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

Air Force Institute for Operational Health

CONTRACT NO. F41624-01-D-9009
DELIVERY ORDER 0022

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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.

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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.

Table 3-1
Acceptable Surface Contamination Levels [a/] Griffiss AFB, New York

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

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 cm^2 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 cm^2) 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.

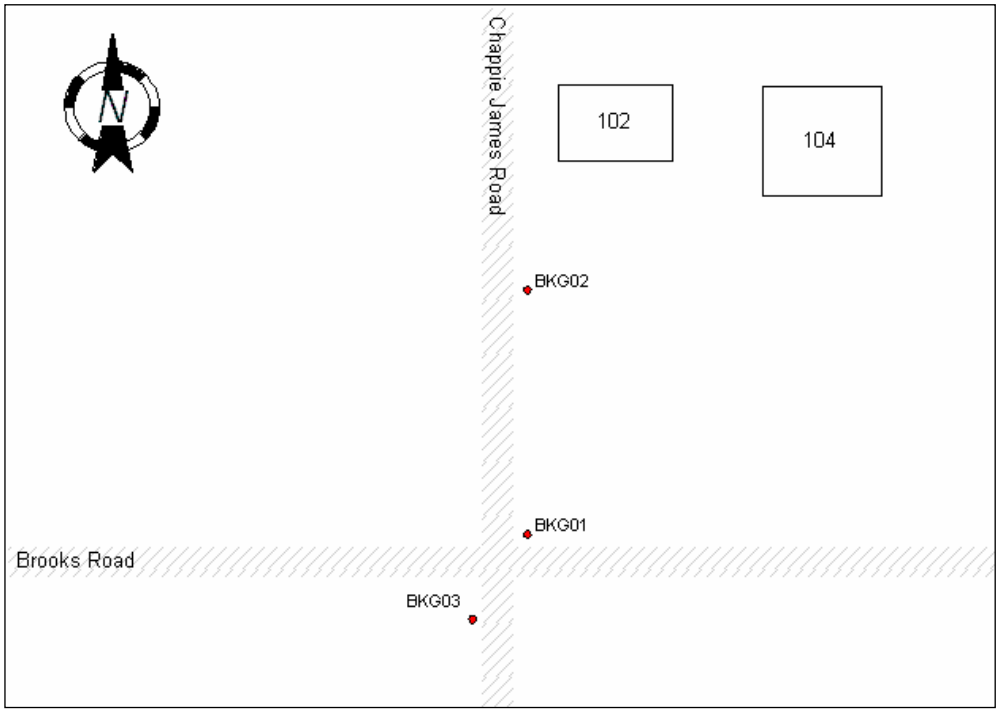


Figure 4-1 Approximate Background Storm Sewer Sampling Locations

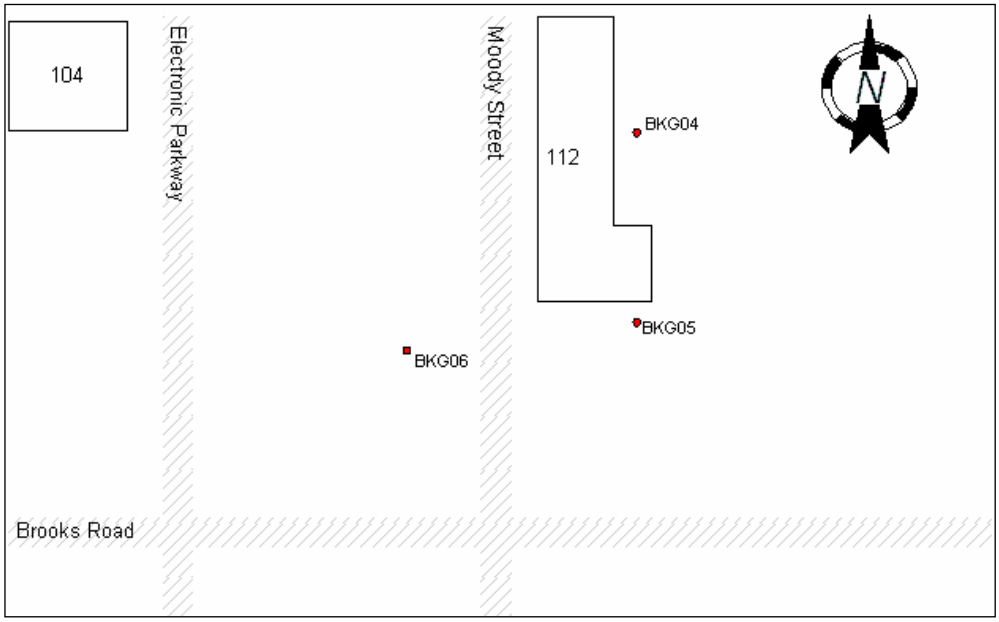


Figure 4-2 Approximate Background Sanitary Sewer Sampling Locations

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

	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	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

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).

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

	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

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).

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

	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

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.

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

	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

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.

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

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	

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 4-6
Removable Alpha and Beta Results
Background 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 cm^2 = 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 cm^2 (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 dpm/100 cm^2 after background correction. The mean of all alpha measurements from the impacted storm sewer was 95.5 dpm/100 cm^2 after application of MBC, and the median measurement was 85.9 dpm/100 cm^2. Both of these values are below the contamination limit of 100 dpm/100 cm^2. 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 cm^2 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.

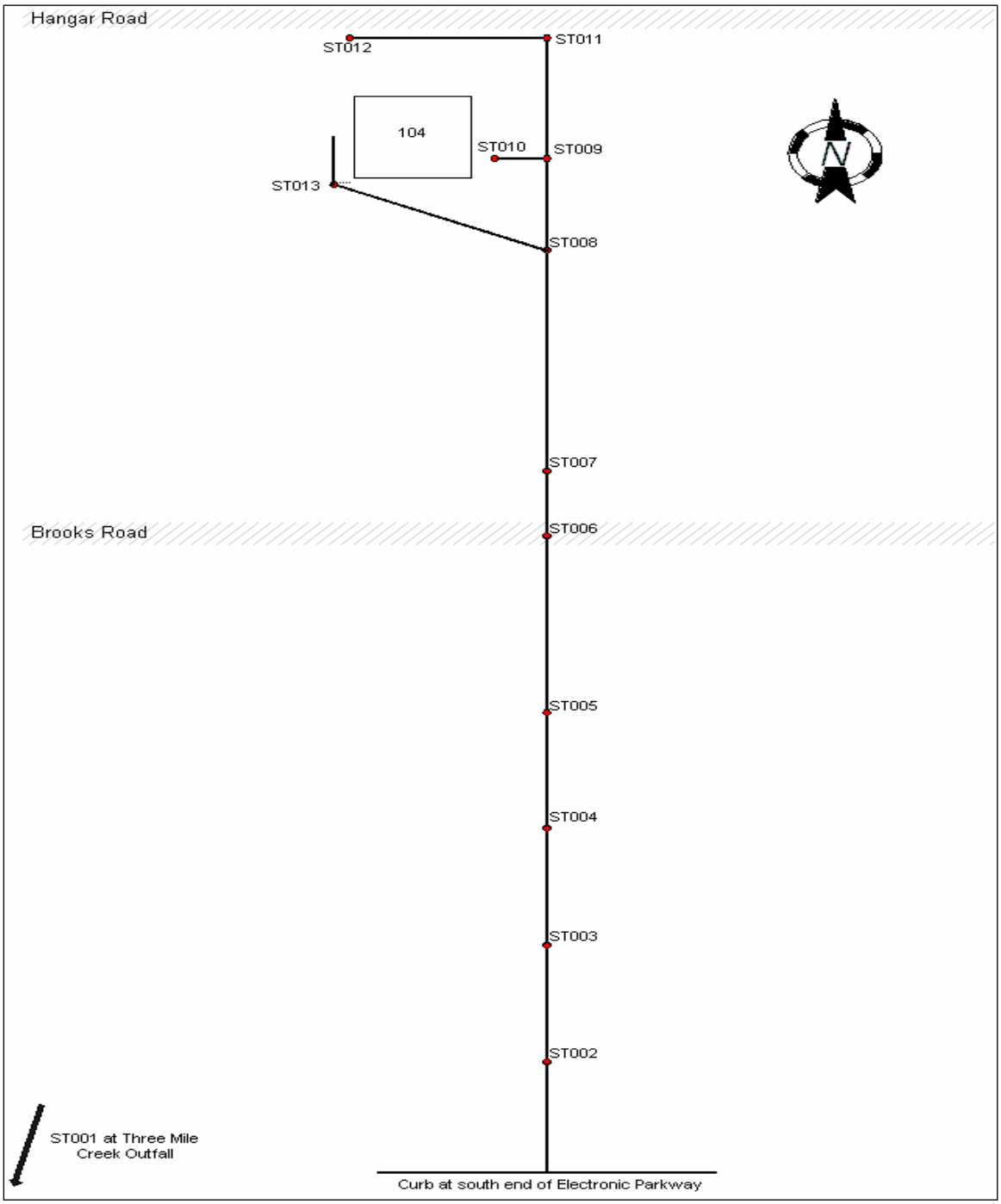


Figure 4-3 Storm Sewer Sampling Locations

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

	Alpha ($dpm/100\ cm^2$) [a/]	Alpha MBC [b/] ($dpm/100\ cm^2$)	Beta ($dpm/100\ cm^2$)	Beta MBC ($dpm/100\ cm^2$)
	Total	Total	Total	Total
Number of Measurements	26	26	27	27
Mean	177.5	95.5	5,147.0	198.6
Median	170.3	85.9	4,755.3	-94.6
Standard Deviation	116.6	116.4	1,536.0	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 Limit [c/]	100	100	5,000	5,000
Measurements Exceeding Limit	--	13	--	0

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.

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

	Gamma (µR/hr) [a/]
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

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.

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

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 4-10
Alpha Spectroscopy Ra-226 Results
Impacted 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 cm^2 (1 concrete location at SA007; and 2 brick locations, at SA009 and SA010) and ranged to 262.1 dpm/100 cm^2. However, the mean of all alpha measurements from the impacted sanitary sewer was -352.4 dpm/100 cm^2 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 cm^2 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.

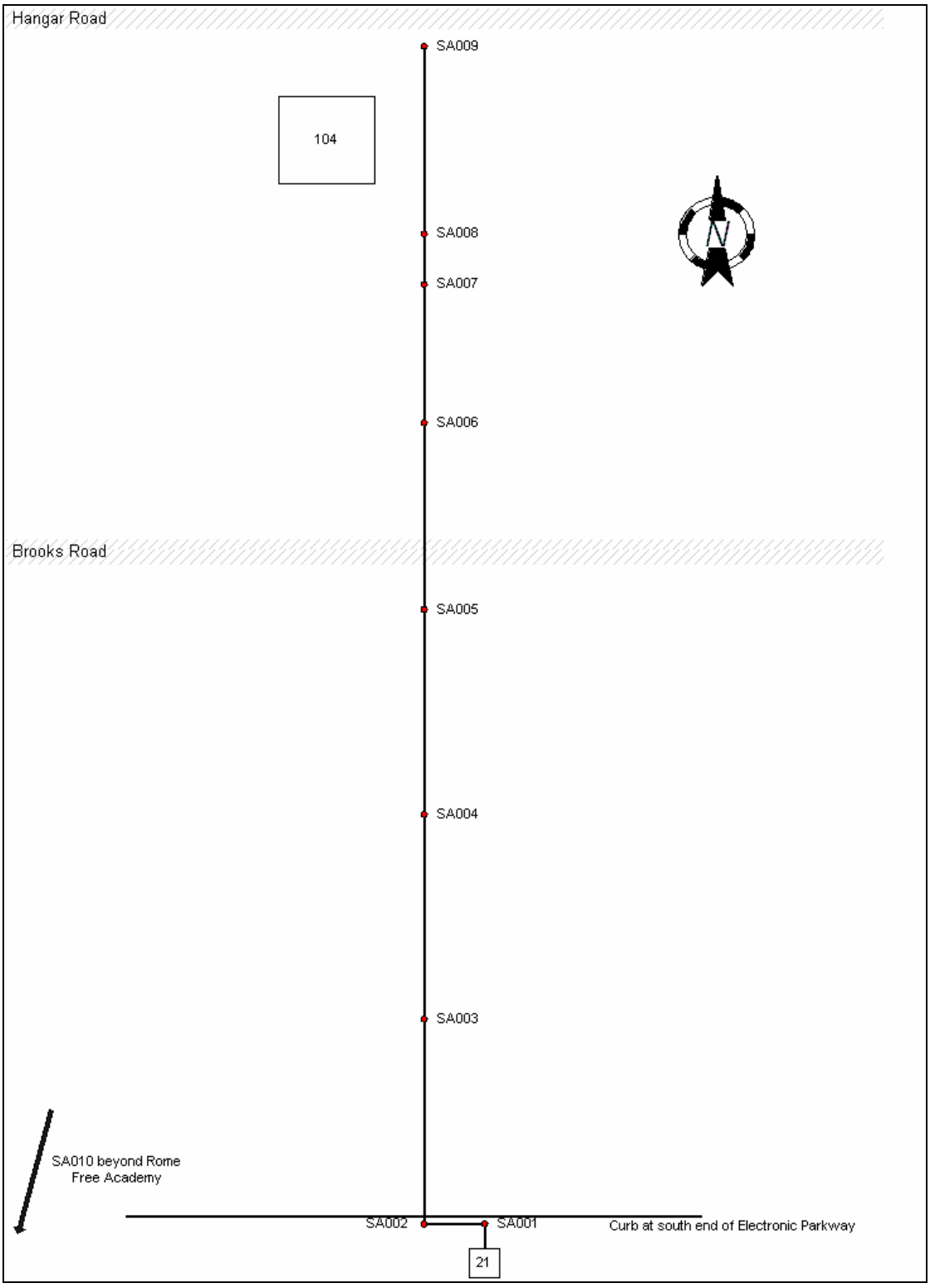


Figure 4-4 Sanitary Sewer Sampling Locations

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

	Alpha (dpm/100 cm^2) [a/]	Alpha MBC [b/] (dpm/100 cm^2)	Beta (dpm/100 cm^2)	Beta MBC (dpm/100 cm^2)
	Total	Total	Total	Total
Number of Measurements	24	24	25	25
Mean	346.8	-352.4	5,079.0	-1,364.9
Median	302.7	404.3	5,394.1	-1,561.4
Standard Deviation	292.8	296.2	1,193.3	1,059.5
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 Limit [b/]	100	100	5,000	5,000
Measurements Exceeding Limit	--	3	--	0

a/ dpm/100 cm^2 = 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.

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

	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

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.

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

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 (*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 4-16
Removable Alpha and Beta Results
Impacted 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:

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

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 4-17
Number of Measurements and Samples
Background 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.

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

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

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 less than the number of samples prescribed. For instances where number of samples collected was greater than the number of samples prescribed, the 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.

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.

Parsons/Framatome, 2005. *Sampling and Analysis Plan for the Radiological Characterization Survey and Preliminary Assessment/Site Investigation at Building 104, Griffiss Air Force Base, New York*, Final, Framatome ANP, Inc., and Parsons, January.

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)

Data Analysis Report Coversheet

Survey Area: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

F1000401B1 Drain Section(s) Upstream from Building 104 Operations

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: _____ Date: 6/9/05
John L. McGehee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Donald McGee, Senior Engineer

Approved By: _____ Date: 6/9/05
Gregory L. Courtney, Senior Engineer, CHP

Approved By: _____ Date: 8/6/05
PARSONS Representative

Data Analysis Report Parameters

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

Survey Group: F - Radiological Survey of Non-Impacted Facility Systems

Survey Area: 1000 - Background Reference Area

Unit Classification: 4 - Non-Impacted System

MARSSIM FSS Survey Unit Size: NA

Survey Unit: 01 - Drain Section(s) Upstream from Building 104 Operations

Survey Reason: B1 - Background Survey

Surface(s):	Code	Description	Survey Area (M^2)
	DS1 -	Sewer System Drain	NA
	DM1 -	Storm Drain	NA
		Total Area	NA

Materials: Code - Description
- B1 - Brick
- C1 - Concrete (Bare)
- R1 - Sediment
- S1 - Soil
- V2 - Vitrified Clay Pipe

Report

Report Pedigree:	Final Report
Detector Efficiency	2-Pi
Survey Location:	LC5

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	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

Data Analysis Report Measurement Results

Survey Area: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

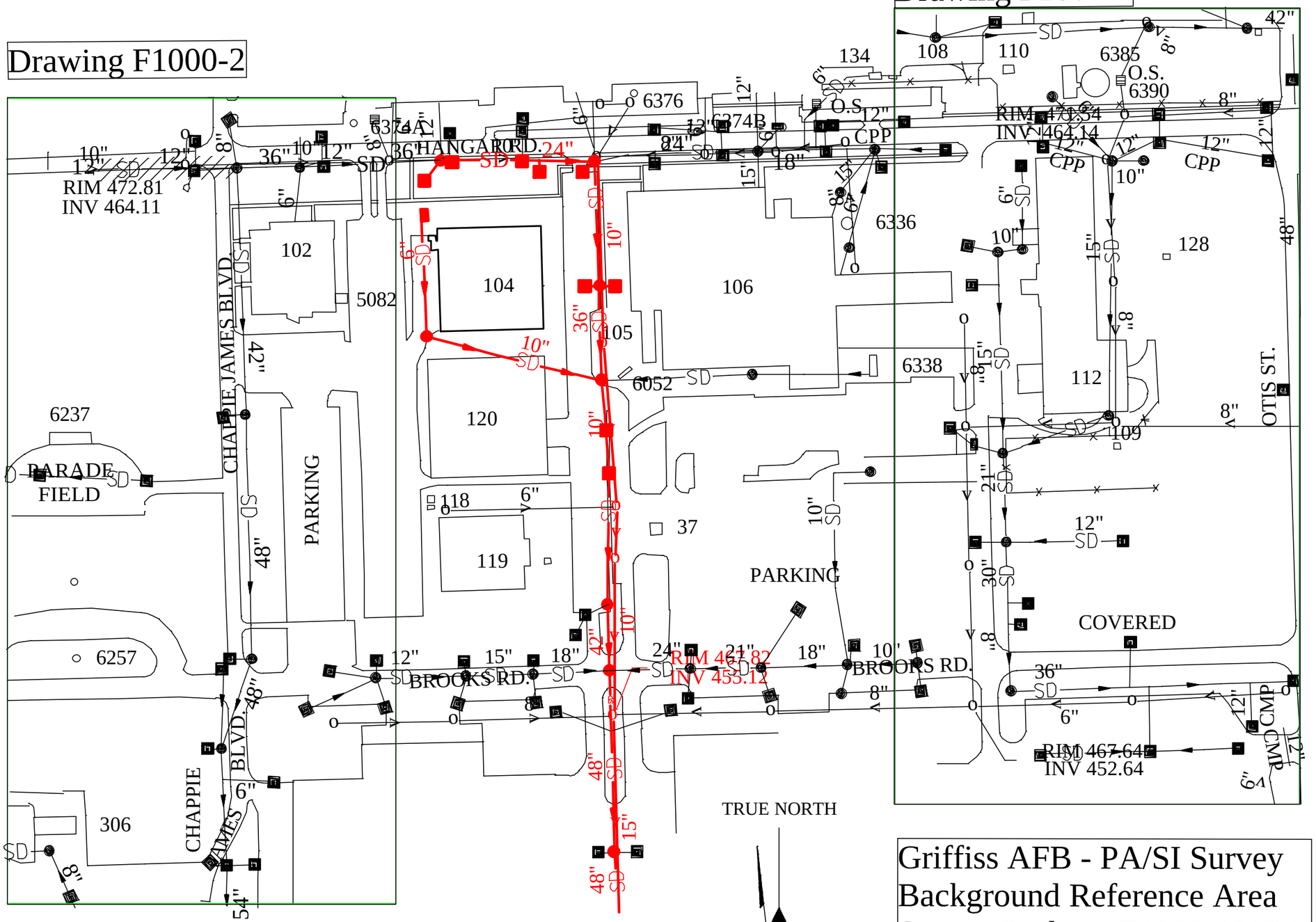
F1000 401B1 Drain Section(s) Upstream from Building 104 Operations

Section 1.0
Annotated Drawings

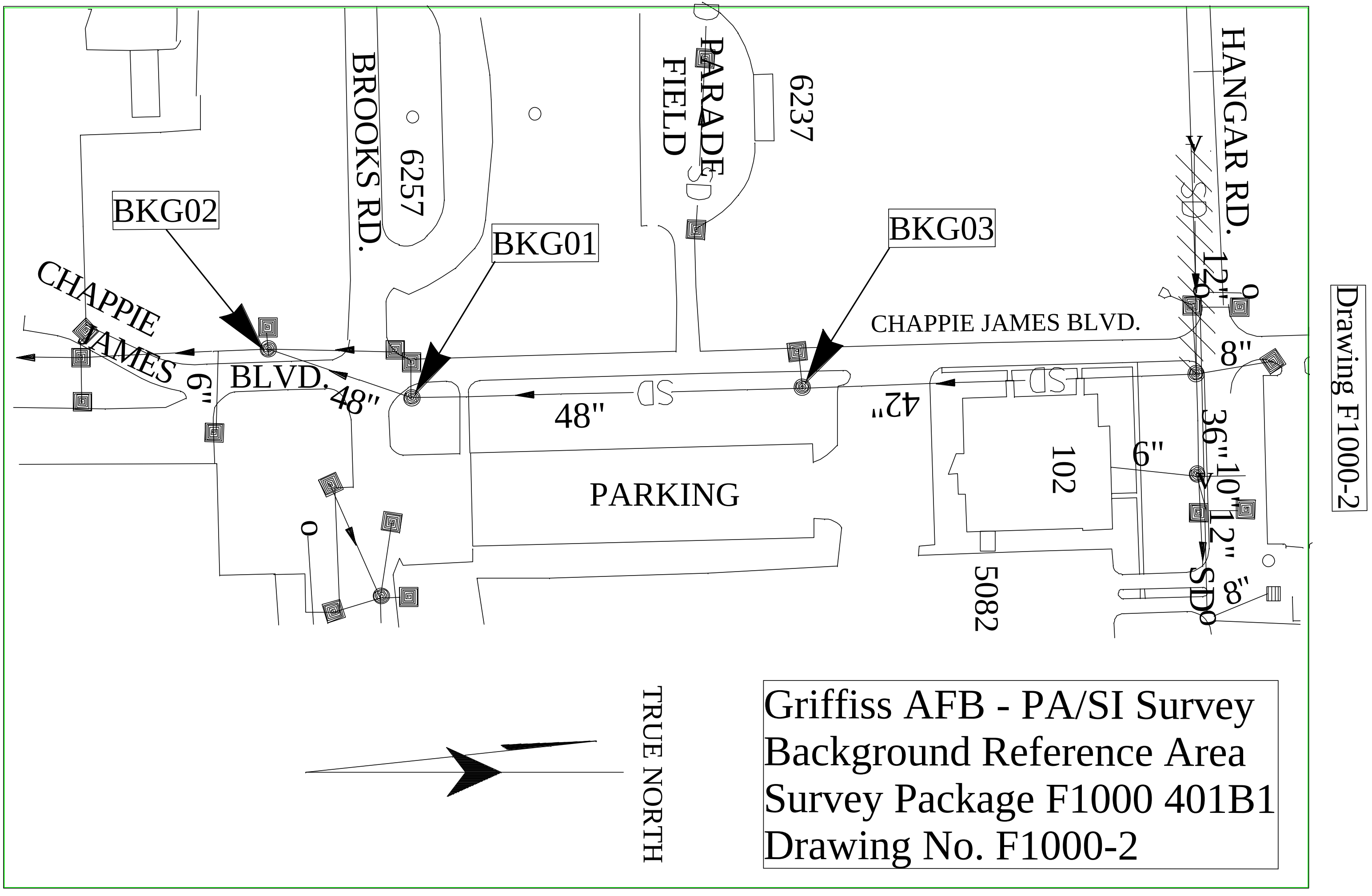
Drawing F1000-2

Drawing F1000-3

Drawing F1000-1



Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-1



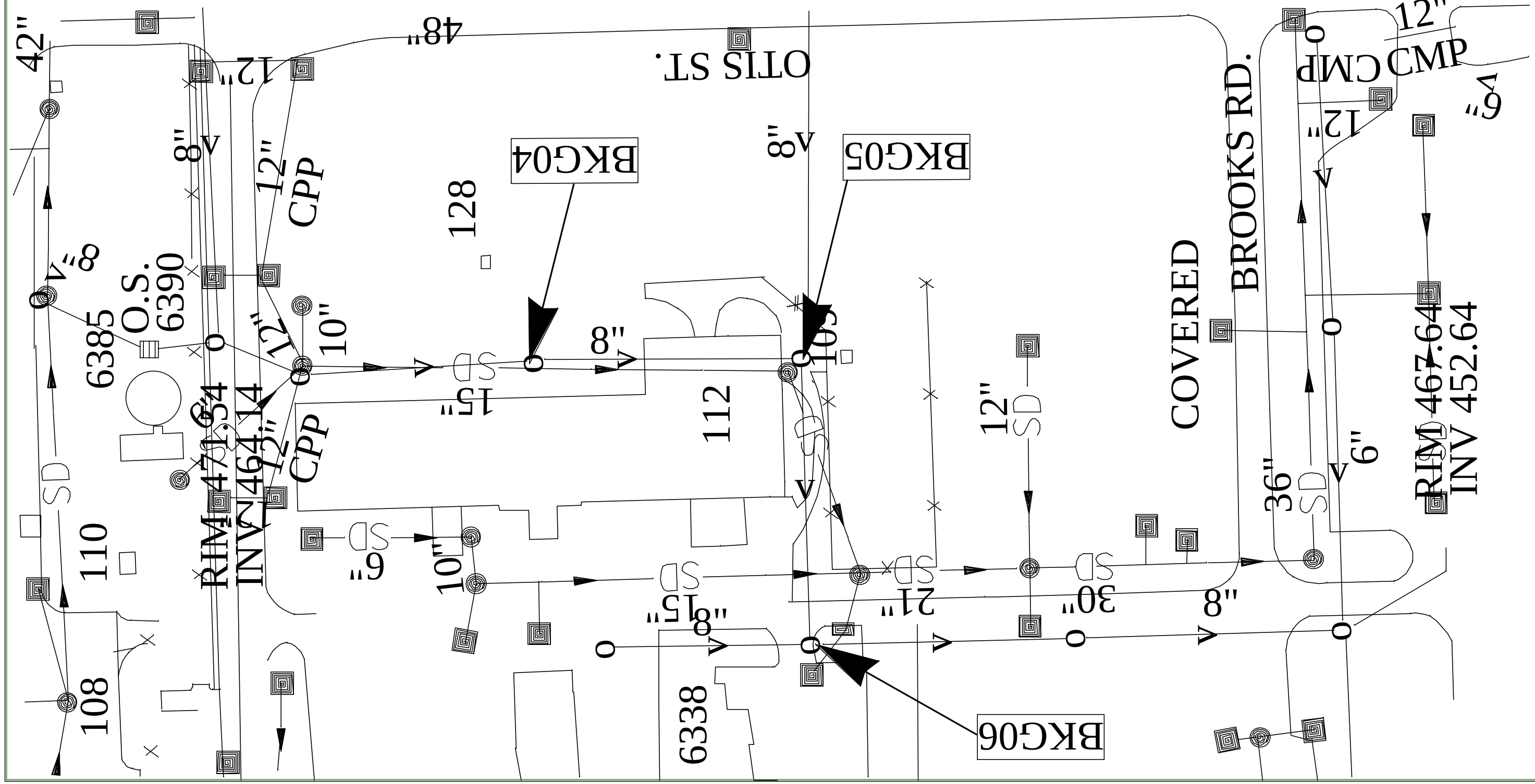
Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-2

Drawing F1000-2

Drawing F1000-3

Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-3

TRUE NORTH



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 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

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 2.1 F1000 401B1 DM1 B1 Brick material

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

Statistical Summary

	dpm/100cm^2
Mean	5,559.7
Median	5,819.9
Standard Deviation	838.3
Range	2,413.1
Minimum	4,187.5
Maximum	6,600.7

Number of Measurements

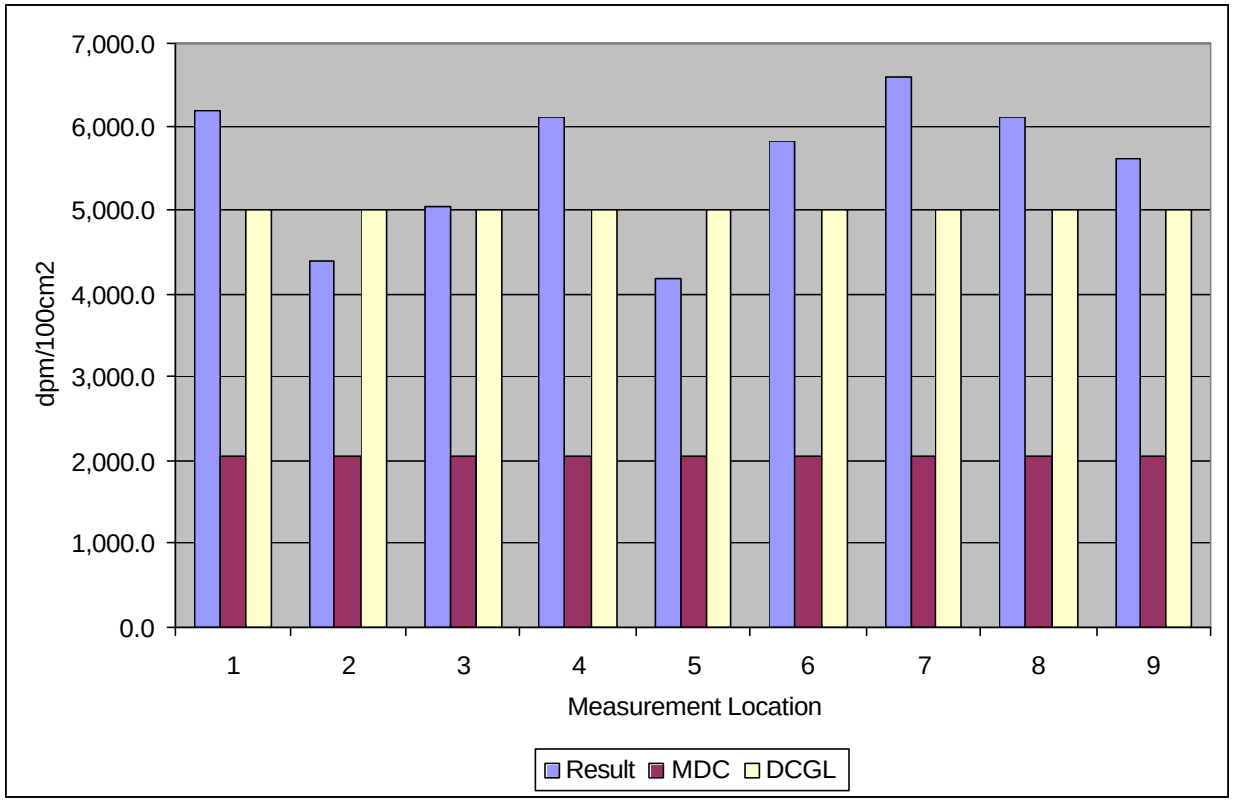
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

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

Tests Performed

No. Collected ≥ Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	7



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

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

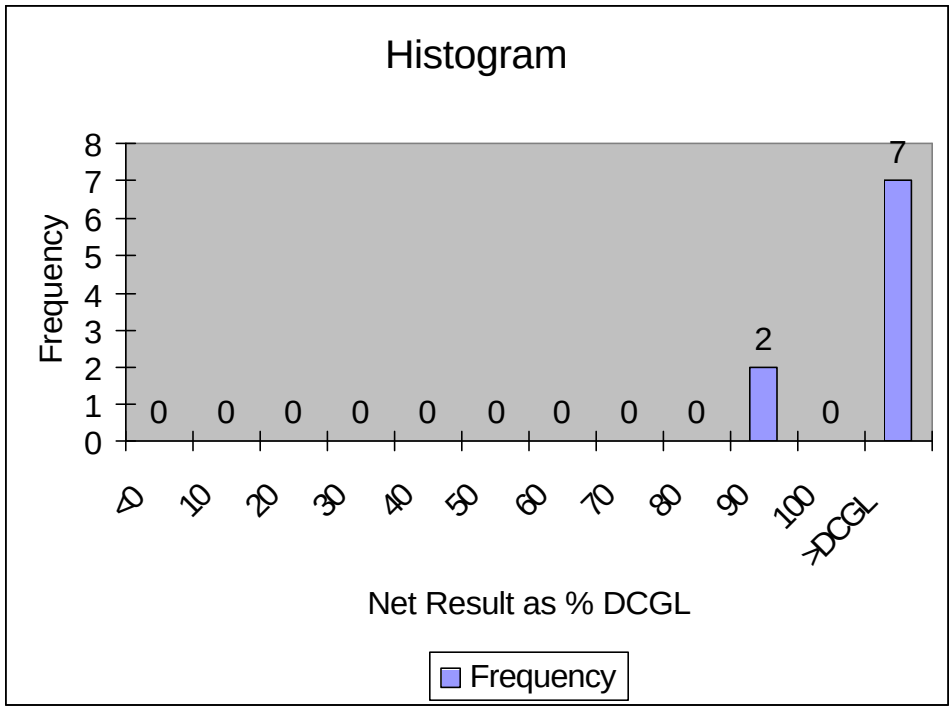
Direct Beta Measurement Results

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



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
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

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
B1	Brick	Brick Description	0.5	0.0

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

Field Notes Summary

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

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 2.2 F1000 401B1 DM1 C1 Concrete material

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

Statistical Summary

	dpm/100cm^2
Mean	4,842.1
Median	4,755.3
Standard Deviation	579.6
Range	2,058.3
Minimum	4,045.6
Maximum	6,103.8

Number of Measurements

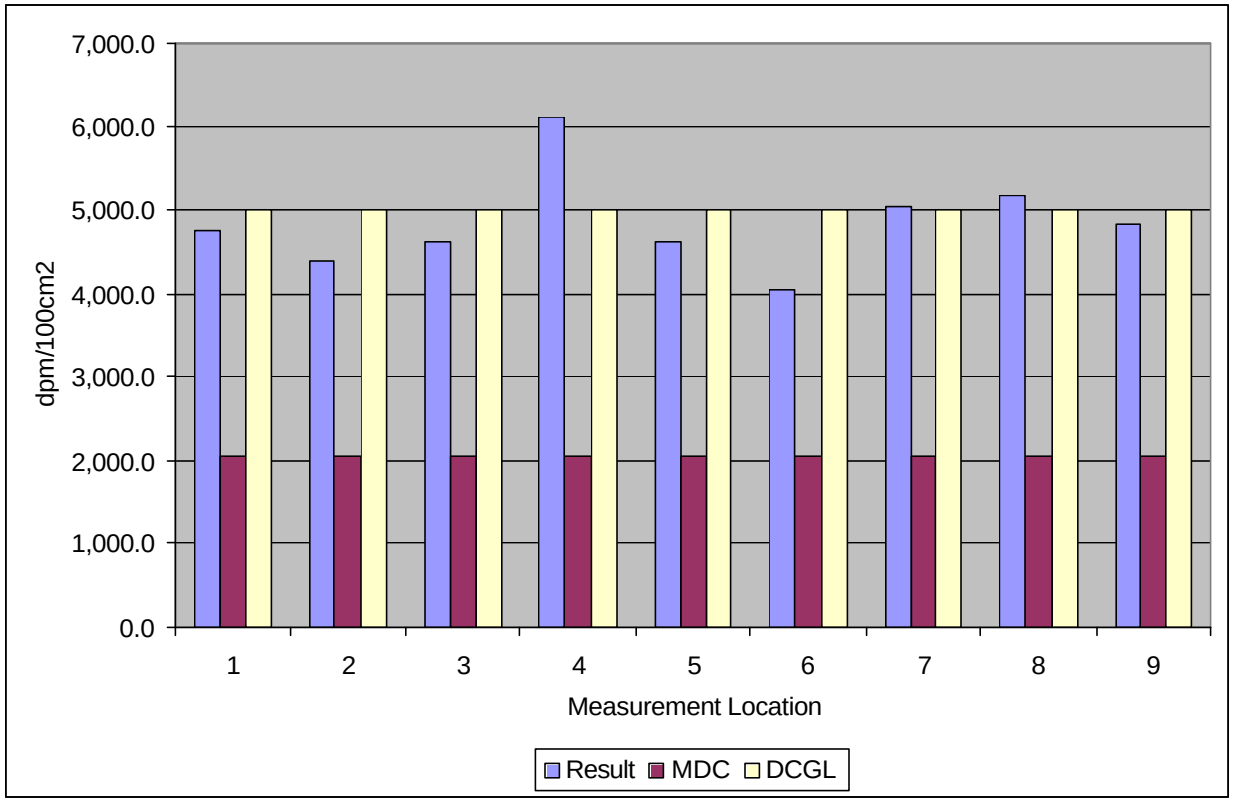
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

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

Tests Performed

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



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

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

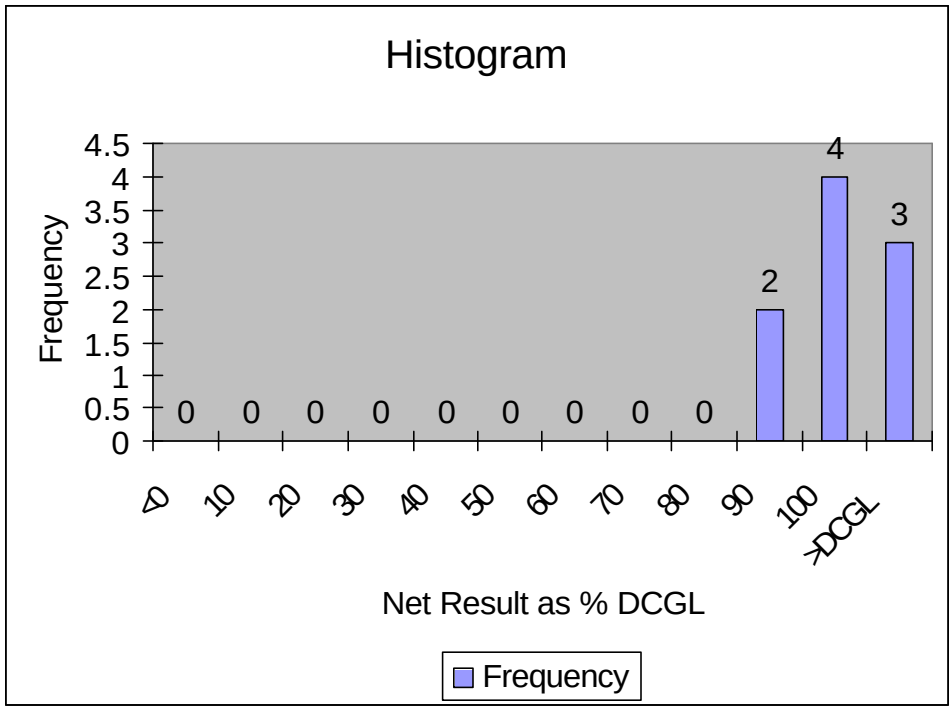
Direct Beta Measurement Results

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



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
DL041005-003	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

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

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

Field Notes Summary

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

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 2.3 F1000 401B1 DM1 V2 Vitrified Clay Pipe material

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

Statistical Summary

	dpm/100cm^2
Mean	5,571.5
Median	5,642.5
Standard Deviation	623.2
Range	1,490.5
Minimum	4,684.3
Maximum	6,174.8

Number of Measurements

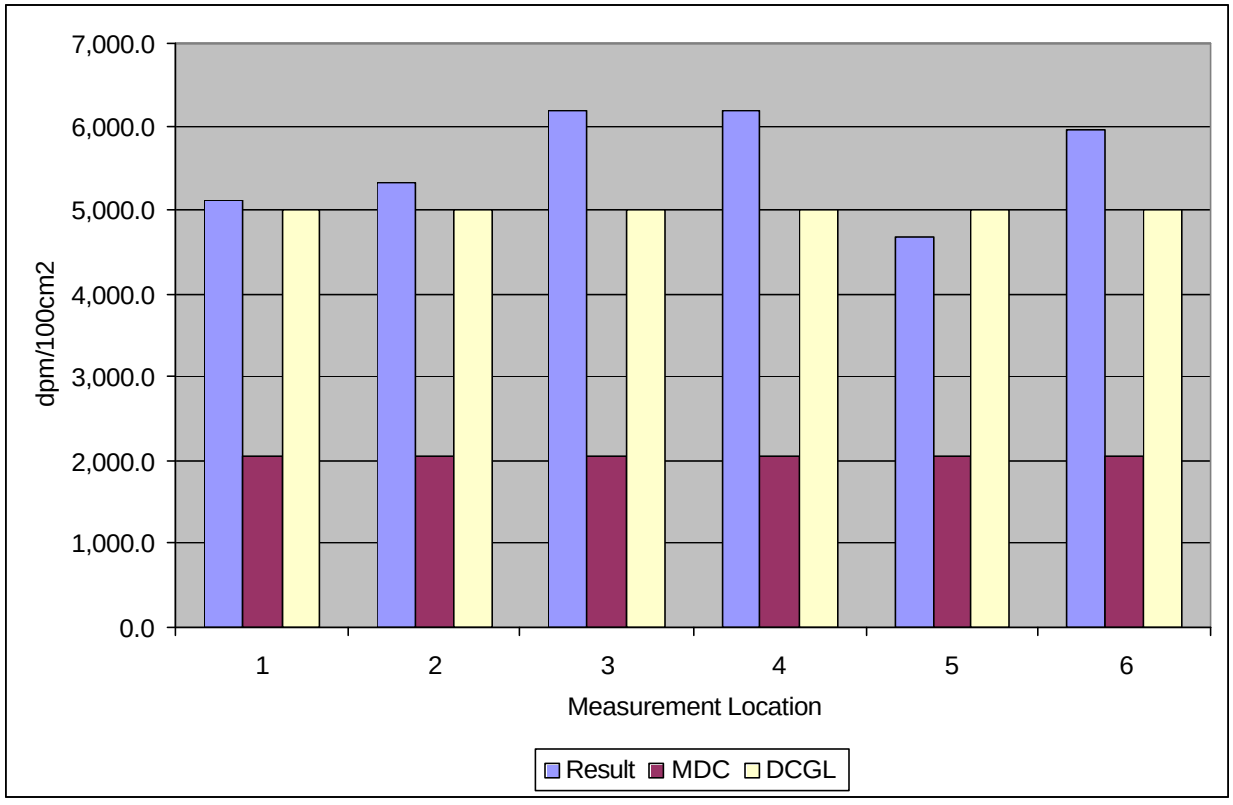
No. Prescribed	27
No. Collected	6

Measurement Sensitivity

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

Tests Performed

No. Collected ≥ Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	5



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

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

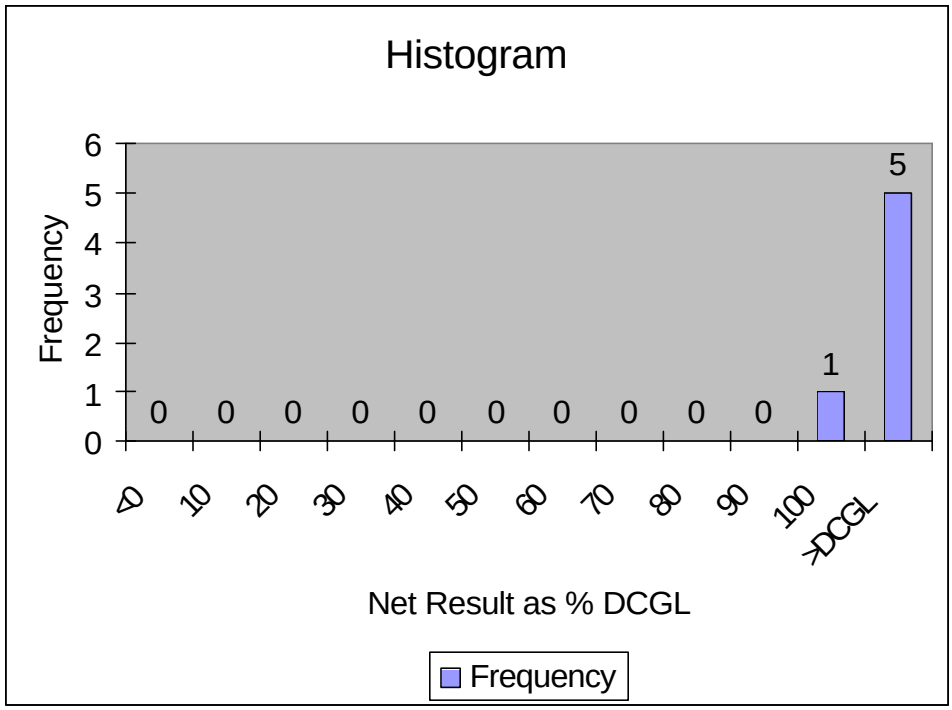
Direct Beta Measurement Results

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



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

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
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

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

Field Notes Summary

Download ID	Field Notes
DL040805-001	Background Study

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 2.4 F1000 401B1 DS1 B1 Brick material

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

Statistical Summary

	dpm/100cm^2
Mean	7,318.3
Median	7,665.3
Standard Deviation	1,451.7
Range	3,761.7
Minimum	5,678.0
Maximum	9,439.7

Number of Measurements

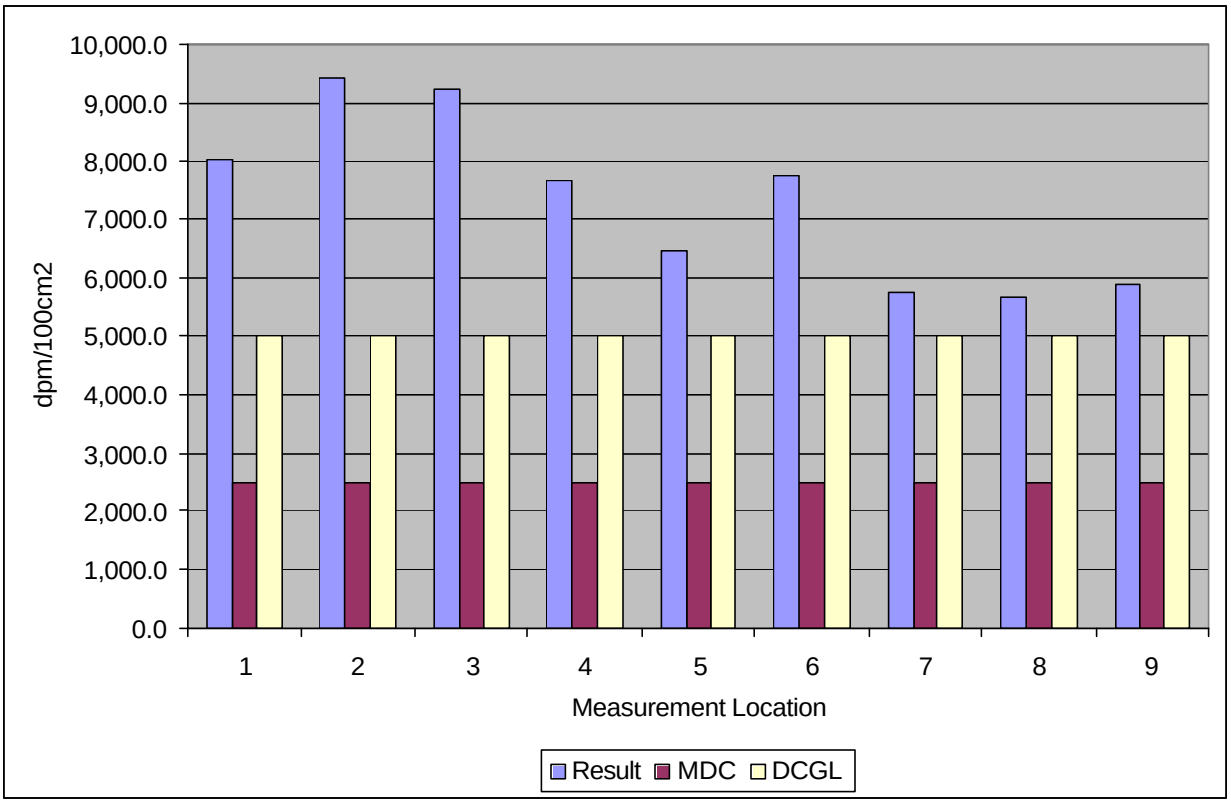
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

	dpm/100cm^2
MDC Mean	2,494.0
MDC Minimum	2,494.0
MDC Maximum	2,494.0
DCGL	5,000

Tests Performed

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



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

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
DL041005-003	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

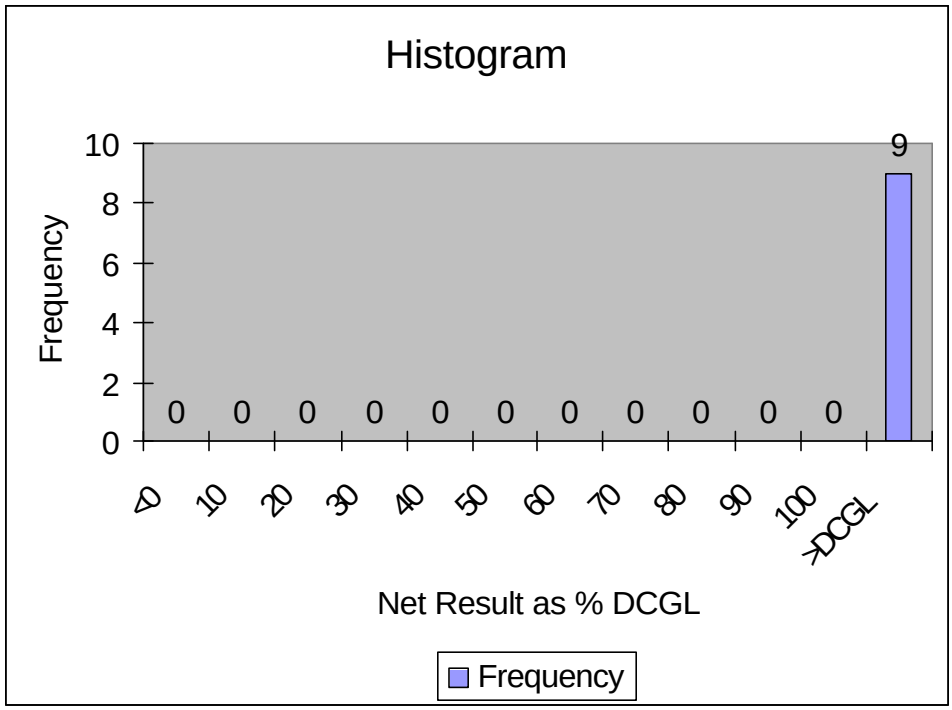
Direct Beta Measurement Results

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



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
DL041305-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

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
B1	Brick	Brick Description	0.5	0.0

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

Field Notes Summary

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

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 2.5 F1000 401B1 DS1 C1 Concrete material

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

Statistical Summary

	dpm/100cm^2
Mean	6,103.8
Median	6,103.8
Standard Deviation	1,168.9
Range	3,051.9
Minimum	4,613.4
Maximum	7,665.3

Number of Measurements

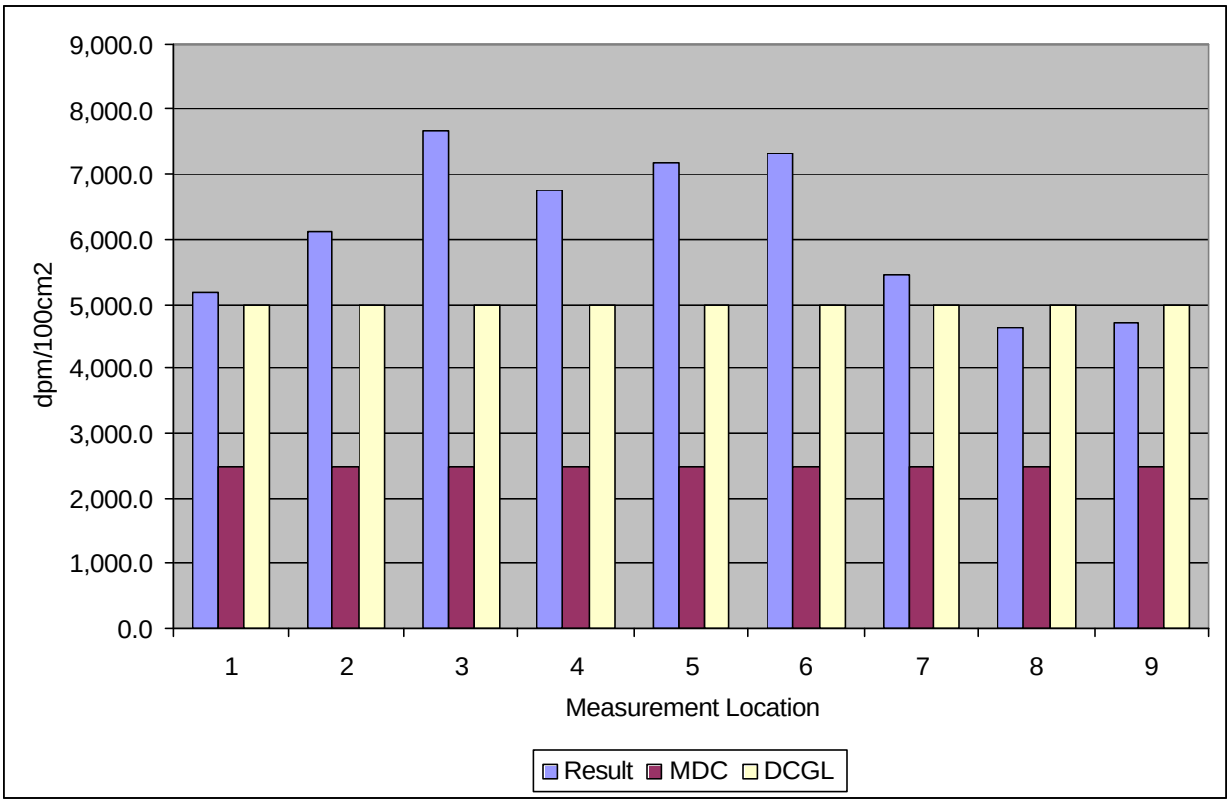
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

	dpm/100cm^2
MDC Mean	2,494.0
MDC Minimum	2,494.0
MDC Maximum	2,494.0
DCGL	5,000

Tests Performed

No. Collected $\geq$ Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	7



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

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
DL041005-003	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

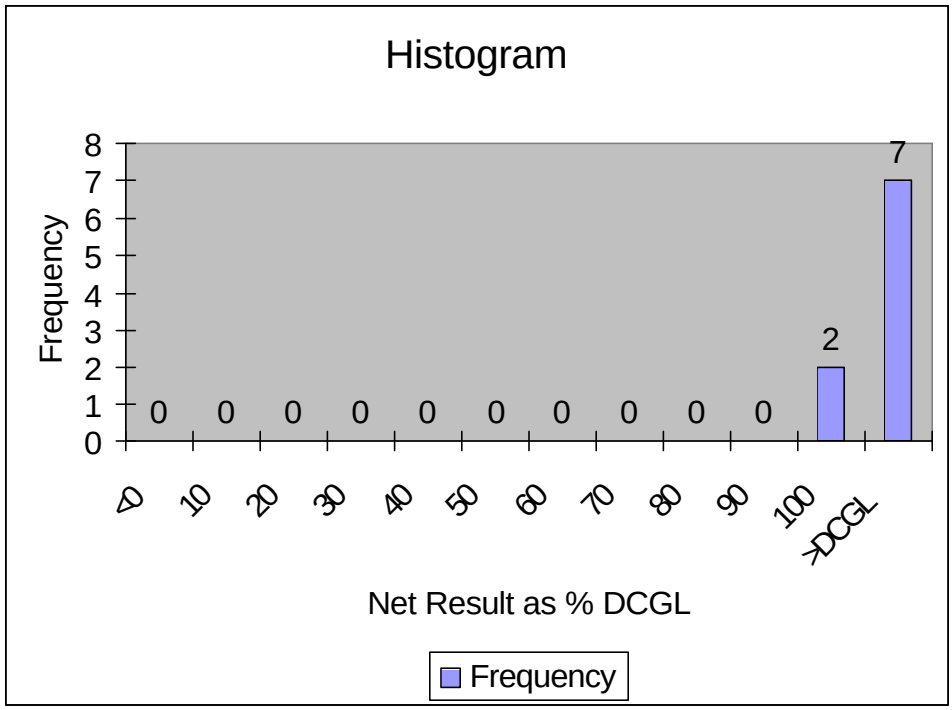
Direct Beta Measurement Results

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



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
DL041305-009	95349	1/18/2006	44-40	PR094971	1/18/2006	15.5	0.1818	JLM0591

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

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

Field Notes Summary

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

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 2.6 F1000 401B1 DS1 V2 Vitrified Clay Pipe material

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

Statistical Summary

	dpm/100cm^2
Mean	8,152.0
Median	8,091.1
Standard Deviation	856.1
Range	2,768.0
Minimum	6,742.6
Maximum	9,510.6

Number of Measurements

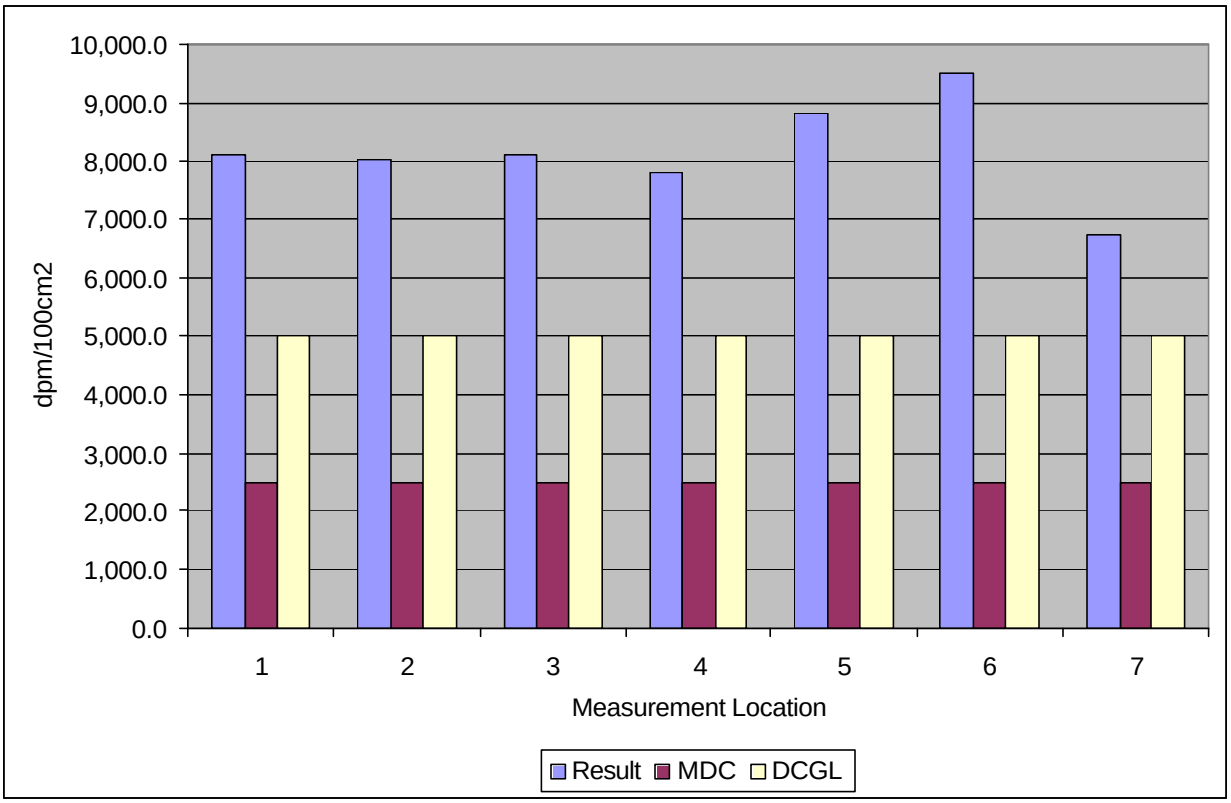
No. Prescribed	27
No. Collected	7

Measurement Sensitivity

	dpm/100cm^2
MDC Mean	2,494.0
MDC Minimum	2,494.0
MDC Maximum	2,494.0
DCGL	5,000

Tests Performed

No. Collected ≥ Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	7



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

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
DL041005-003	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

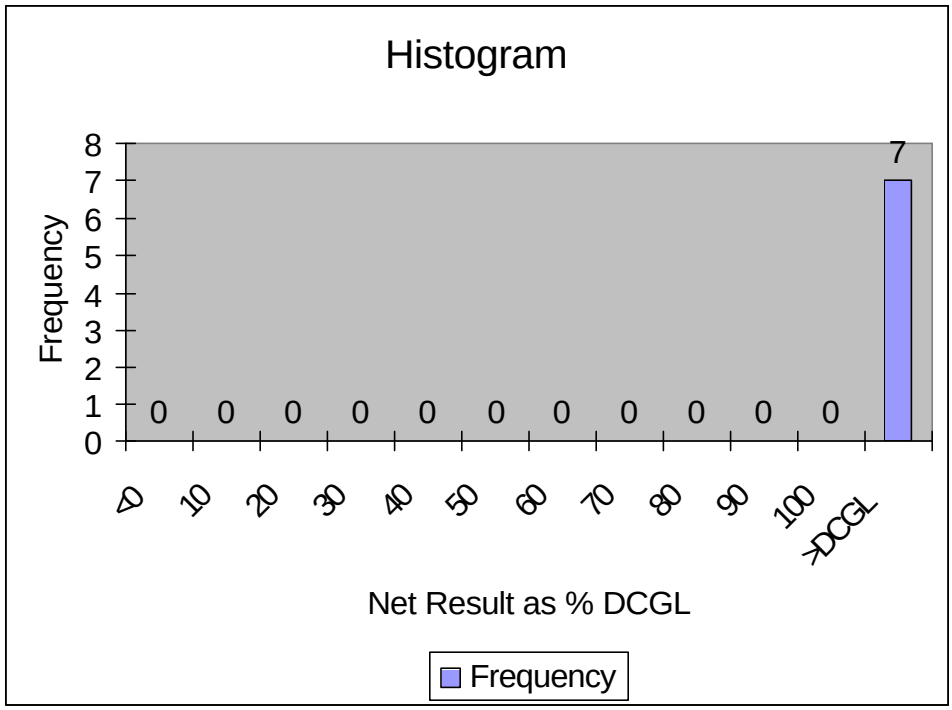
Direct Beta Measurement Results

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



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

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
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.5	0.0

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

Field Notes Summary

Download ID	Field Notes
DL041005-003	Background Study.

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

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 3.1 F1000 401B1, DM1 Direct Alpha B1 Brick material

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

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

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

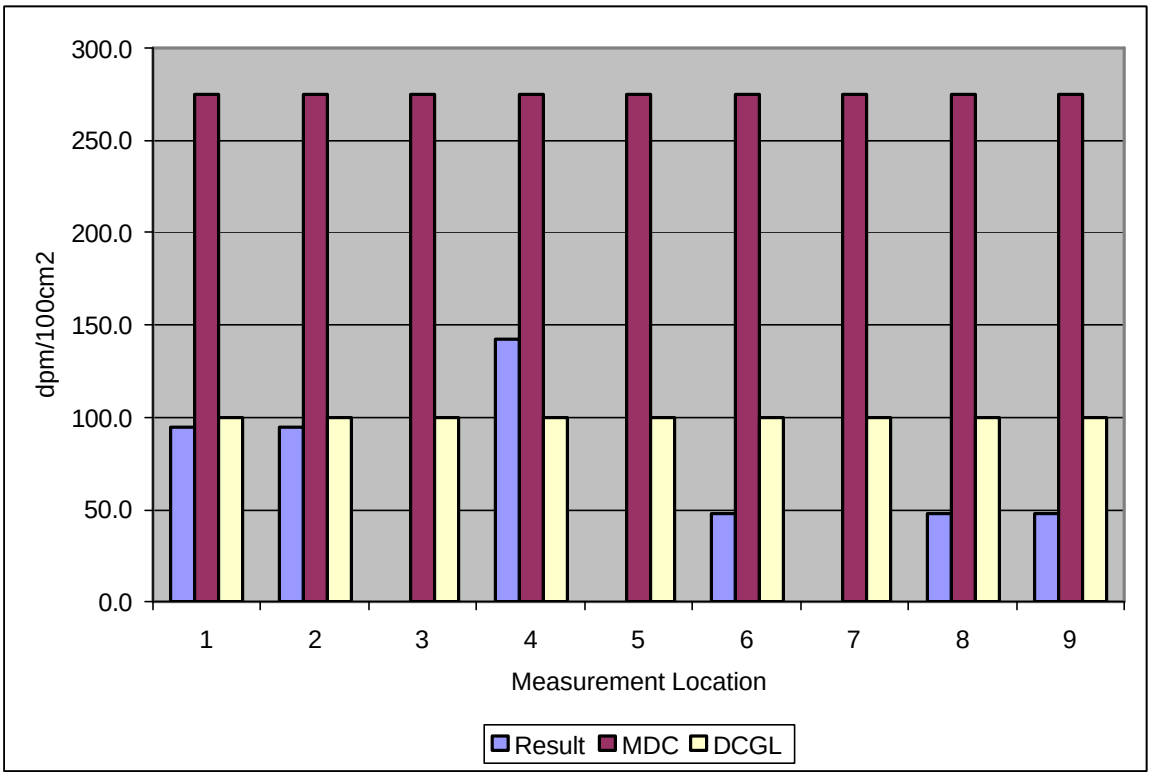
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

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

Tests Performed

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



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

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

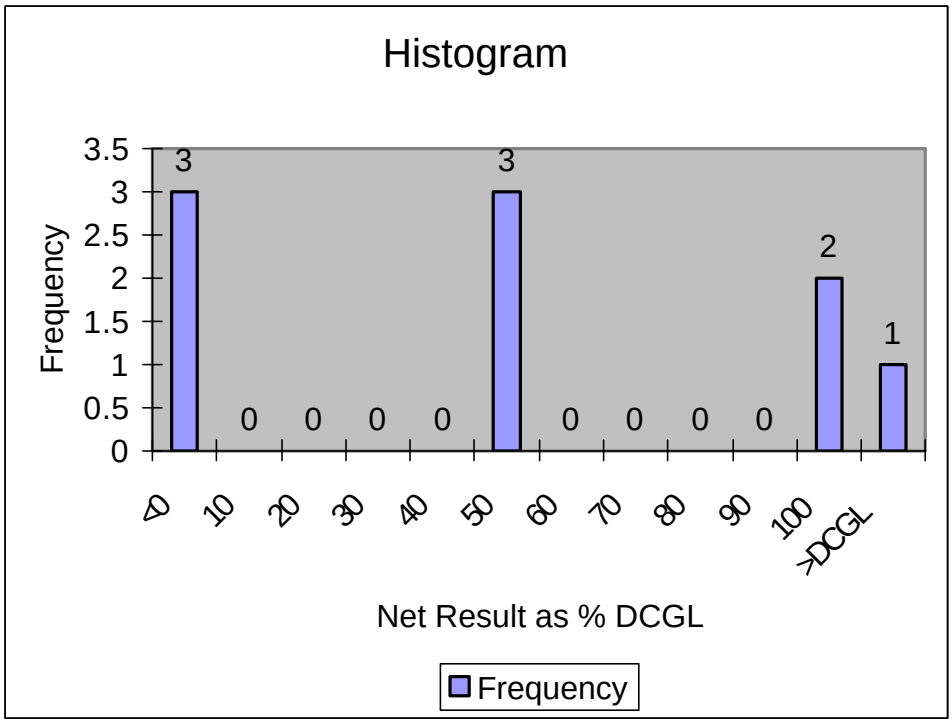
Direct Alpha Measurement Results

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



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

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
B1	Brick	Brick Description	0.25	0.0

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

Field Notes Summary

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

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 3.2 F1000 401B1, DM1 Direct Alpha C1 Concrete material

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

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

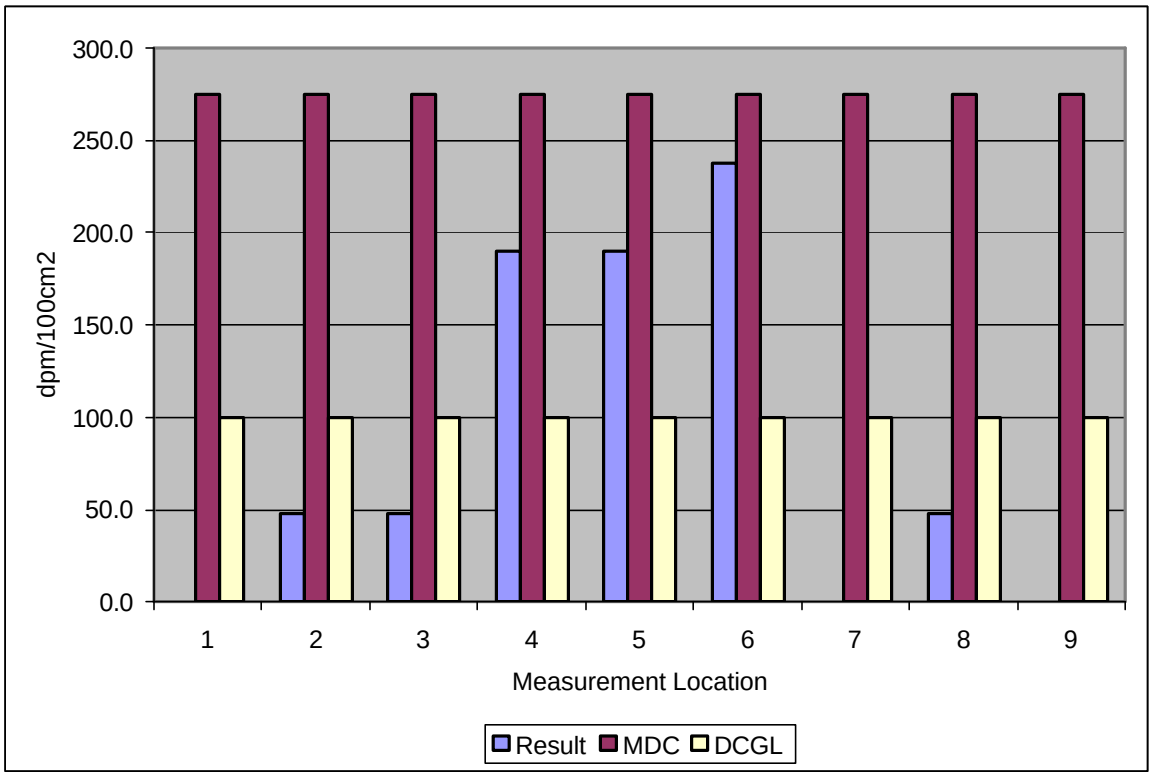
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

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

Tests Performed

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



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

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

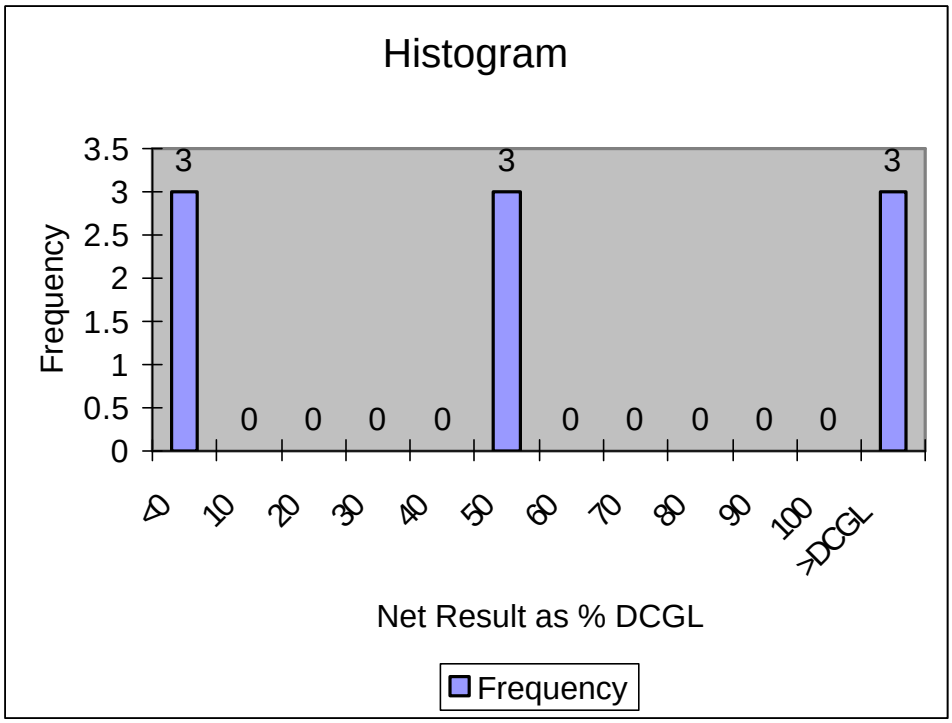
Direct Alpha Measurement Results

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



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

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

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

Field Notes Summary

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

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

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

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

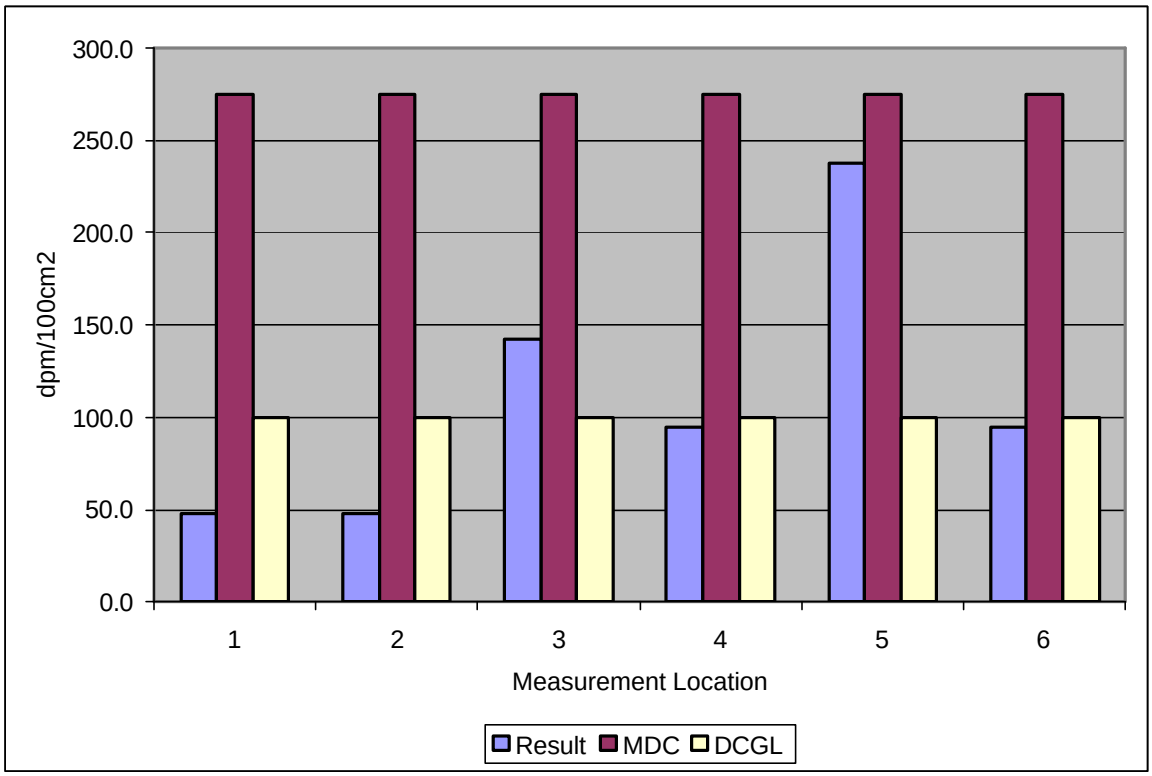
No. Prescribed	27
No. Collected	6

Measurement Sensitivity

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

Tests Performed

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



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

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

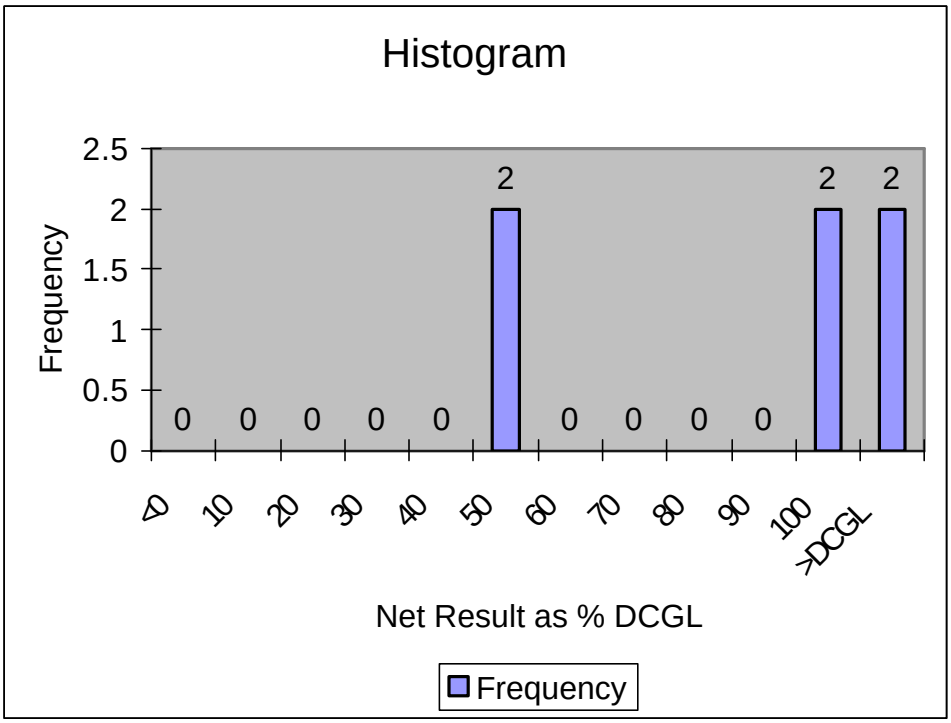
Direct Alpha Measurement Results

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



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

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
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

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

Field Notes Summary

Download ID	Field Notes
DL040705-002	Background Study

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 3.4 F1000 401B1, DS1 Direct Alpha B1 Brick material

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

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

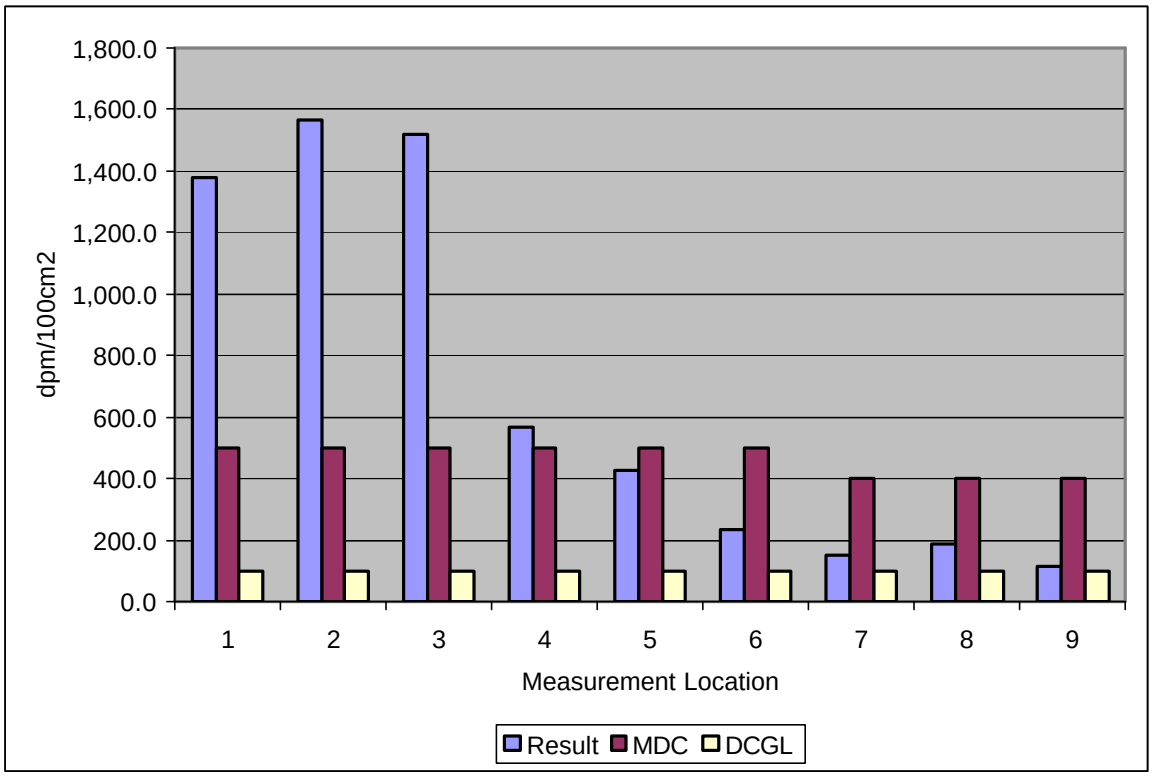
No. Prescribed	27
No. Collected	9

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



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

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

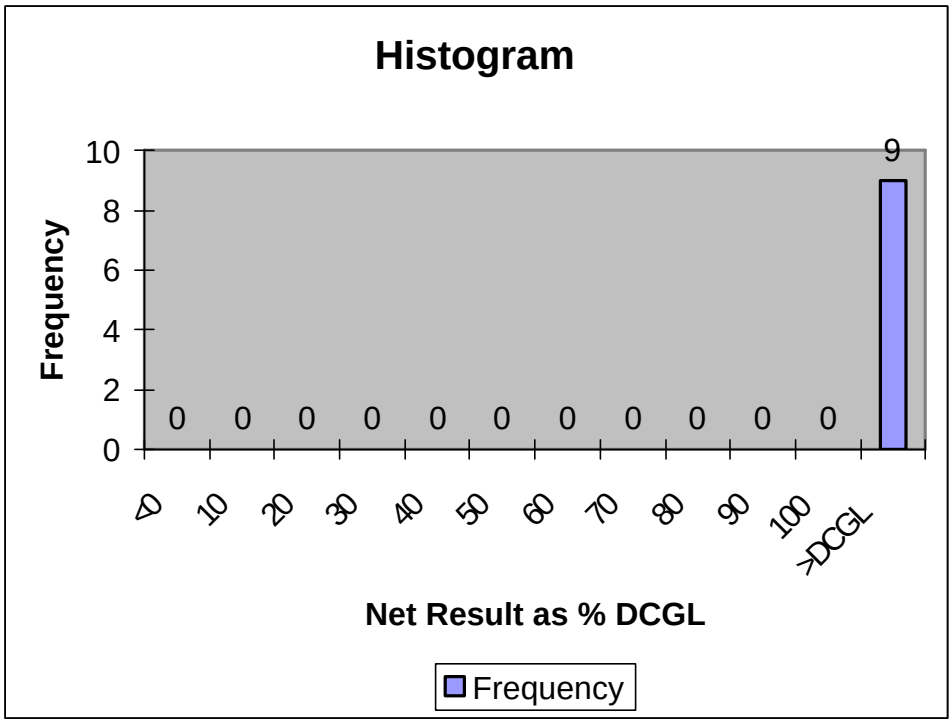
Direct Alpha Measurement Results

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



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

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
B1	Brick	Brick Description	0.25	0.0

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

Field Notes Summary

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

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 3.5 F1000 401B1, DS1 Direct Alpha C1 Concrete material

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

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

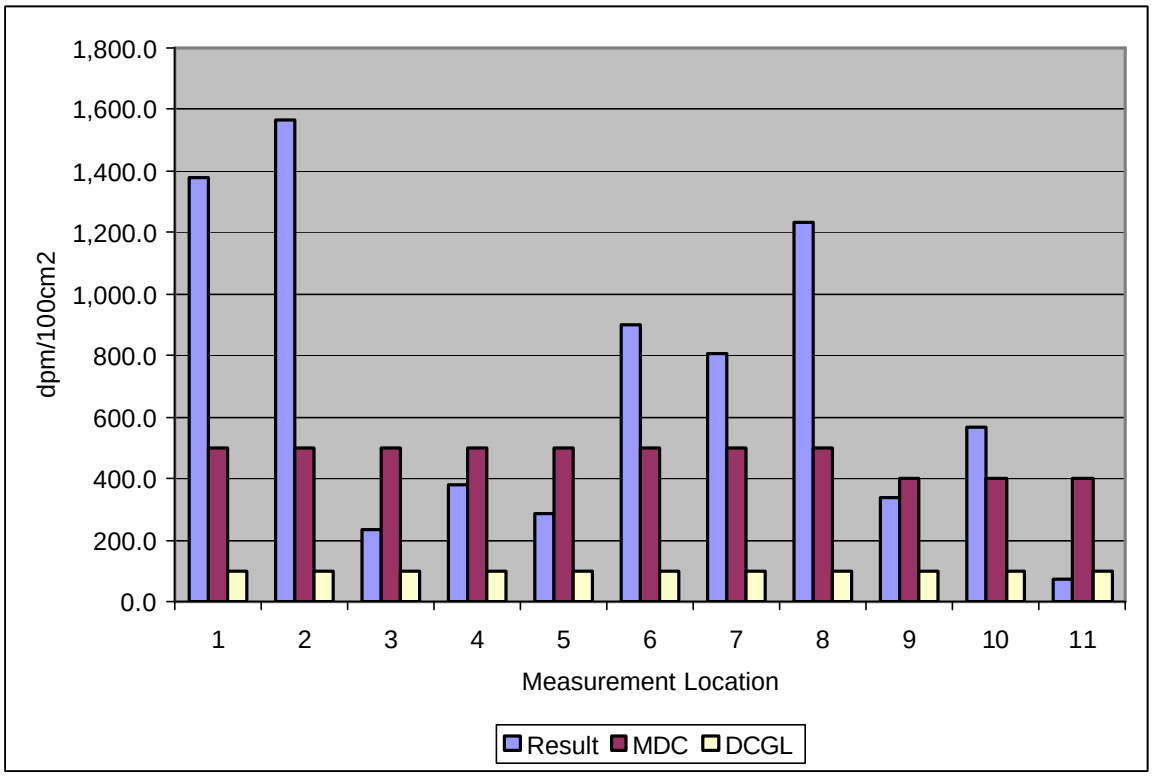
No. Prescribed	27
No. Collected	11

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



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

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

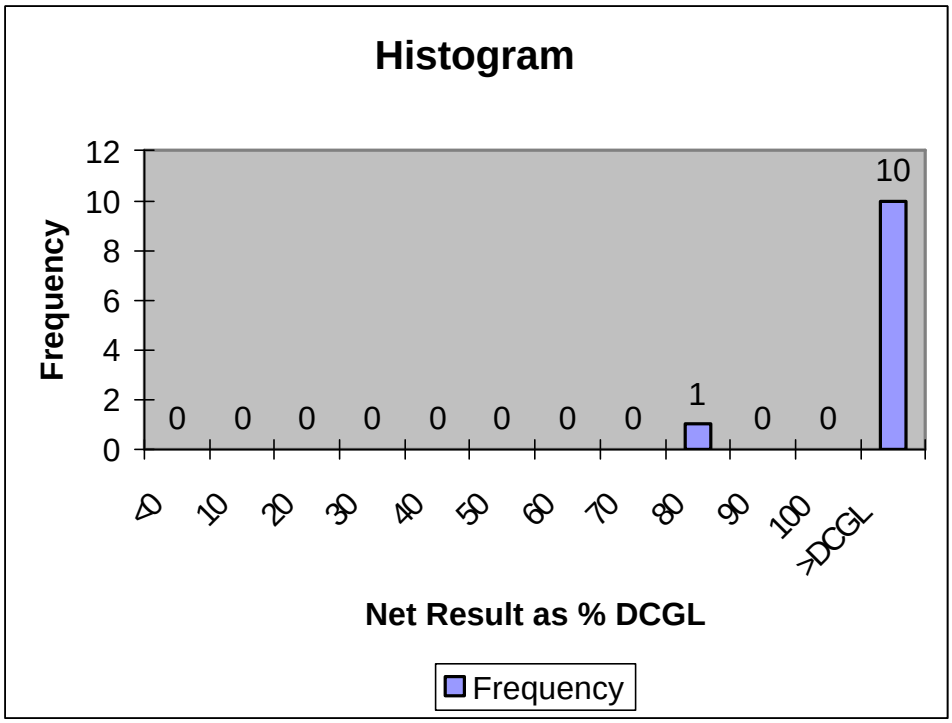
Direct Alpha Measurement Results

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



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

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

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

Field Notes Summary

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

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

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

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

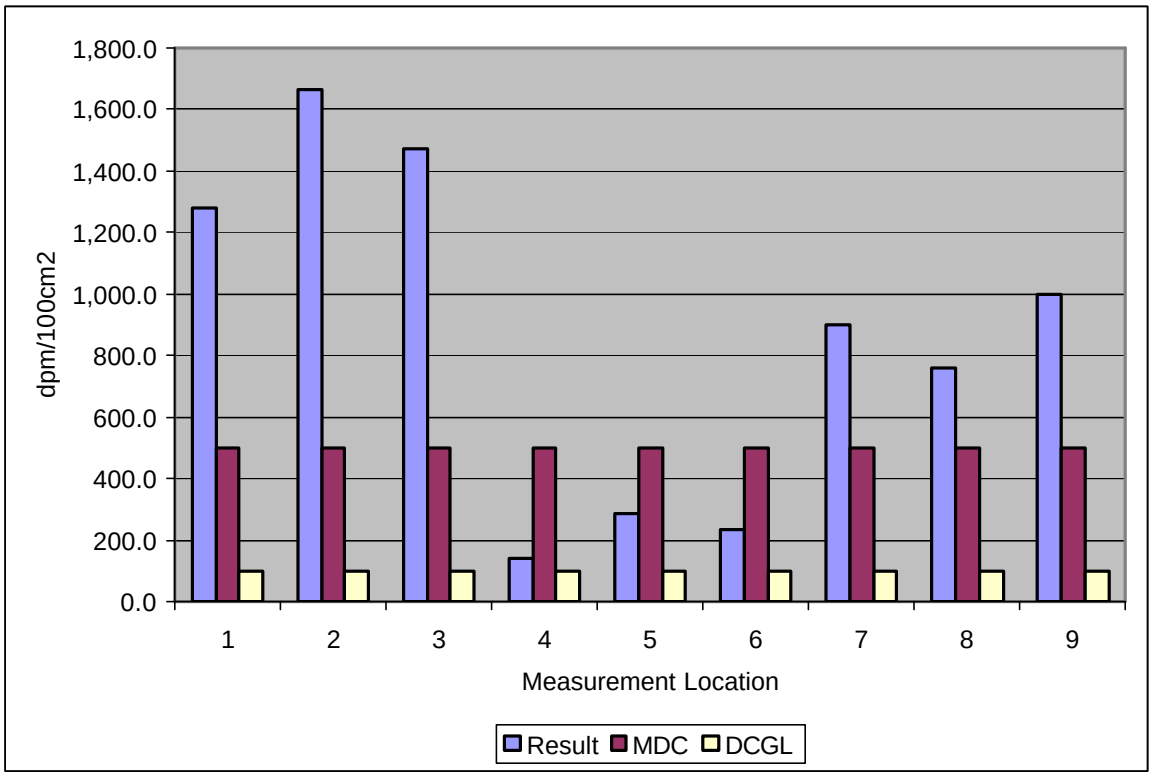
No. Prescribed	27
No. Collected	9

Measurement Sensitivity

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

Tests Performed

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



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

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

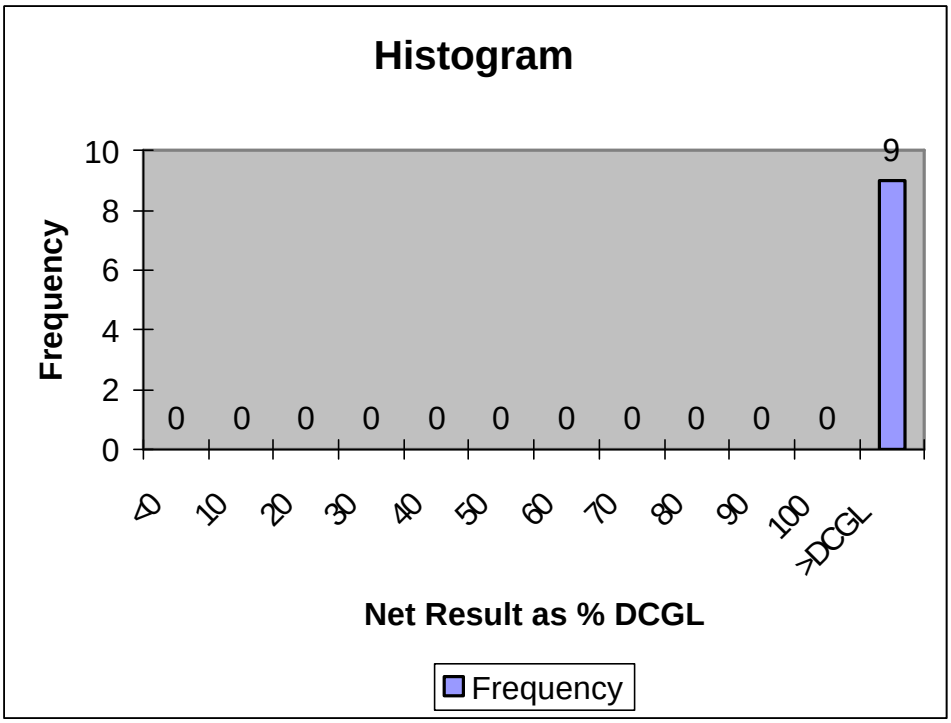
Direct Alpha Measurement Results

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



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

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
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.25	0.0

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

Field Notes Summary

Download ID	Field Notes
DL041005-002	Background Study

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 4.0
Contact Gamma Exposure Rate Measurement Results

Section
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

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 4.1 F1000 401B1, Contact Gamma Report - all materials

Contact Gamma Exposure Rate Measurement 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) Upstream from Building 104 Operations

Statistical Summary

	uR/hr
Mean	14.0
Median	15.7
Standard Deviation	3.4
Range	11.0
Minimum	7.2
Maximum	18.2

Number of Measurements

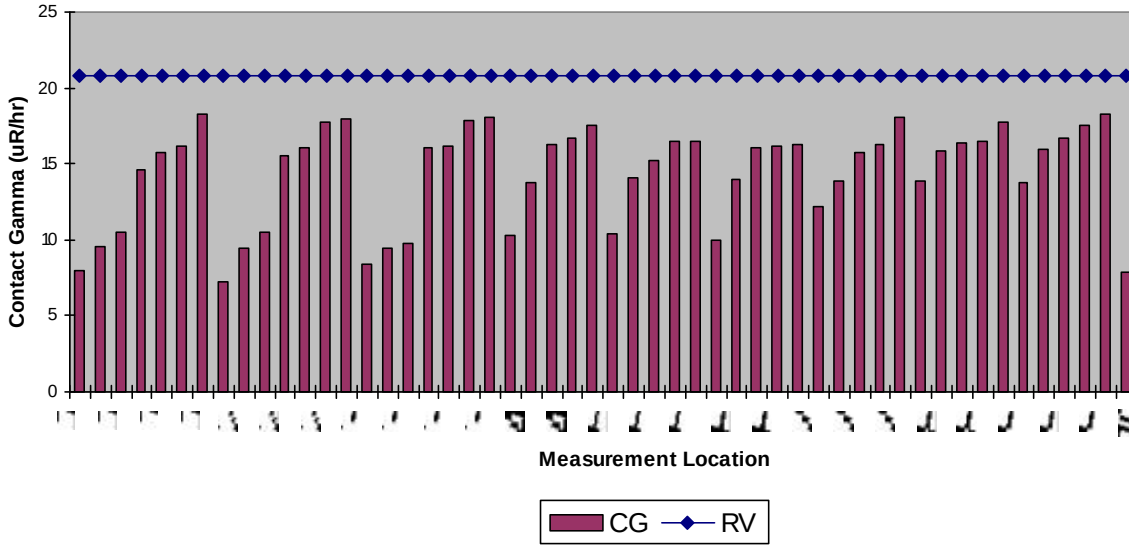
No. Prescribed	54
No. Collected	57

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement 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) 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

Contact Gamma Exposure Rate Measurement 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) 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

Contact Gamma Exposure Rate Measurement 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) 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	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

Contact Gamma Exposure Rate Measurement 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) 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

Contact Gamma Exposure Rate Measurement 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) Upstream from 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

Contact Gamma Exposure Rate Measurement 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) 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

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number and Unit Name:

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

Statistical Summary

	uR/hr
Mean	16.6
Median	16.5
Standard Deviation	1.6
Range	6.1
Minimum	12.2
Maximum	18.2

Number of Measurements

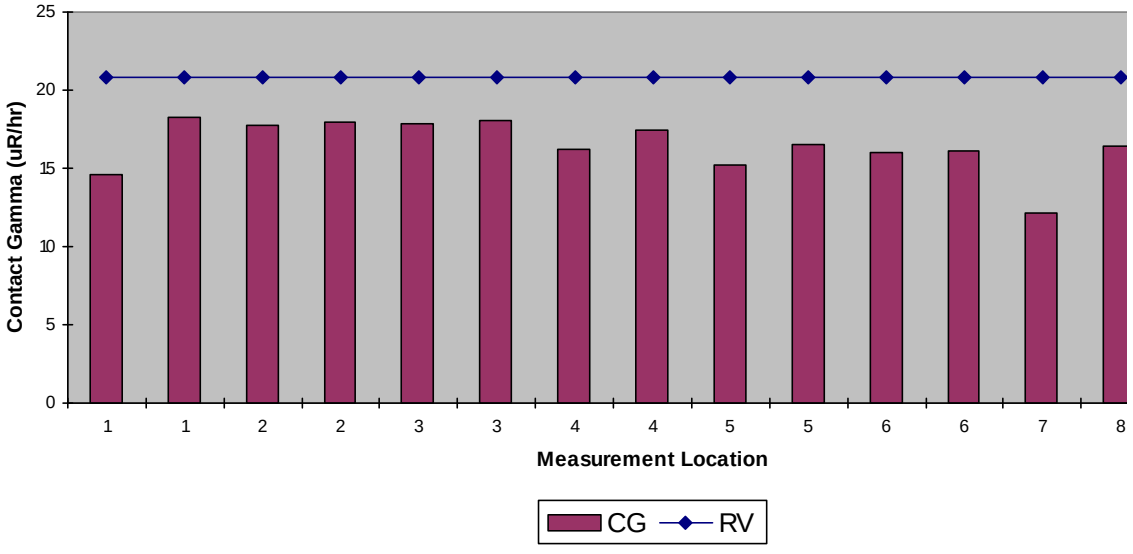
No. Prescribed	54
No. Collected	15

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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
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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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

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 4.3 F1000 401B1, Contact Gamma Report - Clay Pipe

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number and Unit Name:

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

Statistical Summary

	uR/hr
Mean	15.0
Median	14.9
Standard Deviation	1.2
Range	2.9
Minimum	13.7
Maximum	16.7

Number of Measurements

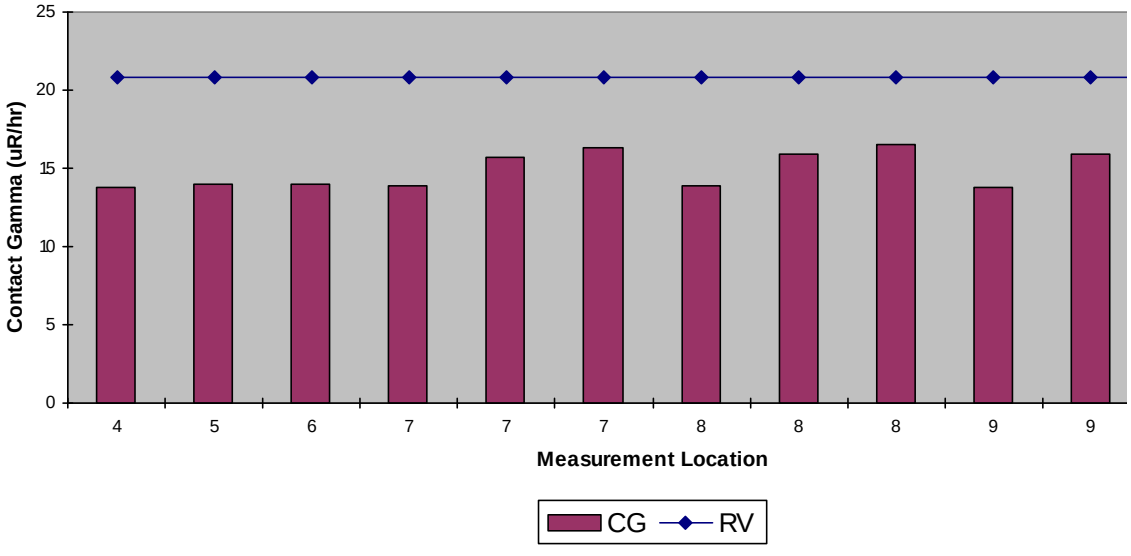
No. Prescribed	54
No. Collected	12

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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

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 4.4 F1000 401B1, Contact Gamma Report – Concrete

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number and Unit Name:

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

Statistical Summary

	uR/hr
Mean	13.9
Median	15.7
Standard Deviation	2.9
Range	7.0
Minimum	9.8
Maximum	16.7

Number of Measurements

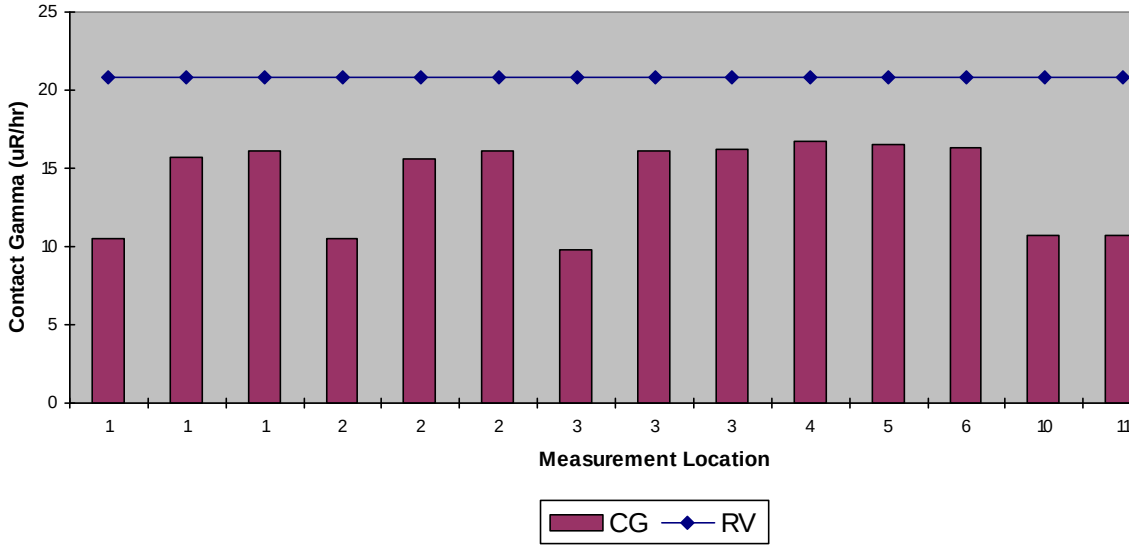
No. Prescribed	54
No. Collected	15

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	Contact Gamma Background Subtract (uR/hr)
C1	Concrete (Bare)	Concrete (Bare) Description	0.0

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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

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 4.5 F1000 401B1, Contact Gamma Report – Sediment

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number and Unit Name:

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

Statistical Summary

	uR/hr
Mean	10.7
Median	9.5
Standard Deviation	3.9
Range	11.0
Minimum	7.2
Maximum	18.2

Number of Measurements

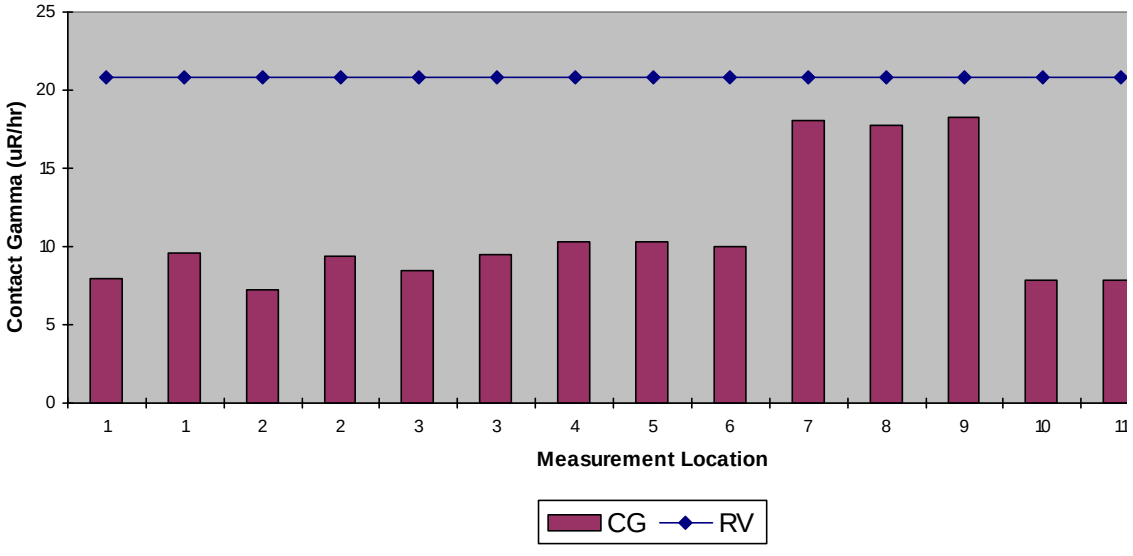
No. Prescribed	54
No. Collected	15

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

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	Contact Gamma Background Subtract (uR/hr)
R1	Sediment	Sediment Description	0.0

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: F1000 **Package Type:** System

Survey Area Name: Background Reference Area

Survey Package Number and Unit Name:

Survey Package Number 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

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 5.0
1 Meter Gamma Exposure Rate Measurement Results

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

1 Meter Gamma Exposure Rate Measurement 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) Upstream from Building 104 Operations

Statistical Summary

	uR/hr
Mean	5.5
Median	5.4
Standard Deviation	0.7
Range	2.4
Minimum	4.4
Maximum	6.9

Number of Measurements

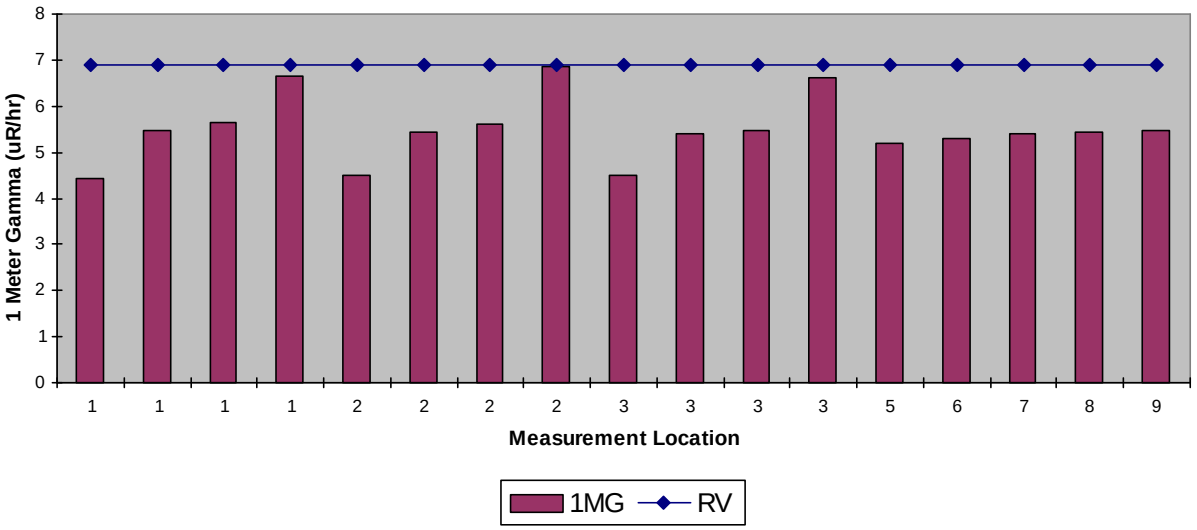
No. Prescribed	18
No. Collected	17

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	6.9

Tests Performed

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



1 Meter Gamma Exposure Rate Measurement 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) 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	00001	6.9	5.6	1.3
DL041305-007	4/12/2005	DS1C1	BKG06	00002	6.9	5.6	1.3
DL041305-007	4/12/2005	DS1C1	BKG06	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

1 Meter Gamma Exposure Rate Measurement 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) 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	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

1 Meter Gamma Exposure Rate Measurement 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) 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
S1	Soil	Soil Description	0.0

1 Meter Gamma Exposure Rate Measurement 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) Upstream 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

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 6.0
Removable Alpha Smear Sample Analysis Results

Section
6.1 F1000 401B1, Removable Alpha Report

Removable Alpha Measurement 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) Upstream from Building 104 Operations

Statistical Summary

	dpm/100cm2
Mean	2.2
Median	2.2
Standard Deviation	2.0
Range	6.8
Minimum	-0.4
Maximum	6.4

Number of Measurements

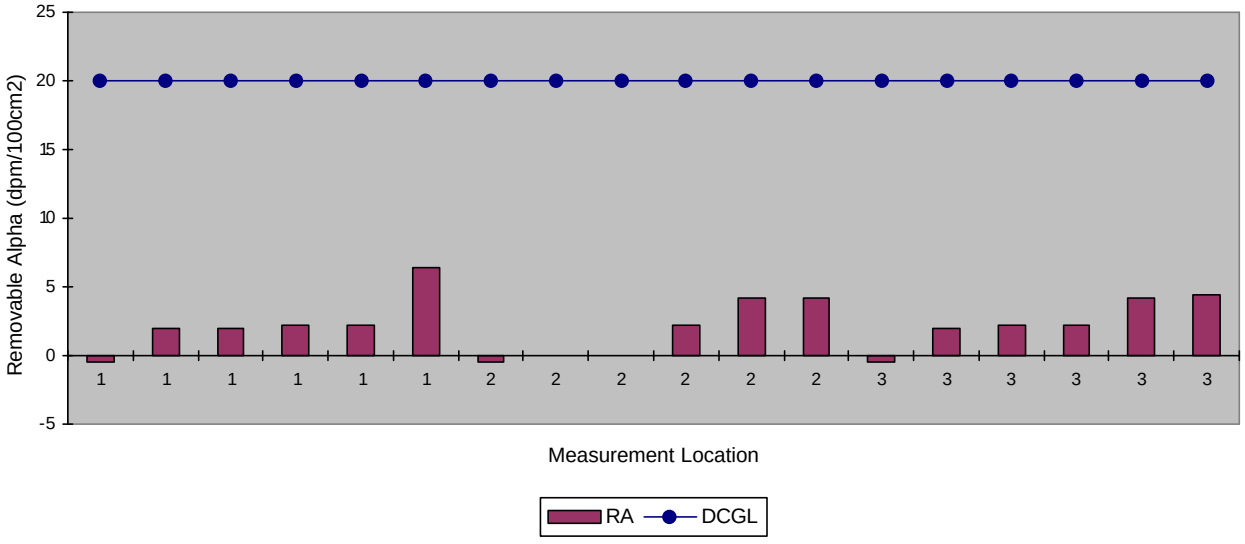
No. Prescribed	18
No. Collected	18

Measurement Sensitivity

	dpm/100cm2
MDC Mean	8.9
MDC Minimum	8.3
MDC Maximum	9.3
DCGL	20.0

Tests Performed

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



Removable Alpha Measurement 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) Upstream from 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	9.3	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	8.3	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	9.3	-0.4	20.4
CS042505-002	4/14/2005	DS1	BKG04	1	8.3	2.0	18.0

Removable Alpha Measurement 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) Upstream from 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

Removable Alpha Measurement 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) Upstream from 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

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 7.0
Removable Beta Smear Sample Analysis Results

Section
7.1 F1000 401B1, Removable Beta Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

Removable Beta Measurement 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) Upstream from Building 104 Operations

Statistical Summary

	dpm/100cm2
Mean	24.3
Median	26.7
Standard Deviation	38.4
Range	155.3
Minimum	-48.5
Maximum	106.8

Number of Measurements

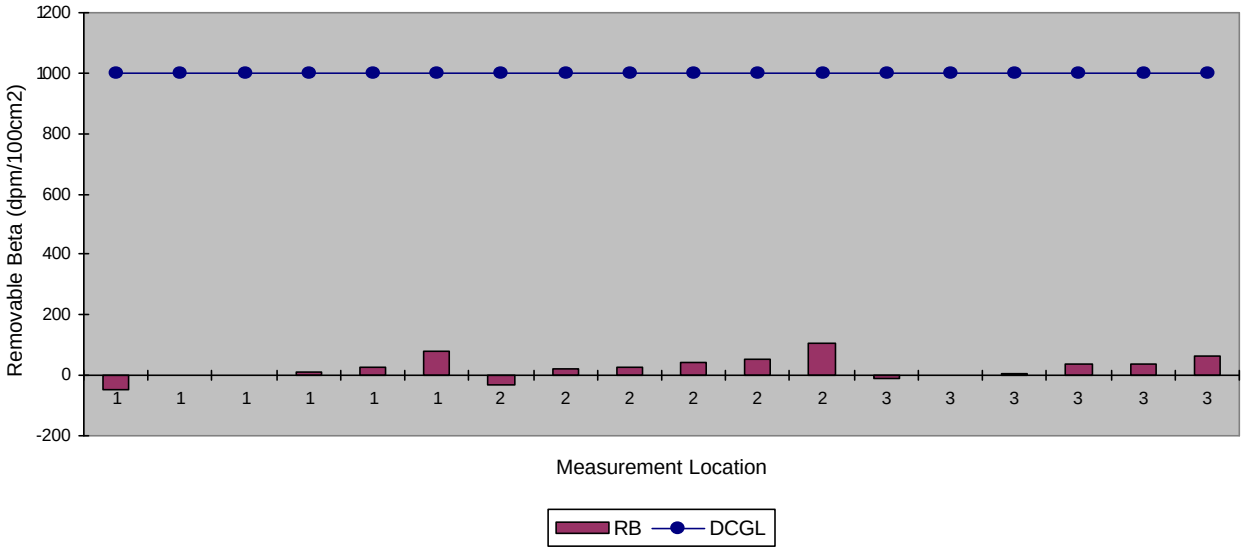
No. Prescribed	18
No. Collected	18

Measurement Sensitivity

	dpm/100cm2
MDC Mean	131.2
MDC Minimum	131.2
MDC Maximum	131.2
DCGL	1000.0

Tests Performed

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



Removable Beta Measurement 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) Upstream from 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

Removable Beta Measurement 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) Upstream from 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 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

Removable Beta Measurement 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) Upstream from 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

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 8.0
Alpha Spectroscopy Sample Analysis Results

Section
8.1 F1000 401B1, DM1 & DS1 Alpha Spec RL

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

Statistical Summary

	pCi/gram
Mean	0.34
Median	0.29
Standard Deviation	0.08
Range	0.14
Minimum	0.29
Maximum	0.43

Number of Measurements

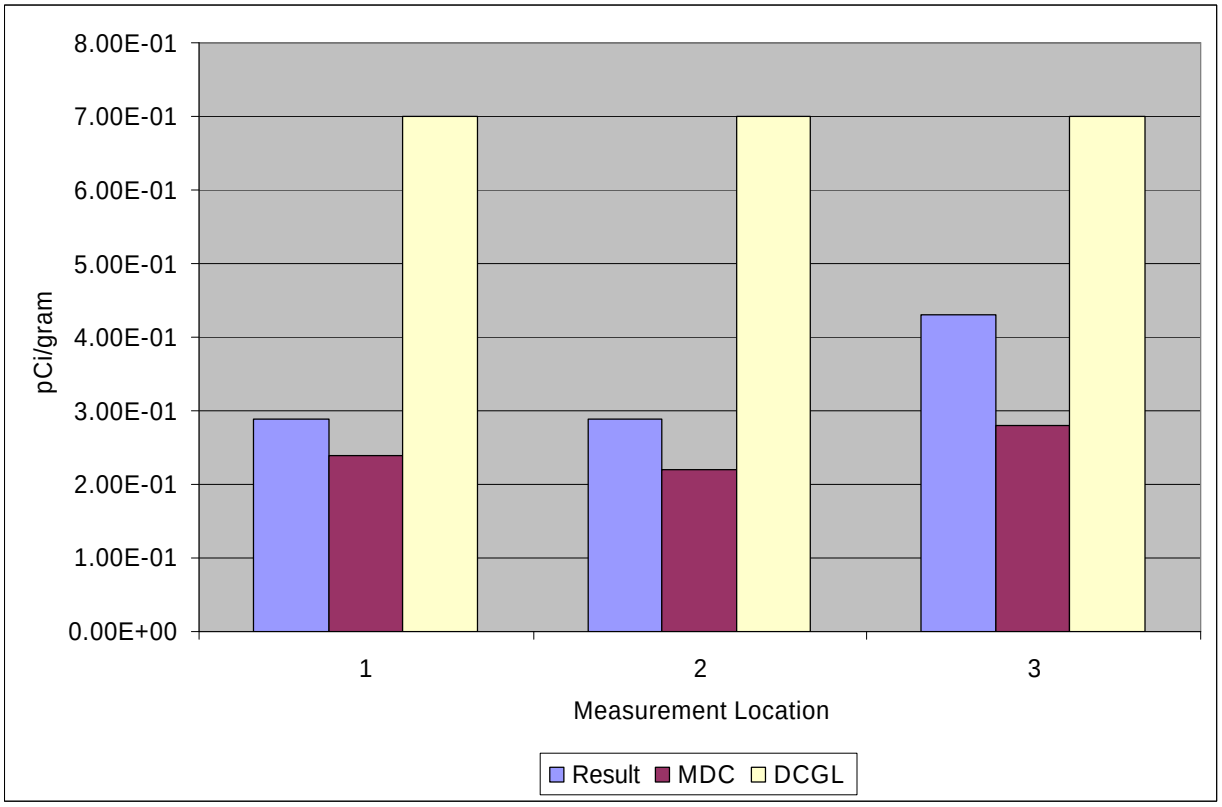
No. Prescribed	18
No. Collected	3

Measurement Sensitivity

	pCi/gram
MDC Mean	0.25
MDC Minimum	0.22
MDC Maximum	0.28
DCGL	0.70

Tests Performed

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



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

Sample Analysis Result 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 ID: CS052005-001											
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 ID: CS052005-002											
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 ID: CS052005-003											
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

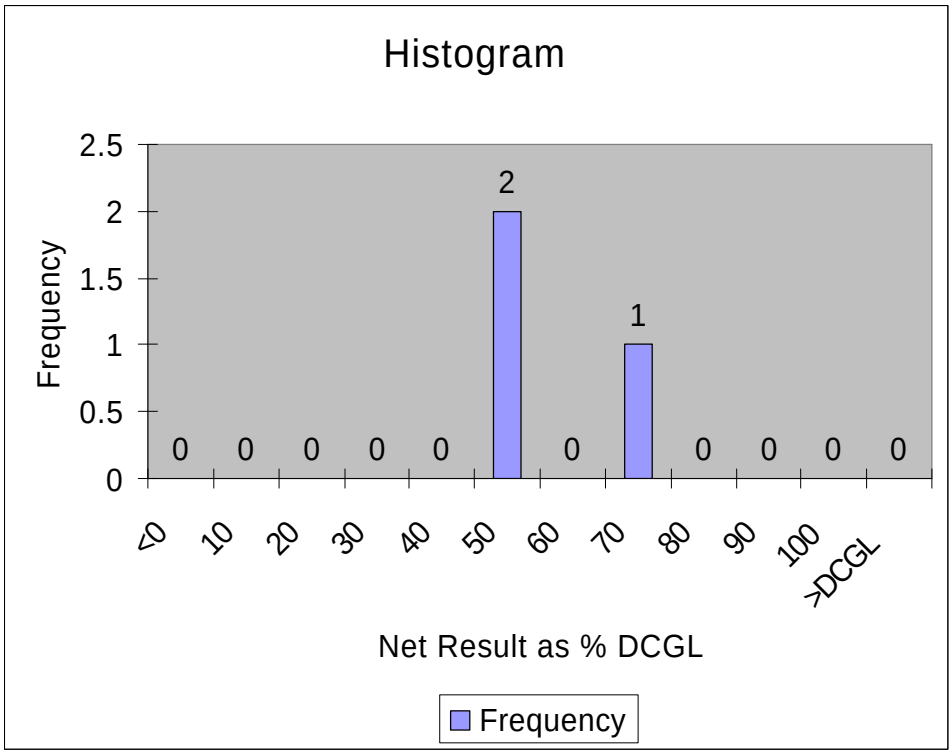
Alpha Spectroscopy Analysis Results

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



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

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

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 Number and Unit Name:

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

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: _____ Date: 6/9/05
John L. McGehee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Donald McGee, Senior Engineer

Approved By: _____ Date: 6/9/05
Gregory L. Courtney, Senior Engineer, CHP

Approved By: _____ Date: 8/6/05
PARSONS Representative

Data Analysis Report Parameters

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 Group: E - Radiological Survey of Impacted Facility Systems

Survey Area: 2000 - Storm Drain System

Unit Classification: 2 - Impacted System

MARSSIM FSS Survey Unit Size (M^2): NA

Survey Unit: 01 - Storm Drain System Section Down Stream of Building 104 Operations

Survey Reason: C1 - Characterization Survey

Surface(s):	Code	Description	Survey Area (M^2)
	DM1 -	Storm Drain	NA
		Total Area	NA

Materials: Code - Description
B1 - Brick
C1 - Concrete (Bare)
R1 - Sediment
S1 - Soil
V2 - Vitrified Clay Pipe

Report

Report Pedigree:	Final Report
Detector Efficiency	2-Pi
Survey Location:	LC5

Data Analysis Report 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

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

Data Analysis Report Measurement Results

Survey Area: E2000 **Package Type:** System

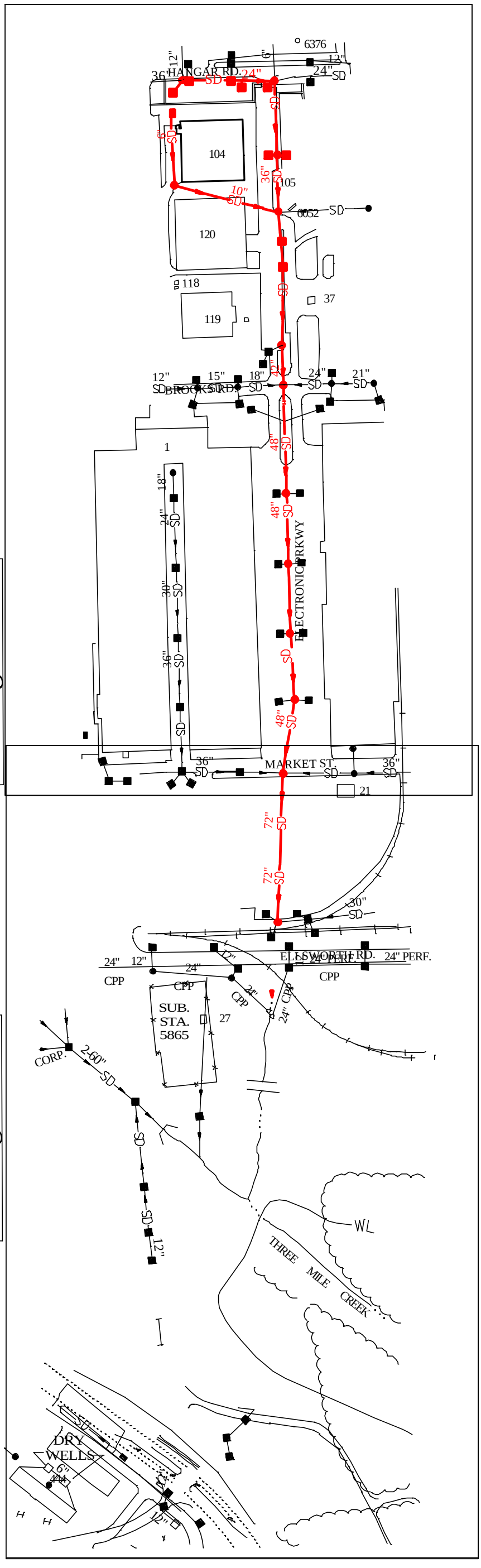
Survey Area Name: Storm Drain System

Survey Package Number and Unit Name:

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

Section 1.0
Annotated Drawings

Drawing E2000-1



Drawing E2000-2

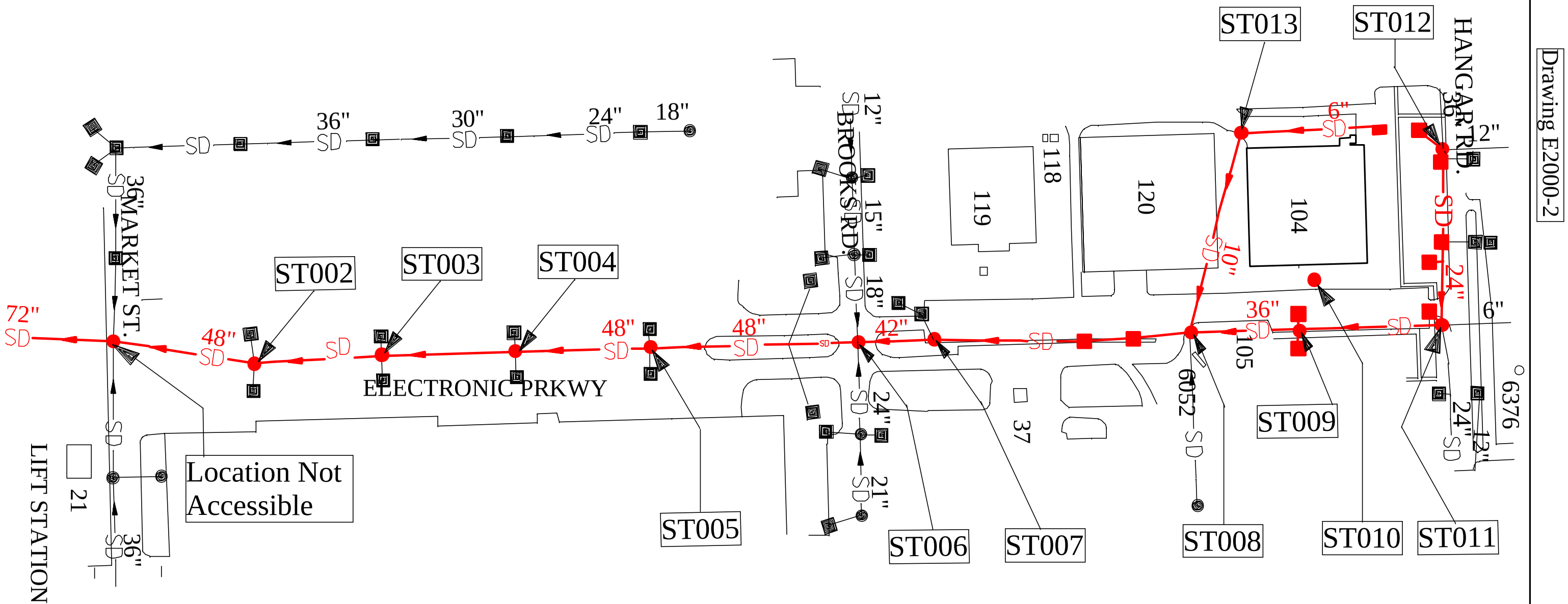
Drawing E2000-3

TRUE NORTH

Griffiss AFB - Storm Drain Line Building 104 to Three Mile Creek Survey Package E2000 201C1 Drawing No. E2000-1

Griffiss AFB - Storm Drain Line
Building 104 to Market Street
Survey Package E2000 201C1
Drawing No. E2000-2

Drawing E2000-2

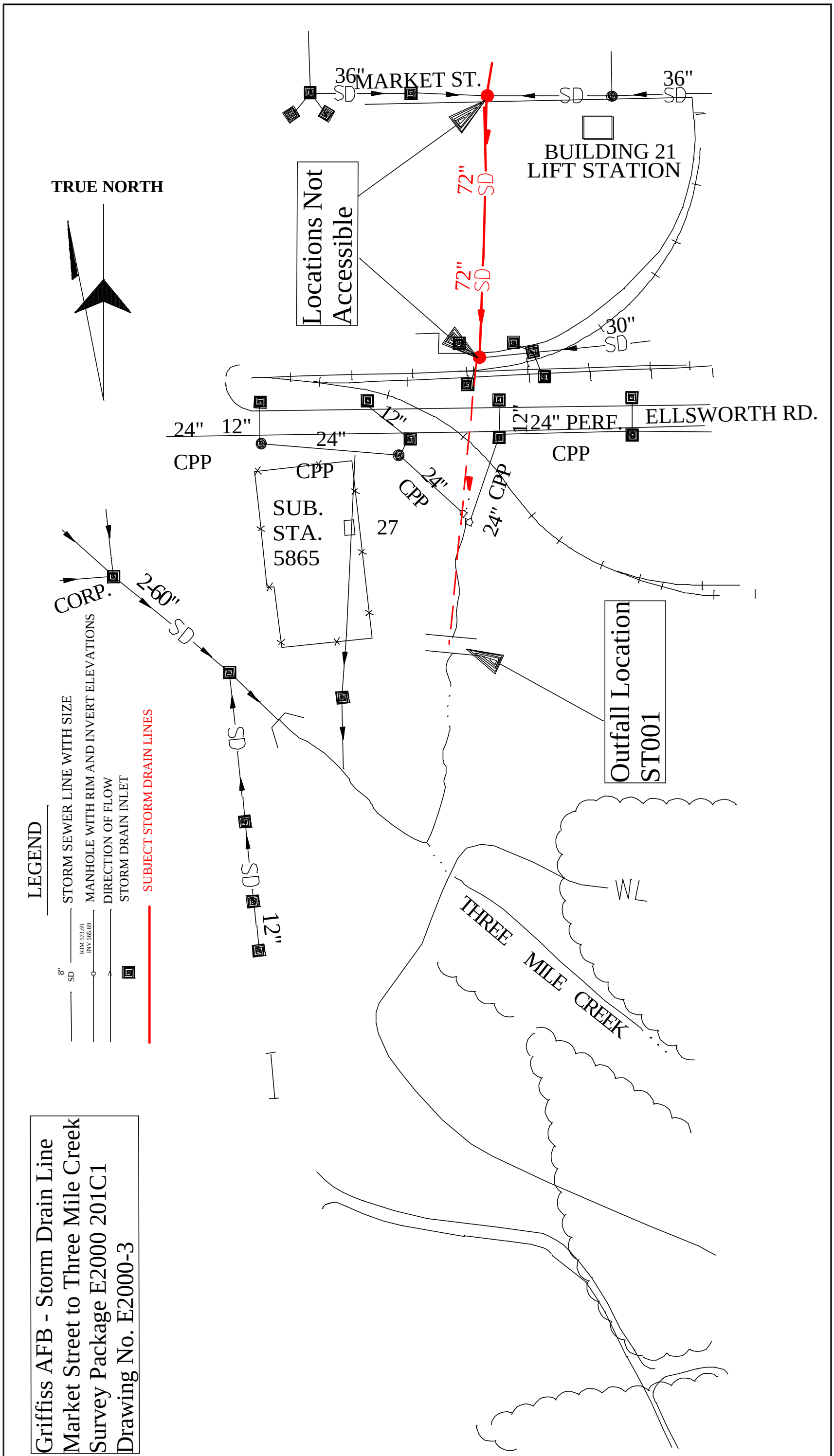


LEGEND

- 8" SD — STORM SEWER LINE WITH SIZE
- RIM 573.69 / INV 565.69 — MANHOLE WITH RIM AND INVERT ELEVATIONS
- DIRECTION OF FLOW
- STORM DRAIN INLET
- SUBJECT STORM DRAIN LINES

TRUE NORTH

Drawing E2000-3



Griffiss AFB - Storm Drain Line
Market Street to Three Mile Creek
Survey Package E2000 201C1
Drawing No. E2000-3

Data Analysis Report 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

Section 2.0
Direct Beta Measurement Results

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

Data Analysis Report 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

Section 2.1 E2000 201C1, Direct Beta all materials

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

Statistical Summary

	dpm/100cm^2
Mean	5,147.0
Median	4,755.3
Standard Deviation	1,536.0
Range	6,742.6
Minimum	3,051.9
Maximum	9,794.5

Number of Measurements

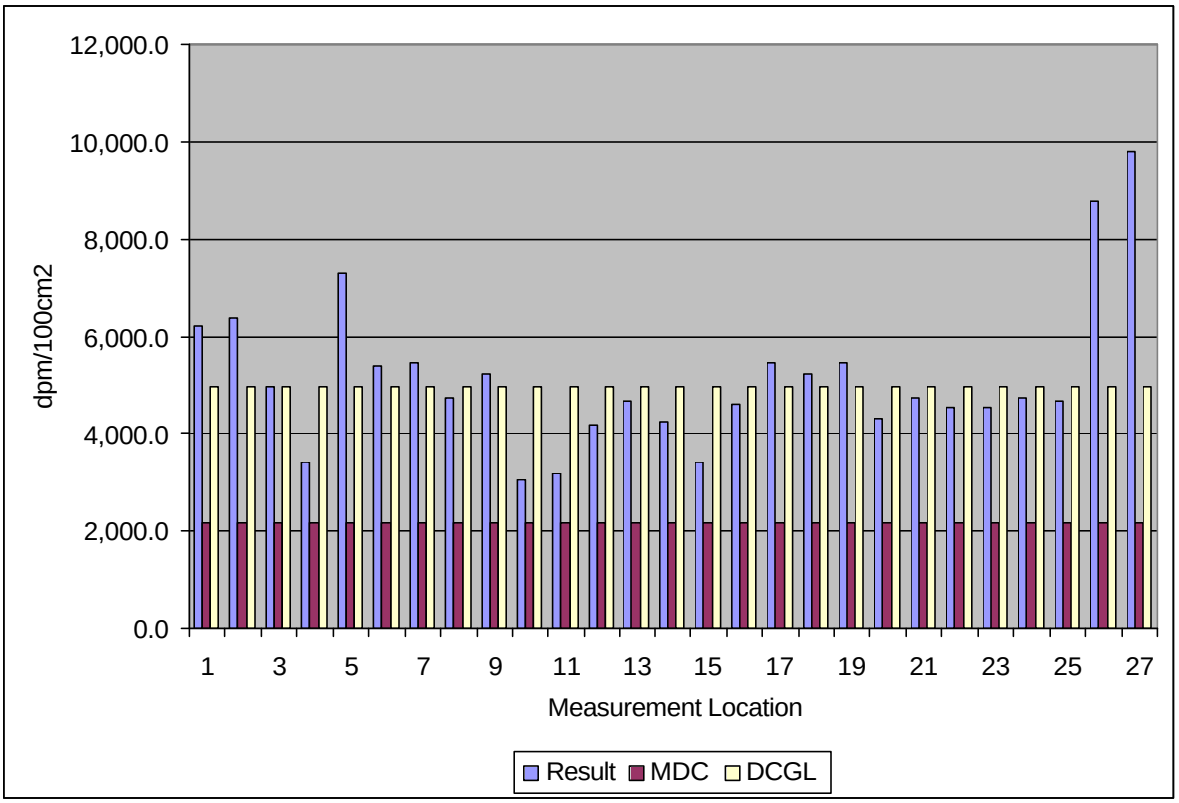
No. Prescribed	18
No. Collected	27

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 ≥ Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	11



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

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

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

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

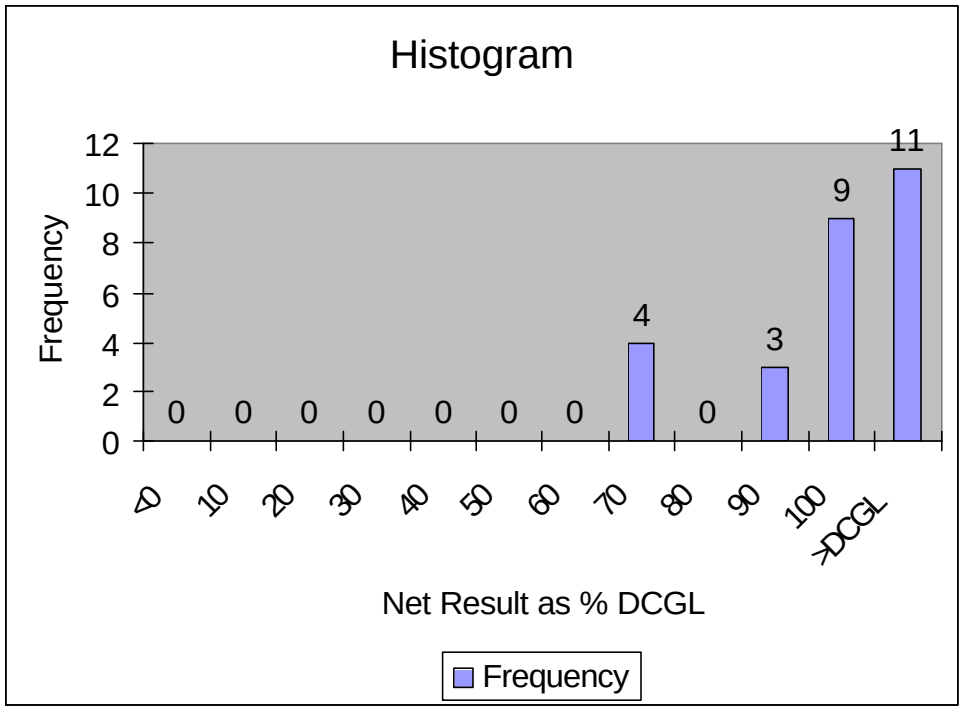
Direct Beta Measurement Results

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



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

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

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

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

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

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

Data Analysis Report 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

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

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

Statistical Summary

	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

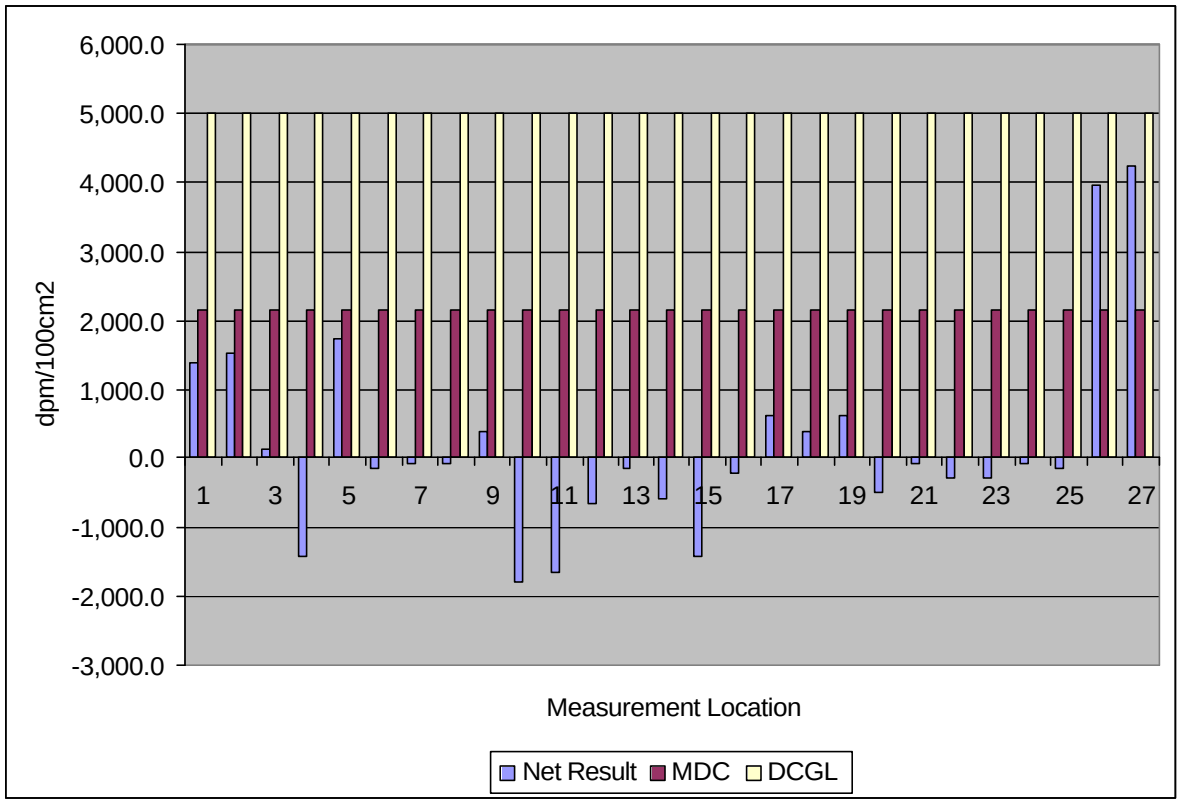
No. Prescribed	18
No. Collected	27

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 ≥ Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	Yes
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	0



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

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

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

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

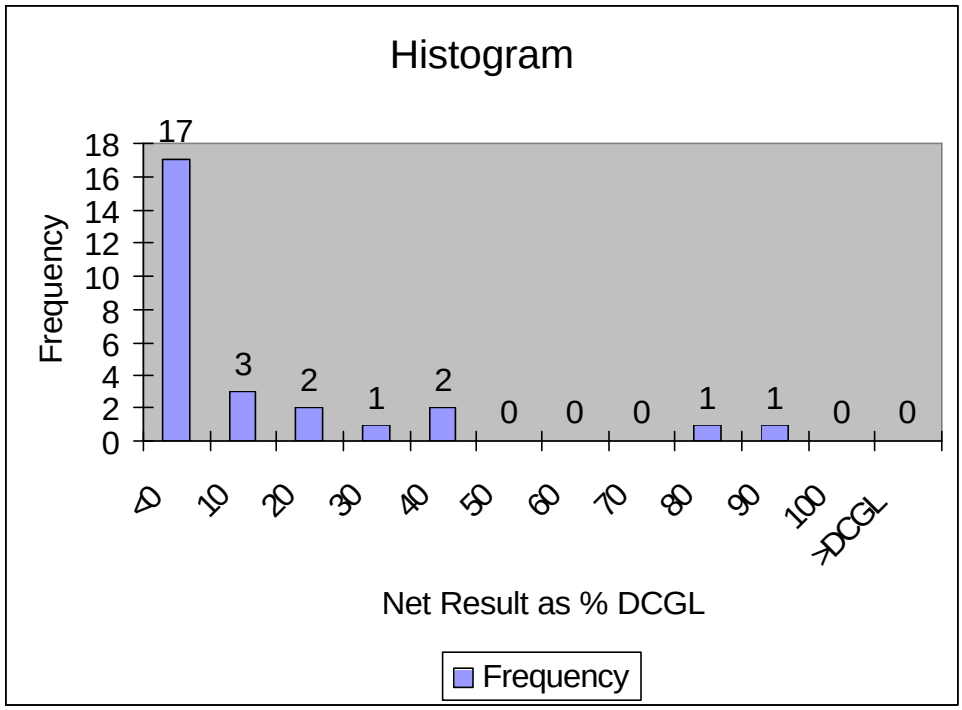
Direct Beta Measurement Results

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



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

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

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

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

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

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

Data Analysis Report 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

Section 3.0
Direct Alpha Measurement Results

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

Data Analysis Report 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

Section 3.1 E2000 201C1 Direct Alpha all materials

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

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

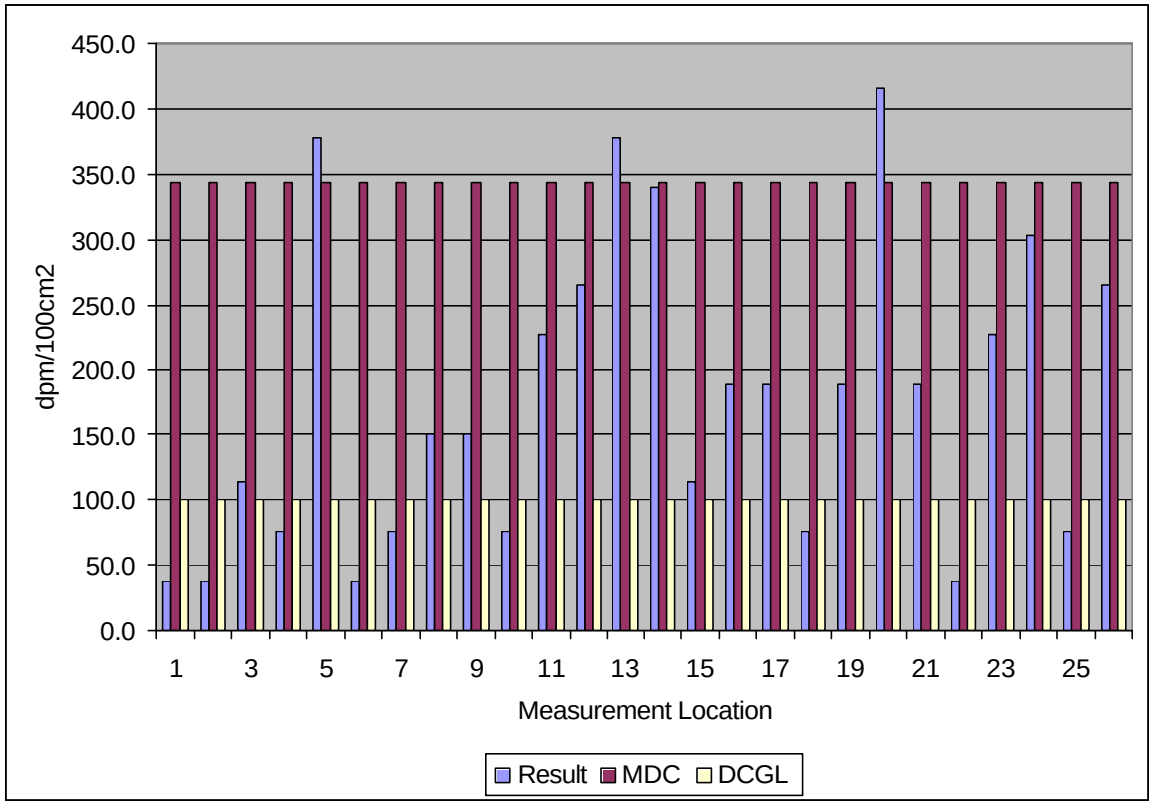
No. Prescribed	18
No. Collected	26

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



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

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

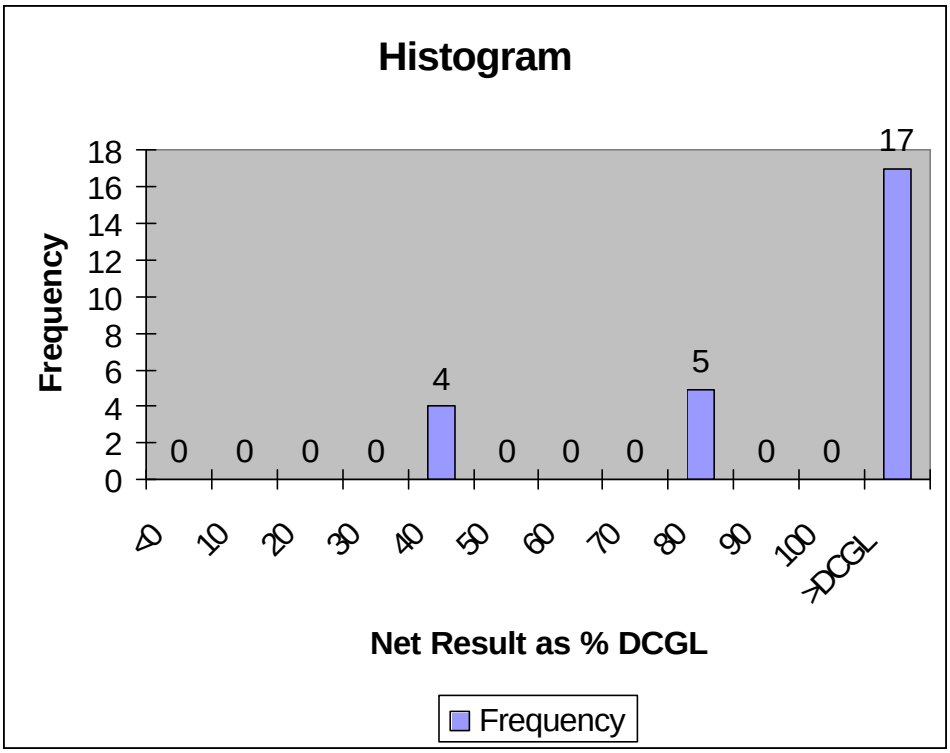
Direct Alpha Measurement Results

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



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

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

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

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

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

Data Analysis Report 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

Section 3.2 E2000 201C1 Direct Alpha all materials wMBC

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

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

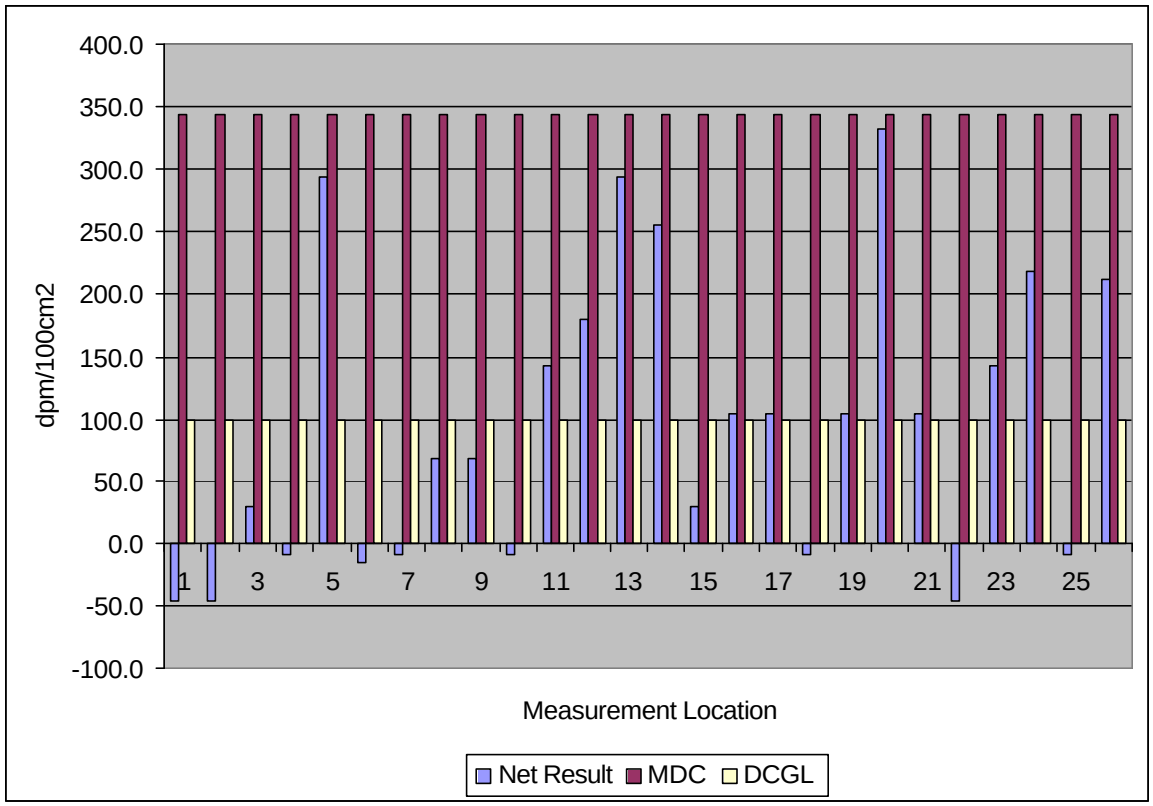
No. Prescribed	18
No. Collected	26

Measurement Sensitivity

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

Tests Performed

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



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

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

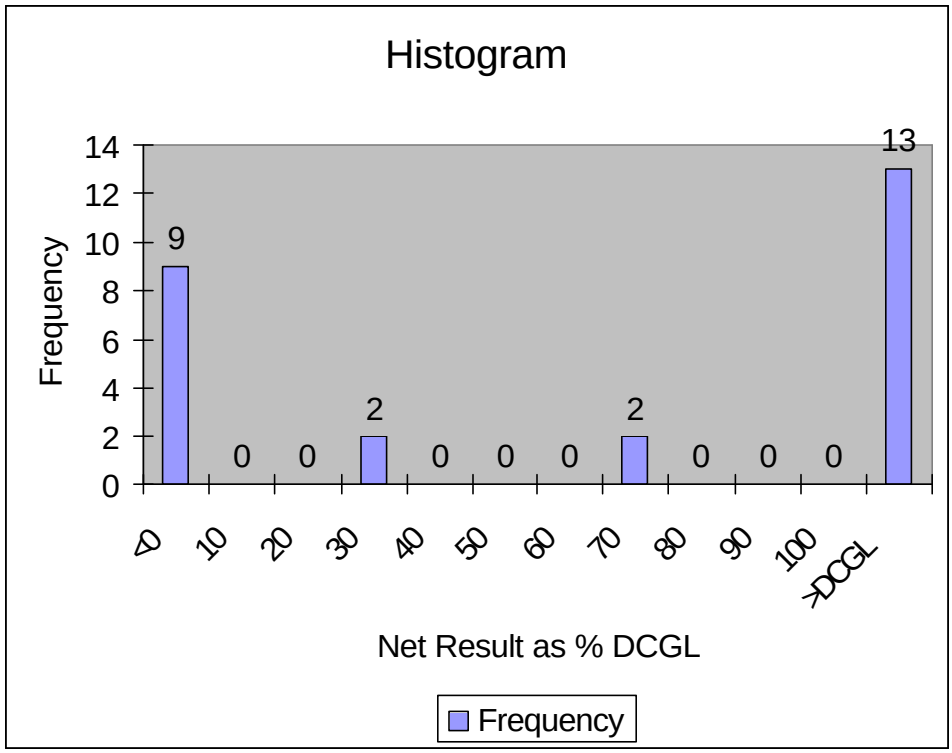
Direct Alpha Measurement Results

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



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

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

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

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

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

Data Analysis Report 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

Section 4.0
Contact Gamma Exposure Rate Measurement Results

Section
4.1 E2000 201C1, Contact Gamma Report

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

	uR/hr
Mean	12.7
Median	11.2
Standard Deviation	2.9
Range	8.9
Minimum	10.0
Maximum	18.9

Number of Measurements

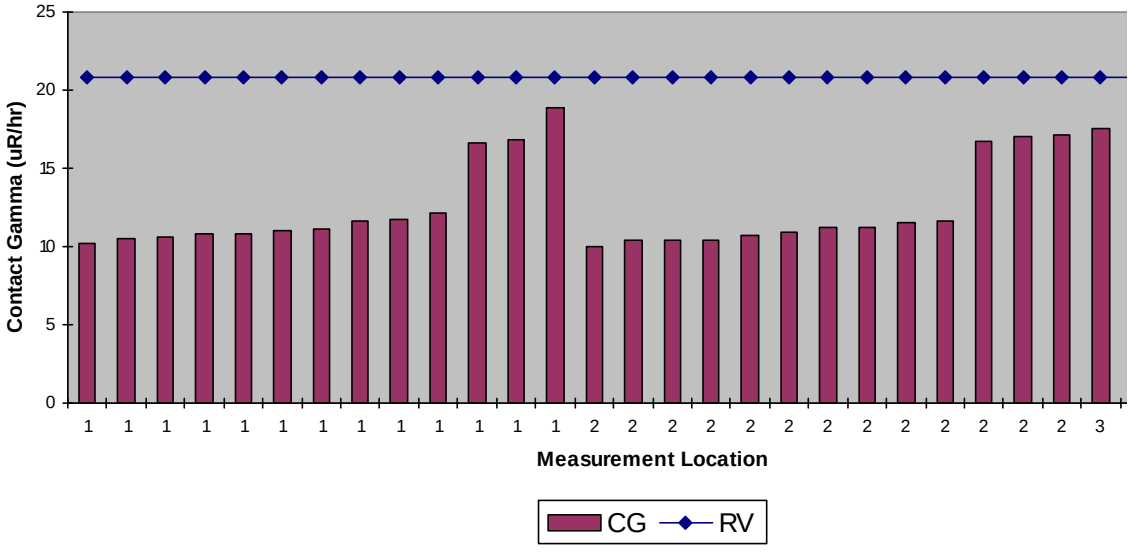
No. Prescribed	18
No. Collected	30

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

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



Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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 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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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

Contact Gamma Exposure Rate Measurement Results

Survey Area LC1: 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
DL041005-004	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

Data Analysis Report 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

Section 5.0
1 Meter Gamma Exposure Rate Measurement Results

Section 5.1 E2000 201C1, 1 Meter Gamma Report

1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

	uR/hr
Mean	5.4
Median	5.0
Standard Deviation	1.5
Range	6.6
Minimum	4.0
Maximum	10.6

Number of Measurements

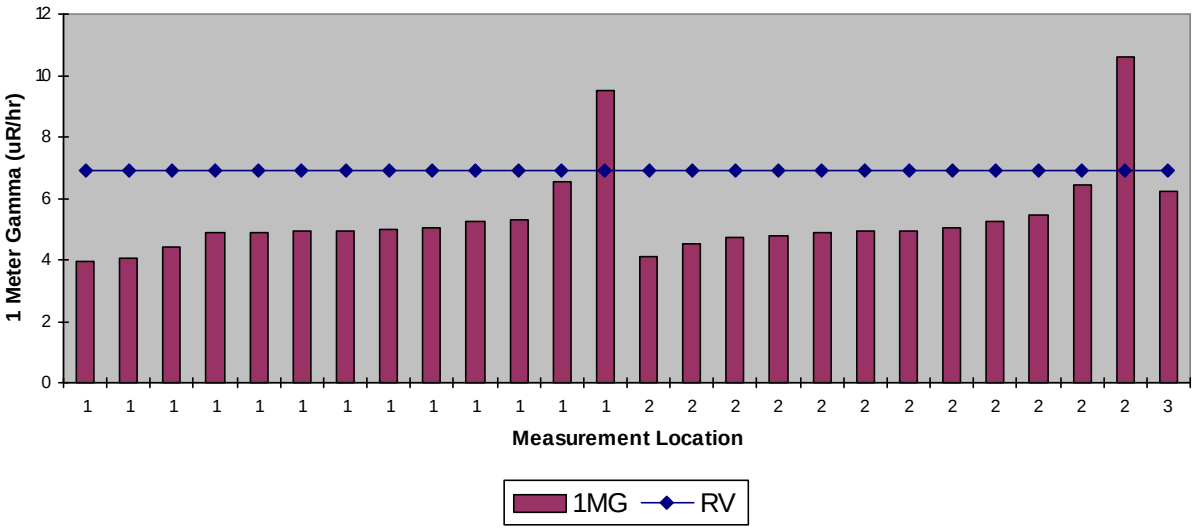
No. Prescribed	18
No. Collected	26

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	6.9

Tests Performed

No. Collected >/= Prescribed	Yes
Measurement Mean < RV	Yes
Measurements < RV	No
No. Measurements > RV	2



1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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

1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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

1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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 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

1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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

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
S1	Soil	Soil Description	0.0

1 Meter Gamma Exposure Rate Measurement Results

Survey Area LC1: 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
DL041005-004	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

Data Analysis Report 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

Section 6.0
Removable Alpha Smear Sample Analysis Results

Section
6.1 E2000 201C1, Removable Alpha Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

Removable Alpha Measurement Results

Survey Area LC1: 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

	dpm/100cm2
Mean	1.9
Median	1.8
Standard Deviation	2.6
Range	8.8
Minimum	-0.4
Maximum	8.4

Number of Measurements

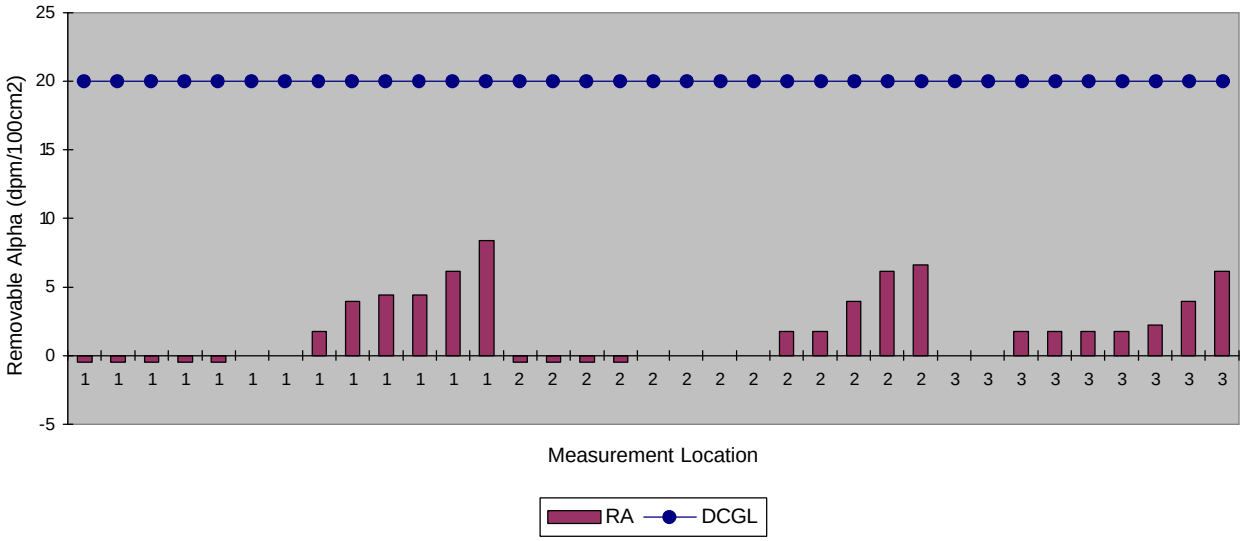
No. Prescribed	18
No. Collected	35

Measurement Sensitivity

	dpm/100cm2
MDC Mean	9.3
MDC Minimum	9.3
MDC Maximum	9.3
DCGL	20.0

Tests Performed

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



Removable Alpha Measurement Results

Survey Area LC1: 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

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

Removable Alpha Measurement Results

Survey Area LC1: 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

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

Removable Alpha Measurement Results

Survey Area LC1: 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

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

Removable Alpha Measurement Results

Survey Area LC1: 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

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

Data Analysis Report 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

Section 7.0
Removable Beta Smear Sample Analysis Results

Section
7.1 E2000 201C1, Removable Beta Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

Removable Beta Measurement Results

Survey Area LC1:	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

	dpm/100cm2
Mean	5.5
Median	4.9
Standard Deviation	29.4
Range	131.1
Minimum	-68.0
Maximum	63.1

Number of Measurements

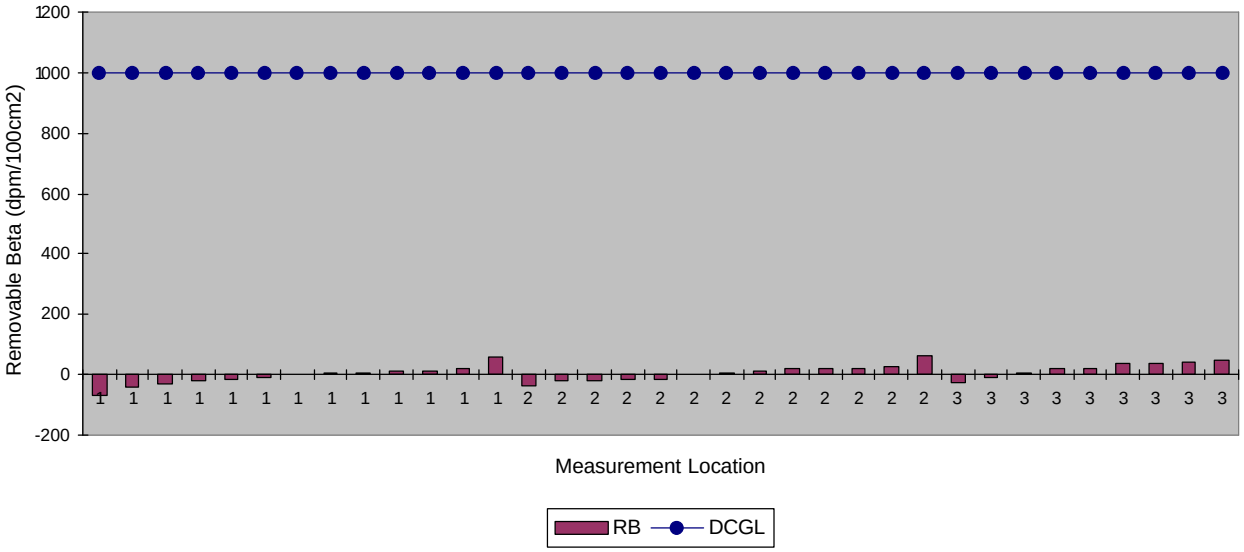
No. Prescribed	18
No. Collected	35

Measurement Sensitivity

	dpm/100cm2
MDC Mean	131.2
MDC Minimum	131.2
MDC Maximum	131.2
DCGL	1000.0

Tests Performed

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



Removable Beta Measurement Results

Survey Area LC1: 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

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

Removable Beta Measurement Results

Survey Area LC1: 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

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

Removable Beta Measurement Results

Survey Area LC1: 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

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

Removable Beta Measurement Results

Survey Area LC1: 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

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

Data Analysis Report 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

Section 8.0
Alpha Spectroscopy Sample Analysis Results

Section
8.1 E2000 201C1 Alpha Spec RL

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

	pCi/gram
Mean	0.37
Median	0.25
Standard Deviation	0.34
Range	0.98
Minimum	0.06
Maximum	1.04

Number of Measurements

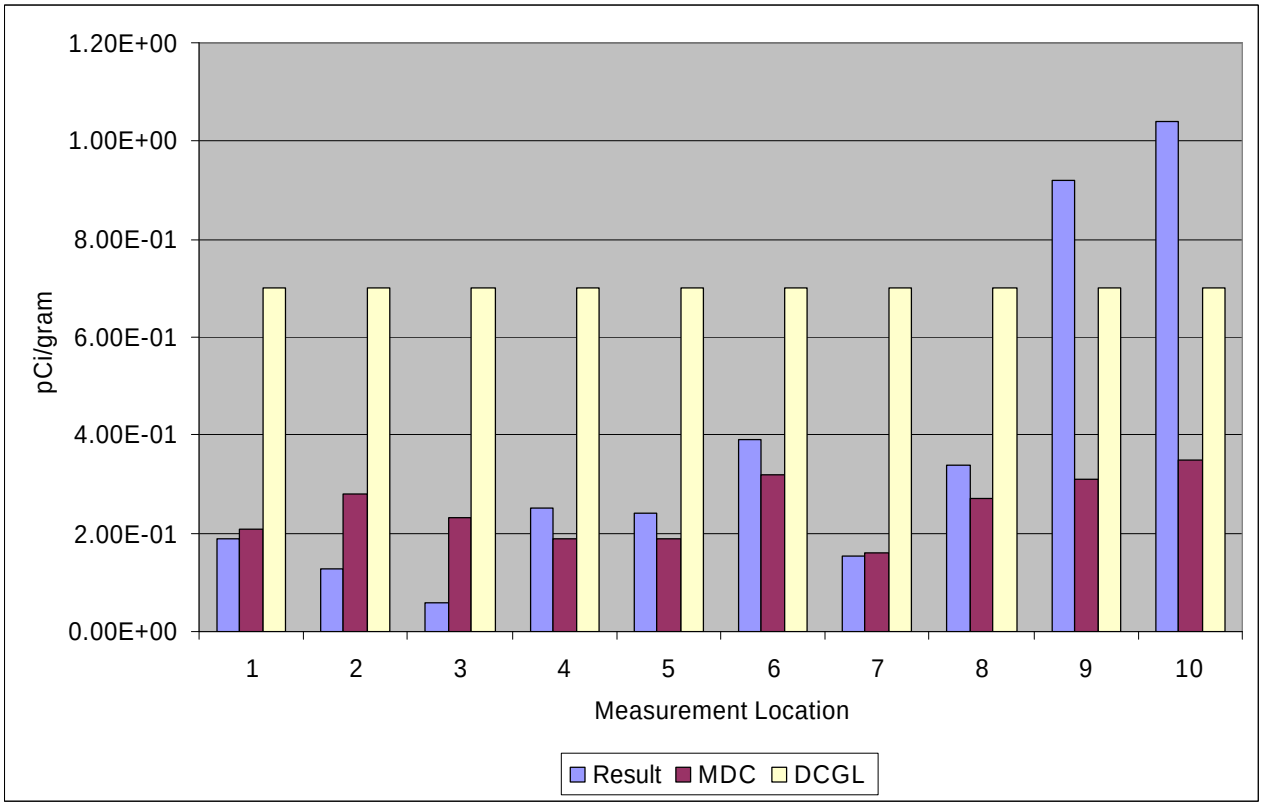
No. Prescribed	18
No. Collected	10

Measurement Sensitivity

	pCi/gram
MDC Mean	0.25
MDC Minimum	0.16
MDC Maximum	0.35
DCGL	0.70

Tests Performed

No. Collected ≥ Prescribed	No
Max MDC < 50% DCGL	Yes
Measurements < DCGL	No
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	2



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

Sample Analysis Result 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 ID: CS052005-004											
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 ID: CS052005-005											
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 ID: CS052005-006											
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 ID: CS052005-007											
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 ID: CS052005-008											
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 ID: CS052005-009											
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 ID: CS052005-010											
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

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

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 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	1	DM1	ST013	1						
						RA-226	9.20E-01	2.70E-01	3.10E-01	7.00E-01	2.20E-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

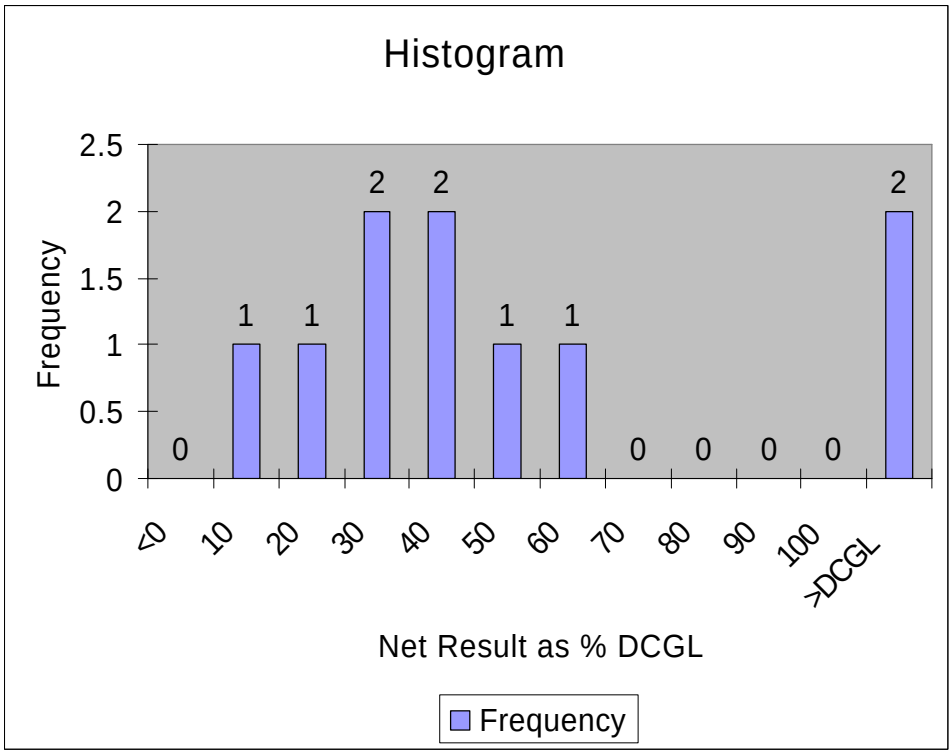
Alpha Spectroscopy Analysis Results

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



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

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

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

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)

Data Analysis Report Coversheet

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

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: _____ Date: 6/9/05
John L. McGehee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Donald McGee, Senior Engineer

Approved By: _____ Date: 6/9/05
Gregory L. Courtney, Senior Engineer, CHP

Approved By: _____ Date: 8/6/05
PARSONS Representative

Data Analysis Report Parameters

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

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

Report

Report Pedigree:	Final Report
Detector Efficiency	2-Pi
Survey Location:	LC5

Data Analysis Report 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

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

Data Analysis Report Measurement Results

Survey Area: E3000 **Package Type:** System

Survey Area Name: Sanitary Sewer System

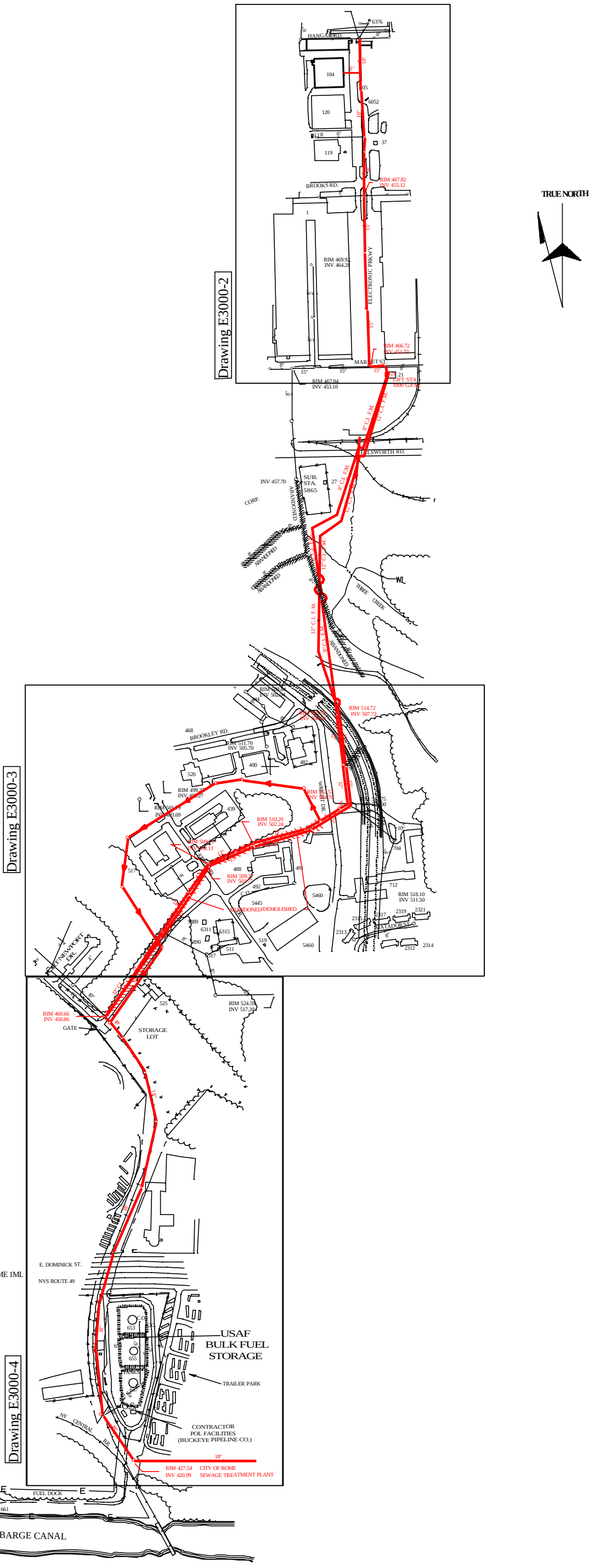
Survey Package Number and Unit Name:

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

Section 1.0
Annotated Drawings

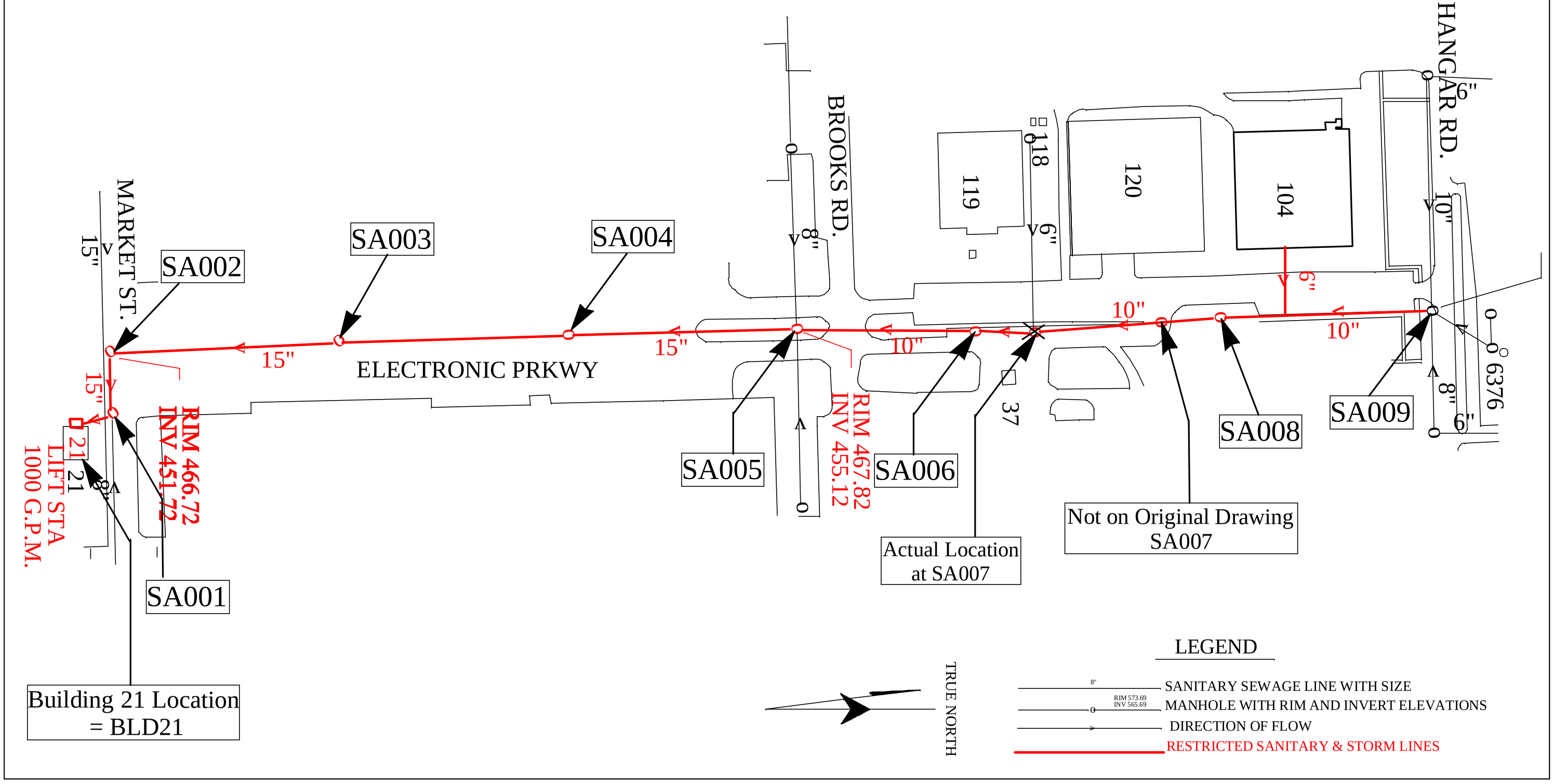
Drawing E3000-1

Griffiss AFB - Sanitary Sewer Line
Building 104 to Bulk Fuel Storage Area
Survey Package E3000 201C1
Drawing No. E3000-1



Griffiss AFB - Sanitary Sewer Line
Building 104 to Lift Station
Survey Package E3000 201C1
Drawing No. E3000-2

Drawing E3000-2



Griffiss AFB - Sanitary Sewer Line
Hill Rd to Mobile Ave
Survey Package E3000 201C1
Drawing No. E3000-3

LEGEND

- SANITARY SEWAGE LINE WITH SIZE
- MANHOLE WITH RIM AND INVERT ELEVATIONS
- DIRECTION OF FLOW
- RESTRICTED SANITARY & STORM LINES

TRUE NORTH

RIM 509.84
INV 502.04

444

8"

8"

RIM 515.78
INV 500.50

RIM 514.72
INV 507.72

468

BROOKLEY RD.

8"

RIM 511.70
INV 505.70

12"

15"

ABANDONED

482

400

520

15"

12"

RIM 499.27
INV 492.27

RIM 512.57
INV 504.70

WRIGHT DR.

15"

RIM 512.75
INV 505.00

RIM 501.79
INV 493.69

439

10"

8"

10"

RIM 510.20
INV 502.24

480

12"

6"

RIM 509.73
INV 502.13

490

704

8"

12"

15"

KIRTLAND

517

488

491

6"

RIM 509.27
INV 501.77

712

492

C.O.

5460

RIM 518.10
INV 511.50

5445

ABANDONED/DEMOLISHED

DR.

2315

2317

2319

2321

MATADOR ST

5889

6311

6315

2313

8"

5890

519

5460

2312

2314

MOBILE AVE

511

6317

8"

15"

4"

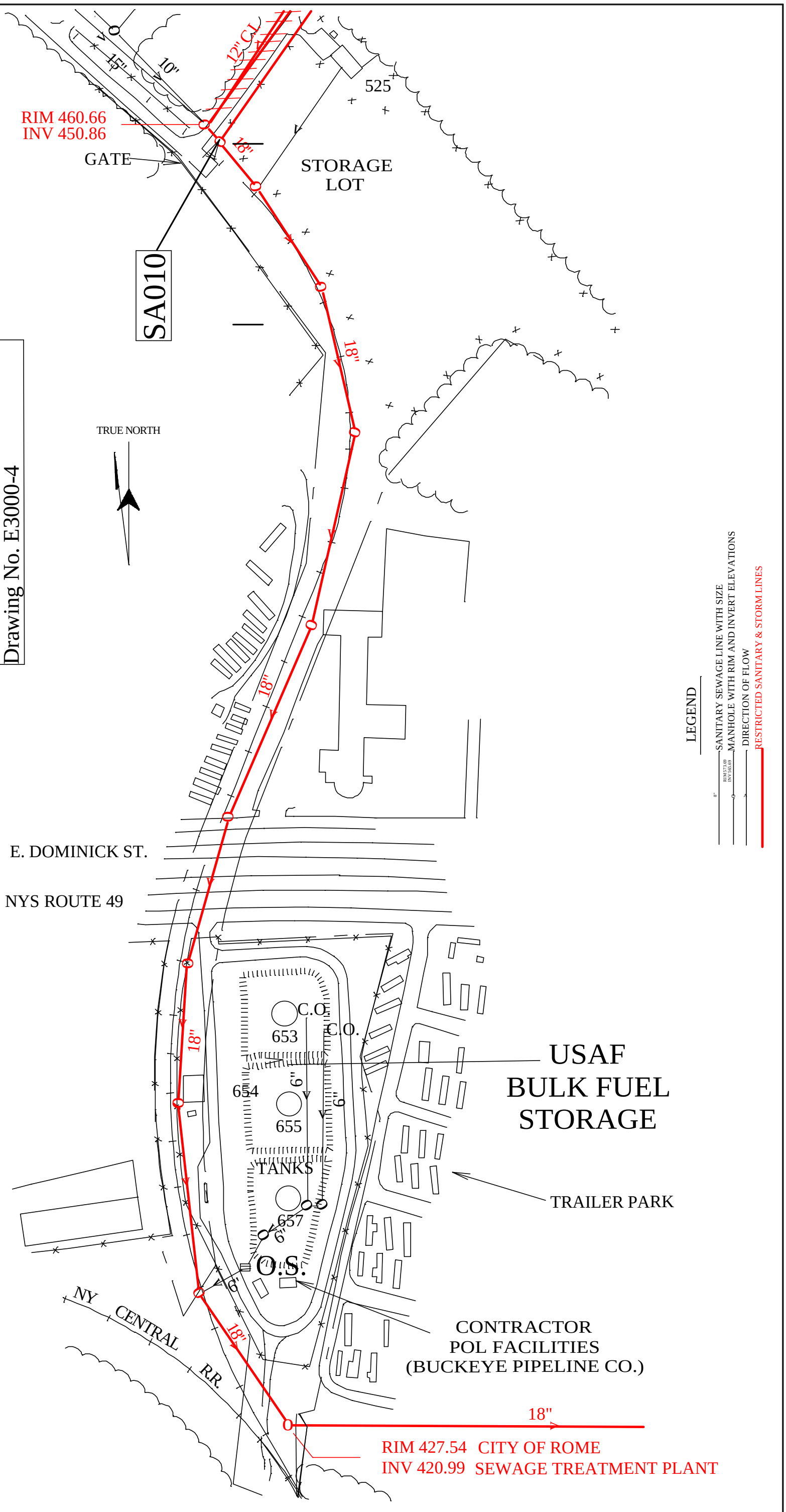
FORT NEWPORT
DR.

8"

Drawing E3000-3

Drawing E3000-4

Griffiss AFB - Sanitary Sewer Line
Mobile Ave to Bulk Fuel Storage
Survey Package E3000 201C1
Drawing No. E3000-4



Data Analysis Report 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

Section 2.0
Direct Beta Measurement Results

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

Data Analysis Report 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

Section 2.1 E3000 201C1, Direct Beta all materials

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

Statistical Summary

	dpm/100cm^2
Mean	5,079.0
Median	5,394.1
Standard Deviation	1,193.3
Range	4,897.3
Minimum	2,342.2
Maximum	7,239.4

Number of Measurements

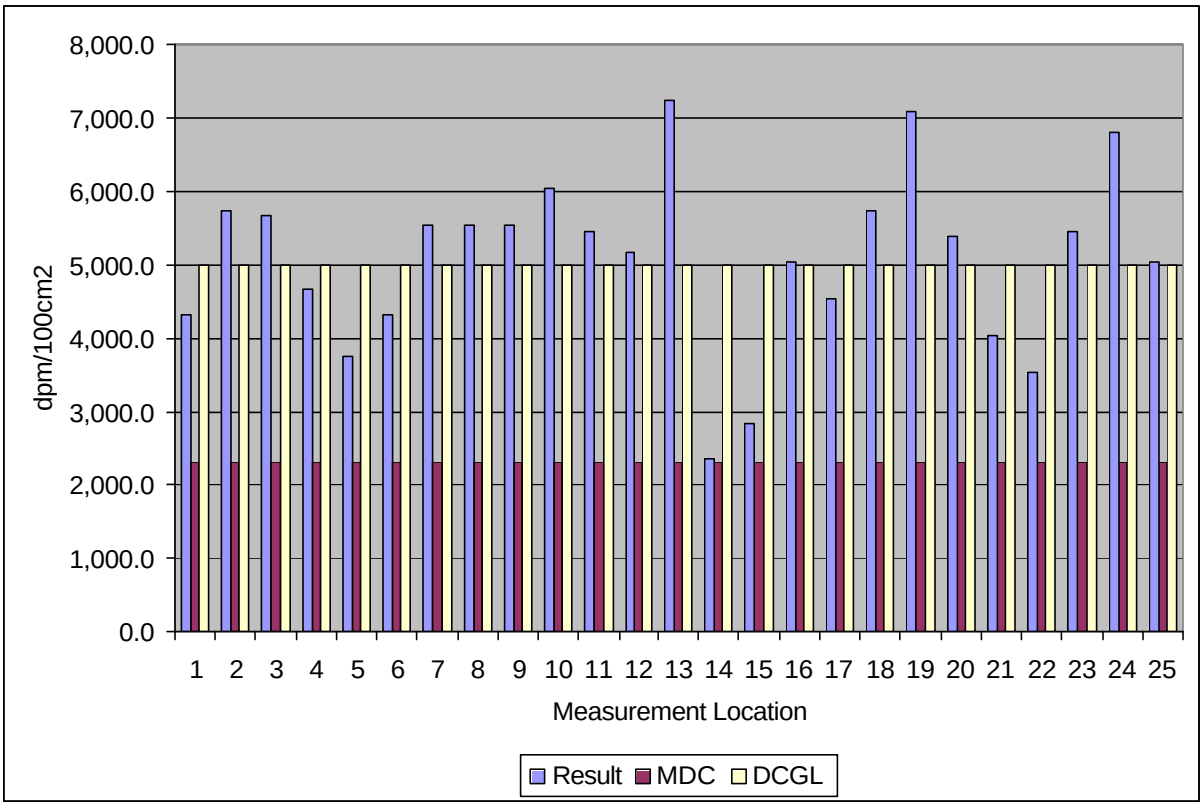
No. Prescribed	18
No. Collected	25

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	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	16



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

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

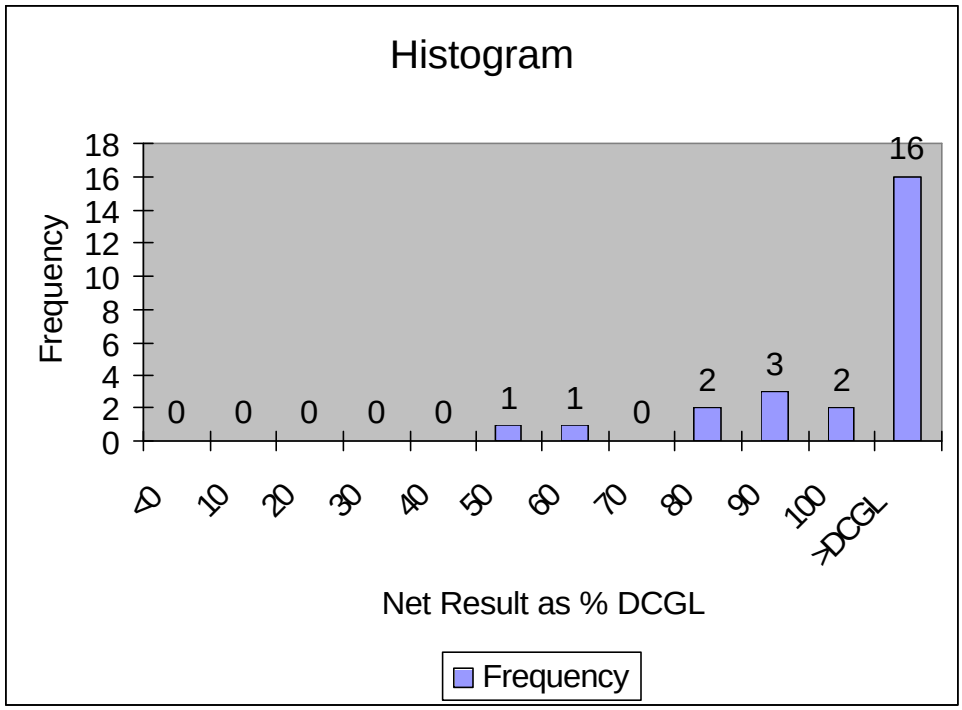
Direct Beta Measurement Results

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



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

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

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

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

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

Data Analysis Report 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

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

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

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

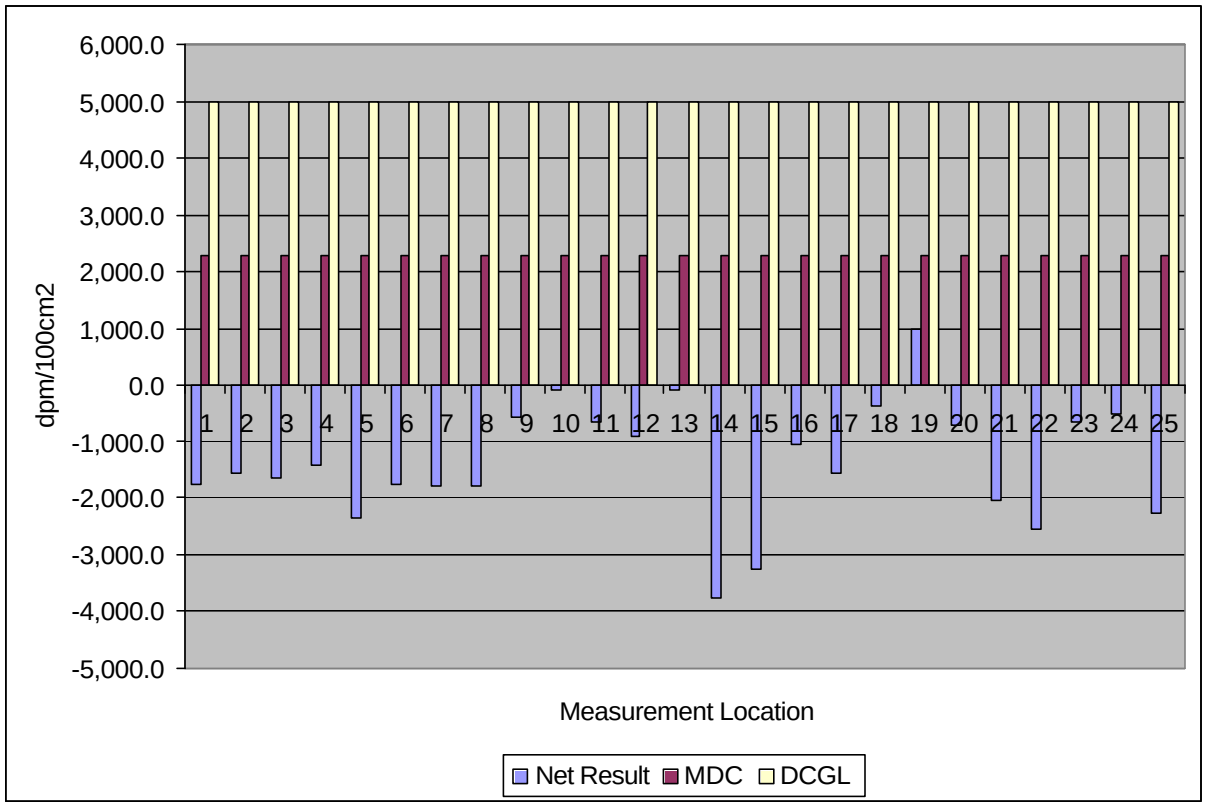
No. Prescribed	18
No. Collected	25

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 ≥ Prescribed	Yes
Max MDC < 50% DCGL	Yes
Measurements < DCGL	Yes
Measurement Mean < DCGL	Yes
No. Measurements > DCGL	0



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

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

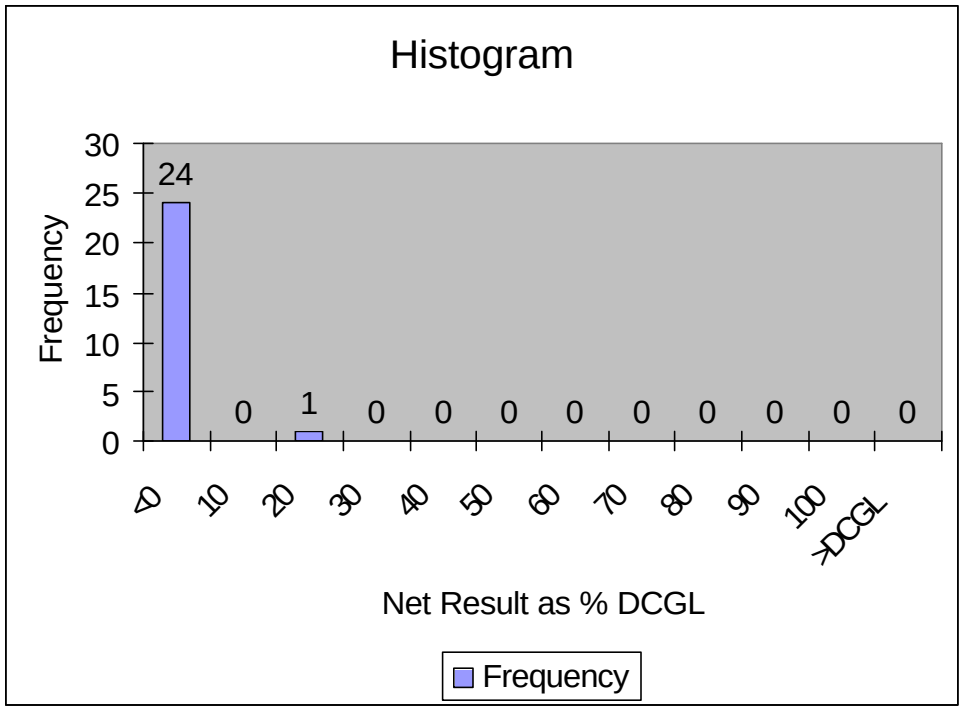
Direct Beta Measurement Results

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



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

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

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

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

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

Data Analysis Report 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

Section 3.0
Direct Alpha Measurement Results

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

Data Analysis Report 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

Section 3.1 E3000 201C1 Direct Alpha all materials

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

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

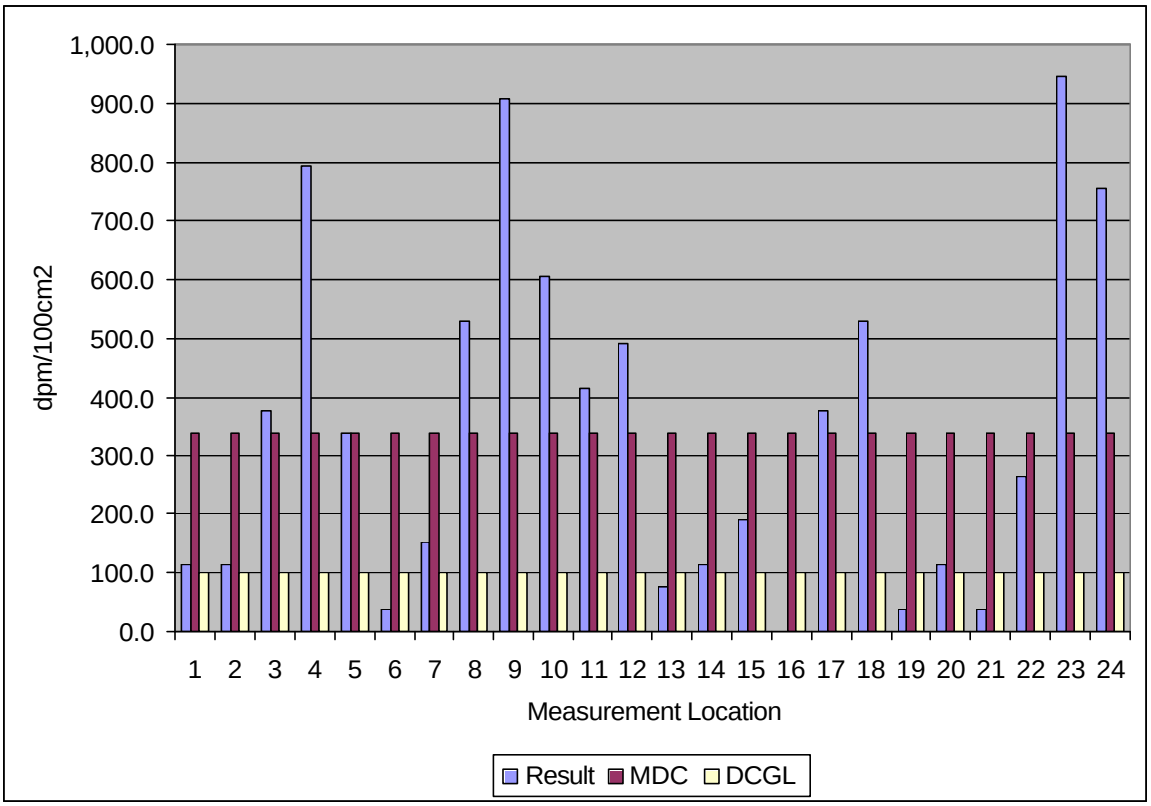
No. Prescribed	18
No. Collected	24

Measurement Sensitivity

	dpm/100cm^2
MDC Mean	341.(
MDC Minimum	341.(
MDC Maximum	341.(
DCGL	100

Tests Performed

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



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

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

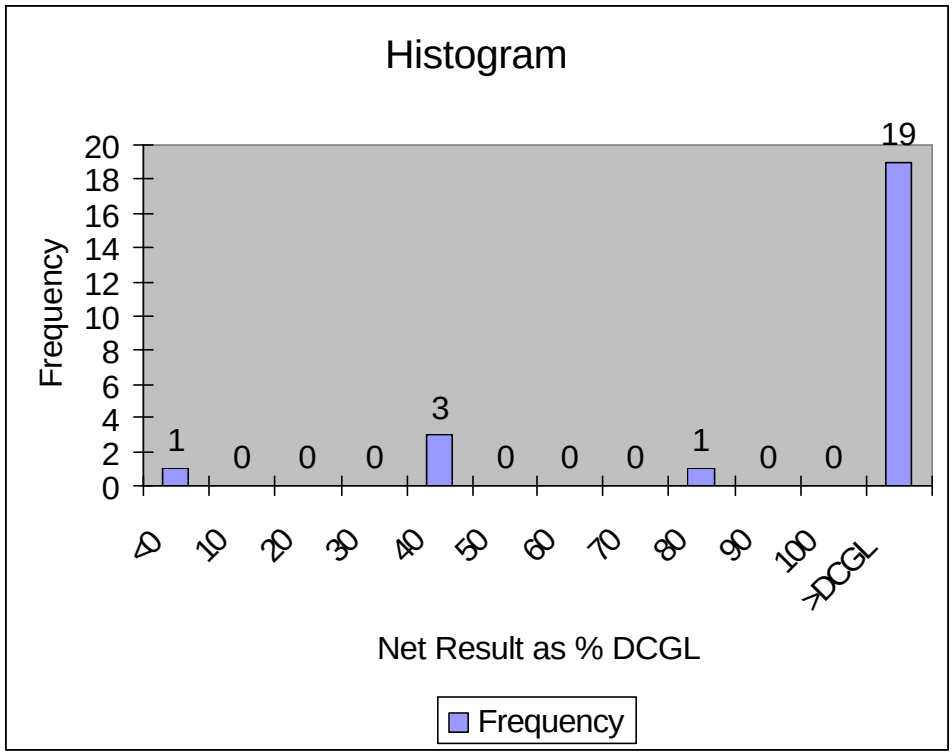
Direct Alpha Measurement Results

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



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

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

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

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

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

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

Data Analysis Report 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

Section 3.2 E3000 201C1 Direct Alpha all materials wMBC

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

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

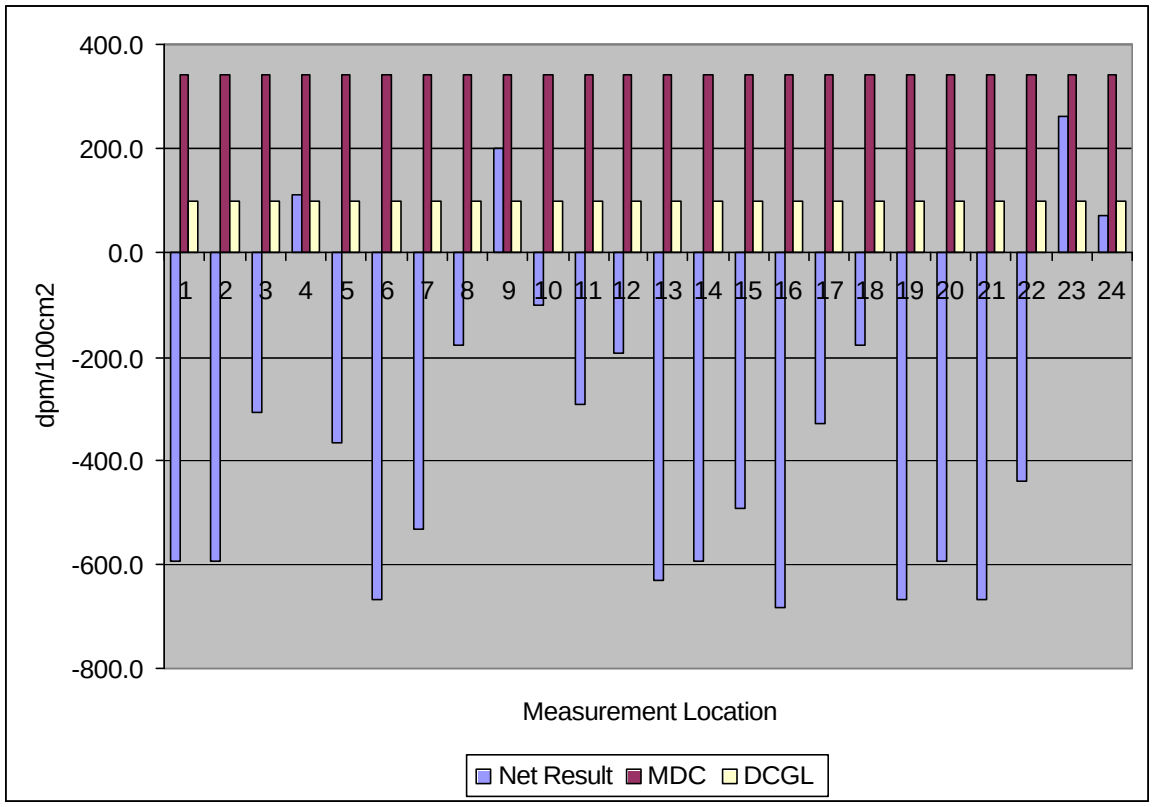
No. Prescribed	18
No. Collected	24

Measurement Sensitivity

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

Tests Performed

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



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

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	-593.5	693.5
DL041005-008	4/9/2005	DS1C1	A02FA	SA008	2	0.0	341.0	-593.5	693.5
DL041005-008	4/9/2005	DS1B1	A02FA	SA009	1	0.0	341.0	-305.4	405.4
DL041005-008	4/9/2005	DS1B1	A02FA	SA009	2	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	4/10/2005	DS1C1	A02FA	SA006	2	0.0	341.0	-669.2	769.2
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
DL041205-004	4/11/2005	DS1C1	A02FA	SA005	2	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
DL041305-005	4/12/2005	DS1C1	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	0.0	341.0	-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	4/12/2005	DS1C1	A02FA	SA003	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	SA004	2	0.0	341.0	-442.1	542.1
DL041305-005	4/12/2005	DS1B1	A02FA	SA010	1	0.0	341.0	262.1	-162.1
DL041305-005	4/12/2005	DS1B1	A02FA	SA010	2	0.0	341.0	72.9	27.1

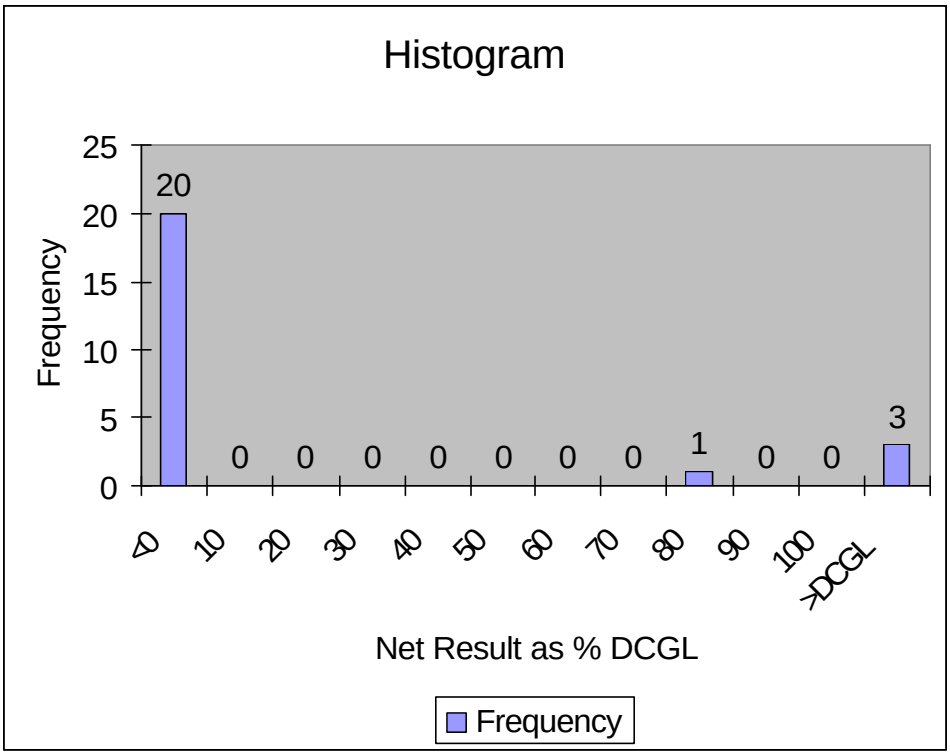
Direct Alpha Measurement Results

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



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

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

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

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

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

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

Data Analysis Report 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

Section 4.0
Contact Gamma Exposure Rate Measurement Results

Section
4.1 E3000 201C1, Contact Gamma Report

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 Down Stream of Building 104 Operations

Statistical Summary

	uR/hr
Mean	14.7
Median	15.8
Standard Deviation	3.8
Range	16.3
Minimum	6.8
Maximum	23.0

Number of Measurements

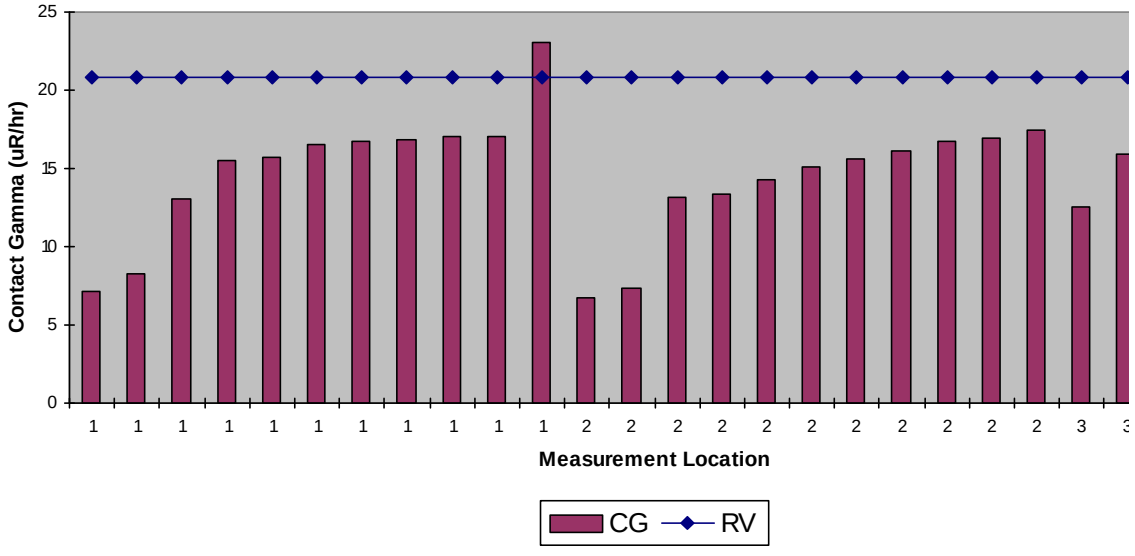
No. Prescribed	18
No. Collected	26

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	20.8

Tests Performed

No. Collected >/= Prescribed	Yes
Measurement Mean < RV	Yes
Measurements < RV	No
No. Measurements > RV	1



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 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)
DL041305-004	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

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 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
DL041005-007	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

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 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
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

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 Down Stream of Building 104 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

Data Analysis Report 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

Section 5.0
1 Meter Gamma Exposure Rate Measurement Results

Section 5.1 E3000 201C1, 1 Meter Gamma Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

1 Meter 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 Down Stream of Building 104 Operations

Statistical Summary

	uR/hr
Mean	5.0
Median	4.8
Standard Deviation	1.4
Range	5.7
Minimum	3.5
Maximum	9.2

Number of Measurements

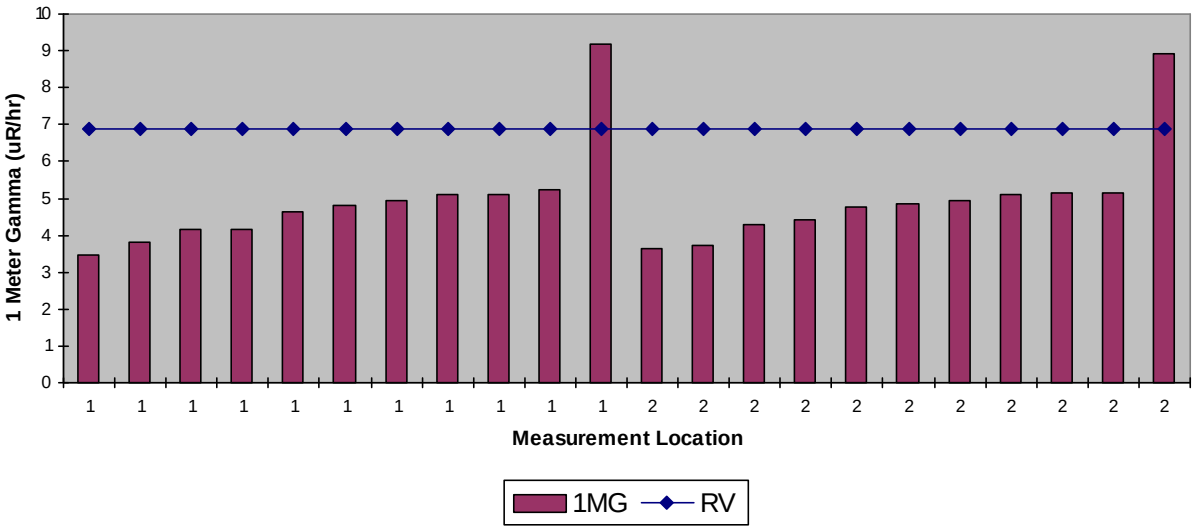
No. Prescribed	18
No. Collected	22

Material Background

	uR/hr
Mean	0.0
Minimum	0.0
Maximum	0.0
Reference Value (RV)	6.9

Tests Performed

No. Collected >/= Prescribed	Yes
Measurement Mean < RV	Yes
Measurements < RV	No
No. Measurements > RV	2



1 Meter 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 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)
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

1 Meter 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 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
DL041005-007	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

1 Meter 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 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
S1	Soil	Soil Description	0.0
V2	Vitrified Clay Pipe	Vitrified Clay Pipe Description	0.0

1 Meter 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 Down Stream of Building 104 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

Data Analysis Report 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

Section 6.0
Removable Alpha Smear Sample Analysis Results

Section

6.1 E3000 201C1, Removable Alpha Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

Removable Alpha 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 Down Stream of Building 104 Operations

Statistical Summary

	dpm/100cm2
Mean	1.7
Median	1.8
Standard Deviation	1.9
Range	7.1
Minimum	-0.4
Maximum	6.6

Number of Measurements

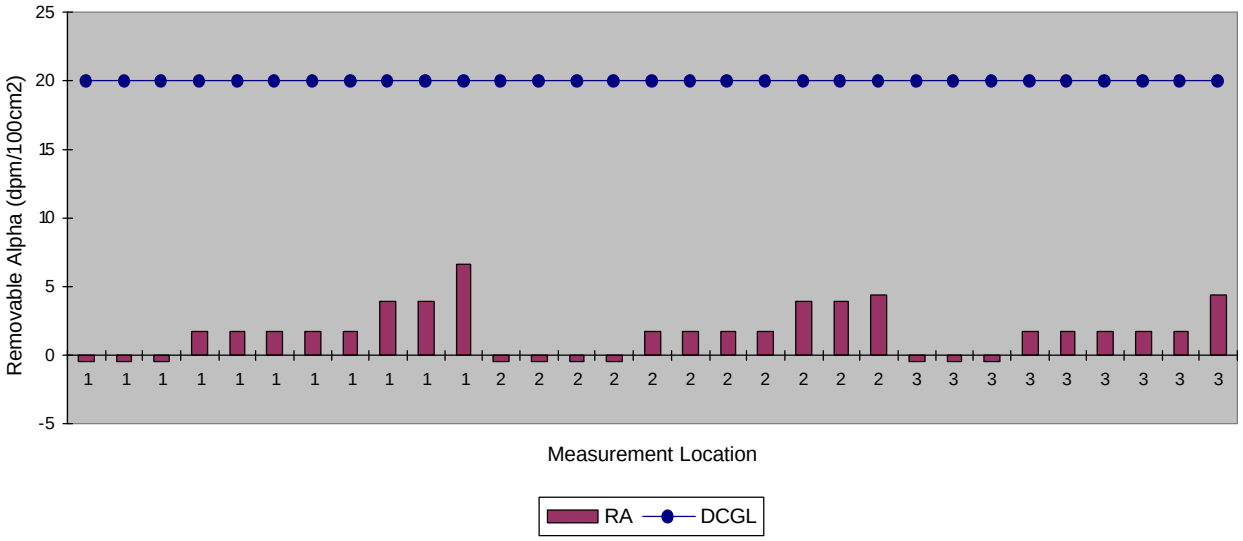
No. Prescribed	18
No. Collected	31

Measurement Sensitivity

	dpm/100cm2
MDC Mean	9.3
MDC Minimum	9.3
MDC Maximum	9.3
DCGL	20.0

Tests Performed

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



Removable Alpha 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 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)
CS042505-004	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

Removable Alpha 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 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)
CS042505-004	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

Removable Alpha 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 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
CS042505-004	E3000 201C1 removable A-B	Ludlum	M2929	152202	1/19/2005	JLM0591

Removable Alpha 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 Down Stream of Building 104 Operations

Field Notes Summary

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

Data Analysis Report 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

Section 7.0
Removable Beta Smear Sample Analysis Results

Section

7.1 E3000 201C1, Removable Beta Report

Griffiss AFB, Building 104 Drain System PA/SI

Rome, New York

Removable Beta 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 Down Stream of Building 104 Operations

Statistical Summary

	dpm/100cm2
Mean	13.5
Median	14.6
Standard Deviation	37.0
Range	140.8
Minimum	-48.5
Maximum	92.2

Number of Measurements

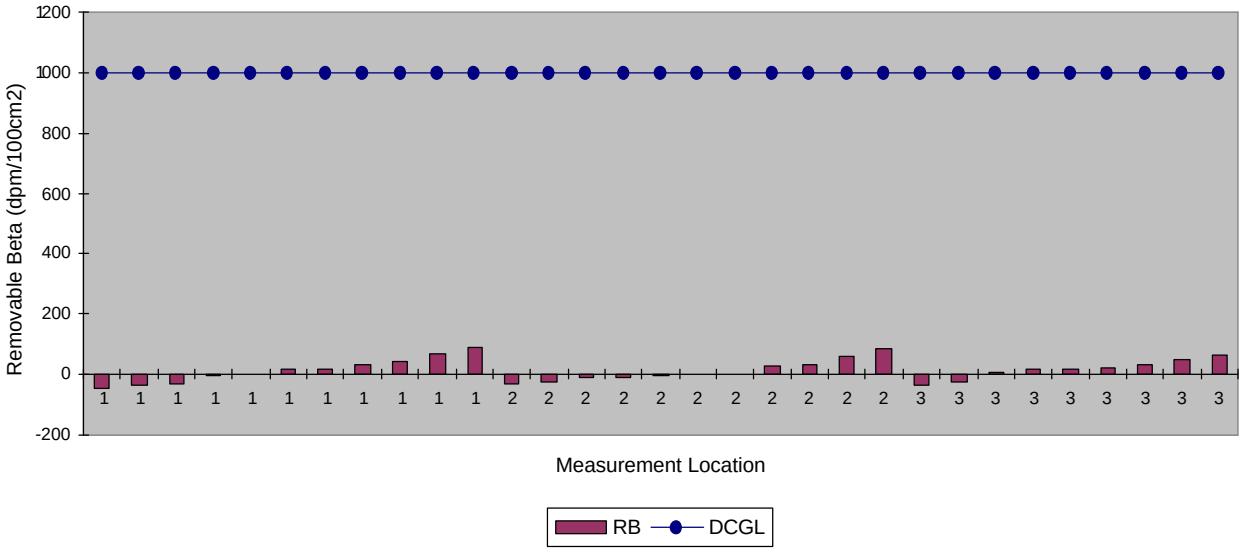
No. Prescribed	18
No. Collected	31

Measurement Sensitivity

	dpm/100cm2
MDC Mean	130.8
MDC Minimum	127.7
MDC Maximum	131.2
DCGL	1000.0

Tests Performed

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



Removable Beta 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 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 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

Removable Beta 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 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 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

Removable Beta 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 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
CS042505-004	E3000 201C1 removable A-B results.xls	Ludlum	M2929	152202	1/19/2005	JLM0591

Removable Beta 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 Down Stream of Building 104 Operations

Field Notes Summary

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

Data Analysis Report 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

Section 8.0
Alpha Spectroscopy Sample Analysis Results

Section
8.1 E3000 201C1 Alpha Spec RL

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

Statistical Summary

	pCi/gram
Mean	0.80
Median	0.33
Standard Deviation	0.95
Range	2.71
Minimum	0.08
Maximum	2.79

Number of Measurements

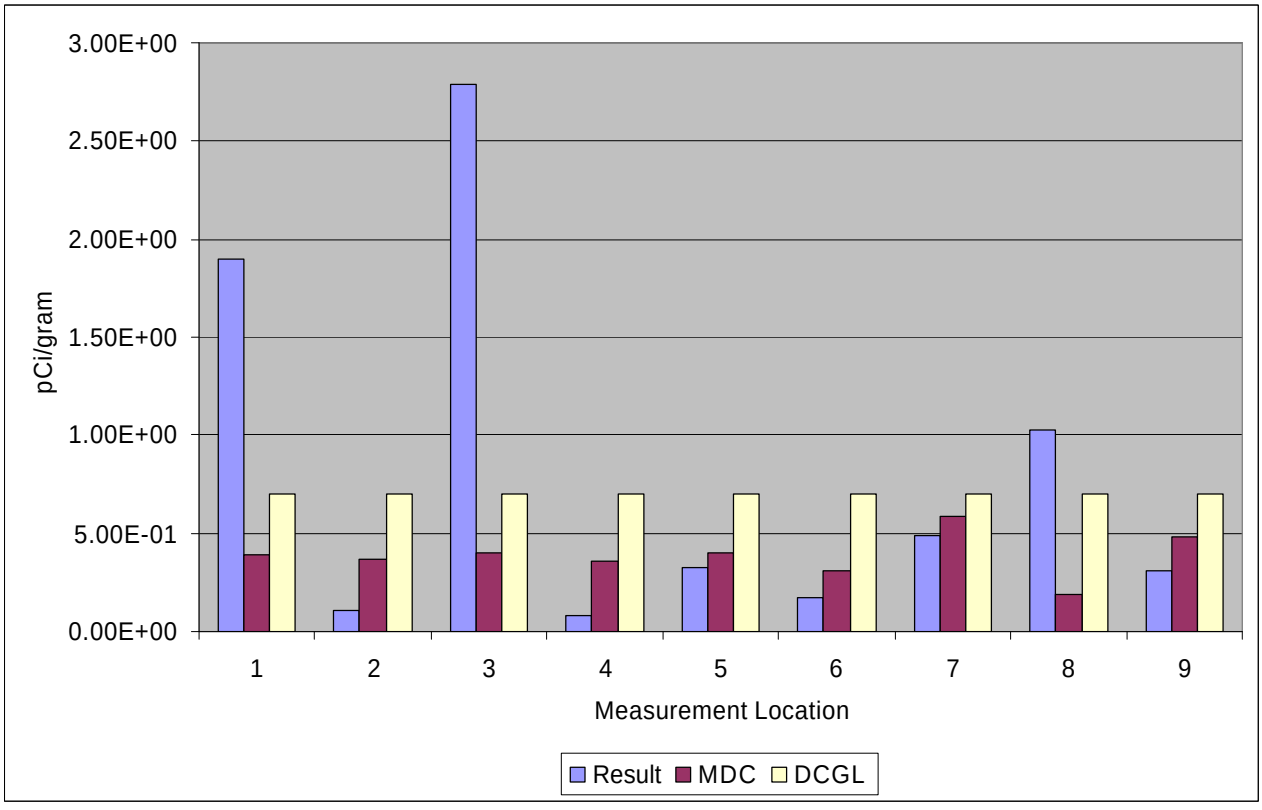
No. Prescribed	18
No. Collected	9

Measurement Sensitivity

	pCi/gram
MDC Mean	0.39
MDC Minimum	0.19
MDC Maximum	0.59
DCGL	0.70

Tests Performed

No. Collected ≥ Prescribed	No
Max MDC < 50% DCGL	No
Measurements < DCGL	No
Measurement Mean < DCGL	No
No. Measurements > DCGL	3



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

Sample Analysis Result 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 ID: CS052005-014											
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 ID: CS052005-015											
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 ID: CS052005-016											
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 ID: CS052005-017											
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 ID: CS052005-018											
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 ID: CS052005-019											
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 ID: CS052005-020											
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

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

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 ID: CS052005-021											
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
Sample ID: CS052005-022											
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

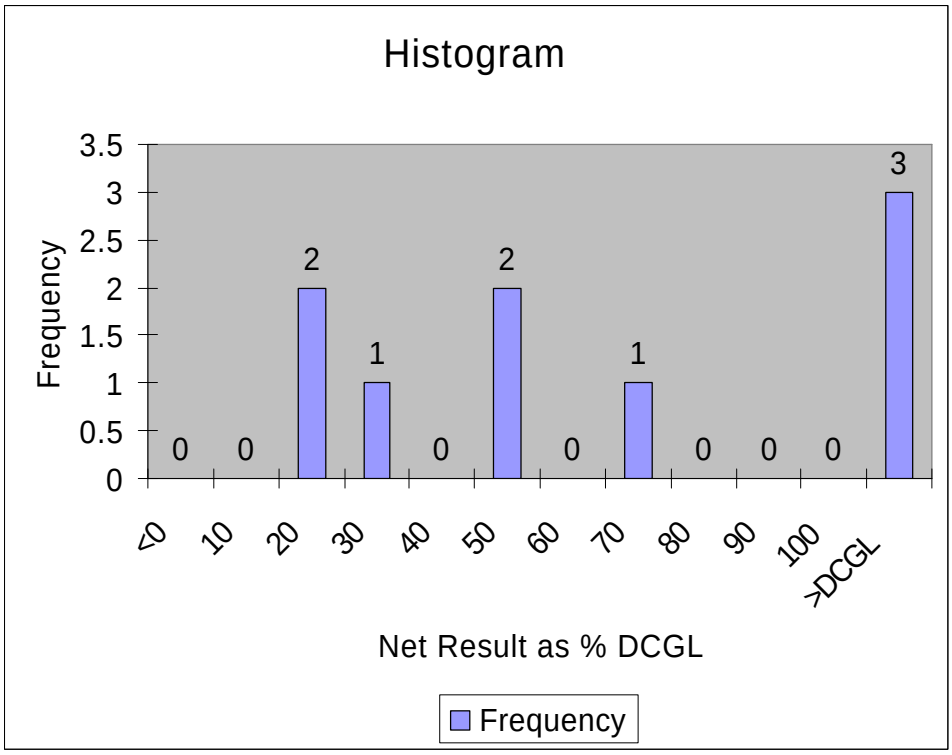
Alpha Spectroscopy Analysis Results

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



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

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

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

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

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

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:

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.

Appendix C
Analytical Data and Quality Control

Section 2.0
Framatome ANP Staff Resumes

Harvey F. Story

Title/Position: **Project Manager**
Years 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 B-25 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 10/99-present
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 08/94-09/99
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 11/91-07/94
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 Coordinator 11/86-11/91
Catawba Nuclear Generating Station, Duke Power

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.

Donald McGee

Title/Position: Radiation Protection Manager **Years of Experience: 27**

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 07/04 – present
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 06/04
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 08/02 – 09/03
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 04/02-08/02
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 09/00-3/02
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

the conduct of characterization surveys and sampling as well as the implementation of Final Status Surveys.

Final Status Survey Technical Advisor 06/00-08/00

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 06/99-5/00

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.

Technical Specialist 12/97-06/99

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.

Radiological Engineer 08/97-11/97

Yankee Atomic Electric Company

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 02/97-07/97

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 02/96-02/97

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 02/95-09/95

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 07/92-06/94

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.

Radiological Engineering/ALARA Supervisor 07/90-07/92

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 09/87-07/90

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 09/82-09/87

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 set-up and calibration and review of all analysis results. As a technician, performed routine surveillance, job coverage and sample analysis.

Health Physics Specialist/Technician 02/77-08/82

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.

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.

EXPERIENCE

Decommissioning Program Engineer 9/03 to Present
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 3/03 to 8/03
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 10/01 to 2/03
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.

Project Manager 07/01 to 09/01
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 01/01 to 07/00
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 09/00 to 12/00
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 08/00 to 09/00
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 02/00 to 07/00
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

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 12/99 to 01/00
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 07/99 to 11/99
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 05/99 to 07/99
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 03/99 to 05/99
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

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 08/98 to 02/99
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 06/98 to 08/98
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 11/97 to 06/98
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 09/97 to 10/97
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 06/97 to 08/97
GTS Duratek, Inc. (formerly Scientific Ecology Group, Inc.)

Alliant Techsystems Twin Cities Army Ammunition Plant, Minneapolis, MN

Served as Laboratory Analyst for support of site characterization activities for DU contaminated weapons manufacturing facility. Perform count room gamma spectroscopy utilizing Canberra Inspector™ 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 05/97 to 06/97
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-2™ NaI (Tl) detector based gamma spectroscopy instrument. All deliverables were met on time, within budget and met project requirements.

Radiological Engineer 05/97 to 05/97
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-2™ NaI (Tl) detector based gamma spectroscopy instrument. Investigation identified problem due to natural Radon, produced final report.

Radiological Engineer 05/97 to 05/97
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-2™ 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 02/97 to 05/97
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-2™ NaI (Tl) detector based gamma spectroscopy instrument.

Radiological Engineer 02/96 to 02/97
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.

Radiological Engineer 10/95 to 01/96
Scientific Ecology Group, Inc.

Alliant Techsystems, Wilmington Il
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.

Projects Cost Estimator and Procurement Specialist 06/92 to 10/95
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 Department 07/85 to 04/92
Oxford Instruments (formerly Tennelec, Inc.) Oak Ridge, TN (now Canberra Nuclear)

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 Department 09/83 to 07/85
Tennelec, Inc., Oak Ridge, TN (now Canberra Nuclear)

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) 10/74 to 09/77

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

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 anti-submarine 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.

EMPLOYMENT HISTORY:

Sr. Health Physics Technician **1992 to Present**

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 **1985 to 1992**

Texas Utilities Comanche Peak Steam Electric Station (W-PWR), Glen Rose, TX

Sr. Health Physics Technician **1981 to 1985**

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

Appendix C
Analytical Data and Quality Control

Section 3.0
Survey Instrumentation

FANP GRIFFISS AFB PA/SI PROJECT, ROME NEW YORK

INSTRUMENTS AND EQUIPMENT INVENTORY

Item	Equipment Description	QTY Ordered	Unit	QTY Received	Commnets
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	2	each	3	Ordered and received 1 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	

Appendix C
Analytical Data and Quality Control

Section 4.0
Instrument Calibration Certifications

Duratek™

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

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Inc. - Instrument Services Facility		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 2350-1	Serial Number: 95349
Contact Name: Thomas Scott		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range (CPM)	Calibration Standard Value (CPM)	Instrument Response		Comments
		Before Calibration	After Calibration	Calibrated in accordance with CP-IN-WI-239 Rev 0
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: 37122N21
500 (490-510)	500	505	505	Temp: 22.8°C
1,500 (1,498-1,502)	1,500	1,501	1,501	Pressure: 758 mmHg
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: SAT ACK/Scroll: SAT
Midpoint Threshold	20 ± (18 to 22) mVDC	20.4	20.4	BAT>4.5: SAT Volume: SAT
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: SAT
Display-to-mV ratio:	100 to 4 mV			Overload Test: SAT

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Pauli	Reviewed By: Thomas E. Scott	Date: 1-18-05
Calibration Date: 01/18/05	Calibration Due: 01/18/06	

Duratek™

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

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Inc. - Instrument Services Facility		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 2350-1	Serial Number: 120636
Contact Name: Thomas Scott		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range (CPM)	Calibration Standard Value (CPM)	Instrument Response		Comments	
		Before Calibration	After Calibration	Calibrated in accordance with CP-IN-WI-239 Rev 0	
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: 1W12663	Cal Due: 03/22/05
HV Cal Values (M2350 HV Entry)	Desired HV (Voltmeter) (VDC)	As Found (VDC)	As Left (VDC)	EPPROM Version: 37122N28	
500 (490-510)	500	503	504	Temp: 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: SAT	Audio Divide: SAT
Window Width	4 ± (3.6 to 4.6) mVDC	3	4	Alarms: SAT	Lamp: SAT
Display-to-mV ratio:	100 to 4 mV			Overload Test: SAT	

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Pauli	Reviewed By: Thomas G. Scott	Date: 1-18-05
Calibration Date: 01/17/05	Calibration Due: 01/17/06	

Duratek™

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

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Inc. - Instrument Services Facility		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, IN 37763		Model: 2350-1	Serial Number: 95358
Contact Name: Thomas Scott		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range (CPM)	Calibration Standard Value (CPM)	Instrument Response		Comments
		Before 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: IW12663 Cal Due: 03/22/05
HV Cal Values (M2350 HV Entry)	**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 mmHg
2,000 (1,940-2,060)	2,000	1,976	1,990	Humidity: 22%
Parameter	**Tolerance (±10%)**	**As Found**	**As Left**	
Low End Threshold	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: SAT Volume: SAT
High End Threshold	40 ± (36 to 44) mVDC	40.8	40.8	Count: SAT Audio Divide: SAT
Window Width	4 ± (3.6 to 4.6) mVDC	4	4	Alarms: SAT Lamp: SAT
Display-to-mV ratio:	100 to 4 mV			Overload Test: SAT

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument)

Instrument Calibrated By: M. Parent	Reviewed By: Thomas E. Scott	Date: 1-18-05
Calibration Date: 01/17/05	Calibration Due: 01/17/06	

Duratek

DETECTOR 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

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Rd Kingston, TN 37763		Detector Model: 43-5
Contact Name: Thomas Scott		Serial Number: 127389
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Evaluation Method: Source

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION

Source Nuclide	Serial Number: 119709	Activity: 2,442 dpm	Certification Date: 10/14/97
Source Nuclide	Serial Number: 119706	Activity: 21,240 dpm	Certification Date: 10/14/97

Source# 119709	As Found	As Left	Linearity Test	CPM
Gross CPM	277	277	Count 1 (Heel)	2,016
Background CPM	1.2	1.2	Count 2 (Center)	2,102
Net CPM	276	276	Count 3 (Toe)	2,005
Efficiency	11.3%	11.3%	Average	2,041
Source# 119706	**As Found**	**As Left**	Tolerance ±10%	PASS
Gross CPM	2,102	2,102	High Voltage	750V
Background CPM	1.2	1.2		
Net CPM	2,101	2,101		
Efficiency	9.9%	9.9%		

Scaler Information			Detector Information		
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold/Input Sens.
2350-1	120636	01/17/06	1.2cpm	750V	10mV

Attachments	Comments
Voltage Plateau: YES √ NO	Cable Length: 5ft.

Dead Time and Cal Constant

Low Sample Activity Source #	N/A	Dead Time (DT)	$1E^{-6}$
High Sample Activity Source #	N/A	Cal. Constant (CC)	1.0

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 Certified By: M. Paul	Reviewed By: Thomas G. Scott	Date: 1-18-05
Certification Date: 01/18/05		Certification Due: 01/18/06

BACKGROUND PLATEAU 43-5#127389 5FT CABLE 1/18/2005

400	0
450	0
500	0
550	1
600	0
650	0
700	1
750	0
800	4
850	3
900	5

ALPHA PLATEAU TH-230#119739 18,600DPM

400	0
450	0
500	0
550	35
600	884
650	1617
700	1934
750	1988
800	2080
850	2077
900	2082

Thomas F. Scott

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:

Model 2350 Serial # =	120636.
User I.D. =	
High Voltage =	750 volts.
Threshold =	250.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	60 seconds.
Readout Units =	counts.
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 # =	127389.
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 =	5.7 volts.

DET2 Generated: 01/18/2005 12:15:45.

Model 2350 Serial #120636


H750$P
Set High Voltage: 750


T250$W
Set Threshold: 250


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F60$H
Set Scaler Count Time: 60


SU7$I
Set Readout Units = counts


SB1$-
Set Readout Time Base = min


SM0$3
Set Readout Range Multiplier = auto


SL9.999999E-07$U
Set Dead Time: 9.999999E-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


SP2$8
SAVE PARAMETERS AS D2

Duratek

DETECTOR 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

CUSTOMER INFORMATION			DETECTOR INFORMATION	
Customer Name: Duratek Instrument Services			Manufacturer: Ludlum	
Address: 628 Gallaher Rd Kingston, IN 37763			Detector Model: 43-5	
Contact Name: Thomas Scott			Serial Number: 172236	
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479		Evaluation Method: Source	

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION				
Source Nuclide	Serial Number: 119709	Activity: 2,442 dpm	Certification Date: 10/14/97	
Source Nuclide	Serial Number: 119706	Activity: 21,240 dpm	Certification Date: 10/14/97	

Source# 119709	As Found	As Left	Linearity Test	CPM
Gross CPM	289	289	Count 1 (Heel)	2,187
Background CPM	4.8	4.8	Count 2 (Center)	2,140
Net CPM	284.2	284.2	Count 3 (Toe)	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 Voltage	650V
Background CPM	4.8	4.8		
Net CPM	2,135	2,135		
Efficiency	10.1%	10.1%		

Scaler Information			Detector Information		
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold/Input Sens.
2350-1	95358	01/17/06	4.8 cpm	650V	10mV

Attachments		Comments
Voltage Plateau:	YES √ NO	Cable Length: 5ft.

Dead Time and Cal Constant			
Low Sample Activity Source #	N/A	Dead Time (DT)	$1E^{-6}$
High Sample Activity Source #	N/A	Cal. Constant (CC)	1.0

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 Certified By: M. Paul	Reviewed By: Amos G. Scott	Date: 1-18-05
Certification Date: 01/18/05		Certification Due: 01/18/06

BACKGROUND PLATEAU 43-5#172236 5FT CABLE 1/18/2005

400	7
450	0
500	1
550	0
600	1
650	1
700	7
750	20
800	173
850	723
900	2044

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
900	21361

Thomas G. Deal

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: MP

Comments:

Model 2350 Serial # =	95358.
User I.D. =	
High Voltage =	650 volts.
Threshold =	250.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	60 seconds.
Readout Units =	counts.
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 # =	PR172236.
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 =	5.6 volts.

DET2 Generated: 01/18/2005 12:12:39

Model 2350 Serial #95358


H650$O
Set High Voltage: 650


T250$W
Set Threshold: 250


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F60$H
Set Scaler Count Time: 60


SU7$I
Set Readout Units = counts


SB1$-
Set Readout Time Base = min


SM0$3
Set Readout Range Multiplier = auto


SL9.999999E-07$U
Set Dead Time: 9.999999E-07


SC1.000000E+00$0
Set Calibration Constant: 1.000000E+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

DETECTOR 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

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Rd Kingston, TN 37763		Detector Model: 43-5
Contact Name: Thomas Scott		Serial Number: 117588X
Customer Purchase Order Number: N/A	Work Order Number: 2005-02730	Evaluation Method: Source

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION

Source Nuclide	Serial Number: 119709	Activity: 2,442 dpm	Certification Date: 10/14/97
Source Nuclide	Serial Number: 119702	Activity: 20,580 dpm	Certification Date: 10/14/97

Source# 119709	As Found	As Left	Linearity Test	CPM
Gross CPM	323	323	Count 1 (Heel)	2,622
Background CPM	1.4	1.4	Count 2 (Center)	2,572
Net CPM	321.6	321.6	Count 3 (Toe)	2,384
Efficiency	13.2%	13.2%	Average	2,526
Source# 119706	As Found	As Left	Tolerance ±10%	PASS
Gross CPM	2,572	2,572		
Background CPM	1.4	1.4	Comments	
Net CPM	2,570.6	2,570.6	Cable Length: 25ft Background performed for 5 minutes	
Efficiency	12.5%	12.5%		

Scaler Information			Detector Information		
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold/Input Sens
2350-1	129395	10/06/05	cpm	800V	10mV

Attachments

Detector Setup Report YES √ NO	Barcode Report YES √ NO	Voltage Plateau YES √ NO

Dead Time and Cal Constant

Low Sample Activity Source #	N/A	Dead Time (DT)	$1E^{-6}$
High Sample Activity Source #	N/A	Cal. Constant (CC)	1.0

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 Certified By:	Reviewed By: Thomas G. Scott	Date: 4-11-05
Certification Date: 04/11/2005		Certification Due: 04/11/2006

BACKGROUND PLATEAU 43-5 #117588X 25FT CABLE 4/11/05

400	0
450	0
500	0
550	0
600	0
650	0
700	0
750	1
→ 800	0
850	4
900	4

SOURCE PLATEAU TH230 #119702 @20,580DPM

400	0
450	0
500	0
550	10
600	868
650	2053
700	2393
750	2574
→ 800	2583
850	2600
900	2569

Thomas F. Dant

4-11-05

BACKGROUND PLATEAU 43-5 S/N 127389X 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

SOURCE PLATEAU Th-230 # 119702 20,580 DPM

400	0
450	0
500	0
550	2
600	578
650	1989
700	2388
750	2619
800	2662
850	2658
900	2743

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:

Model 2350 Serial # =	129395.
User I.D. =	
High Voltage =	800 volts.
Threshold =	250.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	60 seconds.
Readout Units =	counts.
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.
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

DET1 Generated: 04/11/2005 10:07:44.

Model 2350 Serial #129395


H800$L
Set High Voltage: 800


T250$W
Set Threshold: 250


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F60$H
Set Scaler Count Time: 60


SU7$I
Set Readout Units = counts


SB1$-
Set Readout Time Base = min


SM0$3
Set Readout Range Multiplier = auto


SL9.999999E-07$U
Set Dead Time: 9.999999E-07


SC1.000000E+00$0
Set Calibration Constant: 1.000000E+00


M43-5$N
Set Detector Model: 43-5


N117588X$$
Set Detector Serial #: 117588X


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 $2
SAVE PARAMETERS AS D1

Duratek

DETECTOR 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

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Rd Kingston, IN 37763		Detector Model: 44-40
Contact Name: Thomas F. Scott		Serial Number: 094971
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Evaluation Method: Source

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION

1) Source Nuclide: Tc^{99}	Serial Number: 119720	Activity (dpm): 2,562	Certification Date: 10/14/97
2) Source Nuclide: Tc^{99}	Serial Number: 119718	Activity (dpm): 20,520	Certification Date: 10/14/97
3) Source Nuclide: Tc^{99}	Serial Number: 089508	Activity (dpm): 2,257,800	Certification Date: 07/20/95

Parameter	As Found	As Left	Precision Test	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	1,906	1,906	Average	1,911	
Background(cpm)	31.6	31.6	Pass/Fail	PASS	
Net Counts	1,874	1,874		Tolerance ±10%	
Efficiency (%)	9.1%	9.1%		Min: 1,720	Max: 2,102

Low Sample Activity: Source #1: 239	High Sample Activity: Source #3: 171,130	Dead Time (DT): 6.581499E-05	Calibration Constant (CC): 1.0

Attachments			Detector Data: Dose Rate Probes (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 Length=5Ft.		N/A	N/A	N/A	N/A

COMMENTS

-Average of 10 minute background
** Calibrated with 5Ft. Cable***
-Efficiency determined w/ 180-15 jig & source in 1/8" planchet on 3/16" spacer

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 Certified By: M. Paul Reviewed By: Thomas F. Scott Date: 1-18-05

Certification Date: 01/18/05 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:

Model 2350 Serial # =	120636.
User I.D. =	
High Voltage =	900 volts.
Threshold =	1000.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	60 seconds.
Readout Units =	counts.
Readout Time Base =	min.
Readout Range Multiplier =	auto.
Detector Dead Time =	6.581499E-05.
Detector Calibration Constant =	1.000000E+00.
Detector Model =	44-40.
Detector Serial # =	PR094971.
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.

DET3 Generated: 01/18/2005 12:16:52.

Model 2350 Serial #120636


H900$M
Set High Voltage: 900


T1000$Q
Set Threshold: 1000


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F60$H
Set Scaler Count Time: 60


SU7$I
Set Readout Units = counts


SB1$-
Set Readout Time Base = min


SM0$3
Set Readout Range Multiplier = auto


SL6.581499E-05$7
Set Dead Time: 6.581499E-05


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


P1.000000E+09$.
Set Dose Alarm: 1.000000E+09


SP3$9
SAVE PARAMETERS AS D3

Duratek

DETECTOR 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

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Rd Kingston, IN 37763		Detector Model: 44-40
Contact Name: Thomas F. Scott		Serial Number: 125865
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Evaluation Method: Source

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION

1) Source Nuclide: Tc^{99}	Serial Number: 119720	Activity (dpm): 2,562	Certification Date: 10/14/97
2) Source Nuclide: Tc^{99}	Serial Number: 119718	Activity (dpm): 20,520	Certification Date: 10/14/97
3) Source Nuclide: Tc^{99}	Serial Number: 089508	Activity (dpm): 2,257,800	Certification Date: 07/20/95

Parameter	As Found	As Left	Precision Test	CPM (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/Fail	PASS	
Net Counts	1,828	1,828		Tolerance ±10%	
Efficiency (%)	8.9%	8.9%		Min: 1,633	Max: 1,995

Low Sample Activity: Source #1: 272	High Sample Activity: Source #3: 168,905	Dead Time (DT): 1.050399E-04	Calibration Constant (CC): 1.0

Attachments			Detector Data: Dose Rate Probes (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 Length=5Ft.		N/A	N/A	N/A	N/A

COMMENTS

-Average of 10 minute background
-Efficiency determined w/ 180-15 jig & source in 1/8" planchet on 3/16" spacer
** 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 damage incurred during shipment or use of this detector).

Detector Certified By: M. Paul	Reviewed By: Thomas F. Scott	Date: 1-18-05
Certification Date: 01/18/05		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: 12:09:56.

I have verified the list below
has NO discrepancies with the DETECTOR SETTINGS TABLE: MP

Comments:

Model 2350 Serial # =	95358.
User I.D. =	
High Voltage =	900 volts.
Threshold =	1000.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	60 seconds.
Readout Units =	counts.
Readout Time Base =	min.
Readout Range Multiplier =	auto.
Detector Dead Time =	1.050399E-04.
Detector Calibration Constant =	1.000000E+00.
Detector Model =	44-40.
Detector Serial # =	PR125865.
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 =	5.6 volts.

DET3 Generated: 01/18/2005 12:13:24

Model 2350 Serial #95358


H900$M
Set High Voltage: 900


T1000$Q
Set Threshold: 1000


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F60$H
Set Scaler Count Time: 60


SU7$I
Set Readout Units = counts


SB1$-
Set Readout Time Base = min


SM0$3
Set Readout Range Multiplier = auto


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


SP3$9
SAVE PARAMETERS AS D3

Duratek

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

CUSTOMER INFORMATION			DETECTOR INFORMATION	
Customer Name: Duratek Instrument Services			Manufacturer: Ludlum	
Address: 628 Gallaher Rd Kingston, TN 37763			Detector Model: 44-10	
Contact Name: Thomas Scott			Serial Number: 192598	
Customer Purchase Order Number: N/A	Work Order Number: 2004-02479		Evaluation Method: Source	

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION			
1) Source Nuclide: Cs^{137}	Serial Number: 019455	Activity: 5µCi	Certification Date: N/A (Used for Plateau Only)
2) Source Nuclide: Cs^{137}	Serial Number: 049711	Activity: Variable	Certification Date: 04/09/04

Scaler Information		Precision Test	mR/Hr (Source #2)
2350-1	#95358	Count 1	
Due Date	01/17/06	Count 2	
Threshold	I=250 (10mV)	Count 3	
Cable Length	5ft.	Average	
N/A	N/A	Tolerance ±10%	All counts within ±10% of Average
N/A	N/A	Pass/Fail	Pass
N/A	N/A		

Low Sample Activity (400uR/hr): Using Source #2 = 73,156	High Sample Activity (2mR/hr) Using Source #2 = 257,149	Dead Time (DT): 1.732369E-05	Calibration Constant (CC): 6.134582E+10

ATTACHMENTS			DETECTOR DATA: DOSE RATE PROBES (mR/Hr)			
Detector Setup Report	YES √	NO	Desired Exposure	Tolerance ±10%	As Found	As Left
Barcode Report	YES √	NO	0.400	0.360-0.440	0.399	0.404
Voltage Plateau:	YES √	NO	1	0.90-1.10	0.973	0.973
High Voltage: 1050V			2	1.8-2.2	2.00	2.04

COMMENTS

****Detectors set up with a 2350-1 may be used with any 2350-1 provided that the setup parameters are scanned into the 2350-1 prior to use with that specific detector****
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 damage incurred during shipment or use of this detector).

Detector Certified By: M Paul	Reviewed By: Thomas E. Scott	Date: 1-17-05
Certification Date: 01/17/05		Certification Due: 01/17/06

BACKGROUND PLATEAU 44-10#192598 5FT CABLE 01/17/2005

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-137#019455

700	1127
750	1681
800	2321
850	2776
900	3097
950	3334
1000	3457
1050	3427
1100	3252
1150	3285
1200	3228
1250	3778
1300	2871
1350	2998

Thomas F. Gault

1-17-05

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: MP

Comments:

Model 2350 Serial # =	95358.
User I.D. =	
High Voltage =	1050 volts.
Threshold =	250.
Window =	1000,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	12 seconds.
Readout Units =	R.
Readout Time Base =	hr.
Readout Range Multiplier =	auto.
Detector Dead Time =	1.732369E-05.
Detector Calibration Constant =	6.134582E+10.
Detector Model =	44-10.
Detector Serial # =	PR192598.
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 =	5.6 volts.

DET1 Generated: 01/18/2005 12:11:23

Model 2350 Serial #95358


H1050$J
Set High Voltage: 1050


T250$W
Set Threshold: 250


W1000$WOFF$P
Set Window: 1000,OFF


O400$OOFF$C
Set Overload: 400,OFF


F12$E
Set Scaler Count Time: 12


SU4$F
Set Readout Units = R


SB2$.
Set Readout Time Base = hr


SM0$3
Set Readout Range Multiplier = auto


SL1.732369E-05$$
Set Dead Time: 1.732369E-05


SC6.134582E+10$T
Set Calibration Constant: 6.134582E+10


M44-10$K
Set Detector Model: 44-10


NPR192598$J
Set Detector Serial #: PR192598


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

Duratek

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

CUSTOMER INFORMATION		DETECTOR INFORMATION
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum
Address: 628 Gallaher Rd Kingston, TN 37763		Detector Model: 44-10
Contact Name: Thomas Scott		Serial Number: 185852
Customer Purchase Order Number: N/A	Work Order Number: 2004-02479	Evaluation Method: Source

DETECTOR EFFICIENCY/RESPONSE/PRECISION INFORMATION			
1) Source Nuclide: Cs^{137}	Serial Number: 019455	Activity: 5µCi	Certification Date: N/A (Used for Plateau Only)
2) Source Nuclide: Cs^{137}	Serial Number: 049711	Activity: Variable	Certification Date: 04/09/04

Scaler Information		Precision Test	mR/Hr (Source #2)
2350-1	#120636	Count 1	2.04
Due Date	01/17/06	Count 2	2.03
Threshold	T=250 (10mV)	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		

Low Sample Activity (400uR/hr): Using Source #2 = 72,255	High Sample Activity (2mR/hr) Using Source #2 = 259,681	Dead Time (DT): 1.624356E-05	Calibration Constant (CC): 6.006612E+10

ATTACHMENTS			DETECTOR DATA: DOSE RATE PROBES (mR/Hr)			
Detector Setup Report	YES √	NO	Desired Exposure	Tolerance ±10%	As Found	As Left
Barcode Report	YES √	NO	0.400	0.360-0.440	0.403	0.407
Voltage Plateau:	YES √	NO	1	0.90-1.10	0.942	0.960
High Voltage: 1000V			2	1.8-2.2	1.99	2.03

COMMENTS

****Detectors set up with a 2350-1 may be used with any 2350-1 provided that the setup parameters are scanned into the 2350-1 prior to use with that specific detector****
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 damage incurred during shipment or use of this detector).

Detector Certified By: Mike Paul	Reviewed By: Thomas G. Scott	Date: 1-17-05
Certification Date: 01/17/05		Certification Due: 01/17/06

BACKGROUND PLATEAU 44-10#185852 5FT CABLE 01/17/2005

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

SOURCE PLATEAU CS-137#019455

700	2250
750	2543
800	2797
850	2818
900	3323
950	3265
1000	3333
1050	3339
1100	3341
1150	3477
1200	3368
1250	3439
1300	3527
1350	4341

James F. Scott

1-17-05

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: MP

Comments:

Model 2350 Serial # =	120636.
User I.D. =	
High Voltage =	1000 volts.
Threshold =	250.
Window =	100,Off.
Overload Current =	40.0 micro amperes.
Scaler Count Time =	12 seconds.
Readout Units =	R.
Readout Time Base =	hr.
Readout Range Multiplier =	auto.
Detector Dead Time =	1.624356E-05.
Detector Calibration Constant =	6.006611E+10.
Detector Model =	44-10.
Detector Serial # =	PR185852.
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.

DET1 Generated: 01/18/2005 12:14:54

Model 2350 Serial #120636


H1000$E
Set High Voltage: 1000


T250$W
Set Threshold: 250


W100$WOFF$P
Set Window: 100,OFF


O400$OOFF$C
Set Overload: 400,OFF


F12$E
Set Scaler Count Time: 12


SU4$F
Set Readout Units = R


SB2$.
Set Readout Time Base = hr


SM0$3
Set Readout Range Multiplier = auto


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

Duratek™

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

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Rd Kingston, TN 37763		Model: 19	Serial Number: 87157
Contact Name: Thomas F. Scott		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic And Source	

INSTRUMENT CALIBRATION INFORMATION

Range (µR/hr)	Calibration Standard Value	Tolerances (µR/hr)	Instrument Response		Comments	
			As Found (µR/hr)	As Left (µR/hr)	Calibrated in accordance with CP-IN-WI-211 Rev 1	
5000 Black	4000 µR/hr	3600 - 4400	4000	4000	Pulser: 101500	Cal Due: 09/24/05
	2500 µR/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
500 Black	400 µR/hr	360 - 440	380	380	DIH-1A: 100799	Cal Due: 11/11/05
	250 µR/hr	225 - 275	240	240		
	100 µR/hr	90 – 110	100	100	Temp: 22.8°C	Humidity: 20%
250 Red	Input cpm = 40,600	180 – 220	200	200	Pressure: 758mmHg	
	Input cpm = 24,400	108 - 132	120	120		
	Input cpm = 10,200	45 - 55	50	50	Geotropism: SAT	Over Range: SAT
50 Black	Input cpm = 8,130	36 - 44	40	40	Batteries: SAT	Mech. Zero: SAT
	Input cpm = 5,080	22.5 – 27.5	24.5	24.5	F/S Response: SAT	Audio: SAT
	Input cpm = 1,980	9 - 11	10	10	Light: SAT	Precision Test: SAT
25 Red	Input cpm = 4,060	18 – 22	20	20	Source: Cs-137 049711 Cert. Date: 04/09/04	
	Input cpm = 2,440	10.8 – 13.2	12	12	High Voltage As Found: 700V	As Left: 700V
	Input cpm = 1,020	4.5 – 5.5	5	5	cpm/µR/hr: As Found: 180	As Left: 203.2

COMMENTS

Special Remarks: HV: 700Volts 203.2 cpm/µR/hr

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: Mike Paul	Reviewed By: James F Scott	Date: 1-18-05
Calibration Date: 01/18/05	Calibration Due: 01/18/06	

Duratek

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

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 177	Serial Number: 93275
Contact Name: Thomas Scott		Probe: 44-9	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range	Calibration Standard Value	Instrument Response		Comments	
		Before Calibration	After Calibration	Calibrated in accordance with CP-IN-WI-223 Rev 0	
X 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	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
X 10	2,500	2,500	2,500		
X 10	4,000	3,900	3,900	Temp: 22.8°C	Humidity: 20%
X 100	10,000	10,000	10,000	Pressure: 758mmHg	
X 100	25,000	25,000	25,000	Background: 40pm	
X 100	40,000	39,000	39,000	Threshold: As Found: 10mV As Left: 35mV	
X 1000	100,000	100,000	100,000		
X 1000	250,000	250,000	250,000	HV (As found = 650V) (As left = 901V)	
X 1000	400,000	390,000	390,000	BAT: SAT	Volume: SAT
				Audio: SAT	Geotropism: SAT

Efficiency Information

Instrument Range	Source Information	Net Counts (cpm)	Efficiency		
X 1 EFF	Tc-99#119720 at 2,562dpm	290	11.3%	F/S Resp: SAT	Alarm: SAT
X 10 EFF	Tc-99#119718 at 20,520dpm	2,760	13.5%	HV Test: SAT	Precision Test: SAT
X 100 EFF	Tc-99#109408 at 259,518dpm	35,460	13.7%	Limited Use: X1K scale for information only. Use with 44-9 probe	

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Paul	Reviewed By: Thomas G. Scott Date: 1-18-05
Calibration Date: 01/18/05	Calibration Due: 01/18/06

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CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 177	Serial Number: 124586
Contact Name: Thomas Scott		Probe: 44-9	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range	Calibration Standard Value	Instrument Response		Comments	
		Before Calibration	After Calibration	Calibrated in accordance with CP-IN-WI-223 Rev 0	
X 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	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: 758mmHg	
X 100	25,000	25,000	25,000	Background: 60pm	
X 100	40,000	40,000	40,000	Threshold: As Found: 35mV As Left: 35mV	
X 1000	100,000	100,000	100,000		
X 1000	250,000	250,000	250,000	HV (As found = 888V) (As left = 900V)	
X 1000	400,000	400,000	400,000	BAT: SAT	Volume: SAT
				Audio: SAT	Geotropism: SAT
				F/S Resp: SAT	Alarm: SAT
				HV Test: SAT	Precision Test: SAT

Efficiency Information

Instrument Range	Source Information	Net Counts (cpm)	Efficiency	
X 1 EFF	Tc-99#119720 at 2,562dpm	330	12.9%	
X 10 EFF	Tc-99#119718 at 20,520dpm	2,840	13.8%	Limited Use: X1K scale for information only. Use with 44-9 probe.
X 100 EFF	Tc-99#109408 at 259,518dpm	32,940	12.7%	

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Paul	Reviewed By: Glenn G. Scott	Date: 1-18-05
Calibration Date: 01/18/05	Calibration Due: 01/18/06	

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628 Gallaher Road
Kingston, TN 37763
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Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

Customer Information		Instrument Information	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 2929	Serial Number: 152202
Contact Name: Thomas F. Scott		Probe: 43-10-1	Serial Number: 144756
Customer Purchase Order Number: N/A	Work Order Number: 2005-02479	Calibration Method: Electronic And Source	

INSTRUMENT CALIBRATION INFORMATION

M&TE	ID Number	Calibration Due Date	Environmental Conditions	
Thermometer	2816	04/15/05	Temperature (°C)	24.1
Barometer	2816	04/15/05	Pressure (mmHg)	746
DIH-1A	100799	11/11/05	Humidity (%)	22%
Pulse Generator	101500	09/24/05	Calibrated in accordance with CP-IN-WI-234	
DVM	TW12663	09/24/05		

Isotope	Source ID Number	Original Activity (dpm)	Source Cert. Date	Decayed Activity (dpm)
Th^{230}	119739	18,600	10/20/97	18,600
Tc^{99}	019418	23,465	10/01/92	23,465
Pu^{239}	019442	13,613	06/01/92	13,613

FREQUENCY CALIBRATION

Desired (cpm)	Tolerances (cpm)	Alpha As Found (cpm)	Alpha As Left (cpm)	Beta As Found (cpm)	Beta As Left (cpm)
40	40	40	40	40	40
400	(392-408)	399	399	398	398
4,000	(3,920-4,080)	3,988	3,988	3,981	3,981
40,000	(39.2K-40.8K)	39,907	39,907	39,836	39,836
400,000	(392K-408K)	399,187	399,187	398,264	398,264
Background Determination		Alpha As Found	Alpha As Left	Beta As Found	Beta As Left
Counts, C_b		4	3	998	856
Time, T_b (min)		20	20	20	20
Rate, R_b (cpm)		0.2	0.15	49.9	42.8

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Pauli	Reviewed By: Thomas F. Scott	Date: 1-19-05
Calibration Date: 01/19/05	Calibration Due: 01/19/06	

CROSS TALK SHEET

Instrument ID: 152202

Initials/Date: MP 1-19-05

As Found Alpha Threshold (mv)	As Left Alpha Threshold (mv)
170	170

Alpha Source: Cross Talk – Performed using Pu^{239} 019442

Paramter and Tolerance	Alpha As Found	Alpha As Left	Beta As Found	Beta As Left
Source Count, C_s	25,397	26,343	761	800
Time, T_s (min)	5	5	5	5
Rate, R_s (cpm)	$R_{s[\alpha]} = 5079.4$	$R_{s[\alpha]} = 5268.6$	$R_{s[\beta]} = 152.2$	$R_{s[\beta]} = 160$
EFF (% c/d) (>25%)	N/A	N/A	N/A	N/A
%Crosstalk [α to β] (< 10%)	$\frac{R_{s[\beta]} - R_{b[\beta]}}{R_{s[\alpha]} - R_{b[\alpha]}} = \frac{160 - 42.8}{5268.6 - 0.15} = 2.22\%$			

As Found Beta Low Threshold	As Left Beta Low Threshold	As Found Beta High Threshold	As Left Beta High Threshold
4.3mv	4.3mv	47mv	47mv

Beta Source: Cross Talk-Performed using Tc^{99} 019418

Paramter and Tolerance	Alpha As Found	Alpha As Left	Beta As Found	Beta As Left
Source Count, C_s	1	8	16,474	24,401
Time, T_s (min)	5	5	5	5
Rate, R_s (cpm)	$R_{s[\alpha]} = 0.2$	$R_{s[\alpha]}$ 1.6	$R_{s[\beta]} = 3294.8$	$R_{s[\beta]} = 4880.2$
EFF (% c/d) (>10%)	N/A	N/A	N/A	N/A
%Crosstalk [β to α] (< 1%)	$\frac{R_{s[\alpha]} - R_{b[\alpha]}}{R_{s[\beta]} - R_{b[\beta]}} = \frac{1.6 - 0.15}{4880.2 - 42.8} = 0.03\%$			

HIGH VOLTAGE 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
1,200	1,080 – 1,320	1,176	1,176	1,200	1,200
1,300	1,170 – 1,430	1,281	1,281	1,300	1,300
		As Found	Vern Dial Reading	As Left	Vern Dial Reading
High Voltage		745V	3.50	850V	4.02

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument Calibrated By: M. Pardi

Reviewed By: Thomas G. Dewitt Date: 1-19-05

Calibration Date: 01/19/05

Calibration Due: 01/19/06

EFFICIENCY SHEET

Initials/Date: MP 1-19-05

Instrument ID: 152202

As Found Alpha Threshold (mv)	As Left Alpha Threshold (mv)
170	170

Alpha Source: Efficiency determined using Th^{230} #119739

Paramter and Tolerance	Alpha As Found	Alpha As Left	Beta As Found	Beta As Left
Source Count, C_s	N/A	30,914	N/A	2,471
Time, T_s (min)	N/A	5	N/A	5
Rate, R_s (cpm)	$R_{s[\alpha]}$ = N/A	$R_{s[\alpha]}$ = 6182.8	$R_{s[\beta]}$ = N/A	$R_{s[\beta]}$ = 494.2
EFF (% c/d) (>25%)	N/A	45.4%	N/A	N/A
%Crosstalk [α to β] (< 10%)	$\frac{R_{s[\beta]} - R_{b[\beta]}}{R_{s[\alpha]} - R_{b[\alpha]}} = \frac{N/A}{N/A} =$ N/A			

As Found Beta Low Threshold	As Left Beta Low Threshold	As Found Beta High Threshold	As Left Beta High Threshold
4.3mv	4.3mv	47mv	47mv

Beta Source: Efficiency determined using Tc^{99} #019418

Paramter and Tolerance	Alpha As Found	Alpha As Left	Beta As Found	Beta As Left
Source Count, C_s	1	8	16,474	24,401
Time, T_s (min)	5	5	5	5
Rate, R_s (cpm)	$R_{s[\alpha]}$ = 0.2	$R_{s[\alpha]}$ = 1.6	$R_{s[\beta]}$ = 3294.8	$R_{s[\beta]}$ = 4880.2
EFF (% c/d) (>10%)	N/A	N/A	13.8%	20.6%
%Crosstalk [β to α] (< 1%)	$\frac{R_{s[\alpha]} - R_{b[\alpha]}}{R_{s[\beta]} - R_{b[\beta]}} = \frac{N/A}{N/A} =$ N/A			

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument

Calibrated By: M. Pauli

Reviewed By: Thomas G Neal **Date:** 1-19-05

Calibration Date: 01/19/05

Calibration Due: 01/19/06

Initials/Date: MP 1-19-05

Instrument ID: 152202

SOURCE AND BACKGROUND PLATEAU WORKSHEET								
High Voltage	Background		Alpha Source		Beta Source		Cross Talk	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	α to β	β to α
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%

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected 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 instrument).

Instrument

Calibrated By: M. Pauli **Reviewed By:** James F. Scott **Date:** 1-19-05

Calibration Date: 01/19/05 **Calibration Due:** 01/19/06

Chi-Square Test

Duratek

MODEL 2929 Serial # 152202 Tc 99 - Source #099608 21,312 DPM

Background Counts = 42.8 CPM

Count Number (N)	Source Count (x)	x-Mean	(x-Mean)²
1	4879	66.65	4442.22
2	4930	117.65	13841.52
3	4779	-33.35	1112.22
4	4761	-51.35	2636.82
5	4854	41.65	1734.72
6	4775	-37.35	1395.02
7	4849	36.65	1343.22
8	4776	-36.35	1321.32
9	4811	-1.35	1.82
10	4862	49.65	2465.12
11	4944	131.65	17331.72
12	4847	34.65	1200.62
13	4778	-34.35	1179.92
14	4813	0.65	0.42
15	4575	-237.35	56335.02
16	4839	26.65	710.22
17	4791	-21.35	455.82
18	4756	-56.35	3175.32
19	4927	114.65	13144.62
20	4701	-111.35	12398.82
	Σ= 96247	(x-Mean)² =	136226.55

Mean = 4812.35

Chi² = 28.31

σ = 84.67

2σ= 169.3496

Reduce Chi Square= 1.489879

3σ= 254.02

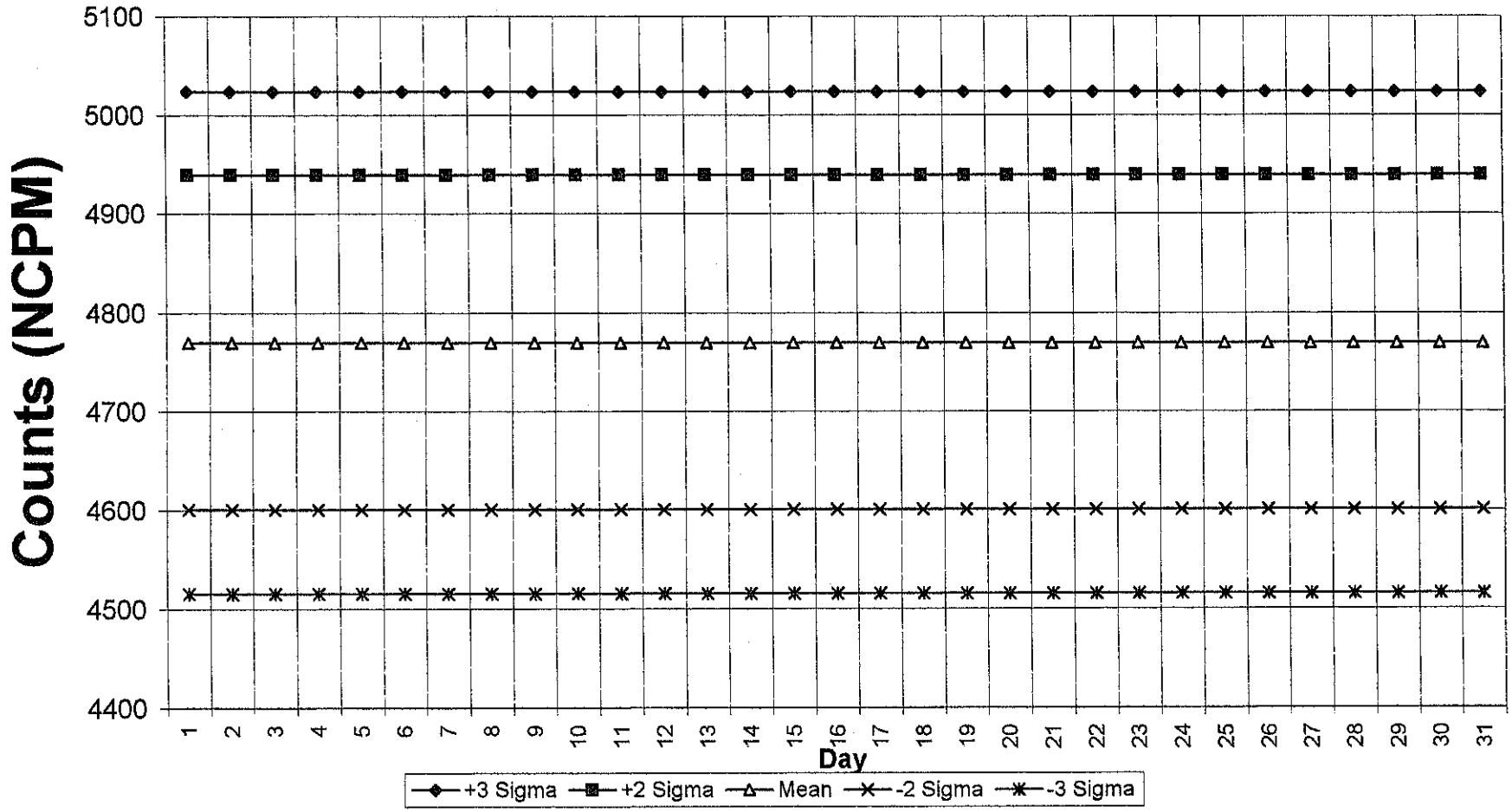
Reduced Chi Pass/Fail= PASS

Performed By/Date Mike Paul / 1-19-05

Reviewed By/Date Thomas F. Hovet / 1-20-05

Control Chart **Month Of_____20_____**

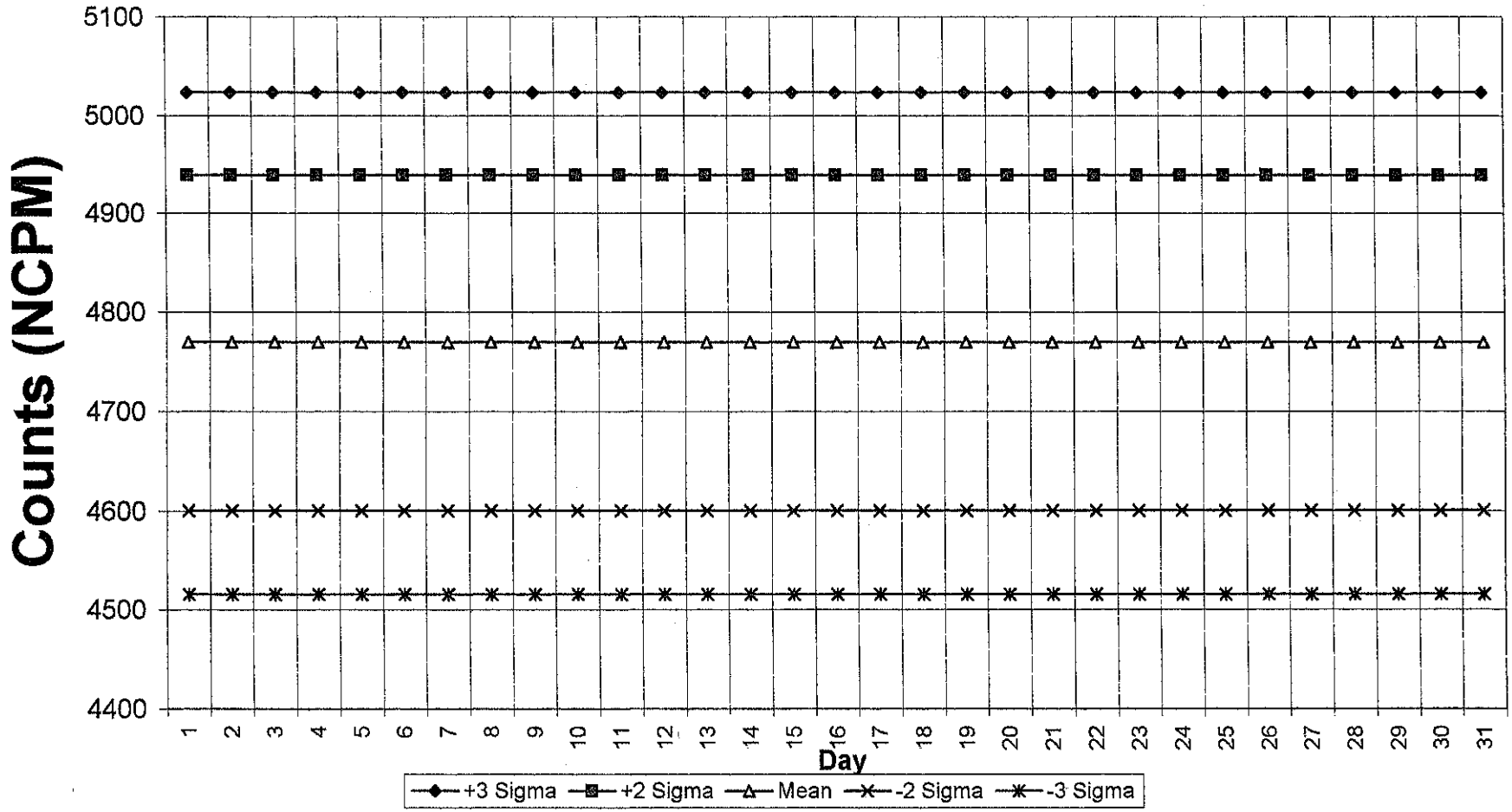
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

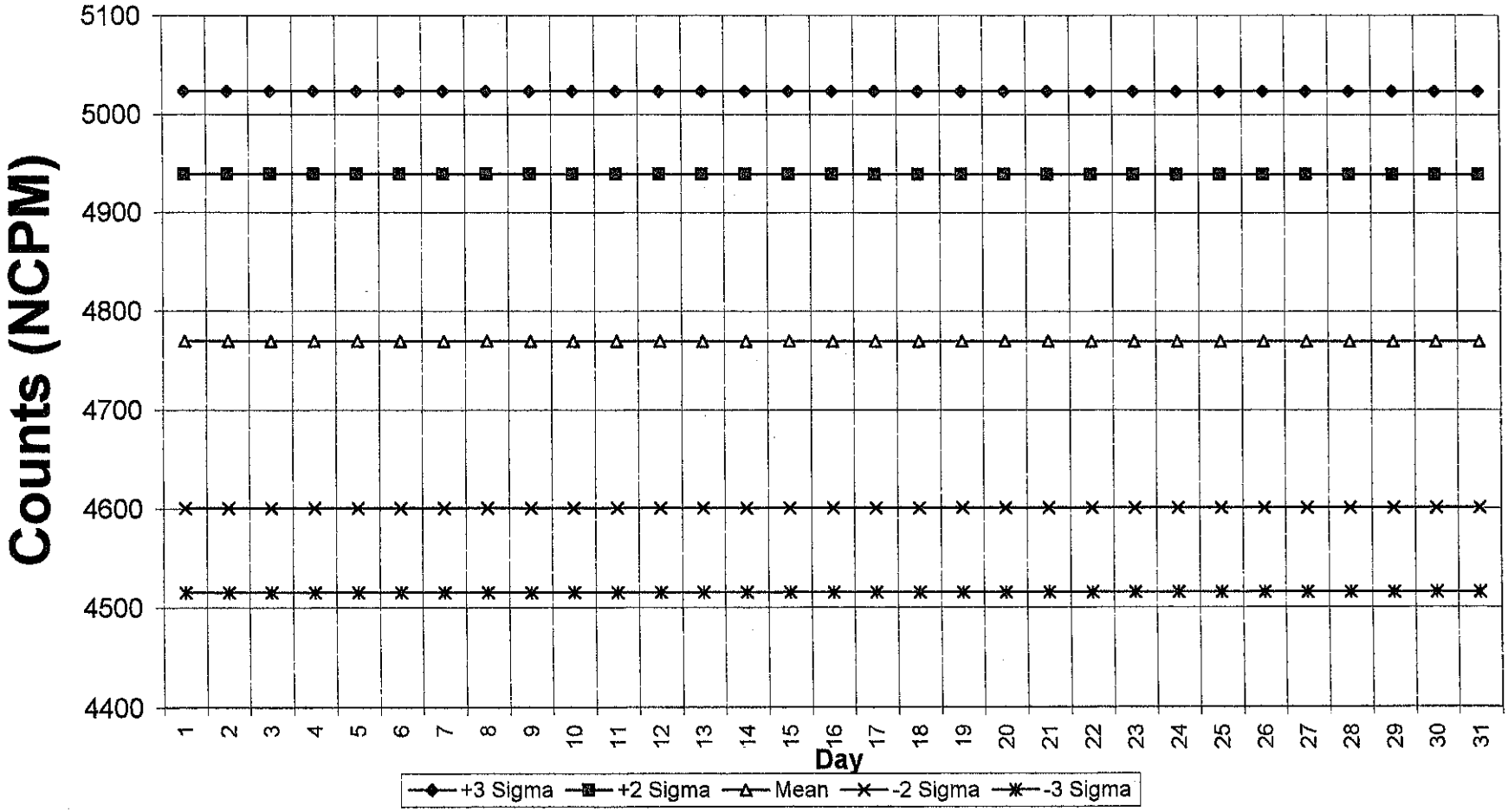
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of**_____**20**_____

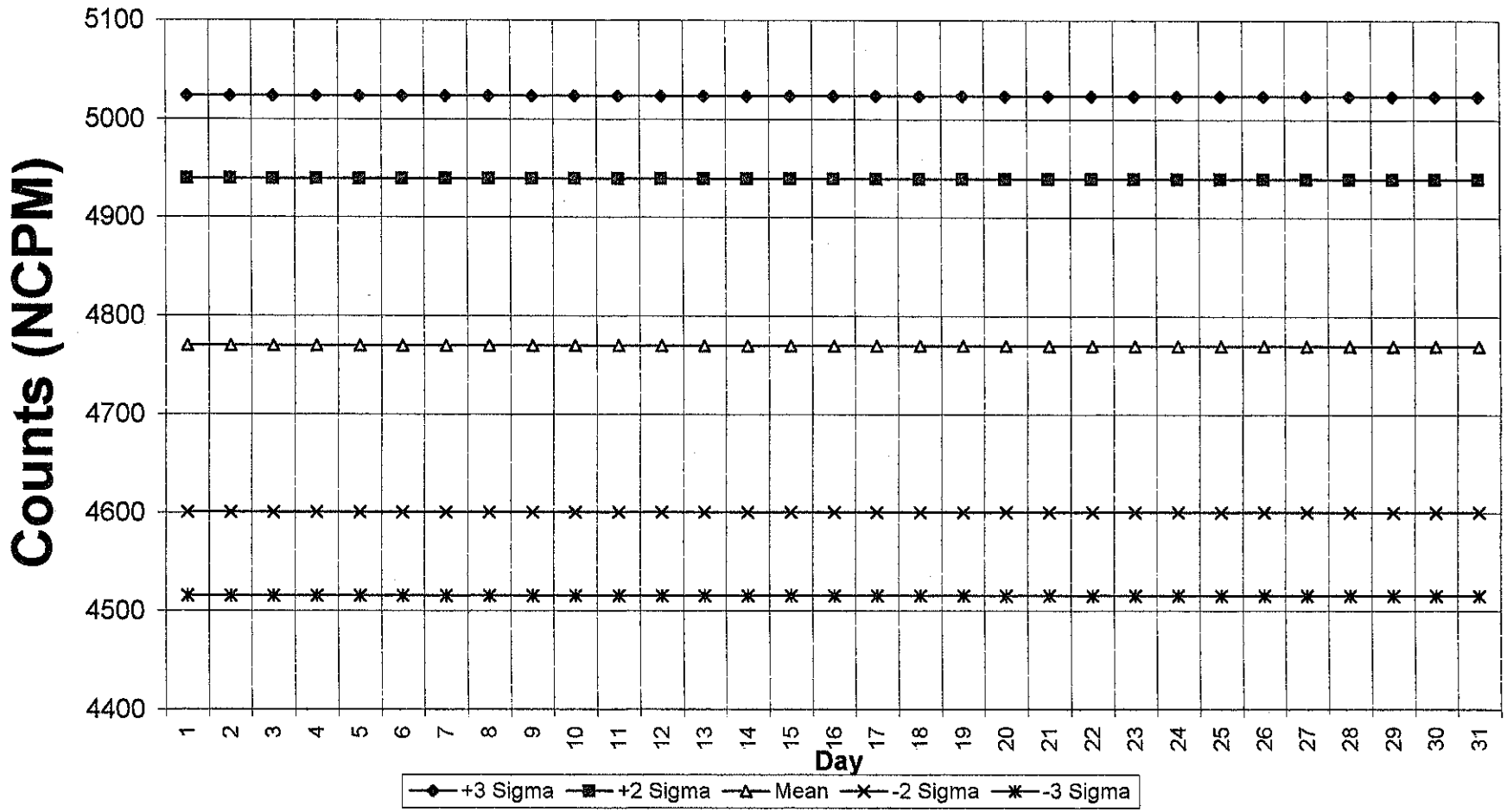
Instrument_____, **Source#**_____, **Isotope**_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

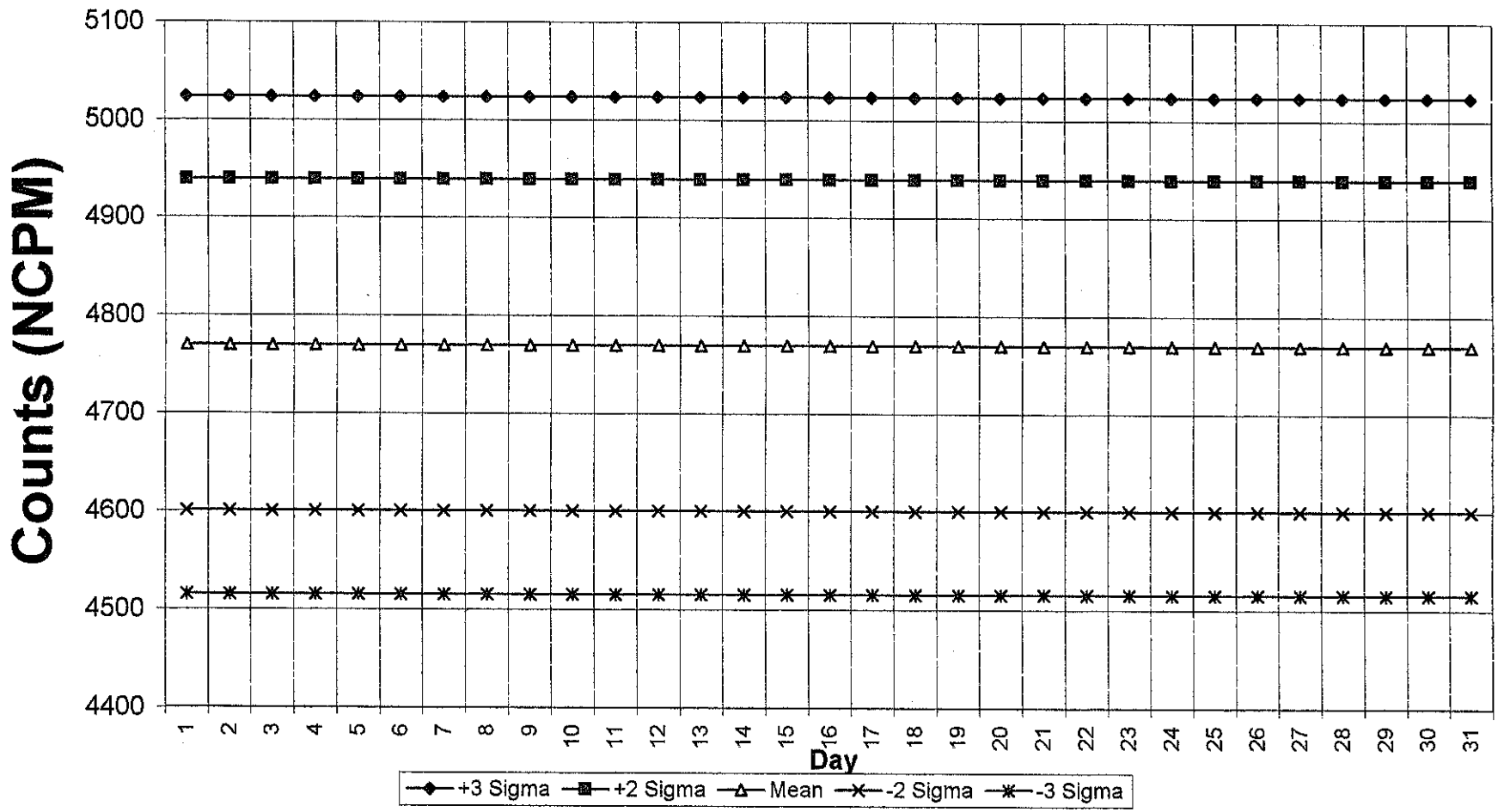
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of**_____**20**_____

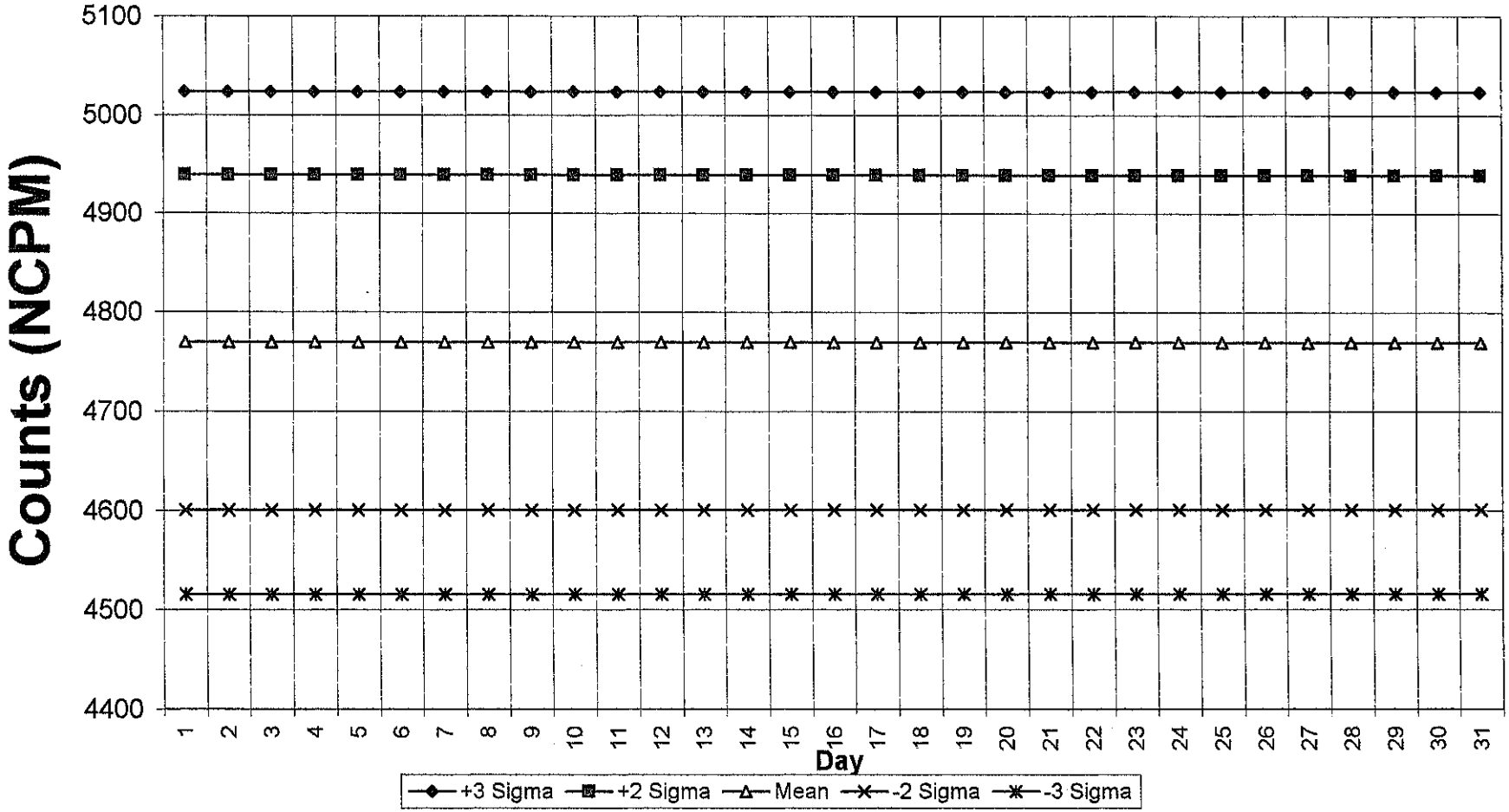
Instrument_____, **Source#**_____, **Isotope**_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Chi-Square Test

Duratek

MODEL 2929 Serial # 152202 Th230 - Source #119706 21,240 DPM

Background Counts = 0.15 CPM

Count Number (N)	Source Count (x)	x-Mean	(x-Mean)²
1	6555	-121.75	14823.06
2	6652	-24.75	612.56
3	6734	57.25	3277.56
4	6742	65.25	4257.56
5	6632	-44.75	2002.56
6	6626	-50.75	2575.56
7	6613	-63.75	4064.06
8	6626	-50.75	2575.56
9	6764	87.25	7612.56
10	6607	-69.75	4865.06
11	6711	34.25	1173.06
12	6770	93.25	8695.56
13	6787	110.25	12155.06
14	6544	-132.75	17622.56
15	6713	36.25	1314.06
16	6761	84.25	7098.06
17	6816	139.25	19390.56
18	6556	-120.75	14580.56
19	6637	-39.75	1580.06
20	6689	12.25	150.06
	Σ= 133535	(x-Mean)² =	130425.75

Mean = 6676.75

Chi² = 19.53

σ = 82.85

2σ= 165.7047

Reduce Chi Square= 1.028122

3σ= 248.56

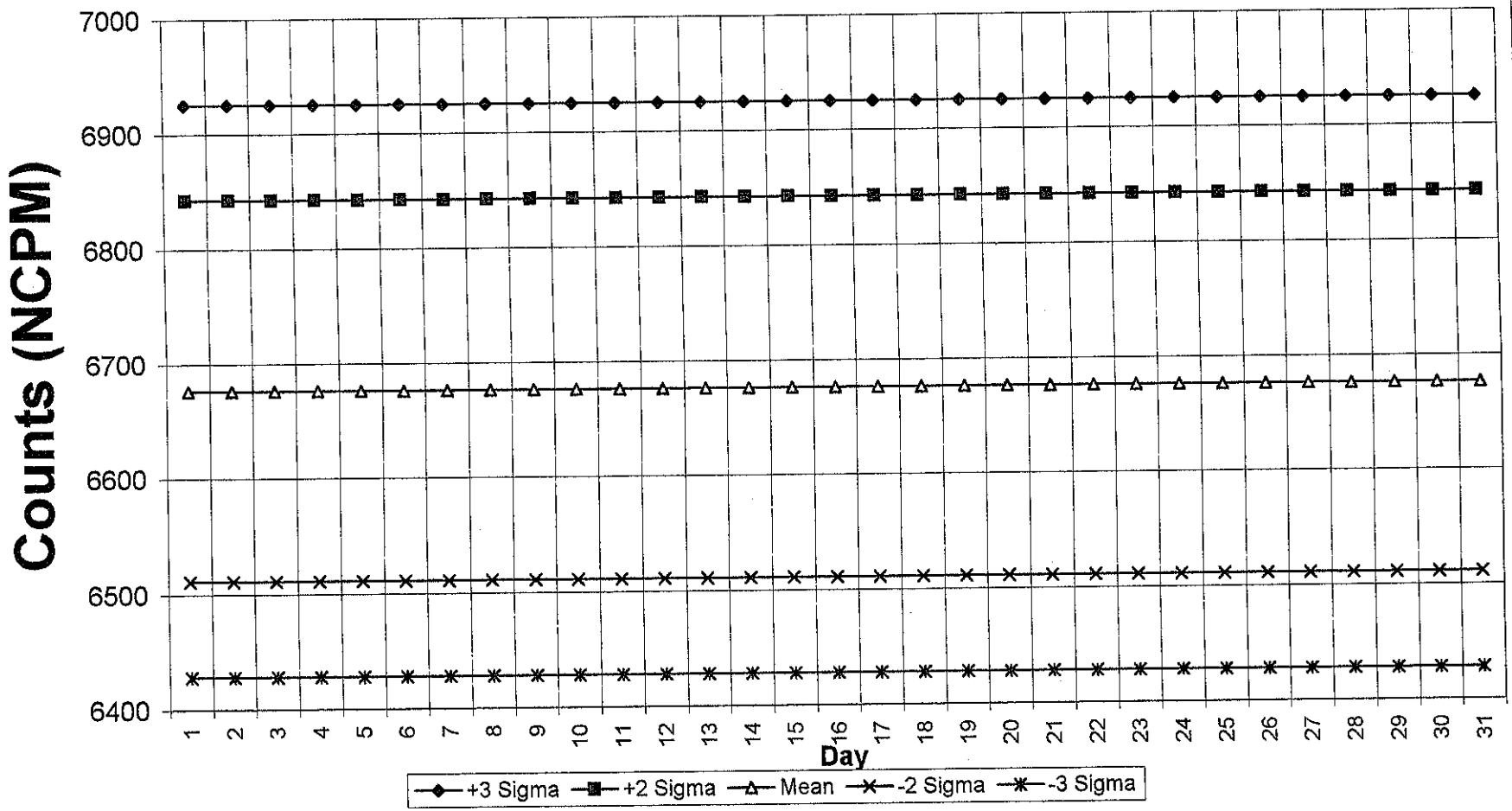
Reduced Chi Pass/Fail= PASS

Performed By/Date Mike Paul / 1-19-05

Reviewed By/Date James F. Hurst / 1-20-05

Control Chart **Month Of**_____**20**_____

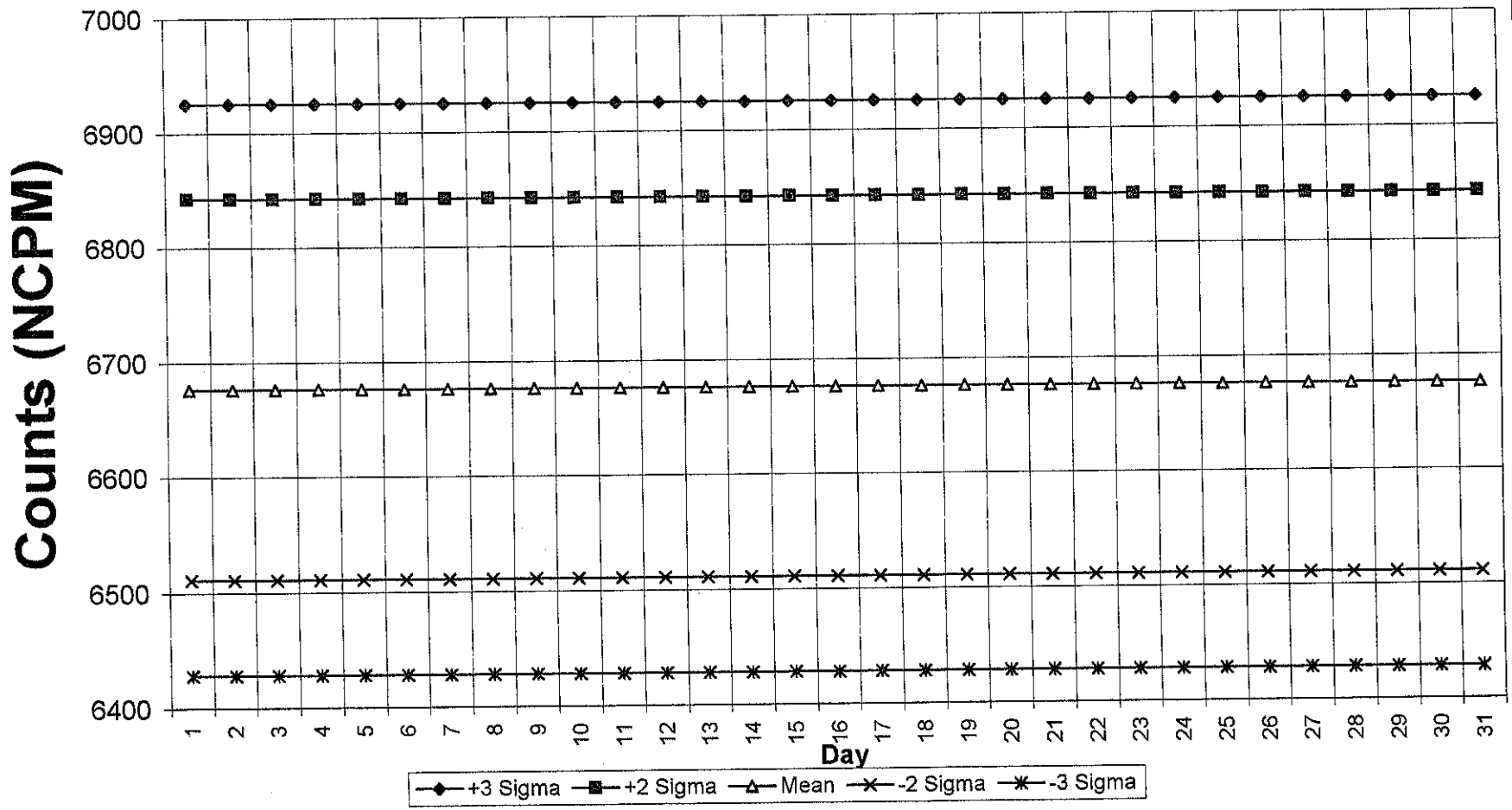
Instrument_____**, Source#**_____**, Isotope**_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

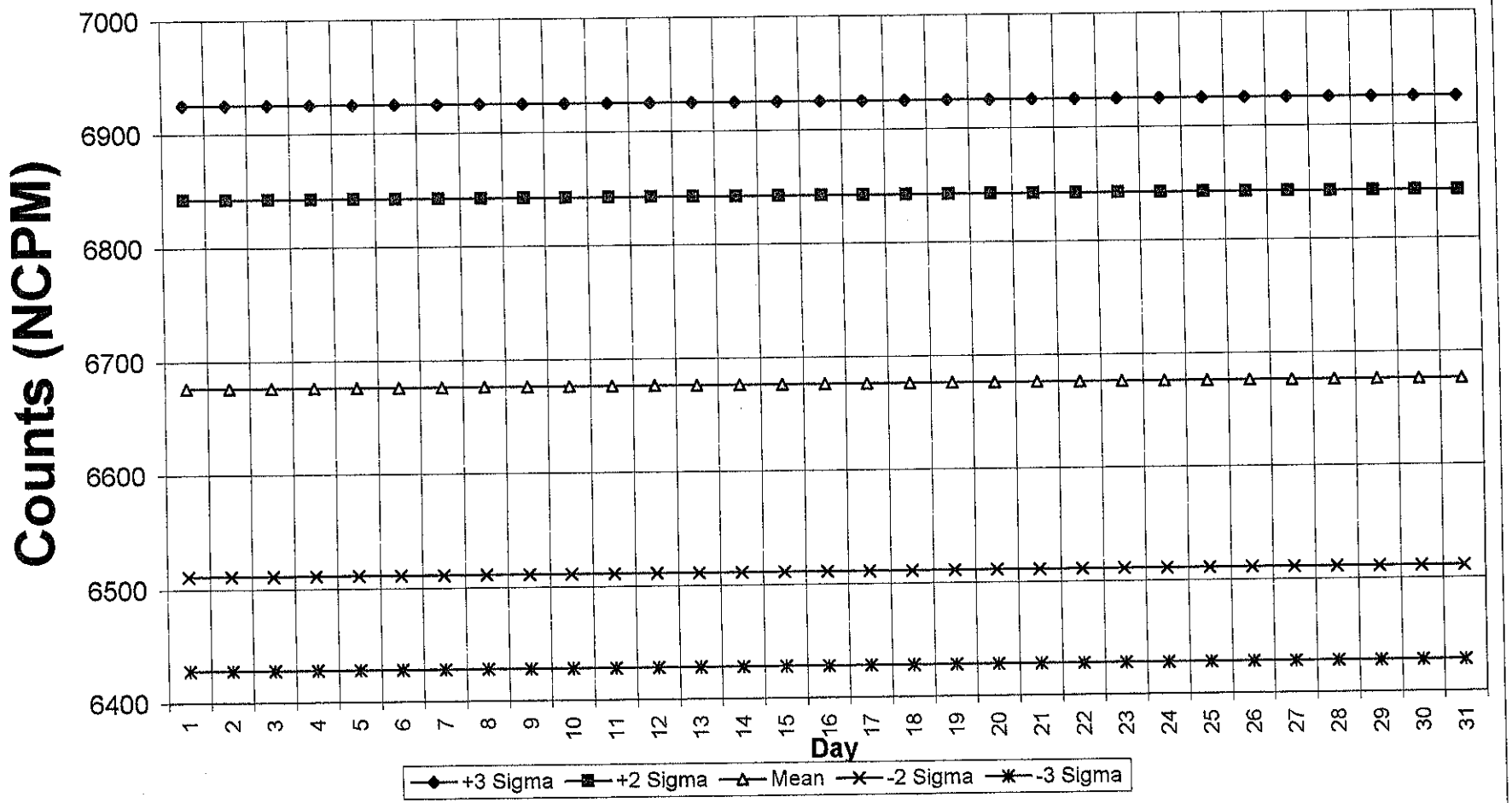
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

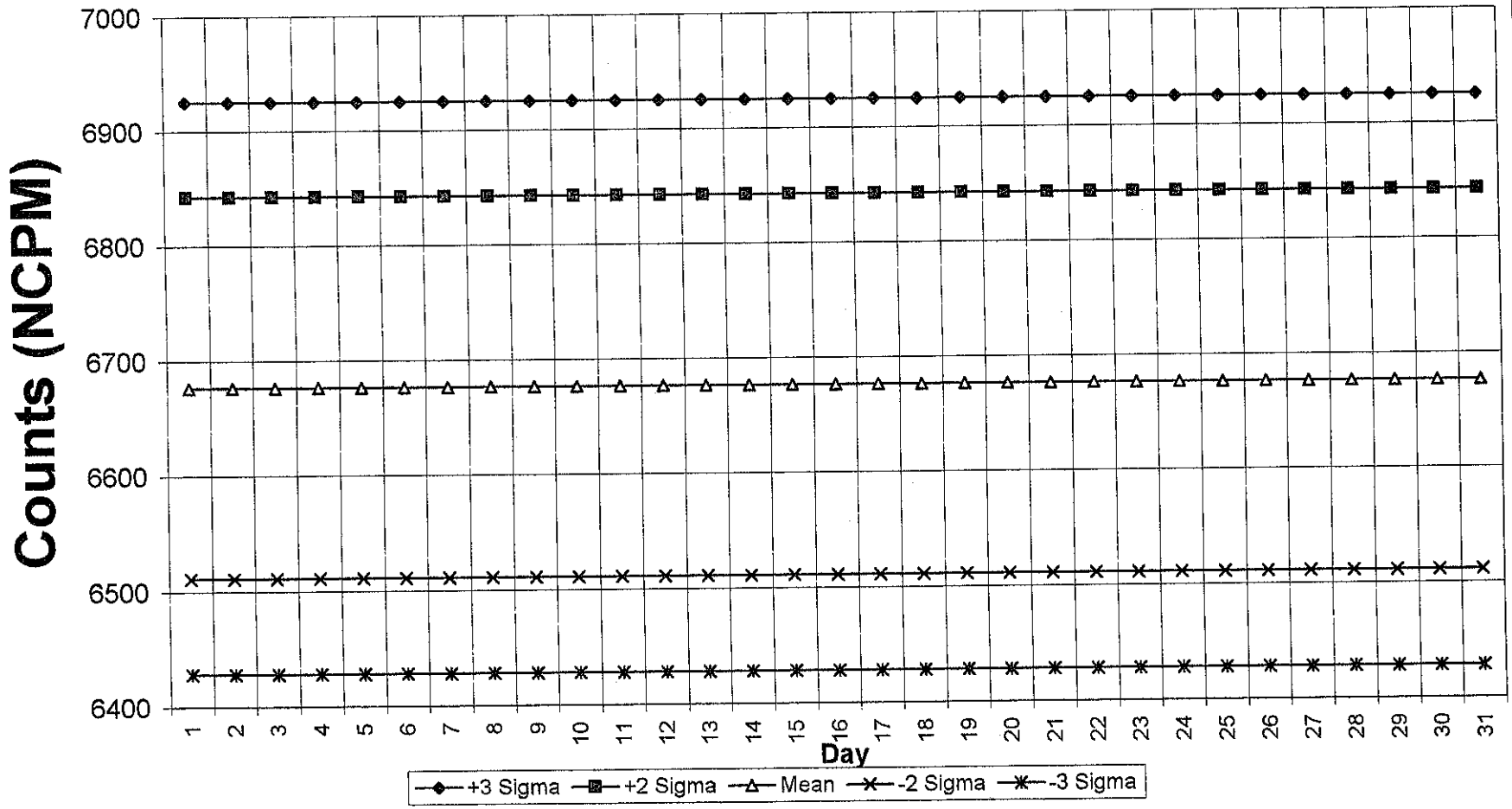
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

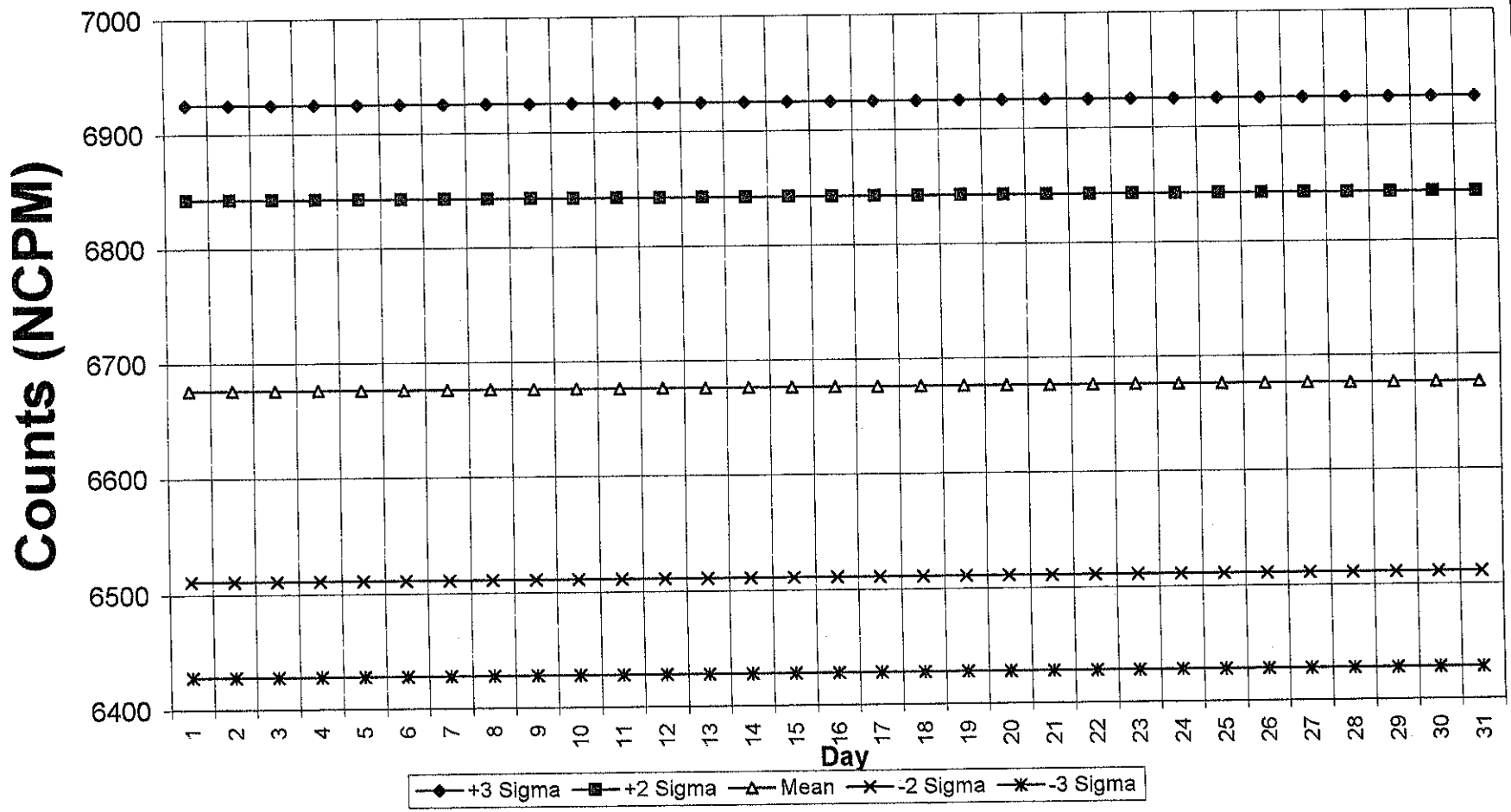
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of_____20_____**

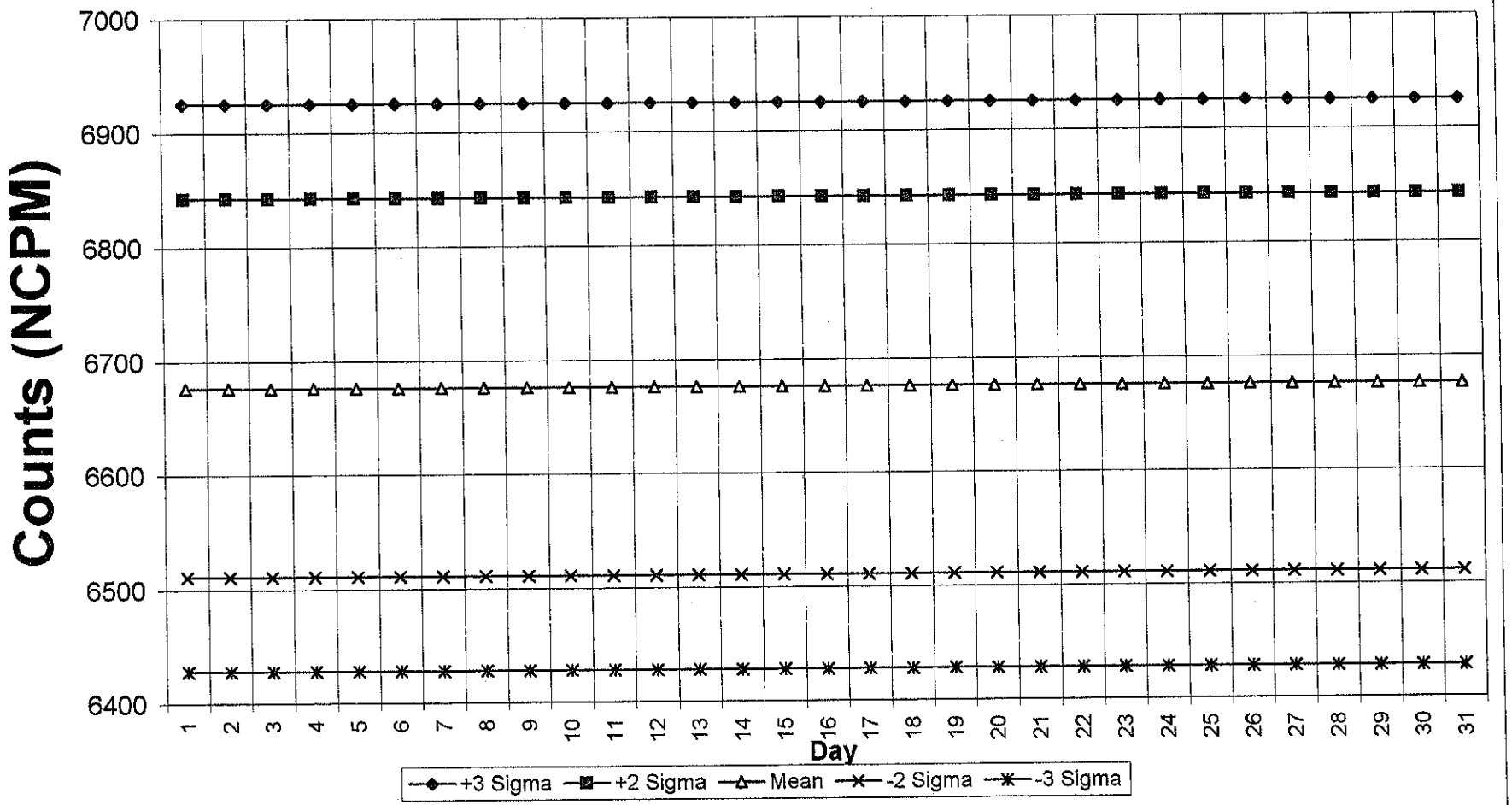
Instrument_____, Source#_____, Isotope_____



Reviewed By_____Date_____

Control Chart **Month Of**_____**20**_____

Instrument_____**, Source#**_____**, Isotope**_____



Reviewed By_____Date_____

Appendix C
Analytical Data and Quality Control

Section 5.0
Instrument Daily Response Test Records

GAMMA DETECTOR RESPONSE TEST CONTINUATION FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: John McGehee Date: 4/6/05

INSTRUMENT & DETECTOR INFORMATION			ACCEPTABLE INSTRUMENT RESPONSE RANGES			SOURCE INFORMATION	
			Geometry	Minus 20 %Net Counts	Plus 20 %Net Counts	FANP I/D No.	GTS18
Instrument Model Number	2350-1	Cal Due Date	Position 1 @ Contact	688,064	1,032,097	Certificate Date	N/A
Instrument Serial Number	95358	1-17-05	Position 2 @ 6 Inches	29,120	43,680	Nuclide	Cs-137
Detector Model Number	44-10	Cal Due Date	Position 3 @ 18 Inches	4,654	6,981	Activity in µCi	5 µCi
Detector Serial Number	192598	1-17-06	Operating Conditions: ☒ Normal ☐ Abnormal: ☐ Altitude ____ ft. ☒ Cable Length 25 ft. ☒ Temperature 74 °F				

SECTION 1 Reviewed By: [signature] Date: 4/7/05

SECTION 2 (To be completed by RP Technician). Prior to beginning, verify the Instrument SNs listed above.

IF the above information is incorrect, DO NOT CONTINUE.

Alarm Test	Test Type		Count Time (min)	Gross BKG Counts	BKG CPM	ACTUAL INSTRUMENT RESPONSE						Pass	Fail	Performed by See Note 1	
						Position 1 @ Contact		Position 2 @ 6 Inches		Position 3 @ 18 Inches					
Sat/ Unsat	Pre	Post				Gross Counts / Net CPM		Gross Counts	Net CPM	Gross Counts	Net CPM			Technician Name Printed & Initialed	Date/ Time
Sat	✓		5	25648	5129	865211	860981	41529	36400	10947	5818	✓		John McGehee JM	4/6/05 1830
Sat	✓		5	26848	5369	868012	862643	41015	35646	11180	5811	✓		John McGehee JM	4/7/05 0805
Sat	JM ✓	✓	5	26899	5379.8	874324	868942	40816	35437	11239	5860	✓		John McGehee JM	4/7/05 1756
Sat	✓		5	26680	5336	999999	994663	41436	36102	10883	5547	✓		John McGehee JM	4/8/05 0850
Sat		✓	5	26756	5351.4	863609	858248	41424	36073	10631	5280	✓		John McGehee JM	4/8/05 1830
Sat	✓		5	28167	5633.4	838474	834241	41996	36363	10853	5220	✓		John McGehee JM	4/8/05 4/9/05 0850

Remarks:

NOTE 1: By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: [signature] Date: 4/7/05 4/11/05

GAMMA DETECTOR RESPONSE TEST CONTINUATION FORM

SECTION 2 (To be completed by RP Technician).

Instrument Model 2350-1 Instrument Serial # 95358 Cal Due Date 1-17-06 Detector Model # 44-10 Detector Serial # 192598 Source Serial # GTSCb

Alarm Test	Test Type		Background Data			Source Count Data						Tolerance		Performed by See Note 1	
							Position 1 @ contact		Position 2 @ 6 inches		Position 3 @ 18 inches				
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Count Time (min)	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Pass	Fail	Technician (Name Printed & Initialed)	Date/ Time
~~Sat~~		✓		~~26681~~		~~60~~	~~851~~	JMM	4/5/05							
Sat		✓	5	26681	5336	5	851208	845871	41692	36356	11012	5676	✓		JMM JMM	4-10-05 1013
Sat	✓		5	26945	5389	6 1	885614	880230	41641	36252	11085	5616	✓		D.McGee/DM	4-10-05 1030
Sat		✓	5	28241	5648	1	887817	882169	42200	36552	11169	5521	✓		D.McGee/DM	4-10-05 1415
Sat	✓		5	28774	5755	1	888788	~~883037~~ ~~888788~~ 41994		36239	11512	5757	✓		D.McGee/DM	4-11-05 0750
Sat		✓	5	27888	5578	1	881075	875508	41826	36248	11279	5761	✓		D.McGee/DM	4-11-05 1700
Sat	✓		5	27500	5500	1	871162	865662	42235	36735	11305	5805	✓		D.McGee/DM	4/12/05 0730
Sat		✓	5	27977	5595	1	862209	856614	41530	35935	11256	5661	✓		D.McGee/DM	4-12-05 1655
Sat	✓		5	28999	5800	1	881821	876021	41551	35751	11389	5589	✓		D.McGee/DM	4-13-05 1030
Sat		✓	5	28045	5609	1	863459	857850	40556	34947	10926	5317	✓		D.McGee/DM	4-13-05 1200

REMARKS:

NOTE 1: By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 6/13/05

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: John McGehee - 4/6/05

INSTRUMENT & DETECTOR INFORMATION			DETECTOR TOLERANCE VALUES		EFF	SOURCE INFORMATION	
Instrument Model No.	2350-1	Cal Due Date	Minus 10%	Plus 10%	Net EFF	FANP ID / Serial No.	F5442
Instrument Serial No.	120636	1-17-06	1440.6	1760.7	0.075	Certification Date	9-30-1997
Detector Model No.	43-5	Cal Due Date	Operating Conditions: ☑ Normal ☐ Abnormal ☐ Altitude_____ft. ☐ Cable Length 25' ft			Nuclide	Th-230
Detector Serial No.	127389	1-18-06				Activity in dpm (S_{net})	21,240

SECTION 1 Reviewed By: _____ Date: 4/7/05

SECTION 2 (To be completed by RP Technician) Prior to beginning, verify the Instrument SNs listed above. IF the information above is incorrect, DO NOT CONTINUE.

Alarm Test	Test Type		Background Data			Source Count Data							Tolerance		Efficiency	Performed by See Note 1	
						Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)		Mean Net Source Count Rate MNSCR					
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM		Pass	Fail	EFF	Technician (Name Printed & Initialed)	Date/ Time
Sat	✓		600	10	0.017	1989	1984	1884	1884	934	934	1600.7	✓		0.075	John McGehee	4/6/05
~~Sat~~	~~✓~~		300	~~2~~ JM 4/7/05	~~2~~ JM 4/7/05	1939		1964		JM 4/7/05							
Sat	✓		300	2	2	1937	1935	1862	1860	835	833	1542	✓		0.073	John McGehee JM	4/7/05 0816

See Response Test Dated 4/7/05 JM 4/7/05

REMARKS: changed det geometry w/ 1/4" spacer

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 4/7/05

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: John McGehee - 4/7/05

INSTRUMENT & DETECTOR INFORMATION			DETECTOR TOLERANCE VALUES		EFF	SOURCE INFORMATION	
Instrument Model No.	2350-1	Cal Due Date	Minus 10%	Plus 10%	Net EFF	FANP ID / Serial No.	FS 442
Instrument Serial No.	120636	1-17-06	987.3	1206.7	0.052	Certification Date	9-30-1997
Detector Model No.	43-5	Cal Due Date	Operating Conditions: ☑ Normal ☐ Abnormal ☐ Altitude ____ ft. ☐ Cable Length 25' ft			Nuclide	Th-230
Detector Serial No.	127389	1-18-06				Activity in dpm (S_{dpm})	21,240

SECTION 1 Reviewed By: _____ Date:

SECTION 2 (To be completed by RP Technician) Prior to beginning, verify the Instrument SNs listed above. IF the information above is incorrect, DO NOT CONTINUE.

Alarm Test	Test Type		Background Data			Source Count Data							Tolerance		Efficiency	Performed by See Note 1	
						Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)		Mean Net Source Count Rate MNSCR					
Sat/ Unsat	Pre	Post	Count Time (sec) S	Gross BKG Counts	BKG CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM		Pass	Fail	EFF	Technician (Name Printed & Initialed)	Date/ Time
Sat		✓	300	2	0.4	1447	1447	1338	1338	506	506	1097	✓		0.052	John McGehee JMG	4/7/05 0800
~~Sat~~	~~✓~~		~~300~~	~~0~~	~~0~~	JMG	4/8/05										
Sat	✓		300	5	1	1538	1537	1261	1260	412	412	1069	✓		0.050	John McGehee JMG	4/8/05 0851
Sat		✓	300	11	2.2	1345	1343	1201	1199 1197 JMG	267	265	935.7	*1 ✓		0.044	John McGehee JMG	4/8/05 1830
Sat	✓		300	8	1.6	1395	1393	1190	1188	268	266	949		** ✓	0.045	John McGehee JMG	4/9/05 0824

REMARKS: *1 response is < 15% below tolerance, but usable JMG 4/9/05
** change to back up detector

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 6/13/05

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: John McGehee - 4/9/05

INSTRUMENT & DETECTOR INFORMATION			DETECTOR TOLERANCE VALUES		EFF	SOURCE INFORMATION	
Instrument Model No.	2350-1	Cal Due Date	Minus 10%	Plus 10%	Net EFF	FANP ID / Serial No.	FS442
Instrument Serial No.	120636	1-17-06	1279.3	1514.7	0.065	Certification Date	9-30-1997
Detector Model No.	43-5	Cal Due Date	Operating Conditions: ☑ Normal ☐ Abnormal ☐ Altitude_____ft. ☐ Cable Length 25 ft			Nuclide	Th-230
Detector Serial No.	172236	1-18-05				Activity in dpm (S_{rem})	21,240

SECTION 1 Reviewed By: _____ Date:

SECTION 2 (To be completed by RP Technician) Prior to beginning, verify the Instrument SNs listed above. IF the information above is incorrect, DO NOT CONTINUE.

Alarm Test	Test Type		Background Data			Source Count Data							Tolerance		Efficiency	Performed by See Note 1	
						Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)		Mean Net Source Count Rate MNSCR					
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM		Pass	Fail	EFF	Technician (Name Printed & Initialed)	Date/ Time
Sat	✓		5	10	2	1430	1428	1403	1401	1304	1302	1377	✓		0.065	John McGehee JMG	4-9-05 0844
Sat		✓	5	3	0.6	1446	1446	1478	1478	1242	1242	1388	✓		0.065	John McGehee JMG	4-10-05 1014
Sat	✓		5	1	0.2	1501	1500	1388	1387	1239	1238	1376	✓		0.065	D McGee DM	4-10-05 1630
SAT	~~✓~~	✓	~~15~~ 5	4	0.8	1468	1467	1441	1440	1268	1267	1391	✓		0.065	D McGee/DM	4-11-05 1450
SAT	✓		5	4	0.8	1460	1459	1464	1463	1212	1211	1378	✓		0.065	D McGee/DM	4-11-05 0750
SAT		✓	5	11	2.2	1427	1425	1409	1407	1223	1221	1351	✓		0.064	D McGee/DM	4-11-05 1750

REMARKS:

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 6/13/05

LMI 43-5 ALPHA SCINTILLATION DETECTOR RESPONSE FORM

SECTION 2 (To be completed by RP Technician)

Instrument Model | Instrument Serial # | Cal Due Date | Detector Model # | Detector Serial # | Source Serial #

Alarm Test	Test Type		Background Data			Source Count Data								Tolerance		Performed by See Note 1	
							Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)						
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Count Time (min)	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Mean Net Source Count Rate MNSCR	Eff	Pass	Fail	Technician (Name Printed & Initialed)	Date/ Time
Sat	✓		5	4	0.8	1	1401	1400	1413	1412	1237	1236	1349	.084	✓		D.McGee/DM	4/12/05 0730
Sat		✓	5	20	4	1	1385	1381	1448	1444	1214	1210	1345	.083	✓		D.McGee/DM	4/12/05 1655

REMARKS:

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 6/13/05

LMI 44-40 SHIELDED GM DETECTOR RESPONSE FORM

SECTION 1 (To be completed at Initial Receipt Response Test) Technician Signature: Date: John McGehee 4/6/05

INSTRUMENT & DETECTOR INFORMATION			DETECTOR TOLERANCE VALUES		EFF	SOURCE INFORMATION	
Instrument Model No.	2350-1	Cal Due Date	Minus 10%	Plus 10%	Net EFF	FANP ID / Serial No.	FD145
Instrument Serial No.	95349	1-18-06	1717.9	2099.7	0.089	Certification Date	8-8-1996
Detector Model No.	44-40	Cal Due Date	Operating Conditions: ☑ Normal ☐ Abnormal ☐ Altitude_____ft. ☐ Cable Length 25' ft			Nuclide	Tc-99
Detector Serial No.	094971	1-18-06				Activity in dpm (S__)	21,300

SECTION 1 Reviewed By: _____ Date: 4/7/05

SECTION 2 (To be completed by RP Technician) Prior to beginning, verify the instrument SNs listed above. IF the information above is incorrect, DO NOT CONTINUE.

Alarm Test	Test Type		Background Data			Source Count Data						Mean Net Source Count Rate MNSCR	Tolerance		Efficiency	Performed by See Note 1	
						Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)							
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM		Pass	Fail	EFF	Technician (Name Printed & Initialed)	Date/ Time
Sat	✓		5	191	38.2	1898	1859.8	1971	1932.8	1972	1933.8	1908.8	✓		0.089	John McGehee JM	4-6-05 1920
Sat	✓		5	168	33.6	1883	1849	1964	1930	1862	1828	1869	✓		0.088	John McGehee JM	4/7/05 0915
Sat		✓	5	169	33.8	1859	1825	1955	1921	1925	1891	1879	✓		0.088	John McGehee JM	4/7/05 1829
Sat	✓		5	202	40.4	2116	2075	2012	1971	1974	1933	1993	✓		0.093	John McGehee JM	4/8/05 0955
		✓	5	195	39	2023	1984	1980	1941	2018	1979	1968	✓		0.092	John McGehee JM	4/8/05 1530
Sat	✓		5	183	36.6	1983	1947	1908	1872	1949	1913	1910	✓		0.089	John McGehee JM	4/9/05 0845
Sat		✓	5	151	30.2	1954	1924	1972	1882	2029	1999	1935	✓		0.091	John McGehee JM	4-10-05 1618

REMARKS:

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: _____ Date: 4/7/05 4/11/05

LMI 44-40 SHIELDED GM DETECTOR RESPONSE FORM

SECTION 2 (To be completed by RP Technician)

Instrument Model 2350-1 Instrument Serial # 95349 Cal Due Date 1-18-06 Detector Model # 44-40 Detector Serial # 094971 Source Serial # FD145

Alarm Test	Test Type		Background Data			Source Count Data								Tolerance		Performed by (See Note 1)	
							Count 1 (SCR1)		Count 2 (SCR2)		Count 3 (SCR3)						
Sat/ Unsat	Pre	Post	Count Time (min)	Gross BKG Counts	BKG CPM	Count Time (min)	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Gross Cnts	Net CPM	Mean Net Source Count Rate MNSCR	Eff	Pass	Fail	Technician (Name Printed & Initialed)	Date/ Time
Sat	✓		5	181	36.2	1	1891	1855	2005	1969	1976	1940	1921	0.09	✓		D. McGee/DM	4-11-05 1030
Sat		✓	5	172	34.4	1	2003	1969	1988	1954	2005	1971	1965	.09	✓		D. McGee/DM	4-11-05 1450
Sat	✓		5	183	36.6	1	1963	1926	2054	2017	1979	1942	~~1994~~ 1973 DM	.09	✓		D. McGee/DM	4-12-05 0756
SAT		✓	5	158	31.6	1	2025	1993	2004	1972	1939	1907	1957	0.09	✓		D. McGee/DM	4-11-05 1710
Sat	✓		5	181	36.2	1	1905	1869	1925	1889	1967	1963	1907	0.09	✓		D. McGee/DM	4/12/05 0730
Sat		✓	5	177	35.4	1	2022	1987	1979	1944	1968	1933	1954	0.09	✓		D. McGee DM	4-12-05 1655

REMARKS:

NOTE: 1. By initialing this block, the technician indicates that the instrument parameters have been checked and are verified to be correct.

SECTION 2 Reviewed By: [signature] Date: 6/13/05

ATTACHMENT 6.1
PERFORMANCE DATA SHEET
(example)

Ludlum Model 2929 Alpha/Beta Counter			Background Count Time 20 minutes		
Sources Used:		Th230 α 119706	Tc99 β 099608	Source Count Time 5 min	
Date	CCPM Source QC Check		CPM Background		Performed by
	α	β	α	β	
4-6-05	6578	4645	0.3	51	
4-7-05	6809	4916	0.1	57	
4-8-05	6784	4915	0.3	54	
4-9-05	6752	4833	0.1	52.5	
4-9-05	6788	4952	0.1	52	
4-10-05	6827	4886	0.2	52	
* 4/10/05			0.5	54	JRH
4/11/05	6800	4819	0.4	54	JRH
4/11/05	6811	4903	0.3	52	
4/12/05	6766	4866	0.2	49	
4/12/05	6800	4907	0.7	54	
4/13/05	6824	4882	0.3	56	
4/13/05	6802	4878	0.2	55	
4/14/05	6771	4928	0.2	52	
4/14/05	6750	4855	0.2	49	

Reviewed By/Date [signature] 6/13/05

* PINGR INTERRUPTION PREVENTED SOURCE COUNTS IN RANGE FROM BEING OBTAINED,

α - 6572 to 6842 (6677 ± 20)
β - 4643 to 4982 (4812 ± 20)

APPENDIX A

DAILY INSTRUMENT CHECK sheet

Instrument Type / SN: #19 / #87157 Technician: M. TABER

Probe Type / SN: N/A Source Type / #: Cs 137 # 1296118

Cal Date: 1/18/05 Cal Due Date: 1/18/06 Source Activity: 5 uCi

units:(dpm, mR/h, µR/h)

Date/Time	Cal 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 1220	SAT	SAT	6	SAT	370	SAT	MTaber	
4-7-05 0710	SAT	SAT	7	SAT	390	SAT	MTaber	
4-8-05 0745	SAT	SAT	7	SAT	390	SAT	MTaber	
4/9/05 0745	SAT	SAT	7	SAT	380	SAT	JHackett	
4-12-05 0810	SAT	SAT	7	SAT	400	SAT	MTaber	
4-13-05 0810	SAT	SAT	7	SAT	400	SAT	MTaber	

Response Check Criteria:

Background (BKG) - mean = 6 upper = ~~4.7.2~~ 4005 lower = 4.8

+20% or +3σ -20% or -3σ

Source - mean = 370 upper = 296 lower = 444

+20% or +3σ -20% or -3σ

velcro side down front of detector

Reviewed by: RG

Date: 6/13/05

APPENDIX A

DAILY INSTRUMENT CHECK sheet

Instrument Type / SN: #177 / 124586 Technician: M. TABER

Probe Type / SN: 44-9 / #134623 Source Type / #: Tc99 # 099608

Cal. Date: 1/18/05 Cal. Due Date: 1/18/06 Source Activity: 21312 DPM

units:(dpm, mR/h, µR/h)

Date/Time	Cal 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 1200	SAT	SAT	80	SAT	2500	SAT	MTaber	
4-7-05 0767	SAT	SAT	70	SAT	2400	SAT	MTaber	
4-8-05 0750	SAT	SAT	80	SAT	2700	SAT	MTaber	
4-9-05 0810	SAT	SAT	70	SAT	2400	SAT	MTaber	
4-9-05 1750	SAT	SAT	80	SAT	2600	SAT	JHolt	
4-10-05 1020	SAT	SAT	80	SAT	2500	SAT	MTaber	
4-11-05 0742	SAT	SAT	80	SAT	2500	SAT	MTaber	
4-12-05	SAT	SAT	80	SAT	2500	SAT	MTaber	
4/13/05 0748	SAT	SAT	70	SAT	2600	SAT	JHolt	

Response Check Criteria:

Background (BKG) - mean = 80 upper = 96 (+20% or +3σ) lower = 64 (-20% or -3σ)

Source - mean = 2500 upper = 3000 (+20% or +3σ) lower = 2000 (-20% or -3σ)

4th shelf on Model 180-2 (PR089759) sample holder - self (from bottom)

Reviewed by: [signature]

Date: 6/13/05

APPENDIX A

DAILY INSTRUMENT CHECK sheet

Instrument Type / SN: 177 / #93275 Technician: M. TABER

Probe Type / SN: 44-9 #083758 Source Type / #: Tc99 #

Cal. Date: 1/18/05 Cal Due Date: 1/18/06 Source Activity: 21312

units:(dpm, mR/h, µR/h)

Date/Time	Cal 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 1210	SAT	SAT	50	SAT	2500	SAT	M. Taber	
4-7-05 0705	SAT	SAT	50	SAT	2500	SAT	M. Taber	
4-8-05 0755	SAT	SAT	40	SAT	2500	SAT	M. Taber	
4-9-05 0800	SAT	SAT	50	SAT	2400	SAT	M. Taber	
4-9-05 1750	SAT	SAT	50	SAT	2400	SAT	J. Hackett	
4-10-05	SAT	SAT	50	SAT	2500	SAT	M. Taber	
4/11/05 0740	SAT	SAT	40	SAT	2400	SAT	J. Hackett	
4-12-05 0745	SAT	SAT	50	SAT	2400	SAT	M. Taber	
4/13/05 0746	SAT	SAT	50	SAT	2500	SAT	J. Hackett	
4/14/05 0720	SAT	SAT	40	SAT	2400	SAT	J. Hackett	

Response Check Criteria:

Background (BKG) - mean = 50 upper = 60 (+20% or +3σ) lower = 40 (-20% or -3σ)

Source - mean = 2500 upper = 3000 (+20% or +3σ) lower = 2000 (-20% or -3σ)

4th shelf from bottom on Model 180-2 (PR089759) sample holder - JEH

Reviewed by: [signature]

Date: 6/13/05

Appendix C
Analytical Data and Quality Control

Section 6.0
Instrument Check Source Calibration Certifications

Griffiss Project Check Sources Received 4/6/05

Nuclide	Dimensions	Mfg. Serial Number	Duratek Cal Lab Serial Number	Calibration Certificate	Calibration Certification (Bq)	2-pi emmission rate Calibration Certification (cps)	Activity		
							2-Pi Emission Rate (cpm)	Calibration Certification (dpm)	uCi
Cs-137	Button	1296118	GTS10	not required	NA	NA	NA	NA	5
Tc-99	47 mm Diameter	FD145	099608	NIST	355	175	10,500	21,300	9.61E-03
Th-230	47 mm Diameter	FS442	119706	NIST	354	165	9,900	21,240	9.58E-03

9 9608

15 August 1996 Men/wo

Amersham Buchler
GmbH & Co KG
Gieselweg 1
D-38110 Braunschweig
Postfach 11 49
D-38001 Braunschweig
Tel. (05307) 930-0
Fax (05307) 930-293
Fax-Zentrale 930-237

Amersham
The Health Science Group

CERTIFICATE

No. 206427

for a Sealed Radioactive Source

Source Type: Beta Wide Area Reference Source

Product Code	TCRX1896
Drawing	VZ-1368
Dimensions of Active Surface	Ø 36 mm
Overall Dimensions	Ø 47 mm x 3 mm
Source No	FD 145
Nuclide	Technetium-99

Measurement Data

Activity	355 Bq
Overall Uncertainty*	± 10 %
Beta Surface Emission Rate	175 s^{-1} ± 10 % in 2 π steradian
Reference Date	8 August 1996
Traceability*	Defined on page 2

Leakage and Contamination Test(s)

Test Method(s)*	I
Test(s) passed on	14 August 1996

Additional Information

ISO Classification*	C 34645
Recommended Working Life*	10 years
Remark	---

* see page 2 for explanation

Amersham Buchler

(Production Manager)

Quality Assurance System

The quality assurance system of Amersham Buchler GmbH & Co KG was certified by Lloyd's Register Quality Assurance (LRQA) according to ISO 9001, Issue 1994.

Amersham
The Health Science Group

Overall Uncertainty

The declared uncertainty U is an expanded uncertainty $U = k * u_c$ with a coverage factor of $k = 3$. The combined uncertainty u_c is the sum of all uncertainties which can be evaluated by statistical means (uncertainty type A, u_A) and all other uncertainties (uncertainty type B, u_B) whereby $u_c^2 = u_A^2 + u_B^2$ is.
(Ref.: NIST Technical Note 1297 / WECC-Doc. 19-1990)

Traceability

This certificate documents the traceability of measurement results to national standards, standard measuring equipment and methods for the realisation of physical units of measurement according to the International System of Units (SI).

Traceability 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 unbroken chain of comparisons.'

Amersham Buchler GmbH & Co KG has been accredited as DKD (Deutscher Kalibrierdienst) calibration laboratory by the Physikalisch-Technische Bundesanstalt (PTB) and is authorized to issue reference sources which are traceable to national standards held at the PTB in Germany.

Because of the European Cooperation for Accreditation of Laboratories (EAL) mutual recognition agreement the certificates are also accepted by all EAL members (e. g. NAMAS, UK).

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 Instrument Quality Control (ANSI N42.22-1995)".

As a requirement of the ANSI N42.22-1995 Amersham participates in the NEI/NIST Measurements Assurance Program of the Nuclear Power Industry.

Leakage and Contamination Tests

Stringent tests 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

The source is wiped with a swab or tissue, moistened with ethanol or water; the activity removed is measured.
Limit: 185 Bq

Immersion Test II

The source is immersed in a suitable liquid at 50 °C for 4 hours and the activity removed is measured.
Limit: 185 Bq.

Bubble Test III

The source is immersed in water or a suitable liquid and the pressure in the vessel reduced to 13 kPa (100 mm Hg). No bubbles must be observed.
(This test conforms to ISO 9978 except that for some sources, the 100 mm^3 free volume requirement is not met.)

Emanation Test IV

The source is placed in a gas tight enclosure with activated carbon as absorber and is left there for at least 3 h. The source is considered leak tight when not more than 185 Bq Radon 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 ISO 2919). This system provides a manufacturer of sealed radioactive sources with a set of tests to evaluate the safety of his products. It also assists a user of such sealed sources to select types which suit the application he has in mind. The tests to which specimen sources are subjected are listed in the following table

Classification of sealed source performance standards according to ISO 2919

Test	Class 1	2	3	4	5	6
Temperature	No test	- 40 °C (20 min) + 80 °C (1 h)	- 40 °C (20min) + 180 °C (1 h)	- 40 °C (20 min) + 400 °C (1 h) and thermal shock 400° C to 20° C	- 40 °C (20 min) + 600 °C (1 h) and thermal shock 600 °C to 20 °C	- 40 °C (20 min) + 800 °C (1 h) and thermal shock 800 °C to 20 °C
External Pressure	No test	25 kPa absolute	25 kPa absolute to 2 MPa absolute	25 kPa absolute to 7 MPa absolute	25 kPa absolute to 70 MPa absolute	25 kPa absolute to 170 MPa absolute
Impact	No test	50 g from 1 m	200 g from 1 m	2 kg from 1 m	5 kg from 1 m	20 kg from 1 m
Vibration	No test	3 x 10 min 25 Hz to 500 Hz at 5 g peak amplitude	3 x 10 min 25 Hz to 50 Hz at 5 g peak amplitude and 50 Hz to 90 Hz at 0,635 mm amplitude peak to peak and 90 Hz to 500 Hz at 10 g peak amplitude	3 x 30 min 25 Hz to 80 Hz at 1,5 mm amplitude peak to peak and 80 Hz to 2000 Hz at 20 g peak amplitude		
Puncture	No test	1 g from 1 m	10 g from 1 m	50 g from 1 m	500 g from 1 m	1 kg from 1 m

Special Applications

No test programme can cover all possible combinations of environments to which a source may be exposed.

Users should therefore consult our experts before using sources in potentially adverse environments.

IAEA Special Form

Special Form is a test specification for sealed sources given in the IAEA transport regulations.
(IAEA Safety Series No. 6 1985 revised edition)

It is used in determining the maximum acceptable activities for various types of transport containers.

Recommended Working Life

The 'recommended working life' is our recommendation of the period within which the source should be replaced. The period given has been assessed on the basis of such factors as, isotopic of nuclide, total initial activity, source construction (e.g. capsule design, source insert type, etc.), typical application environment, operational experience, test performance data, etc.

The usage of a source is, however, quite often limited by the half-life of the nuclide.
Adverse environments could affect the appearance and integrity of a source. It is the user's responsibility to regularly inspect and test the source in order to assess at what point during the "recommended working life" the source should be replaced.

01. 08. 96 12:45 PM *AMERSHAM CORP

CERTIFICATE

119706

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

Amersham
The Health Science Group

Source Type: Alpha Wide Area Reference Source

Product Code	TZRX1922
Drawing	VZ-1368
Dimensions of Active Surface	Ø 36 mm
Overall Dimensions	Ø 47 mm x 3 mm
Source No.	FS 442
Nuclide	Thorium-230

Measurement Data

Activity	354 Bq
Overall Uncertainty*	± 10 %
Alpha Surface Emission Rate	165 s^{-1} ± 5 % in 2 π steradian
Reference Date	30 September 1997
Traceability*	Defined on page 2

Leakage and Contamination Test(s)

Test Method(s)*	I
Test(s) passed on	13 October 1997

Additional Information

ISO Classification*	C 34645
Recommended Working Life*	10 years
Remark	

* 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

Quality Assurance System

The quality assurance system of Amersham Buchler GmbH & Co KG was certified by Lloyd's Register Quality Assurance (LRQA) according to ISO 9001, issue 1994.

Amersham
The Health Science Group

Overall Uncertainty

The declared uncertainty U is an expanded uncertainty $U = k * u_c$ with a coverage factor of $k = 3$. The combined uncertainty u_c is the sum of all uncertainties which can be evaluated by statistical means (uncertainty type A, u_A) and all other uncertainties (uncertainty type B, u_B) whereby $u_c^2 = u_A^2 + u_B^2$ is.
(Ref.: NIST Technical Note 1297 / WECC-Doc. 19-1990)

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This certificate documents the traceability of measurement results to national standards, standard measuring equipment and methods for the realisation of physical units of measurement according to the International System of Units (SI).

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Stringent tests 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

The source is wiped with a swab or tissue, moistened with ethanol or water; the activity removed is measured.
Limit: 185 Bq

Immersion Test II

The source is immersed in a suitable liquid at 50 °C for 4 hours and the activity removed is measured.
Limit: 185 Bq.

Bubble Test III

The source is immersed in water or a suitable liquid and the pressure in the vessel reduced to 13 kPa (100 mm Hg). No bubbles must be observed.
(This test conforms to ISO 9978 except that for some sources the 100 mm^3 free volume requirement is not met.)

Emanation Test IV

The source is placed in a gas tight enclosure with activated carbon as absorber and is left there for at least 3 h. The source is considered leak tight when not more than 185 Bq Radon 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 ISO 2919). This system provides a manufacturer of sealed radioactive sources with a set of tests to evaluate the safety of his products. It also assists a user of such sealed sources to select types which suit the application he has in mind. The tests to which specimen sources are subjected are listed in the following table.

Classification of sealed source performance standards according to ISO 2919

Test	Class 1	2	3	4	5	6
Temperature	No test	-40 °C (20 min) + 80 °C (1 h)	-40 °C (20min) + 180 °C (1 h)	-40 °C (20 min) + 400 °C (1 h) and thermal shock 400° C to 20° C	-40 °C (20 min) + 600 °C (1 h) and thermal shock 600 °C to 20 °C	-40 °C (20 min) + 800 °C (1 h) and thermal shock 800 °C to 20 °C
External Pressure	No test	25 kPa absolute	25 kPa absolute to 2 MPa absolute	25 kPa absolute to 7 MPa absolute	25 kPa absolute to 70 MPa absolute	25 kPa absolute to 170 MPa absolute
Impact	No test	50 g from 1 m	200 g from 1 m	2 kg from 1 m	5 kg from 1 m	20 kg from 1 m
Vibration	No test	3 x 10 min 25 Hz to 500 Hz at 5 g peak amplitude	3 x 10 min 25 Hz to 50 Hz at 5 g peak amplitude and 50 Hz to 90 Hz at 0,635 mm amplitude peak to peak and 90 Hz to 500 Hz at 10 g peak amplitude	3 x 30 min 25 Hz to 80 Hz at 1,5 mm amplitude peak to peak and 80 Hz to 2000 Hz at 20 g peak amplitude		
Puncture	No test	1 g from 1 m	10 g from 1 m	50 g from 1 m	300 g from 1 m	1 kg from 1 m

Special Applications

No test programme can cover all possible combinations of environments to which a source may be exposed.

Users should therefore consult our experts before using sources in potentially adverse environments.

IAEA Special Form

'Special Form' is a test specification for sealed sources given in the IAEA transport regulations.
(IAEA Safety Series No. 6, 1985 revised edition)

It is used in determining the maximum acceptable activities for various types of transport containers.

Recommended Working Life

The 'recommended working life' is our recommendation of the period within which the source should be replaced. The period given has been assessed on the basis of such factors as, toxicity of nuclide, total initial activity, source construction (e.g. capsule design, source insert type, etc.), typical application environment, operational experience, test performance data, etc.

The usage of a source is, however, quite often limited by the half-life of the nuclide.
Adverse environments could affect the appearance and integrity of a source. It is the user's responsibility to regularly inspect and test the source in order to assess at what point during the "recommended working life" the source should be replaced.

01. 08. 96 12:45 PM *AMERSHAM CORP G. S. A. P02

Appendix C
Analytical Data and Quality Control

Section 7.0
Survey Package F1000 401B1
Background Reference Area

Survey Package Cover Sheet

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 Package Preparation:

The survey package instructions are prepared and ready for implementation.

Prepared By: _____ Date: 3/11/05
John McGehee, Senior Engineer

Reviewed By: _____ Date: 3/28/05
Don McGee, Senior Engineer

Approved By: _____ Date: 3/29/05
Greg Courtney Senior Engineer, CHP

Survey Completion:

The survey package instructions were implemented and the survey measurements have been reviewed for completeness in accordance with the Sample and Analysis Plan. The data collected has been reviewed for completeness in accordance with the survey package instructions.

Reviewed By: _____ Date: 6/9/05
John McGehee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Don McGee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Greg Courtney, Senior Engineer, CHP

Approved By: _____ Date: _____
PARSONS Repersentative

Table of Contents

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		

Section	Title	Page
1.0	Survey Area History	3
2.0	Survey Unit Description 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, Drawings	
11.0	Appendix B, Photographs	
12.0	Appendix C, Survey Results	

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.

Survey Unit Description and History

Survey Package Number: F1000 401B1 **Package Type:** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

LC3 - Surface Category (P1-3) and Associated Area:

LC3_P1_3	Surface Description	Dimensions (Yes or No)	Total 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:

Inside RCA? No

NA

Coolant? No

NA

Spills? No

NA

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 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

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 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.

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.

Survey Package Procedures

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 Package Procedures:

1.	DD-CS-001	Sample Identification and Chain of Custody
2.	DD-CS-011	Operation of Ludlum Model 2350 Data Logger
3.	DD-RP-010	Portable Instrument Procedure
4.	DD-RP-011	Receipt and Handling of Radioactive Material and Equip.
5.	DD-RP-039	Quality Control of Counting Systems and Portable Counters
6.	DD-RP-049	Operation of the Ludlum Model 2929
7.	DD-WM-003	Packaging and Shipment of Limited Quantity Radioactive Material Samples

General 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. The primary Data Quality Objective (DQO) of the Background Study portion of the PA/SI survey is to perform measurements and collect samples in a non-impacted portion of the storm drain and sanitary sewer systems

   The Background Study measurements and samples will be of sufficient quantity to determine the natural background radioactivity associated with the materials of construction of the storm drain and sanitary sewer systems and Ra-226 present in the sediments and soils of the environs surrounding or associated with the impacted systems subject of the PA/SI survey.

2. 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.

3. 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.

4. 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.

5. 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

6. 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

7. 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.

8. 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.

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.

General 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		

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.

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.

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).

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 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.

See Revision 4/10/05 JM

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.

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		

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 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.

See Revision
4/10/05 JM

Survey Package Location Codes

Survey Package Number: F1000 401B1 **Package Type** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

Class Description: Non-Impacted System

Reason Description: B1 Background Survey

LC3 -Surface Category P1-3: DM1 Storm Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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	L01	A/B Smear Analysis	Alpha/Beta Counter	9	9	JW
Direct Alpha	A02	43-5A	Alpha Scintillator	27	24	JW
Direct Beta	B01	44-40B	GM Pancake	27	24	JW
Gamma 1M	G02	44-10	2"x2" NaI(Tl) Gamma Scintillator	9	8	JW
Gamma Contact	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator	27	33	JW
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	9	1	JW

Survey Package Location Codes

Survey Package Number: F1000 401B1 **Package Type** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

Class Description: Non-Impacted System

Reason Description: B1 Background Survey

LC3 -Surface Category P1-3: DM1 Storm Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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)
Direct Alpha				27	_____	_____
	A02	43-5A	Alpha Scintillator			
Direct Beta				27	_____	_____
	B01	44-40B	GM Pancake			
Gamma Contact				27	_____	_____
	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator			
G-Spec Sample				9	_____	_____
	L04	GS Material Analysis	Gamma Spectrometry			

See Revision
4/10/05 JM

Survey Package Location Codes

Survey Package Number: F1000 401B1 **Package Type** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

Class Description: Non-Impacted System

Reason Description: B1 Background Survey

LC3 -Surface Category P1-3: DS1 Sewer System Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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	L01	A/B Smear Analysis	Alpha/Beta Counter	9	9	JM
Direct Alpha	A02	43-5A	Alpha Scintillator	27	29	JM
Direct Beta	B01	44-40B	GM Pancake	27	25	JM
Gamma 1M	G02	44-10	2"x2" NaI(Tl) Gamma Scintillator	9	9	JM
Gamma Contact	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator	27	24	JM
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	9	2	JM

Survey Package Location Codes

Survey Package Number: F1000 401B1 **Package Type** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

Class Description: Non-Impacted System

Reason Description: B1 Background Survey

LC3 -Surface Category P1-3: DS1 Sewer System Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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)
Direct Alpha				27	_____	_____
	A02	43-5A	Alpha Scintillator			
Direct Beta				27	_____	_____
	B01	44-40B	GM Pancake			
Gamma Contact				27	_____	_____
	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator			
G-Spec Sample				9	_____	_____
	L04	GS Material Analysis	Gamma Spectrometry			

Sec Revision
4/10/05 JM

Survey Package Location Codes

Survey Package Number: F1000 401B1 **Package Type** System

LC1: F1000 **Survey Area Name:** Background Reference Area

LC2: 401B1 **Survey Unit Name:** Drain Section(s) Upstream from Building 104 Operations

Class Description: Non-Impacted System

Reason Description: B1 Background Survey

LC4_P4 - Count Type	LC4_P5 - Background Mode Codes
A Pre-use Background Check	A Average Background
B Pre-use Source Check	N Background Not Required
C Post-use Background Check	S Single Background
D Post-use Source Check	
F Field Count	
G Field Background	
S Field Scan	

Survey Field Notes: **Additional information regarding the performance of the survey, measurements, sample collection, etc. Use additional pages as needed for field notes.**

Survey Package Appendix A – Drawings

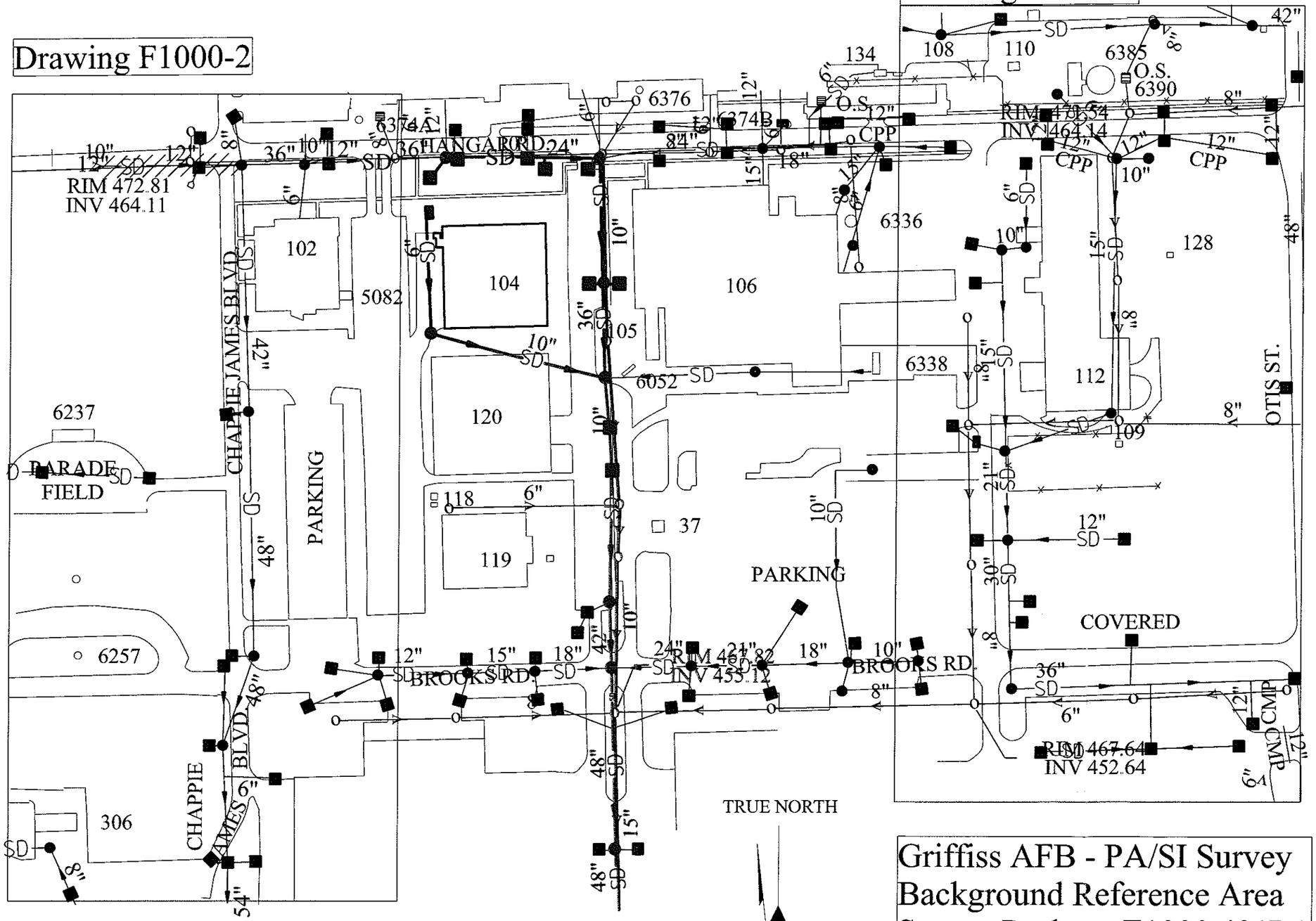
Survey Package:	F1000 401B1	**Package:** System
Survey Area Name:	Background Reference Area	
Survey Unit Name:	Drain Section(s) Upstream from Building 104 Operations	

Survey Package Appendix A - Drawings

Drawing F1000-2

Drawing F1000-3

Drawing F1000-1



Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-1

BROOKS RD.

6257

PARADE FIELD

6237

HANGAR RD.

SD

12"

8"

CHAPPIE JAMES BLVD.

BKGQ2

BKGQ1

BKGQ3

CHAPPIE JAMES BLVD.

6"

48"

48"

42"

36"

10"

12"

8"

SD

SD

SD

SD

PARKING

102

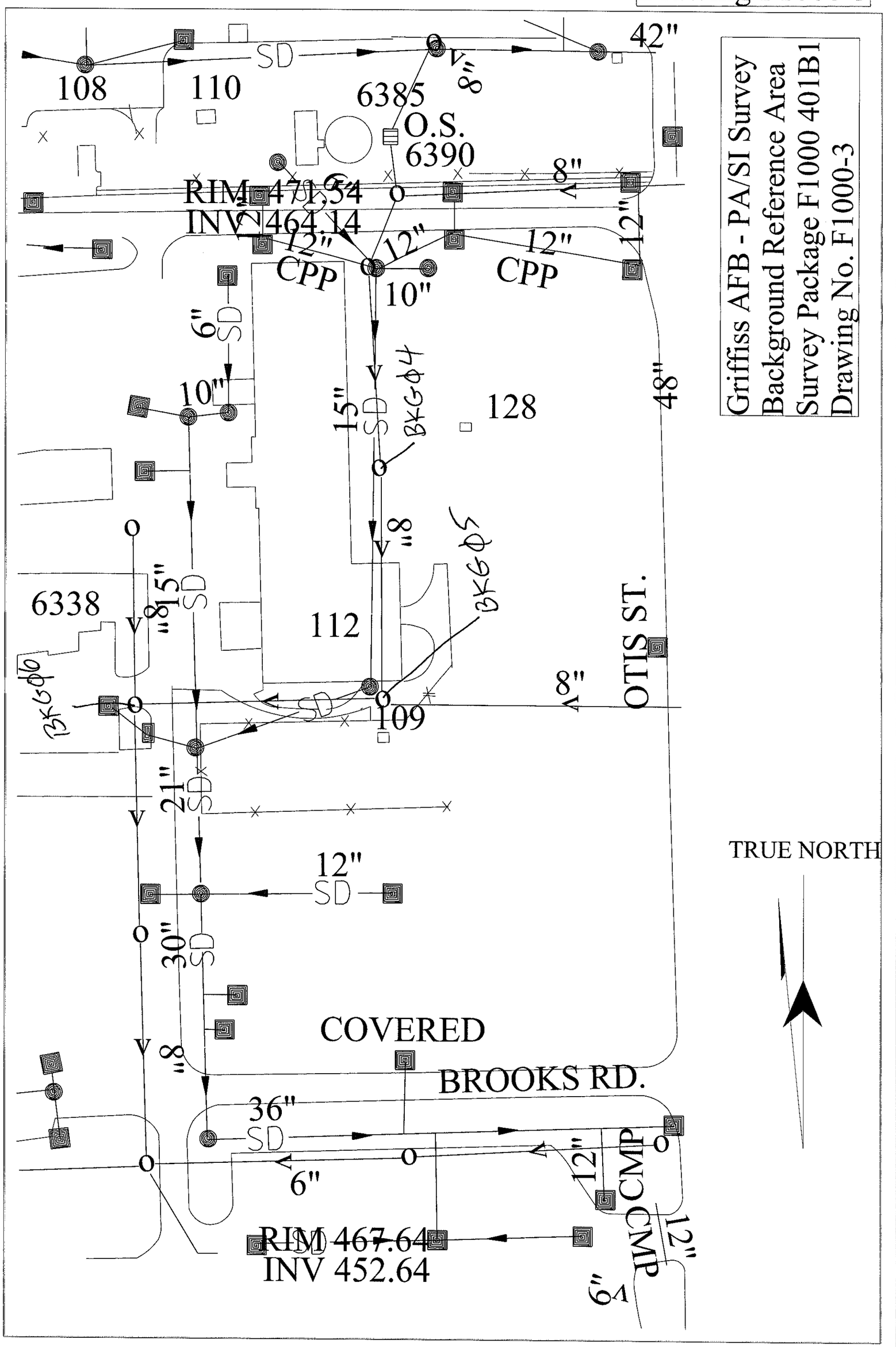
5082

TRUE NORTH

Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-2

Drawing F1000-2

Drawing F1000-3



Survey Package Appendix B – Photographs

Survey Package: F1000 401B1 **Package:** System
Survey Area Name: Background Reference Area
Survey Unit Name: Drain Section(s) Upstream from Building 104 Operations

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section
Jm 6/13/05

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

Section	Title	Total Pages
1.0	Annotated Drawings	3
2.0	Measurement Results – Direct Beta Measurements	7
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	1

Survey Package Appendix C – Survey Results

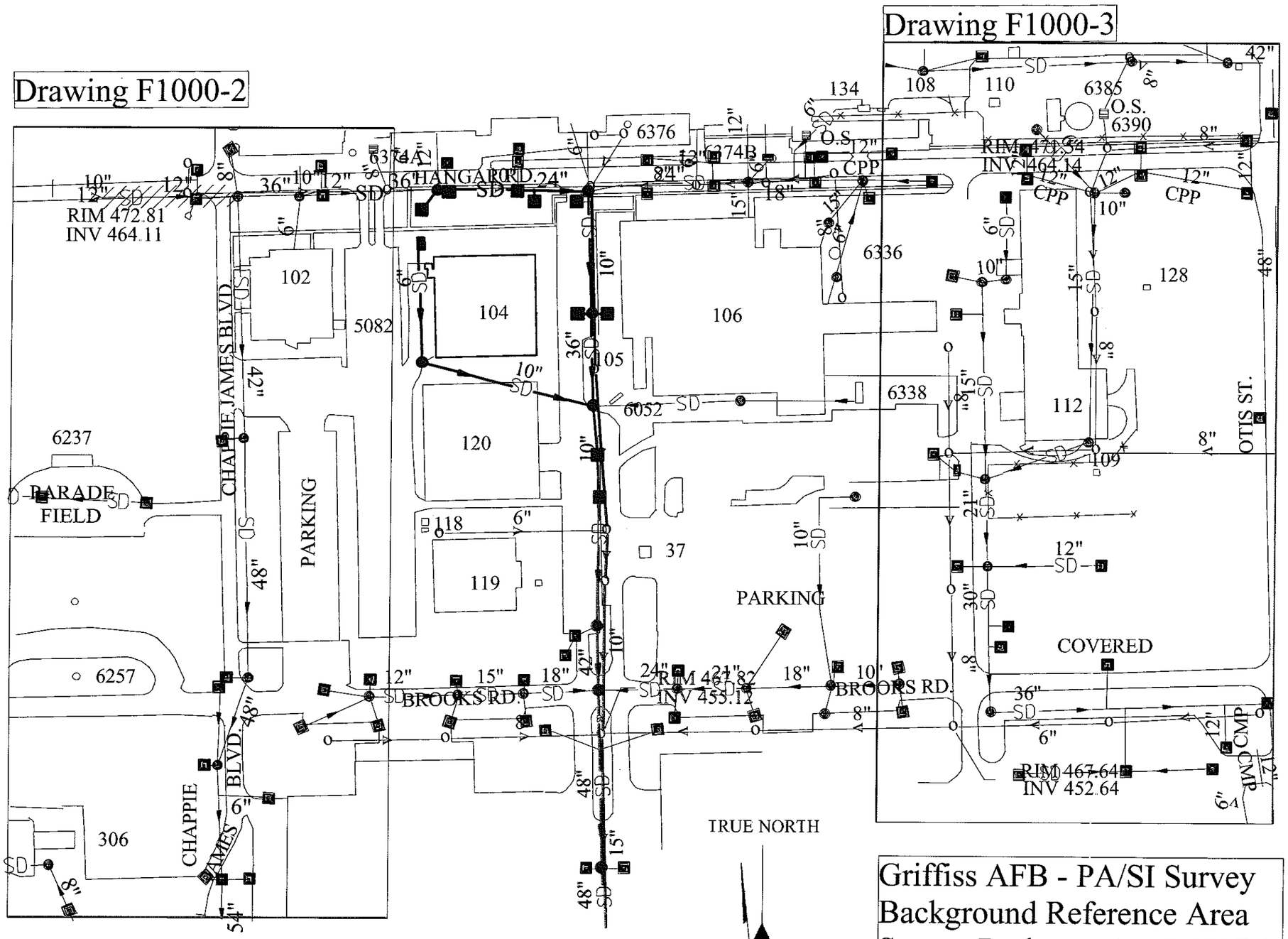
Survey Package: F1000 401B1 **Package:** System
Survey Area Name: Background Reference Area
Survey Unit Name: Drain Section(s) Upstream from Building 104 Operations

Section 1.0
Annotated Drawings
3 Pages

Drawing F1000-2

Drawing F1000-3

Drawing F1000-1



Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-1

BKG02

BKG01

BKG03

CHAPPIE JAMES BLVD.

BROOKS RD.

6257

PARADE FIELD

6237

HANGAR RD.

12"

9"

8"

36"

10"

12"

8"

6"

42"

48"

48"

6"

SD

PARKING

102

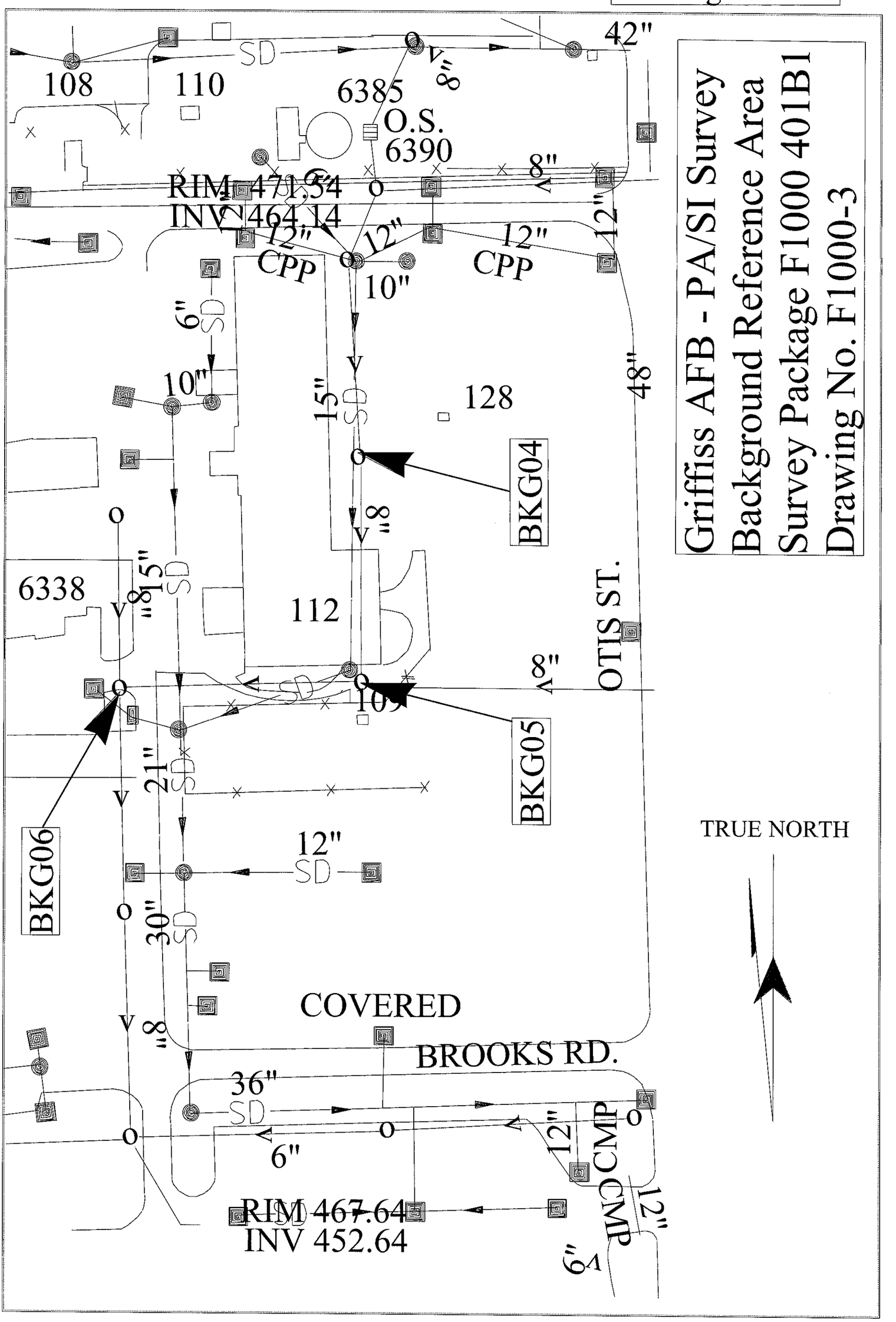
5082

TRUE NORTH

Griffiss AFB - PA/SI Survey
Background Reference Area
Survey Package F1000 401B1
Drawing No. F1000-2

Drawing F1000-2

Drawing F1000-3



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

Section 2.0
Measurement Results – Direct Beta Measurements
2 Pages

Measurement Database Download Report

Direct Beta Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL040805-001	1	JLM0591	4/8/2005	12:04 AM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	4	4/7/2005	7:32:20 AM	1.68E+02	300	1	0	2	FD145	DRT01	DM1G1	B01AA	LAB01	1		0	2463
FD145 DRT01	95349	JLM0591	PR094971	6	5	4/7/2005	7:50:10 AM	1.88E+03	60	1	0	2	FD145	DRT01	DM1G1	B01AB	LAB01	1		0	138050
FD145 DRT01	95349	JLM0591	PR094971	6	6	4/7/2005	7:58:56 AM	1.96E+03	60	1	0	2	FD145	DRT01	DM1G1	B01AB	LAB01	2		0	143988
FD145 DRT01	95349	JLM0591	PR094971	6	7	4/7/2005	8:09:20 AM	1.86E+03	60	1	0	2	FD145	DRT01	DM1G1	B01AB	LAB01	3		0	136510
FD145 DRT01	95349	JLM0591	PR094971	6	8	4/7/2005	10:14:00 AM	5.20E+01	60	1	0	2	F1000	401B1	DM1C1	B01GS	BKG01	1		0	3812
FD145 DRT01	95349	JLM0591	PR094971	6	9	4/7/2005	10:17:02 AM	6.70E+01	60	1	0	2	F1000	401B1	DM1C1	B01FS	BKG01	1		0	4912
FD145 DRT01	95349	JLM0591	PR094971	6	10	4/7/2005	10:21:10 AM	4.50E+01	60	1	0	2	F1000	401B1	DM1C1	B01GS	BKG01	2		0	3299
FD145 DRT01	95349	JLM0591	PR094971	6	11	4/7/2005	10:22:48 AM	6.20E+01	60	1	0	2	F1000	401B1	DM1C1	B01FS	BKG01	2		0	4545
FD145 DRT01	95349	JLM0591	PR094971	6	12	4/7/2005	10:25:18 AM	6.40E+01	60	1	0	2	F1000	401B1	DM1C1	B01GS	BKG01	3		0	4692
F1000 DRT01	95349	JLM0591	PR094971	6	13	4/7/2005	10:27:34 AM	6.50E+01	60	1	0	2	F1000	401B1	DM1C1	B01FS	BKG01	3		0	4765
F1000 401B1	95349	JLM0591	PR094971	6	14	4/7/2005	10:32:48 AM	7.00E+01	60	1	0	2	F1000	401B1	DM1B1	B01GS	BKG01	4		0	5132
F1000 401B1	95349	JLM0591	PR094971	6	15	4/7/2005	10:34:34 AM	8.70E+01	60	1	0	2	F1000	401B1	DM1B1	B01FS	BKG01	4		0	6378
F1000 401B1	95349	JLM0591	PR094971	6	16	4/7/2005	10:36:24 AM	5.90E+01	60	1	0	2	F1000	401B1	DM1B1	B01GS	BKG01	5		0	4326
F1000 401B1	95349	JLM0591	PR094971	6	17	4/7/2005	10:37:58 AM	6.20E+01	60	1	0	2	F1000	401B1	DM1B1	B01FS	BKG01	5		0	4545
F1000 401B1	95349	JLM0591	PR094971	6	18	4/7/2005	10:39:34 AM	5.50E+01	60	1	0	2	F1000	401B1	DM1B1	B01GS	BKG01	6		0	4032
F1000 401B1	95349	JLM0591	PR094971	6	19	4/7/2005	10:41:44 AM	7.10E+01	60	1	0	2	F1000	401B1	DM1B1	B01FS	BKG01	6		0	5205
F1000 401B1	95349	JLM0591	PR094971	6	20	4/7/2005	10:48:42 AM	6.70E+01	60	1	0	2	F1000	401B1	DM1V2	B01GS	BKG01	7		0	4912
F1000 401B1	95349	JLM0591	PR094971	6	21	4/7/2005	10:50:54 AM	7.20E+01	60	1	0	2	F1000	401B1	DM1V2	B01FS	BKG01	7		0	5279
F1000 401B1	95349	JLM0591	PR094971	6	22	4/7/2005	10:52:48 AM	6.20E+01	60	1	0	2	F1000	401B1	DM1V2	B01GS	BKG01	8		0	4545

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL040805-001	1	JLM0591	4/8/2005	12:04 AM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
F1000 401B1	95349	JLM0591	PR094971	6	23	4/7/2005	10:54:30 AM	7.50E+01	60	1	0	2	F1000	401B1	DM1V2	B01FS	BKG01	8		0	5499
F1000 401B1	95349	JLM0591	PR094971	6	24	4/7/2005	10:56:40 AM	5.40E+01	60	1	0	2	F1000	401B1	DM1V2	B01GS	BKG01	9		0	3959
F1000 401B1	95349	JLM0591	PR094971	6	25	4/7/2005	10:58:46 AM	8.70E+01	60	1	0	2	F1000	401B1	DM1V2	B01FS	BKG01	9		0	6378
F1000 401B1	95349	JLM0591	PR094971	6	26	4/7/2005	3:19:22 PM	7.00E+01	60	1	0	2	F1000	401B1	DM1C1	B01GA	BKG02	1		0	5132
F1000 401B1	95349	JLM0591	PR094971	6	27	4/7/2005	3:20:40 PM	5.10E+01	60	1	0	2	F1000	401B1	DM1C1	B01GA	BKG02	2		0	3739
F1000 401B1	95349	JLM0591	PR094971	6	28	4/7/2005	3:22:38 PM	3.30E+01	60	1	0	2	F1000	401B1	DM1C1	B01GA	BKG02	3		0	2419
F1000 401B1	95349	JLM0591	PR094971	6	29	4/7/2005	3:25:00 PM	8.60E+01	60	1	0	2	F1000	401B1	DM1C1	B01FA	BKG02	1		0	6305
F1000 401B1	95349	JLM0591	PR094971	6	30	4/7/2005	3:26:16 PM	6.50E+01	60	1	0	2	F1000	401B1	DM1C1	B01FA	BKG02	2		0	4765
F1000 401B1	95349	JLM0591	PR094971	6	31	4/7/2005	3:27:38 PM	5.70E+01	60	1	0	2	F1000	401B1	DM1C1	B01FA	BKG02	3		0	4179
F1000 401B1	95349	JLM0591	PR094971	6	32	4/7/2005	3:38:36 PM	8.70E+01	60	1	0	2	F1000	401B1	DM1V2	B01FA	BKG02	4		0	6378
F1000 401B1	95349	JLM0591	PR094971	6	33	4/7/2005	3:40:00 PM	6.60E+01	60	1	0	2	F1000	401B1	DM1V2	B01FA	BKG02	5		0	4839
F1000 401B1	95349	JLM0591	PR094971	6	34	4/7/2005	3:41:16 PM	8.40E+01	60	1	0	2	F1000	401B1	DM1V2	B01FA	BKG02	6		0	6158
F1000 401B1	95349	JLM0591	PR094971	6	35	4/7/2005	3:46:22 PM	8.60E+01	60	1	0	2	F1000	401B1	DM1B1	B01FA	BKG02	7		0	6305
F1000 401B1	95349	JLM0591	PR094971	6	36	4/7/2005	3:47:40 PM	5.90E+01	60	1	0	2	F1000	401B1	DM1B1	B01FA	BKG02	8		0	4326
F1000 401B1	95349	JLM0591	PR094971	6	37	4/7/2005	3:49:02 PM	8.20E+01	60	1	0	2	F1000	401B1	DM1B1	B01FA	BKG02	9		0	6012
F1000 401B1	95349	JLM0591	PR094971	6	38	4/7/2005	3:52:50 PM	7.10E+01	60	1	0	2	F1000	401B1	DM1B1	B01GA	BKG02	4		0	5205
F1000 401B1	95349	JLM0591	PR094971	6	39	4/7/2005	3:56:18 PM	6.90E+01	60	1	0	2	F1000	401B1	DM1B1	B01GA	BKG02	5		0	5059
F1000 401B1	95349	JLM0591	PR094971	6	40	4/7/2005	3:57:36 PM	5.50E+01	60	1	0	2	F1000	401B1	DM1B1	B01GA	BKG02	6		0	4032
FD145 DRT02	95349	JLM0591	PR094971	6	42	4/7/2005	6:01:52 PM	1.86E+03	60	1	0	2	FD145	DRT02	DM1B1	B01DA	LAB01	1		0	136290

Measurement Database Download Report

Direct Beta Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL040805-001	1	JLM0591	4/8/2005	12:04 AM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT02	95349	JLM0591	PR094971	6	43	4/7/2005	6:05:12 PM	1.96E+03	60	1	0	2	FD145	DRT02	DM1B1	B01DA	LAB01	2		0	143328
FD145 DRT02	95349	JLM0591	PR094971	6	44	4/7/2005	6:08:14 PM	1.93E+03	60	1	0	2	FD145	DRT02	DM1B1	B01DA	LAB01	3		0	141129
FD145 DRT02	95349	JLM0591	PR094971	6	45	4/7/2005	6:16:10 PM	1.69E+02	300	1	0	2	FD145	DRT02	DM1B1	B01CA	LAB01	2		0	2478

Reviewed By: John Mackey Date: 4/8/05 Approved By: [signature] Date: 4/13/05

Measurement Database Download Report

Direct Beta Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-003	1	JLM0591	4/10/2005	1:43 PM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/8/2005	8:04:30 AM	2.02E+02	300	1	0	7	FD145	DRT01	DM1B1	B01AA	LAB01	1		0	2962
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/8/2005	8:27:40 AM	2.12E+03	60	1	0	7	FD145	DRT01	DM1B1	B01BA	LAB01	1		0	155132
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/8/2005	8:29:24 AM	2.01E+03	60	1	0	7	FD145	DRT01	DM1B1	B01BA	LAB01	2		0	147507
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/8/2005	8:37:56 AM	1.97E+03	60	1	0	7	FD145	DRT01	DM1B1	B01BA	LAB01	3		0	144721
F1000 401B1	95349	JLM0591	PR094971	8	4	4/8/2005	10:10:38 AM	6.20E+01	60	1	0	7	F1000	401B1	DM1C1	B01GA	BKG03	1		0	4545
F1000 401B1	95349	JLM0591	PR094971	8	5	4/8/2005	10:12:40 AM	7.30E+01	60	1	0	7	F1000	401B1	DM1C1	B01GA	BKG03	2		0	5352
F1000 401B1	95349	JLM0591	PR094971	8	6	4/8/2005	10:13:58 AM	4.10E+01	60	1	0	7	F1000	401B1	DM1C1	B01GA	BKG03	3		0	3006
F1000 401B1	95349	JLM0591	PR094971	8	7	4/8/2005	10:18:14 AM	7.10E+01	60	1	0	7	F1000	401B1	DM1C1	B01FA	BKG03	1		0	5205
F1000 401B1	95349	JLM0591	PR094971	8	8	4/8/2005	10:19:56 AM	7.30E+01	60	1	0	7	F1000	401B1	DM1C1	B01FA	BKG03	2		0	5352
F1000 401B1	95349	JLM0591	PR094971	8	9	4/8/2005	10:21:22 AM	6.80E+01	60	1	0	7	F1000	401B1	DM1C1	B01FA	BKG03	3		0	4985
F1000 401B1	95349	JLM0591	PR094971	8	10	4/8/2005	10:24:38 AM	9.30E+01	60	1	0	7	F1000	401B1	DM1B1	B01FA	BKG03	4		0	6818
F1000 401B1	95349	JLM0591	PR094971	8	11	4/8/2005	10:25:56 AM	8.60E+01	60	1	0	7	F1000	401B1	DM1B1	B01FA	BKG03	5		0	6305
F1000 401B1	95349	JLM0591	PR094971	8	12	4/8/2005	10:27:32 AM	7.90E+01	60	1	0	7	F1000	401B1	DM1B1	B01FA	BKG03	6		0	5792
F1000 401B1	95349	JLM0591	PR094971	8	13	4/8/2005	2:53:48 PM	8.90E+01	60	1	0	7	F1000	401B1	DS1R1	B01GA	BKG04	1		0	6525
F1000 401B1	95349	JLM0591	PR094971	8	14	4/8/2005	2:55:22 PM	9.00E+01	60	1	0	7	F1000	401B1	DS1R1	B01GA	BKG04	2		0	6598
F1000 401B1	95349	JLM0591	PR094971	8	15	4/8/2005	2:56:34 PM	1.03E+02	60	1	0	7	F1000	401B1	DS1R1	B01GA	BKG04	3		0	7551
F1000 401B1	95349	JLM0591	PR094971	8	16	4/8/2005	3:00:50 PM	7.30E+01	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG04	1		0	5352
F1000 401B1	95349	JLM0591	PR094971	8	17	4/8/2005	3:02:06 PM	8.60E+01	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG04	2		0	6305
F1000 401B1	95349	JLM0591	PR094971	8	18	4/8/2005	3:03:22 PM	1.08E+02	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG04	3		0	7918

Measurement Database Download Report

Direct Beta Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-003	1	JLM0591	4/10/2005	1:43 PM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
F1000 401B1	95349	JLM0591	PR094971	8	19	4/8/2005	3:05:58 PM	1.14E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG04	4		0	8358
F1000 401B1	95349	JLM0591	PR094971	8	20	4/8/2005	3:07:34 PM	1.13E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG04	5		0	8284
F1000 401B1	95349	JLM0591	PR094971	8	21	4/8/2005	3:08:54 PM	1.14E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG04	6		0	8358
F1000 401B1	95349	JLM0591	PR094971	8	22	4/8/2005	3:10:44 PM	1.10E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG04	7		0	8065
F1000 401B1	95349	JLM0591	PR094971	8	23	4/8/2005	3:12:36 PM	1.13E+02	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG04	8		0	8284
F1000 401B1	95349	JLM0591	PR094971	8	24	4/8/2005	3:13:54 PM	1.33E+02	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG04	9		0	9751
F1000 401B1	95349	JLM0591	PR094971	8	25	4/8/2005	3:15:04 PM	1.30E+02	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG04	10		0	9531
F1000 401B1	95349	JLM0591	PR094971	8	26	4/8/2005	4:09:46 PM	8.40E+01	60	1	0	7	F1000	401B1	DS1C1	B01GA	BKG05	1		0	6158
F1000 401B1	95349	JLM0591	PR094971	8	27	4/8/2005	4:10:58 PM	8.60E+01	60	1	0	7	F1000	401B1	DS1C1	B01GA	BKG05	2		0	6305
F1000 401B1	95349	JLM0591	PR094971	8	28	4/8/2005	4:12:08 PM	9.70E+01	60	1	0	7	F1000	401B1	DS1C1	B01GA	BKG05	3		0	7111
F1000 401B1	95349	JLM0591	PR094971	8	29	4/8/2005	4:14:54 PM	9.50E+01	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG05	1		0	6965
F1000 401B1	95349	JLM0591	PR094971	8	30	4/8/2005	4:16:16 PM	1.01E+02	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG05	2		0	7405
F1000 401B1	95349	JLM0591	PR094971	8	31	4/8/2005	4:17:56 PM	1.03E+02	60	1	0	7	F1000	401B1	DS1C1	B01FA	BKG05	3		0	7551
F1000 401B1	95349	JLM0591	PR094971	8	32	4/8/2005	4:22:06 PM	1.08E+02	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG05	4		0	7918
F1000 401B1	95349	JLM0591	PR094971	8	33	4/8/2005	4:23:18 PM	9.10E+01	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG05	5		0	6672
F1000 401B1	95349	JLM0591	PR094971	8	34	4/8/2005	4:24:30 PM	1.09E+02	60	1	0	7	F1000	401B1	DS1B1	B01FA	BKG05	6		0	7991
F1000 401B1	95349	JLM0591	PR094971	8	35	4/8/2005	4:28:52 PM	1.24E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG05	7		0	9091
F1000 401B1	95349	JLM0591	PR094971	8	36	4/8/2005	4:30:16 PM	1.34E+02	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG05	8		0	9824
F1000 401B1	95349	JLM0591	PR094971	8	37	4/8/2005	4:32:02 PM	9.50E+01	60	1	0	7	F1000	401B1	DS1V2	B01FA	BKG05	9		0	6965

Measurement Database Download Report

Direct Beta Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-003	1	JLM0591	4/10/2005	1:43 PM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT02	95349	JLM0591	PR094971	6	38	4/8/2005	5:48:56 PM	1.95E+02	300	1	0	7	FD145	DRT02	DS1V2	B01CA	LAB01	1		0	2859
FD145 DRT02	95349	JLM0591	PR094971	7	39	4/8/2005	5:55:54 PM	2.02E+03	60	1	0	7	FD145	DRT02	DS1V2	B01DA	LAB01	1		0	148314
FD145 DRT02	95349	JLM0591	PR094971	7	40	4/8/2005	5:58:10 PM	1.98E+03	60	1	0	7	FD145	DRT02	DS1V2	B01DA	LAB01	2		0	145161
FD145 DRT02	95349	JLM0591	PR094971	7	41	4/8/2005	6:00:18 PM	2.02E+03	60	1	0	7	FD145	DRT02	DS1V2	B01DA	LAB01	3		0	147947

Reviewed By: John M. Holler Date: 4/10/05 Approved By: [signature] Date: 4/13/05

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Direct Beta Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041305-009	1	JLM0591	4/13/2005	10:30 AM	F1000 401B1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/12/2005	8:38:50 AM	1.81E+02	300	1	0	19	FD145	DRT01	DM1C1	B01AA	LAB01	1		0	2654
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/12/2005	8:48:46 AM	1.91E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	1		0	139663
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/12/2005	8:50:06 AM	1.93E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	2		0	141129
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/12/2005	8:51:22 AM	1.97E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	3		0	144208
F1000 401B1	95349	JLM0591	PR094971	8	26	4/12/2005	4:58:20 PM	7.70E+01	60	1	0	19	F1000	401B1	DS1B1	B01GA	BKG06	1		0	5645
F1000 401B1	95349	JLM0591	PR094971	8	27	4/12/2005	5:01:36 PM	7.90E+01	60	1	0	19	F1000	401B1	DS1B1	B01GA	BKG06	2		0	5792
F1000 401B1	95349	JLM0591	PR094971	8	28	4/12/2005	5:02:44 PM	6.80E+01	60	1	0	19	F1000	401B1	DS1B1	B01GA	BKG06	3		0	4985
F1000 401B1	95349	JLM0591	PR094971	8	29	4/12/2005	5:04:28 PM	8.10E+01	60	1	0	19	F1000	401B1	DS1B1	B01FA	BKG06	1		0	5938
F1000 401B1	95349	JLM0591	PR094971	8	30	4/12/2005	5:06:04 PM	8.00E+01	60	1	0	19	F1000	401B1	DS1B1	B01FA	BKG06	2		0	5865
F1000 401B1	95349	JLM0591	PR094971	8	31	4/12/2005	5:07:22 PM	8.30E+01	60	1	0	19	F1000	401B1	DS1B1	B01FA	BKG06	3		0	6085
F1000 401B1	95349	JLM0591	PR094971	8	32	4/12/2005	5:09:36 PM	7.70E+01	60	1	0	19	F1000	401B1	DS1C1	B01FA	BKG06	4		0	5645
F1000 401B1	95349	JLM0591	PR094971	8	33	4/12/2005	5:10:54 PM	6.50E+01	60	1	0	19	F1000	401B1	DS1C1	B01FA	BKG06	5		0	4765
F1000 401B1	95349	JLM0591	PR094971	8	34	4/12/2005	5:12:12 PM	6.60E+01	60	1	0	19	F1000	401B1	DS1C1	B01FA	BKG06	6		0	4839
FD145 DRT02	95349	JLM0591	PR094971	6	35	4/12/2005	5:57:20 PM	1.77E+02	300	1	0	19	FD145	DRT02	DS1C1	B01CA	LAB01	1		0	2595
FD145 DRT02	95349	JLM0591	PR094971	7	36	4/12/2005	6:02:24 PM	2.02E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	1		0	148240
FD145 DRT02	95349	JLM0591	PR094971	7	37	4/12/2005	6:03:50 PM	1.98E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	2		0	145088
FD145 DRT02	95349	JLM0591	PR094971	7	38	4/12/2005	6:05:50 PM	1.97E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	3		0	144282

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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

Section 3.0
Measurement Results – Direct Alpha Measurements
1 Pages

Measurement Database Download Report

Direct Alpha Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL040705-002	1	JLM0591	4/7/2005	11:54 PM	F1000 401B1	43-5	PR127389	0.052	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR127389	2	6	4/7/2005	7:48:36 AM	2.00E+00	300	1	0	4	FS442	DRT01	DM1G1	A02AA	LAB01	1		0	10
FS442 DRT01	120636	JLM0591	PR127389	2	7	4/7/2005	7:56:18 AM	1.94E+03	60	1	0	4	FS442	DRT01	DM1G1	A02AB	LAB01	1		0	49013
FS442 DRT01	120636	JLM0591	PR127389	2	8	4/7/2005	8:03:16 AM	1.86E+03	60	1	0	4	FS442	DRT01	DM1G1	A02AB	LAB01	2		0	47115
FS442 DRT01	120636	JLM0591	PR127389	2	9	4/7/2005	8:11:12 AM	8.35E+02	60	1	0	4	FS442	DRT01	DM1G1	A02AB	LAB01	3		0	21129
F1000 401B1	120636	JLM0591	PR127389	2	10	4/7/2005	11:11:52 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02GA	BKG01	1		0	0
F1000 401B1	120636	JLM0591	PR127389	2	11	4/7/2005	11:13:08 AM	1.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02GA	BKG01	2		0	25
F1000 401B1	120636	JLM0591	PR127389	2	12	4/7/2005	11:14:34 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02GA	BKG01	3		0	0
F1000 401B1	120636	JLM0591	PR127389	2	13	4/7/2005	11:16:54 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG01	1		0	0
F1000 401B1	120636	JLM0591	PR127389	2	14	4/7/2005	11:18:28 AM	1.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG01	2		0	25
F1000 401B1	120636	JLM0591	PR127389	2	15	4/7/2005	11:20:04 AM	1.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG01	3		0	25
F1000 401B1	120636	JLM0591	PR127389	2	16	4/7/2005	11:23:06 AM	1.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG01	4		0	25
F1000 401B1	120636	JLM0591	PR127389	2	17	4/7/2005	11:24:30 AM	1.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG01	5		0	25
F1000 401B1	120636	JLM0591	PR127389	2	18	4/7/2005	11:25:44 AM	3.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG01	6		0	76
F1000 401B1	120636	JLM0591	PR127389	2	19	4/7/2005	11:31:24 AM	2.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG01	7		0	51
F1000 401B1	120636	JLM0591	PR127389	2	20	4/7/2005	11:32:58 AM	2.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG01	8		0	51
F1000 401B1	120636	JLM0591	PR127389	2	21	4/7/2005	11:34:30 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG01	9		0	0
F1000 401B1	120636	JLM0591	PR127389	2	22	4/7/2005	11:37:02 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG01	4		0	0
F1000 401B1	120636	JLM0591	PR127389	2	23	4/7/2005	11:38:20 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG01	5		0	0
F1000 401B1	120636	JLM0591	PR127389	2	24	4/7/2005	11:39:40 AM	0.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG01	6		0	0

Measurement Database Download Report

Direct Alpha Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL040705-002	1	JLM0591	4/7/2005	11:54 PM	F1000 401B1	43-5	PR127389	0.052	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
F1000 401B1	120636	JLM0591	PR127389	2	25	4/7/2005	3:55:50 PM	1.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG02	1		0	25
F1000 401B1	120636	JLM0591	PR127389	2	26	4/7/2005	3:57:24 PM	3.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG02	2		0	76
F1000 401B1	120636	JLM0591	PR127389	2	27	4/7/2005	3:58:38 PM	1.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02GA	BKG02	3		0	25
F1000 401B1	120636	JLM0591	PR127389	2	28	4/7/2005	4:02:04 PM	4.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG02	1		0	101
F1000 401B1	120636	JLM0591	PR127389	2	29	4/7/2005	4:03:34 PM	4.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG02	2		0	101
F1000 401B1	120636	JLM0591	PR127389	2	30	4/7/2005	4:04:58 PM	5.00E+00	60	1	0	4	F1000	401B1	DM1C1	A02FA	BKG02	3		0	127
F1000 401B1	120636	JLM0591	PR127389	2	31	4/7/2005	4:07:48 PM	2.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG02	4		0	51
F1000 401B1	120636	JLM0591	PR127389	2	32	4/7/2005	4:09:10 PM	5.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG02	5		0	127
F1000 401B1	120636	JLM0591	PR127389	2	33	4/7/2005	4:10:28 PM	2.00E+00	60	1	0	4	F1000	401B1	DM1V2	A02FA	BKG02	6		0	51
F1000 401B1	120636	JLM0591	PR127389	2	34	4/7/2005	4:14:48 PM	3.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG02	7		0	76
F1000 401B1	120636	JLM0591	PR127389	2	35	4/7/2005	4:16:00 PM	0.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG02	8		0	0
F1000 401B1	120636	JLM0591	PR127389	2	36	4/7/2005	4:17:20 PM	1.00E+00	60	1	0	4	F1000	401B1	DM1B1	A02FA	BKG02	9		0	25
FS442 DRT02	120636	JLM0591	PR127389	2	37	4/7/2005	5:24:56 PM	2.00E+00	300	1	0	4	FS442	DRT02	DM1B1	A02CA	LAB01	1		0	10
FS442 DRT02	120636	JLM0591	PR127389	2	39	4/7/2005	5:47:10 PM	1.45E+03	60	1	0	4	FS442	DRT02	DM1B1	A02DA	LAB01	1		0	36614
FS442 DRT02	120636	JLM0591	PR127389	2	40	4/7/2005	5:50:58 PM	1.34E+03	60	1	0	4	FS442	DRT02	DM1B1	A02DA	LAB01	2		0	33856
FS442 DRT02	120636	JLM0591	PR127389	2	41	4/7/2005	5:53:32 PM	5.06E+02	60	1	0	4	FS442	DRT02	DM1B1	A02DA	LAB01	3		0	12804

Reviewed By: _____ Date: 4/8/05 Approved By: _____ Date: 4/13/05

Measurement Database Download Report

Direct Alpha Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-002	1	JLM0591	4/10/2005	1:27 PM	F1000 401B1	43-5	PR127389	0.052	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR127389	6	0	4/8/2005	8:28:38 AM	5.00E+00	300	1	0	6	FS442	DRT01	DM1B1	A02AA	LAB01	1		0	25
FS442 DRT01	120636	JLM0591	PR127389	7	1	4/8/2005	8:35:10 AM	1.54E+03	60	1	0	6	FS442	DRT01	DM1B1	A02AB	LAB01	1		0	38917
FS442 DRT01	120636	JLM0591	PR127389	7	2	4/8/2005	8:39:20 AM	1.26E+03	60	1	0	6	FS442	DRT01	DM1B1	A02AB	LAB01	2		0	31908
FS442 DRT01	120636	JLM0591	PR127389	7	3	4/8/2005	8:41:54 AM	4.12E+02	60	1	0	6	FS442	DRT01	DM1B1	A02AB	LAB01	3		0	10425
F1000 401B1	120636	JLM0591	PR127389	8	4	4/8/2005	10:34:12 AM	0.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02GA	BKG03	1		0	0
F1000 401B1	120636	JLM0591	PR127389	8	5	4/8/2005	10:35:36 AM	1.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02GA	BKG03	2		0	25
F1000 401B1	120636	JLM0591	PR127389	8	6	4/8/2005	10:36:48 AM	1.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02GA	BKG03	3		0	25
F1000 401B1	120636	JLM0591	PR127389	8	7	4/8/2005	10:42:20 AM	0.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02FA	BKG03	1		0	0
F1000 401B1	120636	JLM0591	PR127389	8	8	4/8/2005	10:43:42 AM	1.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02FA	BKG03	2		0	25
F1000 401B1	120636	JLM0591	PR127389	8	9	4/8/2005	10:46:24 AM	0.00E+00	60	1	0	6	F1000	401B1	DM1C1	A02FA	BKG03	3		0	0
F1000 401B1	120636	JLM0591	PR127389	8	10	4/8/2005	10:50:18 AM	0.00E+00	60	1	0	6	F1000	401B1	DM1B1	A02FA	BKG03	4		0	0
F1000 401B1	120636	JLM0591	PR127389	8	11	4/8/2005	10:52:10 AM	1.00E+00	60	1	0	6	F1000	401B1	DM1B1	A02FA	BKG03	5		0	25
F1000 401B1	120636	JLM0591	PR127389	8	12	4/8/2005	10:53:26 AM	1.00E+00	60	1	0	6	F1000	401B1	DM1B1	A02FA	BKG03	6		0	25
F1000 401B1	120636	JLM0591	PR127389	8	13	4/8/2005	3:14:32 PM	5.00E+00	60	1	0	6	F1000	401B1	DS1B1	A02GA	BKG04	1		0	127
F1000 401B1	120636	JLM0591	PR127389	8	14	4/8/2005	3:15:56 PM	1.10E+01	60	1	0	6	F1000	401B1	DS1B1	A02GA	BKG04	2		0	278
F1000 401B1	120636	JLM0591	PR127389	8	15	4/8/2005	3:17:08 PM	1.40E+01	60	1	0	6	F1000	401B1	DS1B1	A02GA	BKG04	3		0	354
F1000 401B1	120636	JLM0591	PR127389	8	16	4/8/2005	3:26:14 PM	2.90E+01	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG04	2		0	734
F1000 401B1	120636	JLM0591	PR127389	8	17	4/8/2005	3:27:30 PM	3.30E+01	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG04	3		0	835
F1000 401B1	120636	JLM0591	PR127389	8	18	4/8/2005	3:29:50 PM	2.70E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG04	4		0	683

Measurement Database Download Report

Direct Alpha Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-002	1	JLM0591	4/10/2005	1:27 PM	F1000 401B1	43-5	PR127389	0.052	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
F1000 401B1	120636	JLM0591	PR127389	8	19	4/8/2005	3:31:14 PM	3.50E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG04	5		0	886
F1000 401B1	120636	JLM0591	PR127389	8	20	4/8/2005	3:32:40 PM	3.10E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG04	6		0	784
F1000 401B1	120636	JLM0591	PR127389	8	21	4/8/2005	3:38:30 PM	2.90E+01	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG04	7		0	734
F1000 401B1	120636	JLM0591	PR127389	8	22	4/8/2005	3:39:50 PM	3.30E+01	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG04	8		0	835
F1000 401B1	120636	JLM0591	PR127389	8	23	4/8/2005	3:41:24 PM	3.20E+01	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG04	9		0	810
F1000 401B1	120636	JLM0591	PR127389	8	24	4/8/2005	4:34:52 PM	2.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02GA	BKG05	1		0	51
F1000 401B1	120636	JLM0591	PR127389	8	25	4/8/2005	4:36:20 PM	6.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02GA	BKG05	2		0	152
F1000 401B1	120636	JLM0591	PR127389	8	26	4/8/2005	4:37:38 PM	4.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02GA	BKG05	3		0	101
F1000 401B1	120636	JLM0591	PR127389	8	27	4/8/2005	4:39:54 PM	5.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	1		0	127
F1000 401B1	120636	JLM0591	PR127389	8	28	4/8/2005	4:41:24 PM	8.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	2		0	202
F1000 401B1	120636	JLM0591	PR127389	8	29	4/8/2005	4:42:40 PM	6.00E+00	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	3		0	152
F1000 401B1	120636	JLM0591	PR127389	8	30	4/8/2005	4:44:34 PM	3.00E+00	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	4		0	76
F1000 401B1	120636	JLM0591	PR127389	8	31	4/8/2005	4:45:50 PM	6.00E+00	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	5		0	152
F1000 401B1	120636	JLM0591	PR127389	8	32	4/8/2005	4:47:00 PM	5.00E+00	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	6		0	127
F1000 401B1	120636	JLM0591	PR127389	8	33	4/8/2005	4:50:30 PM	1.90E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	7		0	481
F1000 401B1	120636	JLM0591	PR127389	8	34	4/8/2005	4:51:52 PM	1.60E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	8		0	405
F1000 401B1	120636	JLM0591	PR127389	8	35	4/8/2005	4:53:12 PM	2.10E+01	60	1	0	6	F1000	401B1	DS1V2	A02FA	BKG05	9		0	531
F1000 401B1	120636	JLM0591	PR127389	8	36	4/8/2005	4:57:12 PM	1.90E+01	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	10		0	481
F1000 401B1	120636	JLM0591	PR127389	8	37	4/8/2005	4:58:48 PM	1.70E+01	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	11		0	430

Measurement Database Download Report

Direct Alpha Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-002	1	JLM0591	4/10/2005	1:27 PM	F1000 401B1	43-5	PR127389	0.052	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
F1000 401B1	120636	JLM0591	PR127389	8	38	4/8/2005	5:00:02 PM	2.60E+01	60	1	0	6	F1000	401B1	DS1C1	A02FA	BKG05	12		0	658
F1000 401B1	120636	JLM0591	PR127389	8	39	4/8/2005	5:03:48 PM	1.20E+01	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG05	13		0	304
F1000 401B1	120636	JLM0591	PR127389	8	40	4/8/2005	5:05:08 PM	9.00E+00	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG05	14		0	228
F1000 401B1	120636	JLM0591	PR127389	8	41	4/8/2005	5:06:26 PM	5.00E+00	60	1	0	6	F1000	401B1	DS1B1	A02FA	BKG05	15		0	127
FS442 DRT02	120636	JLM0591	PR127389	6	42	4/8/2005	5:48:42 PM	1.10E+01	300	1	0	6	FS442	DRT02	DS1B1	A02CA	LAB01	1		0	56
FS442 DRT02	120636	JLM0591	PR127389	7	43	4/8/2005	5:55:10 PM	1.35E+03	60	1	0	6	FS442	DRT02	DS1B1	A02DA	LAB01	1		0	34033
FS442 DRT02	120636	JLM0591	PR127389	7	44	4/8/2005	5:58:48 PM	1.20E+03	60	1	0	6	FS442	DRT02	DS1B1	A02DA	LAB01	2		0	30390
FS442 DRT02	120636	JLM0591	PR127389	7	45	4/8/2005	6:01:02 PM	2.67E+02	60	1	0	6	FS442	DRT02	DS1B1	A02DA	LAB01	3		0	6756

Reviewed By: J Dunn McBride Date: 4/10/05 Approved By: RJS Date: 4/13/05

Measurement Database Download Report

Direct Alpha Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041305-008	1	JLM0591	4/13/2005	10:11 AM	F1000 401B1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Loggmg Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/12/2005	2:44:58 AM	4.00E+00	300	1	4	18	FS442	DRT01	DM1C1	A02AA	LAB01	1		0	16
FS442 DRT01	120636	JLM0591	PR172236	7	1	4/12/2005	2:52:32 AM	1.40E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	1		0	28434
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/12/2005	2:56:02 AM	1.41E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	2		0	28678
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/12/2005	2:57:26 AM	1.24E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	3		0	25106
F1000 401B1	120636	JLM0591	PR172236	8	26	4/12/2005	3:45:28 PM	1.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02GA	BKG06	1		0	20
F1000 401B1	120636	JLM0591	PR172236	8	27	4/12/2005	3:46:40 PM	0.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02GA	BKG06	2		0	0
F1000 401B1	120636	JLM0591	PR172236	8	28	4/12/2005	3:47:50 PM	0.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02GA	BKG06	3		0	0
F1000 401B1	120636	JLM0591	PR172236	8	29	4/12/2005	3:49:28 PM	4.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02FA	BKG06	1		0	81
F1000 401B1	120636	JLM0591	PR172236	8	30	4/12/2005	3:50:46 PM	5.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02FA	BKG06	2		0	101
F1000 401B1	120636	JLM0591	PR172236	8	31	4/12/2005	3:52:02 PM	3.00E+00	60	1	0	18	F1000	401B1	DS1B1	A02FA	BKG06	3		0	61
F1000 401B1	120636	JLM0591	PR172236	8	32	4/12/2005	4:00:46 PM	9.00E+00	60	1	0	18	F1000	401B1	DS1C1	A02FA	BKG06	4		0	183
F1000 401B1	120636	JLM0591	PR172236	8	33	4/12/2005	4:02:04 PM	1.50E+01	60	1	0	18	F1000	401B1	DS1C1	A02FA	BKG06	5		0	304
F1000 401B1	120636	JLM0591	PR172236	8	34	4/12/2005	4:03:32 PM	2.00E+00	60	1	0	18	F1000	401B1	DS1C1	A02FA	BKG06	6		0	41
FS442 DRT02	120636	JLM0591	PR172236	6	35	4/12/2005	4:43:34 PM	2.00E+01	300	1	4	18	FS442	DRT02	DS1C1	A02CA	LAB01	1		0	81
FS442 DRT02	120636	JLM0591	PR172236	7	36	4/12/2005	4:49:00 PM	1.39E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	1		0	28110
FS442 DRT02	120636	JLM0591	PR172236	7	37	4/12/2005	4:50:52 PM	1.45E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	2		0	29388
FS442 DRT02	120636	JLM0591	PR172236	7	38	4/12/2005	4:52:26 PM	1.21E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	3		0	24639

Reviewed By: John McGuire Date: 4/13/05 Approved By: RJS Date: 4/13/05

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

Section 4.0
Measurement Results – Exposure Rate Measurements
6 Pages

Measurement Database Download Report
Exposure Rate Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL040705-001	1	JLM0591	4/7/2005	11:38 PM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	5	4/7/2005	7:25:02 AM	2.68E+04	300	1	0	3	GTS10	DRT01	DM1G1	G01AA	LAB01	1		0	5.25E+00
GTS10 DRT01	95358	JLM0591	PR192598	6	6	4/7/2005	7:46:48 AM	8.68E+05	60	1	0	3	GTS10	DRT01	DM1G1	G01AB	LAB01	1		0	8.49E+02
GTS10 DRT01	95358	JLM0591	PR192598	6	7	4/7/2005	7:50:38 AM	4.10E+04	60	1	0	3	GTS10	DRT01	DM1G1	G01AB	LAB01	2		0	4.01E+01
GTS10 DRT01	95358	JLM0591	PR192598	6	8	4/7/2005	7:56:54 AM	1.12E+04	60	1	0	3	GTS10	DRT01	DM1G1	G01AB	LAB01	3		0	1.09E+01
F1000 401B1	95358	JLM0591	PR192598	6	9	4/7/2005	11:46:30 AM	1.79E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG01	1		0	1.75E+01
F1000 401B1	95358	JLM0591	PR192598	6	10	4/7/2005	11:47:48 AM	1.52E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG01	2		0	1.48E+01
F1000 401B1	95358	JLM0591	PR192598	6	11	4/7/2005	11:49:06 AM	1.13E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG01	3		0	1.10E+01
F1000 401B1	95358	JLM0591	PR192598	6	12	4/7/2005	11:51:52 AM	1.08E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG01	1		0	1.05E+01
F1000 401B1	95358	JLM0591	PR192598	6	13	4/7/2005	11:53:12 AM	1.08E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG01	2		0	1.05E+01
F1000 401B1	95358	JLM0591	PR192598	6	14	4/7/2005	11:54:30 AM	1.00E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG01	3		0	9.78E+00
F1000 401B1	95358	JLM0591	PR192598	6	15	4/7/2005	11:58:22 AM	1.41E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG01	4		0	1.38E+01
F1000 401B1	95358	JLM0591	PR192598	6	16	4/7/2005	11:59:46 AM	1.43E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG01	5		0	1.40E+01
F1000 401B1	95358	JLM0591	PR192598	6	17	4/7/2005	12:01:00 PM	1.43E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG01	6		0	1.40E+01
F1000 401B1	95358	JLM0591	PR192598	6	18	4/7/2005	12:03:30 PM	1.25E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG01	7		0	1.22E+01
F1000 401B1	95358	JLM0591	PR192598	6	19	4/7/2005	12:04:54 PM	1.68E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG01	8		0	1.64E+01
F1000 401B1	95358	JLM0591	PR192598	6	20	4/7/2005	12:06:26 PM	1.80E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG01	9		0	1.76E+01
F1000 401B1	95358	JLM0591	PR192598	6	21	4/7/2005	12:08:42 PM	1.75E+04	60	1	0	3	F1000	401B1	DM1B1	G01GA	BKG01	4		0	1.71E+01
F1000 401B1	95358	JLM0591	PR192598	6	22	4/7/2005	12:09:54 PM	1.46E+04	60	1	0	3	F1000	401B1	DM1B1	G01GA	BKG01	5		0	1.43E+01
F1000 401B1	95358	JLM0591	PR192598	6	23	4/7/2005	12:11:06 PM	1.10E+04	60	1	0	3	F1000	401B1	DM1B1	G01GA	BKG01	6		0	1.08E+01
F1000 401B1	95358	JLM0591	PR192598	6	24	4/7/2005	12:16:48 PM	8.06E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG01	10		0	7.88E+00
F1000 401B1	95358	JLM0591	PR192598	6	25	4/7/2005	12:18:24 PM	8.02E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG01	11		0	7.84E+00
F1000 401B1	95358	JLM0591	PR192598	6	26	4/7/2005	12:19:42 PM	8.25E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG01	12		0	8.06E+00
F1000 401B1	95358	JLM0591	PR192598	6	27	4/7/2005	2:35:52 PM	1.59E+04	60	1	0	3	F1000	401B1	DM1R1	G01GA	BKG02	1		0	1.56E+01
F1000 401B1	95358	JLM0591	PR192598	6	28	4/7/2005	2:37:10 PM	1.15E+04	60	1	0	3	F1000	401B1	DM1R1	G01GA	BKG02	2		0	1.13E+01
F1000 401B1	95358	JLM0591	PR192598	6	29	4/7/2005	2:38:30 PM	1.13E+04	60	1	0	3	F1000	401B1	DM1R1	G01GA	BKG02	3		0	1.10E+01
F1000 401B1	95358	JLM0591	PR192598	6	30	4/7/2005	2:42:34 PM	8.14E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG02	1		0	7.96E+00

Measurement Database Download Report
Exposure Rate Measurements

4/8/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL040705-001	1	JLM0591	4/7/2005	11:38 PM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
F1000 401B1	95358	JLM0591	PR192598	6	31	4/7/2005	2:44:00 PM	7.41E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG02	2		0	7.25E+00
F1000 401B1	95358	JLM0591	PR192598	6	32	4/7/2005	2:45:16 PM	8.61E+03	60	1	0	3	F1000	401B1	DM1R1	G01FA	BKG02	3		0	8.43E+00
F1000 401B1	95358	JLM0591	PR192598	6	33	4/7/2005	2:50:26 PM	1.66E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG02	4		0	1.63E+01
F1000 401B1	95358	JLM0591	PR192598	6	34	4/7/2005	2:51:48 PM	1.56E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG02	5		0	1.52E+01
F1000 401B1	95358	JLM0591	PR192598	6	35	4/7/2005	2:53:28 PM	1.65E+04	60	1	0	3	F1000	401B1	DM1B1	G01FA	BKG02	6		0	1.61E+01
F1000 401B1	95358	JLM0591	PR192598	6	36	4/7/2005	2:58:18 PM	1.42E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG02	7		0	1.39E+01
F1000 401B1	95358	JLM0591	PR192598	6	37	4/7/2005	2:59:40 PM	1.42E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG02	8		0	1.38E+01
F1000 401B1	95358	JLM0591	PR192598	6	38	4/7/2005	3:01:04 PM	1.41E+04	60	1	0	3	F1000	401B1	DM1V2	G01FA	BKG02	9		0	1.37E+01
F1000 401B1	95358	JLM0591	PR192598	6	39	4/7/2005	3:04:10 PM	1.09E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG02	10		0	1.07E+01
F1000 401B1	95358	JLM0591	PR192598	6	40	4/7/2005	3:05:54 PM	1.09E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG02	11		0	1.07E+01
F1000 401B1	95358	JLM0591	PR192598	6	41	4/7/2005	3:07:14 PM	1.13E+04	60	1	0	3	F1000	401B1	DM1C1	G01FA	BKG02	12		0	1.10E+01
F1000 401B1	95358	JLM0591	PR192598	6	42	4/7/2005	3:10:02 PM	1.10E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG02	4		0	1.07E+01
F1000 401B1	95358	JLM0591	PR192598	6	43	4/7/2005	3:11:22 PM	1.32E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG02	5		0	1.29E+01
F1000 401B1	95358	JLM0591	PR192598	6	44	4/7/2005	3:12:50 PM	1.49E+04	60	1	0	3	F1000	401B1	DM1C1	G01GA	BKG02	6		0	1.45E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	45	4/7/2005	5:20:16 PM	2.69E+04	300	1	0	3	GTS10	DRT02	DM1C1	G01CA	LAB01	1		0	5.26E+00
GTS10 DRT02	95358	JLM0591	PR192598	6	47	4/7/2005	5:44:16 PM	8.74E+05	60	1	2	3	GTS10	DRT02	DM1C1	G01DA	LAB01	1		0	8.55E+02
GTS10 DRT02	95358	JLM0591	PR192598	6	48	4/7/2005	5:48:42 PM	4.08E+04	60	1	0	3	GTS10	DRT02	DM1C1	G01DA	LAB01	2		0	3.99E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	49	4/7/2005	5:51:30 PM	1.12E+04	60	1	0	3	GTS10	DRT02	DM1C1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: _____ Date: 4/8/05

Approved By: _____ Date: 4/13/05

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-001	1	JLM0591	4/10/2005	12:51 PM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/8/2005	8:03:10 AM	2.67E+04	300	1	0	5	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.22E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/8/2005	8:12:06 AM	1.18E+06	60	1	2	5	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	1.15E+03
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/8/2005	8:19:00 AM	4.14E+04	60	1	0	5	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.05E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/8/2005	8:25:20 AM	1.09E+04	60	1	0	5	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.06E+01
F1000 401B1	95358	JLM0591	PR192598	8	4	4/8/2005	11:06:26 AM	1.84E+04	60	1	0	5	F1000	401B1	DM1R1	G01GA	BKG03	1		0	1.80E+01
F1000 401B1	95358	JLM0591	PR192598	8	5	4/8/2005	11:07:40 AM	1.62E+04	60	1	0	5	F1000	401B1	DM1R1	G01GA	BKG03	2		0	1.59E+01
F1000 401B1	95358	JLM0591	PR192598	8	6	4/8/2005	11:09:04 AM	1.38E+04	60	1	0	5	F1000	401B1	DM1R1	G01GA	BKG03	3		0	1.35E+01
F1000 401B1	95358	JLM0591	PR192598	8	7	4/8/2005	11:12:44 AM	9.76E+03	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	1		0	9.55E+00
F1000 401B1	95358	JLM0591	PR192598	8	8	4/8/2005	11:14:00 AM	9.61E+03	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	2		0	9.40E+00
F1000 401B1	95358	JLM0591	PR192598	8	9	4/8/2005	11:15:12 AM	9.67E+03	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	3		0	9.46E+00
F1000 401B1	95358	JLM0591	PR192598	8	10	4/8/2005	11:18:10 AM	1.05E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	4		0	1.03E+01
F1000 401B1	95358	JLM0591	PR192598	8	11	4/8/2005	11:19:34 AM	1.06E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	5		0	1.03E+01
F1000 401B1	95358	JLM0591	PR192598	8	12	4/8/2005	11:20:54 AM	1.02E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	6		0	1.00E+01
F1000 401B1	95358	JLM0591	PR192598	8	13	4/8/2005	11:23:26 AM	1.85E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	7		0	1.81E+01
F1000 401B1	95358	JLM0591	PR192598	8	14	4/8/2005	11:24:42 AM	1.81E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	8		0	1.77E+01
F1000 401B1	95358	JLM0591	PR192598	8	15	4/8/2005	11:26:02 AM	1.86E+04	60	1	0	5	F1000	401B1	DM1R1	G01FA	BKG03	9		0	1.82E+01
F1000 401B1	95358	JLM0591	PR192598	9	16	4/8/2005	11:32:46 AM	5.61E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG03	1		0	5.49E+00
F1000 401B1	95358	JLM0591	PR192598	9	17	4/8/2005	11:34:04 AM	5.55E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG03	2		0	5.42E+00
F1000 401B1	95358	JLM0591	PR192598	9	18	4/8/2005	11:35:20 AM	5.52E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG03	3		0	5.40E+00
F1000 401B1	95358	JLM0591	PR192598	9	19	4/8/2005	11:42:08 AM	5.31E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG01	5		0	5.19E+00
F1000 401B1	95358	JLM0591	PR192598	9	20	4/8/2005	11:43:16 AM	5.42E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG01	6		0	5.30E+00
F1000 401B1	95358	JLM0591	PR192598	9	21	4/8/2005	11:46:14 AM	5.53E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG02	7		0	5.41E+00
F1000 401B1	95358	JLM0591	PR192598	9	22	4/8/2005	11:48:28 AM	5.55E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG02	8		0	5.43E+00
F1000 401B1	95358	JLM0591	PR192598	9	23	4/8/2005	11:49:54 AM	5.58E+03	60	1	0	5	F1000	401B1	DM1S1	G02FA	BKG02	9		0	5.45E+00
F1000 401B1	95358	JLM0591	PR192598	9	24	4/8/2005	2:20:20 PM	6.79E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG04	1		0	6.64E+00
F1000 401B1	95358	JLM0591	PR192598	9	25	4/8/2005	2:21:50 PM	7.03E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG04	2		0	6.87E+00

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-001	1	JLM0591	4/10/2005	12:51 PM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
F1000 401B1	95358	JLM0591	PR192598	9	26	4/8/2005	2:23:16 PM	6.76E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG04	3		0	6.61E+00
F1000 401B1	95358	JLM0591	PR192598	9	27	4/8/2005	2:36:46 PM	1.67E+04	60	1	0	5	F1000	401B1	DS1R1	G01GA	BKG04	1		0	1.63E+01
F1000 401B1	95358	JLM0591	PR192598	9	28	4/8/2005	2:39:02 PM	1.81E+04	60	1	0	5	F1000	401B1	DS1R1	G01GA	BKG04	2		0	1.77E+01
F1000 401B1	95358	JLM0591	PR192598	9	29	4/8/2005	2:40:34 PM	1.80E+04	60	1	0	5	F1000	401B1	DS1R1	G01GA	BKG04	3		0	1.76E+01
F1000 401B1	95358	JLM0591	PR192598	9	30	4/8/2005	2:44:30 PM	1.49E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG04	1		0	1.46E+01
F1000 401B1	95358	JLM0591	PR192598	9	31	4/8/2005	2:45:40 PM	1.81E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG04	2		0	1.77E+01
F1000 401B1	95358	JLM0591	PR192598	9	32	4/8/2005	2:46:54 PM	1.82E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG04	3		0	1.78E+01
F1000 401B1	95358	JLM0591	PR192598	9	33	4/8/2005	2:50:22 PM	1.71E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG04	4		0	1.67E+01
F1000 401B1	95358	JLM0591	PR192598	9	34	4/8/2005	2:51:50 PM	1.69E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG04	5		0	1.65E+01
F1000 401B1	95358	JLM0591	PR192598	9	35	4/8/2005	2:53:04 PM	1.66E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG04	6		0	1.63E+01
F1000 401B1	95358	JLM0591	PR192598	9	36	4/8/2005	3:20:04 PM	1.67E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG04	7		0	1.63E+01
F1000 401B1	95358	JLM0591	PR192598	9	37	4/8/2005	3:22:04 PM	1.69E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG04	8		0	1.65E+01
F1000 401B1	95358	JLM0591	PR192598	9	38	4/8/2005	3:24:04 PM	1.71E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG04	9		0	1.67E+01
F1000 401B1	95358	JLM0591	PR192598	9	39	4/8/2005	3:26:04 PM	4.54E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG05	1		0	4.44E+00
F1000 401B1	95358	JLM0591	PR192598	9	40	4/8/2005	3:28:04 PM	4.60E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG05	2		0	4.50E+00
F1000 401B1	95358	JLM0591	PR192598	9	41	4/8/2005	3:30:04 PM	4.59E+03	60	1	0	5	F1000	401B1	DS1S1	G02FA	BKG05	3		0	4.49E+00
F1000 401B1	95358	JLM0591	PR192598	9	42	4/8/2005	3:32:04 PM	1.41E+04	60	1	0	5	F1000	401B1	DS1C1	G01GA	BKG05	1		0	1.38E+01
F1000 401B1	95358	JLM0591	PR192598	9	43	4/8/2005	3:34:04 PM	1.75E+04	60	1	0	5	F1000	401B1	DS1C1	G01GA	BKG05	2		0	1.71E+01
F1000 401B1	95358	JLM0591	PR192598	9	44	4/8/2005	3:36:04 PM	1.79E+04	60	1	0	5	F1000	401B1	DS1C1	G01GA	BKG05	3		0	1.75E+01
F1000 401B1	95358	JLM0591	PR192598	9	45	4/8/2005	3:38:04 PM	1.61E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG05	1		0	1.57E+01
F1000 401B1	95358	JLM0591	PR192598	9	46	4/8/2005	3:40:04 PM	1.65E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG05	2		0	1.61E+01
F1000 401B1	95358	JLM0591	PR192598	9	47	4/8/2005	3:42:04 PM	1.66E+04	60	1	0	5	F1000	401B1	DS1C1	G01FA	BKG05	3		0	1.62E+01
F1000 401B1	95358	JLM0591	PR192598	9	48	4/8/2005	3:44:04 PM	1.79E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG05	4		0	1.75E+01
F1000 401B1	95358	JLM0591	PR192598	9	49	4/8/2005	3:46:04 PM	1.69E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG05	5		0	1.65E+01
F1000 401B1	95358	JLM0591	PR192598	9	50	4/8/2005	3:48:04 PM	1.64E+04	60	1	0	5	F1000	401B1	DS1B1	G01FA	BKG05	6		0	1.60E+01
F1000 401B1	95358	JLM0591	PR192598	9	51	4/8/2005	3:50:04 PM	1.61E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG05	7		0	1.58E+01

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-001	1	JLM0591	4/10/2005	12:51 PM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
F1000 401B1	95358	JLM0591	PR192598	9	52	4/8/2005	3:52:04 PM	1.62E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG05	8		0	1.59E+01
F1000 401B1	95358	JLM0591	PR192598	9	53	4/8/2005	3:54:04 PM	1.63E+04	60	1	0	5	F1000	401B1	DS1V2	G01FA	BKG05	9		0	1.59E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	54	4/8/2005	5:50:04 PM	2.68E+04	300	1	0	5	GTS10	DRT02	DS1V2	G01CA	LAB01	1		0	5.23E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	55	4/8/2005	5:52:04 PM	8.64E+05	60	1	0	5	GTS10	DRT02	DS1V2	G01DA	LAB01	1		0	8.45E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	56	4/8/2005	5:54:04 PM	4.14E+04	60	1	0	5	GTS10	DRT02	DS1V2	G01DA	LAB01	2		0	4.05E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	57	4/8/2005	5:56:04 PM	1.06E+04	60	1	0	5	GTS10	DRT02	DS1V2	G01DA	LAB01	3		0	1.04E+01

Reviewed By: JLM McGlone Date: 4/10/05 Approved By: R.L.S Date: 4/13/05

Measurement Database Download Report
Exposure Rate Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041305-007	1	JLM0591	4/13/2005	10:04 AM	F1000 401B1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/12/2005	7:25:26 AM	2.75E+04	300	1	0	17	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.38E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/12/2005	7:32:22 AM	8.71E+05	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	8.52E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/12/2005	7:35:16 AM	4.22E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.13E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/12/2005	7:37:40 AM	1.13E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.11E+01
F1000 401B1	95358	JLM0591	PR192598	8	40	4/12/2005	3:41:32 PM	5.78E+03	60	1	0	17	F1000	401B1	DS1C1	G02FA	BKG06	1		0	5.65E+00
F1000 401B1	95358	JLM0591	PR192598	8	41	4/12/2005	3:42:50 PM	5.72E+03	60	1	0	17	F1000	401B1	DS1C1	G02FA	BKG06	2		0	5.60E+00
F1000 401B1	95358	JLM0591	PR192598	8	42	4/12/2005	3:44:10 PM	5.60E+03	60	1	0	17	F1000	401B1	DS1C1	G02FA	BKG06	3		0	5.48E+00
F1000 401B1	95358	JLM0591	PR192598	8	43	4/12/2005	3:49:38 PM	1.84E+04	60	1	0	17	F1000	401B1	DS1C1	G01GA	BKG06	1		0	1.80E+01
F1000 401B1	95358	JLM0591	PR192598	8	44	4/12/2005	3:51:06 PM	1.85E+04	60	1	0	17	F1000	401B1	DS1C1	G01GA	BKG06	2		0	1.81E+01
F1000 401B1	95358	JLM0591	PR192598	8	45	4/12/2005	3:52:52 PM	1.87E+04	60	1	0	17	F1000	401B1	DS1C1	G01GA	BKG06	3		0	1.83E+01
F1000 401B1	95358	JLM0591	PR192598	8	46	4/12/2005	3:55:12 PM	1.65E+04	60	1	0	17	F1000	401B1	DS1C1	G01FA	BKG06	1		0	1.61E+01
F1000 401B1	95358	JLM0591	PR192598	8	47	4/12/2005	3:57:08 PM	1.59E+04	60	1	0	17	F1000	401B1	DS1C1	G01FA	BKG06	2		0	1.56E+01
F1000 401B1	95358	JLM0591	PR192598	8	48	4/12/2005	3:58:54 PM	1.65E+04	60	1	0	17	F1000	401B1	DS1C1	G01FA	BKG06	3		0	1.61E+01
F1000 401B1	95358	JLM0591	PR192598	8	49	4/12/2005	4:04:48 PM	1.87E+04	60	1	0	17	F1000	401B1	DS1B1	G01FA	BKG06	1		0	1.82E+01
F1000 401B1	95358	JLM0591	PR192598	8	50	4/12/2005	4:06:24 PM	1.84E+04	60	1	0	17	F1000	401B1	DS1B1	G01FA	BKG06	2		0	1.80E+01
F1000 401B1	95358	JLM0591	PR192598	8	51	4/12/2005	4:07:48 PM	1.85E+04	60	1	0	17	F1000	401B1	DS1B1	G01FA	BKG06	3		0	1.81E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	52	4/12/2005	4:44:04 PM	2.80E+04	300	1	0	17	GTS10	DRT02	DS1B1	G01CA	LAB01	1		0	5.47E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	53	4/12/2005	4:47:50 PM	8.62E+05	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	1		0	8.43E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	54	4/12/2005	4:50:14 PM	4.15E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	2		0	4.06E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	55	4/12/2005	4:51:32 PM	1.13E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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

Section 5.0
Sample Analysis Results – Alpha/Beta Counter
9 Pages

DATA M2929 1 Pass Codes Off

SN	REPEA	PROG	PROGRAM_N	SAMPLE_ID	DATE	TIME	WT	WT	BG_TIME	CNT_TIME	A	ACPM	ABKGCPM	ANETCPM	AEFF	ADPM	ALLD	B	BCPM	BBKGCPM	ATOB	BNETCPM	BEFF	BDPM	BLLD
1	0	i	ALPHA/BETA	BKG03-1	4/8/2005	14:30:00	0	0	20	i	3	3	0.1	2.9	0.454	6.39	8.32	69	69	52	0	17	0.206	82.52	131.17
2	0	i	ALPHA/BETA	BKG03-2	4/13/2005	11:25:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	46	46	52	0	-6	0.206	-29.13	131.17
3	0	i	ALPHA/BETA	BKG03-3	4/13/2005	11:25:00	0	0	20	i	i	i	0.2	1	0.454	2.20	9.29	50	50	52	0	-2	0.206	-9.71	131.17
4	0	i	ALPHA/BETA	BKG01-1	4/13/2005	11:10:00	0	0	20	i	i	i	0.2	1	0.454	2.20	9.29	52	52	52	0	0	0.206	0.00	131.17
5	0	i	ALPHA/BETA	BKG01-2	4/13/2005	11:10:00	0	0	20	i	i	i	0.2	1	0.454	2.20	9.29	58	58	52	0	6	0.206	29.13	131.17
6	0	i	ALPHA/BETA	BKG01-3	4/13/2005	11:10:00	0	0	20	i	i	i	0.2	1	0.454	2.20	9.29	53	53	52	0	i	0.206	4.85	131.17
7	0	i	ALPHA/BETA	BKG02-1	4/13/2005	11:40:00	0	0	20	i	i	i	0.2	1	0.454	2.20	9.29	52	52	52	0	0	0.206	0.00	131.17
8	0	i	ALPHA/BETA	BKG02-2	4/13/2005	11:40:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	57	57	52	0	5	0.206	24.27	131.17
9	0	i	ALPHA/BETA	BKG02-3	4/13/2005	11:40:00	0	0	20	i	2	2	0.2	2	0.454	4.41	9.29	52	52	52	0	0	0.206	0.00	131.17

DATA M2929 1 Pass Codes Off

SN	REPEA	PROG	PROGRAM_N	SAMPLE_ID	DATE	TIME	WT	WT_SD	BG_TIME	CNT_TIME	A	ACPM	ABKGCPM	ANETCPM	AEFF	ADPM	ALLD	B	BCPM	BBKGCPM	ATOB	BNETCPM	BEFF	BDPM	BLLD
1	0	1	ALPHA/BETA	BKG05-1	4/8/2005	17:10:00	0	0	20	1	1	1	0.1	0.9	0.454	1.98	8.32	54	54	52	0	2	0.206	9.71	131.17
2	0	1	ALPHA/BETA	BKG05-2	4/8/2005	17:10:00	0	0	20	1	2	2	0.1	1.9	0.454	4.19	8.32	61	61	52	0	9	0.206	43.69	131.17
3	0	1	ALPHA/BETA	BKG05-3	4/8/2005	17:10:00	0	0	20	1	2	2	0.1	1.9	0.454	4.19	8.32	65	65	52	0	13	0.206	63.11	131.17
4	0	1	ALPHA/BETA	BKG04-1	4/8/2005	17:20:00	0	0	20	1	1	1	0.1	0.9	0.454	1.98	8.32	58	58	52	0	6	0.206	29.13	131.17
5	0	1	ALPHA/BETA	BKG04-2	4/8/2005	17:20:00	0	0	20	1	2	2	0.1	1.9	0.454	4.19	8.32	63	63	52	0	11	0.206	53.40	131.17
6	0	1	ALPHA/BETA	BKG04-3	4/8/2005	17:20:00	0	0	20	1	1	1	0.1	0.9	0.454	1.98	8.32	60	60	52	0	8	0.206	38.83	131.17
7	0	1	ALPHA/BETA	BKG06-1	4/14/2005	16:00:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	42	42	52	0	-10	0.206	-48.54	131.17
8	0	1	ALPHA/BETA	BKG06-2	4/14/2005	16:00:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	74	74	52	0	22	0.206	106.80	131.17
9	0	1	ALPHA/BETA	BKG06-3	4/14/2005	16:00:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	60	60	52	0	8	0.206	38.83	131.17

Survey Data Sheet

Item ID BKG-01

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	0	1	CO NCRete @ Bottom
2	6	1	↓
3	1	1	↓

Smears counted by D. McGee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. McGee Date/Time 4-13-05 1110 1140

Survey Data Sheet

Item ID F1000 BKG-01 2

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	0	1	Concrete @ Bottom
2	5	0	↓
3	0	2	↓

Smears counted by D McCee Date 4/4/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D McCee Date/Time 4-13-05/1140

Survey Data Sheet

Item ID BKG-003

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-6	0	Concrete @ Bottom
2	-2	1	"

Smears counted by DMcGee Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: DMcGee Date/Time 4-13-05/1125

Survey Data Sheet

Item ID BKGD LOCATION B-3

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.1 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	17	2.9	B-3 CONCRETE

Smears counted by MGT Date 4/9/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: TABER Date 4/8/05 1430

Survey Data Sheet

Item ID BKGD LOCATION B-4

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.1 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	6	0.9	B-4 CONCRETE
2	11	1.9	↓
3	8	0.9	↓

Smears counted by [signature] Date 4/9/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: TABER Date 4/8/05 / 1720

Survey Data Sheet

Item ID BKGD LOCATION B-5

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.1 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	2	0.9	B-5 CONCRETE
2	9	1.9	
3	13	1.9	

Smears counted by MK Date 4/9/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: JAB Date 4/8/05 / ~~1450~~ 4/9/05 1710

Survey Data Sheet

Item ID BKGD 06

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-10	-0.2	CONCRETE @ BOTTOM
2	22	-0.2	↓
3	8	-0.2	

Smears counted by MMA Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: DM Date/Time 4/12/05 ~~4/12/05~~ 1600

~~MMA~~ 4-14-05

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

Section 6.0
Sample Analysis Results – Gamma Spectroscopy
4 Pages

FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM
(ENVIRONMENTAL/BIOASSAY SAMPLES)

Client Name: **Parsons Engineering Science, Inc.**

Client Purchase Order/Contract: **Task Order Number: 744009.6000-00**

Date of Shipment: **4/14/2005**

Program: **REMP ☐ Non-REMP ☑**

Requested Turnaround Time (TAT): ☑ Standard ☐ Rush (***COST MULTIPLIER MAY APPLY***) ___ Working Days (***SPECIFY NUMBER***)

Name/Address of Client Representative: Framatome ANP Federal D&D Services

(Person(s) who should receive the results) John McGehee and Don McGee

Phone: *(704)805-2298* *(704)805-2576* Fax: *(704)805-2512*

WEEK NO	YEAR	LSN	Sample Type	Station and Description	Collection Period (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay results to. Start Date (If Applicable) ☐ Month	Day	Year	Hour	Stop Date (Required) ☐ Month	Day	Year	Hour	Mid-point Date (If Applicable) ☐ Month	Day	Year	Hour	Total Sample Amount Shipped (Specify Units)	Radiological Analyses (Check All That Apply) Gross Alpha	Gross Beta	I-131 in Charcoal	Ni-63	Fe-55	Gamma	H-3	I-131 LL - (Specify)	P-32	C-14	Am-241,Cm-242,243/244	Np-237	Pu -238,239/240	Pu-241	Ra-226 (Specify)	Ra-228 (Specify)	Sr-89,90	Tc-99	U-234, 235, 238	Uranium Total	Th-230,232	Other (Specify)	Quarterly Composite: Sample belongs to Quarter (1,2,3,4)	Q H-3	Q Sr-89,90	Q Gamma	Other (Specify)
			sludge	SA002					4	12	5	1105					~352g														X										
			sludge	SA003					4	12	5	1030					~442g					X									X										
			sludge	SA004					4	12	5	940					~112g														X										
			sludge	SA005					4	11	5	900					~607g					X									X										
			sludge	SA006					4	10	5	1345					~105g														X										
			sludge	SA007					4	10	5	1230					~307g														X										
			sludge	SA009					4	9	5	1635					~187g														X										
			sludge	SA010					4	12	5	1510					~397g					X									X										
			sludge	BKG04					4	8	5	1430					~547g					X									X										
			sludge	BKG06					4	12	5	1620					~1282g					X									X										
			sludge	BKG01					4	13	5	1140					~1500g					X									X										

Chain of Custody

Relinquished By: Don McGee

Collected By: John McGehee

Received By:

ELAB Comments:

Date: 4-13-05

Phone Number: 704 805 2298

Date:

Field Treatment/Comments

SPECIFY METHOD (*Internal Lab Use ONLY*)

___ RA-226 (A)
___ RADIUMA_EPA
___ RA-228 (PROC. 1300)
___ RA-228_EPA (PROC. 1311)
___ I-131LL (BETA/GAMMA)
___ I-131LL (GAS PROPORTIONAL)
___ OTHER

ELAB ACCEPTANCE STAMP

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-22 **Client ID** BKG01 **Product** GAMMA SPECTROMETRY
Reference Date 04/13/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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
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	1.5E-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 +/- 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	1.9E-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.

Approved by
E. M. Moreno
Sample Control and Measurements Lead

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FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab Sample No. L9126-20 **Client ID** BKG04 **Product** GAMMA SPECTROMETRY
Reference Date 04/08/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	c
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 +/- 8.0E-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

Approved by
E M Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only

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c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-21 **Client ID** BKG06 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	2.6E-01		
Be-7	1.7E-02 +/- 9.2E-02	9.2E-02	3.2E-01		
Bi-214	2.63E-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-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	1.3E-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

Approved by
E. M. Moreno 5/6/05
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

c:

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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

Section 7.0
Sample Analysis Results – Alpha Spectroscopy
1 Pages

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Environmental L. .ratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285
Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	b	
L9126-15	SA005	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-01	4.0E-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	SA010	04/12/2005	05/10/2005	Ra-226	1.03E+00 +/- 2.5E-01	2.6E-01	1.9E-01	7.0E-01	b	
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		
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-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 the required MDC.
b The activity concentration is greater than three times its one sigma counting uncertainty.

Approved by
E. M. Moreno
Sample Control and Measurements Lead

c:

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MAY 12 2005
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Appendix C
Analytical Data and Quality Control

Section 8.0
Survey Package E2000 201C1
Storm Drain System

Survey Package Cover Sheet

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 Package Preparation:

The survey package instructions are prepared and ready for implementation.

Prepared By: _____ Date: 3/11/05
John McGehee, Senior Engineer

Reviewed By: _____ Date: 3/28/05
Don McGee, Senior Engineer

Approved By: _____ Date: 3/30/05
Greg Courtney Senior Engineer CHP

Survey Completion:

The survey package instructions were implemented and the survey measurements have been reviewed for completeness in accordance with the Sample and Analysis Plan. The data collected has been reviewed for completeness in accordance with the survey package instructions.

Reviewed By: _____ Date: 6/9/05
John McGehee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Don McGee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Greg Courtney, Senior Engineer, CHP

Approved By: _____ Date: _____
PARSONS Repersentative

Table of Contents

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		

Section	Title	Page
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3.0	References	6
4.0	Safety	7
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10.0	Appendix A, Drawings	
11.0	Appendix B, Photographs	
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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.

Survey Unit Description and History

Survey Package Number: E2000 201C1 **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 (Yes or No)	Total 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

Survey Unit Description and History

Survey Package Number: E2000 201C1 **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

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

Survey Package References

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		

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

Survey Safety Requirements

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.

Survey Support Requirements

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. 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.

Survey Package Procedures

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 Package Procedures:

1	DD-CS-001	Sample Identification and Chain of Custody
2	DD-CS-011	Operation of Ludlum Model 2350 Data Logger
3	DD-RP-010	Portable Instrument Procedure
4	DD-RP-039	Quality Control of Counting Systems and Portable Counters
5	DD-RP-049	Operation of the Ludlum Model 2929

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		

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.

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		

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.

Specific 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		

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.

Specific 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		

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 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.

See Revision
4/10/05 JM

Specific 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		

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. 8 is completed.

Specific 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		

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 Revision 4/10/85
JM

Survey Package Location Codes

Survey Package Number: E2000 201C1 **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

Class Description: Impacted System

Reason Description: C1 Characterization Survey

LC3 -Surface Category P1-3: DM1 Storm Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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				18	35	JM
	L01	A/B Smear Analysis	Alpha/Beta Counter			
Direct Alpha				18	26	JM
	A02	43-5A	Alpha Scintillator			
Direct Beta				18	27	JM
	B01	44-40B	GM Pancake			
Gamma 1M				18	26	JM
	G02	44-10	2"x2" NaI(Tl) Gamma Scintillator			
Gamma Contact				18	30	JM
	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator			
G-Spec Sample				18	10	JM
	L04	GS Material Analysis	Gamma Spectrometry			

Survey Package Location Codes

Survey Package Number: E2000 201C1 **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

Class Description: Impacted System

Reason Description: C1 Characterization Survey

LC4_P4 - Count Type	LC4_P5 - Background Mode Codes
A Pre-use Background Check	A Average Background
B Pre-use Source Check	N Background Not Required
C Post-use Background Check	S Single Background
D Post-use Source Check	
F Field Count	
G Field Background	
S Field Scan	

Survey Field Notes: **Additional information regarding the performance of the survey, measurements, sample collection, etc. Use additional pages as needed for field notes.**

Survey Package Appendix A – Drawings

Survey Package: E2000 201C1 **Package:** System
Survey Area Name: Storm Drain System
Survey Unit Name: Storm Drain System Section Down Stream of Building 104 Operations

Survey Package Appendix A - Drawings

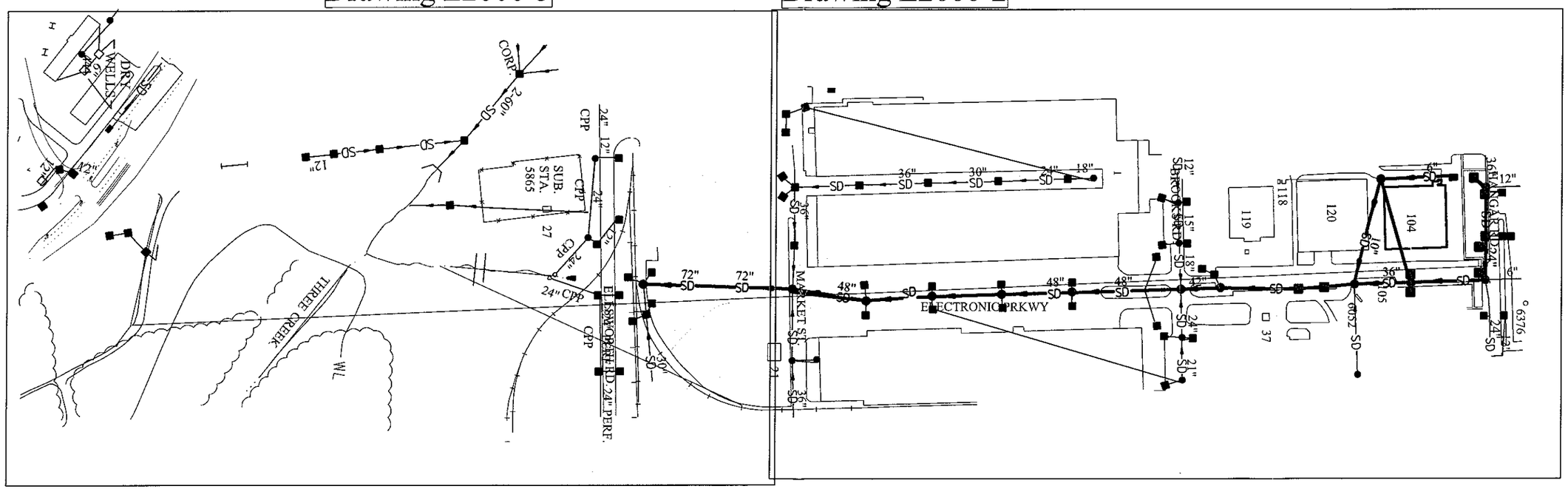
Griffiss AFB - Storm Drain Line
Building 104 to Three Mile Creek
Survey Package E2000 201C1
Drawing No. E2000-1

TRUE NORTH

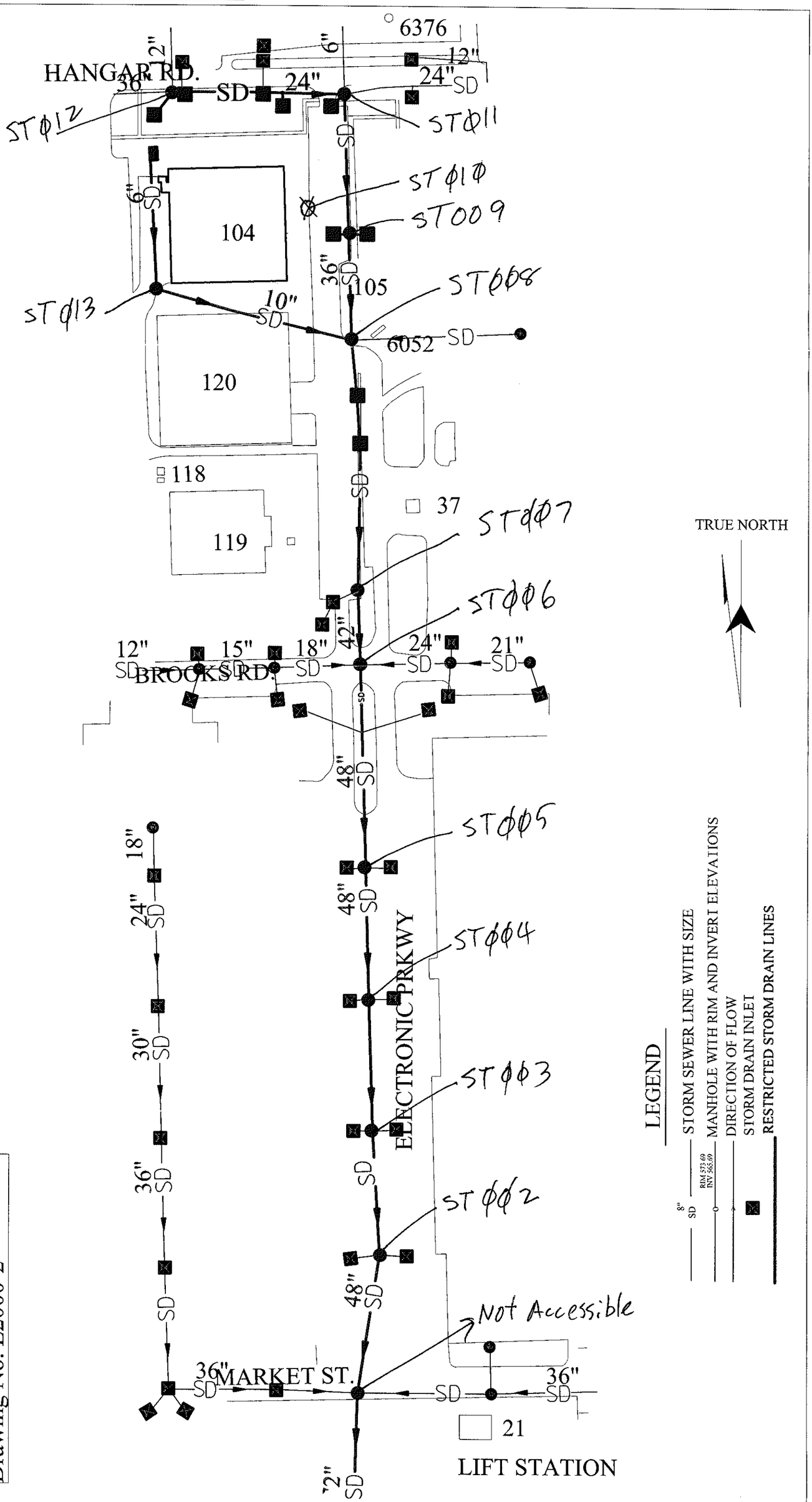
Drawing E2000-1

Drawing E2000-3

Drawing E2000-2

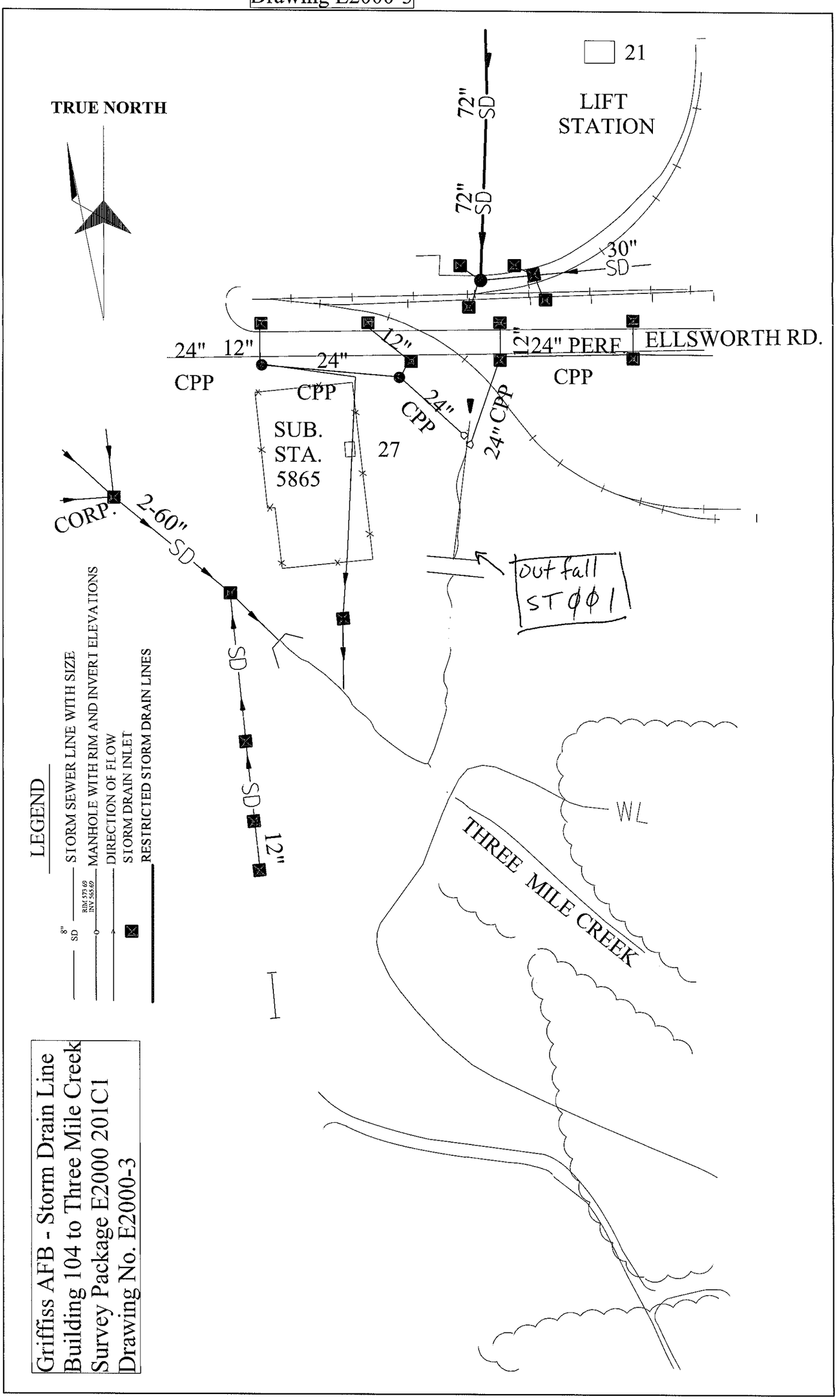


Drawing E2000-2



Griffiss AFB - Storm Drain Line
Building 104 to Lift Station
Survey Package E2000 201C1
Drawing No. E2000-2

Drawing E2000-3



Griffiss AFB - Storm Drain Line
Building 104 to Three Mile Creek
Survey Package E2000 201C1
Drawing No. E2000-3

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 Building 104 Operations

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section
JW 6/13/05

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 Building 104 Operations

Section	Title	Total Pages
1.0	**Annotated Drawings**	3
2.0	**Measurement Results – Direct Beta Measurements**	6
3.0	**Measurement Results – Direct Alpha Measurements**	6
4.0	**Measurement Results – Exposure Rate Measurements**	6
5.0	**Sample Analysis Results – Alpha/Beta Counter**	15
6.0	**Sample Analysis Results – Gamma Spectroscopy**	6
7.0	**Sample Analysis Results – Alpha Spectroscopy**	2

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 Building 104 Operations		

Section 1.0
Annotated Drawings
3 Pages

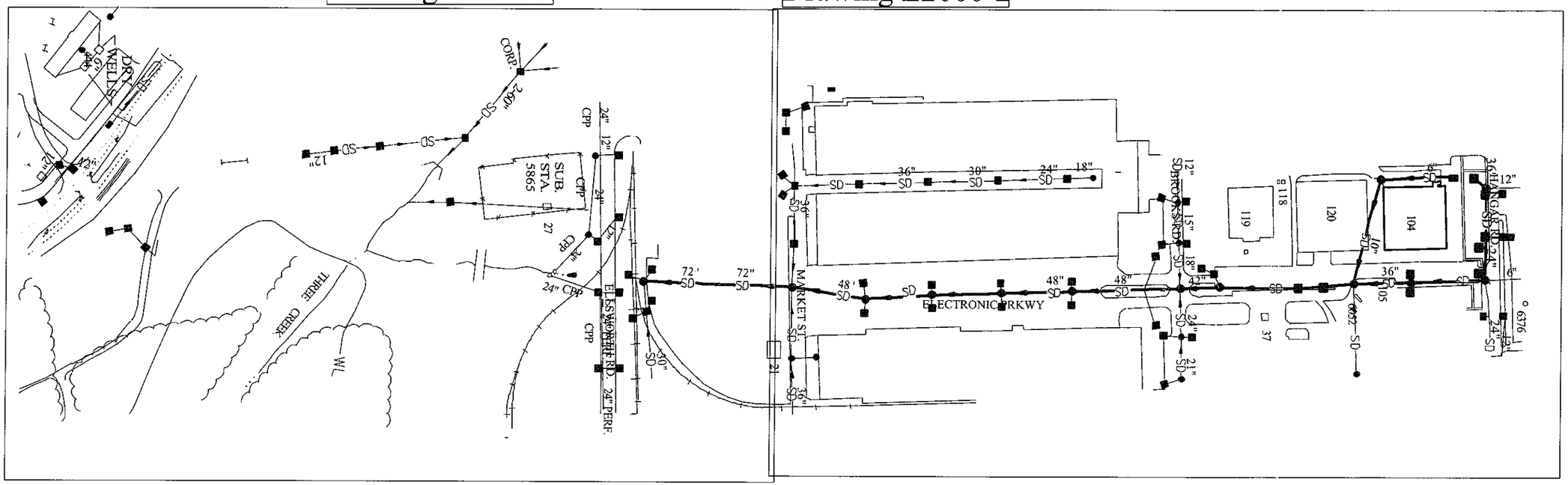
Griffiss AFB - Storm Drain Line
Building 104 to Three Mile Creek
Survey Package E2000 201C1
Drawing No. E2000-1

TRUE NORTH

Drawing E2000-1

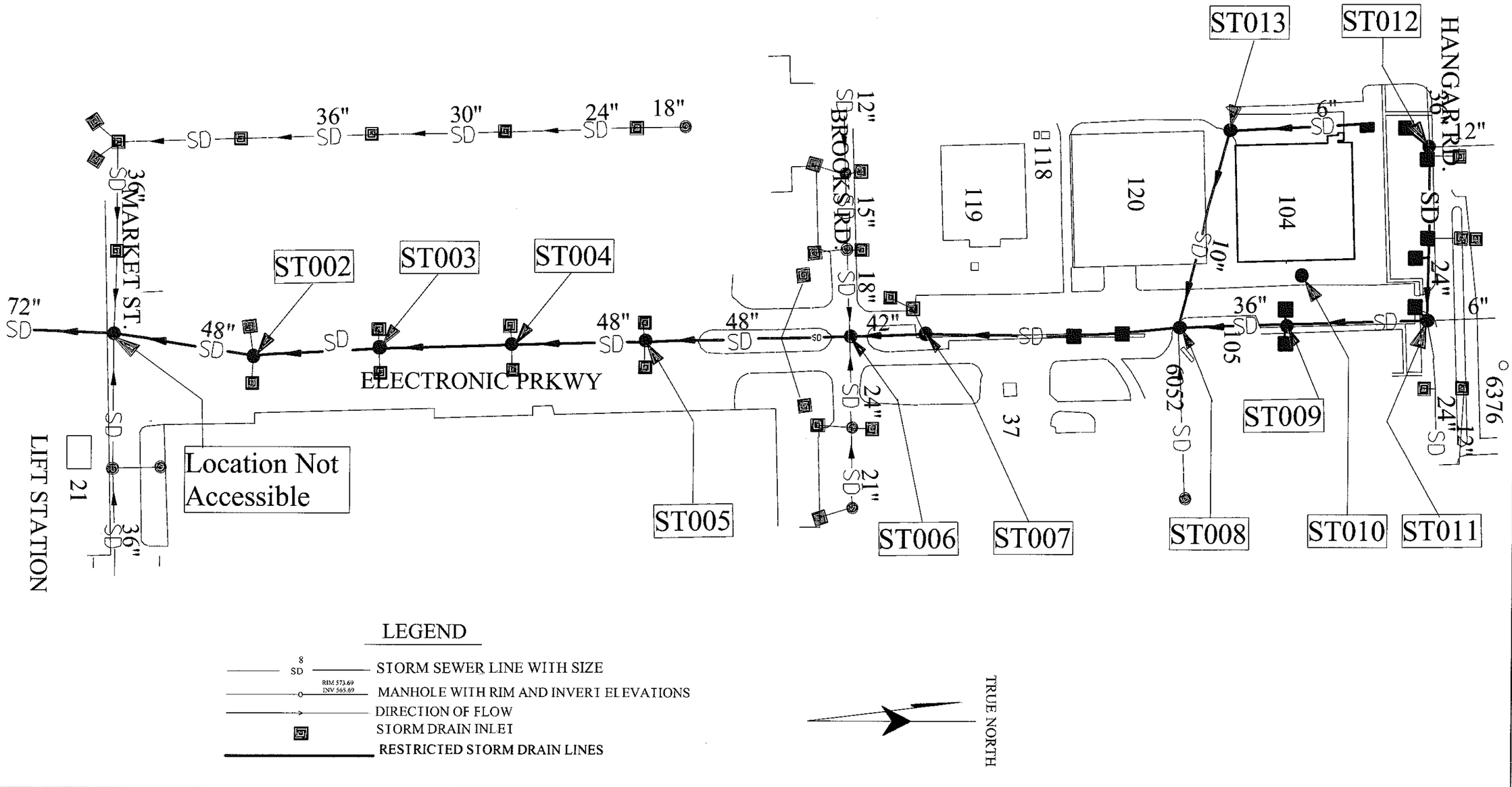
Drawing E2000-3

Drawing E2000-2



Griffiss AFB - Storm Drain Line
Building 104 to Lift Station
Survey Package E2000 201C1
Drawing No. E2000-2

Drawing E2000-2



LEGEND

- 8 SD — STORM SEWER LINE WITH SIZE
- RIM 573.69 INV 565.69 — MANHOLE WITH RIM AND INVERT ELEVATIONS
- DIRECTION OF FLOW
- STORM DRAIN INLET
- RESTRICTED STORM DRAIN LINES

TRUE NORTH

Griffiss AFB - Storm Drain Line
Lift Station Bld 21 to Three Mile Creek
Survey Package E2000 201C1
Drawing No. E2000-3

LEGEND

- 8 SD — STORM SEWER LINE WITH SIZE
- RIM 573.69 INV 565.69 — MANHOLE WITH RIM AND INVERT ELEVATIONS
- DIRECTION OF FLOW
- STORM DRAIN INLET
- RESTRICTED STORM DRAIN LINES

TRUE NORTH

CORP.
30" SD
SD
SD
12"
CPP
24" 12"
SUB. STA. 5865
CPP
27
24"
12"
24" CPP
72" SD
72" SD
30" SD
21
LIFT STATION
24" PERF. CPP
ELLSWORTH RD.

Location Not Accessible

Outfall Location
ST001

THREE MILE CREEK
WL

Drawing E2000-3

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 Building 104 Operations		

Section 2.0
Measurement Results – Direct Beta Measurements
6 Pages

Measurement Database Download Report

Direct Beta Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-006	1	JLM0591	4/10/2005	2:58 PM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/9/2005	7:40:46 AM	1.83E+02	300	1	0	10	FD145	DRT01	DS1V2	B01AA	LAB01	1		0	2683
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/9/2005	7:47:14 AM	1.98E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	1		0	145381
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/9/2005	8:29:02 AM	1.91E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	2		0	139883
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/9/2005	8:30:36 AM	1.95E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	3		0	142889
E2000 201C1	95349	JLM0591	PR094971	7	4	4/9/2005	12:13:24 PM	7.40E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST010	1		0	5425
E2000 201C1	95349	JLM0591	PR094971	7	5	4/9/2005	12:15:06 PM	8.60E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST010	2		0	6305
E2000 201C1	95349	JLM0591	PR094971	7	6	4/9/2005	12:16:34 PM	6.80E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST010	3		0	4985
E2000 201C1	95349	JLM0591	PR094971	7	7	4/9/2005	12:19:44 PM	1.03E+02	60	1	0	10	E2000	201C1	DM1B1	B01FA	ST010	1		0	7551
E2000 201C1	95349	JLM0591	PR094971	7	8	4/9/2005	12:29:22 PM	7.60E+01	60	1	0	10	E2000	201C1	DM1B1	B01FA	ST010	2		0	5572
E2000 201C1	95349	JLM0591	PR094971	7	9	4/9/2005	12:31:16 PM	7.70E+01	60	1	0	10	E2000	201C1	DM1B1	B01FA	ST010	3		0	5645
E2000 201C1	95349	JLM0591	PR094971	7	10	4/9/2005	2:37:46 PM	5.50E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST011	1		0	4032
E2000 201C1	95349	JLM0591	PR094971	7	11	4/9/2005	2:39:02 PM	6.50E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST011	2		0	4765
E2000 201C1	95349	JLM0591	PR094971	7	12	4/9/2005	2:45:04 PM	6.70E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST011	1		0	4912
E2000 201C1	95349	JLM0591	PR094971	7	13	4/9/2005	2:46:38 PM	7.40E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST011	2		0	5425
E2000 201C1	95349	JLM0591	PR094971	7	14	4/9/2005	3:34:10 PM	5.80E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST009	1		0	4252
E2000 201C1	95349	JLM0591	PR094971	7	15	4/9/2005	3:36:38 PM	7.00E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST009	1		0	5132
E2000 201C1	95349	JLM0591	PR094971	7	16	4/9/2005	3:38:10 PM	4.80E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST009	2		0	3519
E2000 201C1	95349	JLM0591	PR094971	7	17	4/9/2005	4:34:10 PM	8.20E+01	60	1	0	10	E2000	201C1	DM1C1	B01GA	ST008	1		0	6012
E2000 201C1	95349	JLM0591	PR094971	7	18	4/9/2005	4:38:22 PM	8.80E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST008	1		0	6452

Measurement Database Download Report

Direct Beta Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-006	1	JLM0591	4/10/2005	2:58 PM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
E2000 201C1	95349	JLM0591	PR094971	7	19	4/9/2005	4:40:16 PM	9.00E+01	60	1	0	10	E2000	201C1	DM1C1	B01FA	ST008	2		0	6598
FD145 DRT02	95349	JLM0591	PR094971	6	27	4/9/2005	7:06:34 PM	1.51E+02	300	1	0	10	FD145	DRT02	DS1B1	B01CA	LAB01	1		0	2214
FD145 DRT02	95349	JLM0591	PR094971	7	28	4/9/2005	7:14:48 PM	1.95E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	1		0	143255
FD145 DRT02	95349	JLM0591	PR094971	7	29	4/9/2005	7:16:52 PM	1.91E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	2		0	140176
FD145 DRT02	95349	JLM0591	PR094971	7	30	4/9/2005	7:18:52 PM	2.03E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	3		0	148754

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/14/05

Measurement Database Download Report

Direct Beta Measurements

4/11/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041105-003	1	JLM0591	4/11/2005	8:41 AM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/10/2005	11:32:30 AM	1.81E+02	300	1	0	13	FD145	DRT01	DS1B1	B01AA	LAB01	1		0	2654
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/10/2005	11:36:14 AM	1.89E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	1		0	138636
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/10/2005	12:05:10 PM	2.01E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	2		0	146994
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/10/2005	12:06:26 PM	1.98E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	3		0	144868
E2000 201C1	95349	JLM0591	PR094971	8	12	4/10/2005	2:19:34 PM	6.40E+01	60	1	0	13	E2000	201C1	DM1C1	B01GA	ST007	1		0	4692
E2000 201C1	95349	JLM0591	PR094971	8	13	4/10/2005	2:23:34 PM	5.90E+01	60	1	0	13	E2000	201C1	DM1C1	B01FA	ST007	1		0	4326
E2000 201C1	95349	JLM0591	PR094971	8	14	4/10/2005	2:24:52 PM	6.60E+01	60	1	0	13	E2000	201C1	DM1C1	B01FA	ST007	2		0	4839
E2000 201C1	95349	JLM0591	PR094971	8	15	4/10/2005	3:01:50 PM	5.80E+01	60	1	0	13	E2000	201C1	DM1C1	B01GA	ST006	1		0	4252
E2000 201C1	95349	JLM0591	PR094971	8	16	4/10/2005	3:04:12 PM	4.30E+01	60	1	0	13	E2000	201C1	DM1C1	B01FA	ST006	1		0	3152
E2000 201C1	95349	JLM0591	PR094971	8	17	4/10/2005	3:05:50 PM	4.50E+01	60	1	0	13	E2000	201C1	DM1C1	B01FA	ST006	2		0	3299
FD145 DRT02	95349	JLM0591	PR094971	6	18	4/10/2005	4:03:42 PM	1.72E+02	300	1	0	13	FD145	DRT02	DM1C1	B01CA	LAB01	1		0	2522
FD145 DRT02	95349	JLM0591	PR094971	7	19	4/10/2005	4:09:54 PM	2.00E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	1		0	146848
FD145 DRT02	95349	JLM0591	PR094971	7	20	4/10/2005	4:11:36 PM	1.99E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	2		0	145748
FD145 DRT02	95349	JLM0591	PR094971	7	21	4/10/2005	4:12:54 PM	2.01E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	3		0	146994

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/13/05

Measurement Database Download Report

Direct Beta Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041205-002	1	JLM0591	4/12/2005	8:03 AM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/11/2005	8:50:02 AM	1.83E+02	300	1	0	16	FD145	DRT01	DM1C1	B01AA	LAB01	1		0	2683
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/11/2005	9:02:26 AM	1.96E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	1		0	143915
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/11/2005	9:06:36 AM	2.05E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	2		0	150587
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/11/2005	9:08:04 AM	1.98E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	3		0	145088
E2000 201C1	95349	JLM0591	PR094971	8	8	4/11/2005	11:00:44 AM	6.50E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST005	1		0	4765
E2000 201C1	95349	JLM0591	PR094971	8	9	4/11/2005	11:02:34 AM	6.40E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST005	1		0	4692
E2000 201C1	95349	JLM0591	PR094971	8	10	4/11/2005	11:04:02 AM	6.40E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST005	2		0	4692
E2000 201C1	95349	JLM0591	PR094971	8	11	4/11/2005	11:53:52 AM	4.70E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST004	1		0	3446
E2000 201C1	95349	JLM0591	PR094971	8	12	4/11/2005	11:55:26 AM	6.10E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST004	1		0	4472
E2000 201C1	95349	JLM0591	PR094971	8	13	4/11/2005	11:56:50 AM	6.70E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST004	2		0	4912
E2000 201C1	95349	JLM0591	PR094971	8	14	4/11/2005	12:19:56 PM	6.60E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST003	1		0	4839
E2000 201C1	95349	JLM0591	PR094971	8	15	4/11/2005	12:21:38 PM	7.40E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST003	1		0	5425
E2000 201C1	95349	JLM0591	PR094971	8	16	4/11/2005	12:23:00 PM	7.70E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST003	2		0	5645
E2000 201C1	95349	JLM0591	PR094971	8	17	4/11/2005	1:11:42 PM	5.90E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST002	1		0	4326
E2000 201C1	95349	JLM0591	PR094971	8	18	4/11/2005	1:13:48 PM	6.50E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST002	1		0	4765
E2000 201C1	95349	JLM0591	PR094971	8	19	4/11/2005	1:15:14 PM	7.70E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST002	2		0	5645
E2000 201C1	95349	JLM0591	PR094971	8	20	4/11/2005	3:51:28 PM	5.10E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST001	1		0	3739
E2000 201C1	95349	JLM0591	PR094971	8	21	4/11/2005	3:53:00 PM	6.00E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST001	1		0	4399
E2000 201C1	95349	JLM0591	PR094971	8	22	4/11/2005	3:54:32 PM	4.80E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST001	2		0	3519

Measurement Database Download Report

Direct Beta Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041205-002	1	JLM0591	4/12/2005	8:03 AM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
E2000 201C1	95349	JLM0591	PR094971	8	23	4/11/2005	4:57:42 PM	6.40E+01	60	1	0	16	E2000	201C1	DM1C1	B01GA	ST013	1		0	4692
E2000 201C1	95349	JLM0591	PR094971	8	24	4/11/2005	4:59:22 PM	6.70E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST013	1		0	4912
E2000 201C1	95349	JLM0591	PR094971	8	25	4/11/2005	5:00:42 PM	6.60E+01	60	1	0	16	E2000	201C1	DM1C1	B01FA	ST013	2		0	4839
FD145 DRT02	95349	JLM0591	PR094971	6	26	4/11/2005	5:40:18 PM	1.58E+02	300	1	0	16	FD145	DRT02	DM1C1	B01CA	LAB01	1		0	2317
FD145 DRT02	95349	JLM0591	PR094971	7	27	4/11/2005	5:44:04 PM	2.03E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	1		0	148460
FD145 DRT02	95349	JLM0591	PR094971	7	28	4/11/2005	5:48:36 PM	2.00E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	2		0	146921
FD145 DRT02	95349	JLM0591	PR094971	7	29	4/11/2005	5:49:52 PM	1.94E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	3		0	142155

Reviewed By: JLM McDaniel Date: 4/14/05 Approved By: [signature] Date: 4/14/05

Measurement Database Download Report

Direct Beta Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041305-003	1	JLM0591	4/13/2005	8:09 AM	E2000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95358	JLM0591	PR094971	6	0	4/12/2005	8:38:50 AM	1.81E+02	300	1	0	19	FD145	DRT01	DM1C1	B01AA	LAB01	1		0	2654
FD145 DRT01	95358	JLM0591	PR094971	7	1	4/12/2005	8:48:46 AM	1.91E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	1		0	139663
FD145 DRT01	95358	JLM0591	PR094971	7	2	4/12/2005	8:50:06 AM	1.93E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	2		0	141129
FD145 DRT01	95358	JLM0591	PR094971	7	3	4/12/2005	8:51:22 AM	1.97E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	3		0	144208
E2000 201C1	95358	JLM0591	PR094971	8	4	4/12/2005	9:54:08 AM	7.80E+01	60	1	0	19	E2000	201C1	DM1C1	B01GA	ST012	1		0	5718
E2000 201C1	95358	JLM0591	PR094971	8	5	4/12/2005	9:56:44 AM	1.24E+02	60	1	0	19	E2000	201C1	DM1C1	B01FA	ST012	1		0	9091
E2000 201C1	95358	JLM0591	PR094971	8	6	4/12/2005	9:58:58 AM	1.38E+02	60	1	0	19	E2000	201C1	DM1B1	B01FA	ST012	2		0	10117
FD145 DRT02	95358	JLM0591	PR094971	6	35	4/12/2005	5:57:20 PM	1.77E+02	300	1	0	19	FD145	DRT02	DS1C1	B01CA	LAB01	1		0	2595
FD145 DRT02	95358	JLM0591	PR094971	7	36	4/12/2005	6:02:24 PM	2.02E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	1		0	148240
FD145 DRT02	95358	JLM0591	PR094971	7	37	4/12/2005	6:03:50 PM	1.98E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	2		0	145088
FD145 DRT02	95358	JLM0591	PR094971	7	38	4/12/2005	6:05:50 PM	1.97E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	3		0	144282

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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 Building 104 Operations		

Section 3.0
Measurement Results – Direct Alpha Measurements
6 Pages

Measurement Database Download Report

Direct Alpha Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041205-001	1	JLM0591	4/12/2005	7:41 AM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/11/2005	7:36:56 AM	4.00E+00	300	1	4	15	FS442	DRT01	DM1C1	A02AA	LAB01	1		0	16
FS442 DRT01	120636	JLM0591	PR172236	7	1	4/11/2005	7:49:02 AM	1.46E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	1		0	29632
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/11/2005	7:51:06 AM	1.46E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	2		0	29713
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/11/2005	7:53:12 AM	1.21E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	3		0	24599
E2000 201C1	120636	JLM0591	PR172236	8	8	4/11/2005	5:08:02 AM	3.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST005	1		0	61
E2000 201C1	120636	JLM0591	PR172236	8	9	4/11/2005	5:09:58 AM	5.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST005	1		0	101
E2000 201C1	120636	JLM0591	PR172236	8	10	4/11/2005	5:13:54 AM	1.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST005	2		0	20
E2000 201C1	120636	JLM0591	PR172236	8	11	4/11/2005	5:49:34 AM	4.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST004	1		0	81
E2000 201C1	120636	JLM0591	PR172236	8	12	4/11/2005	5:51:08 AM	5.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST004	1		0	101
E2000 201C1	120636	JLM0591	PR172236	8	13	4/11/2005	5:52:30 AM	1.10E+01	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST004	2		0	223
E2000 201C1	120636	JLM0591	PR172236	8	14	4/11/2005	6:20:08 AM	1.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST003	1		0	20
E2000 201C1	120636	JLM0591	PR172236	8	15	4/11/2005	6:23:12 AM	5.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST003	1		0	101
E2000 201C1	120636	JLM0591	PR172236	8	16	4/11/2005	6:24:28 AM	2.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST003	2		0	41
E2000 201C1	120636	JLM0591	PR172236	8	17	4/11/2005	7:27:30 AM	3.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST002	1		0	61
E2000 201C1	120636	JLM0591	PR172236	8	18	4/11/2005	7:29:22 AM	3.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST002	1		0	61
E2000 201C1	120636	JLM0591	PR172236	8	19	4/11/2005	7:31:16 AM	5.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST002	2		0	101
E2000 201C1	120636	JLM0591	PR172236	8	20	4/11/2005	10:12:36 AM	1.20E+01	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST001	1		0	244
E2000 201C1	120636	JLM0591	PR172236	8	21	4/11/2005	10:13:58 AM	1.00E+01	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST001	1		0	203
E2000 201C1	120636	JLM0591	PR172236	8	22	4/11/2005	10:15:28 AM	9.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST001	2		0	183

Measurement Database Download Report

Direct Alpha Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041205-001	1	JLM0591	4/12/2005	7:41 AM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
E2000 201C1	120636	JLM0591	PR172236	8	23	4/11/2005	10:52:54 AM	4.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02GA	ST013	1		0	81
E2000 201C1	120636	JLM0591	PR172236	8	24	4/11/2005	10:56:50 AM	6.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST013	1		0	122
E2000 201C1	120636	JLM0591	PR172236	8	25	4/11/2005	10:58:20 AM	8.00E+00	60	1	0	15	E2000	201C1	DM1C1	A02FA	ST013	2		0	162
FS442 DRT02	120636	JLM0591	PR172236	6	26	4/11/2005	11:45:04 AM	1.10E+01	300	1	4	15	FS442	DRT02	DM1C1	A02CA	LAB01	1		0	45
FS442 DRT02	120636	JLM0591	PR172236	7	27	4/11/2005	11:51:32 AM	1.43E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	1		0	28962
FS442 DRT02	120636	JLM0591	PR172236	7	28	4/11/2005	11:55:34 AM	1.41E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	2		0	28597
FS442 DRT02	120636	JLM0591	PR172236	7	29	4/11/2005	11:57:26 AM	1.22E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	3		0	24822

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/14/05

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Direct Alpha Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-005	1	JLM0591	4/10/2005	2:33 PM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	4	4/9/2005	8:24:52 AM	1.00E+01	300	1	4	9	FS442	DRT01	DS1B1	A02AA	LAB01	1		0	41
FS442 DRT01	120636	JLM0591	PR172236	7	5	4/9/2005	8:35:32 AM	1.43E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	1		0	29023
FS442 DRT01	120636	JLM0591	PR172236	7	6	4/9/2005	8:37:32 AM	1.40E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	2		0	28475
FS442 DRT01	120636	JLM0591	PR172236	7	7	4/9/2005	8:39:06 AM	1.30E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	3		0	26466
E2000 201C1	120636	JLM0591	PR172236	7	8	4/9/2005	11:32:00 AM	1.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST010	1		0	20
E2000 201C1	120636	JLM0591	PR172236	7	9	4/9/2005	11:33:08 AM	1.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST010	2		0	20
E2000 201C1	120636	JLM0591	PR172236	7	10	4/9/2005	11:34:20 AM	1.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST010	3		0	20
E2000 201C1	120636	JLM0591	PR172236	7	11	4/9/2005	11:36:52 AM	1.00E+01	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST010	1		0	203
E2000 201C1	120636	JLM0591	PR172236	7	12	4/9/2005	11:39:38 AM	1.00E+00	60	1	4	9	E2000	201C1	DM1B1	A02FA	ST010	2		0	20
E2000 201C1	120636	JLM0591	PR172236	7	13	4/9/2005	1:10:54 PM	0.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST011	1		0	0
E2000 201C1	120636	JLM0591	PR172236	7	14	4/9/2005	1:16:38 PM	2.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST011	1		0	41
E2000 201C1	120636	JLM0591	PR172236	7	15	4/9/2005	1:18:58 PM	4.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST011	2		0	81
E2000 201C1	120636	JLM0591	PR172236	7	16	4/9/2005	2:09:12 PM	2.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST009	1		0	41
E2000 201C1	120636	JLM0591	PR172236	7	17	4/9/2005	2:11:10 PM	3.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST009	1		0	61
E2000 201C1	120636	JLM0591	PR172236	7	18	4/9/2005	2:12:26 PM	2.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST009	2		0	41
E2000 201C1	120636	JLM0591	PR172236	7	19	4/9/2005	3:11:12 PM	0.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02GA	ST008	1		0	0
E2000 201C1	120636	JLM0591	PR172236	7	20	4/9/2005	3:16:08 PM	1.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST008	1		0	20
E2000 201C1	120636	JLM0591	PR172236	7	21	4/9/2005	3:17:26 PM	1.00E+00	60	1	4	9	E2000	201C1	DM1C1	A02FA	ST008	2		0	20
FS442 DRT02	120636	JLM0591	PR172236	6	29	4/9/2005	5:53:22 PM	3.00E+00	300	1	4	9	FS442	DRT02	DS1C1	A02CA	LAB01	1		0	12

Measurement Database Download Report

Direct Alpha Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-005	1	JLM0591	4/10/2005	2:33 PM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT02	120636	JLM0591	PR172236	7	30	4/9/2005	6:00:10 PM	1.45E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	1		0	29348
FS442 DRT02	120636	JLM0591	PR172236	7	31	4/9/2005	6:03:40 PM	1.48E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	2		0	29997
FS442 DRT02	120636	JLM0591	PR172236	7	32	4/9/2005	6:05:42 PM	1.24E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	3		0	25207

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/14/05

Measurement Database Download Report

Direct Alpha Measurements

4/11/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041105-002	1	JLM0591	4/11/2005	8:35 AM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/10/2005	10:17:04 AM	1.00E+00	300	1	4	12	FS442	DRT01	DS1C1	A02AA	LAB01	1		0	4
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/10/2005	10:25:00 AM	1.50E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	1		0	30464
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/10/2005	10:28:34 AM	1.39E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	2		0	28171
FS442 DRT01	120636	JLM0591	PR172236	7	4	4/10/2005	10:31:10 AM	1.24E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	3		0	25147
E2000 201C1	120636	JLM0591	PR172236	8	12	4/10/2005	1:21:36 PM	1.00E+01	60	1	0	12	E2000	201C1	DM1C1	A02GA	ST007	1		0	203
E2000 201C1	120636	JLM0591	PR172236	8	13	4/10/2005	1:23:10 PM	6.00E+00	60	1	0	12	E2000	201C1	DM1C1	A02FA	ST007	1		0	122
E2000 201C1	120636	JLM0591	PR172236	8	14	4/10/2005	1:24:48 PM	7.00E+00	60	1	0	12	E2000	201C1	DM1C1	A02FA	ST007	2		0	142
E2000 201C1	120636	JLM0591	PR172236	8	15	4/10/2005	1:57:50 PM	1.00E+00	60	1	0	12	E2000	201C1	DM1C1	A02GA	ST006	1		0	20
E2000 201C1	120636	JLM0591	PR172236	8	16	4/10/2005	2:00:32 PM	4.00E+00	60	1	0	12	E2000	201C1	DM1C1	A02FA	ST006	1		0	81
E2000 201C1	120636	JLM0591	PR172236	8	17	4/10/2005	2:01:54 PM	2.00E+00	60	1	0	12	E2000	201C1	DM1C1	A02FA	ST006	2		0	41
FS442 DRT02	120636	JLM0591	PR172236	6	18	4/10/2005	2:53:14 PM	4.00E+00	300	1	4	12	FS442	DRT02	DM1C1	A02CA	LAB01	1		0	16
FS442 DRT02	120636	JLM0591	PR172236	7	19	4/10/2005	2:57:32 PM	1.47E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	1		0	29794
FS442 DRT02	120636	JLM0591	PR172236	7	20	4/10/2005	2:59:14 PM	1.44E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	2		0	29246
FS442 DRT02	120636	JLM0591	PR172236	7	21	4/10/2005	3:00:38 PM	1.27E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	3		0	25735

Reviewed By: _____ Date: 4/11/05 Approved By: _____ Date: 4/13/05

Measurement Database Download Report

Direct Alpha Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041305-002	1	JLM0591	4/13/2005	8:04 AM	E2000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/12/2005	2:44:58 AM	4.00E+00	300	1	4	18	FS442	DRT01	DM1C1	A02AA	LAB01	1		0	16
FS442 DRT01	120636	JLM0591	PR172236	7	1	4/12/2005	2:52:32 AM	1.40E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	1		0	28434
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/12/2005	2:56:02 AM	1.41E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	2		0	28678
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/12/2005	2:57:26 AM	1.24E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	3		0	25106
E2000 201C1	120636	JLM0591	PR172236	8	4	4/12/2005	8:48:00 AM	5.00E+00	60	1	0	18	E2000	201C1	DM1C1	A02GA	ST012	1		0	101
E2000 201C1	120636	JLM0591	PR172236	8	5	4/12/2005	8:49:34 AM	2.00E+00	60	1	0	18	E2000	201C1	DM1C1	A02FA	ST012	1		0	41
E2000 201C1	120636	JLM0591	PR172236	8	6	4/12/2005	8:52:44 AM	7.00E+00	60	1	0	18	E2000	201C1	DM1B1	A02FA	ST012	2		0	142
FS442 DRT02	120636	JLM0591	PR172236	6	35	4/12/2005	4:43:34 PM	2.00E+01	300	1	4	18	FS442	DRT02	DS1C1	A02CA	LAB01	1		0	81
FS442 DRT02	120636	JLM0591	PR172236	7	36	4/12/2005	4:49:00 PM	1.39E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	1		0	28110
FS442 DRT02	120636	JLM0591	PR172236	7	37	4/12/2005	4:50:52 PM	1.45E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	2		0	29388
FS442 DRT02	120636	JLM0591	PR172236	7	38	4/12/2005	4:52:26 PM	1.21E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	3		0	24639

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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 Building 104 Operations		

Section 4.0
Measurement Results – Exposure Rate Measurements
6 Pages

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-004	1	JLM0591	4/10/2005	1:59 PM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/9/2005	4:54:30 PM	2.82E+04	300	1	0	8	GTS10	DRT01	DM1V2	G01AA	LAB01	1		0	5.51E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/9/2005	5:03:30 PM	8.40E+05	60	1	0	8	GTS10	DRT01	DM1V2	G01BA	LAB01	1		0	8.21E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/9/2005	5:08:34 PM	4.20E+04	60	1	0	8	GTS10	DRT01	DM1V2	G01BA	LAB01	2		0	4.11E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/9/2005	5:10:04 PM	1.09E+04	60	1	0	8	GTS10	DRT01	DM1V2	G01BA	LAB01	3		0	1.06E+01
E2000 201C1	95358	JLM0591	PR192598	8	4	4/9/2005	8:03:50 PM	6.69E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST010	1		0	6.54E+00
E2000 201C1	95358	JLM0591	PR192598	8	5	4/9/2005	8:05:12 PM	6.61E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST010	2		0	6.47E+00
E2000 201C1	95358	JLM0591	PR192598	8	6	4/9/2005	8:06:30 PM	6.37E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST010	3		0	6.23E+00
E2000 201C1	95358	JLM0591	PR192598	8	7	4/9/2005	8:08:32 PM	1.71E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST010	1		0	1.67E+01
E2000 201C1	95358	JLM0591	PR192598	8	8	4/9/2005	8:09:48 PM	1.80E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST010	2		0	1.76E+01
E2000 201C1	95358	JLM0591	PR192598	8	9	4/9/2005	8:11:14 PM	1.75E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST010	3		0	1.71E+01
E2000 201C1	95358	JLM0591	PR192598	8	10	4/9/2005	8:14:26 PM	1.72E+04	60	1	0	8	E2000	201C1	DM1B1	G01FA	ST010	1		0	1.68E+01
E2000 201C1	95358	JLM0591	PR192598	8	11	4/9/2005	8:15:48 PM	1.75E+04	60	1	0	8	E2000	201C1	DM1B1	G01FA	ST010	2		0	1.71E+01
E2000 201C1	95358	JLM0591	PR192598	8	12	4/9/2005	8:20:36 PM	1.79E+04	60	1	0	8	E2000	201C1	DM1B1	G01FA	ST010	3		0	1.75E+01
E2000 201C1	95358	JLM0591	PR192598	8	13	4/9/2005	8:22:14 PM	1.77E+04	60	1	0	8	E2000	201C1	DM1B1	G01FA	ST010	4		0	1.73E+01
E2000 201C1	95358	JLM0591	PR192598	8	14	4/9/2005	8:32:34 PM	1.22E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST010	5		0	1.19E+01
E2000 201C1	95358	JLM0591	PR192598	8	15	4/9/2005	8:33:56 PM	1.14E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST010	6		0	1.11E+01
E2000 201C1	95358	JLM0591	PR192598	8	16	4/9/2005	10:20:26 PM	5.01E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST011	1		0	4.90E+00
E2000 201C1	95358	JLM0591	PR192598	8	17	4/9/2005	10:22:16 PM	5.16E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST011	2		0	5.04E+00
E2000 201C1	95358	JLM0591	PR192598	8	18	4/9/2005	10:33:18 PM	1.12E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST011	1		0	1.10E+01
E2000 201C1	95358	JLM0591	PR192598	8	19	4/9/2005	10:36:36 PM	1.12E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST011	1		0	1.10E+01
E2000 201C1	95358	JLM0591	PR192598	8	20	4/9/2005	10:38:50 PM	1.15E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST011	2		0	1.12E+01
E2000 201C1	95358	JLM0591	PR192598	8	21	4/9/2005	11:31:34 PM	4.50E+03	60	1	0	8	E2000	201C1	DM1S1	G02FA	ST009	1		0	4.40E+00
E2000 201C1	95358	JLM0591	PR192598	8	22	4/9/2005	11:33:06 PM	4.64E+03	60	1	0	8	E2000	201C1	DM1S1	G02FA	ST009	2		0	4.54E+00
E2000 201C1	95358	JLM0591	PR192598	8	23	4/9/2005	11:36:40 PM	1.69E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST009	1		0	1.65E+01
E2000 201C1	95358	JLM0591	PR192598	8	24	4/9/2005	11:40:18 PM	1.08E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST009	1		0	1.06E+01
E2000 201C1	95358	JLM0591	PR192598	8	25	4/9/2005	11:41:52 PM	1.02E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST009	2		0	9.97E+00

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-004	1	JLM0591	4/10/2005	1:59 PM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
E2000 201C1	95358	JLM0591	PR192598	8	26	4/9/2005	12:15:04 AM	4.05E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST008	1		0	3.96E+00
E2000 201C1	95358	JLM0591	PR192598	8	27	4/9/2005	12:16:14 AM	4.22E+03	60	1	0	8	E2000	201C1	DM1C1	G02FA	ST008	2		0	4.12E+00
E2000 201C1	95358	JLM0591	PR192598	8	28	4/9/2005	12:18:56 AM	1.74E+04	60	1	0	8	E2000	201C1	DM1C1	G01GA	ST008	1		0	1.70E+01
E2000 201C1	95358	JLM0591	PR192598	8	29	4/9/2005	12:20:40 AM	1.04E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST008	1		0	1.02E+01
E2000 201C1	95358	JLM0591	PR192598	8	30	4/9/2005	12:21:50 AM	1.06E+04	60	1	0	8	E2000	201C1	DM1C1	G01FA	ST008	2		0	1.04E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	41	4/9/2005	3:04:12 AM	2.67E+04	300	1	0	8	GTS10	DRT02	DS1V2	G01CA	LAB01	1		0	5.22E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	42	4/9/2005	3:12:28 AM	8.51E+05	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	1		0	8.33E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	43	4/9/2005	3:15:50 AM	4.17E+04	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	2		0	4.08E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	44	4/9/2005	3:17:48 AM	1.10E+04	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	2		0	1.08E+01

Reviewed By: JdMcGlen Date: 4/10/05 Approved By: RJS Date: 4/13/05

Measurement Database Download Report
Exposure Rate Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041105-001	1	JLM0591	4/11/2005	7:49 AM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/10/2005	7:25:54 PM	2.69E+04	300	1	0	11	GTS10	DRT01	DS1V2	G01AA	LAB01	1		0	5.27E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/10/2005	7:34:04 PM	8.86E+05	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	1		0	8.66E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/10/2005	7:36:20 PM	4.16E+04	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	2		0	4.07E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/10/2005	7:39:16 PM	1.10E+04	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	3		0	1.08E+01
E2000 201C1	95358	JLM0591	PR192598	8	16	4/10/2005	10:18:10 PM	4.16E+03	60	1	0	11	E2000	201C1	DM1C1	G02FA	ST007	1		0	4.07E+00
E2000 201C1	95358	JLM0591	PR192598	8	17	4/10/2005	10:20:10 PM	1.33E+04	60	1	0	11	E2000	201C1	DM1C1	G01GA	ST007	1		0	1.30E+01
E2000 201C1	95358	JLM0591	PR192598	8	18	4/10/2005	10:22:38 PM	1.14E+04	60	1	0	11	E2000	201C1	DM1C1	G01FA	ST007	1		0	1.12E+01
E2000 201C1	95358	JLM0591	PR192598	8	19	4/10/2005	10:27:06 PM	1.06E+04	60	1	0	11	E2000	201C1	DM1C1	G01FA	ST007	2		0	1.04E+01
E2000 201C1	95358	JLM0591	PR192598	8	20	4/10/2005	10:59:28 PM	5.07E+03	60	1	0	11	E2000	201C1	DM1C1	G02FA	ST006	1		0	4.96E+00
E2000 201C1	95358	JLM0591	PR192598	8	21	4/10/2005	11:01:06 PM	4.82E+03	60	1	0	11	E2000	201C1	DM1C1	G02FA	ST006	2		0	4.72E+00
E2000 201C1	95358	JLM0591	PR192598	8	22	4/10/2005	11:03:14 PM	1.61E+04	60	1	0	11	E2000	201C1	DM1C1	G01GA	ST006	1		0	1.58E+01
E2000 201C1	95358	JLM0591	PR192598	8	23	4/10/2005	11:05:38 PM	1.11E+04	60	1	0	11	E2000	201C1	DM1C1	G01FA	ST006	1		0	1.09E+01
E2000 201C1	95358	JLM0591	PR192598	8	24	4/10/2005	11:07:08 PM	1.11E+04	60	1	0	11	E2000	201C1	DM1C1	G01FA	ST006	2		0	1.09E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	25	4/10/2005	2:51:02 PM	2.82E+04	300	1	0	11	GTS10	DRT02	DM1C1	G01CA	LAB01	1		0	5.52E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	26	4/10/2005	2:57:00 PM	8.88E+05	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	1		0	8.68E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	27	4/10/2005	2:58:26 PM	4.22E+04	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	2		0	4.13E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	28	4/10/2005	3:00:04 PM	1.12E+04	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	3		0	1.09E+01

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/14/05

Measurement Database Download Report
Exposure Rate Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041105-007	1	JLM0591	4/11/2005	5:43 PM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/11/2005	7:36:56 AM	2.88E+04	300	1	0	14	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.63E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/11/2005	7:45:14 AM	8.89E+05	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	8.69E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/11/2005	7:47:26 AM	4.20E+04	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.11E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/11/2005	7:50:22 AM	1.15E+04	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.13E+01
E2000 201C1	95358	JLM0591	PR192598	8	10	4/11/2005	10:00:42 AM	5.07E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST005	1		0	4.96E+00
E2000 201C1	95358	JLM0591	PR192598	8	11	4/11/2005	10:01:58 AM	5.06E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST005	2		0	4.95E+00
E2000 201C1	95358	JLM0591	PR192598	8	12	4/11/2005	10:04:10 AM	1.59E+04	60	1	0	14	E2000	201C1	DM1C1	G01GA	ST005	1		0	1.56E+01
E2000 201C1	95358	JLM0591	PR192598	8	13	4/11/2005	10:06:10 AM	1.19E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST005	1		0	1.16E+01
E2000 201C1	95358	JLM0591	PR192598	8	14	4/11/2005	10:07:28 AM	1.15E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST005	2		0	1.12E+01
E2000 201C1	95358	JLM0591	PR192598	8	15	4/11/2005	10:28:36 AM	5.02E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST004	1		0	4.91E+00
E2000 201C1	95358	JLM0591	PR192598	8	16	4/11/2005	10:29:50 AM	5.03E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST004	2		0	4.91E+00
E2000 201C1	95358	JLM0591	PR192598	8	17	4/11/2005	10:32:32 AM	1.42E+04	60	1	0	14	E2000	201C1	DM1C1	G01GA	ST004	1		0	1.39E+01
E2000 201C1	95358	JLM0591	PR192598	8	18	4/11/2005	10:34:24 AM	1.11E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST004	1		0	1.08E+01
E2000 201C1	95358	JLM0591	PR192598	8	19	4/11/2005	10:35:40 AM	1.09E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST004	2		0	1.07E+01
E2000 201C1	95358	JLM0591	PR192598	8	20	4/11/2005	11:10:18 AM	5.14E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST003	1		0	5.03E+00
E2000 201C1	95358	JLM0591	PR192598	8	21	4/11/2005	11:11:40 AM	5.35E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST003	2		0	5.23E+00
E2000 201C1	95358	JLM0591	PR192598	8	22	4/11/2005	11:14:54 AM	1.61E+04	60	1	0	14	E2000	201C1	DM1C1	G01GA	ST003	1		0	1.57E+01
E2000 201C1	95358	JLM0591	PR192598	8	23	4/11/2005	11:16:56 AM	1.08E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST003	1		0	1.05E+01
E2000 201C1	95358	JLM0591	PR192598	8	24	4/11/2005	11:18:14 AM	1.07E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST003	2		0	1.05E+01
E2000 201C1	95358	JLM0591	PR192598	8	25	4/11/2005	11:55:02 AM	4.97E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST002	1		0	4.86E+00
E2000 201C1	95358	JLM0591	PR192598	8	26	4/11/2005	11:59:40 AM	4.98E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST002	2		0	4.87E+00
E2000 201C1	95358	JLM0591	PR192598	8	27	4/11/2005	12:02:16 PM	1.71E+04	60	1	0	14	E2000	201C1	DM1C1	G01GA	ST002	1		0	1.68E+01
E2000 201C1	95358	JLM0591	PR192598	8	28	4/11/2005	12:04:20 PM	1.20E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST002	1		0	1.17E+01
E2000 201C1	95358	JLM0591	PR192598	8	29	4/11/2005	12:05:50 PM	1.19E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST002	2		0	1.16E+01
E2000 201C1	95358	JLM0591	PR192598	8	30	4/11/2005	2:45:02 PM	9.71E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST001	1		0	9.50E+00
E2000 201C1	95358	JLM0591	PR192598	8	31	4/11/2005	2:46:14 PM	1.08E+04	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST001	2		0	1.06E+01

Measurement Database Download Report
Exposure Rate Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041105-007	1	JLM0591	4/11/2005	5:43 PM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
E2000 201C1	95358	JLM0591	PR192598	8	32	4/11/2005	2:48:30 PM	1.25E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST001	1		0	1.22E+01
E2000 201C1	95358	JLM0591	PR192598	8	33	4/11/2005	2:49:42 PM	1.18E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST001	2		0	1.15E+01
E2000 201C1	95358	JLM0591	PR192598	8	34	4/11/2005	3:31:10 PM	5.34E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST013	1		0	5.23E+00
E2000 201C1	95358	JLM0591	PR192598	8	35	4/11/2005	3:32:32 PM	4.87E+03	60	1	0	14	E2000	201C1	DM1C1	G02FA	ST013	2		0	4.76E+00
E2000 201C1	95358	JLM0591	PR192598	8	36	4/11/2005	3:34:36 PM	1.92E+04	60	1	0	14	E2000	201C1	DM1C1	G01GA	ST013	1		0	1.88E+01
E2000 201C1	95358	JLM0591	PR192598	8	37	4/11/2005	3:37:54 PM	1.93E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST013	1		0	1.89E+01
E2000 201C1	95358	JLM0591	PR192598	8	38	4/11/2005	3:39:10 PM	1.75E+04	60	1	0	14	E2000	201C1	DM1C1	G01FA	ST013	2		0	1.71E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	39	4/11/2005	4:25:38 PM	2.79E+04	300	1	0	14	GTS10	DRT02	DM1C1	G01CA	LAB01	1		0	5.46E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	40	4/11/2005	4:31:24 PM	8.81E+05	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	1		0	8.62E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	41	4/11/2005	4:36:14 PM	4.18E+04	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	2		0	4.09E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	42	4/11/2005	4:38:22 PM	1.13E+04	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: JLM McAbee Date: 4/14/05 Approved By: RLC Date: 4/14/05

Measurement Database Download Report
Exposure Rate Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041305-001	1	JLM0591	4/13/2005	7:57 AM	E2000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/12/2005	7:25:26 AM	2.75E+04	300	1	0	17	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.38E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/12/2005	7:32:22 AM	8.71E+05	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	8.52E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/12/2005	7:35:16 AM	4.22E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.13E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/12/2005	7:37:40 AM	1.13E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.11E+01
E2000 201C1	95358	JLM0591	PR192598	8	4	4/12/2005	8:39:18 AM	5.43E+03	60	1	0	17	E2000	201C1	DM1C1	G02FA	ST012	1		0	5.31E+00
E2000 201C1	95358	JLM0591	PR192598	8	5	4/12/2005	8:41:24 AM	5.59E+03	60	1	0	17	E2000	201C1	DM1C1	G02FA	ST012	2		0	5.46E+00
E2000 201C1	95358	JLM0591	PR192598	8	6	4/12/2005	8:43:46 AM	1.72E+04	60	1	0	17	E2000	201C1	DM1C1	G01GA	ST012	1		0	1.68E+01
E2000 201C1	95358	JLM0591	PR192598	8	7	4/12/2005	8:45:34 AM	1.70E+04	60	1	0	17	E2000	201C1	DM1C1	G01FA	ST012	1		0	1.66E+01
E2000 201C1	95358	JLM0591	PR192598	8	8	4/12/2005	8:46:50 AM	1.71E+04	60	1	0	17	E2000	201C1	DM1C1	G01FA	ST012	2		0	1.67E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	52	4/12/2005	4:44:04 PM	2.80E+04	300	1	0	17	GTS10	DRT02	DS1B1	G01CA	LAB01	1		0	5.47E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	53	4/12/2005	4:47:50 PM	8.62E+05	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	1		0	8.43E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	54	4/12/2005	4:50:14 PM	4.15E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	2		0	4.06E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	55	4/12/2005	4:51:32 PM	1.13E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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 Building 104 Operations		

Section 5.0
Sample Analysis Results – Alpha/Beta Counter
15 Pages

DATA M2929 1 Pass Codes Off

SN	REPEA	PROG	PROGRAM_N	SAMPLE_ID	DATE	TIME	WT	WT_SD	BG_TIME	CNT_TIME	A	ACPM	ABKGCPM	ANETCPM	AEFF	ADPM	ALLD	B	BCPM	BBKGCPM	ATOB	BNETCPM	BEFF	BDPM	BLLD
i	0	1	ALPHA/BETA	ST001-1	4/11/2005	15:00:00	0	0	20	i	2	2	0.2	1.8	0.454	3.96	9.29	52	52	52	0	0	0.206	0.00	131.17
2	0	i	ALPHA/BETA	ST001-2	4/11/2005	15:00:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	57	57	52	0	5	0.206	24.27	131.17
3	0	i	ALPHA/BETA	ST001-3	4/11/2005	15:00:00	0	0	20	i	1	1	0.2	0.8	0.454	1.76	9.29	61	61	52	0	9	0.206	43.69	131.17
4	0	i	ALPHA/BETA	ST002-1	4/11/2005	12:30:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	48	48	52	0	-4	0.206	-19.42	131.17
5	0	i	ALPHA/BETA	ST002-2	4/11/2005	12:30:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	54	54	52	0	2	0.206	9.71	131.17
6	0	i	ALPHA/BETA	ST003-1	4/11/2005	11:00:00	0	0	20	i	3	3	0.2	2.8	0.454	6.17	9.29	50	50	52	0	-2	0.206	-9.71	131.17
7	0	i	ALPHA/BETA	ST003-2	4/11/2005	11:00:00	0	0	20	i	3	3	0.2	2.8	0.454	6.17	9.29	57	57	52	0	5	0.206	24.27	131.17
8	0	i	ALPHA/BETA	ST004-1	4/11/2005	10:45:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	49	49	52	0	-3	0.206	-14.56	131.17
9	0	i	ALPHA/BETA	ST004-2	4/11/2005	10:45:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	65	65	52	0	13	0.206	63.11	131.17
10	0	1	ALPHA/BETA	ST005-1	4/11/2005	10:05:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	54	54	52	0	2	0.206	9.71	131.17
11	0	i	ALPHA/BETA	ST005-2	4/11/2005	10:05:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	52	52	52	0	0	0.206	0.00	131.17
12	0	i	ALPHA/BETA	ST005-3	4/11/2005	10:05:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	60	60	52	0	8	0.206	38.83	131.17
13	0	i	ALPHA/BETA	ST006-1	4/11/2005	14:00:00	0	0	20	i	2	2	0.2	2	0.454	4.41	9.29	38	38	52	0	-14	0.206	-67.96	131.17
14	0	i	ALPHA/BETA	ST006-2	4/11/2005	14:00:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	49	49	52	0	-3	0.206	-14.56	131.17
15	0	i	ALPHA/BETA	ST007-1	4/10/2005	12:00:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	57	57	52	0	5	0.206	24.27	131.17
16	0	i	ALPHA/BETA	ST007-2	4/10/2005	12:00:00	0	0	20	i	3	3	0.2	3	0.454	6.61	9.29	58	58	52	0	6	0.206	29.13	131.17
17	0	i	ALPHA/BETA	ST007-3	4/10/2005	12:00:00	0	0	20	i	i	i	0.2	i	0.454	2.20	9.29	60	60	52	0	8	0.206	38.83	131.17
18	0	i	ALPHA/BETA	ST008-1	4/9/2005	15:00:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	53	53	52	0	1	0.206	4.85	131.17
19	0	i	ALPHA/BETA	ST008-2	4/9/2005	15:00:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	45	45	52	0	-7	0.206	-33.98	131.17
20	0	i	ALPHA/BETA	ST008-3	4/9/2005	15:00:00	0	0	20	i	i	i	0.2	0.8	0.454	1.76	9.29	47	47	52	0	-5	0.206	-24.27	131.17
21	0	i	ALPHA/BETA	ST009-1	4/9/2005	14:44:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	64	64	52	0	12	0.206	58.25	131.17
22	0	i	ALPHA/BETA	ST009-2	4/9/2005	14:44:00	0	0	20	i	i	i	0.2	0.8	0.454	1.76	9.29	48	48	52	0	-4	0.206	-19.42	131.17
23	0	i	ALPHA/BETA	ST009-3	4/9/2005	14:44:00	0	0	20	i	3	3	0.2	2.8	0.454	6.17	9.29	57	57	52	0	5	0.206	24.27	131.17
24	0	i	ALPHA/BETA	ST010-1	4/9/2005	11:47:00	0	0	20	i	i	i	0.2	0.8	0.454	1.76	9.29	54	54	52	0	2	0.206	9.71	131.17
25	0	i	ALPHA/BETA	ST010-2	4/9/2005	11:47:00	0	0	20	i	i	i	0.2	0.8	0.454	1.76	9.29	48	48	52	0	-4	0.206	-19.42	131.17
26	0	i	ALPHA/BETA	ST010-3	4/9/2005	11:47:00	0	0	20	1	i	i	0.2	0.8	0.454	1.76	9.29	62	62	52	0	10	0.206	48.54	131.17
27	0	i	ALPHA/BETA	ST011-1	4/9/2005	13:55:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	46	46	52	0	-6	0.206	-29.13	131.17
28	0	i	ALPHA/BETA	ST011-2	4/9/2005	13:55:00	0	0	20	1	2	2	0.2	1.8	0.454	3.96	9.29	57	57	52	0	5	0.206	24.27	131.17
29	0	i	ALPHA/BETA	ST011-3	4/9/2005	13:55:00	0	0	20	1	i	i	0.2	0.8	0.454	1.76	9.29	53	53	52	0	i	0.206	4.85	131.17
30	0	i	ALPHA/BETA	ST012-1	4/12/2005	8:50:00	0	0	20	i	2	2	0.2	2	0.454	4.41	9.29	53	53	52	0	i	0.206	4.85	131.17
31	0	i	ALPHA/BETA	ST012-2	4/12/2005	8:50:00	0	0	20	1	0	0	0.2	0	0.454	0.00	9.29	49	49	52	0	-3	0.206	-14.56	131.17
32	0	i	ALPHA/BETA	ST012-3	4/12/2005	8:50:00	0	0	20	i	0	0	0.2	0	0.454	0.00	9.29	50	50	52	0	-2	0.206	-9.71	131.17
33	0	i	ALPHA/BETA	ST013-1	4/11/2005	16:00:00	0	0	20	i	4	4	0.2	3.8	0.454	8.37	9.29	43	43	52	0	-9	0.206	-43.69	131.17
34	0	i	ALPHA/BETA	ST013-2	4/11/2005	16:00:00	0	0	20	i	0	0	0.2	-0.2	0.454	-0.44	9.29	53	53	52	0	i	0.206	4.85	131.17
35	0	i	ALPHA/BETA	ST013-3	4/11/2005	16:00:00	0	0	20	i	2	2	0.2	1.8	0.454	3.96	9.29	57	57	52	0	5	0.206	24.27	131.17

Survey Data Sheet

Item ID ST00 1

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	0	1.8	CONCRETE @ BOTTOM
2	5	-0.2	↓
3	9	0.8	↓

Smears counted by M [illegible] Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/11/05 1500

Survey Data Sheet

Item ID ST002

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-4	-0.2	CONCRETE @ BOTTOM
2	2	-0.2	↓

Smears counted by _____ Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/14/05 1230

Survey Data Sheet

Item ID STD03

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-2	2.8	CONCRETE @ BOTTOM
2	5	2.8	↓

Smears counted by MC Graham Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/11/05 1100

Survey Data Sheet

Item ID STØ04

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-3	0	Concrete @ Bottom
2	13	0	

Smears counted by D. McCee Date 4.14.05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D McCee Date/Time 4.11.05 / 1045

Survey Data Sheet

Item ID ST005 E0002

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	2	-0.2	CONCRETE @ BOTTOM

Smears counted by MK Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M Date/Time 4/11/05 1005

Survey Data Sheet

Item ID ST005

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
X2	0	0	Concrete @ Bottom
X3	8	0	"

4/19/05

Smears counted by D. McGee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. McGee Date/Time 4-11-05 / 1005

Survey Data Sheet

Item ID ST 006

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-19	2	Concrete @ Bottom
2	-3	0	"

Smears counted by D. McGee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. McGee Date/Time ~~4/4/05 1030~~ 4/10/05 1400

Survey Data Sheet

Item ID ST 007

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	5	0	Concrete @ Bottom
2	6	3	↓
3	8	1	↓

Smears counted by D. McGee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D McGee Date/Time 4/10/05 1200

Survey Data Sheet

Item ID ST 08 E2000

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	1	-0.2	CONCRETE @ BOTTOM
2	-7	-0.2	↓
3	-5	0.8	↓

Smears counted by MWright Date 4/10/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: _____ Date/Time 4/9/05/1500

Survey Data Sheet

Item ID ST009 E2000

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	12	-0.2	CONCRETE @ BOTTOM
2	-4	0.8	↓
3	5	2.8	↓

Smears counted by MKyle Date 4/10/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: _____ Date/Time 4/9/05 1444

Survey Data Sheet

Item ID ST010 C2000

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	2	0.8	CONCRETE @ BOTTOM
2	-4	0.8	↓
3	10	0.8	↓

Smears counted by MKnight Date 4/10/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: _____ Date/Time 4/9/05 1147

Survey Data Sheet

Item ID ST Ø 11 E200

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0,2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-6	-0,2	CONCRETE @ BOTTOM
2	5	1,8	↓
3	1	0,8	↓

Smears counted by MK Date 4/11/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: _____ Date/Time 4/5/05 / 1355

Survey Data Sheet

Item ID ST 012

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	1	2	Bottom / Concrete
2	-3	0	↓
3	-2	0	

Smears counted by D. McCee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. McCee Date/Time 4-12-05/0850

Survey Data Sheet

Item ID ST013

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-9	3.8	CONCRETE @ BOTTOM
2	1	-0.2	↓
3	5	1.8	↓

Smears counted by MK Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/11/05 1600

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 Building 104 Operations		

Section 6.0
Sample Analysis Results – Gamma Spectroscopy
6 Pages

FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM
(ENVIRONMENTAL/BIOASSAY SAMPLES)

Client Name: **Parsons Engineering Science, Inc.**

Client Purchase Order/Contract: **Task Order Number: 744009.6000-00**

Date of Shipment: **4/14/2005**

Program: **REMP** ☐ **Non-REMP** ☑

Requested Turnaround Time (TAT): ☑ Standard ☐ Rush (***COST MULTIPLIER MAY APPLY***)
___ Working Days (***SPECIFY NUMBER***)

Name/Address of Client Representative: Framatome ANP Federal D&D Services

(Person(s) who should receive the results) John McGehee and Don McGee

Phone: *(704)805-2298* *(704)805-2576* Fax: *(704)805-2512*

WEEK NO	YEAR	LSN	Sample Type	Station and Description	Collection Period (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay results to. Start Date (If Applicable) ☐ Month	Day	Year	Hour	Stop Date (Required) ☐ Month	Day	Year	Hour	Mid-point Date (If Applicable) ☐ Month	Day	Year	Hour	Total Sample Amount Shipped (Specify Units)	Radiological Analyses (Check All That Apply) Gross Alpha	Gross Beta	I-131 in Charcoal	Ni-63	Fe-55	Gamma	H-3	I-131 LL - (Specify)	P-32	C-14	Am-241,Cm-242,243/244	Np-237	Pu-238,239/240	Pu-241	Ra-226 (Specify)	Ra-228 (Specify)	Sr-89,90	Tc-99	U-234, 235, 238	Uranium Total	Th-230,232	Other (Specify)	Quarterly Composite: Sample belongs to Quarter (1,2,3,4)	Q H-3	Q Sr-89,90	Q Gamma	Other (Specify)
			sludge	ST001					4	11	5	1440					~1057g						X									X										
			sludge	ST002					4	11	5	1200					~802g						X									X										
			sludge	ST003					4	11	5	1120					~1222g						X									X										
			sludge	ST004					4	11	5	1040					~870g						X									X										
			sludge	ST005					4	11	5	955					~1290g						X									X										
			sludge	ST007					4	10	5	1330					~547g															X										
			sludge	ST0011					4	9	5	1345					~135g															X										
			sludge	ST012					4	12	5	835					~165g															X										
			sludge	ST013-1					4	11	5	1540					~255g															X										
			sludge	ST013-2					4	11	5	1450					~172g															X										
			sludge	BLDG21					4	12	5	1425					~847g					X										X										

Chain of Custody

Relinquished By: Don McGee

Collected By: John McGehee

Received By:

ELAB Comments:

Date: 4-13-05

Phone Number: 704-805-2298

Date:

Field Treatment/Comments

SPECIFY METHOD

(Internal Lab Use ONLY)

___ RA-226 (A)
___ RADIUMA_EPA
___ RA-228 (PROC. 1300)
___ RA-228_EPA (PROC. 1311)
___ I-131LL (BETA/GAMMA)
___ I-131LL (GAS PROPORTIONAL)
___ OTHER

ELAB ACCEPTANCE STAMP

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-01 **Client ID** ST001 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/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 +/- 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

Approved by
E. M. Moreno 5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

c:

MAILED
MAY 06 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-02 **Client ID** ST002 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.6E-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		
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

Approved by
5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

c:

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MAY 0 6 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-03 **Client ID** ST003 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)			TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	-1.8E-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	5.2E-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	+/-	1.9E-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		
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.

Approved by
E M. Moreno
Sample Control and Measurements Lead

c:

MAILED
MAY 0 6 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-23 **Client ID** SPLIT OF #L9126-03 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 05/02/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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		
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	-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.

Approved by
E. M. Moreno 5/6/05
Sample Control and Measurements Lead

MAILED
MAY 06 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc | FEDERAL GRP | **Report Date** 05/06/05
Attention John McGehee & Don McGee | **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-04 **Client ID** ST004 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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

Approved by
E M Moreno 5/6/05
Sample Control and Measurements Lead

Reporting Level Ratio:
9126-04Bi/Pb-214 results are qualitative only.

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Customer Framatome ANP Inc | FEDERAL GRP | **Report Date** 05/06/05
Attention John McGehee & Don McGee | **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-05 | **Client ID** ST005 | **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 | **Analysis Date** 04/25/05 | **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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		
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.

c:

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Approved by
E. M. Moreno 5/6/05
E. M. Moreno
Sample Control and Measurements Lead

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 Building 104 Operations		

Section 7.0
Sample Analysis Results – Alpha Spectroscopy
2 Pages

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Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285
Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Reporting Flags	Level Ratio
Sludge (Dry)										
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	2.3E-01	7.0E-01		
L9126-04	ST004	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	7.0E-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	b	
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	7.0E-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		

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
E. M. Moreno 5/12/05
E. M. Moreno
Sample Control and Measurements Lead

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Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	b	
L9126-15	SA005	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-01	4.0E-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	SA010	04/12/2005	05/10/2005	Ra-226	1.03E+00 +/- 2.5E-01	2.6E-01	1.9E-01	7.0E-01	b	
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		
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-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 the required MDC.
b The activity concentration is greater than three times its one sigma counting uncertainty.

Approved by

E. M. Moreno
Sample Control and Measurements Lead

c:

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Appendix C
Analytical Data and Quality Control

Section 9.0
Survey Package E3000 201C1
Sanitary Sewer System

Survey Package Cover Sheet

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		

Survey Package Preparation:

The survey package instructions are prepared and ready for implementation.

Prepared By: _____ Date: 3/11/05
John McGehee, Senior Engineer

Reviewed By: _____ Date: 3/28/05
Don McGee, Senior Engineer

Approved By: _____ Date: 3/30/05
Greg Courtney, Senior Engineer, CHP

Survey Completion:

The survey package instructions were implemented and the survey measurements have been reviewed for completeness in accordance with the Sample and Analysis Plan. The data collected has been reviewed for completeness in accordance with the survey package instructions.

Reviewed By: _____ Date: 6/9/05
John McGehee Senior Engineer

Reviewed By: _____ Date: 6/9/05
Don McGee, Senior Engineer

Reviewed By: _____ Date: 6/9/05
Greg Courtney, Senior Engineer CHP

Approved By: _____ Date: _____
PARSONS Repersentative

Table of Contents

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		

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Survey Area History

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		

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.

Survey Unit Description and History

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

LC3 - Surface Category (P1-3) and Associated Area:

LC3_P1_3	Surface Description	Dimensions (Yes 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.

Survey Unit Description and History

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

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

Survey Package References

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		

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

Survey Safety Requirements

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		

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.

Survey Support Requirements

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		

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.

Survey Package Procedures

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		

Survey Package Procedures:

1.	DD-CS-001	Sample Identification and Chain of Custody
2.	DD-CS-011	Operation of Ludlum Model 2350 Data Logger
3	DD-RP-010	Portable Instrument Procedure
4.	DD-RP-011	Receipt and Handling of Radioactive Material and Equip.
5.	DD-RP-039	Quality Control of Counting Systems and Portable Counters
6.	DD-RP-049	Operation of the Ludlum Model 2929
7.	DD-WM-003	Packaging and Shipment of Limited Quantity Radioactive Material Samples

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		

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.

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		

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

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 Down Stream of 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.

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 Down Stream of 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 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 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.

See Revision
4/10/05 JM

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 Down Stream of 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 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.

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 Down Stream of Building 104 Operations		

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 Revision 4/10/05 jm

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

Class Description: Impacted System

Reason Description: C1 Characterization Survey

LC3 -Surface Category P1-3: DS1 Sewer System Drain

LC3_P45	Material Description
V2	Vitrified Clay Pipe
S1	Soil
R1	Sediment
G1	Miscellaneous Material
C1	Concrete (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	L01	A/B Smear Analysis	Alpha/Beta Counter	18	31	JM
Direct Alpha	A02	43-5A	Alpha Scintillator	18	24	JM
Direct Beta	B01	44-40B	GM Pancake	18	25	JM
Gamma 1M	G02	44-10	2"x2" NaI(Tl) Gamma Scintillator	18	22	JM
Gamma Contact	G01	44-10	2"x2" NaI(Tl) Gamma Scintillator	18	26	JM
G-Spec Sample	L04	GS Material Analysis	Gamma Spectrometry	18	9	JM

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

Class Description: Impacted System

Reason Description: C1 Characterization Survey

LC4_P4 - Count Type	LC4_P5 - Background Mode Codes
A Pre-use Background Check	A Average Background
B Pre-use Source Check	N Background Not Required
C Post-use Background Check	S Single Background
D Post-use Source Check	
F Field Count	
G Field Background	
S Field Scan	

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 X from 2000 to 3000 on SA 006, SA007

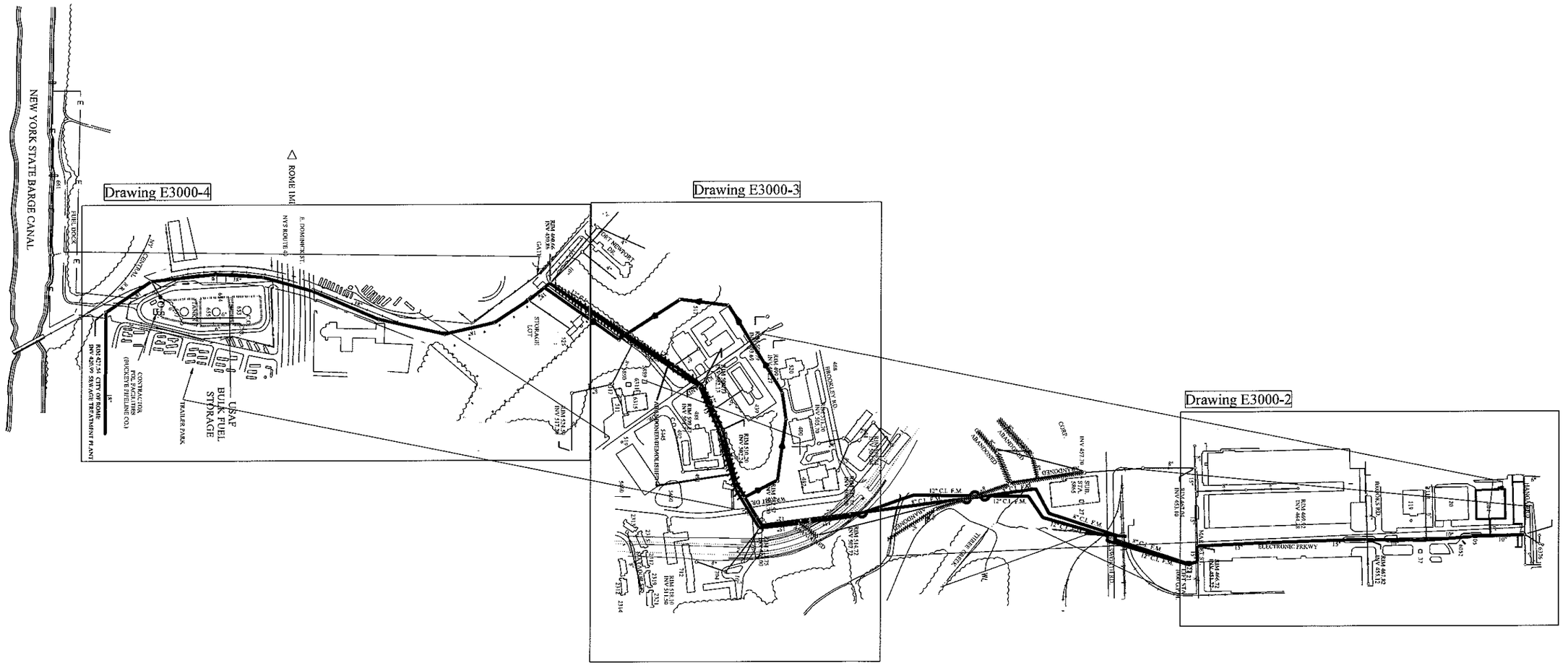
Survey Package Appendix A – Drawings

Survey Package: E3000 201C1 **Package:** System
Survey Area Name: Sanitary Sewer System
Survey Unit Name: Sanitary Sewer System Section Down Stream of Building 104 Operations

Survey Package Appendix A - Drawings

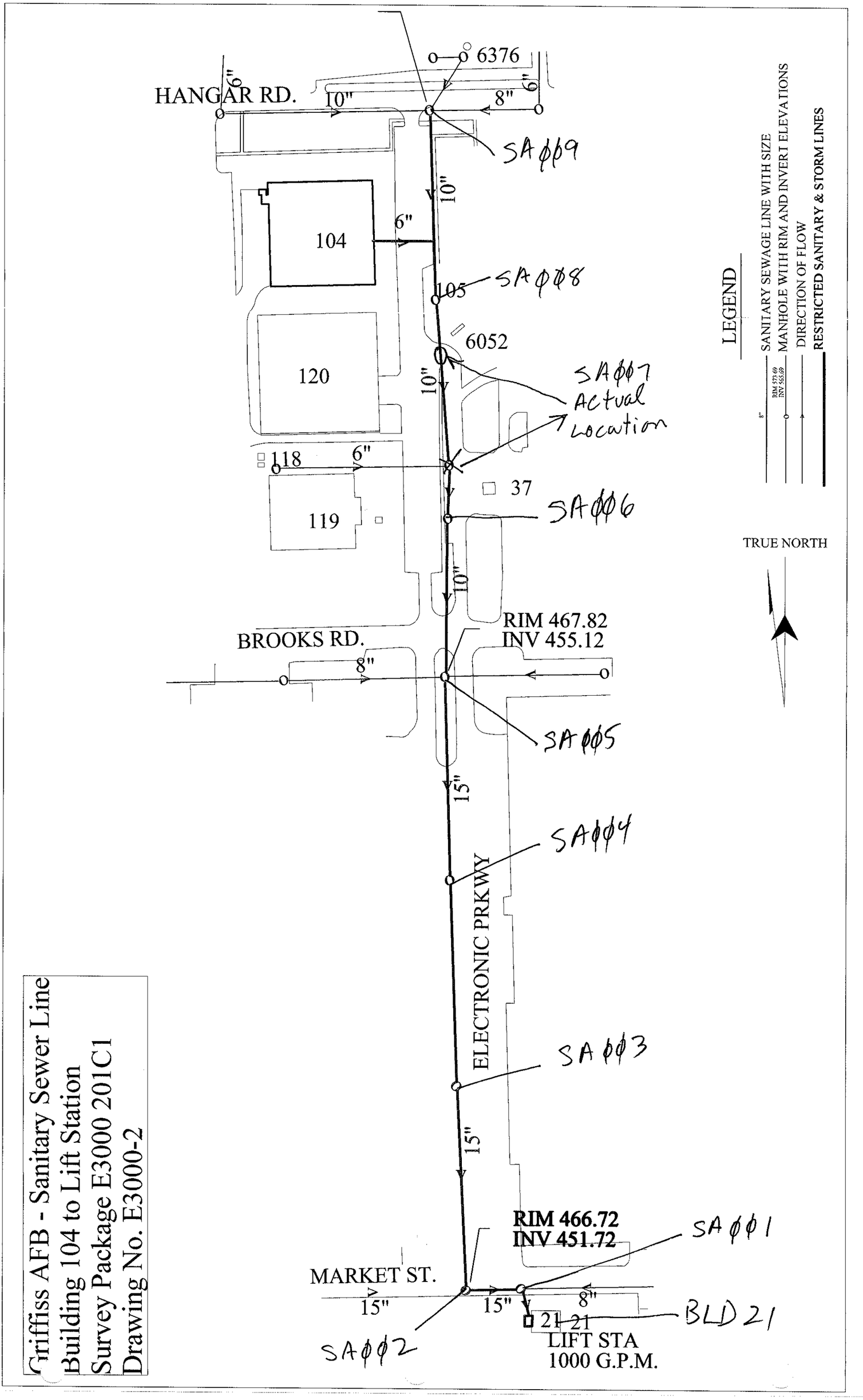
Survey Package Appendix A – Drawings

Drawing E3000-1



Griffiss AFB - Sanitary Sewer Line
Building 104 to Bulk Fuel Storage Area
Survey Package E3000 201C1
Drawing No. E3000-1

Drawing E3000-2



Griffiss AFB - Sanitary Sewer Line
Building 104 to Lift Station
Survey Package E3000 201C1
Drawing No. E3000-2

Griffiss AFB - Sanitary Sewer Line
Hill Rd to Mobile Ave
Survey Package E3000 201C1
Drawing No. E3000-3

LEGEND

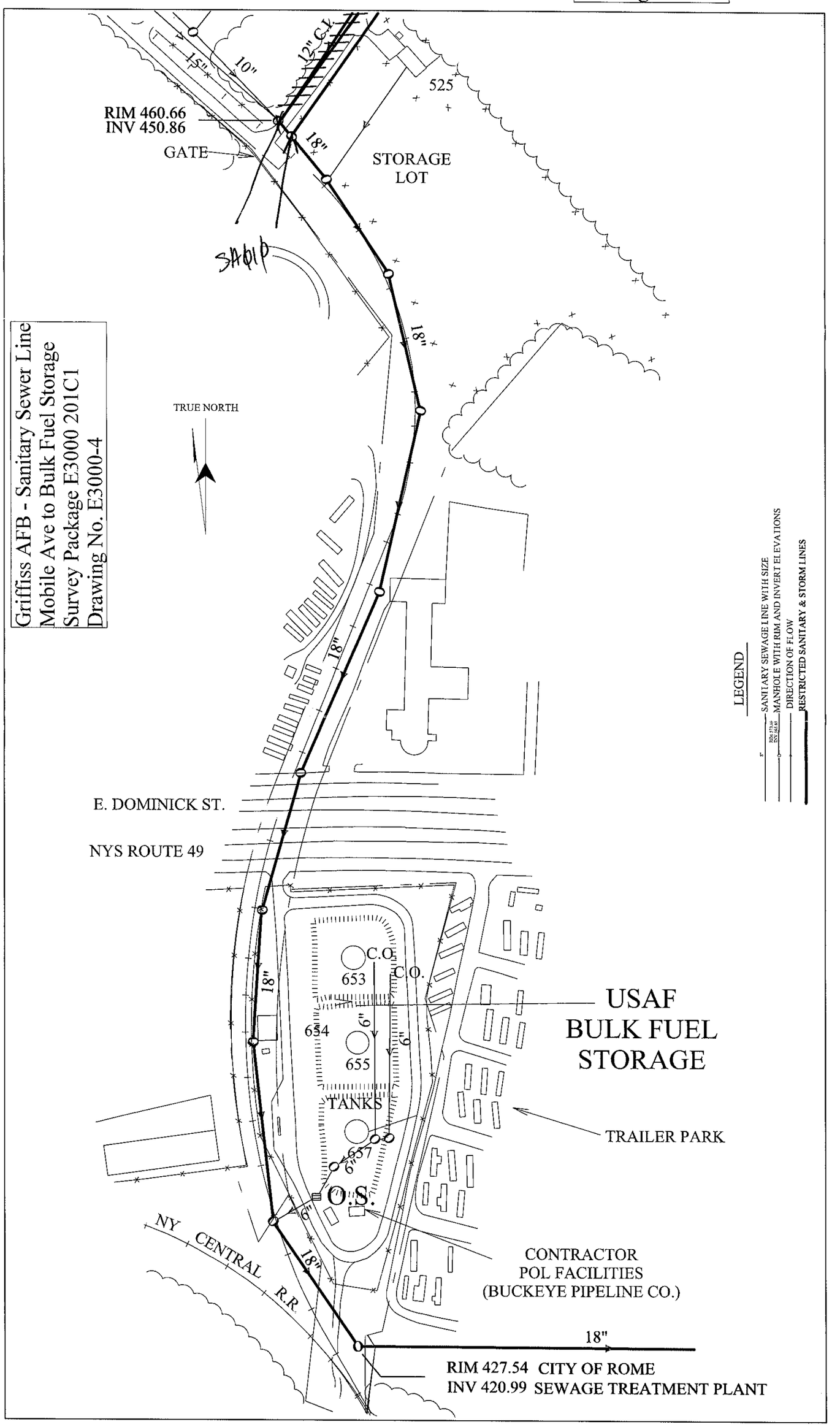
- SANITARY SEWAGE LINE WITH SIZE
- MANHOLE WITH RIM AND INVERT ELEVATIONS
- DIRECTION OF FLOW
- RESTRICTED SANITARY & STORM LINES

TRUE NORTH

RIM 509.84
INV 502.04
444
8"
8"
RIM 515.78
INV 500.50
RIM 514.72
INV 507.72
468
BROOKLEY RD.
8"
RIM 511.70
INV 505.70
12"
15"
ABANDONED
482
400
520
RIM 499.27
INV 492.27
RIM 512.57
INV 504.70
WRIGHT DR.
12"
15"
RIM 512.75
INV 505.00
12"
10"
439
RIM 501.79
INV 493.69
Griffiss AFB Sanitary Sewer Line
Building 104 to Lift Station
Drawing E3000-2
TRUE NORTH
15"
8"
10"
6"
RIM 509.73
INV 502.13
12"
15"
704
8"
KIRTLAND
517
488
RIM 509.27
INV 501.77
491
6"
712
492
C.O
5460
RIM 518.10
INV 511.50
5445
ABANDONED/DEMOLISHED
12"
15"
DR
2315
2317
2319
2321
5889
6311
6315
MATADOR ST
2313
8"
519
5460
8"
5890
511
2312
2314
6317
FORT NEWPORT DR.
4"
MOHAWK RD
15"
8"

Drawing E3000-3

Drawing E3000-4



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 Building 104 Operations

Survey Package Appendix B - Photographs

Survey Package Appendix B – Photographs

See Report Section
JMM 6/13/05

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

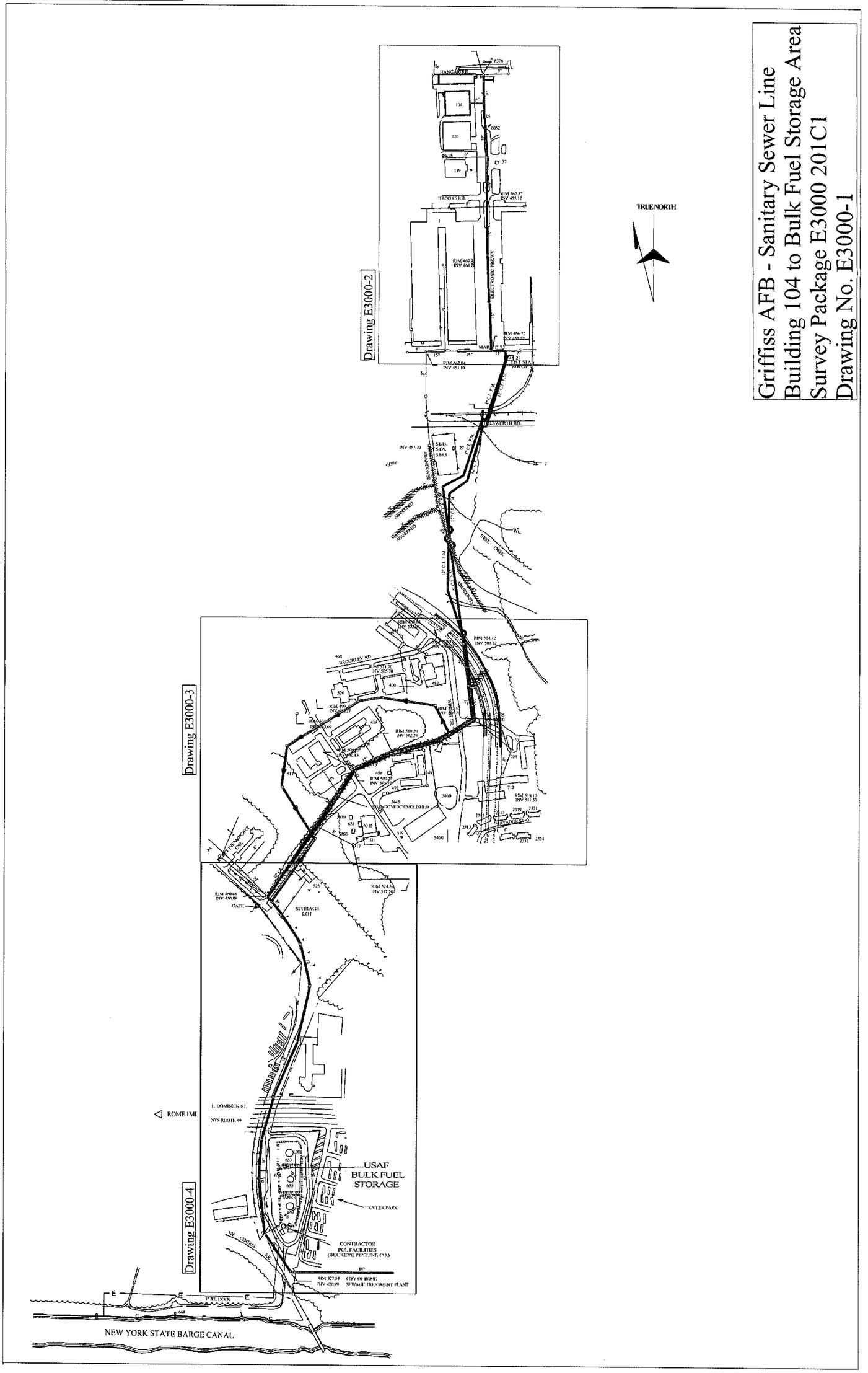
Section	Title	Total Pages
1.0	**Annotated Drawings**	4
2.0	**Measurement Results – Direct Beta Measurements**	5
3.0	**Measurement Results – Direct Alpha Measurements**	5
4.0	**Measurement Results – Exposure Rate Measurements**	6
5.0	**Sample Analysis Results – Alpha/Beta Counter**	12
6.0	**Sample Analysis Results – Gamma Spectroscopy**	7
7.0	**Sample Analysis Results – Alpha Spectroscopy**	2

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		

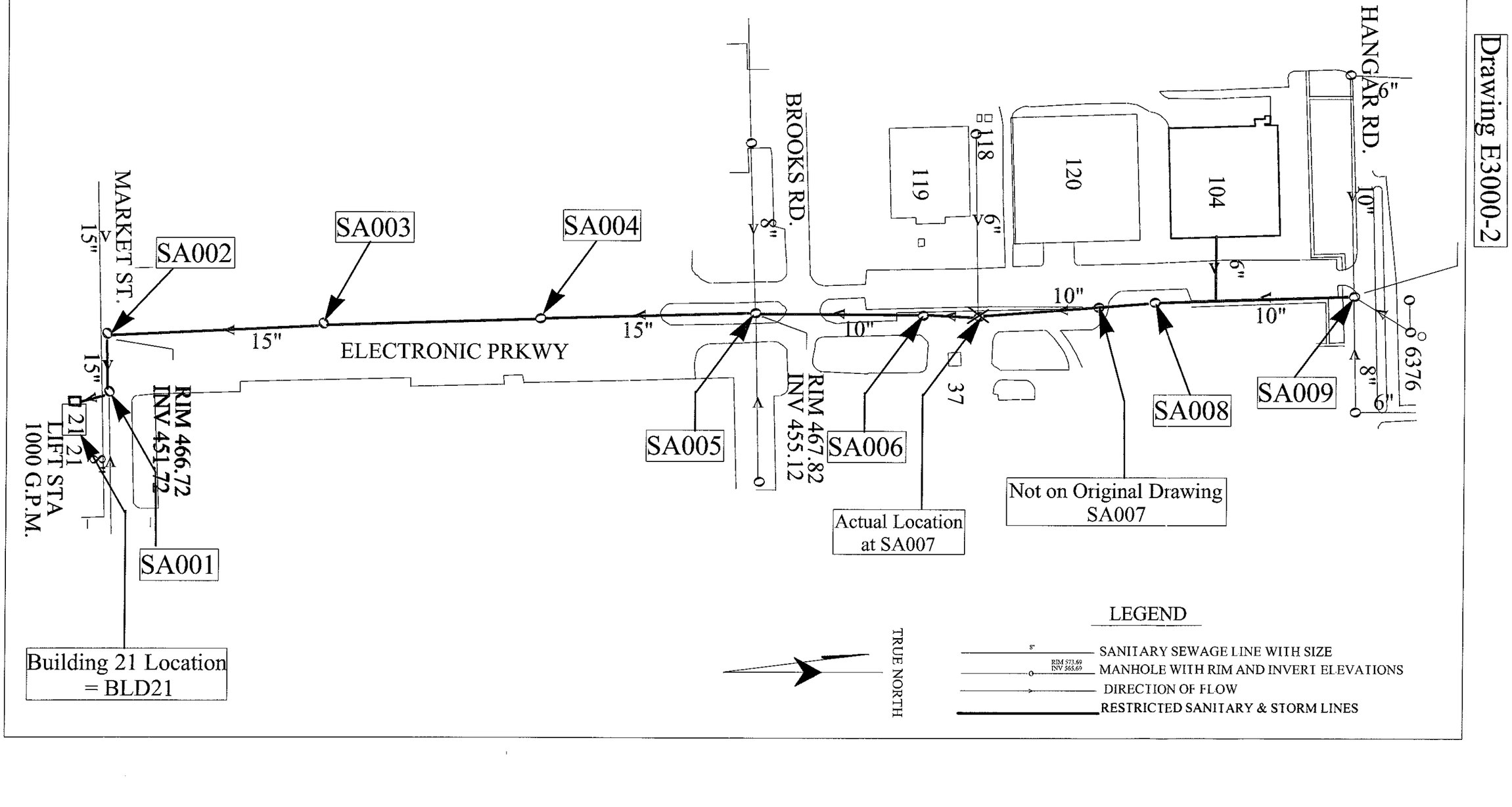
Section 1.0
Annotated Drawings
4 Pages

Drawing E3000-1



Griffiss AFB - Sanitary Sewer Line
Building 104 to Lift Station
Survey Package E3000 201C1
Drawing No. E3000-2

Drawing E3000-2



Griffiss AFB - Sanitary Sewer Line
Hill Rd to Mobile Ave
Survey Package E3000 201C1
Drawing No. E3000-3

LEGEND

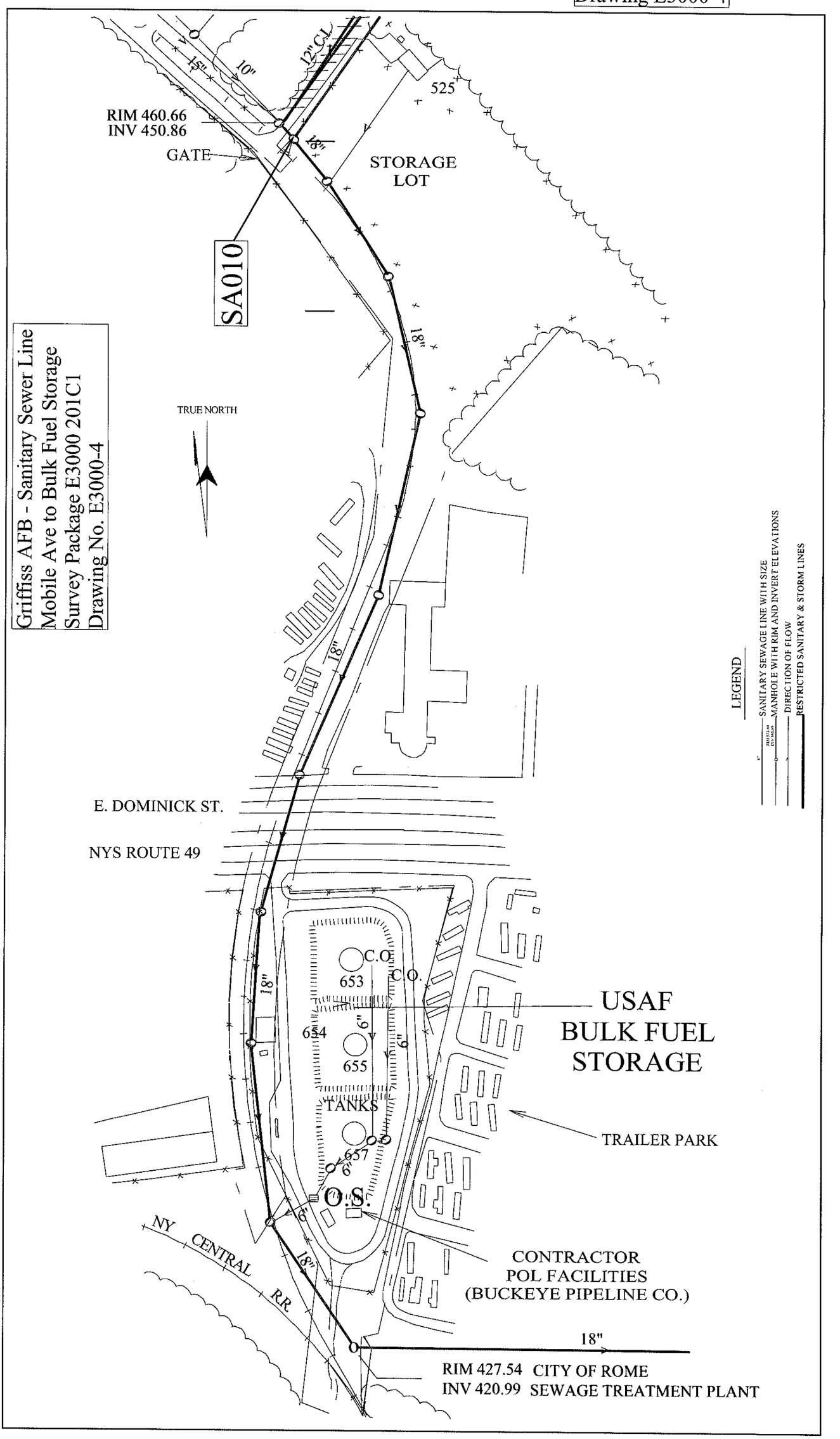
SANITARY SEWAGE LINE WITH SIZE
MANHOLE WITH RIM AND INVERT ELEVATIONS
DIRECTION OF FLOW
RESTRICTED SANITARY & STORM LINES

TRUE NORTH

RIM 509.84
INV 502.04
444
8"
8"
RIM 515.78
INV 500.50
RIM 514.72
INV 507.72
468
BROOKLEY RD.
8"
RIM 511.70
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400
482
520
RIM 499.27
INV 492.27
RIM 502.57
INV 494.70
WRIGHT DR.
12"
15"
8"
RIM 512.75
INV 505.00
RIM 501.79
INV 493.69
439
RIM 510.20
INV 502.24
10"
15"
8"
10"
480
12"
6"
RIM 509.73
INV 502.13
490
704
8"
12"
15"
KIRTLAND
488
491
RIM 509.27
INV 501.77
517
6"
492
712
C.O.
5460
RIM 518.10
INV 511.50
5445
ABANDONED/DEMOLISHED
DR.
12"
15"
2315
2317
2319
2321
5889
6311
6315
MATADOR STO
2313
8"
8"
5890
519
5460
511
2312
2314
6317
FORT NEWPORT
DR.
4"
15"
8"

Drawing E3000-3

Drawing E3000-4



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 2.0
Measurement Results – Direct Beta Measurements
5 Pages

Measurement Database Download Report

Direct Beta Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041005-009	1	JLM0591	4/10/2005	3:31 PM	E3000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT02	95349	JLM0591	PR094971	6	0	4/9/2005	7:40:46 AM	1.83E+02	300	1	0	10	FD145	DRT01	DS1V2	B01AA	LAB01	1		0	2683
FD145 DRT02	95349	JLM0591	PR094971	7	1	4/9/2005	7:47:14 AM	1.98E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	1		0	145381
FD145 DRT02	95349	JLM0591	PR094971	7	2	4/9/2005	8:29:02 AM	1.91E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	2		0	139883
FD145 DRT02	95349	JLM0591	PR094971	7	3	4/9/2005	8:30:36 AM	1.95E+03	60	1	0	10	FD145	DRT01	DS1V2	B01BA	LAB01	3		0	142889
E3000 201C1	95349	JLM0591	PR094971	7	20	4/9/2005	5:13:04 PM	7.90E+01	60	1	0	10	E3000	201C1	DS1B1	B01GA	SA009	1		0	5792
E3000 201C1	95349	JLM0591	PR094971	7	21	4/9/2005	5:14:50 PM	8.50E+01	60	1	0	10	E3000	201C1	DS1B1	B01GA	SA009	2		0	6232
E3000 201C1	95349	JLM0591	PR094971	7	22	4/9/2005	5:18:46 PM	8.00E+01	60	1	0	10	E3000	201C1	DS1B1	B01FA	SA009	1		0	5865
E3000 201C1	95349	JLM0591	PR094971	7	23	4/9/2005	5:21:08 PM	6.60E+01	60	1	0	10	E3000	201C1	DS1C1	B01FA	SA009	2		0	4839
E3000 201C1	95349	JLM0591	PR094971	7	24	4/9/2005	6:08:16 PM	7.50E+01	60	1	0	10	E3000	201C1	DS1C1	B01GA	SA008	1		0	5499
E3000 201C1	95349	JLM0591	PR094971	7	25	4/9/2005	6:10:08 PM	6.10E+01	60	1	0	10	E3000	201C1	DS1C1	B01FA	SA008	1		0	4472
E3000 201C1	95349	JLM0591	PR094971	7	26	4/9/2005	6:12:06 PM	8.10E+01	60	1	0	10	E3000	201C1	DS1B1	B01FA	SA008	2		0	5938
FD145 DRT02	95349	JLM0591	PR094971	6	27	4/9/2005	7:06:34 PM	1.51E+02	300	1	0	10	FD145	DRT02	DS1B1	B01CA	LAB01	1		0	2214
FD145 DRT02	95349	JLM0591	PR094971	7	28	4/9/2005	7:14:48 PM	1.95E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	1		0	143255
FD145 DRT02	95349	JLM0591	PR094971	7	29	4/9/2005	7:16:52 PM	1.91E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	2		0	140176
FD145 DRT02	95349	JLM0591	PR094971	7	30	4/9/2005	7:18:52 PM	2.03E+03	60	1	0	10	FD145	DRT02	DS1B1	B01DA	LAB01	3		0	148754

Reviewed By: _____ Date: 4/10/05 Approved By: _____ Date: _____

Measurement Database Download Report

Direct Beta Measurements

4/11/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041105-006	1	JLM0591	4/11/2005	9:11 AM	E3000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/10/2005	11:32:30 AM	1.81E+02	300	1	0	13	FD145	DRT01	DS1B1	B01AA	LAB01	1		0	2654
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/10/2005	11:36:14 AM	1.89E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	1		0	138636
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/10/2005	12:05:10 PM	2.01E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	2		0	146994
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/10/2005	12:06:26 PM	1.98E+03	60	1	0	13	FD145	DRT01	DS1B1	B01BA	LAB01	3		0	144868
E3000 201C1	95349	JLM0591	PR094971	8	4	4/10/2005	12:37:48 PM	4.00E+01	60	1	0	13	E3000	201C1	DS1C1	B01GA	SA007	1		0	2933
E3000 201C1	95349	JLM0591	PR094971	8	5	4/10/2005	12:40:22 PM	7.80E+01	60	1	0	13	E3000	201C1	DS1C1	B01FA	SA007	1		0	5718
E3000 201C1	95349	JLM0591	PR094971	8	6	4/10/2005	12:42:46 PM	8.50E+01	60	1	0	13	E3000	201C1	DS1C1	B01FA	SA007	2		0	6232
E3000 201C1	95349	JLM0591	PR094971	8	7	4/10/2005	1:30:02 PM	7.60E+01	60	1	0	13	E3000	201C1	DS1C1	B01GA	SA006	1		0	5572
E3000 201C1	95349	JLM0591	PR094971	8	8	4/10/2005	1:33:02 PM	5.30E+01	60	1	0	13	E3000	201C1	DS1C1	B01FA	SA006	1		0	3886
E3000 201C1	95349	JLM0591	PR094971	8	9	4/10/2005	1:34:48 PM	6.10E+01	60	1	0	13	E3000	201C1	DS1C1	B01FA	SA006	2		0	4472
E3000 201C1	95349	JLM0591	PR094971	8	10	4/10/2005	1:37:16 PM	7.80E+01	60	1	0	13	E3000	201C1	DS1B1	B01FA	SA006	3		0	5718
E3000 201C1	95349	JLM0591	PR094971	8	11	4/10/2005	1:38:52 PM	7.80E+01	60	1	0	13	E3000	201C1	DS1B1	B01FA	SA006	4		0	5718
FD145 DRT02	95349	JLM0591	PR094971	6	18	4/10/2005	4:03:42 PM	1.72E+02	300	1	0	13	FD145	DRT02	DM1C1	B01CA	LAB01	1		0	2522
FD145 DRT02	95349	JLM0591	PR094971	7	19	4/10/2005	4:09:54 PM	2.00E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	1		0	146848
FD145 DRT02	95349	JLM0591	PR094971	7	20	4/10/2005	4:11:36 PM	1.99E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	2		0	145748
FD145 DRT02	95349	JLM0591	PR094971	7	21	4/10/2005	4:12:54 PM	2.01E+03	60	1	0	13	FD145	DRT02	DM1C1	B01DA	LAB01	3		0	146994

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Direct Beta Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041205-005	1	JLM0591	4/12/2005	8:52 AM	E3000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/11/2005	8:50:02 AM	1.83E+02	300	1	0	16	FD145	DRT01	DM1C1	B01AA	LAB01	1		0	2683
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/11/2005	9:02:26 AM	1.96E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	1		0	143915
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/11/2005	9:06:36 AM	2.05E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	2		0	150587
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/11/2005	9:08:04 AM	1.98E+03	60	1	0	16	FD145	DRT01	DM1C1	B01BA	LAB01	3		0	145088
E3000 201C1	95349	JLM0591	PR094971	8	4	4/11/2005	9:56:22 AM	9.20E+01	60	1	0	16	E3000	201C1	DS1C1	B01GA	SA005	1		0	6745
E3000 201C1	95349	JLM0591	PR094971	8	5	4/11/2005	9:59:22 AM	7.70E+01	60	1	0	16	E3000	201C1	DS1C1	B01FA	SA005	1		0	5645
E3000 201C1	95349	JLM0591	PR094971	8	6	4/11/2005	10:00:36 AM	7.30E+01	60	1	0	16	E3000	201C1	DS1C1	B01FA	SA005	2		0	5352
E3000 201C1	95349	JLM0591	PR094971	8	7	4/11/2005	10:03:54 AM	1.02E+02	60	1	0	16	E3000	201C1	DS1B1	B01FA	SA005	3		0	7478
FD145 DRT02	95349	JLM0591	PR094971	6	26	4/11/2005	5:40:18 PM	1.58E+02	300	1	0	16	FD145	DRT02	DM1C1	B01CA	LAB01	1		0	2317
FD145 DRT02	95349	JLM0591	PR094971	7	27	4/11/2005	5:44:04 PM	2.03E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	1		0	148460
FD145 DRT02	95349	JLM0591	PR094971	7	28	4/11/2005	5:48:36 PM	2.00E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	2		0	146921
FD145 DRT02	95349	JLM0591	PR094971	7	29	4/11/2005	5:49:52 PM	1.94E+03	60	1	0	16	FD145	DRT02	DM1C1	B01DA	LAB01	3		0	142155

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Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041305-006	1	JLM0591	4/13/2005	9:32 AM	E3000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
FD145 DRT01	95349	JLM0591	PR094971	6	0	4/12/2005	8:38:50 AM	1.81E+02	300	1	0	19	FD145	DRT01	DM1C1	B01AA	LAB01	1		0	2654
FD145 DRT01	95349	JLM0591	PR094971	7	1	4/12/2005	8:48:46 AM	1.91E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	1		0	139663
FD145 DRT01	95349	JLM0591	PR094971	7	2	4/12/2005	8:50:06 AM	1.93E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	2		0	141129
FD145 DRT01	95349	JLM0591	PR094971	7	3	4/12/2005	8:51:22 AM	1.97E+03	60	1	0	19	FD145	DRT01	DM1C1	B01BA	LAB01	3		0	144208
E3000 201C1	95349	JLM0591	PR094971	8	7	4/12/2005	10:51:46 AM	7.20E+01	60	1	0	19	E3000	201C1	DM1C1	B01GA	SA004	1		0	5279
E3000 201C1	95349	JLM0591	PR094971	8	8	4/12/2005	10:54:24 AM	5.00E+01	60	1	0	19	E3000	201C1	DM1C1	B01FA	SA004	1		0	3666
E3000 201C1	95349	JLM0591	PR094971	8	9	4/12/2005	10:56:04 AM	7.70E+01	60	1	0	19	E3000	201C1	DM1C1	B01FA	SA004	2		0	5645
E3000 201C1	95349	JLM0591	PR094971	8	10	4/12/2005	11:30:36 AM	7.90E+01	60	1	0	19	E3000	201C1	DS1C1	B01GA	SA003	1		0	5792
E3000 201C1	95349	JLM0591	PR094971	8	11	4/12/2005	11:32:42 AM	7.60E+01	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA003	1		0	5572
E3000 201C1	95349	JLM0591	PR094971	8	12	4/12/2005	11:34:08 AM	5.70E+01	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA003	2		0	4179
E3000 201C1	95349	JLM0591	PR094971	8	13	4/12/2005	12:00:24 PM	8.00E+01	60	1	0	19	E3000	201C1	DS1C1	B01GA	SA002	1		0	5865
E3000 201C1	95349	JLM0591	PR094971	8	14	4/12/2005	12:02:04 PM	8.10E+01	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA002	1		0	5938
E3000 201C1	95349	JLM0591	PR094971	8	15	4/12/2005	12:04:06 PM	1.00E+02	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA002	2		0	7331
E3000 201C1	95349	JLM0591	PR094971	8	16	4/12/2005	12:52:12 PM	8.40E+01	60	1	0	19	E3000	201C1	DS1C1	B01GA	SA001	1		0	6158
E3000 201C1	95349	JLM0591	PR094971	8	17	4/12/2005	12:54:24 PM	7.10E+01	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA001	1		0	5205
E3000 201C1	95349	JLM0591	PR094971	8	18	4/12/2005	12:55:56 PM	6.40E+01	60	1	0	19	E3000	201C1	DS1C1	B01FA	SA001	2		0	4692
E3000 201C1	95349	JLM0591	PR094971	8	19	4/12/2005	3:18:04 PM	2.90E+01	60	1	0	19	E3000	201C1	DS1C1	B01GA	BLD21	1		0	2126
E3000 201C1	95349	JLM0591	PR094971	8	20	4/12/2005	3:21:34 PM	3.30E+01	60	1	0	19	E3000	201C1	DS1C1	B01C1	BLD21	1		0	2419
E3000 201C1	95349	JLM0591	PR094971	8	21	4/12/2005	3:23:00 PM	4.00E+01	60	1	0	19	E3000	201C1	DS1C1	B01C1	BLD21	2		0	2933

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Direct Beta Measurements

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Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Beta Efficiency	ActiveArea (cm2)
DL041305-006	1	JLM0591	4/13/2005	9:32 AM	E3000 201C1	44-40	PR094971	0.088	15.5

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Beta (dpm/ 100cm2)
E3000 201C1	95349	JLM0591	PR094971	8	22	4/12/2005	4:07:10 PM	8.90E+01	60	1	0	19	E3000	201C1	DS1C1	B01GA	SA010	1		0	6525
E3000 201C1	95349	JLM0591	PR094971	8	23	4/12/2005	4:08:50 PM	9.60E+01	60	1	0	19	E3000	201C1	DS1B1	B01FA	SA010	1		0	7038
E3000 201C1	95349	JLM0591	PR094971	8	24	4/12/2005	4:12:02 PM	7.10E+01	60	1	0	19	E3000	201C1	DS1B1	B01FA	SA010	2		0	5205
FD145 DRT02	95349	JLM0591	PR094971	6	35	4/12/2005	5:57:20 PM	1.77E+02	300	1	0	19	FD145	DRT02	DS1C1	B01CA	LAB01	1		0	2595
FD145 DRT02	95349	JLM0591	PR094971	7	36	4/12/2005	6:02:24 PM	2.02E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	1		0	148240
FD145 DRT02	95349	JLM0591	PR094971	7	37	4/12/2005	6:03:50 PM	1.98E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	2		0	145088
FD145 DRT02	95349	JLM0591	PR094971	7	38	4/12/2005	6:05:50 PM	1.97E+03	60	1	0	19	FD145	DRT02	DS1C1	B01DA	LAB01	3		0	144282

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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 3.0
Measurement Results – Direct Alpha Measurements
5 Pages

Measurement Database Download Report

Direct Alpha Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041005-008	1	JLM0591	4/10/2005	3:22 PM	E3000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	4	4/9/2005	8:24:52 AM	1.00E+01	300	1	4	9	FS442	DRT01	DS1B1	A02AA	LAB01	1		0	41
FS442 DRT01	120636	JLM0591	PR172236	7	5	4/9/2005	8:35:32 AM	1.43E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	1		0	29023
FS442 DRT01	120636	JLM0591	PR172236	7	6	4/9/2005	8:37:32 AM	1.40E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	2		0	28475
FS442 DRT01	120636	JLM0591	PR172236	7	7	4/9/2005	8:39:06 AM	1.30E+03	60	1	4	9	FS442	DRT01	DS1B1	A02BA	LAB01	3		0	26466
E3000 201C1	120636	JLM0591	PR172236	7	22	4/9/2005	3:50:06 PM	2.00E+00	60	1	4	9	E3000	201C1	DS1B1	A02GA	SA009	1		0	41
E3000 201C1	120636	JLM0591	PR172236	7	23	4/9/2005	3:51:30 PM	2.00E+00	60	1	4	9	E3000	201C1	DS1B1	A02GA	SA009	2		0	41
E3000 201C1	120636	JLM0591	PR172236	7	24	4/9/2005	3:53:40 PM	1.00E+01	60	1	4	9	E3000	201C1	DS1B1	A02FA	SA009	1		0	203
E3000 201C1	120636	JLM0591	PR172236	7	25	4/9/2005	3:55:16 PM	2.10E+01	60	1	4	9	E3000	201C1	DS1B1	A02FA	SA009	2		0	426
E3000 201C1	120636	JLM0591	PR172236	7	26	4/9/2005	5:10:42 PM	1.00E+00	60	1	4	9	E3000	201C1	DS1C1	A02GA	SA008	1		0	20
E3000 201C1	120636	JLM0591	PR172236	7	27	4/9/2005	5:12:42 PM	3.00E+00	60	1	4	9	E3000	201C1	DS1C1	A02FA	SA008	1		0	61
E3000 201C1	120636	JLM0591	PR172236	7	28	4/9/2005	5:14:10 PM	3.00E+00	60	1	4	9	E3000	201C1	DS1C1	A02FA	SA008	2		0	61
FS442 DRT02	120636	JLM0591	PR172236	6	29	4/9/2005	5:53:22 PM	3.00E+00	300	1	4	9	FS442	DRT02	DS1C1	A02CA	LAB01	1		0	12
FS442 DRT02	120636	JLM0591	PR172236	7	30	4/9/2005	6:00:10 PM	1.45E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	1		0	29348
FS442 DRT02	120636	JLM0591	PR172236	7	31	4/9/2005	6:03:40 PM	1.48E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	2		0	29997
FS442 DRT02	120636	JLM0591	PR172236	7	32	4/9/2005	6:05:42 PM	1.24E+03	60	1	4	9	FS442	DRT02	DS1C1	A02DA	LAB01	3		0	25207

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Direct Alpha Measurements

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Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041105-005	1	JLM0591	4/11/2005	8:58 AM	E3000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/10/2005	10:17:04 AM	1.00E+00	300	1	4	12	FS442	DRT01	DS1C1	A02AA	LAB01	1		0	4
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/10/2005	10:25:00 AM	1.50E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	1		0	30464
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/10/2005	10:28:34 AM	1.39E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	2		0	28171
FS442 DRT01	120636	JLM0591	PR172236	7	4	4/10/2005	10:31:10 AM	1.24E+03	60	1	4	12	FS442	DRT01	DS1C1	A02BA	LAB01	3		0	25147
E3000 201C1	120636	JLM0591	PR172236	8	5	4/10/2005	11:23:06 AM	3.00E+00	60	1	0	12	E3000	201C1	DS1C1	A02GA	SA007	1		0	61
E3000 201C1	120636	JLM0591	PR172236	8	6	4/10/2005	11:25:20 AM	1.40E+01	60	1	0	12	E3000	201C1	DS1C1	A02FA	SA007	1		0	284
E3000 201C1	120636	JLM0591	PR172236	8	7	4/10/2005	11:26:52 AM	2.40E+01	60	1	0	12	E3000	201C1	DS1C1	A02FA	SA007	2		0	487
E3000 201C1	120636	JLM0591	PR172236	8	8	4/10/2005	12:31:56 PM	1.00E+01	60	1	0	12	E3000	201C1	DS1C1	A02GA	SA006	1		0	203
E3000 201C1	120636	JLM0591	PR172236	8	9	4/10/2005	12:34:06 PM	9.00E+00	60	1	0	12	E3000	201C1	DS1C1	A02FA	SA006	1		0	183
E3000 201C1	120636	JLM0591	PR172236	8	10	4/10/2005	12:35:38 PM	1.00E+00	60	1	0	12	E3000	201C1	DS1C1	A02FA	SA006	2		0	20
E3000 201C1	120636	JLM0591	PR172236	8	11	4/10/2005	12:40:48 PM	4.00E+00	60	1	0	12	E3000	201C1	DS1B1	A02FA	SA006	3		0	81
FS442 DRT02	120636	JLM0591	PR172236	6	18	4/10/2005	2:53:14 PM	4.00E+00	300	1	4	12	FS442	DRT02	DM1C1	A02CA	LAB01	1		0	16
FS442 DRT02	120636	JLM0591	PR172236	7	19	4/10/2005	2:57:32 PM	1.47E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	1		0	29794
FS442 DRT02	120636	JLM0591	PR172236	7	20	4/10/2005	2:59:14 PM	1.44E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	2		0	29246
FS442 DRT02	120636	JLM0591	PR172236	7	21	4/10/2005	3:00:38 PM	1.27E+03	60	1	4	12	FS442	DRT02	DM1C1	A02DA	LAB01	3		0	25735

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Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041205-004	1	JLM0591	4/12/2005	8:46 AM	E3000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/11/2005	7:36:56 AM	4.00E+00	300	1	4	15	FS442	DRT01	DM1C1	A02AA	LAB01	1		0	16
FS442 DRT01	120636	JLM0591	PR172236	7	1	4/11/2005	7:49:02 AM	1.46E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	1		0	29632
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/11/2005	7:51:06 AM	1.46E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	2		0	29713
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/11/2005	7:53:12 AM	1.21E+03	60	1	4	15	FS442	DRT01	DM1C1	A02BA	LAB01	3		0	24599
E3000 201C1	120636	JLM0591	PR172236	8	4	4/11/2005	8:42:24 AM	4.00E+00	60	1	0	15	E3000	201C1	DS1C1	A02GA	SA005	1		0	81
E3000 201C1	120636	JLM0591	PR172236	8	5	4/11/2005	8:45:00 AM	1.60E+01	60	1	0	15	E3000	201C1	DS1C1	A02FA	SA005	1		0	325
E3000 201C1	120636	JLM0591	PR172236	8	6	4/11/2005	8:47:04 AM	1.10E+01	60	1	0	15	E3000	201C1	DS1C1	A02FA	SA005	2		0	223
E3000 201C1	120636	JLM0591	PR172236	8	7	4/11/2005	8:54:40 AM	1.30E+01	60	1	0	15	E3000	201C1	DS1B1	A02FA	SA005	3		0	264
FS442 DRT02	120636	JLM0591	PR172236	6	26	4/11/2005	11:45:04 AM	1.10E+01	300	1	4	15	FS442	DRT02	DM1C1	A02CA	LAB01	1		0	45
FS442 DRT02	120636	JLM0591	PR172236	7	27	4/11/2005	11:51:32 AM	1.43E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	1		0	28962
FS442 DRT02	120636	JLM0591	PR172236	7	28	4/11/2005	11:55:34 AM	1.41E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	2		0	28597
FS442 DRT02	120636	JLM0591	PR172236	7	29	4/11/2005	11:57:26 AM	1.22E+03	60	1	4	15	FS442	DRT02	DM1C1	A02DA	LAB01	3		0	24822

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Direct Alpha Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041305-005	1	JLM0591	4/13/2005	9:23 AM	E3000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
FS442 DRT01	120636	JLM0591	PR172236	6	0	4/12/2005	2:44:58 AM	4.00E+00	300	1	4	18	FS442	DRT01	DM1C1	A02AA	LAB01	1		0	16
FS442 DRT01	120636	JLM0591	PR172236	7	1	4/12/2005	2:52:32 AM	1.40E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	1		0	28434
FS442 DRT01	120636	JLM0591	PR172236	7	2	4/12/2005	2:56:02 AM	1.41E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	2		0	28678
FS442 DRT01	120636	JLM0591	PR172236	7	3	4/12/2005	2:57:26 AM	1.24E+03	60	1	4	18	FS442	DRT01	DM1C1	A02BA	LAB01	3		0	25106
E3000 201C1	120636	JLM0591	PR172236	8	7	4/12/2005	9:49:20 AM	8.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	SA004	1		0	162
E3000 201C1	120636	JLM0591	PR172236	8	8	4/12/2005	9:51:44 AM	1.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA004	1		0	20
E3000 201C1	120636	JLM0591	PR172236	8	9	4/12/2005	9:53:22 AM	7.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA004	2		0	142
E3000 201C1	120636	JLM0591	PR172236	8	10	4/12/2005	10:20:52 AM	1.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	SA003	1		0	20
E3000 201C1	120636	JLM0591	PR172236	8	11	4/12/2005	10:25:42 AM	1.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA003	1		0	20
E3000 201C1	120636	JLM0591	PR172236	8	12	4/12/2005	10:27:04 AM	3.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA003	2		0	61
E3000 201C1	120636	JLM0591	PR172236	8	13	4/12/2005	10:55:06 AM	0.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	SA002	1		0	0
E3000 201C1	120636	JLM0591	PR172236	8	14	4/12/2005	10:59:24 AM	1.00E+01	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA002	1		0	203
E3000 201C1	120636	JLM0591	PR172236	8	15	4/12/2005	11:00:56 AM	1.40E+01	60	1	0	18	E3000	201C1	DS1C1	A02FA	SA002	2		0	284
E3000 201C1	120636	JLM0591	PR172236	8	16	4/12/2005	11:27:08 AM	1.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	SA001	1		0	20
E3000 201C1	120636	JLM0591	PR172236	8	17	4/12/2005	11:29:46 AM	5.00E+00	60	1	0	18	E3000	201C1	DS1B1	A02FA	SA001	1		0	101
E3000 201C1	120636	JLM0591	PR172236	8	18	4/12/2005	11:31:02 AM	0.00E+00	60	1	0	18	E3000	201C1	DS1B1	A02FA	SA001	2		0	0
E3000 201C1	120636	JLM0591	PR172236	8	19	4/12/2005	1:53:44 PM	3.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	BLD21	1		0	61
E3000 201C1	120636	JLM0591	PR172236	8	20	4/12/2005	1:56:10 PM	2.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	BLD21	1		0	41
E3000 201C1	120636	JLM0591	PR172236	8	21	4/12/2005	1:57:30 PM	3.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02FA	BLD21	2		0	61

Measurement Database Download Report

Direct Alpha Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	4 pi Alpha Efficiency	ActiveArea (cm2)
DL041305-005	1	JLM0591	4/13/2005	9:23 AM	E3000 201C1	43-5	PR172236	0.0648305	76

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Gross Alpha (dpm/ 100cm2)
E3000 201C1	120636	JLM0591	PR172236	8	22	4/12/2005	2:45:48 PM	2.00E+00	60	1	0	18	E3000	201C1	DS1C1	A02GA	SA010	1		0	41
E3000 201C1	120636	JLM0591	PR172236	8	23	4/12/2005	2:56:24 PM	2.50E+01	60	1	0	18	E3000	201C1	DS1B1	A02FA	SA010	1		0	507
E3000 201C1	120636	JLM0591	PR172236	8	24	4/12/2005	2:58:00 PM	2.00E+01	60	1	0	18	E3000	201C1	DS1B1	A02FA	SA010	2		0	406
FS442 DRT02	120636	JLM0591	PR172236	6	35	4/12/2005	4:43:34 PM	2.00E+01	300	1	4	18	FS442	DRT02	DS1C1	A02CA	LAB01	1		0	81
FS442 DRT02	120636	JLM0591	PR172236	7	36	4/12/2005	4:49:00 PM	1.39E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	1		0	28110
FS442 DRT02	120636	JLM0591	PR172236	7	37	4/12/2005	4:50:52 PM	1.45E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	2		0	29388
FS442 DRT02	120636	JLM0591	PR172236	7	38	4/12/2005	4:52:26 PM	1.21E+03	60	1	4	18	FS442	DRT02	DS1C1	A02DA	LAB01	3		0	24639

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

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 4.0
Measurement Results – Exposure Rate Measurements
6 Pages

Measurement Database Download Report
Exposure Rate Measurements

4/10/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041005-007	1	JLM0591	4/10/2005	3:09 PM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/9/2005	4:54:30 PM	2.82E+04	300	1	0	8	GTS10	DRT01	DS1V2	G01AA	LAB01	1		0	5.51E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/9/2005	5:03:30 PM	8.40E+05	60	1	0	8	GTS10	DRT01	DS1V2	G01BA	LAB01	1		0	8.21E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/9/2005	5:08:34 PM	4.20E+04	60	1	0	8	GTS10	DRT01	DS1V2	G01BA	LAB01	2		0	4.11E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/9/2005	5:10:04 PM	1.09E+04	60	1	0	8	GTS10	DRT01	DS1V2	G01BA	LAB01	3		0	1.06E+01
E3000 201C1	95358	JLM0591	PR192598	8	31	4/9/2005	1:23:56 AM	4.76E+03	60	1	0	8	E3000	201C1	DS1S1	G02FA	SA009	1		0	4.65E+00
E3000 201C1	95358	JLM0591	PR192598	8	32	4/9/2005	1:25:16 AM	4.86E+03	60	1	0	8	E3000	201C1	DS1S1	G02FA	SA009	2		0	4.75E+00
E3000 201C1	95358	JLM0591	PR192598	8	33	4/9/2005	1:27:26 AM	1.85E+04	60	1	0	8	E3000	201C1	DS1B1	G01GA	SA009	1		0	1.81E+01
E3000 201C1	95358	JLM0591	PR192598	8	34	4/9/2005	1:29:30 AM	1.69E+04	60	1	0	8	E3000	201C1	DS1B1	G01FA	SA009	1		0	1.65E+01
E3000 201C1	95358	JLM0591	PR192598	8	35	4/9/2005	1:31:48 AM	1.65E+04	60	1	0	8	E3000	201C1	DS1C1	G01FA	SA009	2		0	1.61E+01
E3000 201C1	95358	JLM0591	PR192598	8	36	4/9/2005	1:59:32 AM	4.27E+03	60	1	0	8	E3000	201C1	DS1C1	G02FA	SA008	1		0	4.18E+00
E3000 201C1	95358	JLM0591	PR192598	8	37	4/9/2005	2:00:46 AM	4.39E+03	60	1	0	8	E3000	201C1	DS1C1	G02FA	SA008	2		0	4.29E+00
E3000 201C1	95358	JLM0591	PR192598	8	38	4/9/2005	2:02:32 AM	1.92E+04	60	1	0	8	E3000	201C1	DS1C1	G01GA	SA008	1		0	1.88E+01
E3000 201C1	95358	JLM0591	PR192598	8	39	4/9/2005	2:04:36 AM	1.71E+04	60	1	0	8	E3000	201C1	DS1C1	G01FA	SA008	1		0	1.67E+01
E3000 201C1	95358	JLM0591	PR192598	8	40	4/9/2005	2:06:46 AM	1.71E+04	60	1	0	8	E3000	201C1	DS1V2	G01FA	SA008	2		0	1.67E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	41	4/9/2005	3:04:12 AM	2.67E+04	300	1	0	8	GTS10	DRT02	DS1V2	G01CA	LAB01	1		0	5.22E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	42	4/9/2005	3:12:28 AM	8.51E+05	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	1		0	8.33E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	43	4/9/2005	3:15:50 AM	4.17E+04	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	2		0	4.08E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	44	4/9/2005	3:17:48 AM	1.10E+04	60	1	0	8	GTS10	DRT02	DS1V2	G01DA	LAB01	3		0	1.08E+01

Reviewed By: _____ Date: 4/10/05 Approved By: _____ Date: 4/13/05

Measurement Database Download Report
Exposure Rate Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041105-004	1	JLM0591	4/11/2005	8:47 AM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/10/2005	7:25:54 PM	2.69E+04	300	1	0	11	GTS10	DRT01	DS1V2	G01AA	LAB01	1		0	5.27E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/10/2005	7:34:04 PM	8.86E+05	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	1		0	8.66E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/10/2005	7:36:20 PM	4.16E+04	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	2		0	4.07E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/10/2005	7:39:16 PM	1.10E+04	60	1	0	11	GTS10	DRT01	DS1V2	G01BA	LAB01	3		0	1.08E+01
E3000 201C1	95358	JLM0591	PR192598	8	4	4/10/2005	8:46:04 PM	3.88E+03	60	1	0	11	E3000	201C1	DS1C1	G02FA	SA007	1		0	3.79E+00
E3000 201C1	95358	JLM0591	PR192598	8	5	4/10/2005	8:47:54 PM	3.79E+03	60	1	0	11	E3000	201C1	DS1C1	G02FA	SA007	2		0	3.70E+00
E3000 201C1	95358	JLM0591	PR192598	8	6	4/10/2005	8:49:20 PM	6.09E+03	60	1	0	11	E3000	201C1	DS1C1	G01GA	SA007	1		0	5.96E+00
E3000 201C1	95358	JLM0591	PR192598	8	7	4/10/2005	8:53:20 PM	7.31E+03	60	1	0	11	E3000	201C1	DS1C1	G01FA	SA007	1		0	7.15E+00
E3000 201C1	95358	JLM0591	PR192598	8	8	4/10/2005	8:54:44 PM	6.92E+03	60	1	0	11	E3000	201C1	DS1C1	G01FA	SA007	2		0	6.76E+00
E3000 201C1	95358	JLM0591	PR192598	8	9	4/10/2005	8:56:48 PM	1.28E+04	60	1	0	11	E3000	201C1	DS1V2	G01FA	SA007	3		0	1.25E+01
E3000 201C1	95358	JLM0591	PR192598	8	10	4/10/2005	9:27:20 PM	4.26E+03	60	1	0	11	E3000	201C1	DS1V2	G02FA	SA006	1		0	4.17E+00
E3000 201C1	95358	JLM0591	PR192598	8	11	4/10/2005	9:29:18 PM	4.53E+03	60	1	0	11	E3000	201C1	DS1V2	G02FA	SA006	2		0	4.43E+00
E3000 201C1	95358	JLM0591	PR192598	8	12	4/10/2005	9:31:54 PM	1.84E+04	60	1	0	11	E3000	201C1	DS1V2	G01FA	SA006	3		0	1.80E+01
E3000 201C1	95358	JLM0591	PR192598	8	13	4/10/2005	9:35:40 PM	1.89E+04	60	1	0	11	E3000	201C1	DS1C1	G01GA	SA006	1		0	1.85E+01
E3000 201C1	95358	JLM0591	PR192598	8	14	4/10/2005	9:37:08 PM	1.58E+04	60	1	0	11	E3000	201C1	DS1C1	G01FA	SA006	1		0	1.55E+01
E3000 201C1	95358	JLM0591	PR192598	8	15	4/10/2005	9:39:40 PM	1.47E+04	60	1	0	11	E3000	201C1	DS1V2	G01FA	SA006	2		0	1.43E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	25	4/10/2005	2:51:02 PM	2.82E+04	300	1	0	11	GTS10	DRT02	DM1C1	G01CA	LAB01	1		0	5.52E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	26	4/10/2005	2:57:00 PM	8.88E+05	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	1		0	8.68E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	27	4/10/2005	2:58:26 PM	4.22E+04	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	2		0	4.13E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	28	4/10/2005	3:00:04 PM	1.12E+04	60	1	0	11	GTS10	DRT02	DM1C1	G01DA	LAB01	3		0	1.09E+01

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Measurement Database Download Report
Exposure Rate Measurements

4/14/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041205-003	1	JLM0591	4/12/2005	8:38 AM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/11/2005	7:36:56 AM	2.88E+04	300	1	0	14	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.63E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/11/2005	7:45:14 AM	8.89E+05	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	8.69E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/11/2005	7:47:26 AM	4.20E+04	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.11E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/11/2005	7:50:22 AM	1.15E+04	60	1	0	14	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.13E+01
E3000 201C1	95358	JLM0591	PR192598	8	4	4/11/2005	9:01:06 AM	4.92E+03	60	1	0	14	E3000	201C1	DS1C1	G02FA	SA005	1		0	4.81E+00
E3000 201C1	95358	JLM0591	PR192598	8	5	4/11/2005	9:02:48 AM	5.04E+03	60	1	0	14	E3000	201C1	DS1C1	G02FA	SA005	2		0	4.93E+00
E3000 201C1	95358	JLM0591	PR192598	8	6	4/11/2005	9:06:34 AM	1.83E+04	60	1	0	14	E3000	201C1	DS1C1	G01GA	SA005	1		0	1.79E+01
E3000 201C1	95358	JLM0591	PR192598	8	7	4/11/2005	9:08:00 AM	2.35E+04	60	1	0	14	E3000	201C1	DS1C1	G01FA	SA005	1		0	2.30E+01
E3000 201C1	95358	JLM0591	PR192598	8	8	4/11/2005	9:09:22 AM	1.78E+04	60	1	0	14	E3000	201C1	DS1C1	G01FA	SA005	2		0	1.74E+01
E3000 201C1	95358	JLM0591	PR192598	8	9	4/11/2005	9:11:56 AM	1.63E+04	60	1	0	14	E3000	201C1	DS1V2	G01FA	SA005	3		0	1.59E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	39	4/11/2005	4:25:38 PM	2.79E+04	300	1	0	14	GTS10	DRT02	DM1C1	G01CA	LAB01	1		0	5.46E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	40	4/11/2005	4:31:24 PM	8.81E+05	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	1		0	8.62E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	41	4/11/2005	4:36:14 PM	4.18E+04	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	2		0	4.09E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	42	4/11/2005	4:38:22 PM	1.13E+04	60	1	0	14	GTS10	DRT02	DM1C1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: _____ Date: 4/14/05 Approved By: _____ Date: 4/14/05

Measurement Database Download Report
Exposure Rate Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041305-004	1	JLM0591	4/13/2005	8:36 AM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/12/2005	7:25:26 AM	2.75E+04	300	1	0	17	GTS10	DRT01	DM1C1	G01AA	LAB01	1		0	5.38E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/12/2005	7:32:22 AM	8.71E+05	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	1		0	8.52E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/12/2005	7:35:16 AM	4.22E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	2		0	4.13E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/12/2005	7:37:40 AM	1.13E+04	60	1	0	17	GTS10	DRT01	DM1C1	G01BA	LAB01	3		0	1.11E+01
E3000 201C1	95358	JLM0591	PR192598	8	11	4/12/2005	9:50:42 AM	1.89E+04	60	1	0	17	E3000	201C1	DS1C1	G01GA	SA004	1		0	1.85E+01
E3000 201C1	95358	JLM0591	PR192598	8	12	4/12/2005	9:52:28 AM	1.74E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA004	1		0	1.70E+01
E3000 201C1	95358	JLM0591	PR192598	8	13	4/12/2005	9:55:28 AM	1.73E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA004	2		0	1.69E+01
E3000 201C1	95358	JLM0591	PR192598	8	14	4/12/2005	10:16:42 AM	5.04E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA003	1		0	4.93E+00
E3000 201C1	95358	JLM0591	PR192598	8	15	4/12/2005	10:17:54 AM	4.94E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA003	2		0	4.83E+00
E3000 201C1	95358	JLM0591	PR192598	8	16	4/12/2005	10:23:18 AM	1.96E+04	60	1	0	17	E3000	201C1	DS1C1	G01GA	SA003	1		0	1.92E+01
E3000 201C1	95358	JLM0591	PR192598	8	17	4/12/2005	10:25:46 AM	1.60E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA003	1		0	1.57E+01
E3000 201C1	95358	JLM0591	PR192598	8	18	4/12/2005	10:27:04 AM	1.60E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA003	2		0	1.56E+01
E3000 201C1	95358	JLM0591	PR192598	8	19	4/12/2005	10:45:48 AM	5.38E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA002	1		0	5.26E+00
E3000 201C1	95358	JLM0591	PR192598	8	20	4/12/2005	10:47:32 AM	5.26E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA002	2		0	5.15E+00
E3000 201C1	95358	JLM0591	PR192598	8	21	4/12/2005	10:50:34 AM	1.85E+04	60	1	0	17	E3000	201C1	DS1C1	G01GA	SA002	1		0	1.81E+01
E3000 201C1	95358	JLM0591	PR192598	8	22	4/12/2005	10:54:38 AM	1.74E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA002	1		0	1.70E+01
E3000 201C1	95358	JLM0591	PR192598	8	23	4/12/2005	10:57:08 AM	1.55E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA002	2		0	1.51E+01
E3000 201C1	95358	JLM0591	PR192598	8	24	4/12/2005	10:58:48 AM	1.74E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA002	3		0	1.70E+01
E3000 201C1	95358	JLM0591	PR192598	8	25	4/12/2005	11:28:10 AM	5.23E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA001	1		0	5.12E+00
E3000 201C1	95358	JLM0591	PR192598	8	26	4/12/2005	11:29:24 AM	5.26E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA001	2		0	5.14E+00
E3000 201C1	95358	JLM0591	PR192598	8	27	4/12/2005	11:31:10 AM	1.73E+04	60	1	0	17	E3000	201C1	DS1C1	G01GA	SA001	1		0	1.70E+01
E3000 201C1	95358	JLM0591	PR192598	8	28	4/12/2005	11:35:18 AM	1.72E+04	60	1	0	17	E3000	201C1	DS1B1	G01FA	SA001	1		0	1.69E+01
E3000 201C1	95358	JLM0591	PR192598	8	29	4/12/2005	11:36:40 AM	1.37E+04	60	1	0	17	E3000	201C1	DS1B1	G01FA	SA001	2		0	1.34E+01
E3000 201C1	95358	JLM0591	PR192598	8	30	4/12/2005	1:56:24 PM	9.37E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	BLD21	1		0	9.16E+00
E3000 201C1	95358	JLM0591	PR192598	8	31	4/12/2005	1:57:34 PM	9.10E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	BLD21	2		0	8.90E+00
E3000 201C1	95358	JLM0591	PR192598	8	32	4/12/2005	2:00:14 PM	9.09E+03	60	1	0	17	E3000	201C1	DS1C1	G01GA	BLD21	1		0	8.89E+00

Measurement Database Download Report
Exposure Rate Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041305-004	1	JLM0591	4/13/2005	8:36 AM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
E3000 201C1	95358	JLM0591	PR192598	8	33	4/12/2005	2:01:48 PM	8.46E+03	60	1	0	17	E3000	201C1	DS1C1	G01FA	BLD21	1		0	8.28E+00
E3000 201C1	95358	JLM0591	PR192598	8	34	4/12/2005	2:04:30 PM	7.48E+03	60	1	0	17	E3000	201C1	DS1C1	G01FA	BLD21	2		0	7.32E+00
E3000 201C1	95358	JLM0591	PR192598	8	35	4/12/2005	2:44:50 PM	3.55E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA010	1		0	3.47E+00
E3000 201C1	95358	JLM0591	PR192598	8	36	4/12/2005	2:45:58 PM	3.70E+03	60	1	0	17	E3000	201C1	DS1C1	G02FA	SA010	2		0	3.62E+00
E3000 201C1	95358	JLM0591	PR192598	8	37	4/12/2005	2:47:30 PM	1.53E+04	60	1	0	17	E3000	201C1	DS1C1	G01GA	SA010	1		0	1.50E+01
E3000 201C1	95358	JLM0591	PR192598	8	38	4/12/2005	2:49:28 PM	1.34E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA010	1		0	1.31E+01
E3000 201C1	95358	JLM0591	PR192598	8	39	4/12/2005	2:50:38 PM	1.35E+04	60	1	0	17	E3000	201C1	DS1C1	G01FA	SA010	2		0	1.32E+01
GTS10 DRT02	95358	JLM0591	PR192598	6	52	4/12/2005	4:44:04 PM	2.80E+04	300	1	0	17	GTS10	DRT02	DS1B1	G01CA	LAB01	1		0	5.47E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	53	4/12/2005	4:47:50 PM	8.62E+05	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	1		0	8.43E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	54	4/12/2005	4:50:14 PM	4.15E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	2		0	4.06E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	55	4/12/2005	4:51:32 PM	1.13E+04	60	1	0	17	GTS10	DRT02	DS1B1	G01DA	LAB01	3		0	1.10E+01

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/13/05

Measurement Database Download Report
Exposure Rate Measurements

4/13/2005

Download ID	Station Number	User ID	Download Date	Download Time	Survey Package ID	Detector Model Number	Detector Serial Number	Gamma Cal Factor
DL041305-010	1	JLM0591	4/13/2005	6:30 PM	E3000 201C1	44-10	PR192598	6.13E+10

Package ID	M2350 Serial Number	User ID	Detector Serial Number	Detector Setup Number	Sample No	Date	Time	Logged Count	Count Time (secs)	Logging Mode	Window OnOroff	Scaler Alarm	LC1	LC2	LC3	LC4	LC5	LC6	L7	Measurement Location Number	Exposure Rate uR/hr
GTS10 DRT01	95358	JLM0591	PR192598	6	0	4/13/2005	10:26:10 AM	2.90E+04	300	1	0	20	GTS10	DRT01	DS1B1	G01AA	LAB01	1		0	5.67E+00
GTS10 DRT01	95358	JLM0591	PR192598	7	1	4/13/2005	10:28:28 AM	8.82E+05	60	1	0	20	GTS10	DRT01	DS1B1	G01BA	LAB01	1		0	8.62E+02
GTS10 DRT01	95358	JLM0591	PR192598	7	2	4/13/2005	10:29:56 AM	4.16E+04	60	1	0	20	GTS10	DRT01	DS1B1	G01BA	LAB01	2		0	4.06E+01
GTS10 DRT01	95358	JLM0591	PR192598	7	3	4/13/2005	10:31:16 AM	1.14E+04	60	1	0	20	GTS10	DRT01	DS1B1	G01BA	LAB01	3		0	1.11E+01
E3000 201C1	95358	JLM0591	PR192598	8	4	4/13/2005	10:48:34 AM	5.21E+03	60	1	0	20	E3000	201C1	DS1C1	G02FA	SA004	1		0	5.09E+00
E3000 201C1	95358	JLM0591	PR192598	8	5	4/13/2005	10:49:44 AM	5.21E+03	60	1	0	20	E3000	201C1	DS1C1	G02FA	SA004	2		0	5.10E+00
GTS10 DRT02	95358	JLM0591	PR192598	6	6	4/13/2005	11:55:20 AM	2.80E+04	300	1	0	20	GTS10	DRT02	DS1C1	G02CA	LAB01	1		0	5.49E+00
GTS10 DRT02	95358	JLM0591	PR192598	7	7	4/13/2005	11:59:48 AM	8.63E+05	60	1	0	20	GTS10	DRT02	DS1C1	G02DA	LAB01	1		0	8.45E+02
GTS10 DRT02	95358	JLM0591	PR192598	7	8	4/13/2005	12:01:40 PM	4.06E+04	60	1	0	20	GTS10	DRT02	DS1C1	G02DA	LAB01	2		0	3.97E+01
GTS10 DRT02	95358	JLM0591	PR192598	7	9	4/13/2005	12:03:04 PM	1.09E+04	60	1	0	20	GTS10	DRT02	DS1C1	G02DA	LAB01	3		0	1.07E+01

Reviewed By: _____ Date: 4/13/05 Approved By: _____ Date: 4/14/05

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 5.0
Sample Analysis Results – Alpha/Beta Counter
12 Pages

DATA SN	M2929 SN 152202 REPEAT	PROGRAM_NUM	1 Pass Codes Off PROGRAM_NAME	SAMPLE_ID	DATE	TIME	WT	WT_SD	BG_TIME	CNT_TIME	A	ACPM	ABKGCPM	ANETCPM	AEFF	ADPM	ALLD	B	BCPM	BBKGCPM	ATOB	BNETCPM	BEFF	BDPM	BLLD
1	0	1	ALPHA/BETA SMEARS	SA001-1	4/12/2005	11:38:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	59	59	52	0	7	0.206	33.98	131.17
2	0	1	ALPHA/BETA SMEARS	SA001-2	4/12/2005	11:38:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	59	59	52	0	7	0.206	33.98	131.17
3	0	1	ALPHA/BETA SMEARS	SA001-3	4/12/2005	11:38:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	57	57	52	0	5	0.206	24.27	131.17
4	0	1	ALPHA/BETA SMEARS	SA002-1	4/12/2005	11:05:00	0	0	20	1	2	2	0.2	1.8	0.454	3.96	9.29	71	71	52	0	19	0.206	92.23	131.17
5	0	1	ALPHA/BETA SMEARS	SA002-2	4/12/2005	11:05:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	52	52	52	0	0	0.206	0.00	131.17
6	0	1	ALPHA/BETA SMEARS	SA003-1	4/12/2005	10:35:00	0	0	20	1	3	3	0.2	3	0.454	6.61	9.29	52	52	52	0	0	0.206	0.00	131.17
7	0	1	ALPHA/BETA SMEARS	SA003-2	4/12/2005	10:35:00	0	0	20	1	2	2	0.2	2	0.454	4.41	9.29	51	51	52	0	-1	0.206	-4.85	131.17
8	0	1	ALPHA/BETA SMEARS	SA003-3	4/12/2005	10:35:00	0	0	20	1	2	2	0.2	2	0.454	4.41	9.29	53	53	52	0	1	0.206	4.85	131.17
9	0	1	ALPHA/BETA SMEARS	SA004-1	4/11/2005	11:25:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	58	58	49	0	9	0.206	43.69	127.71
10	0	1	ALPHA/BETA SMEARS	SA004-2	4/11/2005	11:25:00	0	0	20	1	2	2	0.2	1.8	0.454	3.96	9.29	61	61	49	0	12	0.206	58.25	127.71
11	0	1	ALPHA/BETA SMEARS	SA004-3	4/11/2005	11:25:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	62	62	49	0	13	0.206	63.11	127.71
12	0	1	ALPHA/BETA SMEARS	SA005-1	4/11/2005	9:15:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	55	55	52	0	3	0.206	14.56	131.17
13	0	1	ALPHA/BETA SMEARS	SA005-2	4/11/2005	9:15:00	0	0	20	1	2	2	0.2	1.8	0.454	3.96	9.29	58	58	52	0	6	0.206	29.13	131.17
14	0	1	ALPHA/BETA SMEARS	SA005-3	4/11/2005	9:15:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	55	55	52	0	3	0.206	14.56	131.17
15	0	1	ALPHA/BETA SMEARS	SA006-1	4/10/2005	12:45:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	51	51	52	0	-1	0.206	-4.85	131.17
16	0	1	ALPHA/BETA SMEARS	SA006-2	4/10/2005	12:45:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	46	46	52	0	-6	0.206	-29.13	131.17
17	0	1	ALPHA/BETA SMEARS	SA006-3	4/10/2005	12:45:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	55	55	52	0	3	0.206	14.56	131.17
18	0	1	ALPHA/BETA SMEARS	SA007-1	4/10/2005	13:30:00	0	0	20	1	2	2	0.2	1.8	0.454	3.96	9.29	44	44	52	0	-8	0.206	-38.83	131.17
19	0	1	ALPHA/BETA SMEARS	SA007-2	4/10/2005	13:30:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	50	50	52	0	-2	0.206	-9.71	131.17
20	0	1	ALPHA/BETA SMEARS	SA007-3	4/10/2005	13:30:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	59	59	52	0	7	0.206	33.98	131.17
21	0	1	ALPHA/BETA SMEARS	SA008-1	4/9/2005	17:12:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	66	66	52	0	14	0.206	67.96	131.17
22	0	1	ALPHA/BETA SMEARS	SA008-2	4/9/2005	17:12:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	47	47	52	0	-5	0.206	-24.27	131.17
23	0	1	ALPHA/BETA SMEARS	SA009-1	4/9/2005	16:26:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	55	55	52	0	3	0.206	14.56	131.17
24	0	1	ALPHA/BETA SMEARS	SA009-2	4/9/2005	16:26:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	70	70	52	0	18	0.206	87.38	131.17
25	0	1	ALPHA/BETA SMEARS	SA009-3	4/9/2005	16:26:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	47	47	52	0	-5	0.206	-24.27	131.17
26	0	1	ALPHA/BETA SMEARS	SA010-1	4/12/2005	15:10:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	42	42	52	0	-10	0.206	-48.54	131.17
27	0	1	ALPHA/BETA SMEARS	SA010-2	4/12/2005	15:10:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	50	50	52	0	-2	0.206	-9.71	131.17
28	0	1	ALPHA/BETA SMEARS	SA010-3	4/12/2005	15:10:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	44	44	52	0	-8	0.206	-38.83	131.17
29	0	1	ALPHA/BETA SMEARS	BLD21-1	4/12/2005	14:15:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	46	46	52	0	-6	0.206	-29.13	131.17
30	0	1	ALPHA/BETA SMEARS	BLD21-2	4/12/2005	14:15:00	0	0	20	1	0	0	0.2	-0.2	0.454	-0.44	9.29	52	52	52	0	0	0.206	0.00	131.17
31	0	1	ALPHA/BETA SMEARS	BLD21-3	4/12/2005	14:15:00	0	0	20	1	1	1	0.2	0.8	0.454	1.76	9.29	62	62	52	0	10	0.206	48.54	131.17

Survey Data Sheet

Item ID SA ∅∅1

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	7	0.8	CONCRETE @ BOTTOM
2	7	0.8	↓
3	5	-0.2	↓

Smears counted by M. Talbert Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D.M. Date/Time 4/12/05 1138

Survey Data Sheet

Item ID SA 002

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	19	1.8	CONCRETE @ BOTTOM
2	0	0.8	V

Smears counted by [signature] Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/12/05 1105

Survey Data Sheet

Item ID SA 093

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	0	3	Concrete @ bottom
2	-1	2	↓
3	1	2	↓

Smears counted by D McCee Date 4-14-05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D McCee Date/Time 4/12/05 1035

Survey Data Sheet

Item ID SA 004 CAMERA/ROBOT

Instrment ID 2929 # 152202

BKGD Beta 49 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-2	-0.2	CABLE
2	-2	0.8	↓
3	-3	2.8	↓ JM 4/25/05
4	9	0.8	↓ #1
5	12	1.8	CAMERA #2
6	0	-0.2	↓
7	1	-0.2	↓
8	13	0.8	WHEELS #3
9	-11	0.8	↓
10	11	0.8	↓

Smears counted by MA Tobin Date 4/12/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: MA Tobin Date/Time 4/11/05 1125

Survey Data Sheet

Item ID SA 005

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	3	0.8	CONCRETE @ BOTTOM
2	6	1.8	↓
3	~~7~~ 3	0.8	↓

Smears counted by MA Tolin Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/11/05 0915

Survey Data Sheet

Item ID SA006

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha .2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-1	0.8	COVERS @ BOTTOM
2	-6	-0.2	↓
3	3	-0.2	↓

Smears counted by M [illegible] Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/10/05 1245

JCM 4/19/05

SA

Survey Data Sheet

Item ID ~~ST~~ 007

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-8	1.8	CONCRETE @ BOTTOM
2	-2	0.8	↓
3	7	0.8	↓

Smears counted by M Atkinson Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D. M. Date/Time 4/19/05 1330

Survey Data Sheet

Item ID SA 008 E3000

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	14	-0.2	CONCRETE @ BOTTOM
2	-5	0.8	↓

Smears counted by M Mitchell Date 4/10/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: J. M. Date/Time 4/9/05 1712

Survey Data Sheet

Item ID SA609 E3000

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	3	0.8	CONCRETE @ BOTTOM
2	18	-0.2	↓
3	-5	0.8	↓

Smears counted by MK Date 4/10/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: J.M. Date/Time 4/9/05 / 1626

Survey Data Sheet

Item ID SA 0 1 0

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-10	-0.2	CONCRETE @ BOTTOM
2	-2	-0.2	↓
3	-8	-0.2	↓

Smears counted by MCM Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: DM Date/Time 4/12/05 1510

Survey Data Sheet

Item ID BLDG 21 LIFT STATION

Instrment ID 2929 # 152202

BKGD Beta 52 cpm Alpha 0.2 cpm

Point No	Removable ncpm		Description
	Beta	Alpha	
1	-6	-0.2	CONCRETE
2	0	-0.2	↓
3	10	0.8	↓

Smears counted by [signature] Date 4/14/05 Ludlum 2929--β eff 20.6 %

α eff 45.4 %

Surveyed by: D.M. Date/Time 4/12/05 1415

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 6.0
Sample Analysis Results – Gamma Spectroscopy
7 Pages

FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM
(ENVIRONMENTAL/BIOASSAY SAMPLES)

Client Name: **Parsons Engineering Science, Inc.**

Client Purchase Order/Contract: **Task Order Number: 744009.6000-00**

Date of Shipment: **4/14/2005**

Program: **REMP ☐ Non-REMP ☑**

Requested Turnaround Time (TAT): ☑ Standard ☐ Rush (***COST MULTIPLIER MAY APPLY***) ___ Working Days (***SPECIFY NUMBER***)

Name/Address of Client Representative: Framatome ANP Federal D&D Services

(Person(s) who should receive the results) John McGehee and Don McGee

Phone: (704)805-2298 (704)805-2576 Fax: (704)805-2512

WEEK NO	YEAR	LSN	Sample Type	Station and Description	Collection Period (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay results to. Start Date (If Applicable) ☐ Month	Day	Year	Hour	Stop Date (Required) ☐ Month	Day	Year	Hour	Mid-point Date (If Applicable) ☐ Month	Day	Year	Hour	Total Sample Amount Shipped (Specify Units)	Radiological Analyses (Check All That Apply) Gross Alpha	Gross Beta	I-131 in Charcoal	Ni-63	Fe-55	Gamma	H-3	I-131 LL - (Specify)	P-32	C-14	Am-241,Cm-242,243/244	Np-237	Pu -238,239/240	Pu-241	Ra-226 (Specify)	Ra-228 (Specify)	Sr-89,90	Tc-99	U-234, 235, 238	Uranium Total	Th-230,232	Other (Specify)	Quarterly Composite: Sample belongs to Quarter (1,2,3,4)	Q H-3	Q Sr-89,90	Q Gamma	Other (Specify)
			sludge	SA002					4	12	5	1105					~352g														X										
			sludge	SA003					4	12	5	1030					~442g						X								X										
			sludge	SA004					4	12	5	940					~112g														X										
			sludge	SA005					4	11	5	900					~607g						X								X										
			sludge	SA006					4	10	5	1345					~105g														X										
			sludge	SA007					4	10	5	1230					~307g														X										
			sludge	SA009					4	9	5	1635					~187g														X										
			sludge	SA010					4	12	5	1510					~397g						X								X										
			sludge	BKG04					4	8	5	1430					~547g						X								X										
			sludge	BKG06					4	12	5	1620					~1282g						X								X										
			sludge	BKG01					4	13	5	1140					~1500g						X								X										

Chain of Custody

Relinquished By: Don McGehee

Collected By: Jarvis McGehee

Received By:

ELAB Comments:

Date: 4-13-05

Phone Number: 704 805 2298

Date:

Field Treatment/Comments

SPECIFY METHOD (*Internal Lab Use ONLY*)

___ RA-226 (A)
___ RADIUMA_EPA
___ RA-228 (PROC. 1300)
___ RA-228_EPA (PROC. 1311)
___ I-131LL (BETA/GAMMA)
___ I-131LL (GAS PROPORTIONAL)
___ OTHER

ELAB ACCEPTANCE STAMP

FORM 605.1, REV. 14

FRAMATOME ANP ENVIRONMENTAL LABORATORY SAMPLE SUBMISSION FORM
(ENVIRONMENTAL/BIOASSAY SAMPLES)

Client Name: **Parsons Engineering Science, Inc.**

Client Purchase Order/Contract: **Task Order Number: 744009.6000-00**

Date of Shipment: **4/14/2005**

Program: **REMP** ☐ **Non-REMP** ☑

Requested Turnaround Time (TAT): ☑ Standard ☐ Rush (***COST MULTIPLIER MAY APPLY***)
___ Working Days (***SPECIFY NUMBER***)

Name/Address of Client Representative: Framatome ANP Federal D&D Services
(Person(s) who should receive the results) John McGehee and Don McGee

Phone: *(704)805-2298* *(704)805-2576* Fax: *(704)805-2512*

WEEK NO	YEAR	LSN	Sample Type	Station and Description	Collection Period (All Dates/Times Must Reflect EST or EDT) Please check box below to indicate the date to decay results to. Start Date (If Applicable) ☐				Stop Date (Required) ☐				Mid-point Date (If Applicable) ☐				Total Sample Amount Shipped (Specify Units)	Radiological Analyses (Check All That Apply)																								Quarterly Composite				
					Month	Day	Year	Hour	Month	Day	Year	Hour	Month	Day	Year	Hour		Gross Alpha	Gross Beta	I-131 in Charcoal	Ni-63	Fe-55	Gamma	H-3	I-131 LL - (Specify)	P-32	C-14	Am-241,Cm-242,243/244	Np-237	Pu-238,239/240	Pu-241	Ra-226 (Specify)	Ra-228 (Specify)	Sr-89,90	Tc-99	U-234, 235, 238	Uranium Total	Th-230,232	Other (Specify)	Sample belongs to Quarter (1,2,3,4)	Q H-3	Q Sr-89,90	Q Gamma	Other (Specify)
			sludge	ST001					4	11	5	1440					~1057g					X								X														
			sludge	ST002					4	11	5	1200					~802g					X								X														
			sludge	ST003					4	11	5	1120					~1222g					X								X														
			sludge	ST004					4	11	5	1040					~870g					X								X														
			sludge	ST005					4	11	5	955					~1290g					X								X														
			sludge	ST007					4	10	5	1330					~547g													X														
			sludge	ST0011					4	9	5	1345					~135g													X														
			sludge	ST012					4	12	5	835					~165g													X														
			sludge	ST013-1					4	11	5	1540					~255g													X														
			sludge	ST013-2					4	11	5	1450					~172g													X														
			sludge	BLDG21					4	12	5	1425					~847g					X								X														

Chain of Custody

Relinquished By: Don McGee

Collected By: John McGehee

Received By:

ELAB Comments:

Date: 4-13-05

Phone Number: 704-805-2298

Date:

Field Treatment/Comments

SPECIFY METHOD

(Internal Lab Use ONLY)

___ RA-226 (A)
___ RADIUMA_EPA
___ RA-228 (PROC. 1300)
___ RA-228_EPA (PROC. 1311)
___ I-131LL (BETA/GAMMA)
___ I-131LL (GAS PROPORTIONAL)
___ OTHER

ELAB ACCEPTANCE STAMP

FORM 605.1, REV. 14

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-13 **Client ID** SA003 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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	8.8E-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

Approved by
E.M. Moreno 5/6/05
E.M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

MAILED
MAY 06 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc | FEDERAL GRP | **Report Date** 05/06/05
Attention John McGehee & Don McGee | **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab Sample No. L9126-15 **Client ID** SA005 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		

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.

Approved by
E. M. Moreno 5/6/05
E. M. Moreno
Sample Control and Measurements Lead

MAILED
MAY 0 6 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte NC 28285

Lab. Sample No. L9126-25 **Client ID** DUP OF #L9126-15 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.7E-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 +/- 1.9E-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		
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

Approved by
E M Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

MAILED
MAY 0 6 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

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
Attention	John McGehee & Don McGee		**Receipt Date**	04/14/05	Framatome ANP Federal D&D Group
					400 South Tryon Street
					Charlotte, NC 28285

Lab. Sample No.	L9126-19	**Client ID**	SA010	**Product**	GAMMA SPECTROMETRY
Reference Date	04/12/05	**Analysis Date**	04/25/05	**Matrix**	Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)			TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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.

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MAY 0 6 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

Approved by
E M Moreno 5/6/05
E. M Moreno
Sample Control and Measurements Lead

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-11 **Client ID** BLDG21 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 +/- 3.1E-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

Approved by
5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

c:

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ENVIRONMENTAL LAB

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 7.0
Sample Analysis Results – Alpha Spectroscopy
2 Pages

AREVA

Environmental L. .oratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285
Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	2.6E-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		
L9126-04	ST004	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	7.0E-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	b	
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	7.0E-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		

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
E. M. Moreno
Sample Control and Measurements Lead

c:

MAILED
MAY 12 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	b	
L9126-15	SA005	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-01	4.0E-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	SA010	04/12/2005	05/10/2005	Ra-226	1.03E+00 +/- 2.5E-01	2.6E-01	1.9E-01	7.0E-01	b	
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		
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-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 the required MDC.
b The activity concentration is greater than three times its one sigma counting uncertainty.

Approved by
E. M. Moreno 5/12/05
E. M. Moreno
Sample Control and Measurements Lead

c:

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MAY 12 2005
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ENVIRONMENTAL LAB

Appendix C
Analytical Data and Quality Control

Section 10.0
Framatome ANP Environmental Laboratory
Sample Analysis Results

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285
Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	2.3E-01	7.0E-01		
L9126-04	ST004	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	7.0E-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	b	
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	7.0E-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		

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
E. M. Moreno 5/12/05
E. M. Moreno
Sample Control and Measurements Lead

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ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285
Attn: John McGehee & Don McGee

Product RA-226 (A) #

Report Date 05/12/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
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	b	
L9126-15	SA005	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-01	4.0E-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	SA010	04/12/2005	05/10/2005	Ra-226	1.03E+00 +/- 2.5E-01	2.6E-01	1.9E-01	7.0E-01	b	
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		
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-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	SPLIT 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	SPLIT 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 the required MDC.
b The activity concentration is greater than three times its one sigma counting uncertainty.

- Report updated to include corrected sample description for L9126-25 and L9126-26

Approved by
E. M. Moreno 5/12/05
E. M. Moreno
Sample Control and Measurements Lead

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MAY 12 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer

Framatome ANP Inc FEDERAL GRP
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Attn: John McGehee & Don McGee

Product RA-226 (A)

Report Date 05/13/05
Receipt Date 04/14/05

LSN	Client ID & Description	Reference Date	Analysis Date	Nuclide	Activity Concentration +/- 1-Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags	Reporting Level Ratio
Sludge (Dry)										
L9126-27	DUP OF #L9126-15	04/11/2005	05/12/2005	Ra-226	3.5E-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-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
E. M. Moreno
Sample Control and Measurements Lead

c:

MAILED
MAY 13 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-25 **Client ID** DUP OF #L9126-15 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.7E-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 +/- 1.9E-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		
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.

Approved by
E.M. Moreno 5/6/05
(E. M. Moreno)
Sample Control and Measurements Lead

MAILED
MAY 06 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-01 **Client ID** ST001 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/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 +/- 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

Approved by
E. M. Moreno 5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-02 **Client ID** ST002 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)			TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.6E-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		
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

Approved by
5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-03 **Client ID** ST003 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 +/- 1.9E-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		
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

Approved by
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-04 **Client ID** ST004 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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

Approved by
E.M. Moreno 5/6/05
Sample Control and Measurements Lead

Reporting Level Ratio:
9126-04Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-05 **Client ID** ST005 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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		
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.

Approved by
E. M. Moreno 5/6/05
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

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-11 **Client ID** BLDG21 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 +/- 3.1E-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

Approved by
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-13 **Client ID** SA003 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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	6.2E-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.

Approved by
E. M. Moreno 5/6/05
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

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-15 **Client ID** SA005 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		

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.

Approved by
E. M. Moreno 5/6/05
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

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-19 **Client ID** SA010 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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.

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ENVIRONMENTAL LAB

Approved by
E. M. Moreno 5/6/05
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

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-20 **Client ID** BKG04 **Product** GAMMA SPECTROMETRY
Reference Date 04/08/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	c
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

Approved by
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-21 **Client ID** BKG06 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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-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	1.3E-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

Approved by
E. M. Moreno 5/6/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:
Bi/Pb-214 results are qualitative only.

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-22 **Client ID** BKG01 **Product** GAMMA SPECTROMETRY
Reference Date 04/13/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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
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	1.5E-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 +/- 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	1.9E-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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FRAMATOME ANP
ENVIRONMENTAL LAB

Approved by
E. M. Moreno 5/6/05
Sample Control and Measurements Lead

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/06/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-23 **Client ID** SPLIT OF #L9126-03 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 05/02/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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		
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	-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.

Approved by
E. M. Moreno 5/6/05
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

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-01 **Client ID** ST001 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/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 +/- 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 +/- 2.5E-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		
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-02 **Client ID** ST002 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 +/- 1.7E-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	1.6E-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	1.55E-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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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FRAMATOME ANP
ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-03 **Client ID** ST003 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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
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 +/- 3.0E-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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-04 **Client ID** ST004 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)			TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-05 **Client ID** ST005 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.7E-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		
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	1.6E-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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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ENVIRONMENTAL LAB

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-11 **Client ID** BLDG21 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)			TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	+/-	7.1E-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		
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-13 **Client ID** SA003 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 +/- 5.5E-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		
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-15 **Client ID** SA005 **Product** GAMMA SPECTROMETRY
Reference Date 04/11/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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		
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Environmental Laboratory Analysis Report

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-19 **Client ID** SA010 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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:

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-20 **Client ID** BKG04 **Product** GAMMA SPECTROMETRY
Reference Date 04/08/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	c
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Environmental Laboratory Analysis Report

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-21 **Client ID** BKG06 **Product** GAMMA SPECTROMETRY
Reference Date 04/12/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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	1.6E-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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-22 **Client ID** BKG01 **Product** GAMMA SPECTROMETRY
Reference Date 04/13/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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	1.14E-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 +/- 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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

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Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-23 **Client ID** SPLIT OF #L9126-03 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 05/02/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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 05 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

c:

AREVA

Environmental Laboratory Analysis Report

29 Research Drive
Westboro, MA 01581
508-898-9970

Customer Framatome ANP Inc FEDERAL GRP **Report Date** 05/05/05
Attention John McGehee & Don McGee **Receipt Date** 04/14/05

Framatome ANP Inc
Framatome ANP Federal D&D Group
400 South Tryon Street
Charlotte, NC 28285

Lab. Sample No. L9126-25 **Client ID** DUP OF #L9126-15 **Product** GAMMA SPECTROMETRY
Reference Date 04/15/05 **Analysis Date** 04/25/05 **Matrix** Sludge (Dry)

Nuclide	Activity Concentration +/- 1 - Sigma (pCi/g)	TPU 1 Sigma (pCi/g)	Measured MDC (pCi/g)	Required MDC (pCi/g)	Flags
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		
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

Approved by
E. M. Moreno 5/5/05
E. M. Moreno
Sample Control and Measurements Lead

Reporting Level Ratio:

MAILED
MAY 05 2005
FRAMATOME ANP
ENVIRONMENTAL LAB

c:

Appendix C
Analytical Data and Quality Control

Section 11.0
Framatome ANP Environmental Laboratory
Quality Control Summary

AREVA

An AREVA and Siemens Company

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 ^{226}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:

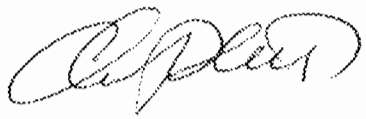
> In the case of replicate analyses where there is no "known" value, the three-sigma range is established for each analysis. For duplicate analyses the two-sigma range is established. If the ranges overlap, the analyses are considered in agreement for precision.
>
> The program is based on E-LAB's standard 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.

FRAMATOME ANP
ENVIRONMENTAL LABORATORY: 29 Research Drive, Westborough, MA 01581-3913
Phone: 508 898-9970 Fax: 508 836-9815 www.us.framatome-anp.com

^{226}Ra via Gamma Spectrometry QC Evaluation

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	±16.2%	YES
L9126-23	Split of ST003	2	AcTh-228	2.29E-1 ± 2.2E-2		
L9126-03	ST003	4	Be-7	1.22E0 ± 2.0E-1	±4.7%	YES
L9126-23	Split of ST003	2	Be-7	1.341E0 ± 9.5E-2		
L9126-03	ST003	4	K-40	1.727E+1 ± 7.6E-1	±2.9%	YES
L9126-23	Split of ST003	2	K-40	1.83E+1 ± 3.2E-1		
L9126-15	SA005	6	AcTh-228	3.8E-1 ± 1.3E-1	±15.6%	YES
L9126-25	Dup of SA005	2	AcTh-228	5.2E-1 ± 1.0E-1		
L9126-15	SA005	6	K-40	1.025E+1 ± 8.0E-1	±0.4%	YES
L9126-25	Dup of SA005	2	K-40	1.034E+1 ± 7.9E-1		



QC Summary Provided by: Christopher Shelton
Quality Assurance Officer
Framatome ANP Environmental Laboratory

AREVA

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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 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. 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.

FRAMATOME ANP
ENVIRONMENTAL LABORATORY: 29 Research Drive, Westborough, MA 01581-3913
Phone: 508 898-9970 Fax: 508 836-9815 www.us.framatome-anp.com

^{226}Ra via Alpha Spectrometry QC Evaluation

LSN	Client ID	Detector ID	Radionuclide	Analysis Result ± 1-Sigma Counting Uncertainty	% Difference (from Mean)	2-Sigma Overlap Achieved?
L9126-03	ST003	44	Ra-226	5.9E-2 ± 6.3E-2	±103.8%	YES
L9126-23	Split of ST003	54	Ra-226	-1.1E-3 ± 1.1E-3		
L9126-06	ST007	49	Ra-226	3.9E-1 ± 1.7E-1	±42.1%	YES
L9126-24	Split of ST007	55	Ra-226	1.59E-1 ± 9.2E-2		
L9126-15	SA005	43	Ra-226	7.8E-2 ± 9.1E-2	±34.4%	YES
L9126-25	Split of SA005	43	Ra-226	1.6E-1 ± 1.2E-1		
L9126-17	SA007	44	Ra-226	1.7E-1 ± 1.2E-1	±18.1%	YES
L9126-26	Split of SA007	48	Ra-226	1.18E-1 ± 8.4E-2		
L9126-15	SA005	43	Ra-226	7.8E-2 ± 9.1E-2	±63.6%	YES
L9126-27	Dup of SA005	50	Ra-226	3.5E-1 ± 1.8E-1		
L9126-17	SA007	44	Ra-226	1.7E-1 ± 1.2E-1	±34.6%	YES
L9126-28	Dup of SA007	43	Ra-226	3.5E-1 ± 1.8E-2		



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

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
349.1 Ft	9:18am	COMPLETED RUN TO MH

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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
15.7 Ft	8:46am	CRACK LENGTH OF PIPE 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	8:47am	CRACK LENGTH OF PIPE 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 INFLOW
256.8 Ft	8:15am	INFILTRATION INFLOW
263.3 Ft	8:16am	INFILTRATION INFLOW
264.9 Ft	8:16am	INFILTRATION

		INFLOW
266.7 Ft	8:19am	CANNOT GET THRU PIPE END OF RUN

SHAMROCK SEWER
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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

FOOTAGE:	TIME OF DAY:	FAULT OR COMMENTS:
6.0 Ft	7:52am	START RUN
45.1 Ft	7:57am	DEBRIS IN LINE END OF RUN

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SERVICES, LLC
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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

FOOTAGE:	TIME OF DAY:	FAULT OR COMMENTS:
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	2:14pm	DIP/SAG END
87.3 Ft	2:15pm	COMPLETED RUN TO MH SA 007

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SERVICES, LLC
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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 MH

FOOTAGE:	TIME OF DAY:	FAULT OR COMMENTS:
6.6 Ft	1:47pm	START RUN CONTINUE RUN A/FLOW FROM 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
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LOG REPORT
04-13-2005

RUN ID# : 3-405
MAP REF#:
OPERATOR: SEAN MCMAHON
TAPE # : 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

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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

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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

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

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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	10:03am	
195.2 Ft	10:23am	LIVE LATERAL AT 3:00
304.1 Ft	10:39am	COMPLETED RUN TO MH ST 005

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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

"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:
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
110.6 Ft	7:11am	COMPLETED RUN TO MH ST006

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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 MH

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

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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 Ft	7:40am	START RUN
153.0 Ft	7:48am	CANNOT PUSH ANY FURTHER DUE TO FRICTION IN PIPE

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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:

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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:
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	12:06pm	CONTINUE RUN A/FLOW TO 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 ~~TELE~~VISED END OF RUN

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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 : 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

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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
21.9 Ft	9:58am	TOO MUCH DEBRIS IN LINE CANNOT PASS WITH CAMERA PIPE APPEARS TO BE IN GOOD SHAPE END OF RUN

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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 MH

FOOTAGE:	TIME OF DAY:	FAULT OR COMMENTS:
6.0 Ft	12:43pm	START RUN
106.1 Ft	12:51pm	PIPE FULL OF GRAVEL CANNOT 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

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LOG REPORT
04-11-2005

RUN ID# : 2-1505
MAP REF#:
OPERATOR: SEAN MCMAHON
TAPE # : 2-05
COUNTER : 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

FOOTAGE:	TIME OF DAY:	FAULT OR COMMENTS:
6.0 Ft	1:09pm	START RUN
32.4 Ft	1:10pm	LIVE LATERAL AT 3:00
36.4 Ft	1:11pm	PIPE REDUCED IN SIZE 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

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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	8:14am	PIPE CHANGES SIZE
83.0 Ft	8:16am	BRICK IN PIPE END OF RUN