the survey, SHSO and
Supervisory person appropriate remedy	nel and SHSO will evalu	ate the condition and develop	and
3. Entry into confined sampling will be per	spaces will not be requir formed utilizing long re	ed for the survey Measuremer aching poles from above the m	nts and anhole.
 Sediment samples as bottom of the system the survey sample lo 	nd/or scraping samples w a piping and manhole loc ocations as applicable	vill be collected from the sides cation. The project team will m	and/oi iark or map
 The samples will be custody forms and s E-Lab for analysis 	packaged and field scree ample shipping paperwo	ened by the project team person rk completed, and sent to the c	nnel, chain of offsite FANP
6. Perform a pre-use sc applicable operation	surce check and a post-us procedure for each day	se source check in accordance an instrument is used for the su	with the nvey
7. The measurement an Code section are the and samples may be	d sample quantities pres minimum requirements collected as needed to ad	cribed in the Survey Package I for this survey Additional mea chieve survey objectives.	Location
 All samples are to be of shift at a minimur Measurement Databa 	e logged into the Sample n. The M2350 data logge ase at completion of surv	Database at completion of sur- er(s) are to be downloaded into ey or at end of shift at a minim	vey or at end the num.
0 When all annual as	11		15.1

9 When all samples or measurements are collected, initial and date the "Collected By" block on the Survey Package Location Code sheet to indicate the measurements or samples were collected.

Rome New York

1/21/2005			Page 10 of 15
Ge	neral Survey Pac	kage Instructions	
Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference	e Area	
Survey Unit Name:	Drain Section(s) Upstr	ream from Building 104 Opera	ations

- 10. Note any problems, comments, or other information pertinent to the data or sample collection under the "FIELD NOTES" section.
- 11. Place survey data, measurement and sample analysis reports, drawings, etc., in the appropriate section of Appendix C, Survey Results, as they are generated and approved.
- 12. Supervisory personnel will review the completed survey packages to ensure that all required surveys have been performed and that the completed survey packages contain all necessary information.

Rome New York

4/10/2005

Page 11 of 15

Specific Survey Package Instructions

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	Building 104 Operations	

1 Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement) or LC4_P5 as "A" for Average Background (applied to measurements).

2. Direct Beta

Collect a single shielded background at each of the direct beta measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "A" for Average Background (for measurements)

3. Direct Alpha

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement) or LC4_P5 as "A" for Average Background (applied to measurements).

4 Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "A" for Average Background (for measurements).

5. Gamma Contact

Collect a contact gamma measurement at each of the direct beta measurement locations

Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count.

Rome New York

1/21/2005

Page 11 of 15

Specific Survey Package Instructions

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	n Building 104 Operations	

1. Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement).

2. Direct Beta

Collect a single shielded background at each of the direct beta measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

3. Direct Alpha

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2850 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement).

4 Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

5 Gamma Contact

Collect a contact gamma measurement at each of the direct beta measurement locations.

Use LMI Model 44-10, the M2350 in the scaler mode with a 15 second count time and code the measurement LC4_P4 as "F," for Field Count

6. Gamma 1 M

Collect a gamma measurement at 1 meter distance above ground and above the surveyed manhole.

Exposure rate measurements are outside manhole and are for information only. Use LMI Model 44-10, the M2350 in the scaler mode with a 15 second count time and code the measurement LC4_P4 as "F," for Field Count.

Sec Revision 4/10/05 AM

SDMS Documentation Version 1 0

Rome New York

4/10/2005	
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Page 12 of 15

Specific Survey Package Instructions

Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference Area		
Survey Unit Name:	Drain Section(s) Upstream from	Building 104 Operations	

6. Gamma 1 M

Collect a gamma measurement at 1 meter distance above ground and above the surveyed manhole.

Exposure rate measurements are outside manhole and are for information only. Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count.

7. A/B Smear

Smear samples for removable alpha and beta contamination will be collected at each of the locations where direct measurements were performed.

The smear samples will be collected by attaching the cloth smear to a long reaching, manually positioned pole, applying moderate pressure and wiping approximately 100 cm2 area for the sample or by alternate methods including utilization of remote visual inspection equipment. Also, collect residues on smears from cable when extracted from sewer for alpha and beta counting. Collecting smears every 100 feet of cable extracted from the storm drain system may give an indication of contaminate location.

8. G-Spec Sample

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis.

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

9. G-Spec Sample

If an amount to produce 5 to 10 g Soil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 7 is completed.

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Spe	cific Survey Pack	age Instructions	
Survey Package Number:	F1000 401B1	Package Type:	System
Survey Area Name:	Background Reference	e Area	
Survey Unit Name:	Drain Section(s) Upstr	eam from Building 104 Operat	tions

7. G-Spec Sample

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

8. G-Spec Sample

If an amount to produce 5 to Ng goil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 7 is completed.

See Revision 4/10/05 Jun

SDMS Documentation Version 1 0

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Page 13 of 15

Survey	Survey Package Number: F1000 401			Package Type	System
LC1: F	1000	Survey Area Nam	e: Ba	Background Reference Area	
LC2: 401B1 Survey Unit Name:		e: D 0	Drain Section(s) Upstream from Building 104 Operations		
		Class Description	: N	Ion-Impacted System	
		Reason Description	: В	31 Background Survey	
LC3 -Su	rface C	Category P1-3: D	M 1	Storm Drain	
LC3_P	15 Ma	aterial Description			
LC3_P/ V2	45 Ma Vitrif	aterial Description ied Clay Pipe			
LC3_P/ V2 S1	15 M a Vitrif Soil	aterial Description ied Clay Pipe			
LC3_P/ V2 S1 R1	45 Ma Vitrif Soil Sedin	aterial Description ied Clay Pipe ment			
LC3_P/ V2 S1 R1 G1	45 Ma Vitrif Soil Sedin Misce	aterial Description ied Clay Pipe nent ellaneous Material			
LC3_P/ V2 S1 R1 G1 C1	45 Ma Vitrif Soil Sedin Misce Conce	aterial Description Ted Clay Pipe ment ellaneous Material rete (Bare)			

LC4_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

Measurement	LC4 P13 Code	Modeł	Description	Qty Prescribed	Qty Collected	Collected By (Initials)
A/B Smear	L01	A/B Smear Analysis	Alpha/Beta Counter	9	9	Shr
Direct Alpha	A02	43-5A	Alpha Scintillator	27	2.4	Am
Direct Beta	B01	44-40B	GM Pancake	27	24	Im
Gamma 1M	G02	44-10	2"x2" NaI(11) Gamma Scintillator	9	0	Jui A.
Gamma Contact	G01	44-10	2"x2" Nal(II) Gamma Scintillator	27	33	Ju
G-Spec Sample	L.04	GS Material Analysis	Gamma Spectrometry	9	_/	Any

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1/21/2005			Pag	e 13 of 15
	Survey Pa	icka	ge Location Codes	
Survey I	Package Number: F1000 401	B 1	Package Type	System
LC1: F1	080 Survey Area Name:	Back	ground Reference Area	
LC2: 40	1B1 Survey Unit Name: Class Description: Reason Description:	Drai Ope Non B1	n Section(s) Upstream from Building 104 rations -Impacted System Background Survey	
LC3 -Sur	face Category P1-3: DM	1	Storm Drain	
LC3_P4 V2 S1 R1 G1 C1 B1	5 Material Description Vitrified Clay Pipe Soil Sediment Miscellaneous Material Concrete (Bare) Brick			

LC4_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

Measurement	LC4 P13 Code	Model	Description	Qty Prescribed	Qty Collected	Collected By (Initials)
Direct Alpha	A02	43-5A	Alpha Scintillator	27		
Direct Beta	B01	44-40B	GM Pancake	37		
Gamma Contact	G01	44-10	2"x2" NaI(11) Gamma Scintillator	27	\nearrow	
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	° 10/0	evisi. 5 Ju	ar U

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Rome New York

4/10/2005	i				Paį	ge 14 of 15
		Surv	vey Pa	icka	ge Location Codes	_
Survey 1	Packag	e Number: F10	00 401	B 1	Package Type	System
LC1: F	1000	Survey Area I	Name:	Bacl	kground Reference Area	
LC2: 40	01B1	Survey Unit I	Name:	Drai Ope	in Section(s) Upstream from Building 104 rations	
		Class Descrip	tion:	Non	-Impacted System	
		Reason Descrip	tion:	BI	Background Survey	
LC3 -Su	rface C	Category P1-3:	DS1		Sewer System Drain	· · · · · · · · · · · · · · · · · · ·
LC3_P4	15 M	aterial Descriptio	n			
V2	Vitrif	ied Clay Pipe				
S 1	Soil					
R1	Sedir	nent				
G1	Misco	ellaneous Material				
C1	Conc	rete (Bare)				

B1 Brick

-1

LC4_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

Measurement	LC4 P13 Code	Model	Description	Qty Prescribed	Collected Qty By Collected (Initials)
A/B Smear	L01	A/B Smear Analysis	Alpha/Beta Counter	9	9-JM
Direct Alpha	A02	43-5A	Alpha Scintillator	27	29 Ju
Direct Beta	B01	44-40B	GM Pancake	27	25 Au
Gamma 1M	G02	44-10	2"x2" NaI(II) Gamma Scintillator	9	9 Jun
Gamma Contact	G01	44-10	2"x2" NaI(11) Gamma Scintillator	27	24 JM
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	9	2 Jun

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1/21/2005			Pag	e 14 of 15
	Survey Pa	icka	ge Location Codes	
Survey	Package Number: F1000 401	B1	Package Type	System
LC1: F	1080 Survey Area Name:	Bac	kground Reference Area	
LC2: 40	D1B1 Survey Unit Name:	Dra Ope	in Section(s) Upstream from Building 104 trations	
	Class Description:	Nor	n-Impacted System	
	Reason Description:	B1	Background Survey	
LC3 -Su	rface Category P1-3: DS1		Sewer System Drain	
LC3_P4	15 Material Description			
V2	Vitrified Clay Pipe			
S 1	Soil			
R1	Sediment	\mathbf{i}		
Gl	Miscellaneous Material	\mathbf{i}		
C1	Concrete (Bare)		\	
B1	Brick		\mathbf{A}	

LC4_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

Measurement	LC4 P13 Code	Model	Description	-Qty Prescribed	Collected Qty By Collected (Initials)
Direct Alpha	A02	43-5A	Alpha Scintillator	27	
Direct Beta	B01	44-40B	GM Pancake	27	······
Gamma Contact	G01	44-10	2"x2" NaI(II) Gamma Scintillator	27	<u> </u>
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	。 5ec k f/10/09	lerision JM

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1/21/2	2005	· · · · · · · · · · · · · · · · · · ·		Pag	ge 15 of 15
		Survey Pa	ickage Lo	cation Codes	
Sur	vey Packa	age Number: F1000 4011	B1	Package Type	System
LC1	: F1000	Survey Area Name:	Background	Reference Area	
LC2	: 401B1	Survey Unit Name:	Drain Section Operations	on(s) Upstream from Building 104	
		Class Description:	Non-Impact	ed System	
		Reason Description:	B1 Backgr	ound Survey	
LC4	4_P4 - Co	unt Type	LC4	_P5 - Background Mode Codes	
Α	Pre-use E	Background Check	A	Average Background	
в	Pre-use S	Source Check	Ν	Background Not Required	
С	Post-use	Background Check	S	Single Background	
D	Post-use	Source Check			
F	Field Cou	unt			
G	Field Bac	ckground			
S	Field Sca	n			
Sur	vey Fielđ	Notes: Additional infor	mation rega	rding the performance of the	

survey, measurements, sample collection, etc. Use additional pages as needed for field notes.

1/21/2005

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Page A-1 of 2

Survey Package Appendix A – Drawings

Survey Package: Survey Area Name: Survey Unit Name: F1000 401B1Package: SystemBackground Reference AreaDrain Section(s) Upstream from Building 104 Operations

Survey Package Appendix A - Drawings

Sec. 2



Drawing F1000-1



Drawing H 1000-2



1/21/2005

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Page B-1 of 2

Survey Package Appendix B – Photographs

Survey Package:F1000 401B1Package: SystemSurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section Jun 6/13/05

Rome New York

1/21/2005

Page C-1 of 8

Survey Package Appendix C – Survey Results

Survey Package:	F1000 401B1	Package: System
Survey Area Name:	Background Reference Area	
Survey Unit Name:	Drain Section(s) Upstream from Building 104 Operations	S

Section	Title	Total Pages
1.0	Annotated Drawings	2
2.0	Measurement Results – Direct Beta Measurements	2
3.0	Measurement Results – Direct Alpha Measurements	7
4.0	Measurement Results – Exposure Rate Measurements	6
5.0	Sample Analysis Results – Alpha/Beta Counter	9
6.0	Sample Analysis Results – Gamma Spectroscopy	4
7.0	Sample Analysis Results – Alpha Spectroscopy	<u>'1</u>

Rome New York

1/21/2005

Page C-2 of 8

Survey Package Appendix C – Survey Results

Survey Package:	F1000 401B1	Package: System
Survey Area Name:	Background Reference Area	
Survey Unit Name:	Drain Section(s) Upstream from Building 104 Operation	IS

Section 1.0 Annotated Drawings Z Pages







Drawing F1000-2


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1/21/2005

Page C-3 of 8

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1PackageSurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Package: System

Section 2.0 Measurement Results – Direct Beta Measurements Z Pages

Direct Beta Measurements

4/8/2005

Page 1 of 3

		Gross Beta (dpm/ 100cm2)	2463	138/50	143988	136510	3812	4912	3299	4545	4692	4765	513.2	6378	4326	4545	4032	5005	0.77	4912	5279	4545	
		Measurement Location Number	•		, 0	0	0	0	0	0	0	0	0	0	0	0	0	6	>	0	0	0	
		L1																					
		TC6		-	5	<u>د</u> ا	-	-	~	5	0		4	4	~	2	9	9		~	-	00	
veArea m2)	5.5	rcs	LABOI	LAB01	LAB01	LAB01	BKG01	BKG01		BKG01	BKG01	BKG01											
Acti (c	<u> </u>	rç4	BOLAA	BOLAB	B01AB	BOIAB	BOLGS	BOIFS	BOIGS	BOIFS	BOIGS	BOIFS	BOLGS	BOIFS	BOIGS	BOIFS	B01GS	BOLFS		BOIGS	BOLFS	BolGS	
Beta ency	88	E3	DMIGI	DMIGI	DMIGI	DMIGI	DMICI	DMICI	DMICI	DMICI	OMICI	DMICI	DMIBI	IMIBI	MIBI	MIBI	IAIMO	MIBI		MIV2	MIV2	MIV2	
4 pi l Effici	0.0	LC3	RT01	RT01	RTOI	RT01 1	1 1810	DIBI 1	I ISIO	IBI I	1181	1B1 I	IBI	IBI I	IBI I	IBI I	IBI	1BI D			IBI D	181 D	
ਬ .		LCI	ED145 D	FD145 D	FD145 D	D145 D	71000 4(1000 40	1000 40	1000 40	1000 40	1000 40	1000 40	1000 40	1000 40	1000 40	1000 40	1000 40		1000 40	1000 40	1000 40	
or Seri	094971	Scaler Alarm	~	5	5	5	5	2 1	5	2	2	1	2 I	2	2 I	2	2			2 F	2 F	2	
Detect	PR	Window OnOroff	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		•	0	0	
lodel er	0	Loggmg Mode	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Detector N Numb	44-4	Count Time (secs)	300	60	60	60	8	60	60	60	60	60	69	99	8	60	60	60	60	8	60	60	
Package ID	00 401B1	Logged Count	[1.68E+02	[1.88E+03	[1,96E+03	[1.86E+03	A 5.20E+01	4 6.70E+01	4 4,50E+01	f 6.20E+01	1 6.40E+01	1 6.50E+01	f 7.00E+01	1 8.70E+01	1 5.90E+01	1 6.20E+01	1 3.50E+01	1 7.10E+01	UTAULY 1		I 7.20E+01	f 6.20E+01	
Survey	F10	Time	7:32:20 AM	7:50:10 AM	7:58:56 AM	8:09:20 AN	[0:14:00 AN	10:17:02 Ab	10:21:10 AN	10:22:48 AM	10:25:18 AM	10:27:34 AN	0:32:48 A)	0:34:34 AN	10:36:24 AN	10:37:58 AN	(0:39:34 AN	0:41:44 AN	0-48-42 AV		0:50:54 AM	0:52:48 AN	
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Direct Beta Measurements

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	ation mber		User ID	JLM0591	JLM0591	JLM0591		Juni
	D St	100	M2350 Serial Number	95349	95349	95349	9	ä.
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		Gross Beta (dpm/ 100cm2)	2962	55132	47507	44721	4545	5352	3006	5205	5352	4985	6818	6305	5792	6525	6598	7551	5352	6305	7918	
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rvey Pa	1000 -		10 AM 2.	10 AM 2.	4 AM 2.	6 AM 1.	38 AM 6.	40 AM 7.	58 AM 4.	14 AM 7.	56 AM 7.	22 AM 6.	38 AM 9.	56 AM 8.	32 AM 7.	18 PM 8.	2 PM 9.	1 Md 1.	50 PM 7.	16 PM 8.	1. M4 2	
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A	003	M2350 Seriaî Numbei	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	
Download	DL041005-(Package ID	FD145 DRT01	FD145 DRT01	FD145 DRT01	FD145 DRT01	F1000 401B1															

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Gross Beta (dpm/ 100cm2) 8358 8284 8358 8065 8284 6158 7111 9751 9531 6305 6965 7405 7551 7918 6672 6965 166/ 1606 9824 Measurement Location Number 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Page 2 of 3 5 LC6 10 4 ŝ ý 8 9 3 01 ¢1 4 'n 6 5 00 ¢ ActiveArea BKG04 BKG04 BKG04 BKG04 BKG04 BKG04 BKG05 BKG05 BKG05 BKG04 BKG05 BKG05 BKG05 BKG05 **BKG05** BKG05 BKG05 BKG05 BKG05 (cm2) 15.5 ĽCS BOLFA B01GA BOIGA 3 BOIFA B01FA BOIFA BOIFA BOIFA BOIFA B01GA BOIFA BOIFA BOIFA BOIFA B01FA BOIFA BOIFA B01FA BOLFA 4 pi Beta Efficiency DS1V2 DS1V2 DS1V2 DS1V2 DSIV2 DS1V2 DS1V2 DSIBJ DSIBI DSICI DSICI DSICI ទ្ម DSIBI DSICI DSICI DSICI DSIB1 DSIBI DSIBI 0.088 5 401B1 401BI 401B1 401B1 Ę F1000 F1000 F1000 F1000 F1000F1000 F1000 Detector Serial PR094971 Number Scaler Alarm 5 ۲ r-1 **r**r. Ŀ 5 • **r**~ ~ ŀ r~ r--5 t**r**~ r-ŗ. **c** --Window 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Detector Model Number Logging Mode _ -_ _ -_ _ --..... ---_ ----44-40 Count Time (secs) 3 3 60 8 30 3 60 60 99 8 60 60 30 3 9 8 8 3 8 Survey Package ID F1000 401B1 Logged 4/8/2005 3:05:58 PM 1.14E+02 3:07:34 PM 1.13E+02 1.14E+02 1.10E+02 4/8/2005 3:12:36 PM 1.13E+02 1.33E+02 8.60E+01 1.24E+02 1.30E+02 8.40E+01 1.01E+02 1.03E+02 1.08E+02 4:30:16 PM 1.34E+02 9.70E+01 4/8/2005 4:14:54 PM 9.50E+01 9.10E+01 1.09E+02 9.50E+01 3:15:04 PM 4:09:46 PM 3:08:54 PM 3:10:44 PM 4/8/2005 3:13:54 PM 4/8/2005 4:16:16 PM 4:23:18 PM 4:28:52 PM 4:32:02 PM 4:10:58 PM 4/8/2005 4:12:08 PM 4:17:56 PM 4:22:06 PM 4:24:30 PM Time Download 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 4/8/2005 1:43 PM Date 19 20 22 2 25 30 35 21 3 38 5 8 3 31 33 33 34 36 37 Sample No Download Date 4/10/2005 Detector Setup Number 60 œ 80 8 œ œ œ œ æ 60 ∞ 80 × 60 œ 00 œ æ 00 JLM0591 Detector Serial Number PR094971 PR094971 PR094971 PR094971 User ID PR09497] PR094971 B B JLM0591 JLM0591 JL2M0591 JLM0591 JLM0591 JLM0591 JLM0591 JLM0591 JLM6591 JLM0591 JLM0591 JLM0591 JLM0591 JLM0591 JLM0591 JLM0591 Station Number JLM0591 ILM0591 JLMI059 -M2350 Serial Number 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 95349 DL041005-003 Download ID Package ID F1000 401B1 F1000 401B1 F1000 401B1 F1000 401B1 F1000 401B1 F1000 401 B1 F1000 401 B1 F1000 401B1 F1000 401B F1000 401B1 F1000 401B

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Direct Beta Measurements

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			Gross Beta (dpm/ 100cm2)	2859	148314	145161	147947	
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	User	JLM0591	Detector Serial Number	PR094971	PR094971	PR094971	PR094971	PW14
	tation umber	1	Úser D	JLM0591	JLM0591	JLM0591	JLM0591	
	e S Z	003	M2350 Serial Number	95349	95349	95349	95349	
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	ackage	401B1	Logged Count	.81E+02	.91E+03	.93E+03	.97E+03	7.70E+01	7.90E+01	6,80E+01	8.10E+01	8,00E+01	8,30E+01	70E+01	5.50E+01	5.60E+01	.77E+02	2.02E+03	.98E+03	97E+03	20
	Survey P II	F1000	Time	38:50 AM	48:46 AM	50:06 AM	51:22 AM	:58:20 PM	. Wd 9E:10	02:44 PM	04:28 PM	06:04 PM	07:22 PM	. Md 98:60	10:54 PM	12:12 PM	57:20 PM	02:24 PM	03:50 PM	05:50 PM	12 miles
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Page C-4 of 8

Package: System

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1ISurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Section 3.0 Measurement Results – Direct Alpha Measurements <u>7</u> Pages

Direct Alpha Measurements

4/8/2005

Page 1 of 2

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Direct Alpha Measurements

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wnload	:54 PM	Date	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	
Do	11	lampie No	25	26	27	28	53	30	31	32	33	34	35	36	37	39	4	41	
Downloa Date	4/7/2005	Detector Setup Number	2	5	2	3	2	2	6	2	2	5	2	5	2	2	2	7	
User ID	JLM0591	Detector Seriai Number	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	
tation	_	User ID	JLM0591	JLM0591	JLM0591	JL M0591	JLM0591	1650M.IL	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JIT MOS91	JLM0591	JEM0591	ILM0591	
e S z	12	M2350 Seriaî Number	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	
Download	DL040705-00	Package ID	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401 B1	F1000 401B1	FS442 DRT02	FS442 DRT02	FS442 DRT02	FS442 DRT02								

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Direct Alpha Measurements

4/10/2005

Page i of 3

		is Alpita dpm/ 0cm2)	~	7	25	5		5	5				-			-						
		nt Gros 10	4	3891	31900	1042		13	5		25			25	25	127	278	354	734	835	683	
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		гл																				
		ГС	-	-	5		_	7	5	-	5	<i>c</i> ,	4	5	e v	-	7	0	5		4	
iveArea cm2)	76	LCS	LAB01	LAB01	LAB01	LABOI	BKG03	BKG03	BKG03	BKG03	BKG03	BKG03	BKG03	BKG03	BKG03	BKG04	BKG04	BKG04	BKG04	BKG04	BKG04	
) (LC4	A02AA	A02AB	A02AB	A02AB	A02GA	A02GA	A02GA	A02FA	A02FA	A02FA	A02FA	A02FA	AO2FA	A02GA	A02GA	A02GA	A02FA	A02FA	A02FA	
Alpha	052	FC3	DMIB1	DMIBI	DMIB1	DMIBI	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMIBI	DMIBI	DMIBI	DSIB1	DSIBI	DSIBI	DSICI	DSICI	DS1V2	
4 pi Effic	ö	LC3	DRTOI	DRT01	DRT01	DRT01	401B1	401B1	401B1	401B1	401B1	401B1	101B1	101B1	(OIB)	1810	1810	(01B1	01B1	01B1	01B1	
æ		5	FS442	F8442	FS442	FS442	F1000	F1000	F1000	F1000	F1000	F1000	F1000	F1000	F1000 4	F1000 4	61000	1000	F1000 4	1000 4	1000 4	
ector Seri Number	R127389	w Scaler ff Alarm	ø	9	ø	ø	و	Ś	vo	6	6	6	6	6	6	6	6	6	6 1	6	6 1	
Det	Prid	Windo OnOro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	o	
r Model nber	-3	Loggung Mode	-	-	-	-	-	-	-	-	~	-	-	-	-	-	-	-	-	-	da.	
Detector	43	Count Time (secs)	300	60	60	8	60	99	60	60	60	99	60	60	60	60	60	60	60	60	69	
ackage ID	401B1	Logged Count	5.00E+00	1.54E+03	1.26E+03	4.12E+02	0,00E+00	1.00E+00	1.00E+00	0.00E+00	1.00E+00	0.00E+00	0,00E+00	1.00E+00	1.00E+00	5.00E+00	1.10E+01	1,40E+01	2.90E+01	3.30E+01	2.70E+01	
Survey P	F1000	Time	8:28:38 AM	8:35:10 AM	8:39:20 AM	8:41:54 AM	0:34:12 AM	0:35:36 AM	0:36:48 AM	0:42:20 AM	0:43:42 AM	0:46:24 AM	0:50:18 AM	0:52:10 AM	0:53:26 AM	3:14:32 PM	3:15:56 PM	3:17:08 PM	3:26:14 PM	3:27:30 PM	3:29:50 PM	
ownload Time	:27 PM	Date	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005]	4/8/2005	4/8/2005 1	4/8/2005 1	4/8/2005	4/8/2005 1	4/8/2005	4/8/2005 1	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	
ad D	05 1	Sample No	0	-	5	c 1	4	5	6	Ĺ	80	6	10	11	12	13	14	15	16	17	18	
Downlo Date	4/10/20	Detector Setup Number	\$	r.	r.	t.	90	80	90	20	00	æ	80	ø	80	80	×	ø	œ	80	80	
User ID	ILM0591	Detector Serial Number	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	
tation umber		User	JLM0591	JLM0591	16SOMJL	16SOMJI	16SOM,IL	11-11-11-11-11-11-11-11-11-11-11-11-11-	16SOM.IL	ILM0591	JLM0591	16SOM.IL	ILM0591	ILM0591	JLM0591	JLM0591	1LM0591	JEM0591	ILM0591	JLM0591	JLM0591	
∞ ∑ A	5	M2350 Seriai Number	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	
Download]	DL041005-00	Package ID	FS442 DRT01	FS442 DRT01	FS442 DRT01	FS442 DRT01	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401 B 1	F1000 401B1	F1000 401 B 1	F1000 401B1	F1000 401B1	F1000 401B1	F1000 401B1	

Framatome ANP DES Site Restoration Services: JLM

Direct Alpha Measurements

4/10/2005

Page 2 of 3

	ent Gross Alpha 1 (dpm/ 100cm2)	886	784	734	835	810	51	152	101	127	202	152	76	152	127	481	405	531	481	430
5	Measurem Location Number	°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
2 1 2	L7																			
et	1.06	2	6	-	80	6	-	7	د ،	-	2		4	5	6	Ŀ	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6	10	1
tiveAre (cm2)	76 LC5	BKG04	BKG04	BKG04	BKG04	BKG04	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05	BKG05
Ac	ĽĞ	A02FA	A02FA	A02FA	A02FA	A02FA	A02GA	A02GA	A02GA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA	A02FA
Alpha siency	052 LC3	DS1V2	DSIV2	DSIBI	DSIBI	DSIBI	DSICI	DSICI	DSICI	DSICI	DSICI	DSICI	DS1V2	DS1V2	DSIV2	DS1V2	DS1V2	DS1V2	DSICI	DSICI
4 pi Effi	ο Γ	401B1	401B1	401B1	401B1	401B1	401B1	401B1	401B1	401B1	101B1	101B1	101B1	1810	101B1	(01B1	101B1	01B1	01B1	0181
al	rci	F1000	F1000	F1000	F1000	F1000	F1000 4	F1000 4	F1000 z	F1000 4	F1000 4	F1000 4	F1000 4	F1000 4	1000 4	71000 4	1000 4	71000 4	1000 4	1000 4
tor Seri- umber	Scaler Scaler Alarm	9	9	6	6	\$	9	6	6	6	6	9	9	6	9	9	6	6	6 F	6 F
Detec	Window OnOroff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aodel er	Logging Mode	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	_	-	-
Defector Numb	Count Time (secs)	9	60	09	60	60	60	60	60	60	60	60	60	60	60	33	60	09	60	60
Package ID	Logged Count	3.50E+01	3.10E+01	2.90E+01	3.30E+01	3.20E+01	2.00E+00	6.00E+00	4.00E+00	5.00E+00	8.00E+00	6.00E+00	3.00E+00	6.00E+00	5.00E+00	1.90E+01	1.60E+01	2.10E+01	1.90E+01	1.70E+01
Survey]	Time	3:31:14 PM	3:32:40 PM	3:38:30 PM	3:39:50 PM	3:41:24 PM	4:34:52 PM	4:36:20 PM	4:37:38 PM	4:39:54 PM	4:41:24 PM	4:42:40 PM	1;44;34 PM	45:50 PM	47:00 PM	1:50:30 PM	1:51:52 PM	4:53:12 PM	1:57:12 PM	1:58:48 PM
wnload Time 27 PM	Date	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005
ă -	mple No	19	20	21	52	53	24	25	26	27	28	29	30	31	32	33	34	35	36	37
wnload Date 0/2005	ч ог Sa																			
00 14	Detect. Setup Numbe	8	ø	~~	00	~~~	œ	∞	~	80	8	90	90	80	~	ø	æ	80	8	80
User ID JLM0591	Detector Serial Number	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389	PR127389
ntion	User	LM0591	ILM0591	ILM0591	LM0591	1650MJ	LM0591	LM0591	LM0591	LM0591	LM0591	LM0591	LM0591	LM0591	LM0591	1650MJ	1650MJ	LM0591	LM0591	LM0591
D Sta Nun	M2350 Serial Number	120636]	120636 J	120636]	120636 J	120636 J	120636 J	120636 J	120636]	120636 J	120636 J	120636 J	120636 J	120636 J	120636 J.	120636 J	120636 J	120636 J	120636 J	(20636 J
Download I DL041005-002	Package ID	F1000 401B1 1	F1000 401B1 1	F1000 401B1	F1000 401B1	F1000 401B1 1	F1000 401B1	F1000 401B1 1	F1000 401B1	F1000 401B1 1	F1000 401B1 1	F1000 401B1 1	F1000 401B1	F1000 401B1	F1000 401B1 1					

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Alpha Measurements

4/10/2005

Page 3 of 3

	Station	User	Downlos	T T	Jonningd	Cumron D	(I) Contraction	D.44.44		ç)		
Number		, A	Date	T	Time	J Gavine	ackage ID	L Detector I	Model	Detect	or Serial imber		f pi Alpi Efficienc	a v	ActiveA (cm2)	rea			
	- 1	JLM0591	4/10/20	05	1:27 PM	F1000	401B1	43-5	. 10	PR1	[27389		0.052	5	76				
50 ber 1	A 👸	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler I Alarm	1	с B	ы Б	7C	IC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
JIMU	165	PR127389	9 2	38	4/8/2005	5:00:02 PM	2.60E+01	60	-	0	6 F100	0 401E	1 DS1	CI A02F,	A BKG	05 12		0	658
OWT	165	PR127389	œ	39	4/8/2005	5:03:48 PM	1.20E+01	60	-	0	6 F100	0 401B	I DSI	31 A02F.	A BKG	5 13		0	304
JLMO	291	PR127389	80	40	4/8/2005	5:05;08 PM	9.00E+00	60	-	0	6 F100	0 401B	I DSI	31 A02F	A BKG	5 14		0	228
JLMC	1651	PR127389	00	41	4/8/2005	5:06:26 PM	5.00E+00	60	-	0	6 F100	0 401B	1 DSII	31 A02F/	A BKG	5 15		0	127
ILMC	1651	PR127389	6	42	4/8/2005	5:48:42 PM	1.10E+01	300	-	0	6 FS44	2 DRT	02 DS11	31 A02C	A LAB(0	56
JILMO	1651	PR127389	Ŀ	43	4/8/2005	5:55:10 PM	1.35E+03	60	-	0	6 FS44	2 DRT	02 DS11	31 A02D	A LAB(0	34033
ILM	1650	PR127389	Ľ	44	4/8/2005	5:58:48 PM	1.20E+03	60	-	0	6 FS44	2 DRT	02 DSII	31 A02D.	A LABC	1 2		0	30390
JILMG	1651	PR127389	Ŀ	45	4/8/2005	6:01:02 PM	2.67E+02	60	-	0	6 FS44	2 DRT	02 DSII	81 A02D.	A LABC	0		0	6756

- Date: Approved By: Mulle Dave Date: 4 Reviewed By:

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Alpha Measurements

4/13/2005

Page 1 of 2

Download	Ê.	Station Number	User ID	Download Date		lownload Time	Survey Pack	age ID	Detector M Numbe	odel t	Detector Sc Numbe	erial T	4 pi Effi	Alpha	Acti	veArea	1 460	1 10		
DL041305-0	08	-	JLM0591	4/13/2005	1	0:11 AM	F1000 40	1 B 1	43-5		PR1722	36	0.0	48305	2	76				
Package ID	M235 Seria Numb	C Csel	r Detector Serial Number	Detector S Setup Number	ample No	Date	Time L (ogged Count	Count Time (secs)	Logging Mode	Window Scaler OnOroff Alarm	ICI	172	Ę	LC4	ГС	TC6 L	7 Measi Loc	urement G atron mber	ross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	vo	0	4/12/2005	2:44:58 AM 4.00	E+00	300	-	4 18	FS442	DRT01	DMICI	A02AA	LAB01			0	16
FS442 DRT01	120636	JLM0591	PR172236	r-	-	4/12/2005	2:52:32 AM 1.40	E+03	60	-	4 18	FS442	DRT01	DMICI	A02BA	LAB01			0	3434
FS442 DRT01	120636	JEM0591	PR172236	r -	2	4/12/2005	2:56:02 AM 1.41	E+03	60	-	4 18	FS442	DRT01	DMICI	A02BA	LAB01 2			0	678
FS442 DRT01	120636	JLM0591	PR 172236	Ĺ	0	4/12/2005	2:57:26 AM 1.24	E+03	60	-	4 18	FS442	DRT01	DMICI	A02BA	LAB01 3			52	901
F1000 401B1	120636	JEM0591	PR172236	89	36	4/12/2005	3:45:28 PM 1.00	E+00	60	-	0 18	F1000	401B1	DSIBI	A02GA	BKG06 -			0	20
F1000 401B1	120636	JLM0591	PR172236	- 00	27	4/12/2005	3:46:40 PM 0,00	E+00	60	-	0 18	F1600	401 B1	DSIB1	A02GA	BKG06 2			0	0
F1000 401B1	120636	JEM0591	PR172236	∞	28	4/12/2005	3:47:50 PM 0.00	E+00	60	-	0 18	F1000	401B1	DSIBI	A02GA	BKG06 3			0	0
F1000 401B1	120636	JLM0591	PR172236	∞	29	4/12/2005	3:49:28 PM 4.00	E+00	60	-	0 18	F1000	401B1	DSIBI	A02FA	BKG06			0	81
F1000 401B1	120636	JLM0591	PR172236	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	30	4/12/2005	3:50:46 PM 5.00	E+00	6	-	0 18	F1000	401B1	DSIBI	A02FA	BKG06 2			0	101
F1000 401B1	120636	JLM0591	PR172236	~~~~	31	4/12/2005	3:52:02 PM 3.00	E+00	6	-	0 18	F1000	401B1	DSIB1	A02FA	BKG06 3			0	61
F1000 401B1	120636	JLM0591	PR172236	<i>20</i>	32	4/12/2005	4:00:46 PM 9.00	00+3	60	-	0 18	F1000	401B1	DSICI	A02FA	BKG06 4			0	183
F1000 401B1	120636	JLM0591	PR172236	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	33	4/12/2005	4:02:04 PM 1.50	E+01	60	-	0 18	F1000	401B1	DSICI	A02FA	BKG06 5			0	304
F1000 401B1	120636	JLM0591	PR172236	80	34	4/12/2005	4:03:32 PM 2.00	E+00	60	_	0 18	F1000	401B1	DSICI	A02FA	BKG06 6			0	41
FS442 DRT02	120636	JLM0591	PR172236	9	35	4/12/2005	4:43:34 PM 2.00	E+01	300	-	4 18	FS442	DRT02	DSICI	A02CA	LAB01			0	81
FS442 DRT02	120636	JLM0591	PR172236	4	36	4/12/2005	4:49:00 PM 1.39	E+03	60	-	4 18	FS442	DRT02	DSICI	A02DA	LAB01 -			0	110
FS442 DRT02	120636	JLM0591	PR172236	Ĺ	37	4/12/2005	4:50:52 PM 1.45	E+03	60	-	4 18	FS442	DRT02	DSICI	A02DA	LAB01 2			0 29	388
FS442 DRT02	120636	JLM0591	PR172236	Ŀ	38	4/12/2005	4:52:26 PM 1.21	E+03	60	-	4 18	FS442	DRT02	DSICI	A02DA	LAB01 3			0 24	639

SDMS Documentation Version 1.0

Measurement Database Download Report Direct Alpha Measurements

4/13/2005

Page 2 of 2

-1

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Framatome ANP DES Site Restoration Services: JLM

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1/21/2005

Page C-5 of 8

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1ISurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Package: System

Section 4.0 Measurement Results – Exposure Rate Measurements <u>6</u> Pages

Page I of 2

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4/8/2005

Download		Station Vumber	User ID	Down Dat	oad I e	Jownload Time	Survey Packag	e D	etector Ma	odel	Detector	Serial	Gam	na Cal F	ictor		0	T 		
DL040705-0	10		JLM0591	4/7/2(05	11:38 PM	F1000 401E		44-10	-	PR192	598								
Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time Logg Cou	in de	Count L. Time 1 (secs)	Vode 0	Vindow Sca nOroff Ala	. b i E	ICI	LC2 L	5	C4 LC5	LC6 I	Loc Loc	ation R	Exposure ate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	9	'n	4/7/2005	7:25:02 AM 2.68E+	64	300		0	5	SI0 DR	T01 DM	EGI GOI	AA LABÓ	-		-	5B+00
GTS10 DRT01	95358	JLM0591	PR192598	ę	9	4/7/2005	7:46:48 AM 8,68E÷	05	60	-	0	5	SI0 DR	T01 DM	6 19	AB LABO	 		4 ¥	08-400
GTS10 DRT01	95358	JLM0591	PR192598	ę	F.	4/7/2005	7:50:38 AM 4,10E+	4	60	_	0	5	SI0 DR	T01 DM	61 61	AB LABO	2			20101
GTS10 DRT01	95358	JLM0591	PR192598	6	æ	4/7/2005	7:56:54 AM 1.12E+	04	60	-	0	5	SI0 DR	roi DM	GI	AB LARO	ı		j č	10-31
F1000 401B1	95358	JLM0591	PR192598	ę	6	4/7/2005 1	1:46;30 AM 1.79E+	94	60	-	0	EIC	000 401	BI DM	00 C	GA BKGC	۰ -		5 7	96+01
F1000 401B1	95358	JLM0591	PR192598	9	10	4/7/2005 1	1:47:48 AM 1.52E+	4	60	_	0	EI(000 401	B1 DM	CI CI	GA BKGC	4	0	1.4	8E+01
F1000 401B1	95358	JLM0591	PR192598	Ŷ	П	4/7/2005 1	1:49:06 AM 1.13E++	04	60	-	0	EI(000 401	B1 DM	C1 G01	GA BKG0	0	0	L.10	0E+01
F1000 401B1	95358	JLM0591	PR192598	9	12	4/7/2005 1	1:51:52 AM 1.08E+	5	60	_	0	E FI	00 401	B1 DM	60 CI	FA BKGC	-	0	0	SE+01
F1000 401B1	95358	JLM0591	PR192598	6	13	4/7/2005 1	1:53:12 AM 1.08E+	54	60	-	0	5 F10	00 401	BI DM	CI G01	FA BKG0	1 2	,		SF+01
F1000 401B1	95358	JLM0591	PR192598	6	14	4/7/2005 1	1:54:30 AM 1.00E+	5	60	-	o	5 F10	00 401	BI DM	CI 601	FA BKG0	- n	. 0	32.6	8E+00
F1000 401B1	95358	JLM0591	PR192598	6	15	4/7/2005 1	1:58:22 AM 1.41E+	04	60	_	0	EIC	00 401	B1 DM	V2 G01	FA BKG0	4	, c	138	8E+01
F1000 401B1	95358	JLM0591	PR192598	6	16	4/7/2005 1	1:59:46 AM 1.43E+	04	60	-	0	FIG	00 401	B1 DM	V2 G01	FA BKG0		, c	1 40	101-10
F1000 401B1	95358	JLM0591	PR192598	6	17	4/7/2005 1	2:01:00 PM 1.43E+(8	60	_	0	E FIC	00 401	B1 DM	V2 G01	EA BKG0	1 6	, ,		10-20 10-101
F1000 401B1	95358	JLM0591	PR192598	6	18	4/7/2005 1	2:03:30 PM 1.25E+(5	60	-	0	FIG	00 401	B1 DMC	B1 G01	EA BKG0	1 7	0	1 22	2E+01
F1000 401B1	95358	JLM0591	PR192598	ę	19	4/7/2005 1	2:04:54 PM 1.68E+(5	60	_	0	FIC	00 401	BI DM	BI GOI	EA BKG0	18	0	1.64	1E+01
F1000 401B1	95358	JLM0591	PR192598	9	20	4/7/2005 1	2:06:26 PM 1.80E+(5	60	-	0	5 F10	00 401	MG IE	B1 G01	A BKG0	1 9	0	1.76	SE+01
F1000 401B1	95358	JLM0591	PR192598	6	21	4/7/2005 1	2:08:42 PM 1.75E+(7	60	-	0	FIC FIC	00 401	IMD 16	B1 G01	GA BKG0	4	0	1.71	IE+01
F1000 401B1	95358	JLM0591	PR192598	9	22	4/7/2005 1	2:09:54 PM 1.46E+(4	60	-	0	FIC FIC	00 401	31 DMI	B1 G01	3A BKG0	15	0	1.43	JE+01
F1000 401B1	95358	JLM0591	PR192598	6	23	4/7/2005 1	2:11:06 PM 1.10E+(74	60	-	0	FIC FIC	00 401	31 DMI	BI GOI	GA BKG0	16	0	1.08	3E+01
F1000 401B1	95358	JLM0591	PR192598	6	24	4/7/2005 1	2:16:48 PM 8.06E+(03	09	_	0	: F10	00 401	1 DMI	RI G01)	A BKG0	1 10	0	7.88	3E+00
F1000 401B1	95358	JLM0591	PR192598	6	25	4/7/2005 1	2:18:24 PM 8,02E+(5	60	_	0	FIC FIC	00 401	IMD IE	RI G011	sA BKG0	11 11	0	7.84	IE+00
F1000 401B1	95358	JLM0591	PR192598	ę	26	4/7/2005 1	2:19:42 PM 8.25E+(ñ	60	_	0	FI0	00 401]	IMU 18	RI GOII	A BKG0	1 12	0	8.06	SE+00
F1000 401B1	95358	JLM0591	PR192598	6	27	4/7/2005	2:35:52 PM 1.59E+(4	60	-	0	F10	00 401)	IMU 18	RI GOI	3A BKG0	5	0	1.56	3E+01
F1000 401B1	95358	JLM0591	PR192598	Q	28	4/7/2005	2:37:10 PM 1.15E+(74	60	_	0	F10	00 401	31 DMI	R1 G010	3A BKG0	17	0	1.13	E+01
F1000 401B1	95358	JLM0591	PR192598		29	4/7/2005	2:38:30 PM 1.13E+0	74	60	-	0	F10	00 401	1 DMI	RI G016	BKG0	ر. 2	0	1.10	1E+01
F1000 401B1	95358	JLM0591	PR192598	6	30	4/7/2005	2:42:34 PM 8.14E+(5	60	_	0	FIO	00 401]	1 DMU	R1 G011	A BKG0	-	0	2.96	E+00
Framatoma /	VNP DES															5				

SDMS Documentation Version 1.0

Page 2 of 2

4/8/2005

Downloa	A l	Station Number	User	Downl Date	load e	Download Time	Survey I	^o ackage ID	Detector]	Model	Detector	r Serial ther	Gamt	na Cal Fa	ctor		þ			
DL040705-0	10	П,	JLM0591	4/7/20)05	11:38 PM	F1000) 401BI	44-1	0	PR19	2598		5.13E+10						
Package ID	M235 Serial Numbe	o User I ID	Detector Serial Number	Detector Setup Number	Sampie No	Date	Time	Logged Count	Count Time (sees)	Logging Mode	Window S OnOroff A	caler larm	ICI	LC3 LC	3 LC4	t TCS	TC6	L7 Measu Loc	urement Ex ation Ra	xposure ate uR/hr
F1000 401B1	95358	JLM0591	PR192598	6	31	4/7/2005	2:44:00 PM	7.41E+03	60	-	0	با ۲	1000 401	BI DMII	U GOIFA	RKG02				001-11
F1000 401B1	95358	JLM0591	PR192598	6	32	4/7/2005	2:45:16 PM	8.61E+03	60	-	0	14 C	1000 401	BI DMII	ti GolfA	THK GOV	۰، ۱		(7, f	
F1000 401B1	95358	16\$0M.IL	PR192598	6	33	4/7/2005	2:50:26 PM	1.66E+04	60	-	0	- C)	1000 401	BI DMII	SUFA	EK GOZ	n 4		8.43 1 1 2 1 2	E+00
F1000 401B1	95358	JLM0591	PR192598	ę	34	4/7/2005	2:51;48 PM	1.56E+04	60	-	0	с Н	000 401	B1 DMII	31 GOIFA	BKG02	r ın		1 1 2	10+31
F1000 401B1	95358	JLM0591	PR192598	6	35	4/7/2005	2:53:28 PM	1.65E+04	60	-	0	E C	1000 401	BI DMII	11 GOIFA	BKG02	• • 0) O	1.611	10+01
F1000 401B1	95358	JLM0591	PR192598	6	36	4/7/2005	2:58:18 PM	1.42E+04	60	-	0	3 F	1000 401	BI DMI	/2 G01FA	BKG02	7	0	1,391	E+01
F1000 401B1	95358	JLM0591	PR192598	6	37	4/7/2005	2:59:40 PM	1.42E+04	60	-	0	3 HI	1000 401	DMI	/2 G01FA	BKG02	00	0	1.38	E+01
F1000 401B1	95358	16SOM.JL	PR192598	Q	38	4/7/2005	3:01:04 PM	1.41E+04	60	-	0	3 FI	000 401	BI DMIV	/2 G01FA	BKG02	6	0	1.37)	E+01
F1000 401B1	95358	JLM0591	PR192598	ę	36	4/7/2005	3:04:10 PM	1.09E+04	60	-	0	E	1000 401	Bi DMI(N GOIFA	BKG02	10	0	1.07	E+01
F1000 401B1	95358	JLM0591	PR192598	9	40	4/7/2005	3:05:54 PM	1.09E+04	60	-	õ	E C	1000 401	BI DMIC	X G01FA	BKG02	11	0	1.07	E+01
F1000 401B1	95358	JLM0591	PR192598	6	41	4/7/2005	3:07:14 PM	1.13E+04	60	-	0	E	000 401	DIMO IB	1 GOIFA	BKG02	12	. 0	101	E+01
F1000 401B1	95358	1650M.R	PR192598	Ŷ	42	4/7/2005	3:10:02 PM	1.10E+04	60	-	0	ц С	000 401	BI DMIC	1 G01GA	BKG02	4			E+01
F1000 401B1	95358	JLM0591	PR192598	6	43	4/7/2005	3:11:22 PM	1.32E+04	60	-	0	с Н	000 401	BI DMIC	1 G01GA	BKG02	- m) O	1 291	
F1000 401B1	95358	JLM0591	PR192598	6	44	4/1/2005	3:12:50 PM	l.49E+04	60	-	0	1	000 401	BI DMIC	1 G01GA	BKG02	6	0	1.45	E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	45	4/7/2005	5:20:16 PM	2,69E+04	300	-	0	с С	TS10 DRC	102 DMIC	1 G01CA	LAB01	-	. 0	5.26	E+00
GTS10 DRT02	95358	JLM0591	PR192598	Ŷ	47	4/7/2005	5:44:16 PM	8.74E+05	60	-	м	r G	TS10 DRC	foz DMIC	1 G01DA	LABOI	-	0	8.551	E+02
GTS10 DRT02	95358	JLM0591	PR192598	9	48 84	4/7/2005	5:48:42 PM	4,08E+04	60	-	0	5	TS10 DR	102 DMIC	1 GOIDA	LAB01	13	0	166.5	E+01
GTS10 DRT02	95358	JLM0591	PR192598	Q	4	4/7/2005	5(51:30 PM	1.12E+04	60	-	0		TS10 DR	T02 DMIC	1 GOIDA	LAB01	63	0	1.101	E+01
Reviewed	By: 6	Helle	IU LA	alur		Date:	4/6/05		Approved	By:	K	\mathcal{W}			Da	te:	1	10		
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Framatome ANP DES Site Restoration Services: JLM

SDMS Documentation Version 1.0

- Date: 4/13/05

Page 1 of 3

4/10/2005

		Measurement Exposure Location Rate uR/hr Number	0 5.22R+00		0 1.15E+03	0 1.15E+03 0 4.05E+01	0 1.15E+03 0 4.05E+01 0 1.06E+01	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01 0 1.59E+01	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01 0 1.59E+01 0 1.55E+01	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01 0 1.59E+01 0 1.35E+01 0 9.55E+00	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01 0 1.59E+01 0 1.55E+01 0 9.55E+00 0 9.40E+00	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.80E+01 0 1.59E+01 0 1.55E+01 0 9.40E+00 0 9.46E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.30E+01 0 1.30E+01 0 1.35E+01 0 9.40E+00 0 9.46E+00 0 9.46E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.66E+01 0 1.59E+01 0 1.59E+01 0 9.46E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.80E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.46E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.03E+01	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.50E+01 0 1.59E+01 0 1.35E+01 0 9.46E+00 0 9.46E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.80E+01 0 1.80E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.40E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.31E+01 0 1.77E+01	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.36E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 9.46E+00 0 9.45E+01 0 1.35E+01 0 1.03E+01 0 1.03E+01 0 1.31E+01 0 1.77E+01	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.40E+00 0 9.40E+01 0 1.03E+01 0 1.3E+01 0 1.3E+01 0 1.3E+01 0 1.81E+01 0 1.82E+01 0 1.82E+01 0 5.49E+00	 0 1.15E+03 0 4.05E+01 1.06E+01 0 1.66E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.46E+00 9.46E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 1.32E+00 0 5.49E+00 0 5.42E+00 	0 1.15E+03 0 4.05E+01 0 1.06E+01 0 1.36E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.35E+01 0 1.35E+01 0 9.46E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.77E+01 0 1.77E+01 0 5.49E+00 0 5.42E+00 0 5.42E+00 0 5.42E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.46E+00 0 9.46E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.81E+01 0 1.81E+01 0 1.82E+01 0 5.40E+00 0 5.40E+00 0 5.40E+00 0 5.40E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.36E+01 0 1.36E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 9.46E+00 0 9.45E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.35E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 5.49E+00 0 5.49E+00 0 5.49E+00 0 5.49E+00 0 5.19E+00 0 5.19E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.55E+01 0 9.40E+00 0 9.46E+00 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.81E+01 0 1.81E+01 0 1.82E+01 0 1.82E+01 0 1.82E+01 0 1.82E+01 0 5.42E+00 0 5.42E+00 0 5.42E+00 0 5.30E+00 0 5.30E+00 0 5.30E+00 0 5.30E+00	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.39E+01 0 1.39E+01 0 1.39E+01 0 1.39E+01 0 1.39E+01 0 9.40E+00 0 9.40E+00 0 1.35E+01 0 1.35E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.81E+01 0 1.35E+01 0 1.32E+01 0 1.32E+01 0 1.32E+01 0 5.49E+00 0 5.49E+00 </th <th>0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.36E+01 0 1.36E+01 0 1.405E+01 0 1.59E+01 0 1.59E+01 0 1.35E+01 0 9.46E+00 0 9.46E+00 0 9.46E+00 0 1.35E+01 0 1.35E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.77E+01 0 1.73E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 5.49E+00 0 5.49E+00 <</th> <th>0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.40E+00 0 9.40E+01 0 9.40E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.81E+01 0 5.42E+00 0 5.43E+00 0 5.30E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 <!--</th--></th>	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.36E+01 0 1.36E+01 0 1.405E+01 0 1.59E+01 0 1.59E+01 0 1.35E+01 0 9.46E+00 0 9.46E+00 0 9.46E+00 0 1.35E+01 0 1.35E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.77E+01 0 1.73E+01 0 1.35E+01 0 1.35E+01 0 1.35E+01 0 5.49E+00 0 5.49E+00 <	0 1.15E+03 0 4.05E+01 0 4.05E+01 0 1.06E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 1.59E+01 0 9.40E+00 0 9.40E+00 0 9.40E+01 0 9.40E+01 0 1.03E+01 0 1.03E+01 0 1.03E+01 0 1.81E+01 0 5.42E+00 0 5.43E+00 0 5.30E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 0 5.45E+00 </th
		LC4 LC5 LC6 L7	AA LABOI i	BA LAB01 i	BA LAB01 2	BA LAB01 3	GA BKG03 r	GA BKG03 2	GA BKG03 3	FA BKG03 -	FA BKG03 2	FA BKG03 2	FA BKG03 4	FA BKG03 5	FA BKG03 6	FA BKG03 7	FA BKG03 8	FA BKG03 9	FA BKG03 4	FA BKG03 2	FA BKG03 3	FA BKG01 5	FA BKG01 6	FA BKG02 7	FA BKG02 8	FA BKG02 9	FA BKG04 -	FA BKG04 2
Gamma Cal Factor	6.13E+10	CI LC2 LC3	DRT01 DMICI G01	DRT01 DMIC1 G01	DRT01 DMIC1 G01	DRT01 DMIC1 G01	401B1 DMIRI G01	401BI DMIRI GOI	401B1 DMIR1 G01	401B1 DMIR1 G01	401B1 DMIRI G01	401B1 DMIRI G01	401B1 DM1R1 G01	401B1 DM1R1 G01	401B1 DMIR1 G01	401B1 DMIRI G01	401B1 DMIRI G01	401B1 DMIRI G01	401B1 DMISI G02	401B1 DM1S1 G02	401B1 DMISI G02	401B1 DMIS1 G02	401B1 DMIS1 G02	401B1 DMIS1 G02	401B1 DMIS1 G02	401B1 DM1S1 G02	401B1 DS1S1 G02	401B1 DS1S1 G02
Detector Serial (Number	PR192598	Window Scaler L OnOroff Alarm	0 5 GTS10	2 5 GTS10	0 5 GTS10	0 5 GTS10	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 > F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 S F1000	0 5 F1000	0 5 F1000	0 5 F1000	0 > F1000	0 5 F1000	0 > F1000	0 > F1000
Detector Model Number	44-10	Count Logging Time Mode (secs)	300 -	60	60	60	60 1	-		- 09	- 09	-	60			60	60	-	-	60 -	60 -	60 -	- 09	60 -		60 -	- 09	-
Survey Package ID	F1000 401B1	Time Logged Count	8:03:10 AM 2.67E+04	8:12:06 AM 1.18E+06	8:19:00 AM 4.14E+04	8:25:20 AM 1.09E+04	11:06:26 AM 1.84E+04	11:07:40 AM 1.62E+04	11:09:04 AM 1.38E+04	11:12:44 AM 9.76E+03	11:14:00 AM 9.61E+03	11:15:12 AM 9.67E+03	11:18:10 AM 1,05E+04	11:19:34 AM 1.06E+04	11:20:54 AM 1.02E+04	11:23:26 AM 1.85E+04	11:24:42 AM 1.81E+04	11:26:02 AM 1.86E+04	11:32:46 AM 5,61E+03	11:34:04 AM 5.55E+03	11:35:20 AM 5.52E+03	11:42:08 AM 5.31E+03	11:43:16 AM 5.42E+03	11:46:14 AM 5.53E+03	11:48:28 AM 5.55E+03	11:49:54 AM 5.58E+03	2:20:20 PM 6.79E+03	2:21:50 PM 7.03E+03
d Download Time	5 12:51 PM	ampie Date No	0 4/8/2005	- 4/8/2005	2 4/8/2005	3 4/8/2005	4 4/8/2005	5 4/8/2005	6 4/8/2005	7 4/8/2005	8 4/8/2005	9 4/8/2005	10 4/8/2005	11 4/8/2005	12 4/8/2005	13 4/8/2005	14 4/8/2005	15 4/8/2005	16 4/8/2005	17 4/8/2005	18 4/8/2005	19 4/8/2005	20 4/8/2005	21 4/8/2005	22 4/8/2005	23 4/8/2005	24 4/8/2005	25 4/8/2005
Downloa	1 4/10/200	r Detector S Setup Number	6	r ~-	Ĺ	٢	88	8	~	80	8	80	80	80	80	80	8	89	6	6	6	6	6	6	6	6	6	6
ation User mber ID	I JLM059	User Detectc ID Serial Number	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	ILM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598	LM0591 PR192598
wnload IL) Sta Nu	005-001	tage M2350 5 Serial Number	1RT01 95358 J.	IRT01 95358 J.	RT01 95358 J	IRT01 95358 J	11B1 95358 I	1B1 95358 J	11B1 95358 J	1B1 95358 I	1B1 95358 J	1B1 95358 J	11B1 95358 J	JIB1 95358 J	11B1 95358 J	JIB1 95358 J	01B1 95358 J	JIBI 95358 J	JIB1 95358 J)IB1 95358 J)[B 1 95358]	JIB1 95358 J	01B1 95358 J	JIBI 95358 J	JIBI 95358 J	01Bi 95358 J	JIBI 95358 J)1 B 1 95358)
ð	DL041	Pack II	GTS10 D	GTS10 D	GTS10 D	GTS10 D	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40	F1000 40

SDMS Documentation Version 1.0

4/10/2005

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Station

Download ID

		Exposure ate uR/hr	00+01	3E+01	7E+01	6E+01	6E+01	7E+01	8E+01	7E+01	5E+01	3E+01	3E+01	SE+01	7E+01	4E+00	0E+00	00+36	8E+01	10+31	5E+01	7E+01	(E+01	2E+01	5E+01	5E+01)E+01	1E+01
		surement l cation R unber	0 66	0 1.6	0 1.7	0 1.74	0 1.4	0 1.7	0 1.7	0 1.6	0 1.6) 1.6	0 1.62	1.62) 1.6	4,4) 4.50	4.45	36.1 (1.71) 1.75	1.57	1.61) 1.62	1.75) 1.65) 1.60	1 58
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Page 2 of 3

SDMS Documentation Version 1.0

Page 3 of 3

-1

4/10/2005

Download ID

		Exposure Rate uR/hr		50E 101	TOTATC.	59E+01	23R+00		40E+02	.05E+01	.04E+01	
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Jownload Time	12:51 PM	Date		4/8/2005	4/8/2005	2000/0/4	418/Z002	4/8/2005	4/8/2005		4/8/2005	
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Download	DL.041005-0	Package ID	F1000 401 B1		F1000 401B1	GTS10 DRT02		GTS10 DRT02	GTS10 DRT02	GTS10 DRT02		

Date: 4/13/6 Reviewed By: All Michaluk Date: 4/10/05 Approved By:

SDMS Documentation Version 1.0

Page 1 of 1

4/13/2005

Download		Station Number	User ID	Downl. Date	oad 5	Download Time	Survey P	ackage ID	Detector Numb	/odel er	Detecto	r Serial aber	Gamn	ıa Cal Faci	tor			1	
DL041305-0	07	1	JLM0591	4/13/2(005	10:04 AM	F1000	401B1	44-1(PR 1	2598	9	.13E+10					
Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (seare)	Loggmg Mode	Window 5 OnOroff A	icaler ılarm	TCI	rcz r¢3	IC4	LCS 1	LC6 L7	Measurement Location	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	°	4/12/2005	7.25.26 AM	2.75E+04	(entre)		-	, r						Number	
GTS10 DRT01	95358	JLM0591	PR192598	Ľ	-	4/12/2005	MA CC CET	30TO LE 0		. ,		5 2			I GOLAA	LAB01 -		0	5.38E+00
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GTS10 DRT01	95358	JLM0591	PR192598	Ĺ	en.	4/12/2005	7:37:40 AM	1.13E+04	60	-	0	17 G1	SI0 DRI	01 DMIC	1 GOIBA	LAB01 3		0	1,11E+01
F1000 401B1	95358	JLM0591	PR192598	80	40	4/12/2005	3:41:32 PM	5.78E+03	60	-	0	17 F1	000 401E	31 DSICI	G02FA	BKG06		0	5.65E+00
F1000 401B1	95358	JLM0591	PR192598	8	41	4/12/2005	3:42:50 PM	5.72E+03	60	-	0	17 FI	000 401E	31 DSICI	GO2FA	BKG06 2		0	5.60E+00
F1000 401B1	95358	JLM0591	PR192598	80	42	4/12/2005	3:44:10 PM	5.60E+03	60	-	0	17 F1	000 401E	N DSICI	GO2FA	BKG06 3		0	5 48E+00
F1000 401B1	95358	JLM0591	PR192598	83	43	4/12/2005	3:49:38 PM	l.84E+04	60	-	0	17 FII	000 401E	II DSICI	GOIGA	BKG06		0	.80E+01
F1000 401B1	95358	JLM0591	PR192598	80	44	4/12/2005	3:51 06 PM	1.85E+04	60	-	0	17 F1	D00 401E	1 DSICI	GolgA	BKG06 2		0	81E+01
F1000 401B1	95358	JLM0591	PR192598	90	45	4/12/2005	3:52:52 PM	l.87E+04	60	-	0	17 FI	300 401E	11 DSICI	GOLGA	BKG06 3		0	83E+01
F1000 401B1	95358	JLM0591	PR192598	89	46	4/12/2005	3:55:12 PM	1.65E+04	60	-	0	17 F1(200 401E	N DSICI	GOIFA	BKG06		0	61E+01
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F1000 401B1	95358	JLM0591	PR192598	60	48	4/12/2005	3:58:54 PM	1.65E+04	60	-	0	17 FI(200 401E	II DSICI	G01FA	BKG06 3		, .	61E+01
F1000 401B1	95358	JEM0591	PR192598	80	49	4/12/2005	4:04:48 PM	l.87E+04	60	-	0	17 FI(000 401E	I DSIBI	GOIFA	BKG06		0	.82E+01
F1000 401B1	95358	JEM0591	PR192598	8	50	4/12/2005	4:06:24 PM	l.84E+04	60	-	0	17 FI(300 401E	11 DSIB1	GOIFA	BKG06 2		0	.80E+01
F1000 401B1	95358	JLM0591	PR192598	œ	51	4/12/2005	4:07:48 PM	1.85E+04	60	-	0	17 F1(200 4ÓIE	11 DSIBI	GOIFA	BKG06 3		0	81E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	52	4/12/2005	4:44:04 PM	2,80E+04	300	-	0	17 GT	S10' DRT	02 DSIBI	GOICA	LAB01		0	6.47E+00
GTS10 DRT02	95358	JLM0591	PR192598	Ĺ	53	4/12/2005	4:47:50 PM 8	3.62E+05	60	-	0	17 GT	SIO' DRT	02 DSIBI	GOIDA	LAB01		0	43E+02
GTS10 DRT02	95358	JLM059]	PR192598	ŕ	5 4	4/12/2005	4:50:14 PM 4	1.15E+04	60	-	0	17 GT	S10' DRT	02 DSIBI	G01DA	LAB01 2		0	1.06E+01
GTS10 DRT02	95358	iezomji	PR192598	t-	55	4/12/2005	4:51:32 PM	1.13E+04	60	-	0	17 GT	S10 DRT	02 DSIB1	G01DA	LAB01 3		•	.10E+01
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SDMS Documentation Version 1.0

Rome New York

1/21/2005

Page C-6 of 8

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1JSurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Package: System

Section 5.0 Sample Analysis Results – Alpha/Beta Counter <u>9</u> Pages

F1000 401 י טאן removable A-B results.xls

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BDPM 82.52 -29.13 -29.13 0.00 29.13 2.9.13 2.9.13 2.9.13 2.9.13 2.9.27 2.9.27 0.00
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ltem ID	BKC-Ø1

Instrment ID 2929 #_____

BKGD Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

Point	Removable ncpm		
No	Beta	Alpha	Description
1	0	1	CONCRETE a Britten
2	6.	1	
3	1	1	V
		72:	

Smears counted by D. McGee	Date <u>4-14.05</u> Ludlum 2929β ef	<u> 20.6 </u>	_%
	α eff	45.4	%

ρ ρ ρ ρ ρ	•	1/10
Surveyed by: 1/ 1/1c Dee	Date/Time <u>4 (3 05</u>	140
		em

Survey	Data	Sheet
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BKC-OF Item ID <u>F 1000</u> 2

Instrment ID 2929 #_____152202____

BKGD

Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

Point	Removable	псрт		
No	Beta	Alpha	Description	
	0	i	Concrete @ Boltam	
2	5	0	1	
3	0	2	V	

Smears counted by_	DM.Gee	_Date <u>4./4. <i>05</i></u> _Ludlum 2929β eff_	20.6	_%
		α eff_	45.4	%

Surveyed by:	R	McGee	Date/Time 4-13-05	11140

Survey Data Snee	burvey	Data	Sneet
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Item ID ______ BKG-003

Instrment ID	2929 #	152202	
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BKGD

Beta<u>52</u>cpm Alpha<u>6.2</u>cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	-6	0	Concrete @ Bottem
2	-2	1	(1

Smears counted by_	Omelee	_Date <u>414-05</u>	∕ _ Ludlum 2929β eff_	20.6	_%
			α eff	45.4	%

Durce		· 1
Surveyed by:	Date/Time	4-13-05/1125
		· · · · · · · · · · · · · · · · · · ·

Item ID BKGI LOCATION B-3 Instrment ID 2929 # 152202

BKGD	Beta_	52	_cpm	Alpha_	0,1	cpm
------	-------	----	------	--------	-----	-----

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Point	Removable	ncpm		
No	Beta	Alpha	Description	
1	17	2.9	B-3 CONCRETE	
		- 		
				·

Smears counted by Migh Date 4/9/05 Ludium 2929-B eff 20.6% α eff 45.4 %

_____ Date_ 4/8/05 1430 Surveyed by: TABEN

Item ID BILLO COCASTON B-4 Instrment ID 2929 # 152202

BKGD Beta <u>52</u> cpm Alpha <u>0,1</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	4	0.9	B-4 CONONESE
2	11	1.9	
3	8	0.9	\checkmark

Smears counted by M_{α} Date $\frac{49/95}{105}$ Ludlum 2929-- β eff $\frac{20.6}{5.4}$ % α eff $\frac{45.4}{5.4}$ %

Surveyed by: <u>TABER</u> Date <u>4/8/05 / 1720</u>

Item ID BILGD LOCATION 3-5 Instrment ID 2929 # 152202

Beta<u>52</u>cpm Alpha<u>0.1</u>cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	2	0.9	3-5 CONCRESE
2	9	1.9	
3	13	1.9	

Smears counted by M_{1} Date $\frac{1/9/05}{1.05}$ Ludium 2929-- β eff $\frac{20.6}{5.4}$ %

Surveyed by: TABEN Date 4/8/05 HIS

BKGD

Item ID <u>BKGO Ø6</u>

Instrment ID 2929 #<u>152202</u>

BKGD Beta <u>52</u> cpm Alpha <u>0, Z</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
/	-10	-0,2	CONCRETE @ BOTTOM
2	22	-012	
3	8	-0.2	\mathbf{V}

Smears counted by M_{M} Date $\frac{4/14/05}{14/05}$ Ludium 2929-- β eff 20.6 %

α eff_45.4 % Surveyed by: \underline{DM}

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Rome New York

1/21/2005

Page C-7 of 8

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1JSurvey Area Name:Background Reference AreaSurvey Unit Name:Drain Section(s) Upstream from Building 104 Operations

Package: System

Section 6.0 Sample Analysis Results – Gamma Spectroscopy 4 Pages FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM (ENVIRONMENTAL/BIOASSAY SAMPLES)

Address of Client Representative: Framatome ANP Federal D&D Socuration	in(s) who should receive the results) John McGehee and Don McGee		Phone: (704)805-2298 Fax: (704)805-2512 NUMBER) (704)805-2576 Fax: (704)805-2512	Radiological Analyses (Check All That Apply) Quarterly) (Composite (Compos	2331 2337 2337 2337 2337 2337 2337 2337	<u>ン 正 (Specify Units) (5) (5) ゴ 王 山 (5) ゴ エ (5) コ ゴ (5) (5) (5) (5) (5) (5) (5) (5) (5) (5)</u>		×4429		X	~	~X	~1879 ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		~1282a	~1500g		menucomments SPECIFY METHOD ELAB ACCEPTANCE STAMP	(Internal Lab Use ONLY)		R4-228 (PROC. 1300)	RA-228_EPA (PROC. 1311)	-131LL (BETA/GAMMA)	
Science, Inc. Name/	744009.6000-00 (Persol		tandard Days (SPECIFY I		Collection Period (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay Start Date Stop Date Mid-point (If Applicable) (Required) [(If Applicable)]	ay lonth lonth Jay four Jay fear Jay fear fear		4 12 5 1030	4 12 5 940	4 4 11 5 900	4 10 5 1345	4 10 5 1230	4 · · · · · · · · · · · · · · · · · · ·	4 12 5 1510	4 8 5 1430	4 12 5 1620	4 13 5 1140			Phone Number: D4 805 220Y	Date:				
Parsons Engineering Task Order Number	4/14/2005	REMP D	D:			Station and Description	SA002	SA003	SA004	SA005	SA006	SA007	SA009	SA010	BKG04	BKG06	BKG01		lee.	N.					
Client Name: Client Purchase Order/Contract [.]	Date of Shipment:	Program:	Requested Turnaround Time (TA		ON	PLEK PLEN Sample Type	studge	studge	sludge	sludge	studge	studge	sludge	sludge	studge	sludge	studge	Chain of Custody	elinquished By: Lon Mar 2	ollected By: Jaw Mile Alle	LAB Comments:				

FORM 605.1, REV. 14


Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

					Framatome ANP Inc
Customer	Framatome ANP Inc	FEDERAL GRP	Report Date	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street Charlotte, NC 28285

Lab. Sample No.	L9126-22	Client ID	BKG01
Reference Date	04/13/05	Analysis Date	04/25/05

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

Nuclida	Activity (+/- 1	Con - S	centration Igma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
	q)	ıCi/ş	g)	(pCi/g)	(pCi/g)	(pCi/g)		
AcTh-228	3.1 E- 01	+/-	1.0E-01	1 0E-01	3.0E-01		bc	
Ag-108m	-3.9E-02	+/-	1.3E-02	1 3E-02	5.7E-02			
Ag-110m	-1 3E-02	+/-	2.1E-02	2 1E-02	8.7E-02			
Ba-140	3 2E-02	+/-	9.5E-02	9.5E-02	3.5E-01			
Be-7	7.2E-01	+/-	1.9E-01	1.9E-01	5 2E-01		bc	
Bi-214	3.74E-01	+/-	5 2E-02	5.6E-02	1.1E-01		bc	
Ce-141	-3.7E-02	+/-	2 5E-02	2.6E-02	9 4E-02			
Ce-144	3.4E-02	+/-	8.1E-02	8 2E-02	2.8E-01			
Co-57	-1 28E-02	+/-	9.4E-03	9.4E-03	3 5E-02			
Co-58	2.1E-02	+/-	1.8E-02	1.8E-02	6.0E-02			
Co-60	-3E-03	+/-	1.5E-02	1.5E-02	6 2E-02			
Cr-51	-2E-02	+/-	1.3E-01	1.3E-01	4.7E-01			
Cs-134	-1.7E-02	+1	1 5E-02	1 5E-02	6.0E-02	1 5E-01		
Cs-137	1.14E-01	+/	3 0E-02	3.1E-02	8 8E-02	1.8E-01	bc	
Fe-59	-2.4E-02	+/-	3.7E-02	3.7E-02	1 5E-01			
I-131	3.8E-02	+/-	3.2E-02	3.2E-02	1 1E-01			
K-40	1.518E+01	+/-	8.4E-01	1 1E+00	7 9E-01		bc	
La-140	3.2E-02	+/-	5.1E-02	5.1E-02	1.8E-01			
Mn-54	-1E-02	+/-	1 7E-02	1.7E-02	6.8E-02			
Nb-95	-1.5E-02	+ <i>†</i> .,	2.0E-02	2.0E-02	7 8E-02			
Pb-214	3 19E-01	+/-	4 2E-02	4 5E-02	1.2E-01		bc	
Ru-103	-1.9 E-0 2	+/-	1.6E-02	1 6E-02	6.5E-02			
Ru-106	-2E-02	+/-	1.4E-01	1.4E-01	5 5E-01			
Sb-124	-3.8E-02	+ / -	2 8E-02	2.8E-02	1.5E-01			
Sb-125	-6E-03	+/-	4.3E-02	4.3E-02	1.6E-01			
Se-75	-1E-03	+/-	1 9E-02	1.9E-02	6 9E-02			
Zn-65	-7.7E-02	+/-	4 6E-02	4.6E-02	1.9E-01			
Zr-95	1.2E-02	+/-	2 7E-02	2 7E-02	9.9E-02			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

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MAY	0	6	2005
FRAM/ ENVIRON	ат NM		IE ANP ITAL LAB

Page 1 of 1

Approved by Glollaron

E M Moreno Sample Control and Measurements Lead

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Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

C			Denand Date	65 (64 (6 C	Framatome ANP Inc
Customer	Frantatome AME Inc	FEDERAL GRP	Report Date	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street Charlotte, NC 28285

Lab. Sample No. L9126-20 Reference Date 04/08/05 Client ID BKG04 Analysis Date 04/25/05 Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

Nuclide	Activity Co	ncentration Sloma	TPU 1 Sigma	Measured MDC	Required MDC	Fians	
	(pC	Vg)	(pCi/g)	(pCi/g)	(pCi/g)	1	
AcTh-228	3.6E-01 +	/- 1.2E-01	1 2E-01	3.4E-01		bc	
Ag-108m	-1 9E-02 +	/- 1. 7E-02	1.7E-02	6 7E-02			
Ag-110m	0E+00 +	/- 2.9 E-02	2.9E-02	1 1E-01			
Ba-140	3E-02 +	/- 1.8 E- 01	1.8E-01	6 5E-01			
Be-7	-2E-02 +	/- 2.2E-01	2.2E-01	8.1E-01			
Bi-214	5.34E-01 +	/- 81E-02	8 5E-02	2 0E-01		bc	
Ce 141	1.7E-02 +	/- 4 2E-02	4 2E-02	1.4E-01			
Ce-144	-8E-02 +	/ 1.3E-01	1.3E-01	4 6E-01			
Co-57	-2.3E-02 +	/- 16E-02	1.6E-02	5.9E-02			
Co-58	-1.8E-02 +,	- 1.6E-02	1.6E-02	7.3E-02			
Co-60	2 1E-02 +,	- 21E-02	2 2E-02	7.6E-02			
Cr-51	-2E-02 +/	- 2.5E-01	2 5E-01	8.9E-01			
Cs-134	-2.2E-02 +/	- 3.5E-02	3 5E-02	1.3E-01	1 5E-01		
Cs-137	5.2E-02 +/	- 2.9E-02	2.9E-02	9 5E-02	1 8E-01	C	
Fe-59	-5.6E-02 +/	- 4.6E-02	4.5E-02	2 0E-01			
I-131	-8.5E-02 +/	- 8.8E-02	8.8E-02	3.3E-01			
K-40	9.39E+00 +/	- 7.4E-01	8 7E-01	7 8E-01		bc	
La-140	9E-02 +/	- 9.3E-02	9 3E-02	3 2E-01			
Mn-54	2E-02 +/	- 2.1E-02	2 1E-02	7 4E-02			
Nb-95	1 5E-02 +/	- 3 0E-02	3 0E-02	1 1E-01			
Pb-214	4.15E-01 +/	6.0E-02	6.4E-02	2.0E-01		bc	
Ru-103	3 8E-02 +/	- 2.2E-02	2.2E-02	7 2E-02			
Ru-106	0E+00 +/	- 1.7E-01	1.7E-01	6 6E-01			
Sb-124	-5E-03 +/	- 4.1E-02	4.1E-02	1 8E-01			
Sb-125	7.5E-02 +/	- 5.4E-02	5.5E-02	1 8E-01			
Se-75	-1 8E-02 +/	- 2.7E-02	2.7E-02	1 0E-01			
Zn-65	~1.1E-02 +/	- 6.1E-02	6.1E-02	2 3E-01			
Zr-95	7E-03 +/	- 3.4E-02	3.4E-02	1 5E-01			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only



Page 1 of 1

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É 'M Moreno ' Sample Control and Measurements Lead

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Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

_ /					Framatome ANP Inc
Customer	Framatome ANP Inc	FEDERAL GRP	Report Date	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street Charlotte, NC 28285

Lab. Sample No.	L9126-21	Client ID	BKG06
Reference Date	04/12/05	Analysis Date	04/25/05

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

Nuçlide	Activity +/- 1	Con - Sl	centration gma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
	(F	oCi/g	1)	(pCi/g)	(pCi/g)	(pCi/g)		
AcTh-228	3.19E-01	+/-	3.9E-02	4 2E-02	1 5E-01		bc	<u> </u>
Ag-108m	3 2E-03	+/-	7.9E-03	7.9E-03	2.8E-02			
Ag-110m	-3E-03	+/-	1.6E-02	1.6E-02	5 9E-02			
Ba-140	3.7E-02	+/-	7.3E-02	7.3E-02	2 6E-01			
Be-7	1.7E-02	+/-	9 2E-02	9.2E-02	3 2E-01			
Bi-214	2 83E-01	+/-	3.2E-02	3.5E-02	9 9E-02		bc	
Ce-141	-6E-03	+/	1.9E-02	1.9E-02	6 5E-02			
Ce-144	-6.2E-02	+/-	6.4E-02	6 4E-02	2 2E-01			
Co-57	-8.8E-03	+/-	8.2E-03	8 2E-03	2.9E-02			
Co-58	7E-03	+/-	1.1E-02	1 1E-02	3.9E-02			
Ca-60	7E-03	+/-	1.2E-02	1.2E-02	4 3E-02			
Cr-51	7.2E-82	+/-	9.9E-02	9.9E-02	3.4E-01			
Cs-134	5E-03	+/-	1.0E-02	1.0E-02	3 8E-02	1.5E-01		
Cs-137	9E-03	+/-	1.3E-02	1.3E-02	4 4E-02	1.8E-01		
Fe-59	-3.3E-02	+/-	2 8E-02	2.8E-02	1 1E-01			
i-131	5E-03	+/-	2 8E-02	2.8E-02	9 8E-02			
K-40	1.56E+01	+/-	5 2E-01	9.3E-01	4 3E-01		bc	
La-140	0E+00	+/-	3.2E-02	3 2E-02	1 2E-01			
Mn-54	-1 7E-02	+/-	1.1E-02	1.1E-02	4 2E-02			
Nb-95	-1.6E-02	+/	1 3E-02	1 3E-02	5 0E-02			
Pb-214	3.46E-01	+/-	2 9E-02	3.4E-02	9.1E-02		bc	
Ru-103	3E-03	+/	1.1E-02	1.1E-02	3 7E-02			
Ru-106	9.7E-02	+/	9.7E-02	9.7E-02	3.3E-01			
Sb-124	5E-03	+/-	1.6E-02	1 6E-02	6 4E-02			
Sb-125	4.4E-02	+/-	2 6E-02	2 6E-02	8 5E-02			
Se-75	-2 2E-02	+/-	1 3E-02	1.3 E-0 2	4 9E-02			
Zn-65	8 5E-02	+/-	5 6E-02	5.6E-02	1.8E-01			
Zr-95	1 6E-02	+/-	1 7E-02	1 7E-02	6 7E-02			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.



Page 1 of 1

Approved by

E M Moreno Sample Control and Measurements Lead

C:

Rome New York

1/21/2005

Page C-8 of 8

Survey Package Appendix C – Survey Results

Survey Package:F1000 401B1Survey Area Name:Background RefSurvey Unit Name:Drain Section(s)

F1000 401B1Package: SystemBackground Reference AreaDrain Section(s) Upstream from Building 104 Operations

Section 7.0 Sample Analysis Results – Alpha Spectroscopy _/_ Pages Environmental L. Jratory Analysis Report

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AREVA

29 Research Drive Westboro, MA 01581 508-898-9970

> Customer Framatome ANP Inc FEI Framatome ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

FEDERAL GRP

Product RA-226 (A)

Report Date 05/12/05 Receipt Date 04/14/05

Attn: John McGehee & Don McGee

		Reference	Analysis		Activity C	oncentration 1-Sigma	TPU 1 Sioma	Measured	Required	
rsn	Cilent ID & Description	Date	Date	Nuclide	9	pCI/g)	(pCl/g)	(pcl/g)	(pCi(g)	Reporting Flags Level Ratio
Sludge (Dn	Q									
L9126-14	SA004	04/12/2005	05/10/2005	Ra-226	2.79E+00	+/- 5.8E-01	6.1E-01	4.0E-01	7.0E-01	٩
L9126-15	SAOD5	04/11/2005	05/10/2005	Ra-226	7.8E-02	+/~ 9,1E-02	9.1E-02	3.6E-01	7.0E-01	
L9126-16	SA006	04/10/2005	05/10/2005	Ra-226	3.3E-01	+/- 2.0E-01	2.0E-D1	4.05-01	7.0E-01	
L9126-17	SA007	04/10/2005	05/10/2005	Ra-226	1.7E-01	+/- 1.2E-01	1.2E-01	3.1E-01	7.0E-01	
L9126-18	SA009	04/09/2005	05/10/2005	Ra-226	4.9E-01	+/- 2.9E-01	2.9E-01	5.9E-01	7.0E-01	
L9126-19	SAD10	04/12/2005	05/10/2005	Ra-226	1.03E+00	+/- 2.5E-01	2.6E-01	1.9E-01	7.0E-01	٩
L9126-20	BKG04	04/08/2005	05/10/2005	R a- 226	4.3E-01	+/- 1.85-01	1.8E-01	2.8E-01	7.0E-01	
L9126-21	BKG06	04/12/2005	05/10/2005	Re-226	2.9E-01	+/- 1.4E-01	1.5E-01	2.2E-01	7.0E-01	
L9126-22	BKG01	04/13/2005	05/10/2005	Ra-226	2.9E-01	+/- 1.5E-01	1.5E-01	2.4E-01	7.0E-01	
L9126-23	SPLIT OF #L9126-03	04/15/2005	05/10/2005	Ra-226	-1.1E-03	+/- 1.1E-03	1.1E-03	3.2E-01	7.0E-01	
L9126-24	SPLIT OF #L9126-06	04/15/2005	05/10/2005	Ra-226	1.59E-01	+/- 9.3E-02	9.3E-02	1.8E-01	7.0E-01	
L9126-25	DUP OF #L9126-15	04/15/2005	05/10/2005	Ra-226	1.6E-01	+/- 1.2E-01	1.2E-01	3.3E-01	7.0E-01	
L9126-26	DUP OF #L9126-17	04/15/2005	05/10/2005	Ra-226	1.18E-01	+/- 8.4E-02	8.4E-02	1.8E-01	7.0E-01	
Flags:	a The measured MDC is greater than thu b The activity concentration is greater th	le required MD tan three time:	IC. s its one sigm	a counting uncertainly.				Time	Approved TUUU 5	u by (10/05
					L	MAIL	ED	Sample Co	E. M. More	no asurements Lead

Page 1 of 1

FRAMATOME ANP ENVIRONMENTAL LAB

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 8.0 Survey Package E2000 201C1 Storm Drain System

Rome New York

		Survey Package	Cover Sheet	
		Survey rackage	Cover Sheet	
Survey Package	Number:	E2000 201C1	Package Typ	e: System
Survey Area Na	me:	Storm Drain System		
Survey Unit Nar	ne:	Storm Drain System S Operations	Section Down Stream of	Building 104
Survey Package	Preparati	on:		
The survey packa	ige instruct	ions are prepared and 1	eady for implementatio	n.
Prepared By:	Kohn McGenee	Senior Engineer		Date: <u>3/11/05</u>
Reviewed By: _	Don McGee, S	epior Engineer		Date: <u>3/28/05</u>
Approved By:	Greg Courtney	Senior Engineer CHP	1	Date: <u>3/20/25</u>
Survey Complet	ion:			
The survey packa reviewed for com collected has been instructions.	nge instruct apleteness i n reviewed	ions were implemented n accordance with the for completeness in ac	l and the survey measur Sample and Analysis Pl cordance with the surve	ements have been an. The data ey package

Reviewed By:	John WicGehee, Senior Engineer	Date:	0/9/65
Reviewed By:	Don McGee, Senior Engineer	Date:	6/9/05
Reviewed By:	Greg Courtney, Senior Engineer, CHP	Date:	6/9/05
Approved By:	PARSONS Repersentative	Date:	

Framatome ANP Federal DD Services

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Rome New York

1/21/2005			Page 2 of 15			
	Table of Contents					
Survey Package Number	E2000 201C1	Package Type:	System			
Survey Area Name:	Storm Drain System					
Survey Unit Name:	Storm Drain System S Operations	ection Down Stream of Buildin	ng 104			
Section Title		Page				
1.0 Survey Area His	story	3				
2.0 Survey Unit Des	cription and History	4				
3.0 References		6				
4.0 Safety		7				
5.0 Support		8				
6.0 Procedures		9				
7.0 General Survey	Package Instruction	10				
8.0 Specific Survey	Package Instruction	12				
9.0 Location Codes		14				
10.0 Appendix A, Dra	awings					
11.0 Appendix B, Ph	otographs					
12.0 Appendix C, Su	rvey Results					

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Rome New York

1/21/2005

Page 3 of 15

Survey Area History				
Survey Package Number:	E2000 201C1	Package Type:	System	
Survey Area Name:	Storm Drain System			
Survey Unit Name: Storm Drain System Section Down Stream of Building 104 Operations				

Survey Area Description:

Potentially impacted portion of the storm drain system down stream of Building 104

Survey Area History Information:

The Griffiss Air Force Base (AFB) site, located in Rome, New York, is situated in the Mohawk Valley among the Mohawk River, Six Mile Creek, and the New York State Barge Canal. The base, which began operation in 1943, encompasses 3,552 acres and was home to the 416th Combat Support Group under the Air Combat Command until the base was designated for realignment under the Base Realignment and Closure Act (BRAC) in 1993 and 1995. The Former Griffiss AFB is currently utilized as the Rome Research Site (RRS).

The site is on the Environmental Protection Agency (EPA) National Priority List (NPL) due to use and handling of hazardous substances from operations at the former Griffiss AFB According to EPA New York (Region 2) National Priority Site Fact Sheets, EPA ID# NY4571924451, Griffiss Air Force Base New York, December 2003, while in operation, various wastes, including solvents and lead from battery acids, were generated from research and development activities in the industrial shops and laboratories. These wastes were disposed in landfills and dry wells located throughout the base and subsequently volatile organic compounds (VOCs) have been detected in groundwater on the base. An Interagency Agreement among the EPA, NY State, and Griffiss AFB to clean up the site was signed in June 1990.

In conjunction with the cleanups, portions of the base property will be transferred prior to completion of cleanup activities (as newly allowed under CERCLA/CERFA) through the covenant deferral request (CDR) process. One potential transfer involves the sanitary and storm sewer systems and associated easements. To facilitate this transfer and to determine if special precautions are required during intrusive maintenance of these utilities, this Radiological Characterization and Preliminary Assessment/Site Investigation (PA/SI) is being conducted.

Rome New York

1/21/2005			Page 4 of 15
	Survey Unit I	Description and History	
Survey Package	Number: E2000 201C	1 Package Type:	System
LC1: E2000	Survey Area Name:	Storm Drain System	
LC2: 201C1 Survey Unit Name: Storm Drain System Section Down Stream of Building 104 Operations			

LC3 - Surface Category (P1-3) and Associated Area:

LC3_P1_3	Surface Description	Dimensions 7 (Yes or No)	'otal Area (m2)
DM1	Storm Drain	No	0

Work Breakdown Structure Information:

WBS ID: 10002 PA/SI Storm Drain System

Survey Unit Description:

The storm drains from Building 104 to the Lift Station Building 21 and from the Lift Station Building 21 to 3 Mile Creek

Survey Unit Historical Information: Operational History, etc.

Based on historical records, interviews, known operations and preliminary radiological screening results from the floor drains within and adjacent to Building 104 (former radium paint shop in the 1940's), there are indications that the Building 104 floor drains may be contaminated with radioactive materials. Preliminary radiological surveys were performed by the AF Institute for Operational Health's Occupational Health Physics Branch (AFIOH/SDRO) and were accomplished in the fall of 2003. The AFIOH/SDRO investigation found low-level radioactivity above background levels in building components and an area immediately above a former floor drain. These results are documented in the Memorandum for Air Force Research Laboratory, Subject: Consultative Letter, IOH-SD-BR-CL-2004-0004, Radium/Radon Monitoring and Dose Assessment Due to Past Luminous Paint Operations at the Rome Research Site, Rome, NY, 8 February 2004 (the AFIOH/SDRO memorandum) in which details of the investigation and calculated dose levels for certain areas of Building 104 have been presented; this memorandum is presented in the SAP Appendix A.

The above information and data indicate a possibility that there may be radiological contamination in portions of the storm drain system at the former Griffiss AFB. The activity that may have contributed to the accumulation of radioactive contamination inside the storm drain lines is the possible release of radium paint into floor drains. Because no previous surveys have been conducted inside the storm drain lines, there is no information to demonstrate the presence or absence of radioactive contamination. The storm drain system is currently not designated as Installation Restoration Program (IRP) Sites. This PA/SI is designed to define the presence or absence of radioactive waste and/or contamination inside the storm drain system

Rome New York

1/21/2005			Page 5 of 15
	Survey Unit Description	on and History	
Survey Package	Number: E2000 201C1	Package Type:	System
LC1: E2000	Survey Area Name: Storm Drai	n System	
LC2: 201C1	Survey Unit Name: Storm Drai Building 1	n System Section Down Str 04 Operations	eam of

associated with Building 104.

The layout of the storm drains from Building 104 is shown in Drawing E2000-1. Drawings depicting the layout of the systems from Building 104 to the Lift Station Building 21 and from the Lift Station Building 21 to 3 Mile Creek are presented as Drawing E2000-2 and Drawing E2000-3. The AFIOH/SDRO memorandum included this written descriptions of the storm drain lines from Building 104 as follows:

Storm Sewer: A 6" Storm Sewer pipe on the west of Building 104 opens to a 10" pipe on the south before tying on the southeast with the main 36" This opens to the 48" pipe running down Electronic Parkway and off the base property to the outfalls into Three Mile Creek.

However, closer examination of the drawings show that the 48" pipe opens to a 72" run that discharges at the headwaters of Three Mile Creek, which appears to be on base.

Plumbing: A 3" floor drain in the Cleaning Unit was labeled as "not in use" but feeds into a 6" storm drain which exits on the east center of Bldg 104. Sinks currently in Room 25 (former Luminous Painting Unit, west wall) and in the Room 24 (Janitor Closet, east wall) are likely impacted. They feed into the 3" building drain which exits on the west of Bldg 104. The Spray Painting Unit had a lavatory sink on the west wall; its drainage was not indicated but is most likely into the 6" storm drain exiting to the east. Two 3" storm drains from the roof exit the building to the east.

Additional Information Regarding Survey Unit Classification:

Inside RCA?	No
NA	
Coolant ?	No
NA	
Spills?	No
NA	

Rome New York

1/21/2005			Page 6 of 15
	Survey Package R	eferences	
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Sect Operations	ion Down Stream of Build	ing 104

References:

- 1 Sample and Analysis Plan for the Griffiss AFB PA/SI Survey, Rev 0, August 2004, Framatome ANP
- 2 Site Safety and Health Plan for the Griffiss AFB PA/SI Survey, August 2004, Framatome ANP
- 3. Quality Assurance Project Plan for the Griffiss AFB PA/SI Survey, Rev 0, July 2004, Framatome ANP
- 4. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), EPA402-R-97-016 (NUREG-1575), August 2000

Rome New York

1/21/2005			Page 7 of 15
	Survey Safety Requ	uirements	
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Building 104 Operations		

Safety Requirement and Considerations:

- 1. During the daily meetings, the team will be briefed concerning on the planned activities and any anticipated hazards due to site investigation activities as presented in the Site Safety and Health Plan, Job Safety Analysis.
- 2. During the daily meetings, the team will be briefed concerning necessary precautions to minimize exposure to potential and identified hazards as presented in the Site Safety and Health Plan, Job Safety Analysis.
- 3. Conduct and document daily tailgate safety meetings as required in the Site Safety and Health Plan.

Rome New York

1/21/2005			Page 8 of 15
	Survey Support Re	quirements	
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Building 104 Operations		

Survey Support Requirements and Considerations:

-1

- 1 Project Team to provide support for opening and closing systems (manhole covers) to facilitate survey.
- 2. Health and Safety to review requirements for Confined Space Entry.

Rome New York

1/21/2005			·····	Page 9 of 15
		Survey Package	Procedures	
Sur	vey Package Numb	er: E2000 201C1	Package Type:	System
Sur	vey Area Name:	Storm Drain System		
Survey Unit Name:		Storm Drain System Se Operations	Storm Drain System Section Down Stream of Building 104 Operations	
Sur	vey Package Proce	dures:		
1	DD-CS-001	Sample Identification and C	hain of Custody	
2.	DD-CS-011	Operation of Ludlum Mode	1 2350 Data Logger	
3.	DD-RP-010	Portable Instrument Procedu	ne	
4.	DD-RP-039	Quality Control of Counting	g Systems and Portable Counter	ers

- 5. DD-RP-049 Operation of the Ludlum Model 2929

Rome New York

Page 10 of 15

General Survey Package Instructions			
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Sect Operations	tion Down Stream of Buildin	ng 104

1. The primary Data Quality Objective (DQO) of the storm drain portion of the PA/SI survey is to perform measurements and collect samples to determine if residual Ra-226 contamination above natural background is present.

The measurements and samples will be compared to the Background Study measurements and samples to evaluate the natural background radioactivity component associated with the materials of construction of the storm drain system and Ra-226 present in the sediments and soils of the environs surrounding or associated with the impacted system.

2. Entry into confined spaces will not be required for the survey. Measurements and sampling will be performed utilizing long reaching poles from above the manhole.

Outfall sampling of Three Mile Creek sediments will be performed at the storm drain system outlet.

3 The project team will perform visual inspection of up to 3,000 feet of accessible storm drain piping ranging in size from 10" diameter up to 72" diameter piping.

Entry of personnel into the systems is not planned for this PA/SI survey; the interior of the piping will be viewed on a remote monitor, videoed and recorded. Locations where the system piping has cracked or broken will be indicated on drawings along with a written description of the type and extent of the damage. The video survey detail will include: distance to and locations of the system interior surfaces and will be video recorded and related to Griffiss AFB manhole numbers.

4. If materials that are potentially hazardous materials are encountered during the survey, stop work, report the location of the material to Supervisory personnel and SHSO and note this in the "Field Notes" section.

Supervisory personnel and SHSO will evaluate the condition and develop and appropriate remedy.

- 5. Sediment samples and/or scraping samples will be collected from the sides and/or bottom of the system piping and manhole location. The project team will mark or map the survey sample locations as applicable
- 6. The samples will be packaged and field screened by the project team personnel, chain of custody forms and sample shipping paperwork completed, and sent to the offsite FANP E-Lab for analysis.
- 7 Perform a pre-use source check and a post-use source check in accordance with the applicable operation procedure for each day an instrument is used for the survey

1/21/2005

Rome New York

1/21/2005

Page 11 of 15

General Survey Package Instructions			
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name: Storm Drain System Section Down Stream of Building 104 Operations			g 104

- 8. The measurement and sample quantities prescribed in the Survey Package Location Code section are the minimum requirements for this survey Additional measurements and samples may be collected as needed to achieve survey objectives.
- 9 All samples are to be logged into the Sample Database at completion of survey or at end of shift at a minimum. The M2350 data logger(s) are to be downloaded into the Measurement Database at completion of survey or at end of shift at a minimum.
- 10. When all samples or measurements are collected, initial and date the "Collected By" block on the Survey Package Location Code sheet to indicate the measurements or samples were collected
- 11. Note any problems, comments, or other information pertinent to the data or sample collection under the "FIELD NOTES" section.
- 12 Place survey data, measurement and sample analysis reports, drawings, etc., in the appropriate section of Appendix C, Survey Results, as they are generated and approved.
- 13 Supervisory personnel will review the completed survey packages to ensure that all required surveys have been performed and that the completed survey packages contain all necessary information.

Rome New York

4/10/2005

Page 12 of 15

Specific Survey Package Instructions

Survey Package Number:	E2000 201C1	Package Type:	System				
Survey Area Name:	form Drain System						
Survey Unit Name:	Storm Drain System Section Do Operations	wn Stream of Building 104	ŀ				

1. Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement) or LC4_P5 as "A" for Average Background (applied to measurements).

2. Direct Beta

Collect a single shielded background at each of the direct beta measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "A" for Average Background (for measurements).

3 Direct Alpha

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement) or LC4_P5 as "A" for Average Background (applied to measurements).

4 Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "A" for Average Background (for measurements).

5. Gamma Contact

Collect a contact gamma measurement at each of the direct beta measurement locations.

Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count.

Rome New York

1/21/2005			Page 12 of 15					
Spe	ge Instructions							
Survey Package Number:	E2000 201C1	Package Type:	System					
Survey Area Name:	Storm Drain System							
Survey Unit Name:	Storm Drain System Sec Operations	tion Down Stream of Buildi	ıg 104					

1 Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement).

2. Direct Beta

Collect a single shielded background at each of the direct beta measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

3. Direct Alpha

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count and LC4_P5 as "S" for Single Background (per measurement).

4. Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4_P4 as "G," field background and LC4_P5 as "S" for Single Background (per measurement).

5. Gamma Contact

Collect a contact gamma measurement at each of the direct beta measurement locations.

Use LMI Model 44-10, the M2350 in the scaler mode with a N5 second count time and code the measurement LC4_P4 as "F," for Field Count.

6. Gamma 1 M

Collect a gamma measurement at 1 meter distance above ground and above the surveyed manhole.

Exposure rate measurements are outside manhole and are for information only. Use LMI Model 44-10, the M2350 in the scaler mode with a 15 second count time and code the measurement LC4_P4 as "F," for Field Count.

See Quision 4/10/05 AM

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Rome New York

4/10/2005	. <u></u>		Page 13 of 15
Spe	ecific Survey Packa	ge Instructions	
Survey Package Number:	E2000 201C1	Package Type:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Sec Operations	tion Down Stream of Buildir	ng 104

Gamma 1 M 6.

Collect a gamma measurement at 1 meter distance above ground and above the surveyed manhole

Exposure rate measurements are outside manhole and are for information only. Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4_P4 as "F," for Field Count.

7. A/B Smear

Smear samples for removable alpha and beta contamination will be collected at each of the locations where direct measurements were performed

The smear samples will be collected by attaching the cloth smear to a long reaching, manually positioned pole, applying moderate pressure and wiping approximately 100 cm2 area for the sample or by alternate methods including utilization of remote visual inspection equipment. Also, collect residues on smears from cable when extracted from sewer for alpha and beta counting. Collecting smears every 100 feet of cable extracted from the storm drain system may give an indication of contaminate location

G-Spec Sample 8.

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis.

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

9 G-Spec Sample

If an amount to produce 5 to 10 g Soil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 8 is completed.

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	1/21/2005			Page 13 of 15
)	Spe	ecific Survey Pack	age Instructions	
	Survey Package Number:	E2000 201C1	Package Type:	System
	Survey Area Name:	Storm Drain System		
	Survey Unit Name:	Storm Drain System Se Operations	ection Down Stream of Buildi	ng 104

7. A/B Smear

Smear samples for removable alpha and beta contamination will be collected at each of the locations where direct measurements were performed.

The smear samples will be collected by attaching the cloth smear to a long reaching, manually positioned pole, applying moderate pressure and wiping approximately 100 cm2 area for the sample or by alternate methods including utilization of remote visual inspection equipment. Also, collect residues on smears from cable when extracted from sewer for alpha and beta counting. Collecting smears every 100 feet of cable extracted from the storm drain system may give an indication of contamination location.

8. G-Spec Sample

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

9 G-Spec Sample

If an amount to produce 5 to 10 g Soil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 8 is completed.

See Ruvisian 4/10/85 All SDMS Documentation Version 10

Rome New York

1/21/20	05							Page 14 of 15
		Surv	ey Ρε	icka	ge Location	Codes		
Surve	ey Pack	age Number: E20	00 201	C1		Package Ty	ре	System
LC1: E2000 Survey Area N			Name:	Stor	m Drain System	<u> </u>		
LC2: 201C1 Survey Unit Nam			Name:	Stor 104	m Drain Systen Operations	1 Section Dow	n Stream	of Building
		Class Descrip	tion:	Imp	acted System			
		Reason Descrip	tion:	Cl	Characterizatio	on Survey		
LC3 -	Surface	e Category P1-3:	DM	1	Storm Drain		· · · ·	
LC3	P45	Material Descriptio	n					
V2	Vit	trified Clay Pipe						
S1	So	il						
R1	See	diment						
Gl	Mi	scellaneous Material						
C1	Co	ncrete (Bare)						
B1	Bri	ck						

LC4_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

Measurement	LC4 P13 Code	Model	Description	Qty Prescribed	Qty Collected	Collected By (Initials)
A/B Smear	L.01	A/B Smear Analysis	Alpha/Beta Counter	18	35	Ju
Direct Alpha	A02	43-5A	Alpha Scintillator	18	24	o jm
Direct Beta	B01	44-40B	GM Pancake	18	27	Jlu
Gamma 1M	G02	44-10	2"x2" NaI(11) Gamma Scintillator	18	26	Jun
Gamma Contact	G01	44-10	2"x2" NaI(11) Gamma Scintillator	18	50	Alu
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	18		Om

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Rome New York

1/21/2003	Survey Pa	ickage Loc	ation Codes	Page 15 01 15
Survey Pac	kage Number: E2000 201	C1	Package Type	System
LC1: E2000	0 Survey Area Name:	Storm Drain	System	
LC2: 201C	1 Survey Unit Name:	Storm Drain 104 Operatio	System Section Down Streams	am of Building
	Class Description:	Impacted Sy	stem	
	Reason Description:	C1 Charac	terization Survey	
LC4_P4 - C	Count Type	LC4	_P5 - Background Mode C	Codes
A Pre-use	e Background Check	А	Average Background	
B Pre-use	e Source Check	Ν	Background Not Required	
C Post-us	e Background Check	S	Single Background	
D Post-us	e Source Check			
F Field C	Count			
G Field B	lackground			
S Field S	can			
G Field B S Field S Survey Fiel	ackground can Id Notes: Additional info	rmation rega	ding the performance of t	he

survey, measurements, sample collection, etc. Use additional pages as needed for field notes.

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Page A-1 of 1

Survey Package Appendix A – Drawings

Survey Package:E2000 201C1Package: SystemSurvey Area Name:Storm Drain SystemSurvey Unit Name:Storm Drain System Section Down Stream of Building 104 Operations

Survey Package Appendix A - Drawings

Griffiss AFB - Storm Drain Line Building 104 to Three Mile Creek Survey Package E2000 201C1 Drawing No. E2000-1











Rome New York

1/21/2005

Page B-1 of 2

Survey Package Appendix B – Photographs

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section JNU 6/13/05

1/21/2005

Page C-1 of 8

Survey Package Appendix C – Survey Results

Survey Package:		E2000 201C1	Package:	System							
Survey Area	a Name:	Storm Drain System									
Survey Unit	Name:	Storm Drain System Section Down Stream of Building 104 Operations									
Section	Title			Total Pages							
1.0	Anno	tated Drawings		3							
2.0	Meası	rement Results – Direct Beta Measurements		6							
3.0	Measu	arement Results – Direct Alpha Measurement	ts	6							
4.0	Meası	rement Results – Exposure Rate Measureme	nts	Ý							
5.0	Samp	le Analysis Results – Alpha/Beta Counter		15							
6.0	Samp	e Analysis Results – Gamma Spectroscopy		6							
7.0	Sampl	e Analysis Results – Alpha Spectroscopy		2							

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1/21/2005

Page C-2 of 8

Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Section 1.0 Annotated Drawings <u>3</u> Pages Griffiss AFB - Storm Drain Line Building 104 to Three Mile Creek Survey Package E2000 201C1 Drawing No. E2000-1











1/21/2005

Page C-3 of 8

Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Section 2.0 Measurement Results – Direct Beta Measurements <u>6</u> Pages

Measurement Database Download Report Direct Beta Measurements

4/14/2005

Page 1 of 2

.

		oss Beta (dpm/ 00cm2)	8	81	83	68	25	05	85	51	72	45	32	65	12	25	52	32	19	12	52	
		- C	36	1453	1398	1428	z	63	49	75	55	56	4	47	49	54	42	51	35	60	64	
		Measureme Location Number	°	0	0	0	0	0	0	0	0	0	a	0	0	0	0	0	0	0	0	
) 		L7																				
G		TC6	-	-	6	53	-	ю	0	-	ы	а	-	10	-	10	-	-	7	-	-	:
iveAre cm2)	15.5	TCS	LAB01	LAB01	LAB01	LAB01	ST010	010LS	ST010	ST010	ST010	ST010	ST011	ST011	ST011	ST011	81009	ST009	ST009	ST008	ST008	
Acti		ILC4	B01AA	BOIBA	B01BA	BOIBA	BOIGA	BOIGA	B01GA	B01FA	B01FA	B01FA	B01GA	B01GA	BOIFA	BOIFA	BOIGA	BOIFA	B01FA	B01GA	BOIFA	
Beta aency	088	LC3	DSIV2	DS1V2	D\$1V2	D\$1V2	DMICI	DMICI	DMICI	DMIB1	DMIBI	DMIBI	DMICI									
4 pi Effic	Ö	LC2	DRT01	DRT01	DRT01	DRT01	201C1															
ह	-	IC1	FD145	FD145	FD145	FD145	E2000															
tor Seri unber	09497	Scaler Alarm	10	10	10	10	10	10	10	10	10	10	10	10	10	01	10	10	10	10	10	
Detect	PR	Window OnOroff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Model	40	Logging Mode	-	-	-	-	-	-	-	-	-	-	-	-	-	_	_	_	_	-	-	
Detector	44-	Count Time (secs)	300	60	60	60	60	99	60	99	60	60	60	60	99	09	60	60	09	09	60	
Package D) 201C1	Logged Count	1.83E+02	1.98E+03	1,91E+03	1.95E+03	7.40E+01	8.60E+01	6,80E+01	1.03E+02	7.60E+01	7,70E+01	5.50E+01	6.50E+01	6.70E+01	7.40E+01	5.80E+01	7.00E+01	4,80E+01	8.20E+01	8.80E+01	
Survey]	E200(Time	7:40:46 AM	7:47:14 AM	8:29:02 AM	8:30:36 AM	12:13:24 PM	12:15:06 PM	12:16:34 PM	12:19:44 PM	12:29:22 PM	12:31:16 PM	2:37:46 PM	2:39:02 PM	2:45:04 PM	2:46:38 PM	3:34:10 PM	3:36:38 PM	3:38.10 PM	4:34:10 PM	4:38:22 PM	
wnload Time	:58 PM	Date	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	
Do)5 2	ampie No	0	-	61	e1	4	s	9	E.	ø	6	10	11	12	13	14	15	16	17	18	
Downloa Date	4/10/20	Detector S Setup Number	9	Ŀ	Ĺ.	t	Ŀ	t-	É	F*-	E.	t	4	r	r	¢	6	Ŀ	Ĺ	Ŀ	•	
User	JLM0591	Detector Seriai Number	PR094971																			
Station	İ	User ID	JLM0591	1650M.IL	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JILM0591	JLM0591	JLM0591	JLM0591								
Ð	006	M2350 Serial Number	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	
Download	DL041005-	Package ID	FD145 DRT01	FD145 DRT01	FD145 DRT01	FD145 DRT01	E2000 201C1	E2000 201C1	E2000 201C1	E2000 201C1	E2000 201CI	E2000 201C1										

SDMS Documentation Version 1.0

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Measurement Database Download Report Direct Beta Measurements

4/14/2005

Page 2 of 2

		Gross Beta (dpm/ 100cm2)	6598	2214	143255	140176	148754	
8		Measurement Location Number	0	0	0	o	0	12
, 		L7						× ·
		FC6	17	-	-	10	0	
iveArea cm2)	15.5	LCS	ST008	LAB01	LAB01	LAB01	LAB01	ate:
Act (LC4	BolFA	BOICA	BOIDA	BOIDA	BOIDA	
Beta	.088	ΓG	DMICI	DSIBI	DSIBI	DSIBI	DSIBI	
4 pi Effic	0	LC2	201C1	DRT02	DRT02	DRT02	DRT02	
rial	11	ICI	E2000	FD145	FD145	FD145	FD145	S
tor Sei umber	09497	Scaler Alarm	9	10	10	10	l°(
Detec	PR	Window OnOroff	0	0	0	0	0	
Model	40	Logging Mode	-	-	-	-	_	d By:
Detector	44	Count Time (secs)	99	300	60	60	60	Approve
Package D	0 201C1	Logged Count	9.00E+01	1.51E+02	1,95E+03	1.91E+03	2.03E+03	1
Survey	E200(Time	4:40:16 PM	7:06:34 PM	7.14;48 PM	7:16:52 PM	7:18:52 PM	114
ownload Time	::58 PM	Date	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005	ate:
ad Do	005	Sample No	19	27	28	29	30	
Downlo	4/10/2	Detector Setup Number	t-	s.	L	r.	-	lun
User ID	1600WTr	Detector Serial Number	PR094971	PR094971	PR094971	PR094971	PR094971	MCDE
tation umber	-	User ID	ILM0591	JLM0591	JLM0591	JLM0591	JLM0591	
B S S	900	M2350 Serial Number	95349	95349	95349	95349	95349	N.
Download]	DL041005-(Package ID	E2000 201CI	FD145 DRT02	FD145 DRT02	FD145 DRT02	FD145 DRT02	Reviewed B

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Beta Measurements

4/11/2005

C007/11/4																	Pa	ge i of]	_	
Download II	D Sti Nu	ation mber	D User	Downlos Date	ad I	Download Time	Survey F II	Package D	Detector] Numt	Model	Detecto Nun	r Serial nber	4 H	pi Beta fictency	Ac	tiveAre (cm2)	ci			
DL041105-0(03	1	JLM0591	4/11/20	05	8:41 AM	E2000) 201C1	44-4	10	PR0.	94971		0.088		15.5				
Package ID	M2350 Serial Number	User ID	Detector Şerial Number	Detector Setup Number	Sample No	Date	Time	Count	Count Time (secs)	Loggmg Mode	Window S. OnOroff A	caler L Llarm	ы Б	2 TC3	LÇ	LCS	1C6	L7 N	feasurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01 9	5349	JLM0591	PR094971	6	3	3 4/10/2005	11:32:30 AM	1.81E+02	300	-	0	3 FD14	ts DRT(1 DSIBI	B01AA	LAB01	-		•	2654
FD145 DRT01 9	5349	JLM0591	PR094971	Ŀ		4/10/2005	11:36:14 AM	1.89E+03	60	-	0	3 FD1-	45 DRTI	01 DSIB1	B01BA	LAB01	-		0	138636
FD145 DRT01 9	5349	JLM0591	PR094971	Ŀ	N	2 4/10/2005	12:05:10 PM	2.01E+03	60	-	0	3 FDI-	15 DRT	01 DSIBI	BOIBA	LAB01	5		0	146994
FD145 DRT01 9	5349	JLM0591	PR094971	F		3 4/10/2005	12:06:26 PM	1.98E+03	60	-	0	3 FD1/	45 DRT(I DS1B1	B01BA	LAB01	0		0	44868
E2000 201C1 9	15349	JLM0591	PR094971	80	17	2 4/10/2005	2:19:34 PM	6.40E+01	60	-	0	3 E200	0 201C	1 DMIC	B01GA	ST007	-		0	4692
E2000 201C1 9	35349	JLM0591	PR094971	80	EI	3 4/10/2005	2:23:34 PM	5,90E+01	60	-	0	3 E200	0 201C	1 DMIC	B01FA	ST007	-		0	4326
E2000 201C1 9	\$5349	JLM0591	PR094971	80	14	4 4/10/2005	2:24:52 PM	6.60E+01	60	-	0	3 E200	0 201C	1 DMIC	BOIFA	ST007	7		0	4839
E2000 201C1 9	35349	JLM0591	PR094971	80	12	5 4/10/2005	3:01:50 PM	5.80E+01	60	-	0	3 E200	0 201C	1 DMIC	B01GA	ST006	-		0	4252
E2000 201C1 9	95349	JLM0591	PR094971	80	It	6 4/10/2005	3:04:12 PM	4.30E+01	80	-	0	3 E200	0 201C	1 DMIC	I BOIFA	ST006	-		0	3152
E2000 201C1 5	95349	JLM0591	PR094971	∞	11	7 4/10/2005	3:05:50 PM	4.50E+01	69	-	0	3 E200	0 201C	1 DMIC	BOIFA	ST006	5		0	3299
FD145 DRT02 5	95349	JLM0591	PR094971	6	15	8 4/10/2005	4:03:42 PM	1.72B+02	300	-	0	3 FD14	15 DRT(2 DMIC	1 BOICA	LAB01	-		0	2522
FD145 DRT02 5	95349	JLM0591	PR094971	r.	15	9 4/10/2005	4:09:54 PM	2.00E+03	80	-	0	3 FD14	15 DRT(2 DMIC	BOIDA	LAB01	_	-	0	46848
FD145 DRT02 5	95349	1650M.R	PR094971	t.	3	0 4/10/2005	4:11:36 PM	1.998403	60	-	0	3 FD1	15 DRT(2 DMIC	BOIDA	LAB01	17		0	45748
FD145 DRT02 5	95349	JLM0591	PR094971	4	3	1 4/10/2005	4:12:54 PM	2.01E+03	60	-	0		15 DRT(2 DMIC	A BOIDA	LAB01	0		0	46994
Reviewed By	۲Ŋ ×	M		alun		Date:	£/4	5	Approvec	1 By:	5					ate:		12	4	

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report

Direct Beta Measurements

4/14/2005

Page 1 of 2

		Gross Beta (dpm/ 100cm2)	2683	143915	150587	145088	4765	4692	4692	3445	4472	4912	4839	5425	5645	4326	4765	5645	3739	4399	3519	
		Measurement Location Number	0	0	0	0	0	٥	0	0	0	0	0	0	0	0	0	0	0	0	0	
		L7				-																
		LC6		-	1	0	_	_	5	_	_	1					_					
veArea m2)	15.5	LCS	LAB01	LAB01	LAB01	LAB01	ST005	ST005	ST005	ST004	ST004	ST004	ST003	ST003	ST003	ST002	ST002	ST002	STOOL	ST001	ST001	
Acti ((LC4	B01AA	BolBA	BOIBA	BOIBA	B01GA	BOIFA	BOIFA	B01GA	BOIFA	BOIFA	BOIGA	BOIFA	BOIFA	BOIGA	BOIFA	BOIFA	B01GA	BOIFA	BOIFA	
Beta lency	088	EC1	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI											
4 pi Effic	0	ĽC	ORTOI	DR T01	ORT01	ORTOI	01CI	10101	101CI	01C1	01C1	01C1	01C1	01C1	01CI	01C1	01C1	01C1	01C1	01CI	01C1	
lal	Π	rci	FD145 J	FD145 I	FD145 I	FD145 I	E2000 2	E2000 2	E2000 2	E2000 2	E2000 2	E2000 2	E2000 2	E2000 2	E2000 2							
or Ser imber	09497	Scaler Alarm	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
Detect	PR	Window OnOroff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Model	10	Logging Mode	-	-	· _	-	-	-	-	-	-	-	-	-	-		-	_	-	-		
Detector	44	Count Time (secs)	300	60	60	60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
ackage	201C1	Logged Count	1.83E+02	1,96E+03	2,05E+03	1.98E+03	5.50E+01	5.40E+01	5.40E+01	4.70E+01	5.10E+01	5,70E+01	5.60E+01	7.40E+01	7.70E+01	5.90E+01	5.50E+01	7.70E+01	5,10E+01	5.00E+01	1.80E+01	
Survey P II	E2000	Time	8:50:02 AM	9:02;26 AM	9:06:36 AM	9:08:04 AM	1:00:44 AM	1:02:34 AM	1:04:02 AM	1:53:52 AM	1:55:26 AM	1:56:50 AM	12:19:56 PM	. M4 85:12:51	.2:23:00 PM	1:11:42 PM	1:13:48 PM	1:15:14 PM	3:51:28 PM	3:53:00 PM	3:54:32 PM	
wnload Time	:03 AM	Date	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005 1	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005	
Ď	8	- Big	0	-	2		60	6	10	=	12	13	14	15	16	17	18	19	50	21	22	
/nload ate	2/2005	Sam																				
Dow	4/1	Detector Setup Number	9	r.	Ĺ	Ľ	90	ø	80	8	80	8	80	8	~	æ	80	8	80	80	80	
User	JLM0591	Detector Serial Number	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971											
Station	_	User	JLM0591	JI_M0591	JLM0591	JLM0591	JLM0591	IC 10291	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	ILM0591	
а -	302	M2350 Serial Number	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	95349	
Download	DL041205-(Package ID	FD145 DRT01	FD145 DRT01	FD145 DRT01	FD145 DRT01	E2000 201C1	E2000 201 C1	E2000 201C1	E2000 201 C1	E2000 201C1											

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Beta Measurements

4/14/2005

Page 2 of 2

		Gross Beta (dpm/ 100cm2)	4692	4912	4839	2317	148460	146921	142155	
		Measurement Location Number	0	0	0	0	o	0	0	N8
		L7					[
		PC6	_	-	10	-	-	61	0	
iveArea cm2)	15.5	LCS	ST013	ST013	\$T013	LAB01	LABOI	LABOI	L,AB01	ate:
) Act		LC4	B01GA	B01FA	BOIFA	B01CA	BOIDA	BOIDA	BOIDA	
Beta	088	εj	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	
4 pi Effic	0	2	201C1	201CI	201C1	DRT02	DRT02	DRT02	DRT02	
ıal	I	TC1	E2000	E2000	E2000	FD145	FD145 1	FD145	FD145 J	
tor Ser umber	109497	Scaler Alarm	16	16	16	16	16	16	ک ۃ	
Detec	PR	Window OnOroff	o	0	0	o	0	0	0	X,
Model ber	40	Logging Mode	-	-	-	-	-	-	-	d By:
Detector Num	44-	Count Tine (secs)	60	60	60	300	60	\$0	60	Approve
ackage) 201C1	Logged Count	6.40E+01	6.70E+01	6,60E+01	1.58E+02	2.03E+03	2.00E+03	1,94E+03	2
Survey I II	E200(Time	4:57:42 PM	4:59:22 PM	5:00:42 PM	5:40:18 PM	5:44:04 PM	5;48:36 PM	5:49:52 PM	11#/1
ownload Time	8:03 AM	Date	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005	4/11/2005	Date: 4
D gg	305 8	Sample No	23	24	25	26	27	58	50	<i>X</i>
Downlo Date	4/12/2	Detector Setup Number	8	ŝ	. 60	6	t	4		cret
User D	JLM0591	Detector Serial Number	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971	PR094971	21416
Station Vumber	ļ	o User ID	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	
A	002	M235 Serial Numbe	95349	95349	95349	95349	95349	95349	95349	ž.
Download	DL041205~	Package ID	E2000 201 C1	E2000 201C1	E2000 201C1	FD145 DRT02	FD145 DRT02	FD145 DRT02	FD145 DRT02	Reviewed I

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Beta Measurements

4/13/2005

Page 1 of 1

		ss Beta dpm/ 00cm2)		5	6	20		5	7	¥0	0	8	2	
		9 0 0	265	13966	14112	14420	571	506	101	259	14824	14508	14428	
		Measuremen Location Number	٥	0	0	a	0	0	0	0	0	0	0	13
		17												et.
_		901	.	-	19	0	-	-	1	-		10		1
veArea m2)	15.5	LCS	LAB01	LAB01	LAB01	LAB01	ST012	ST012	ST012	LAB01	LAB01	LAB01	LABOI	te:
Acti ((IC4	BOLAA	B01BA	B01BA	BOIBA	B01GA	BOIFA	BOIFA	B01CA	BOIDA	BOIDA	BOIDA	Da
Beta	.088	EG.	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMIB1	DSICI	DSICI	DSICI	DSICI	
4 pi Effi	0	LC2	DRT01	DRT01	DRT01	DRT01	201C1	201C1	201C1	DRT02	DRT02	DRT02	DRT02	
lari	71	ICI	FD145	FD145	FD145	FD145	E2000	E2000	E2000	FD145	FD145	FD145	FD145	En
ctor Se fumber	R0949'	Scaler Alarm	19	19	61	19	19	19	61	61	19	19	19	QL
Dete	P	Window OnOrofi	0	0	0	0	•	0	0	0	0	0	0	
Model Iber	40	Logging Mode	-	-	-	-	-	-	-	-	-	-	-	d By:
Detector	44.	Count Time (secs)	300	60	60	60	60	60	60	300	60	60	60	Approve
ackage) 201C1	Logged Count	1.81E+02	1.91E+03	1.93E+03	1.97E+03	7.80E+01	1.24E+02	1.38E+02	1.77E+02	2.02B+03	1.98E+03	1.97E+03	1
Survey l	E200(Time	8:38:50 AM	8:48:46 AM	8:50:06 AM	8:51:22 AM	9:54:08 AM	9:56:44 AM	9:58:58 AM	5:57:20 PM	6:02:24 PM	6:03:50 PM	6:05:50 PM	13/0
ownload Time	MA 90:	Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	ate:
ğ . D	05 8	Sample No	0	-	17	n	4	s	9	35	36	37	38	
Downlos Date	4/13/20	Detector Setup Number	ę	r	E.	٢	82	60	æ	6	Ŀ	r	0	MA
User ID	JLM0591	Detector Serial Number	PR094971	TUTCA										
Station	-	User ID	JLM0591	ILM0591	JLM0591	1650MJL	m							
A	03	M235(Serial Numbe	95358	95358	95358	95358	95358	95358	95358	95358	95358	95358	95358	
Download]	DL041305-C	Package ID	FD145 DRT01	FD145 DRT01	FD145 DRT01	FD145 DRT01	E2000 201C1	E2000 201C1	E2000 201C1	FD145 DRT02	FD145 DRT02	FD145 DRT02	FD145 DRT02	Reviewed B

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Framatome ANP DES Site Restoration Services: JLM 1/21/2005

Page C-4 of 8

Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Measurement Database Download Report Direct Alpha Measurements

4/14/2005

Page 1 of 2

ownload I	D Nu Nu	ation	D User	Downloa Date	Ŗ	Download Time	l Sur	vey Package II	Dete	ctor Model Number	Detec	tor Serial umber		4 pi Alt Efficien	hia Icy	Active (cm	Arca (2))		
5-001		-	JLM0591	4/12/200)5	7:41 AM	ਸ਼	2000 201C1		43-5	PR	172236		0.0648:	305	71	6			
e St	M2350 Seriai Number	User	Defector Serial Number	Detector Setup Number	Sample No	Date	Tim	e Logged Count	Cou Tim (sec	int Logging le Mode s)	Window OnOroff	Scaler Alarm	loi	L L L	ŝ	1 [[04	CS TO	6 L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
I IOT	120636	JL.M0591	PR172236	Q	Ĭ	0 4/11/200	15 7:36:54	5 AM 4.00E+00	300	-	4	15 FS	442 DR	TOI DN	tici A0	2AA L/	- 10£		0	16
KT01	120636	JLM0591	PR172236	Ĺ		1 4/11/200	15 7:49:02	2 AM 1.46E+03	80	-	4	15 FS	442 DR	T01 DN	IICI A0	2BA L/	AB01		0	29632
L IOL	120636	II M0591	PRI 72236	r.		2 4/11/200	35 7:51:00	5 AM 1.46E+03	60	-	4	15 FS	442 DR	TOI DN	IICI A0	2BA L/	AB01 2		0	29713
ST01	120636	ILM0591	PR172236	r		3 4/11/200	35 7:53:11	2 AM 1,21E+03	60	-	4	15 FS	442 DR	Tol DN	11CI A0	2BA L/	AB01 3		0	24599
ICI	120636	JLM0591	PR172236	80		8 4/11/200	5 5:08:07	2 AM 3.00E+00	60	-	0	15 E2	000 201	CI DN	IICI A0	2GA SI	1005		0	61
ICI	120636	JLM0591	PR172236	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		9 4/11/200	35 5:09:51	8 AM 5.00E+00	09	-	0	15 E2	000 201	C1 DW	IICI A0	2FA ST	1005		o	101
ICI	120636	JLM0591	PR172236	80	-	0 4/11/200	35 5:13:5-	4 AM 1.00E+00	60	-	0	15 B2	000 201	CI DN	IICI A0	2FA S1	r005 2		0	20
101	120636	JLM0591	PR172236	88	1	1 4/11/200	JS 5:49:3 ,	4 AM 4.00E+00	60	- 6	0	15 E2	000 201	CI DW	IICI A0	2GA S1	1004		0	81
ta	120636	ILM0591	PR172236	80	1	2 4/11/200	35 5:51:0	8 AM 5.00E+00	60	-	0	15 E2	000 201	CI DN	IICI A0	2FA S1	1004 +		0	101
ici	120636	JLM0591	PR172236	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		3 4/11/200	05 5:52:31	0 AM 1.10E+01	80	-	0	15 E2	000 201	CI DN	11C1 A0	2FA S1	r004 2		0	223
101	120636	JLM0591	PR172236	80	-	4 4/11/200	05 6:20:0	8 AM 1.00E+00	90	-	0	15 E2	000 201	CI DIV	IICI A0	2GA S1	1 1003		0	20
ICI	120636	JLM0591	PR172236	œ	1	5 4/11/200	05 6:23:1:	2 AM 5.00E+00	6(-	0	15 E2	000 201	C1 DN	IICI A0	2FA S1	1003		0	101
10	120636	117W0S91	PR172236	00	-	6 4/11/200	05 6:24:2	8 AM 2.00E+00	60	- 0	•	15 E2	000 201	CIDN	ncı A0	2FA S1	r003 2		0	41
atcı	120636	JLM0591	PR172236	86	-	7 4/11/200	05 7:27:3	0.AM 3.00E+00	9(- 0	0	15 E2	000 201	CI DN	UCI VO	2GA ST	1002		0	61
01C1	120636	JLM0591	PR172236	×		8 4/11/200	05 7:29:2	2 AM 3.00E+00	9(0	0	15 E2	000 201	CI DN	TICI A0	2FA S1	1002		0	61
otci	120636	JLM0591	PR172236	80	1	9 4/11/200	05 7:31:1	6 AM 5.00E+00	ور	- 0	0	15 E2	000 201	C1 DW	fici A0	2FA S1	1002 2		o	101
01C1	120636	JLM0591	PR172236	8	101	20 4/11/200	05 10:12:5	36 AM 1.20E+01	6(- 0	0	15 E2	000 201	CI	11C1 A0	2GA ST	- 1001		0	244
lot	120636	JLM0591	PR172236	20	8	21 4/11/200	05 10:13:1	58 AM 1.00E+01	8	- 0	0	15 E2	000 201	CI DN	11CI AC	2FA S1	r001 -		0	203
01C1	120636	JLM0591	PR172236	80	5	22 4/11/20(05 10:15:2	28 AM 9.00E+00	Ø	- 0	0	15 E2	000 201	CI DIV	IICI AC	2FA S1	r001 2		0	183
		,							1								-			

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report

Direct Alpha Measurements

4/14/2005

Page 2 of 2

urca)		5 LC5 L7 Measurement Gross Alpha Location (4pm/ Number 100em2)	13 1 0 81	13 - 0 122	13 2 0 162	01 - 0 45	01 - 0 28962		01 2 0 28597
ActiveA (cm2)	76	LC4 LC	02GA ST01	02FA ST01	02FA ST01	02CA LAB	02DA LAB	02DA LAB	
4 pı Alpha Efficiency	0.0648305	CI LC2 LC3	0 201C1 DM1CI A	0 201CI DMICI A	0 201C1 DMIC1 A	2 DRT02 DMICI A	2 DRT02 DMICI A	2 DRT02 DMICI A	
Detector Serial Number	PR172236	Window Scaler L OnOroff Alarm	0 15 E2000	0 15 E2000	0 15 E2000	4 15 FS442	4 15 FS442	4 15 FS442	
Detector Model Number	43-5	Count Logging Time Mode (secs)	60	60 -	60 -	- 00£	60 -	- 09	
ad Survey Package ID	M E2000 201C1	Time Logged Count	2005 10:52:54 AM 4.00E+00	2005 10:56:50 AM 6.00E+00	2005 10:58:20 AM 8.00E+00	2005 11:45:04 AM 1.10E+01	2005 11:51:32 AM 1.43E+03	2005 11:55:34 AM 1.41E+03	
Date Downlo Date Time	/12/2005 7:41 A	ctor Sample Date p No ber	23 4/11/2	24 4/11/2	25 4/11/2	26 4/1/2	27 4/11/2	28 4/11/2	
Üser ID	JLM0591 4	Detector Dete Seriai Setu Number Num	PR172236 8	PR172236 8	PR172236 8	PR172236 6	PR172236 7	PR172236 7	
Station Number	-	M2350 User Serial ID Nurriber	536 JLM0591	636 JLM0591					
Download ID	DL041205-001	Package ID N	E2000 201 CI 1206	E2000 201CI 1206	E2000 201C1 120(F\$442 DRT02 1200	FS442 DRT02 1200	FS442 DRT02 1200	

Date: Approved By: 🥏 Date: 41 Reviewed By;

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Alpha Measurements

4/14/2005

Page I of 2

Download	D S N	tation umber	User ID	Download Date	-	Jownload Time	Survey]	Package ID	Detector Numb	Model	Detector Num	Serial ber	4 Ef	ot Alpha ficiency	Ac	tiveArea (cm2))			
DL041005-00	5	I	JLM0591	4/10/2005		2:33 PM	E200	0 201C1	43-5		PR17:	2236	0	0648305		76				
Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector S Setup Number	ampte No	Date	Time	L.ogged Count	Count Time (secs)	Logging Mode	Window Sc OnOroff Als	aler LC arm	51 E	5 7	LC4	LC5	1.06	L7 Measur Loca Nurr	rement Grunn uber	ross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JL.M0591	PR172236	Þ	4	4/9/2005	8:24:52 AM	1.00E+01	300	-	4	FS442	DRT0;	DSIBI	A02AA	LAB01				41
FS442 DRT01	120636	JLM0591	PRI 72236	Ŀ	3	4/9/2005	8:35:32.AM	1.43E+03	60	-	9	FS442	DRT0.	DSIBI	A02BA	LAB01		0	29	023
FS442 DRT01	120636	JLM0591	PR172236	E.	6	4/9/2005	8:37:32 AM	1.40E+03	60	-	4 9	FS442	DRT0.	DSIBI	A02BA	LAB01		0	38	475
FS442 DRT01	120636	JLM0591	PR172236	T.	r.	4/9/2005	8:39:06 AM	1.30E+03	60	-	4	FS442	DRT0.	DS(B)	A02BA	LAB01			26	466
E2000 201C1	120636	JLM0591	PR172236	r.	80	4/9/2005	11:32:00 AM	1 1,00E+00	60	-	4	E2000	201C1	DMICI	A02GA	ST010				20
E2000 201C1	120636	JLM0591	PR172236	¢.	6	4/9/2005	11:33:08 AM	[1.00E+00	60	-	4	E2000	201C1	DMICE	A02GA	ST010		0		20
E2000 201C1	120636	JLM0591	PR172236	Ŀ	10	4/9/2005	11:34:20 AM	I 1.00E+00	60	-	9	E2000	201C1	DMICE	A02GA	ST010				20
E2000 201C1	120636	JLM0591	PR172236	t	11	4/9/2005	11:36:52 AM	f 1.00E+01	60	-	4	E2000	201C1	DMICE	A02FA	ST010				203
E2000 201C1	120636	JLM0591	PR172236	t.	12	4/9/2005	11:39:38 AM	[1.00E+00	60	-	4 9	E2000	201C1	DMIBI	A02FA	ST010				20
E2000 201C1	120636	JLM0591	PR172236	Ŀ	13	4/9/2005	1:10:54 PM	0.00E+00	60	-	4	E2000	201C1	DMICI	A02GA	ST011				0
E2000 201C1	120636	JLM0591	PR172236	Ĺ	14	4/9/2005	1:16;38 PM	2.00E+00	60	-	4	E2000	201CI	DMIC	A02FA	STOLL				41
E2000 201C1	120636	1650M.IL	PR172236	Ľ	15	4/9/2005	1:18;58 PM	4.00E+00	60	-	4	E2000	201CI	DMICI	A02FA	STOLL				81
E2000 201C1	120636	JLM0591	PR172236	4	16	4/9/2005	2:09:12 PM	2.00E+00	60	-	4 9	E2000	201CI	DMICI	A02GA	ST009				41
E2000 201C1	120636	JLM0591	PR172236	¢.	17	4/9/2005	2:11:10 PM	3.002+00	60	_	4 9	E2000	201CI	DMICI	A02FA	ST009				61
E2000 201CI	120636	JI.M0591	PR172236	F	18	4/9/2005	2:12:26 PM	2.00E+00	60	-	4 9	E2000	201C1	DMICI	A02FA	ST009				41
E2000 201C1	120636	JLM0591	PR172236	Ľ.	19	4/9/2005	3:11:12 PM	0,00E+00	60	-	4	E2000	201C1	DMICI	A02GA	ST008				0
E2000 201C1	120636	JLM0591	PR172236	Ĺ	50	4/9/2005	3:16:08 PM	1.00E+00	.09	_	4	E2000	201CI	DMICI	A02FA	ST008				20
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Framatome ANP DES Site Restoration Services: JLM

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Direct Alpha Measurements

4/14/2005

Page 2 of 2

		Gross Alpha (dpm/ 100cm2)	29348	29997	25207
		Measurement Location Number	•	0	0
		L7			
		1,C6		2	
'eArea n2)	76	LC5	AB01	AB01	AB01
Activ (ci		FC4	A02DA I	A02DA I	A02DA I
Jpha ency	8305	LC3	SICI	SICI	SICI
4 pi A Effici	0.064	1C2	RT02 I	RT02 I	RT02 I
	•	101	S442 D	S442 D	S442 D
or Seria mber	72236	Scaler Alarm	6	6	1
Detect	PR1	Window OnOroff	4	4	4
Model ber		Logging Mode	-	-	-
Detector Num	43-	Count Time (secs)	60	60	60
ckage ID	201C1	Logged	.45E+03	48E+03	.24E+03
Survey Pa	E2000	Time	6:00:10 PM	6:03:40 PM	6:05:42 PM
ownload Time	:33 PM	Date	4/9/2005	4/9/2005	4/9/2005
Д ч	5 2	Sampie No	30	31	32
Downloa Date	4/10/200	Detector Setup Number	Ŀ	F.	Ŀ
User ID	JLM0591	Detector Serial Number	PR172236	PR172236	PR172236
station lumber	Ţ	User ID	JLM0591	JLM0591	JLM0591
Ω ∽Z		M2350 Seriai Number	120636	120636	120636
Download I	DL041005-005	Package ID	FS442 DRT02	FS442 DRT02	FS442 DRT02

— Date: _____ Approved By: - Date: 4 Reviewed By:

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Alpha Measurements

4/11/2005

Page 1 of 1

			Gross Alpha (dpm/ 100cm2)	4	30464	28171	25147	203	122	142	20	81	41	16	29794	29246	25735	
_			deasurement Location Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			L7 N															
-			1,C6		_	6	0	_	_	1	_	_	2	_	_	5	0	
	veArea	76	LCS	LAB01	LAB01	LAB01	LAB01	ST007	ST007	ST007	ST006	ST006	ST006	LAB01	LAB01	LABOI	LAB01	
	Acti (c		LC4	402AA	AO2BA	AO2BA	402BA	402GA	AO2FA	AO2FA	402GA	AO2FA	402FA	A02CA	AOZDA	V02DA	402DA	
	pha ncy	305	LC3	SICI ,	sici ,	sici /	sici /	MICI /	VICI /	AICI /	AICI /	AICI /	41C1 /	AICI /	41C1 /	VICI /	WICI /	
	4 pi Al Efficie	0.0648	<u>F</u> G	I IOL	LT01 D	IC 101X	KT01 D	ICI DI	IC DI	ICI DI	ICI D	ICI DI	ICI	LT02 DI	TO2 DI	LT02 DI	tT02 Di	
			rcı	3442 DI	3442 DI	3442 DI	142 DI	2000 20	2000 20	2000 20	2000 20	2000 20	2000 20	142 DI	142 DI	3442 DI	142 DI	
	or Serial nber	72236	icaler Vlarm	2 FS	E	- FE	2 FS	E E	E	E E	E E	E	E	5d Z	2 FS	ES FS	2 FS	
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	ctor Mo Vumber	43-5	T o (i															
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	ckage ID	201C1	Logged Count	.00E+00	50E+03	39E+03	24E+03	00E+01	5.00E+00	0,00E+00	1.00E+00	1.00E+00	8.00E+00	1.00E+00	L.47E+03	l.44E+03	L.27E+03	
	Survey Pa	E2000	Time	17:04 AM	25:00 AM	:28:34 AM	31:10 AM	21:36 PM	23:10 PM	24:48 PM	57:50 PM	00:32 PM	01:54 PM	53:14 PM	57:32 PM	59:14 PM	00:38 PM	
	load	AM	ite	0/2005 10	0/2005 10	0/2005 10	0/2005 10	0/2005 1	0/2005 1:	0/2005 1	0/2005 1	0/2005 2	0/2005 2	0/2005 2	0/2005 2	0/2005 2	0/2005 3	
	Down	8:35	A	0 4/1	2 4/1	3 4/1	4/1	12 4/1	13 4/1	14 4/1	15 4/1	16 4/1	17 4/1	18 4/1	19 4/1	20 4/1	21 4/1	
	load e	005	Sample No															
I	Down	4/11/2	Detector Setup Number	ور	L	r.	r-	8	ø	80	80	60	85	ø	Ĺ	٢	4	
;	D User	ILM0591	Detector Seriai Number	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PRI 72236	PR172236	PR172236	PR172236	
	er a		User ID	1650V	16\$0V	(0591	1650Y	16501	10591	1650J	40591	M0591	40591	1620JA	M0591	V(0591	M0591	
č	Numt	-	23.50 xriai mber	i JLA	J.L.	\$ JLA	у ТГ у	VTT S	s nus	2 JF7	5 JLI	גדו ז	5 JL	5 JL.	5 JI.	5 JL	6 JL1	
Ĥ		002	MC Se Nur	120636	120636	120634	120636	120634	12063(12063t	12063(12063¢	12063t	12063(12063(120634	120631	
L	Downlog	DL041105-(Package ID	FS442 DRT01	FS442 DRT01	FS442 DRT01	FS442 DRT01	E2000 201C1	FS442 DRT02	FS442 DRT02	FS442 DRT02	FS442 DRT02						

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Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Direct Alpha Measurements

4/13/2005

Page 1 of 1

		s Alpha ipm/ 0cm2)	s	4		2			~					
		Gros		2843	2867	2510	10	4	14		2811(29381	2463	
		Measurement Location Number	0	0	0	0	0	0	0	0	0	0	0	
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		rcs		_	2	0	_	_	19	-	_	4	0	
veArea m2)	76	rcs	LAB01	LAB01	LAB01	LAB01	ST012	ST012	ST012	LAB01	LAB01	LAB01	LAB01	
Acti (c		LC4	A02AA	A02BA	A02BA	A02BA	A02GA	A02FA	A02FA	A02CA	A02DA	A02DA	A02DA	
Alpha ctency	548305	ΓC	DMICI	DMICI	DMICI	DMICI	DMICI	DMICI	DMIBI	DSICI	DSICI	DSICI	DSICI	
4 pı Effi	0.0	LC2	DRT01	DRT01	DRT01	DRT01	201C1	201C1	201CI	ORT02	DRT02	ORT02	DRT02	
:		EC [¹ 8442	S442	S442	S442 1	2000	2000	12000	S442 I	S442 I	S442 I	S442 I	
ctor Seria	R172236	/ Scater f Alarm	18 I	18	18 E	18 F	18	18 F	18	18	81	18	18 F	
Det	՝ ቢ	Window OnOrof	4	4	4	4	0	0	0	4	4	4	4	
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Detector	43	Count Time (secs)	300	60	09	60	60	60	60	300	60	90	60	
ckage ID	201C1	Logged Count	1.00E+00	40E+03	.41E+03	.24E+03	5.00E+00	00E+00	.00E+00	0.00E+01	.39E+03	.45E+03	.21E+03	
Survey Pa	E2000	Time	2:44:58 AM	2:52:32 AM	2:56:02 AM	2:57:26 AM	8:48:00 AM	8:49:34 AM	8:52:44 AM	4:43:34 PM	4:49:00 PM	4:50:52 PM	4:52:26 PM	
ownload Time	04 AM	Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	
ad	05 8	Sample No	0	-	5		4	s	Q.	35	36	37	38	
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User D	JLM0591	Detector Seriaî Number	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	PR172236	
ation	ľ	User ID	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	JLM0591	
S Y	5	M2350 Seriaí Number	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	120636	
Download	DL041305-00	Package ID	FS442 DRT01	FS442 DRT01	FS442 DRT01	FS442 DRT01	E2000 201C1	E2000 201 C1	E2000 201 C1	FS442 DRT02	FS442 DRT02	FS442 DRT02	FS442 DRT02	

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Rome New York

1/21/2005

Page C-5 of 8

Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Section 4.0 Measurement Results – Exposure Rate Measurements Pages

Measurement Database Download Report	Exposure Rate Measurements
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Page 1 of 2

4/10/2005

MIDEOME I MIDDEOME I MIDDEOME MIDDEOME </th <th>Download</th> <th>e f</th> <th>Station Jumber</th> <th>User ID</th> <th>Downl Dafe</th> <th>load L</th> <th>Jownload Time</th> <th>Survey Pac</th> <th>ckage ID</th> <th>Detector Mumb</th> <th>Aodel er</th> <th>Detector</th> <th>r Serial Iber</th> <th>Gamm</th> <th>a Cal Fact</th> <th>or</th> <th></th> <th>b</th> <th></th> <th></th>	Download	e f	Station Jumber	User ID	Downl Dafe	load L	Jownload Time	Survey Pac	ckage ID	Detector Mumb	Aodel er	Detector	r Serial Iber	Gamm	a Cal Fact	or		b		
Und Und <th>041005-0</th> <th>04</th> <th>Ī</th> <th>JLM0591</th> <th>4/10/2</th> <th>005</th> <th>1:59 PM</th> <th>E2000 2</th> <th>201C1</th> <th>44-11</th> <th></th> <th>PR19</th> <th>2598</th> <th>ن</th> <th>13E+10</th> <th></th> <th></th> <th></th> <th></th> <th></th>	041005-0	04	Ī	JLM0591	4/10/2	005	1:59 PM	E2000 2	201C1	44-11		PR19	2598	ن	13E+10					
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2000 201C1 9338 ILAMDS1 Rr192598 8 19 49/2005 10.363.6 FM 1.12E+04 60 1 0 8 2000 201C1 MIC1 G01FA ST011 2 0 1.10E+01 2000 201C1 9338 ILAMD591 Rr192598 8 20 49/2005 10.38.50 PM 1.15E+04 60 1 0 8 E2000 201C1 DMIC1 G01FA ST011 2 0 1.12E+01 2000 201C1 9338 ILAM0591 Rr192598 8 21 4/9/2005 11.31:34 PM 4.56E+03 60 1 0 8 E2000 201C1 DMIC1 607 FA ST009 1 2 4.40E+03 2000 201C1 9338 ILAM0591 Rr192598 8 2 4/9/2005 11.36:440 PM 1.69E+64 60 1 0 8 2 0 2 4.40E+00 2000 201C1 9338 ILAM0591 Rr192598 8 2.49/2005	2000 201CI	95358	JLM0591	PR192598	80	18	4/9/2005 1	0:33:18 PM 1.	12E+04	60	-	0	8 8	2000 201C	1 DMICI	GOIGA	ST011	-	0	1.10E+01
2000 201C1 9338 ILM0591 Rt192598 8 20 49/2005 11.58:404 4.00 0 8 2000 201C1 0 8 101C1 0 8 101C1 0 11.28:401 0 1.158:404 4.01 0 1.128:401 0 1.138:404 4.01 0 1 0 1.128:401 0 1.138:404 4.01 0 1 0 0 1.128:401 0 1.138:404 4.01 0 1.128:404 0 1 0 8 2000 201C1 2037 8709 7709 1 4.0146-03 2000 201C1 9338 ILM0591 Rt192598 8 23 4/9/2005 11.36:40 PM 1.69E+64 60 1 0 8 8 2000 201C1 2017 2017 2017 2017 2017 2016 2016 2016 2016 2016 2016 2016 2016 2016 2016 2016 2016 2016 <	2000 201CI	95358	JLM0591	PR192598	ø	19	4/9/2005 1	0:36:36 PM 1.	12E+04	60	-	0	स्र ॐ	2000 201C	I DMICI	GOIFA	ST011	-	0	1.10E+01
2000 201C1 93358 ILM0591 RR192598 8 21 49/2005 11.31.34 PM 4.50E+03 60 1 0 8 E2000 201C1 DMIS1 G02FA ST009 1 0 4.40E+00 2000 201C1 93358 ILM0591 RR192598 8 22 4/9/2005 11.33.06 PM 4.64E+03 60 1 0 8 E2000 201C1 DMIS1 RR192598 8 23 4/9/2005 11.33.06 PM 4.64E+03 60 1 0 8 E2000 201C1 DMIS1 R012 ST009 1 6.56E+01 2000 201C1 95358 ILM0591 RR192599 8 24 4/9/2005 11.40:18 FM 1.08E+04 60 1 0 8 E2000 201C1 DMIS1 R012 8 7009 1 0 1.65E+01 2000 201C1 95358 ILM0591 R192599 8 2/9/2005 11.40:18E+04 60 1 0 8	2000 201C1	95358	JLM0591	PR192598	80	20	4/9/2005 1	0:38 50 PM 1.	15E+04	60	-	0	ы́ ø	2000 201C	1 DMICI	GOIFA	ST011	ч	0	1.12E+01
2000 201C1 9338 ILM0591 Rtl92598 8 22 4/9/2005 11:36:40 PM 4.64E+03 60 1 0 8 E2000 201C1 DMIS1 G02FA ST009 2 0 4:54E+00 2000 201C1 9338 ILM0591 Rtl92598 8 23 4/9/2005 11:36:40 PM 1.69E+04 60 1 0 8 E2000 201C1 DMIC1 G01FA ST009 1 0 1.65E+04 60 1 0 8 E2000 201C1 DMIC1 G01FA ST009 1 0 1.65E+04 2000 201C1 93358 ILM0591 Rtl92598 8 24 4/9/2005 11:40:18EM 1.08E+04 60 1 0 8 E2000 201C1 DMIC1 G01FA ST009 1 0 1.65E+04 2000 201C1 93358 ILM0591 Rtl92598 8 24/9/2005 11:41:52PM 1.08E+04 60 1 0 8 10 0 1 0 1.65E+01 10:65E+01 2000 201C1 933	2000 201CI	95358	JLM0591	PR192598	8	21	4/9/2005 1	1:31:34 PM 4.	50E+03	60	-	0	80 80	2000 201C	I DMISI	GOZFA	ST009	_	0	4,40E+00
2000 201C1 95358 JLM0591 PRI92298 8 23 4/9/2005 11.56.40 PM 1.69E+04 60 1 0 8 E2000 201C1 DMIC1 G0IFA ST009 1 0 1.65E+01 2000 201C1 95358 JLM0591 PRI92598 8 24 4/9/2005 11.40:18 PM 1.08E+04 60 : 0 8 E2000 201C1 DMIC1 G0IFA ST009 1 0 1.06E+01 2000 201C1 95358 JLM0591 PR192598 8 25 4/9/2005 11.41:52 PM 1.02E+04 60 i 0 8 E2000 201C1 DMIC1 G0IFA ST009 i 0 9.97E+00 2000 201C1 95358 JLM0591 PR192598 8 25 4/9/2005 11.41:52 PM 1.02E+04 60 i 0 8 E2000 201C1 DMIC1 G0IFA ST009 2 9.97E+00	2000 201C1	95358	JLM0591	PR192598	œ	22	4/9/2005 1	1:33:06 PM 4.	64E+03	60	-	0	8 8	2000 201C	I DMISI	G02FA	ST009	5	0	4.54E+00
2000 201C1 93358 JLA00591 PR192598 8 24 4/9/2005 11:40:18 PM 1.08E+04 60 : 0 8 E2000 201C1 DMIC1 G01FA ST009 1 0 1.06E+01 2000 201C1 93358 JLA0591 PR192598 8 25 4/9/2005 11:41:52 PM 1.02E+04 60 1 0 8 E2000 201C1 DMIC1 G01FA ST009 2 0 9.97E+00	2000 201C1	95358	JLM0591	PR192598	∞	23	4/9/2005 1	1:36:40 PM 1.0	69E+04	60	-	0	8 8	2000 201C	1 DMICI	GOIGA	ST009	-	0	1.65E+01
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	(2000 201C)	95358	JL.M0591	PR192598	80	25	4/9/2005 1	1:41:52 PM 1.(02E+04	60	-	0	8	2000 201C	1 DMICI	GOIFA	ST009	5	0	9.97E+00

SDMS Documentation Version 1.0

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Page 2 of 2

4/10/2005

Download II	St.	ation mber	User ID	Downloa Date	Ţ.	Download Time	Survey P	ackage ID	Detector 1 Numt	Model Ser	Detect	or Serial mber	Gan	ima Ca	Factor		1	ρ ο	1	
DL041005-004		Г	JLM0591	4/10/200.	ŝ	Md 65:1	E2000	201C1	44-1		PR	92598		6.13E	10					
Package ID	M2350 Serial Number	User D	Detector Serial Number	Detector S Setup Number	lample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	ΓĊ	Ľ	FC3	1C4	LC5 LC	2 FJ	Measurement Location Number	Expostre Rate uR/hr
E2000 201C1 95	i358 J	il M0591	PR192598	æ	26	4/9/2005 1	2:15:04 AM	4,05E+03	60	-	•	\$	E2000 21	101	MICI 6	302FA	- 800TS		0	1,96E+00
E2000 201C1 95	1358 ]	ILM0591	PR192598	8	27	4/9/2005 1	(2:16:14 AM	4.22E+03	60	-	0	90	E2000 21	101	MICI 0	BOZFA	ST008 2		0	112E+00
E2000 201C1 95	358 1	ILM0591	PR192598	80	28	4/9/2005 1	(2:18:56 AM	1.74E+04	60	-	0	00	E2000 21		MIC1 (	BOLGA	5T008		0	70E+01
E2000 201C1 95	1358	11.M0591	PR192598	8	29	4/9/2005 1	(2:20:40 AM	1.04E+04	60	-	0	80	E2000 ZI	1010	MICI	POIFA	- 800TS		0	02E+01
E2000 201C1 95	1358 ]	<b>H.M059</b> 1	PR192598	8	30	4/9/2005 1	12:21:50 AM	1.06E+04	60	-	0	80	E2000 2(		MICI 0	JOLEA S	3T008 2		0	04E+01
GTS10 DRT02 95	3358 ]	11.M0591	PR192598	6	41	4/9/2005	3:04:12 AM	2.67E+04	300	-	0	~	GTS10 D	RT02 I	SIV2 (	01CA ]	ABOL			22E+00
GTS10 DRT02 95	1358 J	ILM0591	PR192598	٢	42	4/9/2005	3:12:28 AM	8.51E+05	60	-	0	<b>6</b> 0	GTS10 D	RT02 I	SIV2 0	01DA ]	ABOL			.33E+02
GTS10 DRT02 95	3358 1	1LM0591	PR192598	7	43	4/9/2005	3:15:50 AM	4.17E+04	60	-	0	~	GTS10 D	RT02 I	SIV2 (	NIDA 1	AB01 2		0	.08E+01
GTS10 DRT02 95	5358 ]	ILM0591	PR192598	۲	44	4/9/2005	3:17:48 AM	1.10E+04	60	-	0	00	GTS10 D	RT02 I	SIV2 (	NIDA I	AB01 3		0	.08E+01
Reviewed By		du	Mul.	Helle		)ate:	<i>t/col</i>	50	Approved	By:		K				Date		Š		

Date: 1/12/05 - Date:  $\frac{1}{\sqrt{00}}$  Approved By:  $\frac{1}{\sqrt{00}}$ - ----. 2 2

Measurement Database Download Report Exposure Rate Measurements Page 1 of 1

4/14/2005

Download I	S Z Q	lation unber	User ID	Downic Date	bad	Download Time	Survey Pa	ckage ID	Detector	Model	Detect	or Serial mhar	Gammà	Cal Facto	5		r ago I	1 10 1	
DL041105-001		1	JLM0591	4/11/20	05	7:49 AM	E2000.	201C1	44-1	0	PR1	92598	6,1	3E+10					
Package ID	M2350 Serial Number	Uter ID	Detector Serial Number	Defector Setup Number	Sample No	Date	Time	Logged Courit	Count Time (sees)	Logging Möde	Window OnOroff	Scaler Alarm	TCI	2 LC3	LC4	LCS	LC6 L	7 Measurent Locatio	ent Exposure 1 Rate uR/hr
GTS10 DRT01 9	5358	JLM0591	PR192598	6	0	4/10/2005	7:25:54 PM 2.	69E+04	300	-	G	=	TSIA DETO	Delive					
GTS10 DRT01 9	5358	1650M.H	PR192598	E.,	-	4/10/2005	7:34:04 PM 8.	86E+05	U9		, c	: :	NING OFFIC	741001	CULAA	LABUI	_	0	5.27E+00
GTS10 DRT01 9	5358	H.M0591	PR192598	<b>F</b> -	2	4/10/2005	7:36:20 PM 4	16E+04	3 5	• _		= =	TELO DKIU		GOIBA	LAB01		0	8.66E+02
GTS10 DRT01 9	5358	ILM0591	PR192598	7	٤٦	4/10/2005	1 Md 91-05-2	1 OPLAN	3 5		-	= :		DSIV2	GUIBA	LABOI	73	0	4.07E+01
F2000 201C1 9	5358	IT MOSOI	DD 107 509		, <u>,</u>			HOLETO T	8	-	0	5	TS10 DRT0	DSIV2	GOLBA	LAB01	en	0	1.08E+01
			Decrety t	ò	0	4/10/2005	10:18:10 PM 4.	.16E+03	60	-	0	H	2000 201C1	DMICI	G02FA	ST007	_	0	4,07E+00
E2000 201C1 5	5358	JLM0591	PR192598	80	17	4/10/2005	10:20:10 PM 1.	33E+04	60	-	0	11 E	2000 201C1	DMICI	G01GA	<b>ST007</b>	_	0	1.30E+01
E2000 201C1 9	5358	JLM0591	PR192598	90	18	4/10/2005	10:22:38 PM 1.	14E+04	60	-	0	3 11	2000 201C1	DMICI	GOIFA	ST007	_	0	1.12E+01
E2000 201C1 9	5358	1650M.IU	PR192598	8	19	4/10/2005 1	10:27:06 PM 1.	06E+04	60	-	0	E II	2000 201C1	DMICI	GOIFÀ	ST007	67	0	1.04E+01
E2000 201C1 9	5358	1650M.II	PR192598	80	20	4/10/2005 1	10:59:28 PM 5.	07E+03	60	-	0	11 E	2000 201C1	DMICI	G02FA	ST006	-	0	4.96F.+00
E2000 201C1 9	5358	JLM0591	PR192598	œ	21	4/10/2005 1	11:01:06 PM 4.	82E+03	60	-	0	11 E	2000 201C1	DMICI	GO2FA	ST006	61	0	4.72E+00
E2000 201C1 9	5358	JLM0591	PR192598	80	22	4/10/2005 1	11:03:14 PM 1.	61E+04	60	-	0	E E	2000 201C1	DMICI	GOIGA	ST006	_	0	1.58E+01
E2000 201C1 9	5358	1650M.II	PR192598	88	53	4/10/2005 1	11:05:38 PM 1.	11E+04	60	-	o	ц. В	2000 201C1	DMICI	G01FA	ST006	-	O	1,09E+01
E2000 201C1 9	5358	1650MJU	PR192598	85	24	4/10/2005 1	11:07:08 PM 1.	11E+04	60	-	0	11 E	2000 201C1	DMICI	GOIFA	ST006	7	0	1,09E+01
GTS10 DRT02 9	5358	1620W11	PR192598	¢	25	4/10/2005	2:51:02 PM 2.	82E+04	300	-	0	11 0	TS10 DRT02	DMICI	GOICA	LAB01	-	0	5.52E+00
GTS10 DRT02 9	5358	JLM0591	PR192598	<b>r</b>	26	4/10/2005	2:57:00 PM 8.	88E+05	60	-	0	Ú G	TS10 DRT02	DMICI	GOIDA	LAB01	_	0	8.68E+02
GTS10 DRT02 9	5358	ILM0591	PR192598	r	27	4/10/2005	2:58:26 PM 4,	22E+04	60	-	0	11	TSIO DRT02	DMICI	GolpA	LAB01	17	0	4.13E+01
GTS10 DRT02 9	5358	ILM0591	PR192598	r.	28	4/10/2005	3:00:04 PM 1.	<b>12E+</b> 04	60	-	0	Ð	TSIO DRT02	DMICI	GOIDA	LAB01	0	0	1.09E+01
Reviewed B	A ×	HU.	MULA	ble		Date:	4/14/1	2 2 4	pproved	lBy:	5	R.			Date		4	102	

Framatome ANP DES Site Restoration Services: JLM

Exposure Kate Measurements

Page 1 of 2

4/14/2005

LM0501     4/11/2005     5:43 PM     E2000     20101       Retaining Number     Sempio     No     E2000     20101       Settion Number     Sempio     No     10     10000     10000       R192598     6     0     4/11/2005     7:35:56 AM     2.88F-00       R192598     7     7     4/11/2005     7:35:56 AM     2.88F-00       R192598     7     7     4/11/2005     7:35:56 AM     4:0E+00       R192598     8     7     4/11/2005     7:35:56 AM     5:0E+00       R192598     8     7     4/11/2005     1:0E+01     4/11/2005       R192598     8     7     4/11/2005     1:0E+01     4/11E+01       R192598     8     4/11/2005     1:0E+02     4/11E+01       R192598     8 <td< th=""><th>Number</th><th>Number</th><th></th><th></th><th></th><th></th><th></th></td<>	Number	Number					
DetectorDate of annue NoDate of annue NoDate of annue NumberDate of annue NumberDate of annue NumberLagged CountR19259860411/20057:45:14 AL8.89E+06R19259877411/20057:47:26 AM4.20E+06R19259877411/20057:47:26 AM4.20E+06R19259887411/20057:47:26 AM4.20E+06R19259880411/20057:47:26 AM4.20E+06R19259880411/200510:04:10 AM1.59E+06R192598811411/200510:04:10 AM1.59E+06R192598811411/200510:07:28 AM1.11E+06R192598811411/200510:07:28 AM1.09E+06R192598811411/200510:07:28 AM1.09E+06R192598811411/200510:07:28 AM1.09E+06R1925988411/200510:07:28 AM1.09E+06R1925988411/200510:32:32 AM1.09E+06R1925988411/200510:32:02:04 AM1.09E+06R19259882411/200511:14:44 AM1.09E+06R19259882411/200511:14:44 AM1.07E+06R19259882411/200511:14:44 AM1.07E+06R19259882411/200511:14:44 AM1.07E+06R19259882411/200511:14:141.07E+06 <tr< th=""><th>44-10</th><th>PR192598</th><th>6,13E+10</th><th></th><th></th><th></th><th></th></tr<>	44-10	PR192598	6,13E+10				
RJ 92536     6     0     4/11/2005     7:36:56 AM     2.88E+04       RJ 92598     7     -     4/11/2005     7:45:14 AM     8.80E+05       RJ 92598     7     -     4/11/2005     7:45:14 AM     8.80E+05       RJ 92598     7     -     4/11/2005     7:50:22 AM     1.15E+06       RJ 92598     8     10     4/11/2005     10:0:4:10 AM     1.95E+06       RJ 92598     8     11     4/11/2005     10:0:4:10 AM     1.95E+06       RJ 92598     8     17     4/11/2005     10:0:4:10 AM     1.95E+06       RJ 92598     8     11     4/11/2005     10:0:4:10 AM     1.95E+06       RJ 92598     8     1     4/11/2005     10:0:4:10 AM     1.92E+06       RJ 92598     8	Count Logging V Time Mode ( (secs)	/indow Scaler hOroff Alarm	LCI LC2 LC3	LC4 LCS	LC6 L7	Measurement Location Number	Exposure Rate uR/hr
R192598     7     -     4/11/2005     7:47:26 AM     808-405       R192598     7     2     4/11/2005     7:47:26 AM     4.20E+04       R192598     8     0     4.112005     7:47:26 AM     4.20E+04       R192598     8     0     4/11/2005     10:00:42 AM     5.07E+03       R192598     8     11     4/11/2005     10:00:58 AM     1.59E+04       R192598     8     11     4/11/2005     10:00:58 AM     1.9E+04       R192598     8     11     4/11/2005     10:05:51 AM     1.9E+04       R192598     8     1     4/11/2005     10:29:53 AM     1.1E+04       R192598     8     1     4/11/2005     10:29:24 AM     1.1E+04       R192598     8     1     4/11/2005     10:29:24 AM     1.0E+04       R192598     8     1     4/11/2005     10:29:24 AM     1.0E+04       R192598     8     1     4/11/2005     10:29:24 AM     1.0E+04       R192598     8     1     4	300	0 14	GTS10 DRT01 DMICI	G01AA LAB0		0	5.63E+00
R192598     7     2     4/11/2005     7:37.26 AM     4.20E+04       R192598     8     10     4/11/2005     10:00;42 AM     5,07E+03       R192598     8     11     4/11/2005     10:01;58 AM     5,06E+03       R192598     8     11     4/11/2005     10:01;58 AM     5,06E+03       R192598     8     11     4/11/2005     10:01;58 AM     1,59E+04       R192598     8     13     4/11/2005     10:07;28 AM     1,19E+04       R192598     8     13     4/11/2005     10:07;28 AM     1,19E+04       R192598     8     14     4/11/2005     10:07;28 AM     1,19E+04       R192598     8     15     4/11/2005     10:29;26 AM     1,09E+04       R192598     8     16     4/11/2005     10:29;26 AM     1,09E+04       R192598     8     0;355;0 AM     5,35E+03     1,42E+04       R192598     8     0;355;0 AM     1,35E+04       R192598     8     20     4/11/2005     1,055;0 AM	60	0 14	GTS10 DRT01 DMICI	G01BA LAB0	- 1	0	8,69E+02
R192596     7     3     4/11/2005     7:50:22     M     115E+064       R192596     8     10     4/11/2005     10:00;42     M     5,07E+03       R192596     8     11     4/11/2005     10:00;42     M     5,07E+04       R192596     8     11     4/11/2005     10:04;10     M     1:59E+04       R192598     8     13     4/11/2005     10:04;10     M     1:59E+04       R192598     8     14     4/11/2005     10:07;28     M     1:59E+04       R192598     8     14     4/11/2005     10:07;28     M     1:59E+04       R192598     8     14     4/11/2005     10:24:24     M     1:15E+04       R192598     8     17     4/11/2005     10:34:24     M     1:1E+04       R192598     8     7/11/2005     10:34:24     M     1:0E+04       R192598     8     7/11/2005     10:34:24     M     1:0E+04       R192598     8     7/11/2005     11:14:	60 i	0 14	GTS10 DRT01 DM1C1	G01BA LAB0	1 2	0	4,11E+01
R192596     8     10     4112005     10:00:42     507E+03       R192596     8     11     4112005     10:00:158     506E+03       R192596     8     12     4112005     10:00:10 <am< td="">     1.59E+04       R192598     8     13     4/112005     10:06:10<am< td="">     1.19E+04       R192598     8     14     4/112005     10:07:28<am< td="">     1.19E+04       R192598     8     14     4/112005     10:29:50<am< td="">     5.02E+03       R192598     8     15     4/112005     10:29:50<am< td="">     5.02E+03       R192598     8     16     4/112005     10:29:50<am< td="">     1.09E+04       R192598     8     17     4/112005     10:34;24<am< td="">     1.11E+04       R192598     8     0;31:10:18<am< td="">     5.14E+03     8       R192598     8     0;31:10:018<am< td="">     5.04E+03       R192598     8     0;34;24<am< td="">     1.11E+04       R192598     8     20     4/112005     10:4;50;2AM       R192598     8     <t< td=""><td>60 I</td><td>0 14</td><td>GTS10 DRT01 DM1C1</td><td>G01BA LABO</td><td></td><td>0</td><td>I.13E+01</td></t<></am<></am<></am<></am<></am<></am<></am<></am<></am<></am<>	60 I	0 14	GTS10 DRT01 DM1C1	G01BA LABO		0	I.13E+01
R192596     8     11     4/11/2005     10:04:10 AM     5.06E+03       R192598     8     12     4/11/2005     10:04:10 AM     1.59E+04       R192598     8     13     4/11/2005     10:07:28 AM     1.59E+04       R192598     8     14     4/11/2005     10:07:28 AM     1.59E+04       R192598     8     15     4/11/2005     10:07:28 AM     1.59E+04       R192598     8     16     4/11/2005     10:27:28 AM     1.15E+04       R192598     8     16     4/11/2005     10:29:24 AM     1.11E+04       R192598     8     17     4/11/2005     10:33:32 AM     1.42E+04       R192598     8     17     4/11/2005     10:34:24 AM     1.06E+04       R192598     8     21     4/11/2005     11:14:54 AM     1.07E+04       R192598     8     21     4/11/2005     11:14:54 AM     1.07E+04       R192598     8     21     4/11/2005     11:14:56 AM     1.07E+04       R192598     8 <td< td=""><td>60</td><td>0 14</td><td>E2000 201C1 DM1C1</td><td>G02FA ST00</td><td>-</td><td>0</td><td>4,96E+00</td></td<>	60	0 14	E2000 201C1 DM1C1	G02FA ST00	-	0	4,96E+00
R192598     8     12     4/11/2005     10:04:10 AM     1.59E+04       R192598     8     13     4/11/2005     10:06:10 AM     1.19E+04       R192598     8     14     4/11/2005     10:06:10 AM     1.19E+04       R192598     8     15     4/11/2005     10:28:36 AM     5.02E+03       R192598     8     15     4/11/2005     10:28:36 AM     5.02E+03       R192598     8     17     4/11/2005     10:34;24 AM     1.11E+04       R192598     8     7     4/11/2005     10:34;24 AM     1.11E+04       R192598     8     7     4/11/2005     10:34;24 AM     1.05E+04       R192598     8     20     4/11/2005     11:14:54 AM     1.01E+04       R192598     8     21     4/11/2005     11:14:54 AM     1.07E+06       R192598     8     23     4/11/2005     11:14:54 AM     1.07E+06       R192598     8     23     4/11/2005     11:14:54 AM     1.07E+06       R192598     8     2	60 -	0 14	E2000 201C1 DMIC1	G02FA ST00	5	0	4.95E+00
RJ92598     8     13     4/11/2005     10:06:10 AM     1.19E+04       RJ92598     8     14     4/11/2005     10:07:28 AM     1.15E+04       RJ92598     8     15     4/11/2005     10:07:28 AM     1.15E+04       RJ92598     8     15     4/11/2005     10:29:50 AM     5.03E+03       RJ92598     8     16     4/11/2005     10:29:54 AM     1.11E+04       RJ92598     8     18     4/11/2005     10:35;40 AM     1.02E+04       RJ92598     8     18     4/11/2005     10:35;40 AM     1.05E+04       RJ92598     8     18     4/11/2005     11:11:40 AM     5.35E+03       RJ92598     8     20     4/11/2005     11:11:40 AM     5.35E+03       RJ92598     8     21     4/11/2005     11:11:40 AM     1.07E+04       RJ92598     8     21     4/11/2005     11:18:14 AM     1.07E+04       RJ92598     8     21     4/11/2005     11:18:14 AM     1.07E+04       RJ92598     8 <td< td=""><td>-</td><td>0 14</td><td>E2000 201C1 DMIC1</td><td>G01GA ST005</td><td>-</td><td>0</td><td>10+E95.1</td></td<>	-	0 14	E2000 201C1 DMIC1	G01GA ST005	-	0	10+E95.1
R192598     8     14     4/11/2005     10:07:28 AM     115E+04       R192598     8     15     4/11/2005     10:28:36 AM     5.02E+03       R192598     8     16     4/11/2005     10:28:36 AM     5.02E+03       R192598     8     17     4/11/2005     10:23:22 AM     1.11E+04       R192598     8     17     4/11/2005     10:34:24 AM     1.11E+04       R192598     8     19     4/11/2005     10:34:24 AM     1.11E+04       R192598     8     0     4/11/2005     11:10:18 AM     5.14E+03       R192598     8     20     4/11/2005     11:11:40 AM     5.56E+03       R192598     8     20     4/11/2005     11:14:54 AM     1.61E+04       R192598     8     21     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     23     4/11/2005     11:14:54 AM     1.61E+04       R192598     8     23     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     2	Ğ0 –	0 14	E2000 201C1 DMIC1	G01FA ST005	-	0	1,16E+01
RJ92598     8     15     4/1/2005     10:28:36 AM     5.02E+03       R192598     8     16     4/1/2005     10:29:50 AM     5.03E+03       R192598     8     17     4/1/2005     10:29:50 AM     5.03E+04       R192598     8     17     4/1/2005     10:34;24 AM     1.11E+04       R192598     8     19     4/1/2005     10:34;24 AM     1.11E+04       R192598     8     19     4/1/2005     11:140 AM     5.14E+03       R192598     8     20     4/1/2005     11:140 AM     5.14E+03       R192598     8     20     4/1/2005     11:140 AM     1.06E+04       R192598     8     23     4/1/2005     11:14:54 AM     1.06E+04       R192598     8     23     4/1/2005     11:16:56 AM     1.07E+06       R192598     8     23     4/1/2005     11:16:56 AM     1.07E+06       R192598     8     23     4/1/2005     11:16:56 AM     1.07E+06       R192598     8     25     <	60	0 14	E2000 201C1 DMIC1	G01FA ST005	2	0	I.12E+01
R192598     8     16     4/11/2005     10:29:50 AM     5:03E+03       R192598     8     17     4/11/2005     10:34:24 AM     1.11E+04       R192598     8     18     4/11/2005     10:34:24 AM     1.11E+04       R192598     8     19     4/11/2005     10:35:42 AM     1.09E+04       R192598     8     20     4/11/2005     11:10:18 AM     5.14E+03       R192598     8     20     4/11/2005     11:14:54 AM     1.61E+04       R192598     8     21     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     21     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     23     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     23     4/11/2005     11:14:56 AM     1.61E+04       R192598     8     23     4/11/2005     11:18:14 AM     1.07E+04       R192598     8     26     4/11/2005     11:55:02 AM     4.97E+04       R192598     8 <td< td=""><td>60</td><td>0 14</td><td>E2000 201C1 DMIC1</td><td>G02FA ST004</td><td>-</td><td>0</td><td>4.91E+00</td></td<>	60	0 14	E2000 201C1 DMIC1	G02FA ST004	-	0	4.91E+00
R192598     8     17     4/11/2005     10:32:32 AM     1.42E+04       R192598     8     18     4/11/2005     10:34;24 AM     1.11E+04       R192598     8     19     4/11/2005     10:34;24 AM     1.11E+04       R192598     8     20     4/11/2005     10:34;24 AM     1.09E+04       R192598     8     20     4/11/2005     11:11:40 AM     5.14E+03       R192598     8     20     4/11/2005     11:11:40 AM     1.08E+04       R192598     8     21     4/11/2005     11:14:54 AM     1.08E+04       R192598     8     23     4/11/2005     11:14:54 AM     1.07E+04       R192598     8     23     4/11/2005     11:15:02 AM     4.97E+03       R192598     8     26     4/11/2005     11:55:02 AM     4.97E+03       R192598     8     27     4/11/2005     11:55:02 AM     4.97E+03       R192598     8     27     4/11/2005     11:55:02 AM     4.97E+03       R192598     8 <td< td=""><td></td><td>0 14</td><td>E2000 201C1 DM1C1</td><td>G02FA ST004</td><td>1 2</td><td>0</td><td>1,91E+00</td></td<>		0 14	E2000 201C1 DM1C1	G02FA ST004	1 2	0	1,91E+00
R192598     8     13     4/11/2005     10:34,24     A.M     1.11E+04       R192598     8     19     4/11/2005     10:35,40     A.M     1.09E+04       R192598     8     20     4/11/2005     11:11,40     A.M     5.35E+03       R192598     8     20     4/11/2005     11:11,40     A.M     5.35E+03       R192598     8     21     4/11/2005     11:11,40     A.M     5.35E+03       R192598     8     21     4/11/2005     11:14:56     A.M     1.08E+04       R192598     8     23     4/11/2005     11:18:14     A.M     1.07E+04       R192598     8     23     4/11/2005     11:38:14     M     1.07E+04       R192598     8     25     4/11/2005     11:38:02     M     4.98E+03       R192598     8     23     4/11/2005     11:38:02     M     1.07E+04       R192598     8     20     21:36:20     M     1.26E+04       R192598     8     2	ę0	0 14	E2000 201C1 DMIC1	G01GA ST004	-	0	1,39E+01
Ri92598     8     19     4/11/2005     10:35:40 AM     1.09E+04       R192598     8     20     4/11/2005     11:10:18 AM     5.14E+03       R192598     8     21     4/11/2005     11:11:40 AM     5.35E+03       R192598     8     21     4/11/2005     11:11:40 AM     5.35E+03       R192598     8     21     4/11/2005     11:14:54 AM     1.61E+04       R192598     8     23     4/11/2005     11:14:54 AM     1.07E+04       R192598     8     23     4/11/2005     11:15:50 AM     4.97E+03       R192598     8     24     4/11/2005     11:55:02 AM     4.97E+04       R192598     8     25     4/11/2005     11:55:02 AM     4.97E+04       R192598     8     26     4/11/2005     12:02:16 PM     1.71E+04       R192598     8     21     4/11/2005     12:02:02 PM     1.07E+04       R192598     8     29     4/11/2005     12:04:20 PM     1.07E+04       R192598     8 <td< td=""><td>÷</td><td>0 14</td><td>E2000 201C1 DM1C1</td><td>G01FA ST004</td><td>-</td><td>0</td><td>I.08E+01</td></td<>	÷	0 14	E2000 201C1 DM1C1	G01FA ST004	-	0	I.08E+01
R192598 8 20 4/11/2005 11:10:18 AM 5.14E+03   R192598 8 21 4/11/2005 11:11:40 AM 5.35E+03   R192598 8 22 4/11/2005 11:16:56 AM 1.61E+04   R192598 8 23 4/11/2005 11:16:56 AM 1.07E+04   R192598 8 23 4/11/2005 11:16:56 AM 1.07E+04   R192598 8 23 4/11/2005 11:18:14 AM 1.07E+04   R192598 8 25 4/11/2005 11:55:02 AM 4.97E+03   R192598 8 25 4/11/2005 11:55:02 AM 4.97E+03   R192598 8 26 4/11/2005 11:55:02 AM 4.97E+03   R192598 8 27 4/11/2005 11:59:02 PM 1.71E+04   PL92598 8 27 4/11/2005 12:04:20 PM 1.20E+04   PL92598 8 29 4/11/2005 12:04:20 PM 1.19E+04   PL92598 8 30 4/11/2005 12:04:20 PM 1.19E+04   PL92598 8 30 4/11/2005 12:04:20 PM 1.19E+04	ç0	0 14	E2000 201C1 DMIC1	G01FA ST004	13	õ	1.07E+01
R.192598     8     21     4/11/2005     11:14:40 AM     5.35F+03       R.192598     8     22     4/11/2005     11:14:54 AM     1.61E+04       R.192598     8     23     4/11/2005     11:14:56 AM     1.08E+04       R.192598     8     23     4/11/2005     11:14:56 AM     1.07E+04       R.192598     8     24     4/11/2005     11:155:02 AM     4.97E+03       R.192598     8     25     4/11/2005     11:55:02 AM     4.97E+03       R.192598     8     26     4/11/2005     11:55:02 AM     4.97E+03       R.192598     8     26     4/11/2005     12:02:16 PM     1.71E+04       R.192598     8     27     4/11/2005     12:02:16 PM     1.71E+04       R.192598     8     27     4/11/2005     12:02:16 PM     1.71E+04       R.192598     8     29     4/11/2005     12:04:20 PM     1.71E+04       R.192598     8     29     4/11/2005     12:04:20 PM     1.19E+04       R.192598     8 <td>60</td> <td>0 14</td> <td>E2000 201C1 DMIC1</td> <td>G02FA ST003</td> <td>-</td> <td>0</td> <td>5.03E+00</td>	60	0 14	E2000 201C1 DMIC1	G02FA ST003	-	0	5.03E+00
RJ92598 8 22 4/11/2005 11:14:54 AM 1.61E+04   RJ92598 8 23 4/11/2005 11:16:56 AM 1.08E+04   RJ92598 8 23 4/11/2005 11:16:56 AM 1.07E+04   RJ92598 8 24 4/11/2005 11:15:02 AM 4.97E+03   RJ92598 8 25 4/11/2005 11:55:02 AM 4.97E+03   RJ92598 8 26 4/11/2005 11:55:02 AM 4.98E+03   RJ92598 8 27 4/11/2005 12:02:16 PM 1.71E+04   PR192598 8 27 4/11/2005 12:04:20 PM 1.20E+04   PR192598 8 29 4/11/2005 12:04:20 PM 1.20E+04   PR192598 8 29 4/11/2005 12:04:20 PM 1.19E+04   PR192598 8 30 4/11/2005 12:04:20 PM 1.19E+04	60	0 14	E2000 201C1 DMIC1	G02FA ST003	5	0	5.23E+00
RI92598     8     23     4/11/2005     11:16:56 AM     1.08E+04       'R192598     8     24     4/11/2005     11:18:14 AM     1.07E+04       'R192598     8     25     4/11/2005     11:18:14 AM     1.07E+04       'R192598     8     25     4/11/2005     11:55:02 AM     4.97E+03       'R192598     8     26     4/11/2005     11:59:40 AM     4.98E+03       'R192598     8     27     4/11/2005     12:02:16 PM     1.71E+04       'R192598     8     27     4/11/2005     12:04:20 PM     1.20E+04       'R192598     8     29     4/11/2005     12:04:20 PM     1.30E+04       'R192598     8     30     4/11/2005     12:04:20 PM     1.30E+04       'R192598     8     30     4/11/2005     12:04:20 PM     1.30E+04	60	0 14	E2000 201C1 DM1C1	G01GA ST003	-	0	L.57E+01
RI 92598     8     24     4/11/2005     11:18:14     A.M.     1.07E+04       RI 92598     8     25     4/11/2005     11:55:02     AM     4.97E+03       RI 92598     8     25     4/11/2005     11:55:02     AM     4.97E+03       RI 92598     8     26     4/11/2005     11:55:02     AM     4.98E+03       RU 92598     8     27     4/11/2005     12:02:16     M     1.71E+04       RU 92598     8     27     4/11/2005     12:04:20     M     1.20E+04       RU 92598     8     29     4/11/2005     12:04:20     M     1.97E+04       RU 92598     8     29     4/11/2005     12:04:20     PM     1.97E+04       RU 92598     8     30     4/11/2005     2:45:02     PM     9.71E+04		0 14	E2000 201C1 DMIC1	G01FA ST003	-	0	1.05E+01
RI 92598     8     25     4/11/2005     11:55:02 AM     4/97E+03       RI 92598     8     26     4/11/2005     11:59:40 AM     4/98E+03       RI 92598     8     27     4/11/2005     11:59:40 AM     4/98E+03       RI 92598     8     27     4/11/2005     12:02:16 PM     171E+04       PR 92598     8     28     4/11/2005     12:04:20 PM     1.20E+04       PR 92598     8     29     4/11/2005     12:04:20 PM     1.39E+04       PR 92598     8     30     4/11/2005     12:04:20 PM     1.9F+04	- 60	0 14	E2000 201C1 DM1C1	GOIFA ST003	63	0	05E+01
Re192598     8     26     4/11/2005     11:59:40 AM     4/38E+03       Re192598     8     27     4/11/2005     12:02:16 PM     1.71E+04       Re192598     8     27     4/11/2005     12:04:20 PM     1.20E+04       Re192598     8     29     4/11/2005     12:05:50 PM     1.19E+04       Re192598     8     30     4/11/2005     2:45:02 PM     9.71E+04	- 69	0 14	E2000 201C1 DMIC1	G02FA ST002	-	, 0	1.86E+00
RI 92598     8     27     4/11/2005     12:02:16 PM     1.71E+04       R1 92598     8     28     4/11/2005     12:04:20 PM     1.20E+04       R1 92598     8     29     4/11/2005     12:05:50 PM     1.39E+04       R1 92598     8     30     4/11/2005     2:45:02 PM     9.71E+03	-	0 14	E2000 201C1 DMIC1	G02FA ST002	64	, 0	1,87E+00
R192598     8     4/11/2005     12:04:20 PM     1.00E+04       R192598     8     29     4/11/2005     12:05:50 PM     1.19E+04       R192598     8     30     4/11/2005     2:45:02 PM     9.71E+03	60 r	0 14	E2000 201C1 DMIC1	G01GA ST002	-	0	.,68E+01
R192598 8 29 4/11/2005 12:05:50 PM 1.19E+04 PR192598 8 30 4/11/2005 2:45:02 PM 9.71E+03	60	0 14	E2000 201C1 DMIC1	G01FA ST002	-	0	17E+01
7L192598 8 30 4/11/2005 2:45:02 PM 9.71E+03	09	0 14	E2000 201C1 DMIC1	G01FA ST002	6	0	<b>16E+01</b>
	60 L	0 14	E2000 201C1 DM1C1	G02FA ST001	-	0	0.50E+00
PR192598 8 31 4/11/2005 2:46:14 PM 1.08E+04	60 r	0 14	E2000 201C1 DMIC1	G02FA ST001	5	0	06E+01

SDMS Documentation Version 1.0

Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report Exposure Rate Measurements Page 2 of 2

4/14/2005

Station

Download ID

Download	<u>e</u> . : :	Station Number	User ID	Downlc Date	Dad I	Download Time	Survey P	ackage ID	Detector. Numl	Model	Detecto	or Serial mber	Gam	na Cal Fac	tor				
DL041105-0(	4	I	JLM0591	4/11/20	105	5:43 PM	E2000	) 201C1	44-1	. 0	PRI	92598	<b>Y</b>	(13E+10					
Package ID	M2350 Serial Number	User ID	Detector Seriai Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Loggmg Mode	Window SonOroff ,	Scaler Alarm	rcı	LC2 LC	3 TC4	LCS	LC6 L/	7 Measuremen Location Number	tt Exposure Rate uR/hr
E2000 201C1	95358	JLM0591	PR192598	8	32	4/11/2005	2:48:30 PM	1.25E+04	60	-	•	14 E.	2000 201	ci DMIC	1 GOIFA	ST001		¢	1.22F+01
E2000 201C1	85556	1620MJU	PR192598	92	33	4/11/2005	2:49:42 PM	1.18E+04	60	-	0	14 E	2000 201	ci DMIC	ATIOD K	ST001	19	0	1.15B+01
E2000 201C1	95358	JLM0591	PR192598	90	34	4/11/2005	3:31:10 PM	5.34E+03	60	-	0	14 E2	2000 201	CI DMIC	31 G02FA	ST013	-	0	5.23E+00
E2000 201C1	95358	JLM0591	PR192598	00	35	4/11/2005	3:32:32 PM	4.87E+03	60	-	0	14 E	2000 201	CI DMIC	31 G02FA	ST013	13	0	4.76E+00
E2000 201C1	95358	JLM0591	PR192598	83	36	4/11/2005	3:34:36 PM	1.92E+04	60	-	0	14 E2	201 201	CI DMIC	11 G01GA	ST013	-	0	1.88E+01
E2000 201C1	95358	JLM0591	PR192598	80	37	4/11/2005	3:37;54 PM	1.93E+04	60	-	0	14 E2	2000 201	CI DMIC	1 GOIFA	ST013	-	0	1.89E+01
E2000 201C1	95358	JLM0591	PR192598	80	38	4/11/2005	3:39:10 PM	1.75E+04	60	-	0	14 E2	1000 201	CI DMIC	A GOIFA	ST013	19	0	1.71E+01
GTS10 DRT02	95358	JLM0591	PR192598	ę	39	4/11/2005	4:25:38 PM	2.79E+04	300	-	0	14	TS10 DR	T02 DMIC	1 G01CA	LAB01	-	0	5.46E+00
GTS10 DRT02	95358	JLM0591	PR192598	F.	40	4/11/2005	4:31:24 PM	8.81E+05	60	-	0	14 G.	TS10 DR	T02 DM1C	1 GOIDA	LABOI	_	0	8.62E+02
GTS10 DRT02	95358	JLM0591	PR192598	<b>٤</b> ٠.	41	4/11/2005	4:36:14 PM	4,18E+04	60	-	0	14 G	TS10 DR	T02 DM1C	1 GOLDA	LAB01	ы	0	4.09E+01
GTS10 DRT02	95358	JLM0591	PR192598	r.	42	4/11/2005	4:38:22 PM	1.13E+04	60	-	0	14 G.	TS10 DR	T02 DMIC	1 GOIDA	LAB01	G	0	1.10E+01
Reviewed I	j, j	$\frac{3}{2}$ M	/MICF	the		Date: 4	114c		Approved	By: _	1 million				Da	te:		1 es	

Framatome ANP DES Site Restoration Services: JLM

Page 1 of 1

4/13/2005

Station

Download ID

Download	a l	Station Number	User ID	Downl	oad	Download Time	Survey Packag	ge ID	Detector Mumb	viodel er	Detecto	or Serial mber	Gamm	a Cal Facto	r				
DL041305-00	01	- 1	JLM0591	4/13/20	005	7:57 AM	E2000 2010		44-1(		PRI	92598	Q,	13E+10					
Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time Logs Cou	ged	Count Time (secs)	Logging Mode	Window A OnOroff	Scaler Alarm	I I	.cs LC3	LC4	LCS	LC6 L7	Measuremen Location	t Exposure Rate uR/hr
GTS10 DRT01	95358	1650M.IL	PR192598	9	Î	) 4/12/2005	7:25:26 AM 2.75E+	-04	300	-	•	17 GI	SIO DRT	01 DMTC1	GOLAA	LABOI			00 - 406 3
GTS10 DRT01	95358	1150MJL	PR192598	۴.,	-	4/12/2005	7:32:22 AM 8.71E+	-05	60		0	17 61	SI0 DRT	01 DMICI	GOIBA	LABOL		> c	0.565+00 8 \$78+03
GTS10 DRT01	95358	JLM0591	PR192598	t.	C1	\$ 4/12/2005	7:35:16 AM 4.22E+	-64 1	60	-	0	17 GI	SIO DRT	01 DMICI	GOIBA	LAB01	6	, o	4.13E+01
GTS10 DRT01	95358	JLM0591	PR192598	٦	G	4/12/2005	7:37:40 AM 1.13E+	-64	60	-	0	17 GI	SI0 DRT	01 DMICI	GOIBA	LAB01	0	0	1.11E+01
E2000 201C1	95358	JLM0591	PR192598	60	4	1 4/12/2005	8:39:18 AM 5,43E+	+03	60	-	0	17 E2	000 2010	I DMICI	G02FA	ST012	_	0	5.31E+00
E2000 201C1	95358	JLM0591	PR192598	60	•	4/12/2005	8:41:24 AM 5.59E+	-03	60	-	0	17 E2	000 201C	1 DMICI	G02FA	ST012	5	0	5.46E+00
E2000 201C1	95358	JLM0591	PR192598	80	Ŷ	\$ 4/12/2005	8:43:46 AM 1.72E+	-04	60	-	0	17 E2(	000 201C	1 DMICI	GOLGA	ST012	_	o	1 68F+01
E2000 201C1	95358	JLM0591	PR192598	80	r.	7 4/12/2005	8:45:34 AM 1.70E+	-04 1	60	-	0	17 E2(	000 201C	1 DMICI	GOLFA	ST012	_		1 KKELDT
E2000 201C1	95358	JLM0591	PR192598	90	90	4/12/2005	8:46:50 AM 1.71EH	-04	60	-	0	17 E2(	200 201C	1 DMICI	GOIFA	ST012	2		1 K78401
GTS10 DRT02	95358	JLM0591	PR192598	Ŷ	52	4/12/2005	4:44:04 PM 2.80E+	6	300	-	0	17 GT	S10 DRT	02 DSIBI	GOICA	LAB01		<u>ہ</u> د	5.476+00
GTS10 DRT02	95358	JLM0591	PR192598	Ŀ	53	4/12/2005	4:47:50 PM 8.62E+	-05	60	-	0	17 GT	SIO DRT	02 DSIBI	G01DA	LAB01	_		8.43E+02
GTS10 DRT02	9535 <b>8</b>	JLM0591	PR192598	Ŀ	54	1 4/12/2005	4:50:14 PM 4.15E+	4	60	-	0	17 GT	SI0 DRT	02 DSIB1	GOIDA	LAB01	~		4 066401
GTS10 DRT02	95358	JLM0591	PR192598	۲.	55	4/12/2005	4:51:32 PM 1.13E+	-04	60	-	0	17 GT	SI0 DRT	02 DSIB1	G01DA	LAB01		0 0	1.10E+01
Reviewed F	3y:	B	Which	the	à	Date: 7	13/0-	V VI	pproved	By:		R			Date		*	13/	5

Framatome ANP DES Site Restoration Services: JLM

1/21/2005

Page C-6 of 8

### Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Section 5.0 Sample Analysis Results – Alpha/Beta Counter _/5 Pages

E2000 201 U. removable A-B results.xls

Page 1 of 1

4/25/2005

Item ID STOJI

Instrment ID 2929 #_____

BKGD	Beta_	<u>   52  </u> cpm	Alpha_	.2	_cpm
------	-------	--------------------	--------	----	------

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	0	1.8	CONCRESTE & BOTTOM
2	5	-0.2	
3	9	0.8	V
		· · ·	

Smears counted by Marth Date 4/14/0-5 Ludlum 2929--β eff 20.6 % α eff__45.4___%

Surveyed by: <u><i>Dr M</i></u> , Date/Tim	me <u>4/11/05 /</u>	500
--------------------------------------------	---------------------	-----

1

Item ID STOOZ

Instrment ID 2929 #______

BKGD

Beta<u>52</u>cpm Alpha<u>2</u>cpm

Point	Removable	e ncpm	
No	Beta	Alpha	Description
1	-4	-0.2	CONCRETE C BOTTOM
2	2	-0.2	V
	· · · ·		
	· · · · · · · · · · · · · · · · · · ·		
a .			

Smears counted by _____ Date  $\frac{1}{11405}$  Ludlum 2929-- $\beta$  eff 20.6 % α eff_45.4 %

Surveyed by:	D.M.	Date/Time	4/11/05	1230
--------------	------	-----------	---------	------

Item ID ST dØ3

Instrment ID 2929 #<u>152202</u>

BKGD

Beta <u>52</u> cpm Alpha <u>2</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	-2	2.8	CONCRETE @ BOTTOM.
7	5	2.8	
		-	

Smears counted by March Date 4/14/05 Ludium 2929--β eff 20.6 % α eff__45.4 %

		U.
Surveyed by: D. M.	Date/Time	9/11/0

5 1100

Item ID _____ STROM ____

Instrment ID 2929 #______

BKGD

Beta <u>52</u> cpm Alpha <u>0,2</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
	-3	0	Concrete @ Battom
2	13	0	
<u> </u>			

Smears counted by  $\int Mdce$  Date <u>4-14-05</u> Ludlum 2929-- $\beta$  eff <u>20.6</u>% α eff 45.4 %

Surveyed by: <u>A McCee</u>	Date/Time	4.11-05/10	145
-----------------------------	-----------	------------	-----

Item ID 57695 E2000

Instrment ID 2929 # 152202

BKGD

Beta <u>52</u> cpm Alpha <u>2</u> cpm

Point	Removable	e ncpm	
No	Beta	Alpha	Description
1	2	- 0.2	CONCRETE @ BOTTOM
-			
			· · · · · · · · · · · · · · · · · · ·

Smears counted by Maph Date  $\frac{4/14/05}{14/05}$  Ludium 2929-- $\beta$  eff 20.6 %

α eff 45.4 %

Surveyed by: D, M Date/Time 4/11/05 1005

Item ID	STØØS
	the second s

Instrment ID 2929 #______

BKGD

Ľ

Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

	Point	Removable	ncpm	
	No	Beta	Alpha	Description
an	72	0	0	Concrete @ Battom
C K	*23	8	0	11
flace				
· _ ·				
		-		
ſ				
ſ				
ſ				
ľ				

Smears counted by D. M. Cee Date <u>4-14-05</u> Ludlum 2929--β eff <u>20.6</u>% α eff__45.4___%

Surveyed by: D. Malel	Date/Time	4-1105	$\square$	1005

Item ID 57 006		
----------------	--	--

1

Instrment ID 2929 #_____

# BKGD Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

Removable	ncpm	
Beta	Alpha	Description
- 19	2	Concrete @ Bottom
-3	0	; (
	Removable Beta 19 3	RemovablencpmBetaAlpha192-30-30-30

Smears counted by_	p.m.C.ee	_Date_ <u>4-14-05</u> _Ludlum 2929β eff_	20.6	_%
		α eff_	45.4	%

Surveyed by: D. McLee	Date/Time	4/14/05	1030 n
		4/10/05	1400

Item ID <u>57 007</u>

Instrment ID 2929 #_____

BKGD Beta <u>52</u> cpm Alpha <u>0, 2</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
l	5	0	Concrete @ Bottem
2	6	3	ì
3	У	1	$\checkmark$

Smears counted by <u>D. m.C.ee</u>	_ Date_ <u>4-14-05</u> _Ludlum 2929β eff_ <u>20.6</u>	_%
	α eff 45.4	%

Surveyed by: <u>I Mdee</u> D	Date/Time	4/10/05	1200
------------------------------	-----------	---------	------

Item ID <u>ST 998 E2000</u>

Instrment ID 2929 # <u>152202</u>

BKGD

Beta <u>52</u> cpm Alpha <u>0,2</u> cpm

Removable	ncpm	
Beta	Alpha	Description
1	-0.2	CONCRETE @ BOTTOM
-7	-0.2	
-5	6.8	V
	Removable Beta / 7 5	RemovablencpmBetaAlpha $1$ $-0.2$ $-7$ $-0.2$ $-5$ $0.8$

Smears counted by MMAGA Date 4/10/05 Ludlum 2929--β eff 20.6 % α eff_45.4 %

Item ID <u>STØØ9</u> E2000

Instrment ID 2929 #<u>152202</u>

BKGD

Beta <u>52</u> cpm Alpha <u>6,7</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	12	-0.2	CONCRETE C BOTTOM
2	-4	0.8	
3	5	2.8	V

Smears counted by MAGA- Date  $\frac{4/10/05}{1005}$  Ludium 2929-- $\beta$  eff 20.6 %

α eff<u>45.4</u>%

Surveyed by: _____

Date/Time 4/5/05 1444

Item ID <u>STØ10 E2000</u>

Instrment ID 2929 #__<u>152202</u>_____

BKGD

Beta 52 cpm Alpha 0.2 cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	2	0.8	CONCRESTE Q. BOTTOM
2	-4	0.8	
3	10	0.8	V
	-		

Smears counted by MMAT Date 4/10/05 Ludium 2929-- B eff 20.6 % α eff_45.4 %

Surveyed by: _____ Date/Time _______ Date/Time _______

Item ID <u>STØ11</u> EZOO

Instrment ID 2929 # 152202

# BKGD Beta <u>52</u> cpm Alpha <u>0, 2</u> cpm

Point	Removable ncpm		
No	Beta	Alpha	Description
1	-6	-0,2	CONONESTE BOTTOM
2	5	1.8	
3	/	0.8	V
		· · · ·	

Smears counted by MMGA _____ Date 4/10/05 Ludlum 2929--β eff 20.6 ____% α eff_45.4 %

Surveyed by: _____ Date/Time ________ Date/Time ___________

( .

. .

Item ID __________

Instrment ID 2929 #______

BKGD

Beta <u>52</u> cpm Alpha <u>~</u> cpm

Point	Removable ncpm				
No	Beta	Alpha	Description		
1		2	Bottom /Concrete		
2	-3	0			
3	-2	0	V		

Smears counted by  $\underline{DM}$ . Cree Date  $\underline{4.05}$  Ludlum 2929-- $\beta$  eff 20.6 % α eff 45.4 %

Surveyed by: D. McCee	Date/Time	4-12-05/0850	

Item ID	57	\$13	
		/	

Instrment ID 2929 #_____152202_____

BKGD

Beta <u>52</u> cpm Alpha <u>2</u> cpm

Point	Removable	ncpm	
No	Beta	Alpha	Description
1	-9	3,8	CONCRETE C ROTTOM
2	1	-6.2	
3	5	118	V
		· · ·	
			· · · · · · · · · · · · · · · · · · ·

Smears counted by Mach____ Date 4/14/05 Ludium 2929-- B eff_ 20.6 % α eff 45.4 %

Surveyed by: D. M. Date/Time <u>4/11/05/600</u>

1/21/2005

Page C-7 of 8

### Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

Section 6.0 Sample Analysis Results – Gamma Spectroscopy (e) Pages
FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM (ENVIRONMENTAL/BIOASSAY SAMPLES)

FORM 605.1, REV. 14

OTHER



# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

					Framatome ANP inc
Customer	Framatome ANP Inc	FEDERAL GRP	көроп рате	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street Charlotte, NC 28285

Lab. Sample No. Reference Date	L9126-01 04/11/05	Client ID Analysis Date	ST001 04/25/05		Product Matrix	GAMMA SPECTROMETRY Sludge (Dry)	
Nuclide	Activity +/- 1	Concentration - Sigma pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCl/g)	Flags	
AcTh-228	4.54E-01	+/ 4 2E-02	4.7E-02	1.6E-01		bc	
Ag-108m	1.17E-02	+/- 7 9E-03	7.9E-03	2 6E-02			
Ag-110m	1.4E-02	+/- 1.4E-02	1.4E-02	4.8E-02			
Ba-140	1.13E-01	+/- 7.3E-02	7.3E-02	2 7E-01			
Be-7	1.62E+00	+/- 17E-01	1.9E-01	4.3E-01		bc	
Bi-214	3.3E-01	+/- 3.1E-02	3 5E 02	8.8E-02		bc	
Ce-141	3E-03	+/- 19E-02	1 9E-02	6.6E-02			
Ce-144	9 7E-02	+/- 6.6E-02	6 6E-02	2 2E-01			
Co-57	4E-04	+/- 83E-03	8 3E-03	2 8E-02			
Co-58	8E-03	+/- 9.9E-03	9.9E-03	3 4E 02			
Co-60	-6 9E-03	+/- 77E-03	7.7E-03	3.1E-02			
Cr-51	2E-02	+/- 1.1 <b>E-0</b> 1	1 1E-01	3.8E-01			
Cs-134	-3E-02	+/- 4.0E-02	4 0E-02	1.3E-01	1 5E-01		
Cs-137	7.6E-02	+/- 1.6E-02	1.7E-02	4 8E-02	1 8E-01	bc	
Fe-59	2E-02	+/- 2 5E-02	2.5E-02	8 5E-02			
I-131	-3.3E-02	+/- 31E-02	3.1E-02	1 1E-01			
K-40	1.267E+01	+/~ 4 5E-01	7.8E-01	3 9E-01		bc	
La-140	-1 7E-02	+/- 37E-02	3.7E-02	1.3E-01			
Mn-54	1 1E-02	+/- 1.0E-02	1.0E-02	3.5E-02			
Nb-95	-2 3E-02	+/~ 13E-02	1 3E-02	5.0E-02			
Pb-214	3.84E-01	+/- 2.9E-02	3.5E-02	8 8E-02		be	
Ru-103	9E-03	+/- 1 0E-02	1.0E-02	3.5E-02			
Ru-106	-1.24E-01	+/- 8.5E-02	8 5E-02	3.2E-01			
Sb-124	-5.1E-02	+/- 1.9E-02	1 9E-02	9.0E-02			
Sb-125	3.4E-02	+/- 2.5E-02	2 5E-02	8.2E-02			
Se-75	-1.2E-02	+/- 1 5E-02	1.5 <b>E-02</b>	5 2E-02			
Zn-65	2 7E-02	+/- 5.0E-02	5 0E-02	1.7E-01			
Zr-95	-1E-02	+/- 15E-02	1 5E-02	6 5E-02			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

**Reporting Level Ratio:** 

BI/Pb-214 results are qualitative only.

MAILED						
MAY 0 6 2005						
FRAMATOME ANP ENVIRONMENTAL LAB						

Page 1 of 1

Approved by CUUMPALLO 5 605

Sample Control and Measurements Lead



# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

Customer Attention	Framatome ANP Inc John McGehee & Don McGee	FEDERAL GRP	Report Date Receipt Date	05/06/05 04/14/05	Framatome ANP Inc Framatome ANP Federal D&D Group 400 South Tryon Street Charlette, NC, 28295
					Charlotte, NC 28285

Lab. Sample No.L.9126-02Client IDST002Reference Date04/11/05Analysis Date04/25/05

ST002

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

Nucilde	Activity +/-	Con (-Si	centration igma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
	. (	pCł/g	1)	(pCl/g)	(pCl/g)	(pCi/g)		
 AcTh 228	2.13E-01	+/-	5 2E-02	5.3E-02	2.1E-01		bc	
Ag 108m	-1.44E-02	<b>+/-</b>	9 6E-03	9 6E-03	3.8E-02			
Ag-110m	4E-03	+/	1 7E-02	1 7E-02	6.1E-02			
Ba-140	-1 44E-01	+/-	7 6E-02	7 6E-02	3 1E-01			
Be-7	1 5E+00	+/-	1.8E-01	1 9E-01	4.0E-01		bc	
Bi-214	1 87E-01	+/-	3.3E-02	3.4E-02	9.0E-02		bc	
Ce 141	-7E-03	+/-	1.7E-02	1 7E-02	6.0E-02			
Ce-144	-2 6E 02	+/-	5.2E-02	5 2E-02	1.9E-01			
Co-57	1.04E-02	+/-	6.5E-03	6 6E-03	2.2E-02			
Co-58	-6E-03	+/-	1.3E-02	1 3E-02	5.1E-02			
Co-60	-1.3E-02	+/-	1.5E-02	1 5E-02	6 0E-02			
Cr-51	1 3E-01	+/-	1 0E-01	10E-01	4 0E-01			
Cs-134	3E-03	+/-	9 7E-03	9.7E-03	3.5E-02	1 5E-01		
Ca-137	5.8E-02	+/-	1.7E-02	1.8E-02	5.1E-02	1.8E-01	bc	
Fe-59	1 6E-02	+/-	2.8E-02	2 8E-02	1 0E-01			
-131	3E-02	+/	3.0E-02	3 0E-02	1.05-01			
K-40	1 626E+01	+/-	7 1E-01	1.1E+00	5 2E-01		bc	
La-140	-17E-02	+/-	4.1E-02	4.1E-02	4.2E-01			
Mn-54	3.4E-02	+/-	1.4E-02	1 <b>4E</b> -02	4.1E-02			
Nb-95	-3 3E-02	+/-	1.6E-02	1 6E-02	6.6E-02			
Pb 214	2.06E-01	+/-	3.0E-02	3 2E-02	9 7 <b>E-02</b>		bc	
Ru-103	-9E-03	+/-	1.2E-02	1.2E-02	4 7E-02			
Ru-106	1.55E-01	+ <i> </i> _	9.3E-02	9 3E-02	3.0E-01			
Sb-124	-9E-03	+/-	2 3E-02	2.3E-02	1 1E-01			
Sb-125	0E+00	+/-	3 2E-02	3.2E-02	1 2E-01			
Se 75	2 8E-02	+/-	1.3E-02	1.3E-02	4.0E-02			
Zn-65	9 8E-02	+/-	5.8E-02	5.8E-02	1 95-01			
Zr-95	-3.5E-02	+/-	2 0E-02	2 0E-02	1.1E-01			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

MAILED	Ì
MAY 0 6 2005	
FRAMATOME ANP ENVIRONMENTAL LAB	

Page 1 of 1

Approved by

E. M. Moreno Sample Control and Measurements Lead

C;



Lab. Sample No. L9126-03

# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

			B		Framatome ANP Inc
Customer	Framatome ANP Inc	FEDERAL GRP	Report Date	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street
					Charlotte, NC 28285

Reference Date	04/11/05	ļ	Analysis Dat	be 04/25/05		Matrix	Sludge (Dry)	
Nuclide	Activity +/- 1	Cond - Si	centration gma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
	(1	oCi∕g	}	(pCi/g)	(pCi/g)	(pCl/g)		
AcTh-228	1 65E-01	+/-	8 2E-02	8.3E-02	2.7E-01		c	
Ag-108m	7 8E-03	+/-	9.7E-03	9 7E-03	3 7E-02			
Ag-110m	-1.6E-02	+/.	1.8E-02	1 8E-02	7.1E-02			
Ba-140	0E+00	+/-	8.1E-02	8.1E-02	3 0E-01			
Be-7	1 22E+00	+/-	2.0E-01	2.1E-01	5 2E-01		Ьс	
Bi-214	1 49E-01	<b>+/-</b>	4.2E-02	4.3E-02	1 3E-01		bc	
Ce-141	1.8 <b>E-02</b>	+/-	2.1E-02	2.1E-02	6 9 <b>E-0</b> 2			

ST003

**Client ID** 

Ag-108m	7.8E-03	+/-	9.7E-03	9 7E-03	3 7E-02			
Ag-110m	-1.8E-02	+/.	1.8E-02	1 8E-02	7.1E-02			
Ba-140	0E+00	+/-	8.1E-02	8.1E-02	3 0E-01			
Be-7	1 22E+00	+/-	2.0E-01	2.1E-01	5 2Ë-01		ЬС	
Bi-214	1 49E-01	+/-	4.2E-02	4.3E-02	1 3E-01		bc	
Ce-141	1.8 <b>E-02</b>	+/-	2.1E-02	2.1E-02	6 9E-02			
Ce-144	-9.7E-02	+/-	6.8E-02	6 9E-02	2 5E-01			
Co-57	-1 62E-02	+/-	7 8E-03	7.8E-03	2.9E-02			
Co-58	-3.5E-02	+/-	1.4E-02	1 4E-02	6 1E-02			
Co-60	-9E-03	+/-	1.8E-02	1.8E-02	7.0E-02			
Cr-51	5E-02	+/-	1.1E-01	1.1E-01	3.9E-01			
Cs-134	8E-03	+/-	1.9E-02	1.9E-02	6.6E-02	1 5E-01		
Cs-137	1E-02	+/-	1.6E-02	1 6E-02	5.5E-02	1.8E-01		
Fe-59	1.7E-02	+/-	3.2E-02	3 2E-02	1.2E-01			
1-131	0E+00	+/-	3 3E-02	3.3E-02	1.2E-01			
K-40	1.727E+01	+/	7.6E-01	1 1E+00	6 3E-01		bc	
La-140	-5 4E-02	<b>+/</b> -	4 1E-02	4.1E-02	1 6E-01			
Mn-54	-1.8E-02	+/-	1 2E-02	1.2E-02	5.1E-02			
Nb-95	3E-03	+/-	1.6E-02	1 6E-02	6 0E-02			
Pb-214	2 46E-01	+/-	3.2E-02	3.4E-02	9 8E-02		bc	
Ru-103	1.3E-02	+/-	1.1E-02	1 1E-02	3 9E-02			
Ru-106	0E+00	+/-	1.2E-01	1.2E-01	4 2E-01			
Sb-124	-9E-03	+/-	3.1E-02	3 1E-02	1 3E-01			
Sb-125	-2E-02	+/-	3 0E-02	3.0E-02	1 1E-01			
\$ <del>e</del> -75	- 5E-03	+/-	1.4E-02	1.4E-02	5.1E-02			
Zn-65	-2.7E-02	+/-	3.7E-02	3.7E-02	1 4E-01			
Zr-95	~1.2E-02	+ <i>j</i> -	2 1E-02	2.1E-02	1 0E-01			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

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MAY 0 6 2005	
FRAMATOME ANP ENVIRONMENTAL LAB	

Page 1 of 1

Approved by

Product GAMMA SPECTROMETRY

(ÈM. Moreno Sample Control and Measurements Lead



# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

		FEDERAL GRP	Report Date		Framatome ANP Inc	
Customer				Framatome ANP Inc	05/06/05	Framatome ANP Federal D&D Group
	Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street
						Charlotte, NC 28285

SPLIT OF #L9126-03

Lab. Sample No. L9126-23 Reference Date 04/15/05 Client ID SPLIT Of Analysis Date 05/02/05 Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

to the BAIR Inc.

e .

 Nuclide	Activity Co +/- 1 - 5	ncentration Sigma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
	(pCi	/g)	(pCi/g)	(pCi/g)	(pCi/g)		
AcTh-228	2.29E-01 +/	- 2 2E-02	2.5E-02	9.2E-02		bc	
Ag-108m	1.8E-03 +/	- 4.7E-03	4.7E-03	1.6E-02			
Ag-110m	1 79E-02 +/	8.5E-03	8.6E+03	2.8E-02			
Ba-140	-1 6E-02 +/	- 4.6E-02	4 6E-02	1.6E-01			
Be-7	1 341 <b>E</b> +00 +/	9.5E-02	1 2E-01	2.4E-01		bc	
Bi-214	2 23E-01 +/	- 1.4E-02	1 8E-02	3 2E-02		bc	
Ce-141	2.5E-02 +/	- 10E-02	1 0E-02	3.3E-02			
Ce-144	5E-02 +/	- 33E-02	3 3E-02	1.1E-01			
Co-57	3.6E-03 +/	4.0E-03	4 0E-03	1.3E-02			
Co-58	-1.75E-02 +/	- 5.8E-03	5.8E-03	2 2E-02			
Co-60	1E-04 +/	6.1E-03	<del>6</del> .1E-03	2.2E-02			
Cr-51	-6.6E-02 +/	6 5E-02	6.5E-02	2.3E-01			
Cs-134	-3 1E-03   +/	- 5 0E-03	5 0E-03	1 9E-02	1.5E-01		
Cs-137	3.6E-02 +/	- 8 3E-03	8 5E-03	2 5E-02	1.8E-01	bc	
Fe-59	3E-03 +/	- 1 6E-02	1 6E-02	5.7E-02			
1-131	1 8E-02 +/	- 21E-02	2 1E-02	7.2E-02			
K-40	1 63E+01 +/	- 3.2E-01	8 7E-01	2 5E-01		bc	
La-140	3 1E-02 +/	- 2.3E-02	2.3E-02	7.6E-0 <b>2</b>			
Mn 54	8E-04 +/	6.3E-03	6.3E-03	2.2E-02			
Nb-95	6.7E-03 +/	- 7 5E-03	7.5E-03	2 5E-02			
Pb-214	2.51E-01 +/	1 4E-02	1.9E-02	4.5E-02		bc	
Ru-103	-8 3E-03 +/	6.4E-03	6.4E-03	2 3E-02			
Ru-106	4.3E-02 +/	5 5E-02	5.5E-02	1.9E-01			
Sb-124	-87E-03 +/	8 7E-03	8 7E-03	3.6E-02			
Sb-125	-2 2E-02   +/	· 14E-02	1.4E-02	5.0E-02			
Se-75	-1 24E-02 +/	- 7.1E-03	7 1E-03	2 5E-02			
Zn-65	-2E-03 +/	- 26E-02	2 6E-02	9 0E-02			
Zr-95	-8.9E-03 +/	- 9.4E-03	9.4E-03	3.7E-02			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

**Reporting Level Ratio:** 

Bi/Pb-214 results are qualitative only.



Page 1 of 1

Approved by

E. M. Moreno Sample Control and Measurements Lead

C:



Lab. Sample No.

**Reference Date** 

L9126-04

04/11/05

Cilent ID

Analysis Date 04/25/05

# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

<b>-</b> ·					Framatome ANP Inc
Customer	Framatome ANP Inc	FEDERAL GRP	Report Date	05/06/05	Framatome ANP Federal D&D Group
Attention	John McGehee & Don McGee		Receipt Date	04/14/05	400 South Tryon Street
					Charlotte, NC 28285

ST004 Pro

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

Nuclide	Activity +/-	Con t - Si	centration igma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	
 	(	pCi/g	I)	(pCi/g)	(pCi/g)	(pCl/g)		
 AcTh-228	2 65E-01	+/-	8.2E-02	8 3E-02	2.4E-01		bc	
Ag-108m	1E-03	+/-	1.0E-02	1 0E-02	3.7E-02			
Ag-110m	9E-03	+/-	1.7E-02	1.7 <b>E-02</b>	6 4E-02			
Ba-140	8 2E-02	+/-	7.2E-02	7 3E-02	2 5E-01			
Be-7	1.14E+00	+/-	1.9E-01	2.0E-01	4.8E-01		bc	
Bi-214	3 65E 01	+/-	4.2E-02	4.6E-02	9 5E-02		bc	
Ce-141	1 6E-02	+/-	2 0E-02	2.0E-02	6.7E-02			
Ce-144	-1 1E-02	+/	5.7E-02	5.7E-02	2 0E-01			
Co-57	2 6E-03	+/-	6.9E-03	6.9E-03	2 4E-02			
Co-58	5E-03	+/-	1.5 <b>E-02</b>	1 5E-02	5 5E-02			
Co-60	-1.5E-02	+/-	1.6E-02	1.6E-02	6 8E-02			
Cr-51	-1E-01	+/-	1.1E-01	1 1E-01	4 3E-01			
Cs-134	1.8E-03	+/-	8.8E-03	8.8E-03	3.3E-02	1.5E-01		
Cs-137	3.8E-02	+/-	1.4E-02	1.4E-02	4 1E-02	1 8E-01		
Fe-59	1.3 <b>E-02</b>	+/-	4.2E-02	4 2E-02	1.5E-01			
I-131	-2E-02	+/-	3.0E-02	3.0E-02	1 2E-01			
K-40	1.327E+01	+/-	7 1E-01	9.7E-01	6 0E-01		be	
La-140	6.9E-02	+/-	4.4E-02	4.4E-02	1.4E-01			
Mn-54	-1.3E-02	+/-	1.4E-02	1.4E-02	5.6E-02			
Nb-95	-3 2E-02	+/-	1 8E-02	1 8E-02	7 <b>4E-</b> 02			
Pb-214	2 79 <b>E-</b> 01	+/-	3.2E-02	3 5E-02	1.0E-01		bc	
Ru-103	1 5E-02	+/-	1.4E-02	1.4E-02	4 7E-02			
Ru-106	-1 3E-01	+/-	1.1E-01	1 1E-01	4 5E-01			
Sb-124	0E+00	+/-	3.4E-02	3.4E-02	1.4E-01			
Sb-125	-9E-03	+/-	3.2E-02	3 2E-02	1.2E-01			
Se-75	8E-03	+/-	1.4 <b>E-02</b>	1.4E-02	4 BE-02			
Zn-65	-4.4E-02	+/.	4 0E-02	4.0E-02	1 6E-01			
Zr-95	-2E-03	<b>+/</b> •	1 9E-02	1.9E-02	8 0E-02			

#### Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio: 9126-04Bi/Pb-214 results are qualitative only.



Approved by

( 佳)M Moreno Sample Control and Measurements Lead

C:



# **Environmental Laboratory Analysis Report**

29 Research Drive Westboro, MA 01581 508-898-9970

Customer Attention	Framatome ANP Inc John McGehee & Don McGee	FEDERAL GRP	Report Date Receipt Date	05/06/05 04/14/05	Framatome ANP Inc Framatome ANP Federal D&D Group 400 South Tryon Street Charlotto NC 28285
					Charlotte, NC 28285

Lab. Sample No.	L9126-05	Client ID	ST005
Reference Date	04/11/05	Analysis Date	04/25/05

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

 Nuclide	Activity C +/- 1 -	oncentration Sigma	TPU 1 Sigma	Measured MDC	Required MDC	Flags	<u></u>
 	(pC	:Vg)	(pCi/g)	(pCi/g)	(pCi/g)		
AcTh-228	3.85E-01	+/• 7.1E-02	7.4E-02	2 6E-01		bc	
Ag-108m	1.8E-02	+/- 1.3E-02	1 3E-02	4 3E-02			
Ag-110m	8E-03	+/- 2.3E-02	2 3E-02	8 5E-02			
Ba-140	2E-02	+/- 1.0E-01	1 0E-01	3 7E-01			
Be-7	8.6E-01	+/- 21E-01	2.2E-01	6.0E-01		bc	
Bi-214	3.69E-01 +	+/- 52E-02	5.5E-02	1 2E-01		bc	
Ce-141	2.8E-02 +	+/- 2.7 <b>E-02</b>	2 7E-02	9.2E-02			
Ce 144	-1 42E-01	⊧/- 9.2E+02	9 2E-02	3.4E-01			
Co-57	0E+80 +	+/· 1.2E-02	1.2E-02	4 2E-02			
Co-58	1E-03 +	⊦/• 17E•02	1 7E-02	6.4E-02			
Co-60	2E-02 +	H- 1.7E-02	1.7E-02	5 9E-02			
Cr-51	4E-02 →	V- 1.6E-01	1.6E-01	5.8E-01			
Cs-134	4E-02 +		2.2E-02	6.2E-02	1 5E-01		
Cs-137	6.1E-02 +	/- 2.1E-02	2.1E-02	6 2E-02	1.8E-01		
Fe-59	5.1E-02 →	/ 3.5E-02	3 5E-02	1.2E-01			
l-131	5 8E-02 +	-/- 4.3E-02	4 3E-02	1 7E-01			
K-40	1.377E+01 +	≁- 7 5E-01	1.0E+00	6 2E-01		bc	
La-140	-8E-03 +	/- 5.5 <b>E-02</b>	5.5E-02	2 1E-01			
Mn-54	3E-03 +	/- 1.3E-02	1.3E-02	4.8E-02			
Nb-95	-1.7E-02 +	≁ 18E-02	18E-02	7.4E-02			
Pb-214	3 93E-01 +	/- 4.6 <b>E-0</b> 2	5.0E-02	1 3E-01		bc	
Ru-103	1 3 <b>E-02</b> +	/- 1.7E-02	1.7E-02	5.9E-02			
Ru-106	6E-02 +	/- 1.6E-01	1.6E-01	5.7E-01			
Sb-124	2.2 <b>E-02</b> +	/- 1.6E-02	1.6E-02	3.0E-02			
Sb-125	4.9E-02 +	/- 4.0E-02	4 0E-02	1.4E-01			
Se 75	4E-03 +	/- 1.9E-02	1.9E-02	6.8E-02			
Zn-65	-9.7E-02 +	/- 4.5 <b>E-02</b>	4.5E-02	1.9E-01			
Zr-95	-5.9E-02 +	/ 2.5E-02	2.5E-02	1.3E-01			

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

**Reporting Level Ratio:** 

BI/Pb-214 results are qualitative only.



Page 1 of 1

Approved by Cullyneto 5605

터 M. Moreno Sample Control and Measurements Lead

C:

Rome New York

1/21/2005

Page C-8 of 8

# Survey Package Appendix C – Survey Results

Survey Package:	E2000 201C1	Package:	System
Survey Area Name:	Storm Drain System		
Survey Unit Name:	Storm Drain System Section Down Stream of Buil	ding 104 Ope	erations

# Section 7.0 Sample Analysis Results – Alpha Spectroscopy ZPages

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ivironmental Low atory Analysis Report 29 Research Drive

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29 Research Drive Westboro, MA 01581 508-898-9970

Product RA-226 (A)

05/12/05 04/14/05

Report Date Receipt Date

Customer

Framatome ANP Inc FEDERAL GRP Framatome ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

Attn: Johr	1 McGehee & Don McG <del>ee</del>								
		Reference	Analysis		Activity Concentration +/- 1-Sigma	TPU 1 Sinne	Measured	Required	
rsn	Client ID & Description	Date	Date	Nuclide	(pCI/g)	(bCl/g)	(pCi/g)	(pCI/g)	Reporting Flags Level Ratio
Sludge (Dry)									
L9126-01 S	7001	04/11/2005	05/09/2005	Ra-226	1.9E-01 +/- 1.1E-01	1.1E-01	2.1E-01	7.0E-01	
L9126-02 S	7002	04/11/2005	05/09/2005	Ra-226	1.28E-01 +/~ 9.8E-02	9,9E-02	2.8E-01	7.0E-01	
L9126-03 S	T003	04/11/2005	05/09/2005	Ra-226	5.9E-02 +/- 6.3E-02	6.3E-02	2.36-01	7.0E-01	
L9126-04 S	T004	04/11/2005	05/10/2005	Ra-226	2.5E-01 +/- 1.2E-01	1.3E-01	1.95-01	7.0E-01	
L9126-05 S	T005	04/11/2005	05/09/2005	Ra-226	2.4E-01 +/- 1.2E-01	1.26-01	1.96-01	7.0E-01	
L9126-06 S	T007	04/10/2005	05/09/2005	Ra-226	3.9E-01 +/- 1.7E-01	1.7E-01	3.2E-01	7.08-01	
L9126-07 S	Т011	04/09/2005	05/09/2005	Ra-226	1.53E-01 +/- 8.9E-02	8.95-02	1.6E-01	7.0E-01	
L9126-08 S	T012	04/12/2005	05/09/2005	Ra-226	3.4E-01 +/- 1.7E-01	1.7E-01	2.7E-01	7.0E-01	
L9126-09 S	T013-1	04/11/2005	05/10/2005	Ra-226	9.2E-01 +/- 2.7E-01	2.7E-01	3.1E-01	7.0E-01	¢
L9126-10 \$	T013-2	04/11/2005	05/09/2005	Ra-226	1.04E+00 +/- 3.5E-01	3.5E-01	3.5E-01	7.0E-01	
L9126-11 B	LDG21	04/12/2005	05/09/2005	Ra-226	3.1E-01 +/- 2.2E-01	2.2E-01	4.8E-01	7.06-01	
L9126-12 S	A002	04/12/2005	05/10/2005	Ra-226	1.9E+00 +/- 4.8E-01	4.9E-01	3.9E-01	7.0E-01	٩
L9126-13 S	A003	04/12/2005	05/10/2005	Ra-226	1.1E-01 +/- 1.1E-01	1.1E-01	3.7E-01	7.0E-01	
Flags:	a The measured MDC is greater than the DThe activity concentration is greater the	re required MD han three times	ic. Its one sigm	a counting uncertainty.				Approve 12/2 autu	d by US
:					MAILE	ĒD	Sample C	E. M. More ontrol and Me	no asurements Lead
ប					MAY 1 2	2005			
				Page 1 of 1	ENVIRONMEN	E ANP TAL LAB			

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AREVA

Environmental L ratory Analysis Report

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29 Research Drive Westboro, MA 01581 508-898-9970

Product RA-226 (A)

05/12/05 04/14/05

Report Date Receipt Date

Customer

Framatorne ANP Inc FEDERAL GRP Framatorne ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

Attn: John McGehee & Don McGee

| | | Reference | Analysis | | Activity Concentration
+/- 1-Sigma | TPU
1 Sinma | Measured | Required | |
|-------------------|--|----------------------------------|-------------|-------------------------|---------------------------------------|----------------|-----------|----------------|--------------------------------|
| rsn | Client ID & Description | Date | Date | Nuclide | (pCI/g) | (bci/g) | (bci/g) | MUC
(pCi/g) | Reporting
Flags Level Ratio |
| Sludge (D | 12() | | | | | | | | |
| L9126-14 | SA004 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.79E+00 +/~ 5.8E-01 | 6.1E-01 | 4.0E-01 | 7 0E.04 | 2 |
| L9126-15 | SA005 | 04/11/2005 | 05/10/2005 | Ra-226 | 7.8E-02 +/- 9.1E-02 | 9.1E-02 | 3.65-01 | 7.0F_01 | 2 |
| L9126-16 | SA006 | 04/10/2005 | 05/10/2005 | Ra-226 | 3.3E-01 +/- 2.0E-01 | 2.0E-D1 | 4.0E-01 | 7 DF_01 | |
| L9126-17 | SA007 | 04/10/2005 | 05/10/2005 | Ra-226 | 1.7E-01 +/- 1.2E-01 | 1.2E-01 | 3 (E.OI | 10 10 1 | |
| L9126-18 | SA009 | 04/09/2005 | 05/10/2005 | Ra-226 | 4.9E-01 +/- 2.9E-01 | 2.9E-01 | 5.96-01 | 7.05.01 | |
| L9126-19 | SA010 | 04/12/2005 | 05/10/2005 | Ra-226 | 1.03E+00 +/- 2.5E-01 | 2.66-01 | 1.95-01 | 7.0F-01 | £ |
| L9126-20 | BKG04 | 04/08/2005 | 05/10/2005 | Ra-226 | 4.3E-01 +/- 1.8E-01 | .⊛
1.8E-01 | 2.8E-01 | 7.0E-01 | 2 |
| L9126-21 | BKG06 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.9E-01 +/- 1.4E-01 | 1.5E-01 | 2.2E-01 | 7.0E-01 | |
| L9126-22 | BKG01 | 04/13/2005 | 05/10/2005 | Ra-226 | 2.9E-01 +/- 1,5E-01 | 1.5E-01 | 2.4E-01 | 7.0E-01 | |
| L9126-23 | SPLIT OF #L9126-03 | 04/15/2005 | 05/10/2005 | Ra-228 | -1.1E-03 +/- 1.1E-03 | 1.1E-03 | 3.2E-01 | 7 OE 01 | |
| L9126-24 | SPLIT OF #L9126-05 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.59E-01 +/- 9.3E-02 | 9.3E-02 | 1 8F.01 | 7.0E.01 | |
| L9126-25 | DUP OF #L9126-15 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.6E-01 +/- 1.2E-01 | 1.2E-01 | 3 3F 01 | 7 DE D1 | |
| L9126-26 | DUP OF #L9126-17 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.18E-01 +/- 8.4E-02 | 8.4E-02 | 1.8E-01 | 7,0E-01 | |
| ំដែ ព្វន ះ | a The measured MDC is greater than the
b The activity concentration is greater th | e required MD(
an three times | ts one sigm | a counting uncertainty. | | | SWIN | Approved | 10/05 |
| | | | | | MAIL | ED | Sample Co | E. M. Morer | no
Isurements Lead |

FRAMATOME ANP ENVIRONMENTAL LAB

Page 1 of 1

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 9.0 Survey Package E3000 201C1 Sanitary Sewer System

| | | Rome New | York | | |
|---|---|---|---|---|--|
| 1/21/2005 | | | | | Page 1 of 15 |
| _ | | Survey Package | Cover Sheet | | |
| Survey Packag | e Number: | E3000 201C1 | Package Ty | /pe: | System |
| Survey Area N | ame: | Sanitary Sewer System | 1 | | |
| Survey Unit Na | ame: | Sanitary Sewer System
Operations | e Section Down Strea | m of Bu | ilding 104 |
| Survey Packag | e Preparati | on: | | | |
| The survey pack | age instruct | ions are prepared and re | ady for implementati | ion. | |
| Prepared By: | John McGehee | Senior Engineer | | Date: | 3/11/05 |
| Reviewed By: | Don McGee, S | mior Engineer | | Date: | 3/28/05 |
| Approved By: | Greg Courtey, | Senior Engineer, CHP | | Date: _ | 3/30/05- |
| Survey Comple | etion: | | | | |
| The survey pack
reviewed for cor
collected has bee
instructions.
Reviewed By: | age instruct
npleteness i
en reviewed | ions were implemented
n accordance with the S
for completeness in acc
MMCDadd
Senior Engineer | and the survey measu
ample and Analysis I
ordance with the surv | irements
Plan. Th
vey pack
Date: | have been
the data
tage $6/9/05$ |

\_\_\_\_\_ Date: <u>6/9/05</u> \_ Date: 🔏

\_\_\_\_\_ Date:

Approved By:

Reviewed By:

Reviewed By:

PARSONS Repersentative

Don McGee, Senior Engineer

Greg Courtney, Senior Engineer CHP

Rome New York

| 1/21/2005 | | | Page 2 of 15 |
|-----------------------|-------------------------------------|----------------------------|--------------|
| | Table of Con | ntents | |
| Survey Package Number | E3000 201C1 | Package Type: | System |
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System
Operations | Section Down Stream of Bui | lding 104 |
| Section Title | | Page | |
| 1.0 Survey Area His | tory | 3 | |
| 2.0 Survey Unit Des | cription and History | 4 | |
| 3.0 References | | 6 | |
| 4.0 Safety | | 7 | |
| 5.0 Support | | 8 | |
| 6.0 Procedures | | 9 | |
| 7.0 General Survey | Package Instruction | 10 | |
| 8.0 Specific Survey I | Package Instruction | 12 | |
| 9.0 Location Codes | | 14 | |
| 10.0 Appendix A, Dra | wings | | |
| 11.0 Appendix B, Pho | tographs | | |
| 12.0 Appendix C, Sur | vey Results | | |

Rome New York

1/21/2005

Page 3 of 15

Survey Area History

| Survey Package Number: | E3000 201C1 | Package Type: | System |
|------------------------|---|---------------------------|--------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Secti
Operations | on Down Stream of Buildin | ig 104 |

Survey Area Description:

Potentially impacted portion of the sanitary sewer system down stream of Building 104

Survey Area History Information:

The Griffiss Air Force Base (AFB) site, located in Rome, New York, is situated in the Mohawk Valley among the Mohawk River, Six Mile Creek, and the New York State Barge Canal. The base, which began operation in 1943, encompasses 3,552 acres and was home to the 416th Combat Support Group under the Air Combat Command until the base was designated for realignment under the Base Realignment and Closure Act (BRAC) in 1993 and 1995. The Former Griffiss AFB is currently utilized as the Rome Research Site (RRS).

The site is on the Environmental Protection Agency (EPA) National Priority List (NPL) due to use and handling of hazardous substances from operations at the former Griffiss AFB According to EPA New York (Region 2) National Priority Site Fact Sheets, EPA ID# NY4571924451, Griffiss Air Force Base New York, December 2003, while in operation, various wastes, including solvents and lead from battery acids, were generated from research and development activities in the industrial shops and laboratories These wastes were disposed in landfills and dry wells located throughout the base and subsequently volatile organic compounds (VOCs) have been detected in groundwater on the base. An Interagency Agreement among the EPA, NY State, and Griffiss AFB to clean up the site was signed in June 1990.

In conjunction with the cleanups, portions of the base property will be transferred prior to completion of cleanup activities (as newly allowed under CERCLA/CERFA) through the covenant deferral request (CDR) process. One potential transfer involves the sanitary and storm sewer systems and associated easements. To facilitate this transfer and to determine if special precautions are required during intrusive maintenance of these utilities, this Radiological Characterization and Preliminary Assessment/Site Investigation (PA/SI) is being conducted.

Rome New York

| | Survey Unit I | Description and History | |
|----------------|--------------------|---|-----------|
| Survey Package | Number: E3000 201C | 1 Package Type: | System |
| LC1: E3000 | Survey Area Name: | Sanitary Sewer System | |
| LC2: 201C1 | Survey Unit Name: | Sanitary Sewer System Section Down
Building 104 Operations | Stream of |

LC3 - Surface Category (P1-3) and Associated Area:

| LC3 P1_3 | Surface Description | n Dh
(¥ | nensions
es or No) | Total
Area
(m2) |
|----------|---------------------|------------|-----------------------|-----------------------|
| DS1 | Sewer Drain | | No | 0 |

Work Breakdown Structure Information:

WBS ID: 10003 PA/SI Sanitary Sewer System

Survey Unit Description:

The sanitary sewer lines/utility runs from Building 104 to the Lift Station Building 21

Survey Unit Historical Information: Operational History, etc.

Based on historical records, interviews, known operations and preliminary radiological screening results from the floor drains within and adjacent to Building 104 (former radium paint shop in the 1940's), there are indications that the Building 104 floor drains may be contaminated with radioactive materials. Preliminary radiological surveys were performed by the AF Institute for Operational Health's Occupational Health Physics Branch (AFIOH/SDRO) and were accomplished in the fall of 2003. The AFIOH/SDRO investigation found low-level radioactivity above background levels in building components and an area immediately above a former floor drain. These results are documented in the Memorandum for Air Force Research Laboratory, Subject: Consultative Letter, IOH-SD-BR-CL-2004-0004, Radium/Radon Monitoring and Dose Assessment Due to Past Luminous Paint Operations at the Rome Research Site, Rome, NY, 8 February 2004 (the AFIOH/SDRO memorandum) in which details of the investigation and calculated dose levels for certain areas of Building 104 have been presented; this memorandum is presented in the SAP Appendix A.

The above information and data indicate a possibility that there may be radiological contamination in portions of the sanitary sewer system at the former Griffiss AFB The activity that may have contributed to the accumulation of radioactive contamination inside the sanitary sewer lines is the possible release of radium paint into floor drains. Because no previous surveys have been conducted inside the sanitary sewer lines, there is no information to demonstrate the presence or absence of radioactive contamination. The sanitary sewer system is currently not designated as Installation Restoration Program (IRP) Sites. This PA/SI is designed to define the presence or absence of radioactive waste and/or contamination inside the sanitary sewer system associated with Building 104.

Rome New York

| 1/21/2005 | | | Page 5 of 15 |
|----------------|---|---|--------------|
| | Survey Unit Descriptie | on and History | |
| Survey Package | Number: E3000 201C1 | Package Type: | System |
| LC1: E3000 | Survey Area Name: Sanitary Se | ewer System | |
| LC2: 201C1 | Survey Unit Name: Sanitary Se
Building 1 | ewer System Section Down
04 Operations | Stream of |

The layout of the sanitary sewer line drains from Building 104 is shown in Drawing E3000-1 Drawings depicting the layout of the systems from Building 104 to the Lift Station Building 21 and from the Lift Station Building 21 to 3 Mile Creek are presented as Drawing E3000-2 and Drawing E3000-3. The AFIOH/SDRO memorandum included additional written descriptions of the sanitary sewer lines as follows:

Sanitary Sewer: All Building 104 drainage appears to tie into the main 10" pipe east of the building. This opens to the 15" pipe running down Electronic Parkway to the Lift Station, Building 21, and off the base property to the City of Rome Sewerage Treatment Plant. Restrooms in the east side of the building feed into a 4" building drain which exits on the east center of Bldg 104.

| Additional Information | Regarding | Survey | Unit | Classification: |
|------------------------|-----------|--------|------|------------------------|
|------------------------|-----------|--------|------|------------------------|

Inside RCA? No NA **Coolant?** No NA Spills? No

NA

Rome New York

| 1/21/2005 | | | Page 6 of 15 |
|------------------------|--|-------------------------|--------------|
| | Survey Package Re | eferences | |
| Survey Package Number: | E3000 201C1 | Package Type: | System |
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Se
Operations | ction Down Stream of Bu | ilding 104 |

References:

- 1. Sample and Analysis Plan for the Griffiss AFB PA/SI Survey, Rev 0, August 2004, Framatome ANP
- 2. Site Safety and Health Plan for the Griffiss AFB PA/SI Survey, August 2004, Framatome ANP
- 3. Quality Assurance Project Plan for the Griffiss AFB PA/SI Survey, Rev 0, July 2004, Framatome ANP
- 4. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), EPA402-R-97-016 (NUREG-1575), August 2000

Framatome ANP

Federal DD Services

Rome New York

| 1/21/2003 | | | Fage 7 of 15 |
|------------------------|-----------------------------------|----------------------------|--------------|
| | Survey Safety Req | uirements | |
| Survey Package Number: | E3000 201C1 | Package Type: | System |
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Soperations | Section Down Stream of Bui | ilding 104 |

Safety Requirement and Considerations:

- 1 During the daily meetings, the team will be briefed concerning on the planned activities and any anticipated hazards due to site investigation activities as presented in the Site Safety and Health Plan, Job Safety Analysis
- 2 During the daily meetings, the team will be briefed concerning necessary precautions to minimize exposure to potential and identified hazards as presented in the Site Safety and Health Plan, Job Safety Analysis.
- 3. Conduct and document daily tailgate safety meetings as required in the Site Safety and Health Plan.

1/21/2005

Page 7 of 15

Rome New York

| 1/21/2005 | | | Page 8 of 15 |
|------------------------|---------------------------------------|-----------------------------|--------------|
| | Survey Support R | equirements | |
| Survey Package Number: | E3000 201C1 | Package Type: | System |
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System S
Operations | Section Down Stream of Buil | ding 104 |

Survey Support Requirements and Considerations:

1/21/2005

- Project Team to provide support for opening and closing systems (manhole covers) to 1. facilitate survey.
- Health and Safety to review requirements for Confined Space Entry. 2.

Rome New York

| 1/21/2005 Page 9 of | | | Page 9 of 15 | | |
|---------------------|--|---|---|----|--|
| | | Survey Package | Procedures | | |
| Sur | Survey Package Number: E3000 201C1 Package Type: Syste | | | | |
| Sur | vey Area Name: | Sanitary Sewer System | 1 | | |
| Sur | vey Unit Name: | Sanitary Sewer System
Operations | Sanitary Sewer System Section Down Stream of Building 104
Operations | | |
| Sur | vey Package Proce | dures: | | | |
| 1. | DD-CS-001 | Sample Identification and | Chain of Custody | | |
| 2. | DD-CS-011 | Operation of Ludlum Mode | el 2350 Data Logger | | |
| 3 | DD-RP-010 | Portable Instrument Proced | able Instrument Procedure | | |
| 4. | DD-RP-011 | Receipt and Handling of R | adioactive Material and Equip | | |
| 5. | DD-RP-039 | Quality Control of Countin | g Systems and Portable Counter | rs | |
| 6. | DD-RP-049 | Operation of the Ludlum M | Iodel 2929 | | |
| 7. | DD-WM-003 | Packaging and Shipment of
Material Samples | Limited Quantity Radioactive | | |

Rome New York

Page 10 General Survey Package Instructions

| Survey Package Number: | E3000 201C1 | Package Type: | System |
|------------------------|---|-------------------------|--------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section
Operations | Down Stream of Building | 104 |

1. The primary Data Quality Objective (DQO) of the sanitary sewer portion of the PA/SI survey is to perform measurements and collect samples to determine if residual Ra-226 contamination above natural background is present.

The measurements and samples will be compared to the Background Study measurements and samples to evaluate the natural background radioactivity component associated with the materials of construction of the sanitary sewer system and Ra-226 present in the sediments and soils of the environs surrounding or associated with the impacted system.

2. Entry into confined spaces will not be required for the survey Measurements and sampling will be performed utilizing long reaching poles from above the manhole.

Samples from the Lift Station, Building 21, will be collected from the holding tank, if obtainable and/or available.

3 The project team will perform visual inspection of up to 2,000 feet of accessible sanitary sewer drain piping ranging in size from 3" diameter up to 15" diameter piping.

Entry of personnel into the systems is not planned for this PA/SI survey; the interior of the piping will be viewed on a remote monitor, videoed and recorded. Locations where the system piping has cracked or broken will be indicated on drawings along with a written description of the type and extent of the damage. The video survey detail will include: distance to and locations of the system interior surfaces and will be video recorded and related to Griffiss AFB manhole numbers

4. If materials that are potentially hazardous materials are encountered during the survey, stop work, report the location of the material to Supervisory personnel and SHSO and note this in the "Field Notes" section.

Supervisory personnel and SHSO will evaluate the condition and develop and appropriate remedy.

- 5. Sediment samples and/or scraping samples will be collected from the sides and/or bottom of the system piping and manhole location. The project team will mark or map the survey sample locations as applicable.
- 6. The samples will be packaged and field screened by the project team personnel, chain of custody forms and sample shipping paperwork completed, and sent to the offsite FANP E-Lab for analysis.
- 7. Perform a pre-use source check and a post-use source check in accordance with the applicable operation procedure for each day an instrument is used for the survey.

1/21/2005

Page 10 of 15

Rome New York

1/21/2005

Page 11 of 15

General Survey Package Instructions Survey Package Number: E3000 201C1 Package Type: System Survey Area Name: Sanitary Sewer System Survey Unit Name: Sanitary Sewer System Section Down Stream of Building 104 Operations Operations Operations Operations Description

- 8. The measurement and sample quantities prescribed in the Survey Package Location Code section are the minimum requirements for this survey. Additional measurements and samples may be collected as needed to achieve survey objectives.
- 9. All samples are to be logged into the Sample Database at completion of survey or at end of shift at a minimum. The M2350 data logger(s) are to be downloaded into the Measurement Database at completion of survey or at end of shift at a minimum
- 10. When all samples or measurements are collected, initial and date the "Collected By" block on the Survey Package Location Code sheet to indicate the measurements or samples were collected.
- 11. Note any problems, comments, or other information pertinent to the data or sample collection under the "FIELD NOTES" section.
- 12. Place survey data, measurement and sample analysis reports, drawings, etc , in the appropriate section of Appendix C, Survey Results, as they are generated and approved.
- 13. Supervisory personnel will review the completed survey packages to ensure that all required surveys have been performed and that the completed survey packages contain all necessary information

Rome New York

4/10/2005

Page 12 of 15

Specific Survey Package Instructions

| Survey Package Number: | E3000 201C1 | Package Type: | System |
|------------------------|--|-------------------------|--------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Operations | Down Stream of Building | 104 |

1. Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4\_P4 as "F," for Field Count and LC4\_P5 as "S" for Single Background (per measurement) or LC4\_P5 as "A" for Average Background (applied to measurements).

2 Direct Beta

Collect a single shielded background at each of the direct beta measurement locations, code the measurement LC4\_P4 as "G," field background and LC4\_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4\_P4 as "G," field background and LC4\_P5 as "A" for Average Background (for measurements).

3 Direct Alpha

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4\_P4 as "F," for Field Count and LC4\_P5 as "S" for Single Background (per measurement) or LC4\_P5 as "A" for Average Background (applied to measurements).

4 Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4\_P4 as "G," field background and LC4\_P5 as "S" for Single Background (per measurement).

Alternately, collect general area average background at each of the measurement locations, code the measurement LC4\_P4 as "G," field background and LC4\_P5 as "A" for Average Background (for measurements).

5. Gamma Contact

Collect a contact gamma measurement at each of the direct beta measurement locations

Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4\_P4 as "F," for Field Count

Rome New York

| V21/2005 | | | Page 12 of 15 |
|------------------------|-------------------------------------|------------------------------|---------------|
| Spe | ecific Survey Pack | age Instructions | |
| Survey Package Number: | E3000 201C1 | Package Type: | System |
| Survey Area Name: | Sanitary Sewer System | 1 | |
| Survey Unit Name: | Sanitary Sewer System
Operations | n Section Down Stream of Bui | lding 104 |

1 Direct Beta

Collect a direct beta measurement at each of the accessible survey measurement locations indicated on survey unit (or system) drawing.

Use LMI Model 44-40 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4 P4 as "F," for Field Count and LC4 P5 as "S" for Single Background (per measurement).

Direct Beta 2

Collect a single shielded ackground at each of the direct beta measurement locations, code the measurement LCA P4 as "G," field background and LC4 P5 as "S" for Single Background (per measurement).

Direct Alpha 3.

Collect a direct alpha measurement at each of the direct beta measurement locations.

Use LMI Model 43-5 detector with the M2350 in the scaler mode with a 60 second count time and code the measurement LC4 P4 as "F," for Field Count and LC4 P5 as "S" for Single Background (per measurement).

4 Direct Alpha

Collect a single shielded background at each of the direct alpha measurement locations, code the measurement LC4\_P4 as "G," field background and LC4\_P5 as "S" for Single Background (per measurement)

5. Gamma Contact

Collect a contact gamma measurement at each of the direcybeta measurement locations

Use LMI Model 44-10, the M2350 in the scaler mode with a N second count time and code the measurement LC4 P4 as "F," for Field Count.

6 Gamma 1 M

Collect a gamma measurement at 1 meter distance above ground and above the surveyed

manhole. Exposure rate measurements are outside manhole and are for information only. Use LMI See Revision Model 44-10, the M2350 in the scaler mode with a 15 second count time and ode the 4/10/05 H

SDMS Documentation

Version 1.0

Rome New York

| 4/10/2005 | j, |
|-----------|----|
|-----------|----|

Page 13 of 15

Specific Survey Package Instructions

| Survey Package Number: | E3000 201C1 | Package Type: | System |
|------------------------|---|-------------------------|--------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section
Operations | Down Stream of Building | 104 |

6. Gamma 1 M

Collect a gamma measurement at 1 meter distance above ground and above the surveyed manhole.

Exposure rate measurements are outside manhole and are for information only. Use LMI Model 44-10, the M2350 in the scaler mode with a 60 second count time and code the measurement LC4\_P4 as "F," for Field Count.

7. A/B Smear

Smear samples for removable alpha and beta contamination will be collected at each of the locations where direct measurements were performed.

The smear samples will be collected by attaching the cloth smear to a long reaching, manually positioned pole, applying moderate pressure and wiping approximately 100 cm2 area for the sample or by alternate methods including utilization of remote visual inspection equipment. Also, collect residues on smears from cable when extracted from sewer for alpha and beta counting. Collecting smears every 100 feet of cable extracted from the storm drain system may give an indication of contamination location.

8. G-Spec Sample

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis.

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

9 G-Spec Sample

If an amount to produce 5 to 10 g Soil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 8 is completed.

Rome New York

| 1/21/2005 | | | Page 13 of 15 | |
|--------------------------------------|-------------------------------------|------------------------------|---------------|--|
| Specific Survey Package Instructions | | | | |
| Survey Package Number: | E3000 201C1 | Package Type: | System | |
| Survey Area Name: | Sanitary Sewer System | 1 | | |
| Survey Unit Name: | Sanitary Sewer System
Operations | 1 Section Down Stream of Bui | lding 104 | |

7 A/B Smear

Smear samples for removable alpha and beta contamination will be collected at each of the locations where direct measurements were performed.

The smear samples will be collected by attaching the cloth smear to a long reaching, manually positioned pole, applying moderate pressure and wiping approximately 100 cm2 area for the sample or by alternate methods including utilization of remote visual inspection equipment. Also, collect residues on smears from cable when extracted from sewer for alpha and beta counting. Collecting smears every 100 feet of cable extracted from the storm drain system may give an indication of contamination location

8. G-Spec Sample

If available, collect a sample from each location composed of loose materials, sediment or sludge for gamma spectral analysis

The samples in order of priority are as follows:

1 to 2 kg Soil/Sediment Samples for Gamma Spectroscopy, if an amount to produce >/= 125 g of dry sample cannot be obtained, collect 5 to 10 g Soil/Sediment Samples for Alpha Spectroscopy

9. G-Spec Sample

If an amount to produce 5 to 10 g Soil/Sediment of dry sample cannot be obtained, combine and analyze by gamma spectroscopy smear sample results showing > 100 alpha or >1000 beta dpm/100cm2.

A specific quanity was not assigned due to this sample is not required if instruction No. 8 is completed.

See Parision 4/10/05 Jun SDMS Documentation Version 1.0

Framatome ANP Federal DD Services

Rome New York

Survey Package Location Codes Survey Package Number: E3000 201C1 Package Type System LC1: E3000 Survey Area Name: Sanitary Sewer System LC2: 201C1 Survey Unit Name: Sanitary Sewer System Section Down Stream of Building 104 Operations Impacted System **Class Description: Reason Description:** C1 Characterization Survey LC3 -Surface Category P1-3: DS1 Sewer System Drain LC3\_P45 **Material Description** V2 Vitrified Clay Pipe S1Soil R1 Sediment Gl Miscellaneous Material C1Concrete (Bare)

B1 Brick

LC4\_P13 - Detector Type, Analysis Codes, and Measurement/Samples Quantity

| Measurement | LC4
P13
Code | Model | Description | Qty
Prescribed | Qty
Collected | Collected
By
(Initials) |
|---------------|--------------------|-------------------------|----------------------------------|-------------------|------------------|-------------------------------|
| A/B Smear | L.01 | A/B Smeat
Analysis | Alpha/Beta Counter | 18 | 31 | Jun |
| Direct Alpha | A02 | 43-5A | Alpha Scintillator | 18 | 24 | Jai |
| Direct Beta | B01 | 44-40B | GM Pancake | 18 | 25 | Jim |
| Gamma 1M | G02 | 44-10 | 2"x2" NaI(II) Gamma Scintillator | 18 | 22 | JM |
| Gamma Contact | G01 | 44-10 | 2"x2" NaI(II) Gamma Scintillator | 18 | 2.9
01 | -Juu
Arm |
| G-Spec Sample | L04 | GS Material
Analysis | Gamma Spectrometry | 18 | <u> </u> | |

Framatome ANP Federal DD Services SDMS Documentation Version 1 0

Page 14 of 15

Rome New York

| | Survey Package Location Codes | | | | |
|----------------------------------|-------------------------------|------------------------------|--|--------|--|
| Survey Package Number: E3000 201 | | C1 | Package Type | System | |
| LC1: E3000 | Survey Area Name: | Sanitary Sew | ver System | | |
| LC2: 201C1 | Survey Unit Name: | Sanitary Sev
Building 104 | ver System Section Down Stre
4 Operations | eam of | |
| | Class Description: | Impacted Sy | stem | | |
| | Reason Description: | C1 Charac | terization Survey | | |
| LC4_P4 - Cou | int Type | LC4 | _P5 - Background Mode Co | des | |
| A Pre-use B | ackground Check | А | Average Background | | |
| B Pre-use Source Check | | Ν | Background Not Required | | |
| C Post-use Background Check | | S | Single Background | | |
| D Post-use S | Source Check | | | | |
| F Field Cou | nt | | | | |
| G Field Bacl | kground | | | | |
| S Field Scar | 1 | | | | |
| C | | | | | |

Survey Field Notes: Additional information regarding the performance of the survey, measurements, sample collection, etc. Use additional pages as needed for field notes.

Change L-1 code on & from 2000 to 3000 on SA 996, SA 887

1/21/2005

Page 15 of 15

1/21/2005

Rome New York

Page A-1 of 2

Survey Package Appendix A – Drawings

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|---------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of B | uilding 104 (| Operations |

Survey Package Appendix A - Drawings

Survey Package Appendix A – Drawings









1/21/2005

Rome New York

Survey Package Appendix B – Photographs

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|---------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of B | uilding 104 (| Operations |

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section Jul 6/13/05
Rome New York

1/21/2005

Page C-1 of 8

Survey Package Appendix C – Survey Results

| Survey Packaş
Survey Area N
Survey Unit N | ge:E3000 201C1PackName:Sanitary Sewer SystemName:Sanitary Sewer System Section Down Stream of Buildin | age:
ag 104 | System
Operations |
|---|---|-----------------------|----------------------|
| Section | Title | | Total Pages |
| 1.0 | Annotated Drawings | | 4 |
| 2.0 | Measurement Results – Direct Beta Measurements | | 5 |
| 3.0 | Measurement Results – Direct Alpha Measurements | | 5 |
| 4.0 | Measurement Results – Exposure Rate Measurements | | 6 |
| 5.0 | Sample Analysis Results – Alpha/Beta Counter | | 12 |
| 6.0 | Sample Analysis Results – Gamma Spectroscopy | | 1 |
| 7.0 | Sample Analysis Results – Alpha Spectroscopy | | $\frac{\nu}{\nu}$ |

Rome New York

1/21/2005

Page C-2 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|--------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of | Building 104 | Operations |

Section 1.0 Annotated Drawings





Т.

Drawing E3000-2



Drawing E3000-3



Drawing E3000-4

Rome New York

1/21/2005

Page C-3 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|-------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of E | uilding 104 | Operations |

Section 2.0 Measurement Results – Direct Beta Measurements <u>5</u> Pages

Measurement Database Download Report

Direct Beta Measurements

4/10/2005

•

| 000700 | | | | | | | | | | | | | | | | | | Page 1 | of 1 | |
|--------------|---------------------------|---------------|------------------------------|-----------------------------|--------------|------------------|----------------|-----------------|-------------------------|----------------|---------|-------------------|----------|---------------------|----------------|----------------|------------|--------|-----------------------------------|--------------------------------|
| wnload II | Nui Nui | ation
mber | User
ID | Downic
Date | oad] | Download
Time | Survey P
IL | ackage | Detector Numl | Model
ber | Detecto | or Serial
mber | | 4 pi Be
Efficien | ta
cy | Active.
(cm | Arca
2) | | | |
| 041005-00 | 6 | Ţ | JLM0591 | 4/10/2 | 005 | 3:31 PM | E3000 |) 201C1 | 44 | 40 | PR(| 194971 | | 0.08 | 00 | 15. | 5 | | | |
| ackage
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1 | 201 20 | 6 L7 | Measurement
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100cm2) |
| 45 DRT02 9: | 5349 | JLM0591 | PR094971 | 9 | Ĭ | 0 4/9/2005 | 7:40:46 AM | 1.83E+02 | 300 | - | 0 | 10 FI | 0145 DF | TOI DS | 1V2 B01 | AA L/ | B01 - | | • | 2683 |
| 45 DRT02 9; | 5349 | JLM0591 | PR094971 | 7 | | 4/9/2005 | 7:47:14 AM | 1.98E+03 | 60 | - | 0 | 10 FT | 0145 DE | ETOL DS | 1V2 B01 | BA L/ | - 10E | | 0 | 145381 |
| 45 DRT02 9: | 5349 | JLM0591 | PR094971 | Ŀ | | 2 4/9/2005 | 8:29:02 AM | 1,91E+03 | 60 | - | 0 | 10 FT | 0145 DB | CT01 DS | 1V2 B01 | BA L/ | B01 2 | | 0 | 139883 |
| 45 DRT02 9: | 5349 | JLM0591 | PR094971 | 7 | | 3 4/9/2005 | 8:30:36 AM | 1.95E+03 | 60 | - | 0 | 10 FI | 0145 DR | TOI DS | 1V2 B01 | BA L/ | B01 3 | | 0 | 142889 |
| 00 201 C1 9: | 5349 | 16SOM.IL | PR094971 | 4 | л
 | 0 4/9/2005 | 5:13;04 PM | 7.90E+01 | 60 | - | 0 | 10 E3 | 1000 201 | ICI DS | IB1 B01 | GA SA | - 600 | | 0 | 5792 |
| 0 201C1 9: | 5349 | JLM0591 | PR094971 | Ŀ | 21 | 1 4/9/2005 | 5:14:50 PM | 8.50E+01 | 60 | - | 0 | 10 E3 | 1000 201 | ICI DS | IB1 B01 | GA SA | 009 2 | | 0 | 6232 |
| 00 201C1 9: | 5349 | JLM0591 | PR094971 | 4 | 2 | 2 4/9/2005 | 5:18:46 PM | 8.00E+01 | 60 | - | 0 | 10 E3 | 000 201 | ICI DS | IBI B01 | FA SA | - 600 | | 0 | 5865 |
| 0 201C1 9. | 5349 | JLM0591 | PR094971 | Ŀ | 3 | 3 4/9/2005 | 5:21:08 PM | 6.60E+01 | 60 | - | 0 | 10 E3 | 000 201 | ICI DS | ICI B01 | FA SA | 009 2 | | O | 4839 |
| 0 201C1 9. | 5349 | ILM0591 | PR094971 | 2 | 5 | 4 4/9/2005 | 6:08:16 PM | 7.50E+01 | 60 | - | 0 | 10 E3 | 000 201 | ICI DS | IC1 B01 | GA SA | - 800 | | 0 | 5499 |
| 00 201C1 9; | 5349 | JLM0591 | PR094971 | L | 5 | 5 4/9/2005 | 6:10:08 PM | 6.10E+01 | 60 | - | 0 | 10 E3 | 000 201 | CI DS | ICI B01 | FA SA | - 800 | | 0 | 4472 |
| 0 201C1 9. | 5349 | JLM0591 | PR094971 | 6 | 3 | 6 4/9/2005 | 6:12:06 PM | 8.10E+01 | 60 | - | 0 | 10 E3 | 000 201 | CI DS | IB1 B01 | FA SA | 008 2 | | 0 | 5938 |
| 45 DRT02 9. | 5349 | ILM0591 | PR094971 | 6 | 2. | 7 4/9/2005 | 7:06:34 PM | 1.51E+02 | 300 | - | 0 | 10 FD | 0145 DR | T02 DS | IBI B01 | CA LA | BOL | | 0 | 2214 |
| 45 DRT02 9. | 5349 | JLM0591 | PR094971 | L | 5 | 8 4/9/2005 | 7:14:48 PM | 1.95E+03 | 60 | - | 0 | 10 FD | 0145 DR | T02 DS | [B1 B01 | DA LA | B01 - | | 0 | 143255 |
| 45 DRT02 9. | 5349 | JLM0591 | PR094971 | L | 57 | 9 4/9/2005 | 7:16:52 PM | 1.91E+03 | 60 | - | 0 | IO FD | 0145 DR | T02 DS | [B1 B01 | DA LA | B01 2 | | 0 | 140176 |
| t5 DRT02 9. | 5349 | JLM0591 | PR094971 | • • | 34 | 0 4/9/2005 | 7:18:52 PM | 2.03E+03 | 60 | - | 0 | DI DI | 145 DR | T02 DS | BI B01 | DA LA | B01 3 | | 0 | 148754 |
| iewed By | L. | TOON . | N AN | Ju . | | Date: < | 101/4 | s | Approved | 1 By: | | | | | | Date: | | | | |
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Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report

Direct Beta Measurements

4/11/2005

Page 1 of 1

| | | | ss Beta
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0cm2) | . | 2 | 4 | 8 | | | ~ | ~ | 10 | ~ | ~ | | | | | | |
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Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
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m2) | 5.5 | Ŋ | LAB01 | LAB01 | LAB01 | LAB01 | SA007 | SA007 | SA007 | SA006 | SA006 | SA006 | SA005 | SA006 | LABOI | LAB01 | LABOI | LABOI | iii iii |
| | Activ
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| | Model | 40 | Logging
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| | Detector
Num | 44- | Count
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(secs) | 300 | 60 | 60 | 93 | 60 | 99 | 99 | 60 | 60 | 8 | 60 | 60 | 300 | 60 | 60 | 60 | Approvec |
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ID | 00 201C1 | Logged
Count | √ 1.81E+02 | M 1.89E+03 | A 2.01E+03 | A 1.98E+03 | A 4,00E+01 | A 7,80E+01 | A 8,50E+01 | [7.60E+01 | [5.30E+01 | [6.10E+01 | [7.80E+01 | [7.80E+01 | [1.72E+02 | [2.00E+03 | [1,99E+03 | [2.01E+03 | 50 |
| | Survey | E30 | Time | 11:32:30 AI | 1:36:14 A | 12:05:10 PF | 12:06:26 PN | 12:37:48 PN | 12:40:22 Ph | 12:42:46 Ph | 1:30:02 PM | 1:33:02 PM | 1:34:48 PM | 1:37:16 PN | 1:38:52 PM | 4:03:42 PM | 4:09:54 PN | 4:11:36 PM | 4:12:54 PN | |
| | ownload
Time | 9:11 AM | Date | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | Jate; |
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| i | Station | 4 | E Caser | JLM0591 | JLM0591 | JLM0591 | JLM0591 | ILM0591 | JLM0591 | JLM0591 | JLM0591 | JEM0591 | JLM0591 | JLM0591 | JLM0591 | JEM0591 | 1650MJt | JLM0591 | JEMOS91 | 1 MM |
| | | 90 | M2350
Serial
Number | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | $C_{\vec{x}}$ |
| | Download | DL041105-0 | Package
ID | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201C1 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | Reviewed B |

Framatome ANP DES Site Restoration Services: JLM

4/14/2005

Page I of I

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| | | | Gross Beta
(dpm/
100cm2) | 2683 | 3915 | 587 | 5088 | 5745 | 645 | 352 | 478 | 317 | 460 | 921 | 155 | |
|-------------|-------------------|-----------|----------------------------------|-------------|-------------|-------------|-------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------|------------|
| | | | easurement
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Number | 0 | 0 14 | 0 15 | 0 14 | 0 | 0 | 0 | 0 | 0 | 0 145 | 0 146 | 0 142 | |
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n2) | 5.5 | rcs | LAB01 | LAB01 | LAB01 2 | LABOI | SA005 | SA005 | SA005 2 | 3A005 3 | AB01 | AB01 | AB01 2 | AB01 3 | |
| | Activ
(cr | | LC4 | 101AA 1 | 01BA | 01BA 1 | 01BA 1 | 01GA | OIFA S | 01FA 8 | 01FA S | 01CA I | 01DA I | 01DA I | 01DA I | Date |
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| | | | ICI | 0145 DF | 0145 DF | 0145 DB | 0145 DR | 000 201 | 000 201 | 000 201 | 000 201 | 0145 DR | 0145 DR | 145 DR | 145 DR | |
| | r Serial
aber | 94971 | aler
Iarm | E | E | E EL | E | E3 | EB E3 | E3 | E3 | E | E | E | | |
| | Detector | PR09 | indow Sc
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(secs | 300 | 60 | 60 | 60 | 60 | 60 | 69 | 60 | 300 | 60 | 60 | 60 | Appro |
| | ickage | 201C1 | Logged
Count | .83E+02 | 96E+03 | 05E+03 | 98E+03 | 20E+01 | 70E+01 | 30E+01 | 02E+02 | 58E+02 | 03E+03 | 00E+03 | 94E+03 | 6 |
| ŕ | urvey P.
ID | E3000 | aur | 0:02 AM | 2:26 AM | 5:36 AM 2 | 3:04 AM | 5:22 AM 9 | 9:22 AM 7 | 0:36 AM 7 | 3:54 AM 1 | 1 Md 81.0 | 1:04 PM 2 | 3:36 PM 2 | 9:52 PM 1 | 1 del |
| 1 | Nad
N | M | E . | 2005 8:5 | 2005 9:02 | 2005 9:01 | 2005 9:01 | 2005 9:5 | 5:6 5:02 | 2005 10:0 | 2005 10:0 | 2005 5:41 | 2005 5:4 | 2005 5:4 | 2005 5:4 | 14 |
| | Time | 8:52 A | Date | 0 4/11/2 | 4/11/2 | 4/11/2 | 4/11/2 | 4/11/2 | 2/11/2 \$ | 2/11/2 5 | 711/7 | 5 4/11/2 | 4/11/2 | 3 4/A1/2 | 4/1/2 | Date: |
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No | - | | | | | | | | 54 | 2 | 3 | 52 | |
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fumber | 094971 | 094971 | 094971 | 094971 | <u> 194971</u> | 194971 | 094971 | 094971 | 094971 | 094971 | 094971 | 194971
1 A | LA CK |
| - | | III. | D S | 91 PR(| 91 PR | 91 PR(| 91 PR(| 91 PR(| 91 PR | 91 P.R. | 91 PR(| 91 PR(| 91 PR(| 91 PR(| 91 PR | |
| Station | Jumber | - | | JLM05 | JLM05 | JLM05 | JLM05 | JLM05 | JLM05 | JLMOS | JLM05 | JLM05 | JLMOS | ILMOS | D <sup>ILMOS</sup> | |
| Ē | | 005 | M2350
Serial
Number | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | |
| Download | | DL041205- | Package
ID | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201C1 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | Reviewed I |

Framatome ANP DES Site Restoration Services: JLM

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Measurement Database Download Report Direct Beta Measurements

4/13/2005

| | | | ss Beta
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0cm2) | _ | | | | | 5 | 5 | ~ | ~ | | 5 | - | | | | | | | - | |
|-----------|-------------------|----------------|-----------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|--------------|--|
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10 | 265- | 13966 | 141125 | 1420 | 5275 | 366(| 5645 | 5792 | 5572 | 4175 | 5865 | 5935 | 7331 | 6155 | 5205 | 4692 | 2126 | 2415 | 2933 | |
| f2 | | | Measurement
Location
Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| uge I o | , | | L7 | | | | | | | | | | | | | | | | | | | | |
| P_{a} | | | LC6 | | - | 2 | | - | - | 2 | - | - | 5 | _ | - | 2 | _ | _ | 2 | | - | 5 | |
| | /eArea
m2) | 5.5 | TC3 | LAB01 | LAB01 | LABOI | LABOI | SA004 | SA004 | SA004 | SA003 | SA003 | SA003 | SA002 | SA002 | SA002 | SA001 | SA001 | SA001 | BLD21 | BLD21 | BLD21 | |
| | Activ
(ci | 4 ~~~ 4 | LQ4 | 901AA | BOLBA | BOIBA | BOIBA | BOLGA | BOLFA | BOLFA | 301GA | BOIFA | BOLFA | BOLGA | 301FA | 301FA | 301GA | BOLFA | 301FA | 301GA | 301CI | 301C1 | |
| | eta
ncy | 88 | LC3 | MICL | MICI] | MICL | MICL | MICI I | MICI 1 | MICI I | SICI I | SICI I | SICI I | BICI F | SICI F | SICI J | SICI E | SICI E | SICI E | SICI E | SICI E | SICI P | |
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| | Serial | 4971 | B et | Œ | ED | E | E | E3(| E3(| E30 | E30 | E3C | E3C | E30 | E30 | E3C | E30 | E30 | E30 | E30 | E30 | E30 | |
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| | Model | 40 | Loggm
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| | Detector
Nun | 44 | Count
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(sees) | 300 | 60 | 60 | 99 | 80 | 60 | 03 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | |
| | ackage | 201C1 | Logged
Count | L.81E+02 | 91E+03 | 1.93E+03 | 1.97E+03 | 7.20E+01 | 5.00E+01 | 1.70E+01 | 1.90E+01 | 7.60E+01 | 5.70E+01 | 8.00E+01 | 8.10E+01 | 00E+02 | 8,40E+01 | 7.10E+01 | 5,40E+01 | 0E+01 | 1.30E+01 | I,00E+01 | |
| | urvey P
IL | E3000 | ine | 8:50 AM | 8:46 AM | 0:06 AM | 1:22 AM | 51:46 AM | 54:24 AM | 56:04 AM | 30:36 AM | 32:42 AM | 34:08 AM | 00:24 PM | 02:04 PM | 04:06 PM | 52:12 PM | 54:24 PM | 55:56 PM (| 8:04 PM | d:34 PM | 3:00 PM | |
| | ad S | W | T | 2005 8:3 | 2005 8:4 | 2005 8:5 | 2005 8:5 | 2005 10: | 2005 10: | 2005 10: | 2005 11: | 2005 11: | 5005 11: | 2005 12:4 | 2005 12:4 | 2005 12:4 | 2005 12: | 2005 12: | 2005 12: | 2005 3:1 | 2005 3:2 | 2005 3:2 | |
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Time | 9:32 A | Date | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/14 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/7 | 4/12/2 | |
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| | Station | · | User
ID | ILM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | 11M0591 | JLM0591 | JEM0591 | JLM0591 | JLM0591 | JLM0591 | |
| | A. | 906 | M2350
Serial
Number | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | |
| CUU2/CI/4 | Download | DL041305-(| Package
ID | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | FD145 DRT01 | E3000 201 C1 | E3000 201C1 | E3000 201 C1 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201 C1 | E3000 201 C1 | E3000 201C1 | E3000 201CI | |

Framatome ANP DES Site Restoration Services: JLM

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4/13/2005

Page 2 of 2

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| | | | Gross Beta
(dpm/
100cm2) | 6525 | 7038 | 5205 | 2595 | 148240 | 145088 | 144282 | |
|------------|---------------|------------|-----------------------------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|---|
| 7 1 | | | Measurement
Location
Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.70 |
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| Ģ | e | | TC6 | - | - | 10 | _ | - | 7 | 0 | 5 |
| | iveAre | 15.5 | LC5 | SA010 | SA010 | SA010 | LAB01 | LAB01 | LAB01 | LAB01 | te: |
| - | YCD
V | | LC4 | BolGA | BOIFA | B01FA | BOICA | BOIDA | B01DA | B01DA | Da |
| ç | beta
tency | 088 | ECI | DSICI | DSIBI | DSIBI | DSICI | DSICI | DSICI | DSICI | |
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Effic | 0. | LC2 | 201C1 | 201C1 | 201C1 | DRT02 | DRT02 | DRT02 | DRT02 | |
| | | Ľ | TCI | E3000 | E3000 | E3000 | FD145 | FD145 | FD145 | FD145 | |
| 0.00 | umber | 09497 | Scaler
Alarm | 19 | 19 | 19 | 61 | 61 | 19 | 19 | R |
| Det of | | H | Window
OnOroff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | \square |
| Model | inuter . | 40 | Logging
Mode | - | - | - | - | - | - | - | d By: |
| Detector | Num | 44 | Count
Time
(secs) | 60 | 60 | 60 | 300 | 60 | 60 | 60 | Approve |
| ackade | (| 201C1 | Logged
Count | 8,90E+01 | 9.60E+01 | 7,10E+01 | 1.77E+02 | 2.02E+03 | 1.98E+03 | 1.97E+03 | 5 |
| Survey F | | E3000 | Time | 4:07:10 PM | 4:08:50 PM | 4:12:02 PM | 5:57:20 PM | 6:02:24 PM | 6:03:50 PM | 6:05:50 PM | 113/1 |
| wnload | Time | 32 AM | Date | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | tte:
₩ |
| Do | | 6 | el di | 22 | 53 | 54 | 35 | 36 | 37 | 38 | D
I |
| vnload | ate | 3/2005 | San | | | | | | | 5 | 2 |
| Dov | Ы | 4/1 | Detector
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Number | 8 | 80 | 00 | 9 | 4 | i | 7 | 1901 |
| User | A | JLM0591 | Detector
Serial
Number | PR094971 | PR094971 | PR094971 | PR094971 | PR094971 | PR094971 | PR094971 | MC |
| tation | umber | - | User
ID | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | MA |
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S | Z | 90(| M2350
Serial
Number | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | 95349 | N
X |
| Download 1 | | DL041305-C | Package
ID | E3000 201 C1 | E3000 201 C1 | E3000 201C1 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | FD145 DRT02 | Reviewed B |

Framatome ANP DES Site Restoration Services: JLM

Rome New York

1/21/2005

Page C-4 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|---------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of B | uilding 104 (| Operations |

Section 3.0 Measurement Results – Direct Alpha Measurements <u>5</u> Pages

4/14/2005

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| | | | | | | | | | | | | | 1 | 1 | | l | | | 1 |
|---------|---------------------|------------|-----------------------------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|
| | | | Gross Alpha
(dpm/
100cm2) | 4 | 29023 | 28475 | 26466 | 41 | 41 | 203 | 426 | 20 | 61 | 61 | 12 | 29348 | 29967 | 259.07 | 40401 |
| 1 | | | Measurement
Location
Number | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | o | 0 | , |
| ie I oi | | | 17 | | | | | | | | | | | | | | | | |
| Lac | | | TC6 | | | | | | | | | | | | | ~ | | | |
| | eArea
n2) |
16 | rcs | AB01 | ABOI | AB01 | AB01 | 4009 | A009 2 | 4009 | A009 2 | A008 | A008 | A008 2 | ABOL | ABOL | AB01 2 | AB01 3 | |
| | Activ
(ci | | LC4 | I VV | 2BA I | 2BA I | 2BA I | 2GA S | 2GA S | 2FA S | 2FA S | 2GA S | 2FA S | 2FA S | 2CA L | 2DA L | 2DA L | T VO | |
| | s y | 5 | 5 | 31 AO | 11 40 | 11 A0 | 11 A0 | 11 A0 | 1 AO | 11 A0 | I AD | i A0 | 1 A0 | 40 | I YO | 1 AO | 1 A0 | 1 AC | |
| | pi Alph
fiicienç | 064830 | 2 | DSIE | DS1E | DSIE | DSIE | DSIE | DSIB | DSIB | DSIB | DSIC | DSIC | DSIC | DSIC | DSIC | DSIC | DSIC | |
| | 4 Ξ | 0 | 121 | DRT 01 | DRT01 | DRT01 | DRT01 | 201C1 | 201CI | 201C1 | 201C1 | 201C1 | 201C1 | 201C1 | DRT02 | DRT02 | DRT02 | DRT02 | |
| | iai | | D
T | FS442 | FS442 | FS442 | FS442 | E3000 | E3000 | E3000 | E3000 | E3000 | E3000 | E3000 | FS442 | FS442 | FS442 | FS442 | |
| | tor Ser
umber | 117223 | Scaler
Alarm | ون | 6 | 6 | 6 | 6 | 6 | 6 | 6 | à | 6 | 6 | 6 | 6 | 6 | 6 | |
| | Detec | μ | Window
OnOroff | . 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | t, | 4 | |
| | Model
ber | S. | Logging
Mode | | _ | - | - | - | - | - | - | - | | - | - | - | - | _ | |
| | Detector
Num | 43- | Count
Time
(secs) | 300 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 300 | 60 | 60 | 60 | |
| | ckage ID | 201C1 | Logged
Count | L.00E+01 | l.43E+03 | 40E+03 | .30E+03 | 2.00E+00 | .00E+00 | .00E+01 | 0.10E+01 | 00E+00 | .00E+00 | .00E+00 | 1,00E+00 | 45E+03 | .48E+03 | .24E+03 | |
| | Survey Pa | E3000 | Time | 8:24:52 AM | 8:35:32 AM | 8:37:32 AM | 8:39:06 AM | 3:50:06 PM | 3:51:30 PM | 3:53:40 PM | 3:55:16 PM | 5:10:42 PM | 5:12;42 PM | 5:14:10 PM | 5:53:22 PM | 6:00:10 PM | 6:03:40 PM | 6:05:42 PM | |
| | ownload
Time | 22 PM | Date | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | 4/9/2005 | |
| | Do | 3: 3: | Sample
No | 4 | 5 | 9 | Ĺ | 52 | 23 | 24 | 25 | 26 | 27 | 58 | 29 | 30 | 31 | 32 | |
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Setup
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| | User
ID | JLM0591 | Detector
Serial
Number | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | |
| | lation | T | User
ID | JLM0591 | ILM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JEM0591 | JLM0591 | JLM0591 | |
| | | 80 | M2350
Serial
Number | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | |
| | Download | DL041005-0 | Package
ID | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201 CI | E3000 201 C1 | E3000 201C1 | E3000 201C1 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | **** |

Framatome ANP DES Site Restoration Services: JLM

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Date: 4 OS Approved By: \_\_\_\_ - Date: 414 Reviewed By: ł

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Page 1 of 1

| | | Alpha
pm/
cm2) | | | | | | | | | | | | | | | | |
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| | | rc6 | - | - | 5 | •• | - | - | 5 | _ | - | 5 | 5 | - | | 6 | 0 | |
| iveArca
cm2) | | LC5 | LAB01 | LAB01 | LAB01 | LAB01 | SA007 | SA007 | SA007 | SA006 | SA006 | SA006 | SA006 | LAB01 | LAB01 | LAB01 | LAB01 | |
| Act | - | ۲ <u>م</u> | A02AA | A02BA | A02BA | A02BA | A02GA | A02FA | A02FA | A02GA | A02FA | A02FA | A02FA | A02CA | A02DA | A02DA | A02DA | |
| Alpha
ciency | 548305 | TC | DSICI | DSICI | DSICI | DSIBI | DMICI | DMICI | DMICI | DMICI | |
| 4 pi
Effi | 0.0 | 102 | DRT01 | DRT01 | DRT01 | DRT01 | 201C1 | 201C1 | 201CI | 201CI | 201CI | 201CI | 201CI | DRT02 | DRT02 | DRT02 | DRT02 | |
| al | 10 | 101 | FS442 | FS442 | FS442 | FS442 | E3000 | E3000 | E3000 | E3000 | E3000 | E3000 | E3000 | FS442 | FS442 | FS442 | FS442 | |
| tor Seri
umber | 1172236 | Scaler
Alarm | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | |
| Detec | FF | Window
OnOroff | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | - |
| Model
ber | ŝ. | Logging
Mode | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | |
| Detector | 43 | Count
Time
(secs) | 300 | 99 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 300 | 60 | 60 | 60 | |
| ckage ID | 201C1 | Logged
Count | 1.00E+00 | L.50E+03 | .39E+03 | 24E+03 | 1,00E+00 | 40E+01 | 2.40E+01 | 00E+01 | 0.00E+00 | .00E+00 | 1.00E+00 | 1.00E+00 | .47E+03 | .44E+03 | .27E+03 | |
| Survey Pa | E3000 | Time | 0:17:04 AM | 0:25:00 AM | 0:28:34 AM | 0:31:10 AM | 1:23:06 AM | 1:25:20 AM | 1:26:52 AM | 2:31:56 PM | 2:34:06 PM | 2:35:38 PM | 2:40:48 PM | 2:53;14 PM | 2:57:32 PM | 2:59;14 PM | 3:00:38 PM | |
| ownload
Time | 58 AM | Date | 4/10/2005 1 | 4/10/2005 1 | 4/10/2005 1 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 1 | 4/10/2005 1 | 4/10/2005 1 | 4/10/2005 1 | 4/10/2005 | 4/10/2005 | 4/10/2005 | 4/10/2005 | |
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| User
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| tation
umber | I | Üser
D | JLM0591 | JLM0591 | ILM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | |
| S Z | 5 | M2350
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Number | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | |
| Download | DL041105-0 | Package
ID | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | E3000 201C1 | E3000 201C1 | E3000 201C1 | E3000 201 C1 | E3000 201 C1 | E3000 201C1 | E3000 201 C1 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | |

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Page i of 1

| | | oss Alpha
(dpm/
00cm2) | . 4 | 32 | 13 | 60 | 8 | 25 | 12 | | 54 | 2 5 | 5 | 8 | |
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| tiveAre
(cm2) | 76 | LC5 | LABOL | LAB01 | LAB01 | LAB01 | SA005 | SA005 | SA005 | SA005 | LABOI | LAB01 | LAB01 | LABOI | |
| Ac | | 1.C4 | A02AA | A02BA | A02BA | A02BA | A02GA | A02FA | A02FA | A02FA | A02CA | A02DA | A02DA | A02DA | |
| Alpha | 48305 | LC3 | DMICI | DMICI | DMICI | DMICI | DSICI | DSICI | DSICI | DSIBI | DMICI | DMICI | DMICI | DMICI | - |
| 4 pi
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| al | 10 | 101 | PS442 | FS442 | FS442 | FS442 | E3000 | E3000 | E3000 | E3000 | FS442 | FS442 | FS442 | FS442 | |
| ctor Seri
Jumber | 8172236 | Scaler
Alarm | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | |
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Count | 4.00E+00 | L.46E+03 | L.46E+03 | 1.21E+03 | 1.00E+00 | .60E+01 | .10E+01 | 30E+01 | .10E+01 | .43E+03 | .41E+03 | .22E+03 | |
| Survey Pa | E3000 | Time | 7:36:56 AM | 7:49:02 AM | 7:51:06 AM | 7:53:12 AM | 8:42:24 AM | 8:45:00 AM | 8:47:04 AM | 8:54:40 AM | 11:45:04 AM | 11:51:32 AM | 11:55:34 AM | 11:57:26 AM | |
| Jownload
Time | 8:46 AM | Date | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | 4/11/2005 | |
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| User
ID | JLM0591 | Detector
Serial
Number | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | PR172236 | |
| Station | _ | User | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | JLM0591 | |
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Number | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | 120636 | |
| Download | DL/041205-00 | Package
ID | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | FS442 DRT01 | E3000 201C1 | E3000 201 C1 | E3000 201C1 | E3000 201C1 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | FS442 DRT02 | |

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Page 1 of 3

| Matrix Matrix< | Station
lumber | | User
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|--|--|--|---|------------------------------|--------------|------------------|-------------|-----------|----------------------------------|-----------------|--------------------------|------------------------|---|--------------------|------------|---------------|--------------|-------------------------|-------------------------|
| Number Number< | User Detector Detector
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arm | | 0648.305 | rc4 | 76 | 1 901
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Location | at Gross Alpha
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| 1 4 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 | JLM0591 PR172336 6 | PR172236 6 | Q | | |) 4/12/2005 | 2:44:58 AM | 4.00E+00 | 300 | - | 4 18 | F8442 | DRT01 | DMICI | A02AA | LAB01 | | 0 | 10001 |
| 2 41/2605 2:60:6AM 1:41:640 60 1 4 1 8:44.2 DKT0 DMCI AMDI 2 0 2605 7 41/22005 2:577.6AM 1:40640 60 1 4 13 547.4 1.4010 2 | JLM0591 PR172236 7 | PR172236 7 | Ŀ | 1 | - | 4/12/2005 | 2:52:32 AM | 1.40E+03 | 60 | - | 4 18 | FS442 | DRT01 | DMICI | A02BA | LAB01 | | 0 | 28434 |
| 3 41/22005 5475-AMI 148-10 60 1 4 13 5470 DMT A024 148-10 0 10 2106 7 4122005 549-20 AM 0060-40 0 1 0 18 100 2010 2010 2010 2010 2000 2010 | JLM0591 PR172236 7 | PR17236 7 | 6 | 1 | 7 | 1, 4/12/2005 | 2:56:02 AM | 1,41E+03 | 80 | - | 4 18 | FS442 | DRT01 | DMICI | A02BA | LAB01 2 | | 0 | 28678 |
| 7 4122005 5432.04M 8008-400 60 1 0 15 8004 1 0 16 162 8 41122005 5514.44M 1.008-400 60 1 0 185 8004 1 0 102 220 9 41122005 5514.44M 1.008-400 60 1 0 185 8004 1 0 102 20 10 41122005 5532.44M 1.008-400 60 1 0 18 8005 2017 8005 1 0 102 | JLM0591 PR172236 7 | PR172236 7 | 6 | , | | 4/12/2005 | 2:57:26 AM | 1.24E+03 | 60 | - | 4 18 | FS442 | DRT01 | DMICI | A02BA | LAB01 3 | | 0 | 25106 |
| 8 4/122005 951:4.4.M 1008-00 60 1 200 201C DS1C1 A02F 5.4004 1 0 20 9 4/122005 953:2.3.M 7008-00 60 1 8 8300 201C DS1C1 A02F 5.400 1 9 1/42 10 4/122005 10.254.3.M 1.008-00 60 1 1 8300 201C1 DS1C1 A02F 5.400 1 9 20 11 4/122005 10.254.3.M 1.008-00 60 1 0 18 B300 201C1 DS1C1 A02F 5.400 0 20 20 12 4/122005 10.274.4.M 1.008-00 60 1 1 DS1C A02F 5.400 1 20 | JLM0591 PR172236 8 | PR172236 8 | 00 | | - | 1 4/12/2005 | 9:49:20 AM | 8.00E+00 | 60 | - | 0 18 | E3000 | 201C1 | DSICI | A02GA | SA004 | | 0 | 162 |
| 9 4122005 55332AM 700E+00 60 1 8500 201C BS1C1 A02FA 5A04 2 0 142 10 4172005 1023542AM 100E+00 60 1 0 18 5000 201C1 BS1C1 A02FA 5A03 1 0 20 11 4172005 102544AM 100E+00 60 1 0 18 E300 201C1 DS1C4 5A03 1 0 20 20 12 4172005 102544AM 100E+01 60 1 0 18 E300 201C1 DS1C4 5A03 1 0 20 13 4172005 10254AM 100E+01 60 1 0 18 E300 201C1 DS1C4 A02 1 0 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 | JLM0591 PR172236 8 | PR172236 8 | 8 | | 80 | 4/12/2005 | 9:51:44 AM | 1.00E+00 | 60 | - | 0 18 | E3000 | 201C1 | DSICI | A02FA | SA004 1 | | 0 | 50 |
| 10 4/122005 10:26:24 AM 10:0E+00 50 1 53:00 20:72:AM 10:0E+00 50 1 53:00 20:72:AM 10:0E+00 50 1 20:7 AMO3 1 20:00 20 20 12 4/122005 10:27:64 AM 3:00E+00 50 1 2 20 21 21 21 20:07 2 20 2 20 20 13 4/122005 10:27:64 AM 3:00E+00 60 1 2 20 20 2 | JLM0591 PR172236 8 | PR172236 8 | 8 | 1 | 5 |) 4/12/2005 | 9:53:22 AM | 7.00E+00 | 60 | - | 0 18 | E3000 | 201C1 | DSICI | A02FA | SA004 2 | | 0 | 142 |
| 11 4/122005 102542 AM 100E+00 60 1 18 1500 2012 4028 1002 102542 AM 100E+00 60 1 18 5300 2012 3023 1 0 20 12 4/122005 102704 AM 300E+00 60 1 0 18 5300 2012 5510 5003 2 0 | JLM0591 PR172236 8 | PR172236 8 | 60 | 1 | 10 |) 4/12/2005 | 10:20:52 AM | 1.00E+00 | 60 | - | 0 18 | E3000 | 201C1 | DSICI | A02GA | SA003 1 | | 0 | 20 |
| 12 4/122005 10.27:04 AM 3.00E+00 60 1 18 E3000 201C1 BS1C1 A027 5.4003 2.0 0 61 13 4/122005 10.55:06 AM 0.00E+00 60 1 0 18 E3000 201C1 DS1C1 A027 SA02 1 0 0 0 14 4/122005 10:55:06 AM 1.00E+01 60 1 0 18 E3000 201C1 DS1C4 SA02 1 0 20 15 4/122005 11:27:06 AM 1.00E+01 60 1 0 18 E3000 201C1 DS1C4 SA02 1 0 20 16 4/122005 11:27:06 AM 1.00E+00 60 1 0 18 A021 DS1C4 MO2 0 0 20 17 4/122005 11:29:46 AM 5.00E+00 60 1 0 1 DS1C4 DS1C4 DS1C4 DS1C4 | JLM0591 PR172236 & | PR172236 8 | æ | | = | 4/12/2005 | 10:25:42 AM | 1.00E+00 | 60 | - | 0 18 | E3000 | 201CI | DSICI | A02FA | SA003 | | 0 | 20 |
| 13 4122005 10.5556 AM 0.00E+00 60 1 0 18 E3000 201C1 BS1C1 A02CA SA002 1 0 0 0 14 4122005 10:5556 AM 1.00E+01 60 1 0 18 E3000 201C1 BS1C1 A02FA SA002 1 0 203 15 4122005 11:27:06 AM 1.00E+01 60 1 0 18 E3000 201C1 BS1C1 A02FA SA002 1 0 204 16 4122005 11:27:06 AM 1.00E+01 60 1 0 18 E3000 201C1 BS1C1 A02FA SA001 1 0 20 17 4122005 11:29:46 AM 5.00E+00 60 1 0 18 E300 201C1 BS1C1 A02FA SA001 1 0 20 18 4122005 11:31:02 AM 0.00E+00 0 1 0 <td< td=""><td>JLM0591 PR172236 8</td><td>PR172236 8</td><td>ø</td><td>ł</td><td>12</td><td>1 4/12/2005</td><td>10:27:04 AM</td><td>3.00E+00</td><td>60</td><td>-</td><td>0 18</td><td>E3000</td><td>201CI</td><td>DSICI</td><td>A02FA</td><td>SA003 2</td><td></td><td>0</td><td>61</td></td<> | JLM0591 PR172236 8 | PR172236 8 | ø | ł | 12 | 1 4/12/2005 | 10:27:04 AM | 3.00E+00 | 60 | - | 0 18 | E3000 | 201CI | DSICI | A02FA | SA003 2 | | 0 | 61 |
| 14 4/12/2005 10:59:24 AM 1.00E+01 60 1 8 8 8 8 8 6 2 203 15 4/12/2005 11:00:56 AM 1.40E+01 60 1 0 18 5000 201C1 DS1C1 DS1C4 5A02 2 0 284 16 4/12/2005 11:27:06 AM 1.40E+01 60 1 0 18 E3000 201C1 DS1C4 SA02 2 0 264 17 4/12/2005 11:27:06 AM 1.00E+00 60 1 0 18 E3000 201C1 DS1D4 SA03 0 1 0 264 17 4/12/2005 11:31:20 AM 1.00E+00 60 1 0 18 201C DS1D4 0 0 101 18 4/12/2005 11:31:20 AM 0.00E+00 60 1 0 18 202 ZD2 20 0 10 101 101 | JI-M0591 PR172236 8 | PR172236 8 | øð | | 13 | 3 4/12/2005 | 10:55:06 AM | 0.00E+00 | 60 | - | 0 18 | E3000 | 201C1 | DŞICI | A02GA | SA002 | | 0 | 0 |
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Framatome ANP DES Site Restoration Services: JLM

Measurement Database Download Report

Direct Alpha Measurements

4/13/2005

Page 2 of 2

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· _ | 0 | 18 E3 | 000 201 | CI DS | ICI A0 | ega sa | 010 - | ĺ | 0 | 41 |
| E3000 201C1 | 120636 | JLM0591 | PR172236 | 8 | 23 | 4/12/2005 | 2:56:24 PM | 2.50E+01 | 60 | - | 0 | [8 E3 | 000 201 | CIDS | IBI A0 | EA SA | 010 | | 0 | 507 |
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| FS442 DRT02 | 120636 | JLM0591 | PR172236 | 6 | 35 | 4/12/2005 | 4:43:34 PM | 2.00E+01 | 300 | - | 4 | ES FS | 442 DR | T02 DS | ICI A0 | ICA LA | B01 - | | 0 | 81 |
| FS442 DRT02 | 120636 | JLM0591 | PR172236 | 6 | 36 | 4/12/2005 | 4:49:00 PM | 1.39E+03 | 60 | - | 4 | 18 FS | 42 DR | T02 DS | 1CI A07 | DA LA | - I0 R | | 0 | 28110 |
| FS442 DRT02 | 120636 | JLM0591 | PR172236 | Ŀ | 37 | 4/12/2005 | 4:50:52 PM | 1.45E+03 | 60 | - | 4 | IS FS | 42 DR | T02 DS | 1CI A0 | DA LA | B01 2 | | 0 | 29388 |
| FS442 DRT02 | 120636 | JLM0591 | PR172236 | r. | 38 | 4/12/2005 | 4:52:26 PM | 1.21E+03 | 60 | - | 4 | 18 FS | 442 DR | T02 DS | 1CI A02 | DA LA | B01 3 | | 0 | 24639 |
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- Date: # Date: $\frac{1}{2}$ $\frac{1}{2}$ Reviewed By:

Framatome ANP DES Site Restoration Services: JLM Rome New York

1/21/2005

Page C-5 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|-------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of E | uilding 104 | Operations |

Section 4.0 Measurement Results – Exposure Rate Measurements <u>U</u>Pages

Page 1 of 1

4/10/2005

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| Download ID | Station
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| GTS10 DRT01 9535 | 8 JILM0591 | PR192598 | t | - | 4/9/2005 | 5:03:30 PM { | 8.40E+05 | 60 | - | - c | j 5 | | | Vering. | | - | 5 | 5.51E+00 |
| GTS10 DRT01 9535 | 8 JLM0591 | PR192598 | Ŀ | 2 | 4/9/2005 | 5:08:34 PM | 4.20E+04 | 99 | - | , c | , 5
, ~ | NINU VIST | 74160 | Colley | LABOI | - (| 0 | 8.21E+02 |
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8 | 000 201C1 | DSISI | GO2FA | SA009 | . 6 | | 4.02E+UU
4.75E±00 |
| E3000 201C1 9535 | 8 JLM0591 | PR192598 | 90 | 33 | 4/9/2005 | 1:27:26 AM | 1.85E+04 | 60 | - | 0 | 8 E3 | 000 201C1 | DSIBI | GOIGA | SA009 | | 0 | 1 818401 |
| E3000 201C1 9535 | 1650MJE 8 | PR192598 | 69 | 34 | 4/9/2005 | 1:29:30 AM | 1.69E+04 | 60 | - | 0 | 8
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| E3000 201C1 9535. | 8 JLM0591 | PR192598 | 89 | 36 | 4/9/2005 | 1:59:32 AM | 4.27E+03 | 60 | - | 0 | 8
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E3 | 000 20ICI | DSICI | G02FA | SA008 | 7 | 0 | 4.29E+00 |
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8 | 000 201CI | DSICI | G01GA | SA008 | _ | 0 | 1.88E+01 |
| E3000 201C1 9535 | 8 JLM0591 | PR192598 | 22 | 39 | 4/9/2005 | 2:04:36 AM | 1.71E+04 | 60 | - | 0 | 8
E3 | 000 201CI | DSICI | GOIFA | SA008 | - | 0 | 1.67E+01 |
| E3000 201C1 9535. | 8 JLM0591 | PR192598 | 8 | 40 | 4/9/2005 | 2:06:46 AM | 1.71E+04 | 60 | - | 0 | 8
E34 | 000 20IC1 | DSIV2 | GOIFA | SA008 | 17 | 0 | 1.67E+01 |
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Framatome ANP DES Site Restoration Services: JLM

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| 0391 141 2 410/2005 8.473/4 Mod 3754-10 6.05 1 < | 0001 N19558 8 1 410206 5.4734M 375403 60 1 100 101 1000 101 1000 101 1000 101 1000 101 1000 101 1000 1000 1000 1000 10100 5.9310M 1316-10 0 11 1000 1010 10100 5.9310M 1316-10 0 11 1000 1010 101000 5.9310M 1316-10 0 11 1000 101000 5.9310M 1316-10 0 11 10000 1010000 1010000 | 16501 | PR192598 | 8 | 4 | 4/10/2005 | 8:46:04 PM | 3.88E+03 | 60 | - | 0 | 11 | B3000 201C1 | DSICI | GOZFA | SA007 | · · | 5 0 | 1,086+01 |
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| (059) FR192368 8 (1 (1)02005 55.3.20 M 7.31E+03 60 1 2000 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 | 6501 FR12598 8 7 410203 8.5320 PM 7.316-00 6321 0.11 5000 2011 5010 2011 5010 2011 5000 | 10591 | PR192598 | 89 | 9 | 4/10/2005 | 8:49:20 PM | 6.09E+03 | 60 | - | 0 | 1 | 83000 20101 | 1.Jiac | 10105 | 10040 | * | 5 | 3.70E+00 |
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| (059) FR19259 8 (10700) 8:5648 PM 128E+04 60 1 E300 2017 D5172 G01A 5A007 2 0 0.02549 (050) FR192598 8 11 4/10/2005 527/20 PM 4.36E+01 60 1 E3000 2017 D5172 G01A 5.4007 2 0 4.17E+00 (050) FR192598 8 11 4/10/2005 5.318 PM 1.86E+01 60 1 E3000 2017 D5172 G01A 5.4007 2 0 4.17E+00 (050) PR192598 8 11 4/10/2005 9.3168 PM 1.86E+01 60 1 E3000 2017 D517 G01A 5.400 0 1.86E+01 (050) PR192598 8 13 4/10/2005 9.37.68 PM 1.86E+01 60 1 E3000 2017 D517 D517 D617 D517 D617 D617 D617 D617 D617 D617< | 0591 RR19236 8 9 4102005 8.564.8 PM 128E+04 00 1 E300 20111 DS1V2 6007 2 0 0.725+01 0501 R192368 8 10 4102005 237.20 PM 4.26E+03 60 1 0 11 5007 2 0 1.25E+01 0501 R192368 8 11 4102005 93.154 PM 4.36E+03 60 1 0 11 E3000 2011 DS1V2 6075 5.005 0 4.17E+03 0501 R192368 8 13 4102005 93.540 PM 1.86E+04 60 1 0 11 E3000 20112 DS1V2 6015 S.005 1 0 1.86E+04 0501 R192368 8 14 4.102005 93.540 PM 1.86E+04 60 1 BS1V2 6015 S.005 1 0 1.75E+01 0501 R192358 8 14 93 | 16501 | PR192598 | ø | 80 | 4/10/2005 | 8:54:44 PM | 6.92E+03 | 60 | - | 0 | Ξ | 83000 201CI | DSICI | GOIFA | LUOUS | | | 7.15E+00 |
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Framatome ANP DES Site Restoration Services: JLM

SDMS Documentation Version 1.0

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Page I of 1

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| GTS10 DRT02 | 95358 | JLM0591 | PR192598 | Ĺ | 41 | 4/11/2005 | 4:36:14 PM 4.18E+04 | - 60 | 0 | 14 GT | S10 DRT02 | DMICI | I VOIDE | AB01 2 | | 0 4.0 | 9E+01 |
| GTS10 DRT02 | 95358 | JEMOS91 | PR192598 | £ . | 42 | 4/11/2005 | 4;38:22 PM 1.13E+04 | 60 | 0 | 14 GT | S10 DRT02 | DMICI 0 | I VGI0 | AB01 3 | | 0 | 0E+01 |
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SDMS Documentation Version 1.0

Framatomė ANP DES Site Rėstoration Services; JLM

Page 1 of 2

Measurement Database Download Report Exposure Rate Measurements

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| | | RVhr | • | 5 | - | 1 | | 1 | | 0 | 0 | - | 1 | - | 0 | 0 | - | г | 1 | - | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
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| | | Expo
Rate u | 5.38E+0 | 8.52E+(| 4.13E+C | 1.11E+0 | 1.85E+C | 1.70E+0 | 1.69E+C | 4.93E+0 | 4,83E+C | 1.92E+C | 1.57E+C | 1.56E+0 | 5,26E+0 | 5,15E+0 | 1.81E+C | 1.70E+0 | 1,51E+C | 1.70E+C | 5,12E+C | 5.14E+0 | 1.70E+0 | 1,69E+0 | 1,34E+C | 9.16E+C | 8,90E+0 | 8.89E+0 |
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| | | LCS | LAB01 | LAB01 | LAB01 | LAB01 | SA004 | SA004 | SA004 | SA003 | SA003 | SA003 | SA003 | SA003 | SA002 | SA002 | SA002 | SA002 | SA002 | SA002 | SA001 | SA001 | SA001 | SA001 | SA001 | BLD21 | BLD21 | BLD21 |
| - | | LC4 | G01AA | G01BA | GOIBA | GOIBA | GOLGA | GOIFA | GOIFA | G02FA | G02FA | GOLGA | GOIFA | GOIFA | GO2FA | G02FA | GOIGA | GOLFA | GOIFA | GOIFA | G02FA | G02FA | GOLGA | GOIFA | GOIFA | G02FA | G02FA | GOIGA |
| al Facto | 3+10 | LC3 | DMICI | DMICI | DMICI | DMICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSICI | DSIBI | DSIBI | DSICI | DSICI | DSICI |
| nma C | 6,13H | rc3 | ORT01 | ORT01 | DRT01 | DRT01 | 201C1 | 201C1 | 201CI | 201CI | 201C1 | 201CI | 201C1 | 201C1 | 201C1 | 201C1 | 201C1 | 201C1 | 201 C I | 201C1 | 201 C I | 20101 |
| Gau | | ŝ | TS10 | TSI0 | 1210 | TS10 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
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| Model | 10 | Logging
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| Detector | 44- | Count
Time
(secs) | 300 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| ackage ID | 201C1 | Logged
Count | 2.75E+04 | 8.71E+05 | 4.22E+04 | 1.13E+04 | 1.89E+04 | 1.74E+04 | 1.73E+04 | 5.04E+03 | 4.94E+03 | 1.96E+04 | 1.60E+04 | 1.60E+04 | 5.38E+03 | 5.26E+03 | 1.85E+04 | 1.74E+04 | 1.55E+04 | 1.74E+04 | 5.23E+03 | 5.26E+03 | 1.73E+04 | 1.72E+04 | 1.37E+04 | 9.37E+03 | 9.10E+03 | 9.09E+03 |
| Survey P | E3000 | Time | 7:25:26 AM | 7:32:22 AM | 7:35:16 AM | 7:37:40 AM | 9:50:42 AM | 9:52:28 AM | 9:55;28 AM | 10:16:42 AM | 10:17:54 AM | 10:23:18 AM | 10:25;46 AM | 10:27:04 AM | 10:45:48 AM | 10:47:32 AM | 10:50:34 AM | 10:54:38 AM | 10:57:08 AM | 10:58:48 AM | 11:28:10 AM | 11:29:24 AM | 11:31:10 AM | 11:35;18 AM | 11:36:40 AM | l:56:24 PM | 1:57:34 PM | 2:00:14 PM |
| Download
Time | 8:36 AM | Date | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 | 4/12/2005 |
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mber | | User
ID | LM0591 | LM0591 | ILM0591 | ILM0591 | LM0591 | ILM0591 | 1650MJ | 1650MJ | ILM0591 | ILM0591 | ILM0591 | ILM0591 | ILM0591 | 1650MJI | 16SOM.II | ILM0591 | ILM0591 | ILM0591 | JEM0591 | 1650MJ1 | 1650M.II | 1650MJI | ILM0591 | ILM0591 | 1650MJU | JLM0591 |
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Number | 358 J | 358 | 358 J | 358] | 358 J | 358 | 358 | 358 | 358 | 358 | 358 | 358 | 358 | 358 | 358 | 358 | . 358 | . 8358 | 1358 | 358 | 3358 | 358 | 5358 | 5358 | 5358 | 5358 |
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15 | CI 95 | 10
86 | 10 95 | 10 96 |
| Down | DL04130 | Packag
ID | GTS10 DR1 | GTS10 DR1 | GTS10 DR1 | GTS10 DR1 | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 201C | E3000 2010 | E3000 201(| E3000 2010 | E3000 2010 |

Framatome ANP DES Site Restoration Services: JLM

4/13/2005

| | | | Exposure
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| Page | I | | PC6 | | 2 | _ | ~ | _ | _ | 01 | _ | _ | | | 14 |
| | | | LC5 | BLD21 | BLD21 | SA010 | SA010 | SA010 | SA010 | SA010 2 | LAB01 | LAB01 | LAB01 2 | LAB01 0 | |
| | | | FC4 | GOIFA | GOIFA | G02FA | G02FA | GOIGA | G01FA | G01FA | GOLCA | GOIDA | GOIDA | GOIDA | Date |
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| | Gai | | ŢĊ | E3000 | E3000 | E3000 | E3000 | E3000 2 | E3000 2 | E3000 2 | GTS10 1 | GTS10 I | GTS10 I | GTS10 I | |
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umber | 192598 | Scaler
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er | O | Logging
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(secs) | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 300 | 60 | 60 | 60 | Approved |
| | kage ID | 01C1 | Logged
Count | 6E+03 | 8E+03 | SE+03 | 0E+03 | 3E+04 | 4E+04 | SE+04 | 0E+04 | 2E+05 | 5E+04 | 3E+04 | 20 |
| | Survey Pac | E3000 2 | lime | 1:48 PM 8.4 | 4:30 PM 7.4 | 4:50 PM 3.5 | 5:58 PM 3.7 | 7:30 PM 1.5 | 9:28 PM 1.3 | 0:38 PM 1.3 | 4:04 PM 2.8 | 7:50 PM 8.6 | 0:14 PM 4.1 | 1:32 PM 1.1 | $\frac{1}{ \varepsilon }$ |
| | ad | M | Г | 005 2:0 | 005 2:0 | 005 2:4 | 005 2:4 | 005 2:4 | 005 2:4 | 005 2:5 | 005 4:4 | 005 4:4 | 005 4:5 | 005 4:5 | 2 |
| | Downlo | 8:36 A | Date | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | 4/12/2 | Date: |
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Page I of 1

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| GTS10 DRT01 | 95358 | JLM0591 | PR192598 | 7 | ~ | 4/13/2005 1 | 10:28:28 AM 8.82E+05 | 60 | - | 0 | 20
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| GTS10 DRT01 | 95358 | JLM0591 | PR192598 | 7 | 13 | 4/13/2005 1 | .0:29:56 AM 4.16E+04 | 60 | - | 0 | 2 | TS10 DR | ISD 101 | BI GOIRA | LABO | - ເ | | | 2B+02 |
| GTS10 DRT01 | 95358 | JLM0591 | PR192598 | Ĺ | n | 4/13/2005 1 | 0:31:16 AM 1.14E+04 | 60 | - | 0 | 20 | CS10 DR1 | ISC 10 | BI GOIBA | LABO | 4 (* | | | 0E+01 |
| E3000 201 C1 | 95358 | JLM0591 | PR192598 | 00 | 4 | 4/13/2005 1 | 10:48:34 AM 5.21E+03 | 60 | - | 0 | 20 E3 | 000 201 | ISCI IS | C1 G02FA | SA004 | • - | | | 16-101 |
| E3000 201C1 | 95358 | ILM0591 | PR192598 | 8 | S. | 4/13/2005 1 | 0:49:44 AM 5.21E+03 | 60 | - | 0 | 20 E3 | 000 2016 | DSI | CI GO7FA | S A004 | ç | | | |
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| Darriand | | SM1 | 11/11 | H.M. | | 1 | 101 | | | | R | | | | | | | | |

Reviewed By: $\overline{}$

Will Will Stall Date: 4/13/05 Approved By: 7/1

Date: 4/14/05

SDMS Documentation Version 1.0

Framatome ANP DES Site Restoration Services: JLM

Rome New York

1/21/2005

Page C-6 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|---------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of B | uilding 104 (| Operations |

Section 5.0 Sample Analysis Results – Alpha/Beta Counter <u>/2</u>Pages

| 1 | ATA M2929 SN 152202
V REPEAT | 1 Pass Codes Off
PROGRAM_NUM PROGRAM_NAME | SAMPLE_ID | DATE | TW BM | WT SD B | G TIME CN1 | TIME A | ACPM A | RKGCPM A | NETCRA AEC | MOON | | nova | | | | | |
|---|---------------------------------|--|-----------|--------------|-----------|----------|------------|--------|------------|----------|------------|---------|----------------------|------------|---------------------|-------|----------------|-------|--------------|
| 2 1 ArbivalFTA SikeNS Summary Signal 11 ArbivalFTA SikeNS Summary Signal 11 | | 0 1 ALPHA/BETA SMEARS | SA001-1 | 4/12/2005 1 | 1:38:00 0 | 0 | 20 | | | | | | | | NACOVAR
BRACOVAR | AICER | | | OPM BLLD |
| 1 1 1 4 0 1 4 0 3 | 2 | 0 1 ALPHA/BETA SMEARS | SA001-2 | 4/12/2005 4 | 1-38-00 | | ŝ | | | 100 | | | 0 7 7 7 5
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89 | 52 | 0 | 2 | 0.206 | 33.98 131.17 |
| Introduction Introduction< | 4 | 0 1 AI PHA/RETA SMEARS | SADD2-1 | | 1.05.00 | | 2 2 | - · | -
- | 2.0 | -0.2 0.45 | 4-0.44 | 9.29 5 | 7 57 | 5 | • | 5 | 0.206 | 24.27 131.17 |
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| Intervention Sounds #172005 17370 2< | - 1 | | 54005-1 | 4/12/2009 | 0:35:00 | 0 | 20 | - | () | 0.2 | 3 0.45 | 4 6.61 | 9.29 5 | 2 52 | 52 | 0 | c | 0.206 | 0.00 131.17 |
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| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | 0 1 ALPHAVBELA SMEARS | SA003-3 | 4/12/2005 1 | 0:35:00 (| 0 | 20 | - 2 | 2 | 0.2 | 2 0.45 | 4.41 | 9.29 5 | | 12 | • c | | 0.200 | |
| International and the second of the | n (| 0 1 ALPHA/BELA SMEARS | SA004-1 | 4/11/2005 1 | 1:25:00 (| • | 20 | | | 0.2 | 0.8 0.45 | 4 1.76 | 9.29 5 | 282 | 49 | . c | - σ | 0.208 | 43.60 127.71 |
| 1 LUTHWRET SNEARS SMO43 411/2005 115.00 0 1 1 0 1 </td <td></td> <td></td> <td>2-4004-2</td> <td>4/11/2005</td> <td>1:25:00 (</td> <td>0</td> <td>20</td> <td>5</td> <td>2</td> <td>0.2</td> <td>1.8 0.45</td> <td>4 3.96</td> <td>9.29 6</td> <td>1 61</td> <td>49</td> <td>0</td> <td>5</td> <td>0.206</td> <td>58.25 127.74</td> | | | 2-4004-2 | 4/11/2005 | 1:25:00 (| 0 | 20 | 5 | 2 | 0.2 | 1.8 0.45 | 4 3.96 | 9.29 6 | 1 61 | 49 | 0 | 5 | 0.206 | 58.25 127.74 |
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| 22 0 1 ALPHABETA SMEARS SA000-3 4/92005 7.3300 0 2 0 1 1 0 2 0 1 1 0 2 0 1 1 0 2 0 1 1 0 2 0 1 | 20 | | 7-10040 | | 3:30:00 | 0 | 2 | - | | 0.2 | 0.8 0.45 | 4 1.76 | 9.29.5 | 50 | 52 | Ö | ? | 0.206 | -9.71 131.17 |
| 22 0 1 APPHABETA SMEARS SAU08-2 4492005 17.17200 | 21 | | 2-70040 | | 3:30:00 | 0 | 20 | - | - | 0.2 | 0.8 0.45 | 4 1.76 | 9.29 5 | 9 59 | 52 | 0 | Ĺ | 0.206 | 33.98 131.17 |
| 23 0 1 APPHABETA SIMEARS 5000-1 47/2000 52 0 5 0.206 2427 13117 24 0 1 APPHABETA SIMEARS 5000-2 49/3000 16.0 0 20 11 1 0.2 0.2 0.8 0.44 176 929 47 52 0 5 0.206 2427 13117 25 0 1 APPHABETA SIMEARS 5000-2 4/92006 62600 | 22 | | | | 1 00:21:7 | ۍ د
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| 24 0 1 APPAJETA SMEARS 5009-2 4792005 52500 | 23 | 0 1 ALPHA/RFTA SMFARS | SA000-1 | | 1 00.97.7 | | 28 | | | 0.2 | 0.8 0.45 | 4 1.76 | 9.29 4 | 7 47 | 52 | 0 | ς, | 0.206 | 24.27 131.17 |
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| 27 0 1 1 1 0 0 0 0 1 1 0 0 0 1 1 0 5 0 2 1 1 1 0 0 1 1 0 5 0 2 1 | 25 | 0 1 AI PHA/RETA SMEARS | 54000.2 | 4101200E 41 | 00.00.00 | | 2 2 | | э · | 0.2 | -0.2 0.45 | 4 -0.44 | 9.29 7 | 02 0 | 52 | 0 | 18 | 0.206 | 87.38 131.17 |
| 27 0 1 ALPHABETA SMEARS Savio 1 1/12000 0 20 10 0 0 20 44 929 42 52 0 -10 0206 48154 13117 28 0 1 ALPHABETA SMEARS Savio 3 41/22005 51/1000 0 0 0 0 0 2 0.44 929 42 42 52 0 -10 0206 -871 13117 28 0 1 ALPHABETA SMEARS Savio 3 41/22005 41/22005 41/2000 0 20 0 0 2 0.24 0.44 929 40 45 52 0 -8 13117 29 0 1 ALPHABETA SMEARS BLD21-1 41/22005 41/500 0 0 0 0 0 -2 0.20 -8 0.44 929 46 -8 20 -8 0.3117 30 0 1 ALPHABETA SMEARS BLD21-1 41/122005 41/500 0 0 0 0 0 -2 0.20 -6 0.20 -6 0.20 -6 0.20 -8 0.44 9.29 46 46 52 0 -6 0.20 <t< td=""><td>26</td><td>0 1 AI PHA/RETA SMEARS</td><td>50010 1</td><td></td><td>000013</td><td></td><td>2 2</td><td></td><td>- 1</td><td>0.2</td><td>0.8 0.45</td><td>4 1.76</td><td>9.29 4</td><td>7 47</td><td>52</td><td>0</td><td>Ŷ</td><td>0.206</td><td>24.27 131.17</td></t<> | 26 | 0 1 AI PHA/RETA SMEARS | 50010 1 | | 000013 | | 2 2 | | - 1 | 0.2 | 0.8 0.45 | 4 1.76 | 9.29 4 | 7 47 | 52 | 0 | Ŷ | 0.206 | 24.27 131.17 |
| 29 0 1 APPRABETS SMEARS SA010-3 47122005 571000 0 20 0 <th0< th=""> <th0< th=""> <th0< th=""></th0<></th0<></th0<> | 27 | | -01040 | 1 0002/21/4 | | - | 20 | | 0 | 0.2 | -0.2 0.45 | 4 -0,44 | 9.29 4 | 엏 | 52 | 0 | -10 | 0.206 | 48.54 131.17 |
| 29 0 1 ACTIVACIA SMERKS SW010-3 41122000 0 0 0 0 1 44 52 0 -8 0.206 -388 13117 29 0 1 ALPHABETA SMERKS BLD2:1 41122005 411600 0 20 0 0 2044 -0.44 929 46 52 0 -6 0206 -388 13117 30 0 1 1 1 2 0 0 0 0 -0 2044 -0.44 929 46 52 0 -6 0206 -2016 -0 0 0 0 0 0 -0 10 0 0 0 -6 0 206 -6 0 | 180 | | 24010-2 | 4/12/2000 1 | 9:10:00 | - | 20 | | 0 | 0.2 | -0.2 0.45 | 44.0.44 | 9.29 5 | 3 50 | 52 | 0 | 2 | 0.206 | -9.71 131 17 |
| 30 0 1 1 1 2 1 2 1 2 1 <th1< th=""> 1 <th1< th=""> <th1< th=""></th1<></th1<></th1<> | 29 | | 2-0-0-0-0 | 1 0002/21/4 | | - | 20 | 0 | 0 | 0.2 | -0.2 0.45 | 4 -0.44 | 9.29 4 | 44 | 52 | 0 | ¢ | 0.206 | 38.83 131.17 |
| 31 0 1 ALTHAMERIASMEAKS BLUZT-2 4122005 14:15:00 0 0 20 10 0 02 -0.2 0.44 929 62 52 52 0 0 0206 0.00 131.17
31 0 1 ALPHAMBETASMEARS BLUZT-3 41722005 14:15:00 0 0 20 1 1 0 0 000 000 000 000 000 00 | i ç | | | 1 0002/21/4 | 4:15:00 | - | 20 | • | 0 | 0.2 | -0.2 0.45 | 4 -0.44 | 9.29 4 | 3 46 | 52 | 0 | ę | 0.206 | 29 13 131 17 |
| 31 0 1 1 ALPHABETA SMEARS BLD21-3 4/12/2005 14:15:00 0 0 20 j j i 0.2 0.8 0.451 178 0.2052 82 52 0 0.000 0.000 0.101 | 20 | U 1 ALPHABELA SMEARS | BLD21-2 | 4/12/2005 1. | 4:15:00 (| • | 20 | 1 0 | 0 | 0.2 | -0.2 0.45 | 1 -0.44 | 9.29.5 | 5 | 18 | ¢ | | 9000 | 0.00 494.47 |
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Item ID $SA \phi \delta 1$ \_\_\_\_\_

Instrment ID 2929 #\_\_152202

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Beta <u>52</u> cpm Alpha <u>, 2</u> cpm

| Point | Removabl | e ncpm | |
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| No | Beta | Alpha | Description |
| 1 | 1 | 0.8 | CONCRETE C BOTTOM |
| 2- | 7 | 0.8 | |
| 3 | 5 | -0.2 | V |
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| Smears counted by | _ Date 4/14/05 Ludium 2929β eff_20.6_ | % |
|-------------------|---------------------------------------|---|
| | α eff 45.4 | % |

| Surveyed by: \underline{P}, M . | Date/Time | 4/12/05 | 1138 |
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Item ID $SA \phi \phi \phi$

Instrment ID 2929 #<u>152202</u>

BKGD

Beta <u>52</u> cpm Alpha <u>2</u> cpm

| Point | Removable | e ncpm | |
|-------|-----------|--------|---------------------|
| No | Beta | Alpha | Description |
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| 7 | 0 | 0.8 | V |
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| Smears counted by Matri | Date_ <u>4/14/05</u> Ludium 2929β eff_ <u>20.6</u> | % |
|-------------------------|--|---|
| | α eff 45.4 | % |

| Surveyed by: | Date/Time | 4/12/05 | 1105 |
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Item ID <u>5A</u> 993

Instrment ID 2929 #\_\_\_\_\_

BKGD Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

| Point | Removable | ncpm | |
|-------|-----------|-------|-------------------|
| No | Beta | Alpha | Description |
| | 0 | 7 | Concrete @ bottom |
| 2 | -1 | 2 | |
| 3 | .1 | 2 | |
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| Smears counted by <u>P.M.C.e</u> | Date <u> 4-14-05</u> Ludlum 2929β eff <u>20.6</u> | % |
|----------------------------------|---|---|
| | α eff_45.4 | % |

| Surveyed by: <u>p. mcCee</u> | Date/Time | 4/12/05 | 1035 | |
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Item ID <u>SA ØØ</u> CAMERA (NOBOT

Instrment ID 2929 #\_\_\_\_\_\_

BKGD

F.

Beta <u>49</u> cpm Alpha <u>0.2</u> cpm

| Point | Removabl | e ncpm | |
|-------|----------|--------|-------------|
| No | Beta | Alpha | Description |
| 1 | -2 | -0.2 | CABLE |
| - 2 | -2 | 0.8 | |
| 3 | -3 | 2.8 | 2M 4/25/05 |
| Ý | 9 | 0.8 | #1 |
| 5 | 12 | 1.8 | CAMERA HZ |
| þ | 0 | -0.2 | |
| 1 | 1 | -0.2 | V |
| 8 | 13 | DIF | WITEELS #3 |
| 5 | -11 | O.F | |
| 10 | 11 | Dis | V |

Smears counted by Marah \_\_\_\_\_ Date 4/12/05 Ludium 2929--β eff\_ 20.6 %

a eff 45.4

Surveyed by: Match

\_\_\_\_ Date/Time 4/11/05 1125

Item ID $\_SA \not ads \_$ \_\_\_\_\_

Instrment ID 2929 #<u>152202</u>

| BI | K | G |
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| Beta_ | _5 | 2_ | _cpm |
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Alpha . 2 \_ cpm

| Point | Removable | ncpm | |
|-------|------------|-------|------------------|
| No | Beta | Alpha | Description |
| 1 | 3 | 0.8 | WNGNESE C BOTTOM |
| 2 | 6 | 1.8 | |
| 3 | 1030/14/15 | 0.8 | \checkmark |
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Smears counted by MAJohn Date $\frac{4/4}{6}$ Ludium 2929-- β eff 20.6 % α eff\_45.4 %

| Surveyed by: <u>D. M.</u> | Date/Time | 4/11/05 | 0915 |
|---------------------------|-----------|---------|------|
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Item ID SA ØØ6

Instrment ID 2929 #\_\_\_\_52202

| BKGE |) |
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Beta <u>52</u> cpm Alpha <u>, 2</u> cpm

| Point | Removable | ncpm | |
|-------|-----------|-------|---------------------------------------|
| No | Beta | Alpha | Description |
| 1 | -1 | Oct | CONERGE @ BOTTOM |
| 2 | -6 | -0.2 | |
| 3 | 3 | -0.2 | |
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Smears counted by MMT Date $\frac{4/19/05}{\text{Ludlum 2929-}\beta \text{ eff } 20.6}$ α eff 45.4 %

| Surveyed by: D, M . | Date/Time | 4/10/05 | 1245 |
|-----------------------|-----------|---------|------|
|-----------------------|-----------|---------|------|

 $\int \mathcal{W} \frac{4}{|q|05}$ $SA \qquad Survey \text{ Data Sheet}$ $Item ID \qquad ST q q 7$

Instrment ID 2929 #\_\_<u>152202</u>\_\_\_\_\_

BKGD

Beta <u>52</u> cpm Alpha <u>0, 2</u> cpm

| Point | Removable | ncpm | |
|-------|-----------|-------|-------------------|
| No | Beta | Alpha | Description |
| / | -8 | 1.8 | CONCRETE & BOTTOM |
| 2 | -2 | 0.8 | |
| 3 | 7 | 0.8 | |
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Smears counted by March Date 4/14/05 Ludium 2929--β eff 20.6 % α eff<u>45.4</u>%

Surveyed by: D. M. Date/Time 4/19/05 1330

Item ID <u>54 ØØ8 E3000</u>

Instrment ID 2929 #<u>152202</u>

BKGD

Beta <u>52</u> cpm Alpha <u>0, Z</u> cpm

| Point | Removable | e ncpm | |
|-------|-----------|--------|-------------------|
| No | Beta | Alpha | Description |
| 1 | 14 | -0.2 | CONCRETE @ BOTTOM |
| 2 | -5 | 6.8 | V |
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Smears counted by MMM \_\_\_\_\_ Date 4/10/05 Ludlum 2929--β eff\_ 20.6 % α eff\_\_45.4\_\_\_%

| Surveyed by: | J.M. | Date/Time | 4/9/05 | 1712 |
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Item ID <u>54669</u> E3000

Instrment ID 2929 #\_\_\_\_\_

BKGD

Beta <u>52</u> cpm Alpha <u>0.2</u> cpm

| Point | Removable | ncpm | |
|-------|-----------|-------|-------------------|
| No | Beta | Alpha | Description |
| 1 | 3 | 6.8 | CINCRETE @ BOTTOM |
| 2 | 18 | -0.2 | |
| 3 | -5 | 0.8 | V |
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Smears counted by March Date 4/10/0 Ludium 2929--β eff 20.6 % % αeff 45.4

Surveyed by: <u>J.M.</u> Date/Time <u>4/9/05/1626</u>
Survey Data Sheet

Item ID $\_SA \phi | \phi$

instrment ID 2929 #<u>152202</u>

BKGD

 $\sim c \dot{c}$

Beta <u>52</u> cpm Alpha <u>0,2</u> cpm

| Point | Removable | ncpm | |
|-------|-----------|-------|-------------------|
| No | Beta | Alpha | Description |
| 1 | -10 | -0.2 | CONCRETE & BOTTOM |
| 2 | -2 | -0.2 | |
| 3 | -8 | -012 | \checkmark |
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Smears counted by MMM \_\_\_\_\_ Date 1/1/105 Ludium 2929--β eff\_ 20.6\_\_\_\_%

αeff 45.4 %

Surveyed by: DM Date/Time 4/12/05 1510

Survey Data Sheet

Item ID BLOG 21 LIFT STATION

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0, 2 cpm

QQQ

| Point | Removable | ncpm | |
|-------|-----------|-------|-------------|
| No | Beta | Alpha | Description |
| 1 | -6 | -0.2 | CONCRETE |
| 2 | 0 | -0.2 | |
| 3 | 10 | 0.8 | V |
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Smears counted by $M \pi \mu \mu$ Date $\frac{4/14/15}{114/15}$ Ludlum 2929-- β eff 20.6 % α eff 45.4 %

Surveyed by: <u>D.M.</u> Date/Time <u>4/12/05 1415</u>

Rome New York

1/21/2005

Page C-7 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|---------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of B | uilding 104 (| Operations |

Section 6.0 Sample Analysis Results – Gamma Spectroscopy <u>17</u> Pages FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM

S.

Other (Specify) Quarterly Composite BERTING Camma 06'68-1S C ELAB ACCEPTANCE STAMP 6-H C Framatome ANP Federal D&D Services (1'S'2'1) Japien (1'S'3'4) (704)805-2512 Sample belongs to 752,052-1 John McGehee and Don McGee Jranium Total Radiological Analyses (Check Ali That Apply) N-234' 232' 238 66-01 Fax: 06'68-JS Ra-226 (Specify) Ra-226 (Specify) × × × × × × × × × × × Pu-241 042/852,852- uq 752-qV 1-241,Cm-242,243/244 (704)805-2298 (704)805-2576 1-131LL (GAS PROPORTIONAL) 11-0 25-92 RA-228\_EPA (PROC. 1311) (Aupads) -SPECIFY METHOD 131 151-H131LL (BETA/GAMMA) (Internal Lab Use ONLY) (Person(s) who should receive the results) RA-228 (PROC. 1300) 6-H Name/Address of Client Representative: emmse × X RADIUMA\_EPA × × × × <u>99-ə</u> RA-226 (A) Phone: 29-IN leconedO ni 161steä seone eriqiA eeore Shipped (Specify Units) (ENVIRONMENTAL/BIOASSAY SAMPLES) Sample Amount ~352g ~1500g ~4429 ~112g ~6079 ~307g ~1879 ~397g ~547g ~1282g Field Treatment/Comments Total ~105g Rush (COST MULTIPLIER MAY APPLY) Working Days (SPECIFY NUMBER) <u>Please check box below to indicate the date to decay results to</u> itart Date Stop Date Mid-point Date f Applicable) (Required) ((if Applicable) nor Year (All Dates/Times Must Reflect EST or EDT) Uay quow **Collection Period** 1105 1030 1345 1635 940 906 5 1230 1510 1430 1620 1140 noH Phone Number: DY 805 2293 rear ю ю ю ŝ ŝ ŝ ю ŝ ų 40 12 V6<sup>D</sup> 2 2 ŧ 9 9 4 33 ¢, ø 2 циоМ 4 4 4 4 4 4 4 4 4 4 4 Client Purchase Order/Contract: Task Order Number: 744009,6000-00 Date: 4-17-65 Juot Non-REMP (if Applicable) Parsons Engineering Science, Inc. rear Start Date λe<sub>O</sub> Standard Date: циом ß REMP D Station and 4/14/2005 Description SA002 SA003 SA004 SA005 SA006 SA007 SA009 SA010 BKG04 BKG06 BKG01 Requested Turnaround Time (TAT): Collected By: Jaw Mu HUM Chain of Custody 20 Sample Type sludge sludge studge sludge studge sludge sludge sludge studge sludge sludge Date of Shipment: ELAB Comments: Relinquished By: LSN Client Name: Received By: 4 Program: **AA**BY **MEEK NO**

FORM 605.1, REV. 14

OTHER

FORM 605.1, REV. 14

-131LL (GAS PROPORTIONAL) OTHER

-131LL (BETA/GAMMA)

| No. of the second s | epresentative: Framatome ANP Federal D&D Services
serve the results) John McGehee and Don McGee | Phone: (704)805-2298 Fax: (704)805-2512
(704)805-2576 | Radiological Analyses (Check All That Apply) Quarterly | 233
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|--|--|--|--|--|---|---|--------------|--------|---------|--------|--------|---------------------|----------------|-------------|---------|-------------|-----------------|-------------------------------------|---|----------------|-------------|---------------------|-------------------------|
| (===================================== | g Science, Inc. Name/Address of Client R. 744009.6000-00 (Person(s) who should rec | Non-REMP Rest COST MULTIPLIER MAY APPLY Standard UVorking Days (SPECIFY NUMBER) Control of the second se | Collection Period | (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay results to Start Date Stop Date (If Applicable) (Required) (If Applicable) (Required) | art
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ct: Task Order Numbe
4/14/2005 | TAT): REMP o | | | Station and
Description | ST001 | ST002 | ST003 | ST004 | ST005 | ST007 | ST0011 | ST012 | ST013-1 | ST013-2 | BLDG21 | ~ | <u> </u> | ALUV | | | | |
| | Client Name:
Client Purchase Order/Contra
Date of Shipment:
Program: | Requested Turnaround Time (| | Solution N | ₩ ₩ LSN Sample Type | sludge | studge | sludge | sludge | sludge | sludge | sludge | sludge | sludge | sludge | sludge | Chain of Custod | Relinquished By: L M | Collected BY: AULUNIC B | ELAB Comments: | | | |

FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM (ENVIRONMENTAL/BIOASSAY SAMPLES)

AREA



Lab. Sample No.

Reference Date

Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

| . . | | | Descel Date | 6 - 10 G 10 F | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|---------------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

L9126-13 Client ID SA003 04/12/05 Analysis Dete 04/25/05

Product GAMMA SPECTROMETRY

Matrix Sludge (Dry)

| Nuclide | Activity Concentration
+/- 1 - Sigma | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | | |
|--------------|---|-----------------|----------------|-----------------|-----------------|-------|---|--|
| | (pCi/g) | 1 | (pĈi/g) | (pCi/g) | (pCl/g) | | | |
|
AcTh-228 | 21E-01 +/- | 1.3E-01 | 1.3E-01 | 4 3E-01 | | с | ··· <u>·</u> ··· <u>··</u> ····· <u>··</u> ····· <u>···</u> | |
| Ag-108m | 5E-03 +/- | 1.9E-02 | 1.9E-02 | 6 7E-02 | | | | |
| Ag-110m | -6E-03 +/- | 3.4E-02 | 3.4E-02 | 1.3E-01 | | | | |
| 8a-140 | ·1E-02 +/- | 1.4E-01 | 1.4E-01 | 5.2E-01 | | | | |
| Be-7 | -2.1E-01 +/- | 1.8E-01 | 1.8E-01 | 7 4E-01 | | | | |
| Bi-214 | 2.92E-01 +/- | 7.3E-02 | 7 5E-02 | 2 1E-01 | | bc | | |
| Cę-141 | -9E-03 +/- | 4.1E-02 | 4.1E-02 | 1 5E-01 | | | | |
| Ce-144 | 2.4E-01 +/- | 2.2E-01 | 2.2E-01 | 7 4E-01 | | | | |
| Co-57 | 2.9E-02 +/- | 1.6E-02 | 1.6E-02 | 5 3E-02 | | | | |
| Co-58 | 9E-03 +/- | 2 7E-02 | 2 7E-02 | 9 7E-02 | | | | |
| Co-60 | 3 9E-02 +/- | 2.7E-02 | 2 7E-02 | 8 9E-02 | | | | |
| Cr-51 | -3E-01 +/- | 2 7E-01 | 2.7E-01 | 1.0E+00 | | | | |
| Cs-134 | -3E-03 +/- | 3 2E-02 | 3 2E-02 | 1 1E-01 | 1 5E-01 | | | |
| Cs-137 | 1 2E-02 +/- | 2 7E-02 | 2.7E-02 | 9.6E-02 | 1 8E-01 | | | |
| Fe-59 | -1.6E-02 +/- | 5.5E-02 | 5.5E-02 | 2 1E-01 | | | | |
| I-131 | -6.1E-02 +/- | 6.4E-02 | 6.4E-02 | 2.4E-01 | | | | |
| K-40 | 1.77E+01 +/- | 1.0E+00 | 1 4E+00 | 9.7E-01 | | bc | | |
| La-140 | -4E-03 +/- | 8 4E-02 | 8.4E-02 | 9 9E-01 | | | | |
| Mn-54 | -4E-03 +/- | 2 4E-02 | 2.4E-02 | 9 1E-02 | | | | |
| Nb-95 | -1.4E-02 +/- | 2.8E-02 | 2.8E-02 | 1 1E-01 | | | | |
| Pb-214 | 4.84E-01 +/- | 7 2E-02 | 7 6E-02 | 1.8E-01 | | bc | | |
| Ru-103 | 2 2E-02 +/- | 2.5 E-02 | 2 5E-02 | 8 6E-02 | | | | |
| Ru-106 | 7E-02 +/- | 2.4E-01 | 2 4E-01 | 8 6E-01 | | | | |
| Sb-124 | -7.1E-02 +/- | 4.2E-02 | 4 2E-02 | 2 2E-01 | | | | |
| Sb-125 | -4.1E-02 +/- | 6 2E-02 | 6.2E-02 | 2.3E-01 | | | | |
| Se-75 | -2 5E-02 +/- | 2.4E-02 | 2.4E-02 | 9 3E-02 | | | | |
| Zn-65 | -1.39E-01 +/- | 6.4E-02 | 6.5E-02 | 2 7E-01 | | | | |
| Zr-95 | -3.8E-02 +/- | 3 4E-02 | 3.4E-02 | 1 6E-01 | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

BI/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|------------------------------------|------|--|--|--|--|--|--|--|
| MAY 0 6 | 2005 | | | | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | | |

Page 1 of 1

Approved by 61 O

(E) M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581

508-898-9970

| 0 | Franklama AND Inc. | FEDERAL GRP | Demant Data | 05/00 IOF | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|-----------|---------------------------------|
| Customer | Framatome ANP Inc | | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. L9126-15 **Reference Date** 04/11/05

Client ID Analysis Date 04/25/05

SA005

Product GAMMA SPECTROMETRY

Sludge (Dry)

Matrix

| Nuclide | Activity Conc
+/- 1 - Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|------------------------------|------------------|-----------------|-----------------|-----------------|-------|--|
|
 | (pCi/g) |)
 | (pCl/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.8E-01 +/- | 1.3E-01 | 1 3E-01 | 3.7E-01 | | bc | |
| Ag-108m | -6E-03 +/- | 1.9 E-0 2 | 1 9E-02 | 7 1E-02 | | | |
| Ag-110m | 2.5E-02 +/- | 2 5E-02 | 2.5E-02 | 8.7E-02 | | | |
| Ba-140 | -1.3E-01 +/- | 1.7E-01 | 1.7 E-01 | 6 6E-01 | | | |
| Be 7 | -1.9E-01 +/- | 1.9E-01 | 1.9E-01 | 7 6E-01 | | | |
| Bi 214 | 3.82E-01 +/- | 6.9E-02 | 7.25-02 | 1 7E-01 | | hc | |
| Ce-141 | 6E-03 +/- | 3.8E-02 | 3.8E-02 | 1 3E-01 | | | |
| Ce-144 | -1 3E-01 +/- | 1.3E-01 | 1.3E-01 | 4 7E-01 | | | |
| Co-57 | 1E-03 +/- | 1.4E-02 | 1.4E-02 | 5 1E-02 | | | |
| Co-58 | -5E-03 +/- | 2.1 E-02 | 2 1E-02 | 8.5E-02 | | | |
| Co-60 | 6E-03 +/- | 2.1E-02 | 2.1E-02 | B 2E-02 | | | |
| Cr-51 | -3.6E-01 +/- | 2 4E-01 | 2.4E-01 | 9 3E-01 | | | |
| Cs-134 | -1 5E-02 +/- | 2.3E-02 | 2 3E-02 | 8.8E-02 | 1.5E-01 | | |
| Cs-137 | -1.4E-02 +/ | 2 2E-02 | 2 2E-02 | 8 8E-02 | 1.8E-01 | | |
| Fe-59 | 2.2 E-0 2 +/- | 5.1E-02 | 5 1E-02 | 1.9E-01 | | | |
| I-131 | 2 8E-02 +/- | 7.2E-02 | 7 2E-02 | 2.6E-01 | | | |
| K-40 | 1 025E+01 +/- | 8.0E-01 | 9.5E-01 | 8 9E-01 | | bc | |
| La-140 | -2.6E-02 +/- | 7.4E-02 | 7.4E-02 | 2.9E-01 | | | |
| Mn-54 | -2.6E-02 +/- | 2.0E-02 | 2.0E-02 | 8.6E-02 | | | |
| Nb-95 | -5.7E-02 +/- | 2.9E-02 | 2.9E-02 | 1 2E-01 | | | |
| Pb-214 | 3E-01 +/- | 5.9E-02 | 6.1E-02 | 1 9E-01 | | bc | |
| Ru-103 | 0E+00 +/- | 2.2E-02 | 2 2E-02 | 8 5E-02 | | | |
| Ru-106 | -2.8E-01 +/- | 1.6E-0 1 | 1.6E-01 | 7 2E-01 | | | |
| Sb-124 | -1.7E-02 +/- | 5 5E-02 | 5.5E-02 | 2 4E-01 | | | |
| Sb-125 | 7 8E-02 +/- | 6 2E-02 | 6.2E-02 | 2 1E-01 | | | |
| Se-75 | -4.8E-02 +/- | 2 6E-02 | 2.6E-02 | 1.0E-01 | | | |
| Zn-65 | -1.53E 01 +/- | 6.2E-02 | 6 3E-02 | 2.7E-01 | | | |
| Zr-95 | -5.4E-02 +/- | 3 1E-02 | 3.1E-02 | 1 7E-01 | | | |
| | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

di/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|------------------------------------|---|---|------|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | | |

Page 1 of 1

Approved by

E. M. Moreno Sample Control and Measurements Lead

¢:



29 Research Drive Westboro, MA 01581 508-898-9970

| • . | | | | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte NC 28285 |

DUP OF #L9126-15

Lab. Sample No. L9126-25 Reference Date 04/15/05

Analysis Date 04/25/05

Client ID

Product GAMMA SPECTROMETRY

Matrix Sludge (Dry)

| Nuclide | Activity Concentration
de +/- 1 - Sigma | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | | |
|--------------|--|-------------|-----------------|------------------|------------------|---------|----|--|
| | (1 | ₽Ci/g |) | (pCi/g) | (pCl/g) | (pCi/g) | | |
|
AcTh-228 | 5 2E-01 | +/- | 1.0E-01 | 1.0E-01 | 3 3E-01 | | bc | |
| Ag-108m | 2.3 E -02 | +/- | 1.6E-02 | 1 6E-02 | 5 2E-02 | | | |
| Ag-110m | 1E-02 | +/- | 2.8E-02 | 2 8 E -02 | 1 0E-01 | | | |
| Ba-140 | -4E-02 | +/- | 1.2E-01 | 1 2E-01 | 4 4E-01 | | | |
| Be-7 | 2E-01 | +/- | 1 8E-01 | 1.8E-01 | 6 2E-01 | | | |
| Bi-214 | 3.2E-01 | +/- | 6.4E-02 | 6 6E-02 | 1.7E-01 | | bc | |
| Ce-141 | -2E-03 | +/- | 3 0E-02 | 3.0E-02 | 1 1E-01 | | | |
| Ce-144 | -6E-02 | +/- | 1.0E-01 | 1 0E-01 | 3 7E-01 | | | |
| Co-57 | 1E-03 | +/- | 1.3E-02 | 1.3E-02 | 4 4E-02 | | | |
| Co-58 | 0E+00 | +/- | 2.0E-02 | 2.0E-02 | 7 7E-02 | | | |
| Co-60 | 2E-03 | +/- | 1.8E-02 | 1.8E-02 | 7 2E-02 | | | |
| Cr-51 | 2.8E-01 | +/- | 1.9 E-01 | 1.9E-01 | 6 3E-01 | | | |
| Cs-134 | -2.8E-02 | +/- | 2.0E-02 | 2.0E-02 | 7 9 E-0 2 | 1 5E-01 | | |
| Cs-137 | 2.5E-02 | +/- | 2.4E-02 | 2 4E-02 | 8 1E-02 | 1.8E-01 | | |
| Fe-59 | 9 1E-02 | +/- | 4 5E-02 | 4 5E-02 | 1 4E-01 | | | |
| I-131 | 0E+00 | +/- | 3.8E-02 | 3.8E-02 | 1 4E-01 | | | |
| K-4 0 | 1 034E+01 | +/- | 7.9E-01 | 9 4E-01 | 1.1E+00 | | bc | |
| La-140 | -1 8E-02 | +/- | 5.7 E-02 | 5.7E-02 | 2 1E-01 | | | |
| Mn-54 | 1 1E-02 | +/- | 2 2E-02 | 2 2E-02 | 7 9E-02 | | | |
| Nb-95 | -3E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.2E-02 | | | |
| Pb-214 | 2 85E-01 | +/- | 5.4E-02 | 5 5E-02 | 1.8E-01 | | bc | |
| Ru-103 | 1.9E-02 | +/- | 1.8 E-02 | 1 8E-02 | 6.1E-02 | | | |
| Ru-106 | 8E-02 | +/- | 2.1E-01 | 2 1E-01 | 7.5E-01 | | | |
| Sb-124 | -1.4E-02 | +/- | 3.8E-02 | 3.6E-02 | 1.7E-01 | | | |
| Sb-125 | 7E-03 | +/ - | 4 5E-02 | 4.5E-02 | 1 7E-01 | | | |
| Se-75 | -7E-03 | +/- | 2 2E-02 | 2 2E-02 | 8 1E-02 | | | |
| Zn-65 | -5.4E-02 | +/- | 3 6E-02 | 3 6E-02 | 1.6E-01 | | | |
| Zr-95 | 6E-03 | +/- | 3 0E-02 | 3 0E-02 | 1 2E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| M | 41 | L | ED | |
|-----|----|---|------|--|
| MAY | 0 | S | 2005 | |

MAMALOME ANP

Page 1 of 1

Approved by

(E<sup>‡</sup>M Moreno Sample Control and Measurements Lead

C:



29 Research Drive Westboro, MA 01581

508-898-9970

| 0 | | | Descrit Dete | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. ±9126-19 Cilent ID Reference Date 04/12/05 Analysis

Analysis Date 04/25/05

SA010

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

|
Nuclide | Activity Concentration
+/- 1 - Sigma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | <u></u> |
|-------------|---|----------------|-----------------|-----------------|-------|---------|
|
 | (pCl/g) | (pCl/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2 013E+00 +/- 5 3E-02 | 1.1E-01 | 2.1E-01 | | bc | |
| Ag-108m | -1.47E-02 +/- 99E-03 | 9.9E-03 | 3.5E-02 | | | |
| Ag-110m | 2E-03 +/- 1.5E-02 | 1 5E-02 | 5.3E-02 | | | |
| Ba-140 | -3E-02 +/- 6.8E-02 | 6.8E-02 | 2.4E-01 | | | |
| Be-7 | 51E-01 +/- 1.3E-01 | 1.3E-01 | 4 2E-01 | | bc | |
| Bi-214 | 7.7E-01 +/- 37E-02 | 5.3E-02 | 1 1E-01 | | bc | |
| Ce-141 | 2.7E-02 +/- 1.7E-02 | 1.7E-02 | 5 7E-02 | | | |
| Ce-144 | -1.8E-01 +/· 1 1E-01 | 1.1E-01 | 3 6E-01 | | | |
| Co-57 | -2 4E-03 +/·· 7 0E-03 | 7 0E-03 | 2.4E-02 | | | |
| Co-58 | -1E-03 +/- 1.2E-02 | 1 2E-02 | 4 1E-02 | | | |
| Co-60 | -5E-03 +/- 1 2E-02 | 1.2E-02 | 4 4E-02 | | | |
| Cr-51 | -2.3E-01 +/- 1.2E-01 | 1.2E-01 | 4.3E-01 | | | |
| Cs-134 | 4E-03 +/- 1.3E-02 | 1 3E-02 | 4.3E-02 | 1 5E-01 | | |
| Cs-137 | 5E-03 +/- 1.3E-02 | 1.3E-02 | 4 4E-02 | 1 8E-01 | | |
| Fe-59 | -4.6 E-02 +/- 2.5E-02 | 2 5E-02 | 9 2E-02 | | | |
| 1-131 | 24E-02 +/- 34E-02 | 3.4E-02 | 1 1E-01 | | | |
| K-40 | 1.14E+00 +/- 2.2E-01 | 2.3E-01 | 6 6E-01 | | bc | |
| La-140 | 3E-03 +/- 4.1E-02 | 4.1E-02 | 1 4E-01 | | | |
| Mn-54 | 3.9E-02 +/- 1.3E-02 | 1.3E-02 | 4 1E-02 | | | |
| Nb-95 | 4.6E-02 +/- 1.9E-02 | 1 9E-02 | 6 0E-02 | | | |
| Pb-214 | 7 97E-01 +/- 3 3E-02 | 5 2E-02 | 1 1E-01 | | bc | |
| Ru-103 | -1.1E-02 +/- 1.3E-02 | 1 3E-02 | 4.4E-02 | | | |
| Ru 106 | 4E-02 +/- 1 2E-01 | 1.2E-01 | 4.0E-01 | | | |
| Sb-124 | 3.3E-02 +/- 2.8E-02 | 2.8E-02 | 9.3E-02 | | | |
| Sb-125 | 5 5E-02 +/- 3.1E-02 | 3 2E-02 | 1 0E-01 | | | |
| Se 75 | -1.2E-02 +/- 1.3E-02 | 1.3E-02 | 4 4E-02 | | | |
| Zn-65 | -7.5E-02 +/- 5.0E-02 | 5.0E-02 | 1 7E-01 | | | |
| Zr-95 | 5E-03 +/- 2.5E-02 | 2 5E-02 | 8.4E-02 | | | |
| | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

BI/Pb-214 results are qualitative only.



Page 1 of 1

Approved by

(e) M Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| • | | | Demand Date | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. L9126-11 **Reference Date** 04/12/05

Client ID Analysis Date 04/25/05

BLDG21

Product GAMMA SPECTROMETRY Sludge (Dry) Matrix

| Nuclide | Activity Concentration
+/- 1 - Sigma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|--------------------|---|------------------|-----------------|-----------------|-------|--|
| | (pCl/g) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.25E-01 +/- 5.1E-02 | 5.3E-02 | 1.7 E-01 | | bc | |
| Ag-108m | -1.43E-02 +/ 8.5E-03 | 8.5E-03 | 3.3E-02 | | | |
| Ag-110m | -8E-03 +/- 1.5E-02 | 1.5E-02 | 5.6E-02 | | | |
| Ba-140 | 1 1E-02 +/- 5.9E-02 | 6.9E-02 | 2.5E-01 | | | |
| Be-7 | -9 4E-02 +/- 9.3E-02 | 9.3E-02 | 3.5E-01 | | | |
| Bi-214 | 3.48E-01 +/- 3.0E-02 | 3.5E-02 | 5 9E-02 | | bc | |
| Ce-141 | 1.3E-02 +/- 1.9E-02 | 1.9E-02 | 6 5E-02 | | | |
| Ce-144 | 2.7E-02 +/- 7.1E-02 | 7.1E-02 | 2 4E-01 | | | |
| Go-57 | 1 46E-02 +/- 8 7E-03 | 8.7 E -03 | 2.8E-02 | | | |
| Co-58 | 6E-03 +/- 1 1E-02 | 1.1E-02 | 3 8E-02 | | | |
| Co-60 | -5E-03 +/- 1.2E-02 | 1.2E-02 | 4 7E-02 | | | |
| Cr-51 | 9E-02 +/- 1.1E-01 | 1 1E-01 | 3.6E-01 | | | |
| Cs-134 | -6E-03 +/- 1 1E-02 | 1 1E-02 | 3.9E-02 | 1.5E-01 | | |
| Cs-137 | -5E-03 +/- 1.2E-02 | 1 2E-02 | 4.3E-02 | 1.8E-01 | | |
| Fe-59 | -1E-02 +/- 26E-02 | 2.6E-02 | 9.8E-02 | | | |
| I-131 | 3E-03 +/- 2.9E-02 | 2 9E-02 | 1.0E-01 | | | |
| K-40 | 1.167E+01 +/- 5.0E-01 | 7.7E-01 | 5.2E-01 | | bc | |
| La-140 | -2.1E-02 +/- 3.4E-02 | 3.4E-02 | 1 3E-01 | | | |
| Mn-54 | 1.6E+02 +/- 1.2E-02 | 1.2E-02 | 4 0E-02 | | | |
| Nb-95 | 2.3E-02 +/- 1.5E-02 | 1.6E-02 | 5 1E-02 | | | |
| Pb-214 | 4 15E-01 +/- 3 1E-02 | 3.8E-02 | 8 5E-02 | | bc | |
| Ru-103 | 5E-03 +/- 11E-02 | 1.1E-02 | 4.0E-02 | | | |
| Ru-106 | -1E-02 +/- 9.9E-02 | 9 9E-02 | 3 6E-01 | | | |
| Sb-124 | -1.7E-02 +/- 1.8E-02 | 1.8E-02 | 8 3E-02 | | | |
| Sb-125 | 0E+00 +/- 2.7E-02 | 2.7E-02 | 9.6E-02 | | | |
| S e -75 | -1 3E-02 +/- 1.4E-02 | 1 4E-02 | 5.0E-02 | | | |
| Zn-65 | 3.3E-02 +/- 4.7E-02 | 4.7E-02 | 1.6E-01 | | | |
| Zr-95 | -3.6E-02 +/- 1.8E-02 | 1 8E-02 | 7 8E-02 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

BI/Pb-214 results are qualitative only.



Page 1 of 1

Approved by ମ୍ବା

EM. Moreno Sample Control and Measurements Lead

C;

Rome New York

1/21/2005

Page C-8 of 8

Survey Package Appendix C – Survey Results

| Survey Package: | E3000 201C1 | Package: | System |
|-------------------|--|--------------|------------|
| Survey Area Name: | Sanitary Sewer System | | |
| Survey Unit Name: | Sanitary Sewer System Section Down Stream of H | Building 104 | Operations |

Section 7.0 Sample Analysis Results – Alpha Spectroscopy \_\_\_\_\_Pages

| Analysis Report |
|-----------------|
| - Jratory A |
| Environmental [|

AREVA

29 Research Drive Westboro, MA 01581 508-898-9970

Product RA-226 (A)

05/12/05 04/14/05

Report Date Receipt Date

Customer

Framatome ANP Inc FEDERAL GRP Framatome ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

| Attn: J | ohn McGehee & Dan McGee | | | | | | | | |
|-----------|---|------------------------------------|-----------------------|-------------------------|---------------------------------------|------------------|----------|------------|--------------------------------|
| | | Reference | Anatysis | | Activity Concentration
+/- 1-Sigma | 1 Sioma | Measured | Required | |
| rsn | Client ID & Description | Date | Date | Nuclide | (bCI/g) | (pCi/g) | (pCI/g) | (pCI/g) | Reporting
Flags Level Ratio |
| Studge (D | ĿĽ | | | | | | | | |
| L9126-01 | ST001 | 04/11/2005 | 05/09/2005 | Ra-226 | 1.9E-01 +/- 1.1E-01 | 1.1E-01 | 2.1E-01 | 7.0E-01 | |
| L9126-02 | ST002 | 04/11/2005 | 05/09/2005 | Ra-226 | 1.28E-01 +/- 9.8E-02 | 9,9E-02 | 2.8E-01 | 7.0E-01 | |
| L9126-03 | ST003 | 04/11/2005 | 05/09/2005 | Ra-226 | 5.9E-02 +/- 6.3E-02 | 6.3E-02 | 2.36-01 | 7.0E-01 | |
| L9126-04 | STOD4 | 04/11/2005 | 05/10/2005 | Ra-226 | 2.5E-01 +/- 1.2E-01 | 1.3E-01 | 1,9E-01 | 7.0E-01 | |
| L9126-05 | ST005 | 04/11/2005 | 05/09/2005 | Ra-226 | 2.4E-01 +/- 1.2E-01 | 1.2E-01 | 1.9E-01 | 7.0E-01 | |
| L9126-06 | ST007 | 04/10/2005 | 05/09/2005 | Ra-226 | 3.9E-01 +/- 1.7E-01 | 1.7E-01 | 3.2E-01 | 7.06-01 | |
| L9126-07 | ST011 | 04/09/2005 | 05/09/2005 | Ra-226 | 1.53E-01 +/- 8.9E-02 | 8.9E-02 | 1.6E-01 | 7.0E-01 | |
| L9126-08 | ST012 | 04/12/2005 | 05/09/2005 | Ra-226 | 3.4E-01 +/- 1.7E-01 | 1.7E-01 | 2.7E-01 | 7.0E-01 | |
| L9126-09 | ST013-1 | 04/11/2005 | 05/10/2005 | Ra-226 | 9.2E-01 +/- 2.7E-01 | 2.7E-01 | 3.1E-01 | 7.0E-01 | ٩ |
| L9126-10 | ST013-2 | 04/11/2005 | 05/09/2005 | Ra-226 | 1.04E+00 +/- 3.5E-01 | 3.5E-01 | 3.5E-01 | 7.0E-01 | |
| L9126-11 | BLDG21 | 04/12/2005 | 05/09/2005 | Ra-226 | 3.1E-01 +/~ 2.2E-01 | 2.2E-01 | 4.8E-01 | 7.0E-01 | |
| L9126-12 | SA002 | 04/12/2005 | 05/10/2005 | Ra-226 | 1.9E+00 +/- 4.8E-01 | 4.9E-01 | 3.9E-01 | 7.05-01 | .o |
| L9126-13 | SA003 | 04/12/2005 | 05/10/2005 | Ra-226 | 1.1E-01 +/- 1.1E-01 | 1.1E-01 | 3.7E-01 | 7.06-01 | |
| Flags: | a The measured MDC is greater than th
b The activity concentration is greater th | he required MD
than three times | IC.
s its one sigm | a counting uncertainty. | | | July 2 | Approve | d by
US |
| | | | | | MAILE | 0 | Sample | E. M. More | no
asurements Lead |
| ប | | | | | MAY 12 | 2005 | | | |
| | | | | Page 1 of 1 | FRAMATOM
ENVIRONMEN | E ANP
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29 Research Dríve Westboro, MA 01581 508-898-9970

Product RA-226 (A)

05/12/05 04/14/05

Report Date Receipt Date

Customer Framatome ANP Inc FEDERAL GRP Framatome ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

Attn: John McGehee & Don McGee

| | | Reference | Analysis | | Activity Conce
+/- 1-S | entration
Sigma | TPU
1 Sioma | Measured
Minc | Required | |
|-----------|---|------------------|----------------|-------------------------|---------------------------|--------------------|----------------|------------------|---------------------------------|--------------------------------|
| LSN | Cilent ID & Description | Date | Date | Nuclide | (pCI/ | 6 | (pCI/g) | (Brid) | (pCi/g) | Reporting
Flags Level Ratio |
| Sludge (D | R | | | | | | | | | |
| L9126-14 | SA004 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.78E+00 +/- | 5.8E-01 | 6.1E-01 | 4.0E-01 | 7.06-01 | ٩ |
| L9126-15 | SA005 | 04/11/2005 | 05/10/2005 | Ra-226 | 7.8E-02 +/- | 9.1E-02 | 9.1E-02 | 3.6E-01 | 7.0Ë-01 | |
| L9126-16 | SA006 | 04/10/2005 | 05/10/2005 | Ra-226 | 3.3E-01 +/- | 2.0E-01 | 2.0E-D1 | 4.0E-01 | 7.06-01 | |
| L9126-17 | SA007 | 04/10/2005 | 05/10/2005 | Ra-226 | 1.7E-01 +/- | 1.2E-01 | 1.2E-01 | 3.1E-01 | 7.06-01 | |
| L9126-18 | SA009 | 04/09/2005 | 05/10/2005 | Ra-226 | 4,9E-01 +/- | 2.9E-01 | 2.9E-01 | 5.9E-01 | 7.06-01 | |
| L9126-19 | SAD10 | 04/12/2005 | 05/10/2005 | Ra-226 | 1.03E+00 +/- | 2.5E-01 | 2.6E-01 | 1.9E-01 | 7.08-01 | ٩ |
| L9126-20 | BKG04 | 04/08/2005 | 05/10/2005 | Ra-226 | 4.3E-D1 +/- | 1.8E-01 | 1.8E-01 | 2.8E-01 | 7.0E-01 | |
| L9126-21 | BKG06 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.9E-01 +/- | 1,4E-01 | 1.5E-01 | 2.2E-01 | 7.05-01 | |
| L9126-22 | BKG01 | 04/13/2005 | 05/10/2005 | Ra-226 | 2.9E-01 +/- | 1.5E-01 | 1.5E-01 | 2.4E-01 | 7.0E-01 | |
| L9126-23 | SPLIT OF #L.9126-03 | 04/15/2005 | 05/10/2005 | Ra-226 | -1.1E-03 +/- | 1.1E-03 | 1.1E-03 | 3.26-01 | 7.0E-01 | |
| L9126-24 | SPLIT OF #L8126-06 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.596-01 +/- | 9.3E-02 | 9.3E-02 | 1.85-01 | 7.0E-01 | |
| L9126-25 | DUP OF #L9126-15 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.6E-01 +/- | 1.2E-01 | 1.2E-01 | 3.3E-01 | 7.0E-01 | |
| L9126-26 | DUP OF #L9126-17 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.18E-01 +/- | 8.4E-02 | 8.4E-02 | 1.8E-01 | 7.06-01 | |
| Flags: | a The measured MDC is greater than th | Te required MD | ្រ
្ | | | | | | Approved | by |
| | b The activity concentration is greater the | than three times | s its one sigm | a counting uncertainty. | | | | hing | Levus S | 11/05 |
| | | | | | | MAIL | ED | Sample C | C E. M. Morer
ontrol and Mea | no
tsurements Laad |
| ö | | | | | | MAY 12 | 2005 | | | |

FRAMATOME ANP ENVIRONMENTAL LAB

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 10.0 Framatome ANP Environmental Laboratory Sample Analysis Results

Product RA-226 (A)



29 Research Drive Westboro, MA 01581 508-898-9970

Customer

FEDERAL GRP Framatome ANP Inc Framatome ANP Federal D&D Group

a The measured MDC is greater than the required MDC.

400 South Tryon Street Charlotte, NC 28285

Attn: John McGehee & Don McGee

Activity Concentration TPU Measured Required Reference Analysis +/-1-Sigma 1 Sigma MDC MDC Reporting LSN (pCi/g) (pCi/g) (pCi/g) (pCi/g) Flags Level Ratio Client ID & Description Date Date Nuclide Sludge (Dry) 04/11/2005 05/09/2005 Ra-226 1.9E-01 +/- 1.1E-01 L9126-01 ST001 1.1E-01 2.1E-01 7.0E-01 04/11/2005 05/09/2005 L9126-02 ST002 Ra-226 1.28E-01 +/- 9.8E-02 9.9E-02 2.8E-01 7.0E-01 L9126-03 ST003 04/11/2005 05/09/2005 Ra-226 5.9E-02 +/- 6.3E-02 6.3E-02 2.3E-01 7.0E-01 05/10/2005 Ra-226 04/11/2005 2.5E-01 +/- 1.2E-01 1.9E-01 7.0E-01 L9126-04 ST004 1.3E-01 04/11/2005 05/09/2005 Ra-226 2.4E-01 +/- 1.2E-01 1.9E-01 7.0E-01 L9126-05 ST005 1.2E-01 L9126-06 ST007 04/10/2005 05/09/2005 Ra-226 3.9E-01 +/- 1.7E-01 1.7E-01 3.2E-01 7.0E-01 04/09/2005 05/09/2005 Ra-226 1.53E-01 +/- 8.9E-02 8.9E-02 1.6E-01 7.0E-01 L9126-07 ST011 04/12/2005 05/09/2005 Ra-226 3.4E-01 +/- 1.7E-01 2.7E-01 L9126-08 ST012 1.7E-01 7.0E-01 04/11/2005 05/10/2005 Ra-226 9.2E-01 +/- 2.7E-01 3.1E-01 7.0E-01 L9126-09 ST013-1 2.7E-01 b 04/11/2005 05/09/2005 Ra-226 L9126-10 ST013-2 1.04E+00 +/- 3.5E-01 3.5E-01 3.5E-01 7.0E-01 04/12/2005 05/09/2005 Ra-226 3.1E-01 +/- 2.2E-01 2.2E-01 4.8E-01 L9126-11 BLDG21 7.0E-01 L9126-12 SA002 04/12/2005 05/10/2005 Ra-226 1.9E+00 +/- 4.8E-01 4.9E-01 3.9E-01 7.0E-01 b L9126-13 SA003 04/12/2005 05/10/2005 Ra-226 1.1E-01 +/- 1.1E-01 1.1E-01 3.7E-01 7.0E-01

Approved by 9 Will reus b The activity concentration is greater than three times its one sigma counting uncertainty. E. M. Moreno MAILED Sample Control and Measurements Lead MAY 1 2 2005 FRAMATOME ANP Page 1 of 1 ENVIRONMENTAL LAB

Report Date

Receipt Date

05/12/05

04/14/05

C:

Flags:



29 Research Drive Westboro, MA 01581 508-898-9970

Customer

| | P | rod |
|--|---|-----|

- Report updated to include corrected sample description for L9126-25 and L9126-26

Product RA-226 (A)

Report Date 05/12/05 Receipt Date 04/14/05

FEDERAL GRP Framatome ANP Inc Framatome ANP Federal D&D Group 400 South Tryon Street Charlotte, NC 28285

Attn: John McGehee & Don McGee

| | | Reference | Analysis | | Activity (
+/- | Concentration
1-Sigma | TPU
1 Sigma | Measured
MDC | Required
MDC | Describer |
|------------|-------------------------|------------|------------|---------|-------------------|--------------------------|----------------|------------------|-----------------|-------------------|
| LSN | Client ID & Description | Date | Date | Nuclide | | (pCi/g) | (pCi/g) | (pCi/g) | (pCi/g) | Flags Level Ratio |
| Sludge (Di |
(y | | | | | | | | | |
| L9126-14 | SA004 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.79E+0 | 0 +/- 5.8E-01 | 6.1E-01 | 4.0E-01 | 7.0E-01 | b |
| L9126-15 | SA005 | 04/11/2005 | 05/10/2005 | Ra-226 | 7.8E-0 | 2 +/- 9.1E-02 | 9.1E-02 | 3.6E-01 | 7.0E-01 | |
| L9126-16 | SA006 | 04/10/2005 | 05/10/2005 | Ra-226 | 3.3E-0 | 1 +/- 2.0E-01 | 2.0E-01 | 4.0E-01 | 7.0E-01 | |
| L9126-17 | SA007 | 04/10/2005 | 05/10/2005 | Ra-226 | 1.7E-0 | 1 +/- 1.2E-01 | 1.2E-01 | 3.1E-01 | 7.0E-01 | |
| L9126-18 | SA009 | 04/09/2005 | 05/10/2005 | Ra-226 | 4.9E-0 | 1 +/- 2.9E-01 | 2.9E-01 | 5.9E-01 | 7.0E-01 | |
| L9126-19 | SA010 | 04/12/2005 | 05/10/2005 | Ra-226 | 1.03E+0 | 0 +/- 2.5E-01 | 2.6E-01 | 1.9 E-0 1 | 7.0E-01 | Ь |
| L9126-20 | BKG04 | 04/08/2005 | 05/10/2005 | Ra-226 | 4.3E-0 | 1 +/- 1.8E-01 | 1.8E-01 | 2.8E-01 | 7.0E-01 | |
| L9126-21 | BKG06 | 04/12/2005 | 05/10/2005 | Ra-226 | 2.9E-0 | 1 +/- 1.4E- 01 | 1.5E-01 | 2.2E-01 | 7.0E-01 | |
| L9126-22 | BKG01 | 04/13/2005 | 05/10/2005 | Ra-226 | 2.9E-0 | 1 +/- 1.5E-01 | 1.5E-01 | 2.4E-01 | 7.0E-01 | |
| L9126-23 | SPLIT OF #L9126-03 | 04/15/2005 | 05/10/2005 | Ra-226 | -1.1E-0 | 3 +/- 1.1E-03 | 1.1E-03 | 3.2E-01 | 7.0E-01 | |
| L9126-24 | SPLIT OF #L9126-06 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.59E-0 | 1 +/- 9.3E-02 | 9.3E-02 | 1.8E-01 | 7.0E-01 | |
| L9126-25 | SPLIT OF #L9126-15 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.6E-0 | 1 +/- 1.2E-01 | 1.2E-01 | 3.3E-01 | 7.0E-01 | |
| L9126-26 | SPLIT OF #L9126-17 | 04/15/2005 | 05/10/2005 | Ra-226 | 1.18E-0 | 1 +/- 8.4E-02 | 8.4E-02 | 1.8E-01 | 7.0E-01 | |
| | | | | | | | | | | |

a The measured MDC is greater than the required MDC. Flags: b The activity concentration is greater than three times its one sigma counting uncertainty.

Approved by 9 Uluno E. M. Moreno Sample Control and Measurements Lead MAILED MAY 1 2 2005 FRAMATOME ANP ENVIRONMENTAL LAB



Customer

29 Research Drive Westboro, MA 01581 508-898-9970

| Framatome ANP Inc | FEDERAL GRP | Product | RA-226 (A) | | Report Date | 05/13/05 |
|------------------------------|-------------|---------|------------|------|--------------|----------|
| Framatome ANP Federal D&D G | roup | | | | Receipt Date | 04/14/05 |
| 400 South Tryon Street | | | | | | |
| Charlotte, NC 28285 | | | | | | |
| Attn: John McGehee & Don McG | ee | | | | | |
| | | | |
 |
 | |

| | | Reference | Analysis | | Activity
+/- | Concentration
1-Sigma | TPU
1 Sigma | Measured
MDC | Required
MDC | Reporting |
|------------------|-------------------------|------------|------------|---------|-----------------|--------------------------|----------------|-----------------|-----------------|-------------------|
| LSN | Client ID & Description | Date | Date | Nuclide | | (pCi/g) | (pCi/g) | (pCi/g) | (pCl/g) | Flags Level Ratio |
| <u>Siudge (D</u> | <u>(v</u> | | | | | | | | | |
| L9126-27 | DUP OF #L9126-15 | 04/11/2005 | 05/12/2005 | Ra-226 | 3.5E-0 | 01 +/- 1.8E-01 | 1.8E-01 | 2.7E-01 | 7.0E-01 | |
| L9126-28 | DUP OF #L9126-17 | 04/10/2005 | 05/12/2005 | Ra-226 | 3.5E-0 | 01 +/- 1.8E-01 | 1.8E-01 | 3.6E-01 | 7.0E-01 | |

Flags: a The measured MDC is greater than the required MDC.

b The activity concentration is greater than three times its one sigma counting uncertainty.

Approved by

9 Millions 13/00 2 E. M. Moreno Sample Control and Measurements Lead

MAILED

MAY 1 3 2005

FRAMATOME ANP ENVIRONMENTAL LAB

C:



29 Research Drive Westboro, MA 01581 508-898-9970

| | | | D. Desert Dete | 05 100 105 | Framatome ANP Inc |
|-----------|--------------------------|-------------|----------------|------------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

DUP OF #L9126-15

Lab. Sample No. **Reference Date**

L9126-25

04/15/05

Analysis Date 04/25/05

Client ID

Product GAMMA SPECTROMETRY Matrix

Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Cond
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|------------------|----------------|------------------|-----------------|-------|--|
| | (p | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 5.2E-01 | +/- | 1.0E-01 | 1.0E-01 | 3.3E-01 | | bc | |
| Ag-108m | 2.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.2E-02 | | | |
| Ag-110m | 1E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.0E-01 | | | |
| Ba-140 | -4E-02 | +/- | 1.2E-01 | 1.2E-01 | 4.4E-01 | | | |
| Be-7 | 2E-01 | +/- | 1.8E-01 | 1.8E-01 | 6.2E-01 | | | |
| Bi-214 | 3.2E-01 | +/- | 6.4E-02 | 6.6E-02 | 1.7 E -01 | | bc | |
| Ce-141 | -2E-03 | +/- | 3.0E-02 | 3.0E-02 | 1.1E-01 | | | |
| Ce-144 | -6E-02 | +/- | 1.0E-01 | 1.0E-01 | 3.7E-01 | | | |
| Co-57 | 1E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Co-58 | 0E+00 | +/- | 2.0E-02 | 2.0E-02 | 7.7E-02 | | | |
| Co-60 | 2E-03 | +/- | 1.8E-02 | 1.8E-02 | 7.2E-02 | | | |
| Cr-51 | 2.8E-01 | +/- | 1.9 E- 01 | 1.9E-01 | 6.3E-01 | | | |
| Cs-134 | -2.8E-02 | +/- | 2.0E-02 | 2.0E-02 | 7.9E-02 | 1.5E-01 | | |
| Cs-137 | 2.5E-02 | +/- | 2.4E-02 | 2.4E-02 | 8.1E-02 | 1.8E-01 | | |
| Fe-59 | 9.1E-02 | +/- | 4.5E-02 | 4.5E-02 | 1.4E-01 | | | |
| I-131 | 0E+00 | +/- | 3.8E-02 | 3.8E-02 | 1.4E-01 | | | |
| K-40 | 1.034E+01 | +/- | 7.9E-01 | 9.4E-01 | 1.1E+00 | | bc | |
| La-140 | -1.8E-02 | +/- | 5.7E-02 | 5.7E-02 | 2.1E-01 | | | |
| Mn-54 | 1.1E-02 | +/- | 2.2E-02 | 2.2E-02 | 7.9E-02 | | | |
| Nb-95 | -3E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.2E-02 | | | |
| Pb-214 | 2.85E-01 | +/- | 5.4E-02 | 5.5E-02 | 1.8E-01 | | bc | |
| Ru-103 | 1.9E-02 | +/- | 1.8E-02 | 1.8E-02 | 6.1E-02 | | | |
| Ru-106 | 8E-02 | +/- | 2.1E-01 | 2.1E-01 | 7.5E-01 | | | |
| Sb-124 | -1.4E-02 | +/- | 3.8E-02 | 3.8E-02 | 1.7E-01 | | | |
| Sb-125 | 7E-03 | +/- | 4.5E-02 | 4.5E-02 | 1.7E-01 | | | |
| Se-75 | -7E-03 | +/- | 2.2E-02 | 2.2E-02 | 8.1E-02 | | | |
| Zn-65 | -5.4E-02 | +/- | 3.6E-02 | 3.6E-02 | 1.6E-01 | | | |
| Zr-95 | 6E-03 | +/- | 3.0E-02 | 3.0E-02 | 1.2E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | | |
|--------|----|--------------------|--|--|--|--|--|--|--|
| MAY | 08 | 2005 | | | | | | | |
| MAN | | AE ANP
NTAL LAB | | | | | | | |

Approved by

E.M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| O | | | Banart Data | 05/06/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-01

04/11/05

Client ID ST001 Analysis Date 04/25/05

ST001

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Cond
- Si | centration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|--------------|-------------------|----------------|-----------------|-----------------|-------|--|
| | a) | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 4.54E-01 | +/- | 4.2E-02 | 4.7E-02 | 1.6E-01 | | bc | |
| Ag-108m | 1.17E-02 | +/- | 7.9E-03 | 7.9E-03 | 2.6E-02 | | | |
| Ag-110m | 1.4E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.8E-02 | | | |
| Ba-140 | -1.13E-01 | +/- | 7.3E-02 | 7.3E-02 | 2.7E-01 | | | |
| Be-7 | 1.62E+00 | +/- | 1.7E-01 | 1.9E-01 | 4.3E-01 | | bc | |
| Bi-214 | 3.3E-01 | +/- | 3.1E-02 | 3.5E-02 | 8.8E-02 | | bc | |
| Ce-141 | 3E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.6E-02 | | | |
| Ce-144 | 9.7E-02 | +/- | 6.6E-02 | 6.6E-02 | 2.2E-01 | | | |
| Co-57 | 4E-04 | +/- | 8.3E-03 | 8.3E-03 | 2.8E-02 | | | |
| Co-58 | 8E-03 | +/- | 9.9E-03 | 9.9E-03 | 3.4E-02 | | | |
| Co-60 | -6.9E-03 | +/- | 7.7E-03 | 7.7E-03 | 3.1E-02 | | | |
| Cr-51 | 2E-02 | +/- | 1. 1E- 01 | 1.1E-01 | 3.8E-01 | | | |
| Cs-134 | -3E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.3E-01 | 1.5E-01 | | |
| Cs-137 | 7.6E-02 | +/- | 1.6E-02 | 1.7E-02 | 4.8E-02 | 1.8E-01 | bc | |
| Fe-59 | 2E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.5E-02 | | | |
| I-131 | -3.3E-02 | +/- | 3.1E-02 | 3.1E-02 | 1.1E-01 | | | |
| K-40 | 1.267E+01 | +/- | 4.5E-01 | 7.8E-01 | 3.9E-01 | | bc | |
| La-140 | -1.7E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.3E-01 | | | |
| Mn-54 | 1.1E-02 | +/- | 1.0E-02 | 1.0E-02 | 3.5E-02 | | | |
| Nb-95 | -2.3E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.0E-02 | | | |
| Pb-214 | 3.84E-01 | +/- | 2.9E-02 | 3.5E-02 | 8.8E-02 | | bc | |
| Ru-103 | 9E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.5E-02 | | | |
| Ru-106 | -1.24E-01 | +/- | 8.5E-02 | 8.5E-02 | 3.2E-01 | | | |
| Sb-124 | -5.1E-02 | +/- | 1.9E-02 | 1.9E-02 | 9.0E-02 | | | |
| Sb-125 | 3.4E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.2E-02 | | | |
| Se-75 | -1.2E-02 | +/- | 1.5E-02 | 1.5E-02 | 5.2E-02 | | | |
| Zn-65 | 2.7E-02 | +/- | 5.0E-02 | 5.0E-02 | 1.7E-01 | | | |
| Zr-95 | -1E-02 | +/- | 1.5E-02 | 1.5E-02 | 6.5E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | | |
|--------|---------------|---|------|--|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | | |
| FRAM | FRAMATOME ANP | | | | | | | | |

Approved by 91111/2000 ٢

Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581 508-898-9970

 Customer
 Framatome ANP Inc
 FEDERAL GRP
 Report Date
 05/06/05
 Framatome ANP Inc
 Framatome ANP Inc

 Attention
 John McGehee & Don McGee
 Receipt Date
 04/14/05
 400 South Tryon Street

 Customer
 Case of the strengt of

Lab. Sample No. Reference Date L9126-02

04/11/05

Analysis Date 04/25/05

ST002

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|-----------|----------------|-----------------|-----------------|-------|--|
| | q) | Ci/g |) | (pCi/g) | (pCl/g) | (pCi/g) | | |
| AcTh-228 | 2.13E-01 | +/- | 5.2E-02 | 5.3E-02 | 2.1E-01 | | bc | |
| Ag-108m | -1.44E-02 | +/- | 9.6E-03 | 9.6E-03 | 3.8E-02 | | | |
| Ag-110m | 4E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.1E-02 | | | |
| Ba-140 | -1.44E-01 | +/- | 7.6E-02 | 7.6E-02 | 3.1E-01 | | | |
| Be-7 | 1.5E+00 | +/- | 1.8E-01 | 1.9E-01 | 4.0E-01 | | bc | |
| Bi-214 | 1.87E-01 | +/- | 3.3E-02 | 3.4E-02 | 9.0E-02 | | bc | |
| Ce-141 | -7E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.0E-02 | | | |
| Ce-144 | -2.6E-02 | +/- | 5.2E-02 | 5.2E-02 | 1.9E-01 | | | |
| Co-57 | 1.04E-02 | +/- | 6.5E-03 | 6.6E-03 | 2.2E-02 | | | |
| Co-58 | -6E-03 | +/- | 1.3E-02 | 1.3E-02 | 5.1E-02 | | | |
| Co-60 | -1.3E-02 | +/- | 1.5E-02 | 1.5E-02 | 6.0E-02 | | | |
| Cr-51 | -1.3E-01 | +/- | 1.0E-01 | 1.0E-01 | 4.0E-01 | | | |
| Cs-134 | 3E-03 | +/- | 9.7E-03 | 9.7E-03 | 3.5E-02 | 1.5E-01 | | |
| Cs-137 | 5.8E-02 | +/- | 1.7E-02 | 1.8E-02 | 5.1E-02 | 1.8E-01 | bc | |
| Fe-59 | 1.6 E- 02 | +/- | 2.8E-02 | 2.8E-02 | 1.0E-01 | | | |
| I-131 | 3E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.0E-01 | | | |
| K-40 | 1.626E+01 | +/- | 7.1E-01 | 1.1E+00 | 5.2E-01 | | bc | |
| La-140 | -1.7E-02 | +/- | 4.1E-02 | 4.1E-02 | 4.2E-01 | | | |
| Mn-54 | 3.4E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.1E-02 | | | |
| Nb-95 | -3.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.6E-02 | | | |
| Pb-214 | 2.06E-01 | +/- | 3.0E-02 | 3.2E-02 | 9.7E-02 | | bc | |
| Ru-103 | -9E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.7E-02 | | | |
| Ru-106 | 1.55E-01 | +/- | 9.3E-02 | 9.3E-02 | 3.0E-01 | | | |
| Sb-124 | -9E-03 | +/- | 2.3E-02 | 2.3E-02 | 1.1E-01 | | | |
| Sb-125 | 0E+00 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Se-75 | 2.8E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.0E-02 | | | |
| Zn-65 | 9.8E-02 | +/- | 5.8E-02 | 5.8E-02 | 1.9E-01 | | | |
| Zr-95 | -3.5E-02 | +/- | 2.0E-02 | 2.0E-02 | 1.1E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|--------|---|----|--------------------|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | |
| FRAM | | ON | IE ANP
ITAL LAB | | | | | |

Page 1 of 1

Approved by

C:



29 Research Drive Westboro, MA 01581 508-898-9970

| | | | Device the Device | 05/00/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|-------------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-03

04/11/05

Analysis Date 04/25/05

ST003

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Si | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|--------------|------------------|----------------|------------------|-----------------|-------|--|
| | (F | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 1.65E-01 | +/- | 8.2E-02 | 8.3E-02 | 2.7E-01 | | c | |
| Ag-108m | -7.8E-03 | +/- | 9.7E-03 | 9.7E-03 | 3.7E-02 | | | |
| Ag-110m | -1.6E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.1E-02 | | | |
| Ba-140 | 0E+00 | +/- | 8.1E-02 | 8.1E-02 | 3.0E-01 | | | |
| Be-7 | 1.22E+00 | +/- | 2.0E-01 | 2.1E-01 | 5.2E-01 | | bc | |
| Bi-214 | 1.49E-01 | +/- | 4.2E-02 | 4.3E-02 | 1.3E-01 | | bc | |
| Ce-141 | 1.8E-02 | +/- | 2.1E-02 | 2.1E-02 | 6.9E-02 | | | |
| Ce-144 | -9.7E-02 | +/- | 6.8E-02 | 6.9E-02 | 2.5E-01 | | | |
| Co-57 | -1.62E-02 | +/- | 7.8E-03 | 7.8E-03 | 2.9E-02 | | | |
| Co-58 | -3.5E-02 | +/- | 1.4E-02 | 1.4E-02 | 6.1E-02 | | | |
| Co-60 | -9E-03 | +/- | 1.8E-02 | 1.8E-02 | 7.0E-02 | | | |
| Cr-51 | 5E-02 | +/- | 1.1E-01 | 1.1E-01 | 3.9E-01 | | | |
| Cs-134 | 8E-03 | +/- | 1.9 E-02 | 1.9E-02 | 6.6E-02 | 1.5E-01 | | |
| Cs-137 | 1E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.5E-02 | 1.8E-01 | | |
| Fe-59 | 1.7E-02 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| I-131 | 0E+00 | +/- | 3.3E-02 | 3.3E-02 | 1.2E-01 | | | |
| K-40 | 1.727E+01 | +/- | 7.6E-01 | 1.1E+00 | 6.3E-01 | | bc | |
| La-140 | -5.4E-02 | +/- | 4.1E-02 | 4.1E-02 | 1.6E-01 | | | |
| Mn-54 | -1.8E-02 | +/- | 1.2E-02 | 1.2E-02 | 5.1E-02 | | | |
| Nb-95 | 3E-03 | +/- | 1.6E-02 | 1.6E-02 | 6.0E-02 | | | |
| Pb-214 | 2.46E-01 | +/- | 3.2E-02 | 3.4E-02 | 9.8E-02 | | bc | |
| Ru-103 | 1.3E-02 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | | | |
| Ru-106 | 0E+00 | +/- | 1.2E-01 | 1.2E-01 | 4.2E-01 | | | |
| Sb-124 | -9E-03 | +/- | 3.1E-02 | 3.1E-02 | 1.3E-01 | | | |
| Sb-125 | -2E-02 | +/- | 3.0E-02 | 3.0E-02 | 1. 1E- 01 | | | |
| Se-75 | -5E-03 | +/- | 1.4E-02 | 1.4E-02 | 5.1E-02 | | | |
| Zn-65 | -2.7E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.4E-01 | | | |
| Zr-95 | -1.2E-02 | +/- | 2.1E-02 | 2.1E-02 | 1.0E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|------------------------------------|---|---|------|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | | |

Approved by In lito

(E.)M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| . . | - / | | Devent Dete | 0.5 10.5 10.5 | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|---------------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-04

04/11/05

Analysis Date 04/25/05

ST004

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (F | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.65E-01 | +/- | 8.2E-02 | 8.3E-02 | 2.4E-01 | | bc | |
| Ag-108m | 1E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.7E-02 | | | |
| Ag-110m | 9E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.4E-02 | | | |
| Ba-140 | 8.2E-02 | +/- | 7.2E-02 | 7.3E-02 | 2.5E-01 | | | |
| Be-7 | 1.14E+00 | +/- | 1.9E-01 | 2.0E-01 | 4.8E-01 | | bc | |
| Bi-214 | 3.65E-01 | +/- | 4.2E-02 | 4.6E-02 | 9.5E-02 | | bc | |
| Ce-141 | 1.6E-02 | +/- | 2.0E-02 | 2.0E-02 | 6.7E-02 | | | |
| Ce-144 | -1.1E-02 | +/- | 5.7E-02 | 5.7E-02 | 2.0E-01 | | | |
| Co-57 | 2.6E-03 | +/- | 6.9E-03 | 6.9E-03 | 2.4E-02 | | | |
| Co-58 | 5E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.5E-02 | | | |
| Co-60 | -1.5E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.8E-02 | | | |
| Cr-51 | -1E-01 | +/- | 1.1E-01 | 1.1E-01 | 4.3E-01 | | | |
| Cs-134 | 1.8E-03 | +/- | 8.8E-03 | 8.8E-03 | 3.3E-02 | 1.5E-01 | | |
| Cs-137 | 3.8E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.1E-02 | 1.8E-01 | | |
| Fe-59 | 1.3E-02 | +/- | 4.2E-02 | 4.2E-02 | 1.5E-01 | | | |
| I-131 | -2E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.2E-01 | | | |
| K-40 | 1.327E+01 | +/- | 7.1E-01 | 9.7E-01 | 6.0E-01 | | bc | |
| La-140 | 6.9E-02 | +/- | 4.4E-02 | 4.4E-02 | 1.4E-01 | | | |
| Mn-54 | -1.3E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.6E-02 | | | |
| Nb-95 | -3.2E-02 | +/- | 1.8E-02 | 1.8E-02 | 7. 4E-02 | | | |
| Pb-214 | 2.79E-01 | +/- | 3.2E-02 | 3.5E-02 | 1.0E-01 | | bc | |
| Ru-103 | 1.5E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.7E-02 | | | |
| Ru-106 | -1.3E-01 | +/- | 1.1E-01 | 1.1E-01 | 4.5E-01 | | | |
| Sb-124 | 0E+00 | +/- | 3.4E-02 | 3.4E-02 | 1.4E-01 | | | |
| Sb-125 | -9E-03 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Se-75 | 8E-03 | +/- | 1.4E-02 | 1.4E-02 | 4.8E-02 | | | |
| Zn-65 | -4.4E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.6E-01 | | | |
| Zr-95 | -2E-03 | +/- | 1.9E-02 | 1.9E-02 | 8.0E-02 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

9126-04Bi/Pb-214 results are qualitative only.

Reporting Level Ratio:

MAILED MAY 0 6 2005 FRAMATOME ANP ENVIRONMENTAL LAB

Approved by

Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| - | | | Devised Data | 05/00/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Chanotte, NC 28285 |

Lab. Sample No. L9126-05 Reference Date 04/11/05

Analysis Date 04/25/05

ST005

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|----------------|------------------|-----------------|-------|--|
| | a) | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.85E-01 | +/- | 7.1E-02 | 7.4E-02 | 2.6E-01 | | bc | |
| Ag-108m | 1.8E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.3E-02 | | | |
| Ag-110m | 8E-03 | +/- | 2.3E-02 | 2.3E-02 | 8.5E-02 | | | |
| Ba-140 | 2E-02 | +/- | 1.0E-01 | 1.0E-01 | 3.7E-01 | | | |
| Be-7 | 8.6E-01 | +/- | 2.1E-01 | 2.2E-01 | 6.0E-01 | | bc | |
| Bi-214 | 3.69E-01 | +/- | 5.2E-02 | 5.5E-02 | 1.2E-01 | | bc | |
| Ce-141 | 2.8E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.2E-02 | | | |
| Ce-144 | -1.42E-01 | +/- | 9.2E-02 | 9.2E-02 | 3.4E-01 | | | |
| Co-57 | 0E+00 | +/- | 1.2E-02 | 1.2E-02 | 4.2E-02 | | | |
| Co-58 | 1E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.4E-02 | | | |
| Co-60 | 2E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.9E-02 | | | |
| Cr-51 | 4E-02 | +/- | 1.6E-01 | 1.6E-01 | 5.8E-01 | | | |
| Cs-134 | 4E-02 | +/- | 2.1E-02 | 2.2E-02 | 6.2E-02 | 1.5E-01 | | |
| Cs-137 | 6.1E-02 | +/- | 2.1E-02 | 2.1E-02 | 6.2E-02 | 1.8E-01 | | |
| Fe-59 | 5.1E-02 | +/- | 3.5E-02 | 3.5E-02 | 1.2E-01 | | | |
| l-131 | -5.8E-02 | +/- | 4.3E-02 | 4.3E-02 | 1.7 E- 01 | | | |
| K-40 | 1.377E+01 | +/- | 7.5E-01 | 1.0E+00 | 6.2E-01 | | bc | |
| La-140 | -8E-03 | +/- | 5.5E-02 | 5.5E-02 | 2.1E-01 | | | |
| Mn-54 | 3E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.8E-02 | | | |
| Nb-95 | -1.7E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.4E-02 | | | |
| Pb-214 | 3.93E-01 | +/- | 4.6E-02 | 5.0E-02 | 1.3E-01 | | bc | |
| Ru-103 | 1.3E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.9E-02 | | | |
| Ru-106 | 6E-02 | +/- | 1.6E-01 | 1.6E-01 | 5.7E-01 | | | |
| Sb-124 | 2.2E-02 | +/- | 1.6E-02 | 1.6E-02 | 3.0E-02 | | | |
| Sb-125 | 4.9E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.4E-01 | | | |
| Se-75 | 4E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.8E-02 | | | |
| Zn-65 | -9.7E-02 | +/- | 4.5E-02 | 4.5E-02 | 1.9E-01 | | | |
| Zr-95 | -5.9E-02 | +/- | 2.5E-02 | 2.5E-02 | 1.3E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| M/ | 41 | L | ED |
|------|----------|---|--------------------|
| MAY | 0 | 6 | 2005 |
| FRAM | AT
NM | | IE ANP
ITAL LAB |

Approved by łn

E. M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| . . | | | Descent Defe | | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-11

04/12/05

Analysis Date 04/25/05

BLDG21

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Cond
- Sig | centration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|-------------------|----------------|-----------------|-----------------|-------|--|
| | q) | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.25E-01 | +/- | 5.1E-02 | 5.3E-02 | 1.7E-01 | | bc | |
| Ag-108m | -1.43E-02 | +/- | 8.5E-03 | 8.5E-03 | 3.3E-02 | | | |
| Ag-110m | -8E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.6E-02 | | | |
| Ba-140 | 1.1E-02 | +/- | 6.9E-02 | 6.9E-02 | 2.5E-01 | | | |
| Be-7 | -9.4E-02 | +/- | 9.3E-02 | 9.3E-02 | 3.5E-01 | | | |
| Bi-214 | 3.48E-01 | +/- | 3.0E-02 | 3.5E-02 | 5.9E-02 | | bc | |
| Ce-141 | 1.3E-02 | +/- | 1.9E-02 | 1.9E-02 | 6.5E-02 | | | |
| Ce-144 | 2.7E-02 | +/- | 7.1E-02 | 7.1E-02 | 2.4E-01 | | | |
| Co-57 | 1.46E-02 | +/- | 8.7E-03 | 8.7E-03 | 2.8E-02 | | | |
| Co-58 | 6E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.8E-02 | | | |
| Co-60 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.7E-02 | | | |
| Cr-51 | 9E-02 | +/- | 1.1E-01 | 1.1E-01 | 3.6E-01 | | | |
| Cs-134 | -6E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | 1.5E-01 | | |
| Cs-137 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.3E-02 | 1.8E-01 | | |
| Fe-59 | -1E-02 | +/- | 2.6E-02 | 2.6E-02 | 9.8E-02 | | | |
| I-131 | 3E-03 | +/- | 2.9E-02 | 2.9E-02 | 1.0E-01 | | | |
| K-40 | 1.167E+01 | +/- | 5.0E-01 | 7.7E-01 | 5.2E-01 | | bc | |
| La-140 | -2.1E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.3E-01 | | | |
| Mn-54 | 1.6E-02 | +/- | 1.2E-02 | 1.2E-02 | 4.0E-02 | | | |
| Nb-95 | 2.3E-02 | +/- | 1.5E-02 | 1.6E-02 | 5.1E-02 | | | |
| Pb-214 | 4.15E-01 | +/- | 3.1 E-02 | 3.8E-02 | 8.5E-02 | | bc | |
| Ru-103 | 5E-03 | +/- | 1.1E-02 | 1.1E-02 | 4.0E-02 | | | |
| Ru-106 | -1E-02 | +/- | 9.9E-02 | 9.9E-02 | 3.6E-01 | | | |
| Sb-124 | -1.7E-02 | +/- | 1.8E-02 | 1.8E-02 | 8.3E-02 | | | |
| Sb-125 | 0E+00 | +/- | 2.7E-02 | 2.7E-02 | 9.6E-02 | | | |
| Se-75 | -1.3E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.0E-02 | | | |
| Zn-65 | 3.3E-02 | +/- | 4.7E-02 | 4.7E-02 | 1.6E-01 | | | |
| Zr-95 | -3.6E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.8E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| M | 4 | L | ED_ |
|----------------|----------|---|--------------------|
| MAY | 0 | 6 | 2005 |
| FRAM
ENVIRO | AT
NM | | IE ANP
ITAL LAB |

Page 1 of 1

Approved by 91

(E) M. Moreno Sample Control and Measurements Lead

c:



29 Research Drive Westboro, MA 01581 508-898-9970

| . . | | | Descent Data | 05/00/05 | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-13

04/12/05

Analysis Date 04/25/05

SA003

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Si | centration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|--------------|-------------------|------------------|-----------------|-----------------|-------|--|
| | (# | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.1E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.3E-01 | | c | |
| Ag-108m | 5E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.7E-02 | | | |
| Ag-110m | -6E-03 | +/- | 3.4E-02 | 3.4E-02 | 1.3E-01 | | | |
| Ba-140 | -1E-02 | +/- | 1.4E-01 | 1.4E-01 | 5.2E-01 | | | |
| Be-7 | -2.1E-01 | +/- | 1.8E-01 | 1.8 E- 01 | 7.4E-01 | | | |
| Bi-214 | 2.92E-01 | +/- | 7.3E-02 | 7.5E-02 | 2.1E-01 | | bc | |
| Ce-141 | -9E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.5E-01 | | | |
| Ce-144 | 2.4E-01 | +/- | 2.2E-01 | 2.2E-01 | 7.4E-01 | | | |
| Co-57 | 2.9E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.3E-02 | | | |
| Co-58 | 9E-03 | +/- | 2.7E-02 | 2.7E-02 | 9.7E-02 | | | |
| Co-60 | 3.9E-02 | +/- | 2.7E-02 | 2.7E-02 | 8.9E-02 | | | |
| Cr-51 | -3E-01 | +/- | 2.7E-01 | 2.7E-01 | 1.0E+00 | | | |
| Cs-134 | -3E-03 | +/- | 3.2E-02 | 3.2E-02 | 1.1E-01 | 1.5E-01 | | |
| Cs-137 | 1.2E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.6E-02 | 1.8E-01 | | |
| Fe-59 | -1.6E-02 | +/- | 5.5E-02 | 5.5E-02 | 2.1E-01 | | | |
| I-131 | -6.1E-02 | +/- | 6.4E-02 | 6.4E-02 | 2.4E-01 | | | |
| K-40 | 1.77E+01 | +/- | 1.0E+00 | 1.4E+00 | 9.7E-01 | | bc | |
| La-140 | -4E-03 | +/- | 8.4E-02 | 8.4E-02 | 9.9E-01 | | | |
| Mn-54 | -4E-03 | +/- | 2.4E-02 | 2.4E-02 | 9.1E-02 | | | |
| Nb-95 | -1.4E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.1E-01 | | | |
| Pb-214 | 4.84E-01 | +/- | 7.2E-02 | 7.6E-02 | 1.8E-01 | | bc | |
| Ru-103 | 2.2E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.6E-02 | | | |
| Ru-106 | 7E-02 | +/- | 2.4E-01 | 2.4E-01 | 8.6E-01 | | | |
| Sb-124 | -7.1E-02 | +/- | 4.2E-02 | 4.2E-02 | 2.2E-01 | | | |
| Sb-125 | -4.1E-02 | +/- | 6.2E-02 | 6.2 E-02 | 2.3E-01 | | | |
| Se-75 | -2.5E-02 | +/- | 2.4E-02 | 2.4E-02 | 9.3E-02 | | | |
| Zn-65 | -1.39E-01 | +/- | 6.4E-02 | 6.5E-02 | 2.7E-01 | | | |
| Zr-95 | -3.8E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.6E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| M | 41 | L | ED | |
|------|----------|---|--------------------|--|
| MAY | 0 | 6 | 2005 | |
| FRAM | AT
NM | | IE ANP
ITAL LAB | |

Approved by QIII n

Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| • | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | | | | | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-15

04/11/05

Analysis Date 04/25/05

SA005

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity Concentration
+/- 1 - Sigma | | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---|------|---------|----------------|-----------------|-----------------|-------|--|
| | (p | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.8E-01 | +/- | 1.3E-01 | 1.3E-01 | 3.7E-01 | | bc | |
| Ag-108m | -6E-03 | +/- | 1.9E-02 | 1.9E-02 | 7.1E-02 | | | |
| Ag-110m | 2.5E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.7E-02 | | | |
| Ba-140 | -1.3E-01 | +/- | 1.7E-01 | 1.7E-01 | 6.6E-01 | | | |
| Be-7 | -1.9E-01 | +/- | 1.9E-01 | 1.9E-01 | 7.6E-01 | | | |
| Bi-214 | 3.82E-01 | +/- | 6.9E-02 | 7.2E-02 | 1.7E-01 | | bc | |
| Ce-141 | 6E-03 | +/- | 3.8E-02 | 3.8E-02 | 1.3E-01 | | | |
| Ce-144 | -1.3E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.7E-01 | | | |
| Co-57 | 1E-03 | +/- | 1.4E-02 | 1.4E-02 | 5.1E-02 | | | |
| Co-58 | -5E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.5E-02 | | | |
| Co-60 | 6E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.2E-02 | | | |
| Cr-51 | -3.6E-01 | +/- | 2.4E-01 | 2.4E-01 | 9.3E-01 | | | |
| Cs-134 | -1.5E-02 | +/- | 2.3E-02 | 2.3E-02 | 8.8E-02 | 1.5E-01 | | |
| Cs-137 | -1.4E-02 | +/- | 2.2E-02 | 2.2E-02 | 8.8E-02 | 1.8E-01 | | |
| Fe-59 | 2.2E-02 | +/- | 5.1E-02 | 5.1E-02 | 1.9E-01 | | | |
| I-131 | 2.8E-02 | +/- | 7.2E-02 | 7.2E-02 | 2.6E-01 | | | |
| K-40 | 1.025E+01 | +/- | 8.0E-01 | 9.5E-01 | 8.9E-01 | | bc | |
| La-140 | -2.6E-02 | +/- | 7.4E-02 | 7.4E-02 | 2.9E-01 | | | |
| Mn-54 | -2.6E-02 | +/- | 2.0E-02 | 2.0E-02 | 8.6E-02 | | | |
| Nb-95 | -5.7E-02 | +/- | 2.9E-02 | 2.9E-02 | 1.2E-01 | | | |
| Pb-214 | 3E-01 | +/- | 5.9E-02 | 6.1E-02 | 1.9E-01 | | bc | |
| Ru-103 | 0E+00 | +/- | 2.2E-02 | 2.2E-02 | 8.5E-02 | | | |
| Ru-106 | -2.8E-01 | +/- | 1.6E-01 | 1.6E-01 | 7.2E-01 | | | |
| Sb-124 | -1.7E-02 | +/- | 5.5E-02 | 5.5E-02 | 2.4E-01 | | | |
| Sb-125 | 7.8E-02 | +/- | 6.2E-02 | 6.2E-02 | 2.1E-01 | | | |
| Se-75 | -4.8E-02 | +/- | 2.6E-02 | 2.6E-02 | 1.0E-01 | | | |
| Zn-65 | -1.53E-01 | +/- | 6.2E-02 | 6.3E-02 | 2.7E-01 | | | |
| Zr-95 | -5.4E-02 | +/- | 3.1E-02 | 3.1E-02 | 1.7E-01 | | | |

Page 1 of 1

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|--------|----------|---|------|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | |
| | AT
NM | | | | | | | |

Elleptus 5605

/E. M. Moreno Sample Control and Measurements Lead

c:



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581

508-898-9970

| Customer | | FEDERAL GRP | Report Date | 05/00/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| | Framatome ANP Inc | | | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Chanotte, NC 28285 |

Lab. Sample No. Reference Date

Analysis Date 04/25/05

SA010

Client ID

L9126-19

04/12/05

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity Concentration
+/- 1 - Sigma | | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---|-----|---------|----------------|-----------------|-----------------|-------|--|
| | (pCi/g | |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.013E+00 | +/- | 5.3E-02 | 1.1E-01 | 2.1E-01 | | bc | |
| Ag-108m | -1.47E-02 | +/- | 9.9E-03 | 9.9E-03 | 3.5E-02 | | | |
| Ag-110m | 2E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.3E-02 | | | |
| Ba-140 | -3E-02 | +/- | 6.8E-02 | 6.8E-02 | 2.4E-01 | | | |
| Be-7 | 5.1E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.2E-01 | | bc | |
| Bi-214 | 7.7E-01 | +/- | 3.7E-02 | 5.3E-02 | 1.1E-01 | | bc | |
| Ce-141 | 2.7E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.7E-02 | | | |
| Ce-144 | -1.8E-01 | +/- | 1.1E-01 | 1.1E-01 | 3.6E-01 | | | |
| Co-57 | -2.4E-03 | +/- | 7.0E-03 | 7.0E-03 | 2.4E-02 | | | |
| Co-58 | -1E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.1E-02 | | | |
| Co-60 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.4E-02 | | | |
| Cr-51 | -2.3E-01 | +/- | 1.2E-01 | 1.2E-01 | 4.3E-01 | | | |
| Cs-134 | 4E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.3E-02 | 1.5E-01 | | |
| Cs-137 | 5E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | 1.8E-01 | | |
| Fe-59 | -4.6E-02 | +/- | 2.5E-02 | 2.5E-02 | 9.2E-02 | | | |
| I-131 | 2.4E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.1E-01 | | | |
| K-40 | 1.14E+00 | +/- | 2.2E-01 | 2.3E-01 | 6.6E-01 | | bc | |
| La-140 | 3E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.4E-01 | | | |
| Mn-54 | 3.9E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.1E-02 | | | |
| Nb-95 | 4.6E-02 | +/- | 1.9E-02 | 1.9E-02 | 6.0E-02 | | | |
| Pb-214 | 7.97E-01 | +/- | 3.3E-02 | 5.2E-02 | 1.1E-01 | | bc | |
| Ru-103 | -1.1E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Ru-106 | 4E-02 | +/- | 1.2E-01 | 1.2E-01 | 4.0E-01 | | | |
| Sb-124 | 3.3E-02 | +/- | 2.8E-02 | 2.8E-02 | 9.3E-02 | | | |
| Sb-125 | 5.5E-02 | +/- | 3.1E-02 | 3.2E-02 | 1.0E-01 | | | |
| Se-75 | -1.2E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Zn-65 | -7.5E-02 | +/- | 5.0E-02 | 5.0E-02 | 1.7E-01 | | | |
| Zr-95 | 5E-03 | +/- | 2.5E-02 | 2.5E-02 | 8.4E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | | |
|------------------------------------|---|---|------|--|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | | | |

Approved by

(e.) M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| . . | | | - | 05/00/05 | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. **Reference Date**

L9126-20

04/08/05

Analysis Date 04/25/05

Client ID

BKG04

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity Concentration
+/- 1 - SIgma | | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---|------|---------|----------------|-----------------|-----------------|-------|--|
| | (P | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.6E-01 | +/- | 1.2E-01 | 1.2E-01 | 3.4E-01 | | bc | |
| Ag-108m | -1.9E-02 | +/- | 1.7E-02 | 1.7E-02 | 6.7E-02 | | | |
| Ag-110m | 0E+00 | +/- | 2.9E-02 | 2.9E-02 | 1.1E-01 | | | |
| Ba-140 | 3E-02 | +/- | 1.8E-01 | 1.8E-01 | 6.5E-01 | | | |
| Be-7 | -2E-02 | +/- | 2.2E-01 | 2.2E-01 | 8.1E-01 | | | |
| Bi-214 | 5.34E-01 | +/- | 8.1E-02 | 8.5E-02 | 2.0E-01 | | bc | |
| Ce-141 | 1.7E-02 | +/- | 4.2E-02 | 4.2E-02 | 1.4E-01 | | | |
| Ce-144 | -8E-02 | +/- | 1.3E-01 | 1.3E-01 | 4.6E-01 | | | |
| Co-57 | -2.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.9E-02 | | | |
| Co-58 | -1.8E-02 | +/- | 1.6E-02 | 1.6E-02 | 7.3E-02 | | | |
| Co-60 | 2.1E-02 | +/- | 2.1E-02 | 2.2E-02 | 7.6E-02 | | | |
| Cr-51 | -2E-02 | +/- | 2.5E-01 | 2.5E-01 | 8.9E-01 | | | |
| Cs-134 | -2.2E-02 | +/- | 3.5E-02 | 3.5E-02 | 1.3E-01 | 1.5E-01 | | |
| Cs-137 | 5.2E-02 | +/- | 2.9E-02 | 2.9E-02 | 9.5E-02 | 1.8E-01 | с | |
| Fe-59 | -5.6E-02 | +/- | 4.6E-02 | 4.6E-02 | 2.0E-01 | | | |
| I-131 | -8.5E-02 | +/- | 8.8E-02 | 8.8E-02 | 3.3E-01 | | | |
| K-40 | 9.39E+00 | +/- | 7.4E-01 | 8.7E-01 | 7.8E-01 | | bc | |
| La-140 | 9E-02 | +/- | 9.3E-02 | 9.3E-02 | 3.2E-01 | | | |
| Mn-54 | 2E-02 | +/- | 2.1E-02 | 2.1E-02 | 7.4E-02 | | | |
| Nb-95 | 1.5E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.1E-01 | | | |
| Pb-214 | 4.15E-01 | +/- | 6.0E-02 | 6.4E-02 | 2.0E-01 | | bc | |
| Ru-103 | 3.8E-02 | +/- | 2.2E-02 | 2.2E-02 | 7.2E-02 | | | |
| Ru-106 | 0E+00 | +/- | 1.7E-01 | 1.7E-01 | 6.6E-01 | | | |
| Sb-124 | -5E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.8E-01 | | | |
| Sb-125 | 7.5E-02 | +/- | 5.4E-02 | 5.5E-02 | 1.8E-01 | | | |
| Se-75 | -1.8E-02 | +/- | 2.7E-02 | 2.7E-02 | 1.0E-01 | | | |
| Zn-65 | -1.1E-02 | +/- | 6.1E-02 | 6.1E-02 | 2.3E-01 | | | |
| Zr-95 | 7E-03 | +/- | 3.4E-02 | 3.4E-02 | 1.5E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only

| MAILED | | | | | | | | | |
|------------------------------------|---|---|------|--|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | | | |

Approved by Ω

É. M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| | | | | 65 100 105 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|------------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-21

04/12/05

Analysis Date 04/25/05

BKG06

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Conc
Sli | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------------|---------------------|-------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (F | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.19E-01 | +/- | 3.9E-02 | 4.2E-02 | 1.5E-01 | | bc | |
| Ag-108m | 3.2E-03 | +/- | 7.9E-03 | 7.9E-03 | 2.8E-02 | | | |
| Ag-110m | -3E-03 | +/- | 1.6E-02 | 1.6E-02 | 5.9E-02 | | | |
| Ba-140 | 3.7E-02 | +/- | 7.3E-02 | 7.3E-02 | 2.5E-01 | | | |
| Be-7 | 1.7E-02 | +/- | 9.2E-02 | 9.2E-02 | 3.2E-01 | | | |
| Bi-214 | 2.83E-01 | +/- | 3.2E-02 | 3.5E-02 | 9.9E-02 | | bc | |
| Ce-141 | -6E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.5E-02 | | | |
| Ce-144 | -6.2E-02 | +/- | 6.4E-02 | 6.4E-02 | 2.2E-01 | | | |
| Co-57 | -8.8E-03 | +/- | 8.2E-03 | 8.2E-03 | 2.9E-02 | | | |
| Co-58 | 7E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | | | |
| Co-60 | 7E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.3E-02 | | | |
| Cr-51 | 7.2E-02 | +/- | 9.9E-02 | 9.9E-02 | 3.4E-01 | | | |
| Cs-134 | -5E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.8E-02 | 1.5E-01 | | |
| Cs-137 | 9E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | 1.8E-01 | | |
| Fe-59 | -3.3E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.1E-01 | | | |
| I- 13 1 | 5E-03 | +/- | 2.8E-02 | 2.8E-02 | 9.8E-02 | | | |
| K-40 | 1.56E+01 | +/- | 5.2E-01 | 9.3E-01 | 4.3E-01 | | bc | |
| La-140 | 0E+00 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Mn-54 | -1.7E-02 | +/- | 1.1E-02 | 1.1E-02 | 4.2E-02 | | | |
| Nb-95 | -1.6E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.0E-02 | | | |
| Pb-214 | 3.46E-01 | +/- | 2.9E-02 | 3.4E-02 | 9.1E-02 | | bc | |
| Ru-103 | 3E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.7E-02 | | | |
| Ru-106 | 9.7E-02 | +/- | 9.7E-02 | 9.7E-02 | 3.3E-01 | | | |
| Sb-124 | 5E-03 | +/- | 1.6E-02 | 1.6E-02 | 6.4E-02 | | | |
| Sb-125 | 4.4E-02 | +/- | 2.6E-02 | 2.6E-02 | 8.5E-02 | | | |
| Se-75 | -2.2E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.9E-02 | | | |
| Zn-65 | 8.5E-02 | +/- | 5.6E-02 | 5.6E-02 | 1.8E-01 | | | |
| Zr-95 | 1.6E-02 | +/- | 1.7E-02 | 1.7E-02 | 6.7E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times Its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.



E. M. Moreno

Approved by

Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581 508-898-9970

| • | | | | 0.000 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-22

04/13/05

Analysis Date 04/25/05

BKG01

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|-----------------|---------------------|---------------|------------------|-----------------|-----------------|-----------------|-------|--|
| | (P | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.1E-01 | +/- | 1.0E-01 | 1.0E-01 | 3.0E-01 | | bc | |
| Ag-108m | -3.9E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.7E-02 | | | |
| Ag-110 m | -1.3E-02 | +/- | 2.1E-02 | 2.1E-02 | 8.7E-02 | | | |
| Ba-140 | 3.2E-02 | +/- | 9.5E-02 | 9.5E-02 | 3.5E-01 | | | |
| Be-7 | 7.2E-01 | +/- | 1.9E-01 | 1.9E-01 | 5.2E-01 | | bc | |
| Bi-214 | 3.74E-01 | +/- | 5.2E-02 | 5.6E-02 | 1.1E-01 | | bc | |
| Ce-141 | -3.7E-02 | +/- | 2.5E-02 | 2.6E-02 | 9.4E-02 | | | |
| Ce-144 | 3.4E-02 | +/- | 8.1E-02 | 8.2E-02 | 2.8E-01 | | | |
| Co-57 | -1.28E-02 | +/- | 9.4E-03 | 9.4E-03 | 3.5E-02 | | | |
| Co-58 | 2.1E-02 | +/- | 1.8E-02 | 1.8E-02 | 6.0E-02 | | | |
| Co-60 | -3E-03 | +/- | 1.5E-02 | 1.5E-02 | 6.2E-02 | | | |
| Cr-51 | -2E-02 | +/- | 1.3E-01 | 1.3E-01 | 4.7E-01 | | | |
| Cs-134 | -1.7E-02 | +/- | 1.5E-02 | 1.5 E-02 | 6.0E-02 | 1.5E-01 | | |
| Cs-137 | 1.14E-01 | +/- | 3.0E-02 | 3.1E-02 | 8.8E-02 | 1.8E-01 | bc | |
| Fe-59 | -2.4E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.5E-01 | | | |
| I-131 | 3.8E-02 | +/- | 3.2E-02 | 3.2E-02 | 1.1E-01 | | | |
| K-40 | 1.518E+01 | +/- | 8.4E-01 | 1.1E+00 | 7.9E-01 | | bc | |
| La-140 | 3.2E-02 | +/- | 5.1E-02 | 5.1E-02 | 1.8E-01 | | | |
| Mn-54 | -1E-02 | +/- | 1.7E-02 | 1.7E-02 | 6.8E-02 | | | |
| Nb-95 | -1.5 E-0 2 | +/- | 2.0E-02 | 2.0E-02 | 7.8E-02 | | | |
| Pb-214 | 3.19E-01 | +/- | 4.2E-02 | 4.5E-02 | 1.2E-01 | | bc | |
| Ru-103 | -1.9E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.5E-02 | | | |
| Ru-106 | -2E-02 | +/- | 1.4E-01 | 1.4E-01 | 5.5E-01 | | | |
| Sb-124 | -3.8E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.5E-01 | | | |
| Sb-125 | -6E-03 | +/- | 4.3E-02 | 4.3E-02 | 1.6E-01 | | | |
| Se-75 | -1E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.9E-02 | | | |
| Zn-65 | -7.7E-02 | +/- | 4.6E-02 | 4.6E-02 | 1.9 E-01 | | | |
| Zr-95 | 1.2E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.9E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.



E. M. Moreno Sample Control and Measurements Lead

Gillono

Approved by



Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581 508-898-9970

| | | | | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/06/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

 Lab. Sample No.
 L9126-23

 Reference Date
 04/15/05

Client ID SPLIT OF Analysis Date 05/02/05

SPLIT OF #L9126-03

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Conc
- Siç | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|------------------|-----------------|-----------------|-----------------|-------|--|
| | (p | Ci/g) | | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.29E-01 | +/- | 2.2E-02 | 2.5E-02 | 9.2E-02 | | bc | |
| Ag-108m | -1.8E-03 | +/- | 4.7E-03 | 4.7E-03 | 1.6E-02 | | | |
| Ag-110m | 1.79E-02 | +/- | 8.5E-03 | 8.6E-03 | 2.8E-02 | | | |
| Ba-140 | -1.6E-02 | +/- | 4.6E-02 | 4.6E-02 | 1.6E-01 | | | |
| Be-7 | 1.341E+00 | +/- | 9.5E-02 | 1.2E-01 | 2.4E-01 | | bc | |
| Bi-214 | 2.23E-01 | +/- | 1.4E-02 | 1.8E-02 | 3.2E-02 | | bc | |
| Ce-141 | 2.5E-02 | +/- | 1.0E-02 | 1.0E-02 | 3.3E-02 | | | |
| Ce-144 | 5E-02 | +/- | 3.3E-02 | 3.3E-02 | 1.1E-01 | | | |
| Co-57 | 3.6E-03 | +/- | 4.0E-03 | 4.0E-03 | 1.3E-02 | | | |
| Co-58 | -1.75E-02 | +/- | 5.8E-03 | 5.8E-03 | 2.2E-02 | | | |
| Co-60 | 1E-04 | +/- | 6.1E-03 | 6.1E-03 | 2.2E-02 | | | |
| Cr-51 | -6.6E-02 | +/- | 6.5E-02 | 6.5E-02 | 2.3E-01 | | | |
| Cs-134 | -3.1E-03 | +/- | 5.0E-03 | 5.0E-03 | 1.9E-02 | 1.5E-01 | | |
| Cs-137 | 3.6E-02 | +/- | 8.3E-03 | 8.5E-03 | 2.5E-02 | 1.8E-01 | bc | |
| Fe-59 | 3E-03 | +/- | 1.6E-02 | 1.6E-02 | 5.7E-02 | | | |
| 1-131 | 1.8E-02 | +/- | 2.1E-02 | 2.1E-02 | 7.2E-02 | | | |
| K-40 | 1.63E+01 | +/- | 3.2E-01 | 8.7E-01 | 2.5E-01 | | bc | |
| La-140 | 3.1E-02 | +/- | 2.3E-02 | 2.3E-02 | 7.6E-02 | | | |
| Mn-54 | 8E-04 | +/- | 6.3E-03 | 6.3E-03 | 2.2E-02 | | | |
| Nb-95 | 6.7E-03 | +/- | 7.5E-03 | 7.5E-03 | 2.5E-02 | | | |
| Pb-214 | 2.51E-01 | +/- | 1.4E-02 | 1.9E-02 | 4.5E-02 | | bc | |
| Ru-103 | -8.3E-03 | +/- | 6.4E-03 | 6.4E-03 | 2.3E-02 | | | |
| Ru-106 | 4.3E-02 | +/- | 5.5E-02 | 5.5 E-02 | 1.9E-01 | | | |
| Sb-124 | -8.7E-03 | +/- | 8.7E-03 | 8.7E-03 | 3.6E-02 | | | |
| Sb-125 | -2.2E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.0E-02 | | | |
| Se-75 | -1.24E-02 | +/- | 7.1E-03 | 7.1E-03 | 2.5E-02 | | | |
| Zn-65 | -2E-03 | +/- | 2.6E-02 | 2.6E-02 | 9.0E-02 | | | |
| Zr-95 | -8.9E-03 | +/- | 9.4E-03 | 9.4E-03 | 3.7E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

| MAILED | | | | | | | | |
|----------------|---|----|--------------------|--|--|--|--|--|
| MAY | 0 | 6 | 2005 | | | | | |
| FRAM
ENVIRO | | ON | IE ANP
ITAL LAB | | | | | |

Approved by ΨI

E. M. Moreno Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581

508-898-9970

| | | | D | 05/05/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date

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1 M 1 M 1

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Post 24

L9126-01

04/11/05

Analysis Date 04/25/05

Client ID

ST001

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Si | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|--------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (F | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 4.54E-01 | +/- | 4.2E-02 | 4.7E-02 | 1.6E-01 | | bc | |
| Ag-108m | 1.17E-02 | +/- | 7.9E-03 | 7.9E-03 | 2.6E-02 | | | |
| Ag-110m | 1.4E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.8E-02 | | | |
| Ba-140 | -1.13E-01 | +/- | 7.3E-02 | 7.3E-02 | 2.7E-01 | | | |
| Be-7 | 1.62E+00 | +/- | 1.7E-01 | 1.9E-01 | 4.3E-01 | | bc | |
| Ce-141 | 3E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.6E-02 | | | |
| Ce-144 | 9.7E-02 | +/- | 6.6E-02 | 6.6E-02 | 2.2E-01 | | | |
| Co-57 | 4E-04 | +/- | 8.3E-03 | 8.3E-03 | 2.8E-02 | | | |
| Co-58 | 8E-03 | +/- | 9.9E-03 | 9.9E-03 | 3.4E-02 | | | |
| Co-60 | -6.9E-03 | +/- | 7.7E-03 | 7.7E-03 | 3.1E-02 | | | |
| Cr-51 | 2E-02 | +/- | 1.1E-01 | 1.1E-01 | 3.8E-01 | | | |
| Cs-134 | -3E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.3E-01 | 1.5E-01 | | |
| Cs-137 | 7.6E-02 | +/- | 1.6E-02 | 1.7E-02 | 4.8E-02 | 1.8E-01 | bc | |
| Fe-59 | 2E-02 | +/- | 2.5 E-02 | 2.5E-02 | 8.5E-02 | | | |
| I-131 | -3.3E-02 | +/- | 3.1 E-02 | 3.1E-02 | 1.1E-01 | | | |
| K-40 | 1.267E+01 | +/- | 4.5E-01 | 7.8E-01 | 3.9E-01 | | bc | |
| La-140 | -1.7E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.3E-01 | | | |
| Mn-54 | 1.1E-02 | +/- | 1.0E-02 | 1.0E-02 | 3.5E-02 | | | |
| Nb-95 | -2.3E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.0E-02 | | | |
| Ru-103 | 9E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.5E-02 | | | |
| Ru-106 | -1.24E-01 | +/- | 8.5E-02 | 8.5E-02 | 3.2E-01 | | | |
| Sb-124 | -5.1E-02 | +/- | 1.9E-02 | 1.9E-02 | 9.0E-02 | | | |
| Sb-125 | 3.4E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.2E-02 | | | |
| Se-75 | -1.2E-02 | +/- | 1.5E-02 | 1.5E-02 | 5.2E-02 | | | |
| Zn-65 | 2.7E-02 | +/- | 5.0E-02 | 5.0E-02 | 1.7E-01 | | | |
| Zr-95 | -1E-02 | +/- | 1.5E-02 | 1.5E-02 | 6.5E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | |
|----------------|----------|----|--------------------|---|--|--|--|
| MAY | 0 | 5 | 2005 | | | | |
| FRAM
ENVIRO | AT
NM | ON | NE ANP
NTAL LAI | Э | | | |

Approved by QUIL 5 5/05 120110

(1) E. M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| | | | | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-02

04/11/05

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Analysis Date 04/25/05

Client ID

ST002

Product GAMMA SPECTROMETRY

Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | q) | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.13E-01 | +/- | 5.2E-02 | 5.3E-02 | 2.1E-01 | | bc | |
| Ag-108m | -1.44E-02 | +/- | 9.6E-03 | 9.6E-03 | 3.8E-02 | | | |
| Ag-110m | 4E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.1E-02 | | | |
| Ba-140 | -1.44E-01 | +/- | 7.6E-02 | 7.6E-02 | 3.1E-01 | | | |
| Be-7 | 1.5E+00 | +/- | 1.8E-01 | 1.9E-01 | 4.0E-01 | | bc | |
| Ce-141 | -7E-03 | +/- | 1.7 E-02 | 1.7E-02 | 6.0E-02 | | | |
| Ce-144 | -2.6E-02 | +/- | 5.2E-02 | 5.2E-02 | 1.9E-01 | | | |
| Co-57 | 1.04E-02 | +/- | 6.5E-03 | 6.6E-03 | 2.2E-02 | | | |
| Co-58 | -6E-03 | +/- | 1.3E-02 | 1.3E-02 | 5.1E-02 | | | |
| Co-60 | -1.3E-02 | +/- | 1.5E-02 | 1.5E-02 | 6.0E-02 | | | |
| Cr-51 | -1.3E-01 | +/- | 1.0E-01 | 1.0E-01 | 4.0E-01 | | | |
| Cs-134 | 3E-03 | +/- | 9.7E-03 | 9.7E-03 | 3.5E-02 | 1.5E-01 | | |
| Cs-137 | 5.8E-02 | +/- | 1.7E-02 | 1.8E-02 | 5.1E-02 | 1.8E-01 | bc | |
| Fe-59 | 1.6E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.0E-01 | | | |
| I-131 | 3E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.0E-01 | | | |
| K-40 | 1.626E+01 | +/- | 7.1E-01 | 1.1E+00 | 5.2E-01 | | bc | |
| La-140 | -1.7E-02 | +/- | 4.1E-02 | 4.1E-02 | 4.2E-01 | | | |
| Mn-54 | 3.4E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.1E-02 | | | |
| Nb-95 | -3.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.6E-02 | | | |
| Ru-103 | -9E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.7E-02 | | | |
| Ru-106 | 1.55 E- 01 | +/- | 9.3E-02 | 9.3E-02 | 3.0E-01 | | | |
| Sb-124 | -9E-03 | +/- | 2.3E-02 | 2.3E-02 | 1.1E-01 | | | |
| Sb-125 | 0E+00 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Se-75 | 2.8E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.0E-02 | | | |
| Zn-65 | 9.8E-02 | +/- | 5.8E-02 | 5.8E-02 | 1.9E-01 | | | |
| Zr-95 | -3.5E-02 | +/- | 2.0E-02 | 2.0E-02 | 1.1E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | | |
|--------|-----|--------|--|--|--|--|--|--|
| MAY (|) 5 | 2005 | | | | | | |
| | | ME ANP | | | | | | |

()) E. M. Moreno Sample Control and Measurements Lead

GIUDO

Approved by

M

5505

Page 1 of 1

1 - 1 - 1 - 1

· 16.00



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581 508-898-9970

 Customer
 Framatome ANP Inc
 FEDERAL GRP
 Report Date
 05/05/05
 Framatome ANP Inc
 Framatome ANP Inc

 Attention
 John McGehee & Don McGee
 Receipt Date
 04/14/05
 400 South Tryon Street

 Customer
 Comparison
 Receipt Date
 04/14/05
 Charlotte, NC 28285

Lab. Sample No. Reference Date L9126-03

04/11/05

Analysis Date 04/25/05

ST003

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|----------------|------------------|-----------------|-------|--|
| | q)(P | oCi/g) |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 1.65E-01 | +/- | 8.2E-02 | 8.3E-02 | 2.7E-01 | | c | |
| Ag-108m | -7.8E-03 | +/- | 9.7 E- 03 | 9.7E-03 | 3.7E-02 | | | |
| Ag-110m | -1.6E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.1 E-02 | | | |
| Ba-140 | 0E+00 | +/- | 8.1E-02 | 8.1E-02 | 3.0E-01 | | | |
| Be-7 | 1.22E+00 | +/- | 2.0E-01 | 2.1E-01 | 5.2E-01 | | bc | |
| Ce-141 | 1.8E-02 | +/- | 2.1E-02 | 2.1E-02 | 6.9E-02 | | | |
| Ce-144 | -9.7E-02 | +/- | 6.8E-02 | 6.9E-02 | 2.5E-01 | | | |
| Co-57 | -1.62E-02 | +/- | 7.8E-03 | 7.8E-03 | 2.9E-02 | | | |
| Co-58 | -3.5E-02 | +/- | 1.4E-02 | 1.4E-02 | 6.1E-02 | | | |
| Co-60 | -9E-03 | +/- | 1.8E-02 | 1.8E-02 | 7.0E-02 | | | |
| Cr-51 | 5E-02 | +/- | 1.1E-01 | 1.1E-01 | 3.9E-01 | | | |
| Cs-134 | 8E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.6E-02 | 1.5E-01 | | |
| Cs-137 | 1E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.5E-02 | 1.8E-01 | | |
| Fe-59 | 1.7E-02 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| I-131 | 0E+00 | +/- | 3.3E-02 | 3.3E-02 | 1.2E-01 | | | |
| K-40 | 1.727E+01 | +/- | 7.6E-01 | 1.1E+00 | 6.3E-01 | | bc | |
| La-140 | -5.4E-02 | +/- | 4.1E-02 | 4.1E-02 | 1.6E-01 | | | |
| Mn-54 | -1.8E-02 | +/- | 1.2E-02 | 1.2E-02 | 5.1E-02 | | | |
| Nb-95 | 3E-03 | +/- | 1.6E-02 | 1.6E-02 | 6.0E-02 | | | |
| Ru-103 | 1.3E-02 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | | | |
| Ru-106 | 0E+00 | +/- | 1.2E-01 | 1.2E-01 | 4.2E-01 | | | |
| Sb-124 | -9E-03 | +/- | 3.1E-02 | 3.1E-02 | 1.3E-01 | | | |
| Sb-125 | -2E-02 | +/- | 3.0 E-02 | 3.0E-02 | 1.1 E-0 1 | | | |
| Se-75 | -5E-03 | +/- | 1.4E-02 | 1.4E-02 | 5.1E-02 | | | |
| Zn-65 | -2.7E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.4E-01 | | | |
| Zr-95 | -1.2E-02 | +/- | 2.1E-02 | 2.1E-02 | 1.0E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| M | A | L | ED | |
|----------------|----------|---|--------------------|---|
| MAY | 0 | 5 | 2005 | |
| FRAM
ENVIRO | AT
NM | | IE ANP
ITAL LAE | 3 |

Approved by 5505 E. M. Moreno

E. M. Moreno Sample Control and Measurements Lead



29 Research Drive Westboro, MA 01581 508-898-9970

| . . | E | | Deve to Dete | 65 IOF IOC | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|------------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. **Reference Date**

L9126-04

04/11/05

Analysis Date 04/25/05

ST004

Client ID

Product GAMMA SPECTROMETRY Matrix

Sludge (Dry)

| Nuclide | Activity Сопcentration
+/- 1 - Sigma | | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|---------------|---|-------|---------|----------------|------------------|-----------------|-------|--|
| | (F |)Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.65E-01 | +/- | 8.2E-02 | 8.3E-02 | 2.4E-01 | | bc | |
| Ag-108m | 1E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.7E-02 | | | |
| Ag-110m | 9E-03 | +/- | 1.7E-02 | 1.7E-02 | 6.4E-02 | | | |
| Ba-140 | 8.2E-02 | +/- | 7.2E-02 | 7.3E-02 | 2.5E-01 | | | |
| Be-7 | 1. 14E+0 0 | +/- | 1.9E-01 | 2.0E-01 | 4.8E-01 | | bc | |
| Ce-141 | 1.6E-02 | +/- | 2.0E-02 | 2.0E-02 | 6.7E-02 | | | |
| Ce-144 | -1.1E-02 | +/- | 5.7E-02 | 5.7E-02 | 2.0E-01 | | | |
| Co-57 | 2.6E-03 | +/- | 6.9E-03 | 6.9E-03 | 2.4E-02 | | | |
| Co-58 | 5E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.5E-02 | | | |
| Co-60 | -1.5E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.8E-02 | | | |
| Cr-51 | -1E-01 | +/- | 1.1E-01 | 1.1E-01 | 4.3E-01 | | | |
| Cs-134 | 1.8E-03 | +/- | 8.8E-03 | 8.8E-03 | 3.3E-02 | 1.5E-01 | | |
| Cs-137 | 3.8E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.1E-02 | 1.8E-01 | | |
| Fe-59 | 1.3E-02 | +/- | 4.2E-02 | 4.2E-02 | 1.5E-01 | | | |
| I-131 | -2E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.2E-01 | | | |
| K-40 | 1.327E+01 | +/- | 7.1E-01 | 9.7E-01 | 6.0E-01 | | bc | |
| La-140 | 6.9E-02 | +/- | 4.4E-02 | 4.4E-02 | 1. 4E- 01 | | | |
| Mn-54 | -1.3E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.6E-02 | | | |
| Nb-95 | -3.2E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.4E-02 | | | |
| Ru-103 | 1.5E-02 | +/- | 1.4E-02 | 1.4E-02 | 4.7E-02 | | | |
| Ru-106 | -1.3E-01 | +/- | 1.1E-01 | 1.1E-01 | 4.5E-01 | | | |
| Sb-124 | 0E+00 | +/- | 3.4E-02 | 3.4E-02 | 1.4E-01 | | | |
| Sb-125 | -9E-03 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Se-75 | 8E-03 | +/- | 1.4E-02 | 1.4E-02 | 4.8E-02 | | | |
| Zn- 65 | -4.4E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.6E-01 | | | |
| Zr-95 | -2E-03 | +/- | 1.9E-02 | 1.9E-02 | 8.0E-02 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | | |
|-------------------|---|---|------|--|--|--|--|--|
| MAY | 0 | 5 | 2005 | | | | | |
| ENVIRONMENTAL LAB | | | | | | | | |

Approved by GIIMROUN 515/05

E. M. Moreno Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581 508-898-9970

 Customer
 Framatome ANP Inc
 FEDERAL GRP
 Report Date
 05/05/05
 Framatome ANP Inc
 Framatome ANP Inc

 Attention
 John McGehee & Don McGee
 Receipt Date
 04/14/05
 400 South Tryon Street

 Customer
 Carlotte, NC 28285
 Carlotte, NC 28285

Lab. Sample No. Reference Date L9126-05

04/11/05

Analysis Date 04/25/05

ST005

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity Concentration
+/- 1 - Sigma | | | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---|--------|-----------------|------------------|-----------------|-----------------|-------|--|
| | a) |)Ci/g) | | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.85E-01 | +/- | 7.1E-02 | 7.4E-02 | 2.6E-01 | | bc | |
| Ag-108m | 1.8E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.3E-02 | | | |
| Ag-110m | 8E-03 | +/- | 2.3E-02 | 2.3E-02 | 8.5E-02 | | | |
| Ba-140 | 2E-02 | +/- | 1.0E-01 | 1.0E-01 | 3.7E-01 | | | |
| Be-7 | 8.6E-01 | +/- | 2.1E-01 | 2.2E-01 | 6.0E-01 | | bc | |
| Ce-141 | 2.8E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.2E-02 | | | |
| Ce-144 | -1.42E-01 | +/- | 9.2E-02 | 9.2E-02 | 3.4E-01 | | | |
| Co-57 | 0E+00 | +/- | 1.2E-02 | 1.2E-02 | 4.2E-02 | | | |
| Co-58 | 1E-03 | +/- | 1.7E-02 | 1.7 E-02 | 6.4E-02 | | | |
| Co-60 | 2E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.9E-02 | | | |
| Cr-51 | 4E-02 | +/- | 1.6E-01 | 1.6E-01 | 5.8E-01 | | | |
| Cs-134 | 4E-02 | +/- | 2.1E-02 | 2.2E-02 | 6.2E-02 | 1.5E-01 | | |
| Cs-137 | 6.1E-02 | +/- | 2.1E-02 | 2.1E-02 | 6.2E-02 | 1.8E-01 | | |
| Fe-59 | 5.1E-02 | +/- | 3.5E-02 | 3.5E-02 | 1.2E-01 | | | |
| I-131 | -5.8E-02 | +/- | 4.3E-02 | 4.3E-02 | 1.7E-01 | | | |
| K-40 | 1.377E+01 | +/- | 7.5E-01 | 1.0E+00 | 6.2E-01 | | bc | |
| La-140 | -8E-03 | +/- | 5.5E-02 | 5.5E-02 | 2.1E-01 | | | |
| Mn-54 | 3E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.8E-02 | | | |
| Nb-95 | -1.7E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.4E-02 | | | |
| Ru-103 | 1.3E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.9E-02 | | | |
| Ru-106 | 6E-02 | +/- | 1.6E-01 | 1.6 E- 01 | 5.7E-01 | | | |
| Sb-124 | 2.2E-02 | +/- | 1.6E-02 | 1.6E-02 | 3.0E-02 | | | |
| Sb-125 | 4.9E-02 | +/- | 4.0E-02 | 4.0E-02 | 1.4E-01 | | | |
| Se-75 | 4E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.8E-02 | | | |
| Zn-65 | -9.7E-02 | +/- | 4.5E-02 | 4.5E-02 | 1.9E-01 | | | |
| Zr-95 | -5.9E-02 | +/- | 2.5 E-02 | 2.5E-02 | 1.3E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | |
|------------------------------------|---|---|------|--|--|--|--|
| MAY | 0 | 5 | 2005 | | | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | | | |

CULURELLO 5505

Approved by

(| E. M. Moreno Sample Control and Measurements Lead


Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

| - . | | | | | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-11

04/12/05

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Analysis Date 04/25/05

BLDG21

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|---------------|-------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | a) | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.25E-01 | +/- | 5.1E-02 | 5.3E-02 | 1.7E-01 | | bc | |
| Ag-108m | -1.43E-02 | +/- | 8.5E-03 | 8.5E-03 | 3.3E-02 | | | |
| Ag-110m | -8E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.6E-02 | | | |
| Ba-140 | 1.1E-02 | +/- | 6.9E-02 | 6.9E-02 | 2.5E-01 | | | |
| Be-7 | -9.4E-02 | +/- | 9.3E-02 | 9.3E-02 | 3.5E-01 | | | |
| Ce-141 | 1.3E-02 | +/- | 1.9E-02 | 1.9E-02 | 6.5E-02 | | | |
| Ce-144 | 2.7E-02 | +/- | 7.1 E-02 | 7.1E-02 | 2.4E-01 | | | |
| Co-57 | 1.46E-02 | +/- | 8.7E-03 | 8.7E-03 | 2.8E-02 | | | |
| Co-58 | 6E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.8E-02 | | | |
| Co-60 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.7E-02 | | | |
| Cr-51 | 9E-02 | +/- | 1.1E-01 | 1.1E-01 | 3.6E-01 | | | |
| Cs-134 | -6E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | 1.5E-01 | | |
| Cs-137 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.3E-02 | 1.8E-01 | | |
| Fe-59 | -1E-02 | +/- | 2.6E-02 | 2.6E-02 | 9.8E-02 | | | |
| I-131 | 3E-03 | +/- | 2.9E-02 | 2.9E-02 | 1.0E-01 | | | |
| K-40 | 1.167E+01 | +/- | 5.0E-01 | 7.7E-01 | 5.2E-01 | | bc | |
| La-140 | -2.1E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.3E-01 | | | |
| Mn-54 | 1.6E-02 | +/- | 1.2E-02 | 1.2E-02 | 4.0E-02 | | | |
| Nb-95 | 2.3E-02 | +/- | 1.5E-02 | 1.6E-02 | 5.1E-02 | | | |
| Ru-103 | 5E-03 | +/- | 1.1E-02 | 1.1E-02 | 4.0E-02 | | | |
| Ru-106 | -1E-02 | +/- | 9.9E-02 | 9.9E-02 | 3.6E-01 | | | |
| Sb-124 | -1.7E-02 | +/- | 1.8E-02 | 1.8E-02 | 8.3E-02 | | | |
| Sb-125 | 0E+00 | +/- | 2.7E-02 | 2.7E-02 | 9.6E-02 | | | |
| Se -75 | -1.3E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.0E-02 | | | |
| Zn-65 | 3.3E-02 | +/- | 4.7E-02 | 4.7E-02 | 1.6E-01 | | | |
| Zr-95 | -3.6E-02 | +/- | 1.8E-02 | 1.8E-02 | 7.8E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | |
|--------|---------|--|--|--|--|--|--|
| MAY 0 | 5 2005 | | | | | | |
| FRAMAT | OME ANP | | | | | | |

Page 1 of 1

Approved by 5 5/05

(<sup>1)</sup>E. M. Moreno Sample Control and Measurements Lead

AREVA

Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581

508-898-9970

| . . | | | | | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-13

04/12/05

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Analysis Date 04/25/05

Client ID

SA003

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity (
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|---------------|---------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (p | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.1E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.3E-01 | | c | |
| Ag-108m | 5E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.7E-02 | | | |
| Ag-110m | -6E-03 | +/- | 3.4E-02 | 3.4E-02 | 1.3E-01 | | | |
| Ba-140 | -1E-02 | +/- | 1.4E-01 | 1.4E-01 | 5.2E-01 | | | |
| Be-7 | -2.1E-01 | +/- | 1.8E-01 | 1.8E-01 | 7.4E-01 | | | |
| Ce-141 | -9E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.5E-01 | | | |
| Ce-144 | 2.4E-01 | +/- | 2.2E-01 | 2.2E-01 | 7.4E-01 | | | |
| Co-57 | 2.9E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.3E-02 | | | |
| Co-58 | 9E-03 | +/- | 2.7E-02 | 2.7E-02 | 9.7E-02 | | | |
| Co-60 | 3.9E-02 | +/- | 2.7E-02 | 2.7E-02 | 8.9E-02 | | | |
| Cr-51 | -3E-01 | +/- | 2.7E-01 | 2.7E-01 | 1.0E+00 | | | |
| Cs-134 | -3E-03 | +/- | 3.2E-02 | 3.2E-02 | 1.1E-01 | 1.5E-01 | | |
| Cs-137 | 1.2E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.6E-02 | 1.8E-01 | | |
| Fe-59 | -1.6E-02 | +/- | 5.5 E-02 | 5.5E-02 | 2.1E-01 | | | |
| I-131 | -6.1E-02 | +/- | 6.4E-02 | 6.4E-02 | 2.4E-01 | | | |
| K-40 | 1.77E+01 | +/- | 1.0E+00 | 1.4E+00 | 9.7E-01 | | bc | |
| La-140 | -4E-03 | +/- | 8.4E-02 | 8.4E-02 | 9.9E-01 | | | |
| Mn-54 | -4E-03 | +/- | 2.4E-02 | 2.4E-02 | 9.1E-02 | | | |
| Nb-95 | -1.4E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.1E-01 | | | |
| Ru-103 | 2.2E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.6E-02 | | | |
| Ru-106 | 7E-02 | +/- | 2.4E-01 | 2.4E-01 | 8.6E-01 | | | |
| Sb-124 | -7.1E-02 | +/- | 4.2E-02 | 4.2E-02 | 2.2E-01 | | | |
| Sb-125 | -4.1E-02 | +/- | 6.2E-02 | 6.2E-02 | 2.3E-01 | | | |
| Se -75 | -2.5E-02 | +/- | 2.4E-02 | 2.4E-02 | 9.3E-02 | | | |
| Zn-65 | -1.39E-01 | +/- | 6.4E-02 | 6.5E-02 | 2.7E-01 | | | |
| Zr-95 | -3.8E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.6E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| M, | 4 | IL | ED |
|-----------------|----------|----------|--------------------|
| MAY | 0 | 5 | 2005 |
| FRAM
ENVIROI | AT
NM | ON
EN | IE ANP
ITAL LAB |

Sample Control and Measurements Lead

Approved by

11D

E. M. Moreno

15/05



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581 508-898-9970

| | . | | | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date

Analysis Date 04/25/05

SA005

Client ID

L9126-15

04/11/05

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Cond
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|-----------------|-----------------|-----------------|-------|--|
| | q) |)Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.8E-01 | +/- | 1.3E-01 | 1.3E-01 | 3.7E-01 | | bc | |
| Ag-108m | -6E-03 | +/- | 1.9E-02 | 1.9E-02 | 7.1E-02 | | | |
| Ag-110m | 2.5E-02 | +/- | 2.5E-02 | 2.5E-02 | 8.7E-02 | | | |
| Ba-140 | -1.3E-01 | +/- | 1.7E-01 | 1.7 E-01 | 6.6E-01 | | | |
| Be-7 | -1.9E-01 | +/- | 1.9E-01 | 1.9E-01 | 7.6E-01 | | | |
| Ce-141 | 6E-03 | +/- | 3.8E-02 | 3.8E-02 | 1.3E-01 | | | |
| Ce-144 | -1.3E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.7E-01 | | | |
| Co-57 | 1E-03 | +/- | 1.4E-02 | 1.4E-02 | 5.1E-02 | | | |
| Co-58 | -5E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.5E-02 | | | |
| Co-60 | 6E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.2E-02 | | | |
| Cr-51 | -3.6E-01 | +/- | 2.4E-01 | 2.4E-01 | 9.3E-01 | | | |
| Cs-134 | -1.5E-02 | +/- | 2.3E-02 | 2.3E-02 | 8.8E-02 | 1.5E-01 | | |
| Cs-137 | -1.4E-02 | +/- | 2.2E-02 | 2.2E-02 | 8.8E-02 | 1.8E-01 | | |
| Fe-59 | 2.2E-02 | +/- | 5.1E-02 | 5.1E-02 | 1.9E-01 | | | |
| I-131 | 2.8E-02 | +/- | 7.2E-02 | 7.2E-02 | 2.6E-01 | | | |
| K-40 | 1.025E+01 | +/- | 8.0 E- 01 | 9.5E-01 | 8.9E-01 | | bc | |
| La-140 | -2.6E-02 | +/- | 7.4E-02 | 7.4E-02 | 2.9E-01 | | | |
| Mn-54 | -2.6E-02 | +/- | 2.0E-02 | 2.0E-02 | 8.6E-02 | | | |
| Nb-95 | -5.7E-02 | +/- | 2.9E-02 | 2.9E-02 | 1.2E-01 | | | |
| Ru-103 | 0E+00 | +/- | 2.2E-02 | 2.2E-02 | 8.5E-02 | | | |
| Ru-106 | -2.8E-01 | +/- | 1.6E-01 | 1.6E-01 | 7.2E-01 | | | |
| Sb-124 | -1.7E-02 | +/- | 5.5E-02 | 5.5E-02 | 2.4E-01 | | | |
| Sb-125 | 7.8E-02 | +/- | 6.2E-02 | 6.2E-02 | 2.1E-01 | | | |
| Se-75 | -4.8E-02 | +/- | 2.6E-02 | 2.6E-02 | 1.0E-01 | | | |
| Zn-65 | -1.53E-01 | +/- | 6.2E-02 | 6.3E-02 | 2.7E-01 | | | |
| Zr-95 | -5.4E-02 | +/- | 3.1E-02 | 3.1E-02 | 1.7E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| M | 41 | L | ED |
|----------------|----------|---|--------|
| MAY | 0 | 5 | 2005 |
| FRAM
ENVIRO | AT
NM | | IE ANP |

Approved by BUILLIPEUD 5 5 105

Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581 508-898-9970

| | | | | 6 R 16 R 16 R | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|---------------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date L9126-19

04/12/05

Analysis Date 04/25/05

SA010

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity 4
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (F | oCi/g) |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.013E+00 | +/- | 5.3E-02 | 1.1E-01 | 2.1E-01 | | bc | |
| Ag-108m | -1.47E-02 | +/- | 9.9E-03 | 9.9E-03 | 3.5E-02 | | | |
| Ag-110m | 2E-03 | +/- | 1.5E-02 | 1.5E-02 | 5.3E-02 | | | |
| Ba-140 | -3E-02 | +/- | 6.8E-02 | 6.8E-02 | 2.4E-01 | | | |
| Be-7 | 5.1E-01 | +/- | 1.3E-01 | 1.3E-01 | 4.2E-01 | | bc | |
| Ce-141 | 2.7E-02 | +/- | 1.7E-02 | 1.7E-02 | 5.7E-02 | | | |
| Ce-144 | -1.8E-01 | +/- | 1.1E-01 | 1.1E-01 | 3.6E-01 | | | |
| Co-57 | -2.4E-03 | +/- | 7.0E-03 | 7.0E-03 | 2.4E-02 | | | |
| Co-58 | -1E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.1E-02 | | | |
| Co-60 | -5E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.4E-02 | | | |
| Cr-51 | -2.3E-01 | +/- | 1.2E-01 | 1.2E-01 | 4.3E-01 | | | |
| Cs-134 | 4E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.3E-02 | 1.5E-01 | | |
| Cs-137 | 5E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | 1.8E-01 | | |
| Fe-59 | -4.6E-02 | +/- | 2.5E-02 | 2.5E-02 | 9.2E-02 | | | |
| I-131 | 2.4E-02 | +/- | 3.4E-02 | 3.4E-02 | 1.1E-01 | | | |
| K-40 | 1.14E+00 | +/- | 2.2E-01 | 2.3E-01 | 6.6E-01 | | bc | |
| La-140 | 3E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.4E-01 | | | |
| Mn-54 | 3.9E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.1E-02 | | | |
| Nb-95 | 4.6E-02 | +/- | 1.9E-02 | 1.9E-02 | 6.0E-02 | | | |
| Ru-103 | -1.1E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Ru-106 | 4E-02 | +/- | 1.2E-01 | 1.2E-01 | 4.0E-01 | | | |
| Sb-124 | 3.3E-02 | +/- | 2.8E-02 | 2.8E-02 | 9.3E-02 | | | |
| Sb-125 | 5.5E-02 | +/- | 3.1E-02 | 3.2E-02 | 1.0E-01 | | | |
| Se-75 | -1.2E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Zn-65 | -7.5E-02 | +/- | 5.0E-02 | 5.0E-02 | 1.7E-01 | | | |
| Zr-95 | 5E-03 | +/- | 2.5E-02 | 2.5E-02 | 8.4E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

| M | 4 | L | ED |
|-----|----------|----------|--------------------|
| MAY | 0 | 5 | 2005 |
| | AT
NM | ON
EN | IE ANP
ITAL LAB |

Approved by 9 (II II 2010

E. M. Moreno Sample Control and Measurements Lead



Environmental Laboratory Analysis Report 29 Research Drive

Westboro, MA 01581

508-898-9970

| • | | | Device the Device | 05/05/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|-------------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date

L9126-20

04/08/05

Analysis Date 04/25/05

BKG04

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|---------------|-------------------|---------------|------------------|----------------|------------------|-----------------|-------|--|
| | q) | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.6E-01 | +/- | 1.2E-01 | 1.2E-01 | 3.4E-01 | | bc | |
| Ag-108m | -1.9E-02 | +/- | 1.7E-02 | 1.7E-02 | 6.7E-02 | | | |
| Ag-110m | 0E+00 | +/- | 2.9E-02 | 2.9E-02 | 1.1E-01 | | | |
| Ba-140 | 3E-02 | +/- | 1.8E-01 | 1.8E-01 | 6.5E-01 | | | |
| Be-7 | -2E-02 | +/- | 2.2E-01 | 2.2E-01 | 8.1E-01 | | | |
| Ce-141 | 1.7E-02 | +/- | 4.2E-02 | 4.2E-02 | 1. 4E- 01 | | | |
| Ce-144 | -8E-02 | +/- | 1.3E-01 | 1.3E-01 | 4.6E-01 | | | |
| Co-57 | -2.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.9E-02 | | | |
| Co-58 | -1.8E-02 | +/- | 1.6E-02 | 1.6E-02 | 7.3E-02 | | | |
| Co-60 | 2.1E-02 | +/- | 2.1E-02 | 2.2E-02 | 7.6E-02 | | | |
| Cr-51 | -2E-02 | +/- | 2.5E-01 | 2.5E-01 | 8.9E-01 | | | |
| Cs-134 | -2.2E-02 | +/- | 3.5E-02 | 3.5E-02 | 1.3E-01 | 1.5E-01 | | |
| Cs-137 | 5.2E-02 | +/- | 2.9E-02 | 2.9E-02 | 9.5E-02 | 1.8E-01 | с | |
| Fe-59 | -5.6E-02 | +/- | 4.6E-02 | 4.6E-02 | 2.0E-01 | | | |
| I- 131 | -8.5E-02 | +/- | 8.8E-02 | 8.8E-02 | 3.3E-01 | | | |
| K-40 | 9.39E+00 | +/- | 7.4E-01 | 8.7E-01 | 7.8E-01 | | bc | |
| La-140 | 9E-02 | +/- | 9.3E-02 | 9.3E-02 | 3.2E-01 | | | |
| Mn-54 | 2E-02 | +/- | 2.1E-02 | 2.1E-02 | 7.4E-02 | | | |
| Nb-95 | 1.5E-02 | +/- | 3.0E-02 | 3.0E-02 | 1.1E-01 | | | |
| Ru-103 | 3.8E-02 | +/- | 2.2E-02 | 2.2E-02 | 7.2E-02 | | | |
| Ru-106 | 0E+00 | +/- | 1.7E-01 | 1.7E-01 | 6.6E-01 | | | |
| Sb-124 | -5E-03 | +/- | 4.1E-02 | 4.1E-02 | 1.8E-01 | | | |
| Sb-125 | 7.5E-02 | +/- | 5.4E-02 | 5.5E-02 | 1.8E-01 | | | |
| Se-75 | -1.8E-02 | +/- | 2.7E-02 | 2.7E-02 | 1.0E-01 | | | |
| Zn-65 | -1.1E-02 | +/- | 6.1E-02 | 6.1E-02 | 2.3E-01 | | | |
| Zr-95 | 7E-03 | +/- | 3.4E-02 | 3.4E-02 | 1.5E-01 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| M | A | L | ED |
|----------------|----------|---|--------------------|
| MAY | 0 | 5 | 2005 |
| FRAM
ENVIRO | AT
NM | | IE ANP
ITAL LAB |

Approved by CUULIPELLO 5/5/05

E. M. Moreno Sample Control and Measurements Lead



Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

| . . | | | | | Framatome ANP Inc |
|------------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date

,

.

L9126-21

04/12/05

Analysis Date 04/25/05

BKG06

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity C
+/- 1 | conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|---------------------|---------------|------------------|-----------------|------------------|-----------------|-------|--|
| | (p) | Ci/g) |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.19E-01 | +/- | 3.9E-02 | 4.2E-02 | 1.5E-01 | | bc | |
| Ag-108m | 3.2E-03 | +/- | 7.9E-03 | 7.9E-03 | 2.8E-02 | | | |
| Ag-110m | -3E-03 | +/- | 1.6E-02 | 1.6E-02 | 5.9E-02 | | | |
| Ba-140 | 3.7E-02 | +/- | 7.3E-02 | 7.3E-02 | 2.5 E-0 1 | | | |
| Be-7 | 1.7E-02 | +/- | 9.2E-02 | 9.2E-02 | 3.2E-01 | | | |
| Ce-141 | -6E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.5E-02 | | | |
| Ce-144 | -6.2E-02 | +/- | 6.4E-02 | 6.4E-02 | 2.2E-01 | | | |
| Co-57 | -8.8E-03 | +/- | 8.2E-03 | 8.2E-03 | 2.9E-02 | | | |
| Co-58 | 7E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.9E-02 | | | |
| Co-60 | 7E-03 | +/- | 1.2E-02 | 1.2E-02 | 4.3E-02 | | | |
| Cr-51 | 7.2E-02 | +/- | 9.9E-02 | 9.9E-02 | 3.4E-01 | | | |
| Cs-134 | -5E-03 | +/- | 1.0E-02 | 1.0E-02 | 3.8E-02 | 1.5E-01 | | |
| Cs-137 | 9E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | 1.8E-01 | | |
| Fe-59 | -3.3E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.1E-01 | | | |
| I-131 | 5E-03 | +/- | 2.8E-02 | 2.8E-02 | 9.8E-02 | | | |
| K-40 | 1.56E+01 | +/- | 5.2E-01 | 9.3E-01 | 4.3E-01 | | bc | |
| La-140 | 0E+00 | +/- | 3.2E-02 | 3.2E-02 | 1.2E-01 | | | |
| Mn-54 | -1.7E-02 | +/- | 1.1E-02 | 1.1E-02 | 4.2E-02 | | | |
| Nb-95 | -1.6E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.0E-02 | | | |
| Ru-103 | 3E-03 | +/- | 1.1E-02 | 1.1E-02 | 3.7E-02 | | | |
| Ru-106 | 9.7E-02 | +/- | 9.7E-02 | 9.7E-02 | 3.3E-01 | | | |
| Sb-124 | 5E-03 | +/- | 1.6E-02 | 1.6 E-02 | 6.4E-02 | | | |
| Sb-125 | 4.4E-02 | +/- | 2.6E-02 | 2.6E-02 | 8.5E-02 | | | |
| Se-75 | -2.2E-02 | +/- | 1.3E-02 | 1.3E-02 | 4.9E-02 | | | |
| Zn-65 | 8.5E-02 | +/- | 5.6E-02 | 5.6E-02 | 1.8E-01 | | | |
| Zr-95 | 1.6E-02 | +/- | 1.7E-02 | 1.7E-02 | 6.7E-02 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| M | 4 | IL | ED | • |
|------|----|----|------|---|
| MAY | 0 | 5 | 2005 | |
| FRAM | ÂT | | | |

Page 1 of 1

Approved by

() E. M. Moreno Sample Control and Measurements Lead

c:



Environmental Laboratory Analysis Report 29 Research Drive Westboro, MA 01581

508-898-9970

| | | | | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. Reference Date

L9126-22

04/13/05

Analysis Date 04/25/05

BKG01

Client ID

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

|
Nuclide | Activity (
+/- 1 | Conc
- Się | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|-------------|---------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | q) | Ci/g) |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 3.1E-01 | +/- | 1.0E-01 | 1.0E-01 | 3.0E-01 | | bc | |
| Ag-108m | -3.9E-02 | +/- | 1.3E-02 | 1.3E-02 | 5.7E-02 | | | |
| Ag-110m | -1.3E-02 | +/- | 2.1E-02 | 2.1E-02 | 8.7E-02 | | | |
| Ba-140 | 3.2E-02 | +/- | 9.5E-02 | 9.5E-02 | 3.5E-01 | | | |
| Be-7 | 7.2E-01 | +/- | 1.9E-01 | 1.9E-01 | 5.2E-01 | | bc | |
| Ce-141 | -3.7E-02 | +/- | 2.5E-02 | 2.6E-02 | 9.4E-02 | | | |
| Ce-144 | 3.4E-02 | +/- | 8.1E-02 | 8.2E-02 | 2.8E-01 | | | |
| Co-57 | -1.28E-02 | +/- | 9.4E-03 | 9.4E-03 | 3.5E-02 | | | |
| Co-58 | 2.1E-02 | +/- | 1.8E-02 | 1.8E-02 | 6.0E-02 | | | |
| Co-60 | -3E-03 | +/- | 1.5E-02 | 1.5E-02 | 6.2E-02 | | | |
| Cr-51 | -2E-02 | +/- | 1.3E-01 | 1.3E-01 | 4.7E-01 | | | |
| Cs-134 | -1.7E-02 | +/- | 1.5E-02 | 1.5E-02 | 6.0E-02 | 1.5E-01 | | |
| Cs-137 | 1.1 4E-01 | +/- | 3.0E-02 | 3.1E-02 | 8.8E-02 | 1.8E-01 | bc | |
| Fe-59 | -2.4E-02 | +/- | 3.7E-02 | 3.7E-02 | 1.5E-01 | | | |
| -131 | 3.8E-02 | +/- | 3.2E-02 | 3.2E-02 | 1.1E-01 | | | |
| K-40 | 1.518E+01 | +/- | 8.4E-01 | 1.1E+00 | 7.9E-01 | | bc | |
| La-140 | 3.2E-02 | +/- | 5.1E-02 | 5.1E-02 | 1.8E-01 | | | |
| Mn-54 | -1E-02 | +/- | 1.7 E-02 | 1.7E-02 | 6.8E-02 | | | |
| Nb-95 | -1.5E-02 | +/- | 2.0E-02 | 2.0E-02 | 7.8E-02 | | | |
| Ru-103 | -1.9E-02 | +/- | 1.6E-02 | 1.6E-02 | 6.5E-02 | | | |
| Ru-106 | -2E-02 | +/- | 1.4E-01 | 1.4E-01 | 5.5E-01 | | | |
| Sb-124 | -3.8E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.5E-01 | | | |
| Sb-125 | -6E-03 | +/- | 4.3E-02 | 4.3E-02 | 1.6E-01 | | | |
| Se-75 | -1E-03 | +/- | 1.9E-02 | 1.9E-02 | 6.9E-02 | | | |
| Zn-65 | -7.7E-02 | +/- | 4.6E-02 | 4.6E-02 | 1.9E-01 | | | |
| Zr-95 | 1.2E-02 | +/- | 2.7E-02 | 2.7E-02 | 9.9E-02 | | | |

Flags: a The measured MDC is greater than the required MDC

- b The activity concentration is greater than three times its one sigma counting uncertainty.
- c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | |
|----------------|----------|-----------|--------------------|--|--|--|--|
| MAY | 0 | 5 | 2005 | | | | |
| FRAM
ENVIRO | AT
NM | ON
IEN | IE ANP
ITAL LAB | | | | |

Approved by QUIN Rus 5

Sample Control and Measurements Lead



Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

| | | FEDERAL GRP | Report Date | | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---------------------------------|
| Customer | Framatome ANP Inc | | | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street |
| | | | | | Charlotte, NC 28285 |

Lab. Sample No. L9126-23 **Reference Date**

04/15/05

Analysis Date 05/02/05

Client ID

SPLIT OF #L9126-03

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (p | Ci/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 2.29E-01 | +/- | 2.2E-02 | 2.5E-02 | 9.2E-02 | | bc | |
| Ag-108m | -1.8E-03 | +/- | 4.7E-03 | 4.7E-03 | 1.6E-02 | | | |
| Ag-110m | 1.79E-02 | +/- | 8.5E-03 | 8.6E-03 | 2.8E-02 | | | |
| Ba-140 | -1.6E-02 | +/- | 4.6E-02 | 4.6E-02 | 1.6E-01 | | | |
| Be-7 | 1.341E+00 | +/- | 9.5E-02 | 1.2E-01 | 2.4E-01 | | bc | |
| Ce-141 | 2.5E-02 | +/- | 1.0E-02 | 1.0E-02 | 3.3E-02 | | | |
| Ce-144 | 5E-02 | +/- | 3.3E-02 | 3.3E-02 | 1.1E-01 | | | |
| Co-57 | 3.6E-03 | +/- | 4.0E-03 | 4.0E-03 | 1.3E-02 | | | |
| Co-58 | -1.75E-02 | +/- | 5.8E-03 | 5.8E-03 | 2.2E-02 | | | |
| Co-60 | 1E-04 | +/- | 6.1E-03 | 6.1E-03 | 2.2E-02 | | | |
| Cr-51 | -6.6E-02 | +/- | 6.5E-02 | 6.5E-02 | 2.3E-01 | | | |
| Cs-134 | -3.1E-03 | +/- | 5.0E-03 | 5.0E-03 | 1.9E-02 | 1.5E-01 | | |
| Cs-137 | 3.6E-02 | +/- | 8.3E-03 | 8.5E-03 | 2.5E-02 | 1.8E-01 | bc | |
| Fe-59 | 3E-03 | +/- | 1.6E-02 | 1.6E-02 | 5.7E-02 | | | |
| I-131 | 1.8E-02 | +/- | 2.1E-02 | 2.1E-02 | 7.2E-02 | | | |
| K-40 | 1.63E+01 | +/- | 3.2E-01 | 8.7E-01 | 2.5E-01 | | bc | |
| La-140 | 3.1E-02 | +/- | 2.3E-02 | 2.3E-02 | 7.6E-02 | | | |
| Mn-54 | 8E-04 | +/- | 6.3E-03 | 6.3E-03 | 2.2E-02 | | | |
| Nb-95 | 6.7E-03 | +/- | 7.5E-03 | 7.5E-03 | 2.5E-02 | | | |
| Ru-103 | -8.3E-03 | +/- | 6.4E-03 | 6.4E-03 | 2.3E-02 | | | |
| Ru-106 | 4.3E-02 | +/- | 5.5E-02 | 5.5E-02 | 1.9E-01 | | | |
| Sb-124 | -8.7E-03 | +/- | 8.7E-03 | 8.7E-03 | 3.6E-02 | | | |
| Sb-125 | -2.2E-02 | +/- | 1.4E-02 | 1.4E-02 | 5.0E-02 | | | |
| Se-75 | -1.24E-02 | +/- | 7.1E-03 | 7.1E-03 | 2.5E-02 | | | |
| Zn-65 | -2E-03 | +/- | 2.6E-02 | 2.6E-02 | 9.0E-02 | | | |
| Zr-95 | -8.9E-03 | +/- | 9.4E-03 | 9.4E-03 | 3.7E-02 | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

| MAILED | | | | | | | |
|----------------|----------|-----------|--------------------|--|--|--|--|
| MAY | 0 | 5 | 2005 | | | | |
| FRAM
ENVIRO | A1
NM | ON
IEN | IE ANP
ITAL LAB | | | | |

Approved by 6 1414 5 5 105 ៧៧៣

E. M. Moreno Sample Control and Measurements Lead



Environmental Laboratory Analysis Report

29 Research Drive Westboro, MA 01581 508-898-9970

| 0 | Energy AND In a | | Dow out Data | 05/05/05 | Framatome ANP Inc |
|-----------|--------------------------|-------------|--------------|----------|---|
| Customer | Framatome ANP Inc | FEDERAL GRP | Report Date | 05/05/05 | Framatome ANP Federal D&D Group |
| Attention | John McGehee & Don McGee | | Receipt Date | 04/14/05 | 400 South Tryon Street
Charlotte, NC 28285 |

Lab. Sample No. Reference Date

L9126-25

04/15/05

Client ID DUP OF Analysis Date 04/25/05

DUP OF #L9126-15

Product GAMMA SPECTROMETRY Matrix Sludge (Dry)

| Nuclide | Activity
+/- 1 | Conc
- Sig | entration
gma | TPU
1 Sigma | Measured
MDC | Required
MDC | Flags | |
|----------|-------------------|---------------|------------------|----------------|-----------------|-----------------|-------|--|
| | (F | oCi/g |) | (pCi/g) | (pCi/g) | (pCi/g) | | |
| AcTh-228 | 5.2E-01 | +/- | 1.0 E- 01 | 1.0E-01 | 3.3E-01 | | bc | |
| Ag-108m | 2.3E-02 | +/- | 1.6E-02 | 1.6E-02 | 5.2E-02 | | | |
| Ag-110m | 1E-02 | +/- | 2.8E-02 | 2.8E-02 | 1.0E-01 | | | |
| Ba-140 | -4E-02 | +/- | 1.2E-01 | 1.2E-01 | 4.4E-01 | | | |
| Be-7 | 2E-01 | +/- | 1.8E-01 | 1.8E-01 | 6.2E-01 | | | |
| Ce-141 | -2E-03 | +/- | 3.0E-02 | 3.0E-02 | 1.1E-01 | | | |
| Ce-144 | -6E-02 | +/- | 1.0E-01 | 1.0E-01 | 3.7E-01 | | | |
| Co-57 | 1E-03 | +/- | 1.3E-02 | 1.3E-02 | 4.4E-02 | | | |
| Co-58 | 0E+00 | +/- | 2.0E-02 | 2.0E-02 | 7.7E-02 | | | |
| Co-60 | 2E-03 | +/- | 1.8E-02 | 1.8E-02 | 7.2E-02 | | | |
| Cr-51 | 2.8E-01 | +/- | 1.9E-01 | 1.9E-01 | 6.3E-01 | | | |
| Cs-134 | -2.8E-02 | +/- | 2.0E-02 | 2.0E-02 | 7.9E-02 | 1.5E-01 | | |
| Cs-137 | 2.5E-02 | +/- | 2.4E-02 | 2.4E-02 | 8.1E-02 | 1.8E-01 | | |
| Fe-59 | 9.1E-02 | +/- | 4.5E-02 | 4.5E-02 | 1.4E-01 | | | |
| I-131 | 0E+00 | +/- | 3.8E-02 | 3.8E-02 | 1.4E-01 | | | |
| K-40 | 1.034E+01 | +/- | 7.9E-01 | 9.4E-01 | 1.1E+00 | | bc | |
| La-140 | -1.8E-02 | +/- | 5.7E-02 | 5.7E-02 | 2.1E-01 | | | |
| Mn-54 | 1.1E-02 | +/- | 2.2E-02 | 2.2E-02 | 7.9E-02 | | | |
| Nb-95 | -3E-03 | +/- | 2.1E-02 | 2.1E-02 | 8.2E-02 | | | |
| Ru-103 | 1.9E-02 | +/- | 1.8E-02 | 1.8E-02 | 6.1E-02 | | | |
| Ru-106 | 8E-02 | +/- | 2.1E-01 | 2.1E-01 | 7.5E-01 | | | |
| Sb-124 | -1.4E-02 | +/- | 3.8E-02 | 3.8E-02 | 1.7E-01 | | | |
| Sb-125 | 7E-03 | +/- | 4.5E-02 | 4.5E-02 | 1.7E-01 | | | |
| Se-75 | -7E-03 | +/- | 2.2E-02 | 2.2E-02 | 8.1E-02 | | | |
| Zn-65 | -5.4E-02 | +/- | 3.6E-02 | 3.6E-02 | 1.6E-01 | | | |
| Zr-95 | 6E-03 | +/- | 3.0E-02 | 3.0E-02 | 1.2E-01 | | | |
| | | | | | | | | |

Flags: a The measured MDC is greater than the required MDC

b The activity concentration is greater than three times its one sigma counting uncertainty.

c Peak was found

Reporting Level Ratio:

| M | 4 | L | ED | | |
|------------------------------------|---|---|------|--|--|
| MAY | 0 | 5 | 2005 | | |
| FRAMATOME ANP
ENVIRONMENTAL LAB | | | | | |

Approved by Uυ

E. M. Moreno Sample Control and Measurements Lead

Page 1 of 1

which have believe

Griffiss AFB, Building 104 Drain System PA/SI Rome, New York

Appendix C Analytical Data and Quality Control

Section 11.0 Framatome ANP Environmental Laboratory **Quality Control Summary**



FRAMATOME ANP ENVIRONMENTAL LABORATORY QUALITY CONTROL SAMPLE EVALUATION SUMMARY FOR PARSONS ENGINEERING SCIENCE, INC. (GRIFFISS AFB) SOILS – GAMMA SPECTROSCOPY ANALYSIS

The Sample and Analysis Plan for the Griffiss AFB Storm Drain and Sanitary Sewer Systems (Task Order 744009.6000-00), Section 5, requires FANP to perform quality assurance checks on 5% of all sample analyses. Split samples, homogenized and split into two separate samples for analysis, and duplicate analyses, the same sample measured twice at different times and using different detectors, are to be performed for each type of sample analysis.

A set of 22 soil/sludge samples was shipped to the FANP Environmental Laboratory on April 14, 2005. Twelve samples required <sup>226</sup>Ra analysis via gamma spectroscopy. To achieve the required 5% QC requirement, one duplicate and one split sample were also included in the analysis batch. A portion of sample L9126-03 (ST003) was used as the split sample and is identified as L9126-23 (Split of #L9126-03). Sample L9126-15 (SA005) was recounted as the duplicate sample, which is identified as L9126-25 (Dup of #L9126-15).

The acceptance criteria for these quality control samples is specified in the Framatome ANP Environmental Laboratory Quality Assurance Manual 100, Revision 8, Section IV.D.5.a.(2), which states:

In the case of replicate analyses where there is no "known" value, the three-sigma range is established for each analysis. For duplicate analyses the two-sigma range is established. If the ranges overlap, the analyses are considered in agreement for precision.

The program is based on E-LAB's standard dual-level acceptance criteria that states that if the paired measurements are within 15% of their average value, agreement between the measurements has been obtained. If the value falls outside of the 15% range about the mean, a two-standard deviation (95% confidence level) range or three-standard deviation (99% confidence level) range is established for each of the analyses. If the ranges overlap, the analyses are considered to be in agreement.

The table below summarizes the QC sample results. The above evaluation criteria were applied to each radionuclide identified as having an analysis result greater than 3 times the counting uncertainty. All of the quality control evaluations met the acceptance criteria as defined above.

Parsons Engineering Science, Inc. QC Evaluation Page 2

| 200000000000000000000000000000000000000 | 200000000000000000000000000000000000000 | 100000000000000000000000000000000000000 | 100000000000000000000000000000000000000 | 000000000000000000000000000000000000000 | 000000000000000000000000000000000000000 | 200000000000000000000000000000000000000 |
|---|---|---|---|--|---|---|
| LSN | Client
ID | Detector
ID | Radionuclide | Analysis Result ±
1-Sigma Counting
Uncertainty | % Difference
(from Mean) | 2-Sigma
Overlap
Achieved? |
| L9126-03 | ST003 | 4 | AcTh-228 | 1.65E-1 ± 8.2E-2 | | |
| L9126-23 | Split of
ST003 | 2 | AcTh-228 | 2.29E-1 ± 2.2E-2 | ±16.2% | YES |
| L9126-03 | ST003 | 4 | Be-7 | 1.22E0 ± 2.0E-1 | 20099002000000000000000000000000000000 | 000000000000000000000000000000000000000 |
| L9126-23 | Split of
ST003 | 2 | Be-7 | 1.341E0 ± 9.5E-2 | ±4.7% | YES |
| L9126-03 | ST003 | 4 | K-40 | 1.727E+1 ± 7.6E-1 | 10000000000000000000000000000000000000 | 000000000000000000000000000000000000000 |
| L9126-23 | Split of
ST003 | 2 | K-40 | 1.83E+1 ± 3.2E-1 | ±2.9% | YES |
| L9126-15 | SA005 | 6 | AcTh-228 | 3.8E-1 ± 1.3E-1 | | 89899889899898989899999999999999999999 |
| L9126-25 | Dup of
SA005 | 2 | AcTh-228 | 5.2E-1 ± 1.0E-1 | ±15.6% | YES |
| L9126-15 | SA005 | 6 | K-40 | 1.025E+1 ± 8.0E-1 | B0000000000000000000000000000000000000 | 00000000000000000000000000000000000000 |
| L9126-25 | Dup of
SA005 | 2 | K-40 | 1.034E+1 ± 7.9E-1 | ±0.4% | YES |

<sup>226</sup>Ra via Gamma Spectrometry QC Evaluation

QC Summary Provided by:

Christopher Shelton Quality Assurance Officer Framatome ANP Environmental Laboratory



FRAMATOME ANP ENVIRONMENTAL LABORATORY QUALITY CONTROL SAMPLE EVALUATION SUMMARY FOR PARSONS ENGINEERING SCIENCE, INC. (GRIFFISS AFB) SOILS –RA-226 RADIOCHEMISTRY ANALYSIS

The Sample and Analysis Plan for the Griffiss AF8 Storm Drain and Sanitary Sewer Systems (Task Order 744009.6000-00), Section 5, requires FANP to perform quality assurance checks on 5% of all sample analyses. Split samples, homogenized and split into two separate samples for analysis, and duplicate analyses, the same sample measured twice at different times and using different detectors, are to be performed for each type of sample analysis.

A set of 22 soil/sludge samples was shipped to the FANP Environmental Laboratory on April 14, 2005. All of the samples were to analyzed for Ra-226 by radiochemistry. To achieve the required 5% QC requirement, four duplicate and two split samples were included in the analysis batch. The table below identifies the samples used to meet the QC requirements.

| QC Sample LSN | Description | QC Function | Sample LSN | Client ID |
|---------------|--------------------|-------------|------------|-----------|
| L9126-23 | Split of #L9126-03 | SPLIT | L9126-03 | ST003 |
| L9126-24 | Split of #L9126-06 | SPLIT | L9126-06 | ST007 |
| L9126-25 | Split of #L9126-15 | SPLIT | L9126-15 | SA005 |
| L9126-26 | Split of #L9126-17 | SPLIT | L9126-17 | SA007 |
| L9126-27 | Dup of #L9126-15 | DUPLICATE | L9126-15 | SA005 |
| L9126-28 | Dup of #L9126-17 | DUPLICATE | L9126-17 | SA007 |

The acceptance criteria for these quality control samples is specified in the Framatome ANP Environmental Laboratory Quality Assurance Manual 100, Revision 8, Section IV.D.5.a.(2), which states:

In the case of replicate analyses where there is no "known" value, the three-sigma range is established for each analysis. For duplicate analyses the two-sigma range is established. If the ranges overlap, the analyses are considered in agreement for precision.

The program is based on E-LAB's standard dual-level acceptance criteria that states that if the paired measurements are within 15% of their average value, agreement between the measurements has been obtained. If the value falls outside of the 15% range about the mean, a two-standard deviation (95% confidence level) range or three-standard deviation (99% confidence level) range is established for each of the analyses. If the ranges overlap, the analyses are considered to be in agreement.

The table below summarizes the QC sample results. All of the quality control evaluations met the acceptance criteria as defined above. Please note that all quality assurance sample results were determined to be statistically non-positive.

| LSN | Client
ID | Detector
ID | Radionuclide | Analysis Result ±
1-Sigma Counting
Uncertainty | % Difference
(from Mean) | 2-Sigma
Overlap
Achieved? |
|----------------------|----------------------------|----------------|------------------|--|-----------------------------|---------------------------------|
| L9126-03
L9126-23 | ST003
Split of
ST003 | 44
54 | Ra-226
Ra-226 | 5.9E-2 ± 6.3E-2
-1.1E-3 ± 1.1E-3 | ±103.8% | YES |
| L9126-06
L9126-24 | ST007
Split of
ST007 | 49
55 | Ra-226
Ra-226 | 3.9E-1 ± 1.7E-1
1.59E-1 ± 9.2E-2 | ±42.1% | YES |
| L9126-15
L9126-25 | SA005
Split of
SA005 | 43
43 | Ra-226
Ra-226 | 7.8E-2 ± 9.1E-2
1.6E-1 ± 1.2E-1 | ±34.4% | YES |
| L9126-17
L9126-26 | SA007
Split of
SA007 | 44
48 | Ra-226
Ra-226 | 1.7E-1 ± 1.2E-1
1.18E-1 ± 8.4E-2 | ±18.1% | YES |
| L9126-15
L9126-27 | SA005
Dup of
SA005 | 43
50 | Ra-226
Ra-226 | 7.8E-2 ± 9.1E-2
3.5E-1 ± 1.8E-1 | ±63.6% | YES |
| L9126-17
L9126-28 | SA007
Dup of
SA007 | 44
43 | Ra-226
Ra-226 | 1.7E-1 ± 1.2E-1
3.5E-1 ± 1.8E-2 | ±34.6% | YES |

<sup>226</sup>Ra via Alpha Spectrometry QC Evaluation

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QC Summary Provided by:

Christopher Shelton Quality Assurance Officer Framatome ANP Environmental Laboratory

APPENDIX D VISUAL SEWER INSPECTIONS (INCLUDES DVD WHICH IS IN REPORT BINDER COVER)

Sanitary Sewer System Storm Sewer System Sanitary Sewer System

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-14-2005 RUN ID# : 3-505 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 3-05 COUNTER : 0:39:30 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: SA 002 END MH# : SA 001 PIPE TYPE: VCT PIPE SIZE: 15" LENGTH : 10' DEPTH : FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 5' COMMENT : COMPLETED RUN TO TO 10 FOOT MARK, FOUND EXCESSIVE MATERAIL IN PIPE

- FOOTAGE: TIME OF DAY: FAULT OR COMMENTS:
- 0.0 Ft 6:52am START RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 2-1305 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 0:00:00 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 003 END MH# : SA 002 PIPE TYPE: VCT PIPE SIZE: 15" LENGTH : 56'+254' DEPTH : 12'9" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.1 Ft 11:03am START RUN 35.0 Ft 11:04am LATERAL AT 12:00 37.3 Ft 11:04am INFILTRATION INFLOW 56 4 Ft 11:09am OBSTRUCTION IN LINE CAMERA CANNOT GET BY WILL TRY FROM LOWER MH TO COMPLETE RUN 6.0 Ft 11:31am CONTIUE RUN A/FLOW TO MH SA 003 254.5 Ft 11:40am DEBRIS IN LINE CANNOT GET BY END OF RUN

1

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 1-1205 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 1:37:00 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 004 END MH# : SA 003 PIPE TYPE: VCT PIPE SIZE: 15" LENGTH : 349' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 8:57am START RUN 25.7 Ft 8:57am INFILTRATION INFLOW 212 6 Ft 9:05am INFILTRATION INFLOW 224.0 Ft 9:06am INFILTRATION INFLOW 9:18am 349.1 Ft COMPLETED RUN TO MH

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 1-1105 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 1:32:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START\_MH#: SA 004 END MH# : SA 005 PIPE TYPE: VCT PIPE SIZE: 15" LENGTH : 81' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 8:46am START RUN 12.5 Ft 8:46am CRACK LENGTH OF PIPE TOP, BOTTOM CRACK LENGTH OF PIPE 15.7 Ft 8:46am TOP, BOTTOM 18.9 Ft 8:47am CRACK LENGTH OF PIPE TOP, BOTTOM 20.9 Ft 8:47am CRACK LENGTH OF PIPE TOP, BOTTOM 26.2 Ft 8:47am CRACK RADIAL 40.4 Ft 8:47am CRACK LENGTH OF PIPE TOP, BOTTOM 44.3 Ft CRACK LENGTH OF PIPE 8:47am TOP BOTTOM

| 54 0 | Ft | 8:48am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
|--------|----|--------|--|
| 57.8 | Ft | 8:48am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
| ,76.1 | Ft | 8:48am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
| 76.7 | Ft | 8:48am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
| 78.9 | Ft | 8:48am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
| 80.8 | Ft | 8:49am | CRACK LENGTH OF PIPE
TOP,BOTTOM |
| 80 . 9 | Ft | 8:50am | COMPLETED RUN TO SPOT
WHERE CAMERA COULD NOT GET
BY END OF RUN |

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN\_ID# : 1-1005 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 1:15:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 005 END MH# : ST 004 PIPE TYPE: VCT PIPE SIZE: 15" LENGTH : 265' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 8:03am START RUN 25.5 Ft 8:03am INFILTRATION INFLOW 102.9 Ft 8:09am INFILTRATION INFLOW 205.6 Ft 8:13am LATERAL AT 12:00 250.9 Ft 8:15am INFILTRATION INFLOW 252 8 Ft 8:15am INFILTRATION e t INFLOW 256.8 Ft 8:15am INFILTRATION INFLOW 8:16am 263.3 Ft INFILTRATION INFLOW .264\_9 Ft 8:16am INFILTRATION 1.\_

266.7 Ft 8:19am

CANNOT GET THRU PIPE END OF RUN

SHAMROCK SEWER SERVICES, LLC P.O\_ BOX 552 \_ ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 1-905 MAP REF#: OPERATOR: SEAN MCMAHON **TAPE # : 2-05** COUNTER : 1:10:00 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 . "PIPE INFORMATION" START MH#: SA 005 END MH# : ST 006 PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 45' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH TIME OF DAY: FAULT OR COMMENTS: FOOTAGE : 6.0 Ft 7:52am START RUN 45.1 Ft 7:57am DEBRIS IN LINE END OF RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-605 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:43:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 007 END MH# : SA 006 PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 156' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 52 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 4.0 Ft 2:45pm START RUN LATERAL AT 12:00 160.0 Ft 2:50pm DIP/SAG START 156.3 Ft 3:01pm SAG IN LINE WITH DEBRIS ON BOTTOM CANNOT GET THRU WITH CAMERA WILL TRY FROM MH SA 006 TO COMPLETE RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-505 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:39:00 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 008 END MH# : SA 007 PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 87' DEPTH : 12'9" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 52 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH TIME OF DAY: FAULT OR COMMENTS: FOOTAGE: 6.0 Ft 2:11pm START RUN 50.6 Ft 2:13pm DIP/SAG START 54.7 Ft 2:13pm LIVE LATERAL AT 9:00 58.5 Ft DIP/SAG 2:14pm END 87.3 Ft 2:15pm COMPLETED RUN TO MH SA 007

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-405 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:29:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: SA 009 END MH# : SA 008 PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 137'+184' DEPTH : 12'9" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 52 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO ΜH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.6 Ft 1:47pm START RUN CONTINUE RUN A/FLOW FROM 1 MH SA 008 22.1 Ft 1:48pm POSSIBLE MINERAL BUILDUP ON FLOOR OF PIPE 107 9 Ft 1:52pm LATERAL AT 12:00 184.0 Ft 1:56pm COMPLETED RUN TO PROTRUDING LATERAL ENTIRE LINE TELEVISED END OF RUN Storm Sewer System

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-13-2005 RUN ID# : 3-405 MAP REF#: OPERATOR: SEAN MCMAHON TAPE 排 : 3-05 COUNTER : 0:31:30 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 003 END MH# : ST 002 PIPE TYPE: RCP PIPE SIZE: 48" LENGTH : 1+94 4' DEPTH : FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 5' COMMENT : COMPLETED RUN TO MH ST 002 FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 3.0 Ft 2:03pm START RUN 198.5 Ft 2:10pm COMPLETED RUN TO MH ST002

208.4 Ft 2:11pm COMPLETED RUN TO MH ST 002

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-13-2005 RUN ID# : 3-305 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 3-05 COUNTER : 0:22:00 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 004 END MH# : ST 003 PIPE TYPE: RCP PIPE SIZE: 48" LENGTH : 2+01' DEPTH : FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 5' COMMENT : COMPLETED RUN TO MH ST 003 FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 0.0 Ft 12:59pm START RUN 212 5 Ft 1:09pm COMPLTED RUN TO MH ST 003.

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-13-2005 RUN ID# : 3-205 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # → 3-05 COUNTER : 0:16:30 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 005 END MH# : ST 004 PIPE TYPE: RCP PIPE SIZE: 48" LENGTH : 1+95 2' DEPTH: FLOW RATE: LOW í DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH ST 004 FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 3.0 Ft 12:48pm START RUN

195.2 Ft 12:53pm COMPLETED RUN TO MH ST 004

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-13-2005 RUN ID# : 3-15 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 3-05 COUNTER : 0:00:00 CITY : ROME, NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 006 END MH# : ST 005 PIPE TYPE: RCP PIPE SIZE: 42" LENGTH : 3+04.1'

DEPTH : FLOW RATE: LOW

DIRECTION: W/FLOW WEATHER : 48 DEGREE SEC LENGTH: 5' COMMENT : COMPLETED RUN TO MH ST 005

| FOOTAGE : | TIME OF DAY: | FAULT OR COMMENTS: |
|---------------------|--------------------|------------------------|
| 33.3 Ft
195 2 Ft | 10:03am
10:23am | LIVE LATERAL AT 3:00 |
| 304.1 Ft | 10:39am | COMPLETED RUN TO MH ST |

005

SHAMROCK SEWER SERVICES, LIC R.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 ٠. بريد -LOG REPORT 04-11-2005 RUN ID# : 1-805 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 1:02:30 CITY : ROME NY -- LOCATION: GRIFFISS AFB BUILDING 104 ž "PIPE INFORMATION" START MH#: ST 007 END MH# : ST 006 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 110' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: $\{g_{i}\}_{i \in \mathbb{N}}$ 6 1 Ft 6:48am START RUN 23.8 Ft 6:52am OBSTRUCTION IN PIPE WILL TRY TO COMPLETE RUN FROM LOWER MH ST 006 6.0 Ft 7:09am CONTINUE RUN A/FLOW FROM MH ST006 COMPLETED RUN TO MH ST006 <u>110.6 Ft</u> 7:11am

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 1-705 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 0:54:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 007 END MH# : ST 008 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 99' DEPTH : 12'6" FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO ΜH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 6:34am START RUN 64.3 Ft 6:37am LATERAL AT 11:00 LATERAL AT 1:00 98.8 Ft 6:41am DEBRIS AND STONES IN LINE

CANNOT GET BY WITH CAMERA END OF RUN

SHAMROCK SEWER Ън -SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-14-2005 RUN ID# : 3-605 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 3-05 COUNTER : 0:41:00 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 008 END MH# : END STUB PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 153' DEPTH : FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 5' COMMENT : COMPLETED RUN TO FOOTAGE: TIME OF DAY: FAULT OR COMMENTS:

0.0 Ft7:40amSTART RUN153.0 Ft7:48amCANNOT PUSH ANY FURTHER
DUE TO FRICTION IN PIPE

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-305 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:20:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 009 END MH# : ST 008 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 77'+78' DEPTH : 13'4" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH

FOOTAGE:

FAULT OR COMMENTS:
SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-205 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:11:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 009 END MH# : ST 011 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 77'+78' DEPTH : 13'4" FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 15.45 6.4 Ft 11:37am START RUN 77.1 Ft 11:41am LATERAL AT 1:00 77.2 Ft 11:46am CONCRETE AND REBAR FROM PENETRATION HANGING IN PIPE CANNOT GET BY WILL TRY TO COMPLETE RUN FROM LOWER MH 6.5 Ft CONTINUE RUN A/FLOW TO 12:06pm ST 009 43.3 Ft 12:07pm INFILTRATION INFLOW 47.6 Ft 12:07pm LATERAL AT 12:00 78.1 Ft 12:09pm COMPLETED RUN TO LATERAL WITH HANGING CONCRETE ENTIRE LINE FELEVISED END OF RUN

SHAMROCK SEWER SERVICES, LLC - -P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-205 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0\*:11:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 009 END MHH : ST 011 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 67' DEPTH : 13'4" FLOW RATE: LOW DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 11:20am START RUN 32.8 Ft 11:21am INFILTRATION INFLOW 61.1 Ft 11:23am LATERAL AT 11:00 67.4 Ft 11:28am BRICKS AND GRAVEL IN LINE CANNOT GET BY WITH CAMERA END OF RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-09-2005 RUN ID# : 1-105 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 1-05 COUNTER : 0:00:00 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 011 END MH# : ST 009 PIPE TYPE: RCP PIPE SIZE: 36" LENGTH : 22' DEPTH : 13'11" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 9:20am START RUN

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21.9 Ft 9:58am TOO MUCH DEBRIS IN LINE CANNOT PASS WITH CAMERA PIPE APPEARS TO BE IN GOOD SHAPE END OF RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 2-1405 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 0:15:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 013 END MH# : ST 008 PIPE TYPE: VCT PIPE SIZE: 12" LENGTH : 105' DEPTH : 8'6" FLOW RATE: LOW DIRECTION: W/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MHFOOTAGE: TIME OF DAY: FAULT OR COMMENTS: 6.0 Ft 12:43pm START RUN 106.1 Ft PIPE FULL OF GRAVEL CANNOT 12:51pm GET BY WITH CAMERA END OF

RUN

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> LOG REPORT 04-11-2005

RUN ID# : 2-1605 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COUNTER : 0:27:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104

"PIPE INFORMATION" START MH#: ST 012 END MH# : ST011 PIPE TYPE: RCP PIPE SIZE: 24" LENGTH : 15'+215' DEPTH : 12'9" FLOW RATE: LOW

DIRECTION: A/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH

| FOOTAGE : | TIME OF DAY: | FAULT OR COMMENTS: |
|-----------|--------------|---|
| 6.0 Ft | 2:19pm | CONTINUE RUN A/FLOW FROM
MH ST011 |
| 43.0 Ft | 2:20pm | LATERAL AT 12:00 |
| 91.6 Ft | 2:21pm | LIVE LATERAL AT 3:00
LIVE LATERAL AT 9:00 |
| 136 7 Ft | 2:22pm | LIVE LATERAL AT 3:00 |
| 152.7 Ft | 2:23pm | PIECE OF METAL WIRE
HANGING DOWN FROM TOP OF
PIPE |
| 214.6 Ft | 2:27pm | DEBRIS IN PIPE CANNOT GET
BY WITH CAMERA END OF RUN |

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315) -868-0995 FAX (315)-894-0920 LOG REPORT 04-11-2005 RUN ID# : 2-1505 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 2-05 COLINTER : 0:24:30 CITY : ROME NY LOCATION: GRIFFISS AFB BUILDING 104 "PIPE INFORMATION" START MH#: ST 013 END MH# : ST 012 PIPE TYPE: VCT PIPE SIZE: 12" LENGTH : 36' DEPTH : 8'6" FLOW RATE: LOW **DIRECTION: A/FLOW** WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH FAULT OR COMMENTS: FOOTAGE: TIME OF DAY: 6.0 Ft 1:09pm START RUN LIVE LATERAL AT 3:00 1:10pm 32 4 Ft 36.4 Ft PIPE REDUCED IN SIZE 1:11pm CANNOT GET INTO WITH CAMERA WILL TRY FROM UP STREAM MH ST012 -12.8 Ft 1:54pm NO ACCESS AT OTHER END END OF RUN

SHAMROCK SEWER SERVICES, LLC P.O. BOX 552 ILION, NY 13357 PHONE (315)-868-0995 FAX (315)-894-0920 LOG REPORT 04-14-2005 RUN ID# : 3-705 MAP REF#: OPERATOR: SEAN MCMAHON TAPE # : 3-05 COUNTER : 0:47:00 CITY : ROME NY LOCATION: ROME LABS "PIPE INFORMATION" START MH#: ST 013 END MH# : ST 012 PIPE TYPE: VCT PIPE SIZE: 10" LENGTH : 83 \* DEPTH : FLOW RATE: LOW DIRECTION: S/FLOW WEATHER : 42 DEGREE SEC LENGTH: 3' COMMENT : COMPLETED RUN TO MH ST 012 FOOTAGE : TIME OF DAY: FAULT OR COMMENTS: 0.0 Ft 8:10am START RUN START RUN 32.5 Ft 8:13am PIPE CHANGES SIZE AND LATERAL AT 3:00 50.5 Ft PIPE CHANGES SIZE 8:14am 83.0 Ft 8:16am BRICK IN PIPE

END OF RUN