FINAL

PRE-REMEDIATION SAMPLING DATA REPORT PAINESVILLE FUSRAP SITE PAINESVILLE, OHIO

US Army Corps of Engineers®

Prepared for:

U.S. ARMY ENGINEER DISTRICT, BUFFALO
Buffalo, New York
Formerly Utilized Sites Remedial Action Program

Contract No. DACW49-03-D-00003/0002

Prepared by:

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East Hartford, CT

March 2006

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PRE-REMEDIATION SAMPLING DATA REPORT
PAINESVILLE FUSRAP SITE
PAINESVILLE, OHIO

Contract No. DACW49-03-D-003

DATA REPORT APPROVALS

By their specific signature, the undersigned certify that they reviewed and provided comments on this Data Report for field activities at the Painesville FUSRAP Site, Painesville, Ohio.

APPROVED BY:

[redacted]

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Date

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ACRONYMS, ABBREVIATIONS, AND SYMBOLS

AEC	U.S. Atomic Energy Commission
AL	Action Level
ANL	Argonne National Laboratory
AOC	Area of Concern
BEGe	Broad-Energy Germanium Detector, Canberra Industries, Inc.
bgs	below ground surface
BNI	Bechtel National Incorporated
CABRERA	Cabrera Services, Inc.
Chemtura	Chemtura Corporation
cm	centimeter(s)
CSM	Conceptual Site Model
cpm	counts per minute
DAW	Dry Active Waste
DCGL	Derived Concentration Guideline Level
$DCGL_{emc}$	Derived Concentration Guideline Level, Elevated Measurement Comparison
$DCGL_{w}$	Derived Concentration Guideline Level, Wilcoxon Rank Sum
DoD	U.S. Department of Defense
DQO	Data Quality Objectives
DHG	Downhole Gamma Measurement
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
FCOC	Field Chain-of-Custody
FUSRAP	Formerly Utilized Sites Remedial Action Program
ft	foot (feet)
FSM	Field Site Manager
FSP	Field Sampling Plan
FSS	Final Status Survey

g	gram(s)
GEL	General Engineering Laboratories
GIS	Geographical Information System
GPS	Global Positioning System
GSA	General Services Administration
GWS	Gamma Walkover Survey
HCl	hydrochloric acid
in	inch(es)
keV	kilo-electron volts
km	kilometer(s)
LOSA	Lake Ontario Storage Area
LOOW	Lake Ontario Ordnance Works
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum Detectable Activity
MDC	Minimum Detectable Concentration
MED	Manhattan Engineering District
mi	mile(s)
NaI	Sodium Iodide-detector
NIST	National Institute of Standards and Technology
ORNL	Oak Ridge National Laboratory
Paragon	Paragon Analytics
pCi, pCi/g	picoCurie(s), picoCurie(s) per gram
PVC	polyvinyl chloride
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
QSM	Quality Systems Manual
Ra	Radium
RCOC	Radiological Contaminant of Concern
RI/FS	Remedial Investigation/Feasibility Study
RWP	Radiation Work Permit(s)

SAIC	Science Applications International Corporation
SOR	Sum of Ratio(s)
SU	Survey Unit
Th	Thorium
U	Uranium
Uniroyal	Uniroyal Chemical Company
USACE (-Buffalo)	U.S. Army Corps of Engineers, (Buffalo District)
Z_{Rep}	Replicate Z-score

1.0 EXECUTIVE SUMMARY

Cabrera Services Inc. (CABRERA) has been contracted by the U.S. Army Corps of Engineers – Buffalo District (USACE-Buffalo) under Contract No. DACW49-03-D-0003 (USACE, 2004) to provide Hazardous, Toxic, and Radioactive Waste environmental services for the Painesville FUSRAP (Formerly Utilized Sites Remedial Action Program) Site (hereafter referred to as the “Site") in Painesville, Ohio. This Site has been identified as containing various levels of residual radioactive material in soils and sediments from previous operations, including radium-226 (Ra-226), thorium-230 (Th-230), thorium-232 (Th-232), and uranium-238 (U-238).

This investigation focused on aspects of the Conceptual Site Model (CSM), as defined in the Remedial Investigation Report for the Site (USACE, 2003), requiring further definition to support focused remedial design. The portions of the CSM requiring further definition include size, nature, and extent of the source term. The sampling design outlined in the Pre-Remediation Field Sampling Plan (FSP) (CABRERA, 2005a) focused on obtaining data from the impacted areas of the Site to address these issues and allow refinement of the CSM. The ultimate goal of these activities is to aid the remedial design for the Site, allowing for precise delineation of excavation boundaries, depths, and volumes for disposal. This document was prepared to present the results of the data that was collected during this pre-remediation survey and sampling effort.

Characterization data for this survey and sampling effort was collected using the following methods:

- Subsurface core bore samples collected with a direct-push rig to depths up to 10 feet (ft) below original ground surface (bgs) (discounting backfill and overburden) within and around the boundaries of defined Class 1 Survey Units (SUs),
- Surface soil samples obtained from the top six inches (or 15 centimeters [cm]) on a pre-determined systematic sampling grid in defined Class 2 SUs,
- Biased surface samples obtained from Class 2 surface soil locations identified during gamma walkover surveys (GWS) or placed at locations where GWS could not be performed due to obstructions or heavy overburden, e.g., concrete slabs, asphalt, and demolition debris.
- Biased subsurface samples from 30-cm (12-in) core intervals that were identified by downhole gamma (DHG) logging or identification of an adjacent subsurface soil interval with elevated measurements through counting in the onsite gamma spectroscopy laboratory (Onsite Lab).

A total of 475 surface and subsurface soil samples were collected from within units that were initially defined as Class 1 SUs and 209 surface soil samples were collected from units initially defined as Class 2 SUs during this effort for radioanalysis by an independent laboratory.

Evaluation of the data from this pre-remediation sampling and survey effort indicate that a significant portion of the Painesville Class 1 area of concern (AOC) exceeds the Site derived concentration guideline levels (DCGLs) in both surface and subsurface soils. Three impacted areas were also found within Class 2 SUs, requiring reclassification of these units to Class 1.

The data supports the preliminary assumption that Ra-226 is the primary Site radiological contaminant of concern (RCOC), with strong correlations between Ra-226 concentrations and overall sum of the ratio (SOR) values. The data also shows collocation of RCOCs Th-230 and U-238 in lower concentrations wherever Ra-226 is present. Based on the dominance of the Ra-226, it is expected that GWS will reliably identify surface $DCGL_{emc}$ (DCGL Elevated Measurement Comparison) SOR exceedances during Final Status Survey (FSS) activities.

The following objectives of the pre-remediation sampling effort outlined in the Site FSP were also successfully achieved:

- Field screening measurements were effective at identifying Site RCOCs both at the surface and at depth. GWS and DHG counts both proved successful in identifying contamination in areas not previously identified.

- The adaptive sampling and analysis protocols outlined in the Site FSP were successfully implemented. These protocols allowed project team personnel to quickly assess RCOC levels in the various investigation areas and make informed judgments based on these results.

- The CSM for the Site is now believed to be adequately defined, based on the results of both systematic and adaptive samples collected during the course of the field work.

- The Onsite Lab, utilizing a broad-energy germanium (BEGe) gamma spectroscopy system, was shown to be a useful screening tool for predicting $DCGL_W$ (DCGL Wilcoxon Rank Sum) SOR exceedances at the Site. A BEGe screening threshold of 7 picoCuries per gram (pCi/g) of Ra-226 is recommended for use during Site FSS activities to ensure that all SUs meet the requirements for closure.

2.0 INTRODUCTION

Cabrera Services Inc. (CABRERA) has been contracted by the U.S. Army Corps of Engineers – Buffalo District (USACE-Buffalo) under Contract No. DACW49-03-D-0003 (USACE, 2004), to provide Hazardous, Toxic, and Radioactive Waste environmental services for the Painesville FUSRAP Site (hereafter referred to as the “Site") in Painesville, Ohio. This Site has been identified as containing various levels of residual radioactive material in soils and sediments from previous operations, including radium-226 (Ra-226), thorium-230 (Th-230), thorium-232 (Th-232), and uranium-238 (U-238). This report presents the results of the pre-remediation sampling and analysis activities performed by CABRERA at the Site.

2.1 SITE DESCRIPTION

The Painesville FUSRAP Site is located at 720 Fairport Nursery Road in Painesville, Ohio, approximately 35.4 kilometers (km) [22 miles (mi)] northeast of Cleveland. The Site is located at approximately 41 degrees, 45 minutes north latitude, 81 degrees, 15 minutes west longitude, and is shown on the United States Geological Survey map of the Perry Quadrangle, Ohio-Lake County, 7.5 minute series. The Site is currently owned by the Chemtura Corporation (Chemtura). The Painesville FUSRAP Site is bounded on the north by the Norfolk and Southern Railroad, on the west by property owned by Chemtura, on the south by Fairport Nursery Road, and on the east by Twin Rivers Technologies (formerly Lonza, Inc.). Active and inactive industrial properties immediately surround the Painesville Site. Painesville Township Park lies north of the Site, the Diamond Alkali Waste Lake hazardous waste site is located to the south, and residential properties are to the northeast. The Grand River is located approximately 0.2-km (0.1-mi) southwest of Fairport Nursery Road and flows in a northwesterly direction towards Lake Erie. Figure 2-1 provides a schematic of the Painesville area and shows the Site's proximity to the surrounding area. At one time the Site contained as many as 35 buildings and structures. Only one of the buildings still remains, the rest having been demolished. Limited information is available on the construction and function of most of these buildings.

In the early 1940s, the Defense Plant Corporation financed construction of a magnesium production facility in Painesville, Ohio, on property acquired by the Federal Government. In support of the World War II effort and later government operations, the Diamond Magnesium Company operated this facility from 1942 to 1953 for the General Services Administration (GSA). In 1963, the GSA sold the plant to the U.S. Rubber Company, which later became the Uniroyal Chemical Company (Uniroyal), then the Crompton Manufacturing Company, Inc., and is now Chemtura. Uniroyal produced nitrile rubber, polyvinyl chloride (PVC) nitrile rubber, and various polymers at the Site until it ceased operations in 1999. Uniroyal utilized several of the original Diamond Magnesium Company buildings for its operations and also built new buildings on the Site. Uniroyal constructed several landfills, impoundments, and lagoons for waste disposal purposes on adjacent properties surrounding the Site. Chemtura is currently conducting investigation and cleanup activities for chemicals at the Site and is in the process of capping the lagoons and landfills on the adjacent properties.

There is no known history of processing or production of radioactive materials at the Painesville Site. The radioactivity present at the Site resulted from the use of scrap ferrous metal to scrub chlorine gas that was released during the magnesium production process. The GSA sought such scrap metal from the U.S. Atomic Energy Commission (AEC) inventories at the Lake Ontario Ordnance Works (LOOW) in Niagara Falls, New York. By the early 1950s, LOOW had accumulated significant quantities of scrap metal, in part because metal drums were used to ship and store residues from the processing of pitchblende ores. When the pitchblende residues were consolidated into a storage facility at LOOW, the emptied drums were cleaned for reuse or scrapped. These drums, which contained observable residues of pitchblende ores, were part of the scrap shipped to the Painesville Site (ORNL, 1991). The radionuclides contained within the pitchblende residues (primarily radium, thorium, and uranium and their naturally occurring decay products) are considered FUSRAP related.

Approximately 1,650 tons of scrap metal was shipped to the Painesville Site. These shipments occurred between July 1952 and April 1953. The scrap metal was delivered by railroad to the western side of the property where it was stored on the ground with no cover. Former employees indicated an additional delivery route was also present on the eastern side of the property, where scrap was moved from the west railroad siding to the east siding by pulling uncovered rail-sided wooden skids or sleds with a tractor (Eddington, 1996). In a recent interview, a former plant manager indicated that scrap was off-loaded from both east and west spurs and was moved via railcar from one siding to another (Trumbel, 2001). From the eastern side, the scrap metal was either immediately added to the hydrochloric acid (HCl) digester tanks or stored on the ground (ORNL, 1990).

The scrap metal used to scrub chlorine gas was immersed into weak HCl for complete digestion. Liquid acid waste from the process was discharged directly into the Grand River until June 1952, at which time the discharge was redirected across the Grand River into a waste pond owned by the Diamond Alkali Company.

Because the RCOCs in the scrap metal were related to AEC activities, Oak Ridge National Laboratory (ORNL) conducted a preliminary and limited radiological survey in 1988 to determine whether the Site met the current radiological guidelines. The findings from this survey indicated that residual radioactivity was present at the Site above existing guidelines for unrestricted use (ORNL, 1990; 1991). The principal RCOCs were determined to be U-238, Ra-226, Th-230, and their naturally occurring decay products. Based on these initial surveys, the Site was designated by the Department of Energy (DOE) as a FUSRAP site for further evaluation and remedial action as appropriate (DOE, 1992). As discussed earlier, the authorization for remedial action at the Site only includes FUSRAP related constituents.

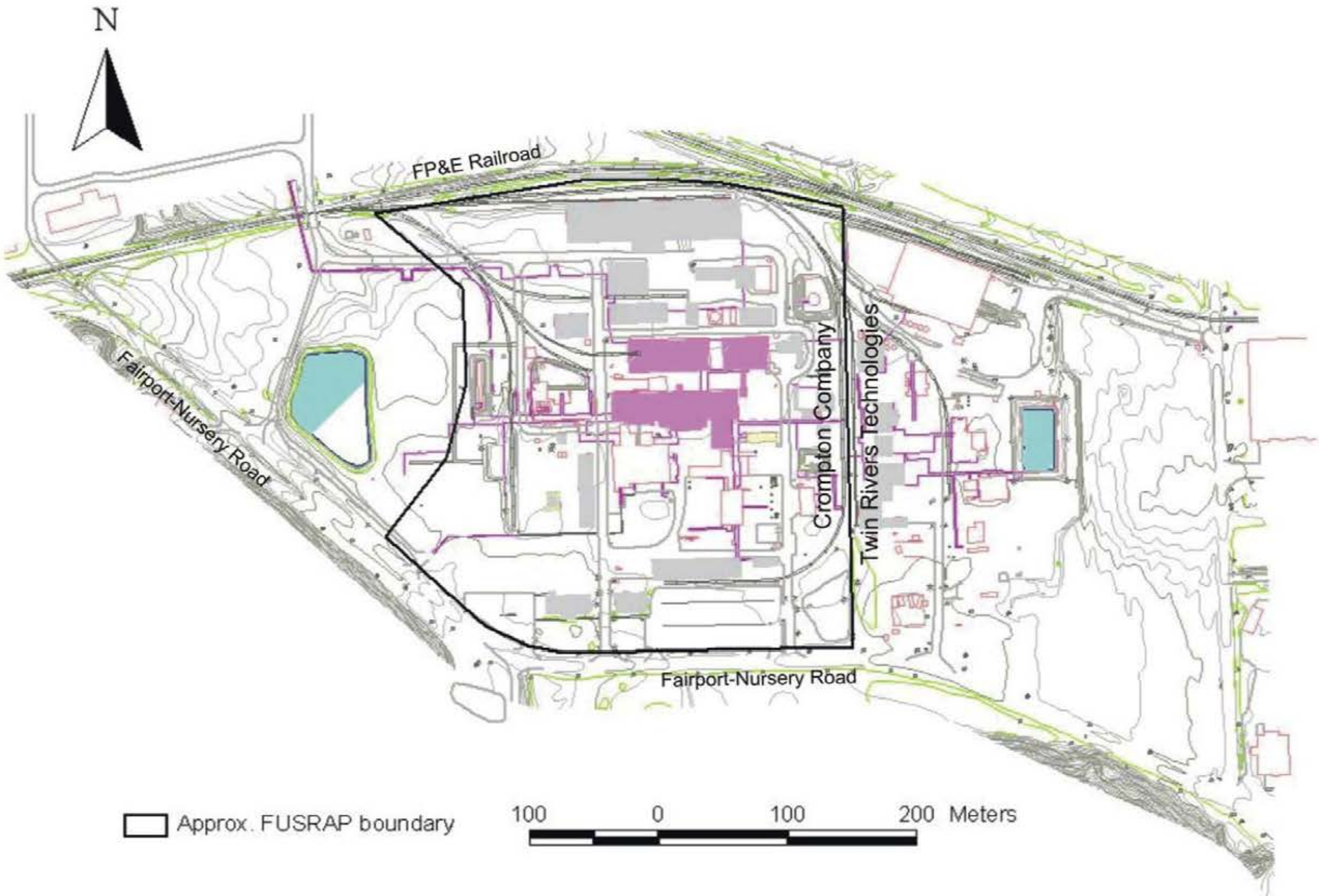


Figure 2-1. Painesville Site Study Area. Site configuration portrayed circa 1998.

(Note: Site owner is now Chemtura Corporation. Figure courtesy of Argonne National Laboratory)

2.2 PREVIOUS SITE INVESTIGATIONS

On October 10th and 11th, 1988, ORNL performed a preliminary site evaluation of the Chemtura property. ORNL performed a GWS over the study area and collected soil samples for radiological analysis. During the survey, information was obtained concerning other portions of the property, which would need to be addressed as part of future efforts (ORNL, 1990).

ORNL returned to the Site in September 1990, to examine the property to the east (owned by Twin Rivers Technologies), adjacent to the railroad tracks, and to investigate areas that showed elevated gamma readings during the 1988 survey. The survey results (ORNL, 1991) indicated that elevated concentrations of radionuclides were found in both surface and subsurface soil in excess of DOE guidelines for release of a property without radiological restrictions. The primary RCOCs were U-238, Th-230, and Ra-226, with activity levels as high as 76 pCi/g, 310 pCi/g, and 1,500 pCi/g, respectively.

In 1996, Bechtel National Incorporated (BNI), Science Applications International Corporation (SAIC), and Argonne National Laboratory (ANL), under contract to DOE, performed a detailed investigation of the Painesville Site area. This investigation included ambient air sampling, external gamma rate exposure measurements, building radiological surveys, GWS, groundwater sampling, surface geophysical surveys, surface water sampling, sediment sampling, ecological sampling, and soil sampling. The results of this study are documented in the Characterization Report for the Painesville Site (USACE, 1998a).

In 1998, the U.S. Army Corps of Engineers completed an Engineering Evaluation/Cost Analysis (EE/CA) to support a removal action at the Site. The EE/CA developed cleanup goals and evaluated several alternatives for addressing the radiological contamination at the Site. The selected alternative was documented in an Action Memorandum and the removal action was then conducted in the fall of 1998. Slightly more than 1,300 cubic yards were removed before the project was suspended due to the onset of winter conditions, and the discovery that the extent of contamination was greater than anticipated in the Action Memorandum. During the removal, action samples were collected from soil that remained in place in the excavated area after removal was completed. These samples indicated that radiological contamination above the cleanup goals still existed below the limit of excavation (USACE, 1999).

In May 2003, USACE completed a Remedial Investigation/Feasibility Study (RI/FS) of the Painesville Site (USACE, 2003). The RI/FS collected additional data on the areas of concern, conducted a Baseline Risk Assessment, and developed and evaluated alternatives for addressing the Site contamination. These alternatives included capping the contamination in place, excavation, and off-site disposal. In June 2005, USACE completed a Feasibility Study Addendum which amended the cleanup goals and remedial alternatives first presented in the RI/FS.

2.3 OVERVIEW OF PRE-REMEDIATION SAMPLING ACTIVITIES

The purpose of this field effort was to refine the existing Site CSM by identifying areas of the Site that require remediation in order to meet established closure requirements. Rationale and protocols governing collection and analysis of samples were provided in the FSP and Quality Assurance Project Plan (QAPP, [Cabrera, 2005b]). The logic presented in the FSP was developed by looking toward the endpoint (i.e., remediation and Site closure) and being consistent with widely accepted Multi-Agency Site Survey and Investigation Manual (MARSSIM) protocols. (U.S. Environmental Protection Agency [EPA], 2000).

This investigation focused on aspects of the CSM, as defined in the Remedial Investigation Report for the Site (USACE, 2003), that required further definition to support focused remedial design. The portions of the CSM identified as requiring further definition include the size of the source term and the nature and extent of the source term. The sampling design outlined in the FSP focused on obtaining data from the impacted areas of the Site to address these issues and allow refinement of the CSM. The ultimate goal of these activities is to aid the remedial design of the Site, allowing for precise delineation of excavation boundaries, depths, and volumes for disposal.

2.3.1 Data Collection

Data collection for Painesville included four types of information: (1) surficial GWS in accessible Class 1 and Class 2 SUs; (2) surface and subsurface soil samples for offsite laboratory analysis by alpha spectroscopy and Lucas Cell methods; (3) field screening of subsurface soil intervals using the Onsite Lab; and (4) gross DHG measurements in sample holes opened after direct-push activities collected soil cores.

The initial pre-remediation sampling layout is shown in Figure 2-2. The adaptive sampling and analysis techniques described in the FSP were used during the course of the field effort to add borehole sampling locations where necessary to update the CSM. The methods employed and subsequent results of these efforts are provided in Section 4.0 of this report.

Figure 2-2. Initial Pre-Remediation Sampling Plan Layout for the Site

2.3.2 Organization and Responsibilities

Under the direction of USACE, CABRERA was responsible for implementation of work assignments related to radiological survey activities at the Painesville Site. A detailed description of the project organization/responsibilities and organization chart is presented in the FSP and QAPP documents (CABRERA, 2005a; 2005b). To summarize, the USACE-Buffalo Project Engineer was the prime interface with the Site property owners, the state of Ohio Environmental Protection Agency, and the Ohio Department of Health. The CABRERA team consisted of a Managing Principal, Project Manager, Quality Assurance Coordinator, Data Management Coordinator, Project Health Physicist, Field Site Manager (FSM)/Site Safety and Health Officer/Site Radiation Safety Manager, field health physics personnel, and subcontract personnel. Site subcontract personnel consisted of a soil coring crew (Nature's Way Environmental Consultants & Contracting) and heavy equipment and brush clearing operators (Hach Excavating, Inc.). General Engineering Laboratories (GEL) of South Carolina, an independent laboratory, provided primary offsite radioanalytical and chemistry services of Site soils.

2.3.3 Data Quality Objectives

The Data Quality Objectives (DQOs) for the Painesville pre-remediation survey and sampling effort were provided in the QAPP to establish a systematic procedure for defining the criteria by which the data collection design was satisfied.

3.0 CHARACTERIZATION ACTIVITIES

A number of field activities were conducted as part of the pre-remediation sampling work. The remainder of this section describes each of these activities in more detail.

3.1 SOIL CORING AND SAMPLING

Several types of soil sampling activities were performed at the Site during the pre-remediation sampling effort. These included:

- Subsurface core bore samples collected with a direct-push rig to depths up to 10-ft below original ground surface (discounting backfill and overburden) within and around the boundaries of defined Class 1 SUs,
- Surface soil samples obtained from the top six inches (or 15-cm) on a pre-determined systematic sampling grid in defined Class 2 SUs,
- Biased surface samples obtained from Class 2 surface soil locations identified during GWS or placed at locations where GWS could not be performed due to obstructions or heavy overburden, e.g., concrete slabs, asphalt, and demolition debris.
- Biased subsurface samples from 30-cm (12-in) core intervals that were identified by DHG logging or identification of an adjacent subsurface soil interval with elevated measurements through counting in the Onsite Lab.

A summary of the locations where various samples were collected is provided in

Table 3-1. Details pertaining to each type of sampling activity are provided in the subsections to follow.

Table 3-1. Summary of Class 1 and Class 2 Sampling Locations

Sample Type	Number of Locations	Location Notes
Class 1 Core Bores		
Originally Planned	*143*	*Original Areal and Depth Bounding Cores in FSP*
Adaptively Placed	*71*	*Additional cores placed Manually or by Bayesian Approaches for Adaptive Spatial Sampling design*
GWS Biased	*15*	*Biased Cores Placed at GWS Hotspots*
Class 1 Total	**229**	
Class 2 Surface Samples		
Systematic	*189*	*MARSSIM Class 2 Systematic Grid Samples*
Biased	*48*	*Field Placed Samples to Augment GWS surveys*
Adjustments	*(-16)*	*Class 2 Locations Lost to Class 1 Reclassification*
	(-12)	*Locations on TRT property not collected this period.*
Class 2 Total	**209**	

3.1.1 Subsurface Core Boring

Sampling to determine the vertical and horizontal extent of contamination in Class 1 SUs at the Site was performed using an Earthprobe™ direct-push macro-core sampling rig in both truck-mount and skid-mount deployments. The skid mounted system was used along with a variable reach forklift to gain access to sampling locations that the truck could not reach. The Earthprobe™ rig in both deployment modes is shown in Figure 3-1 and Figure 3-2.

Figure 3-1. Earthprobe™ Sampling Rig Mounted on Truck

Subsurface soil samples were collected by advancing a 60 millimeter diameter stainless steel macro-sampler core barrel to the required sample depth or refusal. The undisturbed soil sample was collected inside a new clear acetate liner inserted into a 4-ft core barrel prior to sampling. With 4-ft barrels, three successive sample pushes were required to get to the desired depth of 10-ft below the original ground surface. In some areas it was necessary to core to depths of greater than 10-ft bgs to compensate for the presence of a surficial clay cap that varied in thickness from 6 to 18-in. After each push, the liner was removed from the core barrel and secured with end caps at the coring location. The exterior of the liner was wiped down, and clearly labeled (location ID, top/bottom indicators) prior to transport back to the Onsite Lab for processing. Once coring at a given location was completed, the field technician entered information from the boring on a CABRERA Project Field Boring Log. Typical information entered on the Field Boring Logs included date/time of the sample collection, total depth of the borehole, soil types/classifications observed in the acetate liners, and whether groundwater was encountered (and depth). At the end of each drilling day, these Field Boring Logs were given to the FSM for review. The completed open borehole was then sleeved with a continuous length of PVC pipe sealed at one end to facilitate DHG logging.

Figure 3-2. Skid-Mounted Earthprobe™ Rig Being Positioned on Rubble Pile at PVSB070.

Each batch of sample liners collected for a given day was annotated on a field chain-of-custody (FCOC) form for hand-off to the Onsite Lab for processing or interim storage. Copies of the Field Boring Logs and FCOCs are provided in Appendix D.

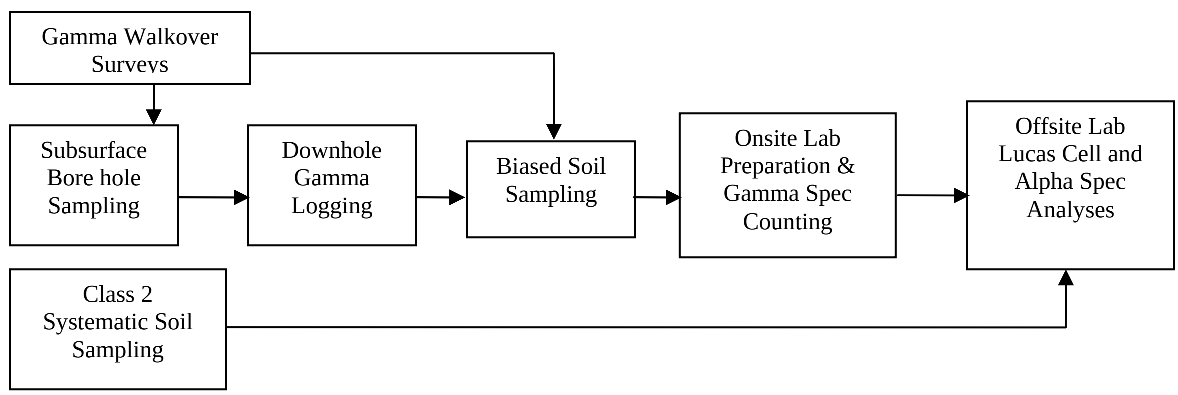
3.1.2 Class 2 Surface Soil Sampling

Surface soil samples were collected at prescribed systematic locations (in the FSP) and at biased locations placed during the course of field work. Samples were collected using either a hand auger or trowel to a depth of 15-cm. Soils were field screened through a 3/8" sieve into a stainless steel bowl for homogenization prior to packaging. Sampling personnel ensured that each sample was placed into a clean, unused container. Each container was labeled and annotated with the appropriate sample number. Details of the sample, the sampler's name, the sampling date and time, the sample location, and any applicable comments were noted in the Field Logbook. Each batch of surface samples collected for a given day were annotated on a FCOC form for hand-off to the Onsite Lab for processing or interim storage.

Class 2 surface soil samples were not able to be collected on Twin Rivers Technologies property (SU 24) during the pre-remediation sampling event due to scheduling conflicts. These samples will be collected as part of the FSS activities to occur post-remediation at the Site.

3.2 FIELD SCREENING ACTIVITIES

The screening process for analyzing soil samples at the Site is shown using the following process diagram. This process is a simplified model of the Class 1 and Class 2 decision logic diagrams provided in the FSP. (Cabrera, 2005a)



Details pertaining to field implementation of each process are provided in the sections to follow. A discussion of results from each process step is provided in Section 4.0.

3.2.1 Downhole Gamma Logging

Gross gamma count rates were collected within each internal and bounding Class 1 SU borehole opened up during direct push sampling. Prior to downhole counting, each hole was sleeved with schedule 40 PVC pipe to prevent internal collapse. Counts were performed in 6-in increments starting from the working bottom of each hole and proceeding toward ground surface. A 1-in by 1-in (1x1) sodium iodide (NaI) detector was suspended from a nylon cord with depth markings such that accurate interval measurements would be recorded.

Perched groundwater was discovered to be present at depths of less than 10-ft bgs in Areas A and C during downhole counting activities. Water level measurements were taken in each sleeved hole with an interface probe and the water level recorded on the boring log. Attempts were made to remove water from the boreholes prior to downhole gamma counting using bailers, but the groundwater recharge rates were found to be too fast for this method to be effective. For locations where groundwater was encountered at depths of less than 10-ft bgs, downhole gamma measurements were initiated at the lowest elevation above the water line.

3.2.2 Gamma Walkover Surveys

A GWS was performed over 100% of the accessible soil surfaces within Class 1 and Class 2 SUs. The purpose of the GWS was twofold: 1) to identify areas of elevated radioactivity between systematic soil samples in Class 2 SUs; and 2) provide complementary surface contamination information in Class 1 SUs for input into the CSM. GWS were not attempted over concrete building slabs or in areas containing rubble from prior building demolition activities.

GWS was performed using a Trimble XR-Pro TSC1 global positioning system (GPS) coupled to a Ludlum Model 44-20 3x3 NaI detector with a Ludlum Model 2221 scaler/ratemeter. All GPS positional data collection was done in real time using differential correction provided either by the satellite signal itself, or by way of an integrated coast guard radio beacon signal. The GWS was performed following a MARSSIM protocol by walking straight parallel lines at a rate of approximately 0.5 meters per second while moving the detector in a serpentine motion of approximately one meter wide and a consistent distance (0.05 to 0.10 meters [2 to 4-in]) above the ground surface. GWS data in gross counts per minute (cpm) from the ratemeter/scaler was automatically logged into the GPS unit at a rate of once per second. This GWS/data logging and acquisition protocol provided a data density at a rate equivalent to two logged measurements per square meter of ground surface.

Before the GWS system was utilized for surveys, *a priori* calculations of the Scan Minimum Detectable Concentration (Scan MDC) for the system were performed. A Scan MDC of 3.64 pCi/g for Ra-226 for a Ludlum Model 44-20 3x3 NaI detector over undisturbed soil was determined in the FSP (Cabrera, 2005a).

After the survey was completed, the raw data was downloaded from the GPS unit and sent to a data processing specialist for import into a geographical information system (GIS) for processing and imaging. All GPS data was collected in US State Plane feet, Ohio North, North American Datum, 1983 format. The GWS data set was evaluated to determine if any anomalies existed that warranted further investigation by collecting biased surface soil samples or performing subsurface sampling at additional borehole locations. Anomalies identified by CABRERA were forwarded to USACE and ANL for evaluation and concurrence. Locations chosen for follow-up sampling were physically marked, located using the GPS, and sampled by the field crew.

3.2.3 Static Count Rate Measurements

One-minute static counts were collected from surface soils with a 3x3 NaI detector at each Class 2 systematic or biased surface sample location. These counts were collected to develop surface contamination correlation factors for the 3x3 NaI that may be used during GWS performed during post-remediation FSS activities. These counts were performed either before or after the surface sample was collected.

3.2.4 Onsite Gamma Spectroscopy Laboratory

The CABRERA field team collected soil samples for screening analyses utilizing the Onsite Lab at the Site. The Onsite Lab consisted of two retrofitted 20-ft long connex storage boxes used for laboratory operations; one for sample preparation, packaging, and storage, and the second used for sample counting with a BEGe gamma spectroscopy system. Photographs of the Onsite lab are provided in Figure 3-3.

Figure 3-3. Exterior and Interior Photographs of Retrofitted Onsite Gamma Spectroscopy Laboratory

3.2.4.1 Onsite Sample Preparation Activities

All samples collected were delivered to the Onsite Lab for interim storage, processing and analysis (if required), and packaging for offsite analysis. Samples were accompanied by their respective Field Boring Logs and FCOC forms.

Class 1 borehole samples were processed based on the results of the downhole gamma surveys performed at the open borehole. If any interval exceeded the downhole gamma action level of 6500 gross cpm, the corresponding 12-in section of soil from the acetate liner was segmented and processed for Onsite Lab counting. This screening process was tracked on the “Field Sample Prep BEGe Counting and Analysis Matrix,” provided in Appendix C.

Samples for counting were prepared for analysis in accordance with approved procedures by being heated in an oven for moisture removal, ground, sieved, and subsequently transferred into one-liter marinelli containers prior to gamma spectroscopy analysis. If the consistency of the soil was observed to be too wet to segment or sieve, the sample was placed in the drying oven to remove moisture. The oven was set to a constant temperature of 150 degrees centigrade. Moisture content determinations in the field were made using professional judgment in lieu of taking direct measurements with a moisture meter. Samples requiring drying in the sample oven were run through an automatic soil grinder housed within the sample hood.

All samples packaged for onsite analysis were packaged in high-density polyethylene marinelli beaker containers designed for gamma spectroscopy counting. Once onsite counting was completed, samples designated for shipment to the offsite laboratory were transferred to a high-density polyethylene container provided by the laboratory. Upon receipt at the offsite laboratory, the samples were weighed, dried, and reweighed. The samples were prepared according to the offsite laboratory’s internal procedures. Soils that were not designated for offsite analysis were placed in waste receptacles for offsite disposal.

3.2.4.2 Onsite Sample Counting and Analysis

Analysis was performed using a Canberra Industries BEGe gamma spectroscopy system, assembled with a 30% relative efficiency high purity germanium planar detector and carbon composite entrance window. The BEGe system was used to provide field screening of volumetric soil samples. Prior to the performance of project sample analyses, the detector was calibrated using a multi-line gamma marinelli standard traceable to the National Institute of Standards Technology (NIST). The NIST source certification is included in Appendix G.

The gamma spectroscopy system was operated by a technician that was trained in accordance with CABRERA operating procedures. The operator performed spectral analysis during each measurement, which encompassed the evaluation of spectra for problems such as peak shift, high dead-time, and other potential inconsistencies in spectral structure. A qualified Radiological Engineer reviewed the integrity of the sample analysis results for each sample. This review included the analysis of sample results for spectral energy shift, agreement between progeny activities assumed to be in secular equilibrium, the presence of potentially unidentified radionuclides, as well as other potential inconsistencies.

Soil samples were counted for fifteen minutes, unless sample-specific MDC action levels warranted a longer duration. Situations of this kind were generally the result of low sample volumes due to poor sample recovery. Table 3-2 shows the measured performance of the BEGe detector used at the Site.

Table 3-2. Spectroscopic Gamma Energy Lines for Site RCOCs

RCOC	Direct / Inferred	Inferred Nuclide	Photon Emission (keV)	Gamma Yield (%)	Measured BEGe MDAs (pCi/g)[1]
Ra-226	Direct	N/A	186.2	3.59	0.5 – 2.5
Th-230	Direct	N/A	67.6 (x-ray)	0.38	~20
Th-232	Inferred	Ac-228	911.2	25.8	0.25
U-238	Inferred	Th-234	63.3	4.8	1.9 – 3.5

1. The nuclide minimum detection activity (MDA) values stated in the table are from pre-remediation samples analyzed by the BEGe in a 1 liter Marinelli beaker counted for 15 minutes inside a lead shield.

Discussion of BEGe Quality Assurance (QA) and Quality Control (QC) results are presented in Section 3.6.

3.3 RADIOLOGICAL CONTROLS

3.3.1 Radiation Work Permits

Two Radiation Work Permits (RWPs) were generated to govern project work activities. One RWP governed intrusive sampling activities in the Investigation Areas, including sample collection, handling, breathing zone air sampling, and transfer of potentially contaminated soils and soil cores to the Onsite Lab. A second RWP governed activities performed within the Onsite Lab, including preparation and packaging of potentially contaminated soils, use of onsite gamma spectroscopy counting equipment, use of instrument check sources, decontamination of materials and equipment, routine radiological surveys, and area air sampling. Copies of the RWPs used during pre-remediation sampling are provided in Appendix F.

3.3.2 Air Sampling

Air sampling was performed in both the field and laboratory work zones at the onset of field activities in accordance with the Site Radiation Protection Plan. Field air sampling was performed via battery-powered breathing zone air sampling units with sampling rates between 1 and 5 liters per minute. The sampling head was placed in the breathing zone of the drill rig operator closest to intrusive activities, which represented the greatest potential for exposure to airborne particulate material. Field sampling filters were replaced daily with sampling time and flow rate information logged on an air sample data sheet.

Onsite Lab air samples were collected each day that soil grinding activities took place to monitor the potential for airborne particulate material outside of the high efficiency particulate air-filtered hood assembly. Filters collected in the Onsite Lab were allowed to composite up to a week prior to counting. A minimum of 48 hours was typically required prior to counting filters to allow for the decay of radon daughter products that may build up during air sampling.

Field breathing zone air sampling was performed for 15 consecutive days prior to being abandoned. All collected air samples were shown to have no measurable airborne contamination above background levels. The two composite air samples collected in the Onsite Lab also showed no detectable airborne activity concentrations. The results of all field air sample counts are shown on a Personnel Air Monitoring Worksheet, provided in Appendix F.

3.3.3 Radiological Surveys

Radiological contamination surveys were performed on a routine basis in the field office and laboratory trailers as well as when pieces of equipment exited a radiologically contaminated area. Contractor’s equipment was surveyed when incoming to ensure that contaminated equipment was not being brought onsite. All contractor and rental equipment was surveyed for fixed and removable contamination in accordance with the RWP and CABRERA Radiation Safety Program (Cabrera, 2001) procedures for the free release of equipment and materials. Routine and non-routine surveys were performed in the project trailers to monitor for the presence of fixed and removable contamination as a result of work activities. Copies of all completed radiological survey forms are included in Appendix F.

3.4 INVESTIGATION-DERIVED WASTE

Investigation-Derived Waste was generated as a result of the field activities for this project. This waste consisted of low-level radioactive media in the form of dry active waste (DAW) and water generated from decontamination activities. DAW consisted of used acetate liners from direct-push sampling activities, unsampled soils, and used personnel protective equipment. Pre-remediation sampling activities generated two 96-cubic foot B-25 Low Specific Activity containers and four 55-gallon drums of DAW. Decontamination water was collected in a single 55-gallon drum.

All waste containers were labeled, secured, and loaded into a locked connex container for interim onsite storage. Waste materials within these containers will be incorporated into the remediation waste streams generated during the next phase of the project.

3.5 LABORATORY ANALYSIS

Soil samples were transferred to GEL of Charleston, South Carolina, an independent laboratory, for analyses in accordance with documented laboratory-specific standard methods. USACE radiological QA samples were transferred to Paragon Analytics (Paragon) of Fort Collins, Colorado. GEL and Paragon are in compliance with the requirements of the U.S. Department of Defense's (DoD) *Quality Systems Manual* (QSM) (DoD, 2002) for the required radioanalytical methods. Specific analyses for each sample include Lucas Cell for Ra-226, Isotopic Thorium, and Isotopic Uranium in accordance with the requirements presented in the project QAPP (Cabrera, 2005b).

Turn-around times for analysis results varied during the project. The majority required a 30 calendar day turnaround. However, expedited turnaround times of 10 and 21 calendar days were utilized during execution of the activity correlation factors for the project (see Section 4.1.2 for details).

3.6 QUALITY ASSURANCE / QUALITY CONTROL

Project QC was maintained through the implementation of the Site Quality Control Plan (CABRERA, 2005c), the Site QAPP (CABRERA, 2005b), and CABRERA's corporate QA procedures.

3.6.1 Cabrera Onsite Laboratory Quality Control Results

3.6.1.1 Daily Quality Control Checks

The CABRERA Onsite Lab BEGe detector was calibrated with a NIST traceable multi-line gamma standard prior to the performance of project sample analyses. This standard was used for the system efficiency calibration and consisted of an identical marinelli container used for sample analyses that was filled with an epoxy. This epoxy matrix was manufactured to have a density of 1.6 grams per cubic centimeter which approximated the density of the Site soils.

The same NIST traceable marinelli standard was also used to perform daily QC activities. Analysis of the standard was performed each day that sample analyses were performed to evaluate BEGe performance against established gamma spectroscopy QC criteria for the project. The QC criteria consisted of detector resolution calculation using measurement of Full Width at Half Maximum, peak energy measurements, and decay corrected activity concentration measurements. Each criterion was evaluated daily for americium-241 (Am-241) at 59.5 kilo-electron volt (keV) and cobalt-60 (Co-60) at 1332.5 keV. Daily QC results passed comparison criteria for each day that project sample analyses were performed. Results for all daily QC checks are provided in Appendix G.

3.6.1.2 Onsite Laboratory Replicate Sample Analyses

CABRERA performed replicate analyses for 5% of the samples analyzed in the Onsite Lab. Replicate analyses entailed repeating the analysis of a previously analyzed sample and comparing the results statistically. The samples were numbered using a unique identifier. Field replicate analyses were compared to the initial analytical results by determining a $Z_{Replicate}$ (Z_{Rep}) value for each data set as defined below and in the Site QAPP (Cabrera 2005b).

$$Z_{\text{Replicate}} = \frac{\left|\left(Sample - Duplicate\right)\right|}{\sqrt{\sigma^2{}_{Sample} + \sigma^2{}_{Duplicate}}}$$

where:

Sample	=	first sample value (original)
Duplicate	=	second sample value (duplicate)
σ_{Sample}	=	total propogated uncertainty of the sample
$\sigma_{Duplicate}$	=	total propogated uncertainty of the duplicate

Results of the Z_{Rep} comparisons for the Onsite Lab are shown in Table 3-3. All Onsite Lab duplicate samples passed the requisite Z_{Rep} evaluation.

Table 3-3. Results of Z_{Rep} Tests on Onsite Lab Field Duplicate Samples

Sample ID	Initial Count Ra-226 Result (pCi/g)	Initial Count Ra-226 2σ Uncert (pCi/g)	Duplicate Count Ra-226 Result (pCi/g)	Duplicate Count Ra-226 2σ Uncert (pCi/g)	Z_{Rep}	Test Result (>2 = Warning, >3 = Action)
PVSB011-0-9.0-10.0	1.75	0.75	1.48	0.80	0.48	PASS
PVSB014-0-0.0-1.0	8.93	1.68	7.92	1.14	0.98	PASS
PVSB015-0-8.0-9.0	1.83	0.85	1.89	1.02	0.09	PASS
PVSB006-0-1.0-2.0	0.86	0.15	0.92	0.16	0.54	PASS
PVSB001-0-9.0-10.0	0.83	0.14	0.92	0.14	0.89	PASS
PVSB045-0-5.0-6.0	0.91	0.16	0.69	0.13	2.09	WARNING
PVSB055-0-5.0-6.0	0.87	0.17	0.91	0.16	0.34	PASS
PVSB060-0-5.0-6.0	0.87	0.15	0.90	0.15	0.28	PASS
PVSB069-0-5.0-6.0	1.00	0.16	0.95	0.15	0.45	PASS
PVSB008-0-3.0-4.0	2.56	0.90	2.21	0.97	0.52	PASS
PVSB073-0-5.0-6.0	1.68	0.92	1.87	0.93	0.28	PASS
PVSB028-0-2.0-3.0	2.33	0.99	2.61	1.07	0.38	PASS
PVSB030-0-4.0-5.0	2.25	0.90	2.27	0.96	0.03	PASS
PVSB040-0-7.0-8.0	2.87	1.07	2.16	0.77	1.06	PASS
PVSB041-0-7.0-8.0	1.91	0.98	2.44	1.41	0.60	PASS
PVSB048-0-5.0-6.0	1.97	0.87	1.94	0.86	0.05	PASS
PVSB044-0-5.0-6.0	3.01	1.02	2.04	0.99	1.34	PASS
PVSB023-0-3.0-4.0	2.75	1.09	2.02	1.15	0.90	PASS
PVSB027-0-3.0-4.0	1.46	0.80	2.00	0.80	0.94	PASS
PVSB047-0-2.0-3.0	2.09	0.94	1.42	0.90	1.01	PASS
PVSB050-0-2.0-3.0	2.00	0.90	1.27	0.96	1.09	PASS
PVSB053-0-1.0-2.0	2.19	0.89	2.15	0.89	0.06	PASS
PVSB063-0-8.0-9.0	1.93	1.10	1.79	1.08	0.18	PASS
PVSB068-0-1.0-2.0	2.46	1.08	3.15	1.01	0.91	PASS
PVSB070-0-1.0-2.0	3.69	1.28	3.63	1.15	0.07	PASS
PVSB106-0-2.0-3.0	2.61	1.23	2.82	1.21	0.24	PASS
PVSB108-0-3.0-4.0	1.81	0.79	1.35	0.70	0.85	PASS
PVSB167-0-2.0-3.0	2.62	1.35	3.00	1.38	0.39	PASS
PVSB020-1-2.0-3.0	3.01	1.02	1.78	0.73	1.92	PASS
PVSB129-0-0.0-1.0	1.44	0.97	2.12	0.82	1.05	PASS
PVSB116-0-1.0-2.0	1.94	0.81	2.26	0.82	0.54	PASS
PVSB133-0-0.0-1.0	1.72	0.80	1.44	0.87	0.46	PASS
PVSB141-0-1.0-2.0	3.26	1.06	2.41	0.97	1.16	PASS
PVSB143-0-1.0-2.0	2.25	0.87	2.03	0.77	0.37	PASS
PVSB149-4-3.0-4.0	1.99	1.07	1.89	1.03	0.13	PASS
PVSB162-4-0.0-1.0	3.07	1.28	2.75	1.78	0.29	PASS
PVSB166-4-0.0-1.0	3.12	0.96	2.07	0.91	1.57	PASS
PVSB179-0-4.0-5.0	2.44	1.14	2.76	1.24	0.38	PASS

3.6.2 Field Instrumentation Quality Control Results

The survey and stationary instruments used during the pre-remediation sampling at the Site are listed below with the instrument information.

Table 3-4. Field Instrumentation

Instrument Model	SN:	Detector Model	SN:	Principal Detectable Emissions	Primary Application
Ludlum 2241-3 scaler/ratemeter	142299	Bicron G1 1x1 NaI scintillator	C443E	gamma	DHG logging
Ludlum 2221 scaler/ratemeter	216482	Bicron G1 1x1 NaI scintillator	C358G	gamma	DHG logging
Ludlum 2221 scaler/ratemeter	176952	Ludlum 44-20 3x3 NaI scintillator	PR183465	gamma	GWS
Ludlum 2221 scaler/ratemeter	161581	Ludlum 44-20 3x3 NaI scintillator	PR182742	gamma	GWS
Ludlum Model 3 survey meter	79552	Ludlum 44-9 pancake GM	PR085991	beta	Personnel & material frisking
Bicron MicroRem	1546	Integral scintillator	N/A	gamma	Area dose rates
Ludlum 2929 smear counter	163827	Ludlum 43-10-1 scint assembly	PR171322	alpha, beta	Smear counting
Ludlum 2929 smear counter	180830	Ludlum 43-10-1 scint assembly	PR207849	alpha, beta	Smear counting
Ludlum 2224-1 scaler/ratemeter	162420	Ludlum 43-89 scintillator	PR171381	alpha, beta	Personnel & material frisking

3.6.2.1 Instrument Calibration

All instruments used during the course of the survey were in current calibration, traceable to the NIST. Copies of all vendor instrument calibration certificates are provided in Appendix G.

3.6.2.2 Field Instrument Quality Control Tracking

QC checks were performed daily on all instruments. The results of these checks were entered into a control log or on a control chart to assess operability of each instrument prior to use in the field. For quantitative instruments, i.e., those used to report activity concentrations such as disintegrations per minute per 100 square centimeters, an operability criterion of ± 3-sigma (3-σ) was used. For qualitative instruments, i.e., dose rate meters and friskers, a ± 20% operability criterion was applied.

QC tracking sheets and control charts for check source response, background count rates (where applicable), and copies of the daily check source logs for all instruments are provided in Appendix G.

3.6.3 Quality Assurance Split Samples

USACE QA duplicate samples were collected simultaneously, or in immediate succession, with the original samples. The duplicates were recovered in the same manner as the originals, homogenized and split between the appropriate containers, and treated in the same manner during storage, transportation, and analysis. Field duplicates were collected on a 5% schedule, up to a maximum of 20 samples. USACE QA samples were collected by the CABRERA field team, labeled, and submitted to the USACE QA laboratory in accordance with Appendix E of the project QAPP, USACE *Radiological Quality Assurance for the Painesville FUSRAP Site*.

Results of the QA split samples were forwarded to the USACE for comparison to the results of the initial samples at the same locations.

3.7 FIELD CHANGES TO FSP AND QAPP

Several field level changes to the FSP and QAPP were implemented during the course of the pre-remediation sampling effort. A summary of the significant changes are listed below:

Redistribution of samples in SU 21 and SU 24 – While marking systematic sampling locations, it was observed that SU's 21 and 24 were drawn too far to the north, extending beyond the primary investigation area. As a result, the northern boundaries of each SU were truncated at the northern Site fence line. As a result, the random-start systematic sampling grid was reset to accommodate these new SU boundaries.

Performance of GWS in Class 1 SUs – The FSP called for GWS in Class 2 SUs only, since the CSM was believed to be well understood in the designated Class 1 areas. However, data from soil samples and DHG counts in some Class 1 areas exhibited behavior that was not predicted by the initial CSM. Therefore, a request was made to perform GWS over as much of the Class 1 SUs as possible to aid in characterizing the surface contamination patterns.

Reclassification of FSS SUs – Several Site SUs presented in the FSP required boundary and/or classification changes based on the results of the pre-remediation sampling and analysis activities. Details of these changes are provided in Section 4.6.2.

Sampling Changes – Samples PVSS372 and PVSS378 were not collected due to lack of actual representative soil below the overburden material. Also, Class 2 surface soil samples were not collected on Twin Rivers Technologies property (SU 24) during the pre-remediation sampling event due to scheduling conflicts. These samples will be collected as part of the FSS activities to occur post-remediation at the Site.

Change of USACE QA Laboratory – Appendix E of the QAPP called for STL to perform QA split sample analyses. However, STL could not meet the requirements of the DoD QSM for the radiological methods required. The USACE QA split samples were therefore sent to Paragon in Ft. Collins, Colorado. Paragon had previously completed the laboratory declarations required by the DoD QSM.

4.0 RESULTS

This section provides a summary of sampling results and evaluations of the results for the Painesville pre-remediation survey. In all cases, laboratory alpha and gamma spectroscopy results are considered definitive when compared to DCGL requirements for a particular location.

4.1 EVALUATION METHODOLOGY

4.1.1 Derived Concentration Guideline Levels

Results for all soil samples collected during the pre-remediation sampling effort were compared against calculated DCGLs for the Site. These DCGLs were developed in the *Feasibility Study Addendum* for the Site (USACE, 2005).

Table 4-1. DCGLs for the Painesville FUSRAP Site

RCOC	Average Background Levels (pCi/g)	Construction Worker Scenario $DCGL_w$ (pCi/g)	Construction Worker Scenario 100-m^2 $DCGL_{emc}$ (pCi/g)
Ra-226+D	0.95	9	12
Th-230	1.45	25	34
Th-232+D	1.07	6	8
U-total	2.64	482	810

4.1.2 Development of Activity Correlation Factors for Field Screening

The FSP utilized real-time evaluation protocols for analyzing the field data for the Painesville Site. The goal was to be able to use adaptive sampling strategies in the field to help ensure that enough data was collected and analyzed to satisfactorily develop the CSM. The means for developing useful activity correlation factors involved direct comparisons of gross measurements in the field, such as DHG measurements, to actual offsite laboratory results. To facilitate prompt analysis capabilities, the first set of borehole samples were processed and sent for offsite analysis with an expedited turn-around time of 10 calendar days. Once the laboratory data was available, calculated $DCGL_W$ SOR values from each of the RCOCs were directly compared to the interval counts collected with the DHG probe to assess the correlation.

Calculated $DCGL_W$ SOR values from 48 offsite sample analysis results were compared to 97 DHG counts collected from six locations (PVSB010, PVSB011, PVSB012, PVSB013, PVSB014, and PVSB015). Since the sample intervals covered 12-in depths compared to the 6-in measurement intervals for the DHG, the two DHG results for each foot below ground surface were averaged prior to being compared to the sample data. The results of this comparison are shown in Figure 4-1.

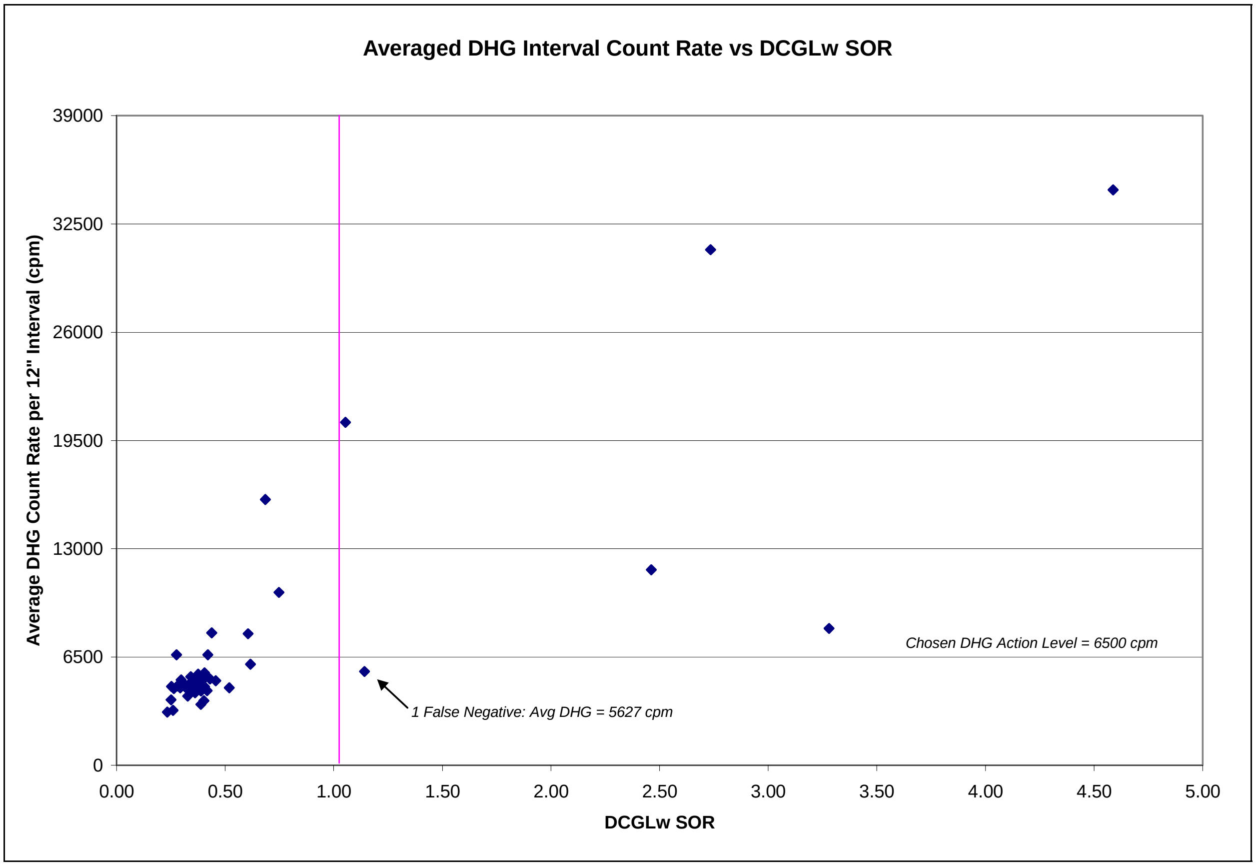


Figure 4-1. Results of Averaged DHG Count Rate vs $DCGL_W$ SOR for Area A Correlation Samples.

The results of the DHG comparison show that for the 48 $DCGL_W$ SOR comparisons performed, only one failed to accurately predict an SOR > 1. This occurred at sample PVSB013-0-1.0-2.0, which had a $DCGL_W$ SOR value of 1.14 versus an averaged DHG count rate of 5,627 cpm. For comparison, raw DHG interval count rates collected every 6-in were plotted versus $DCGL_W$ SOR to evaluate if averaging introduced error to the correlations. This comparison is shown in Figure 4-2.

The data in Figure 4-2 shows two DHG results for each calculated $DCGL_W$ SOR value, with the exception of the pair at the far right of the chart; the top point is not shown due to truncation of the y-axis. Despite the addition of the actual DHG interval count rates, the results of the comparison are identical to the averaged data, with only one sample failing to accurately predict a $DCGL_W$ SOR > 1 at 6,500 cpm. However, Figure 4-2 does shed light on the effects of compositing soils in 12-in depth intervals. The DHG results show that the contamination profile at several locations is not uniformly present over the entire 12-in sample depth. The one false-negative event shown in Figure 4-1 actually consists of one 6-in interval that accurately predicts $DCGL_W$ SOR and another that does not.

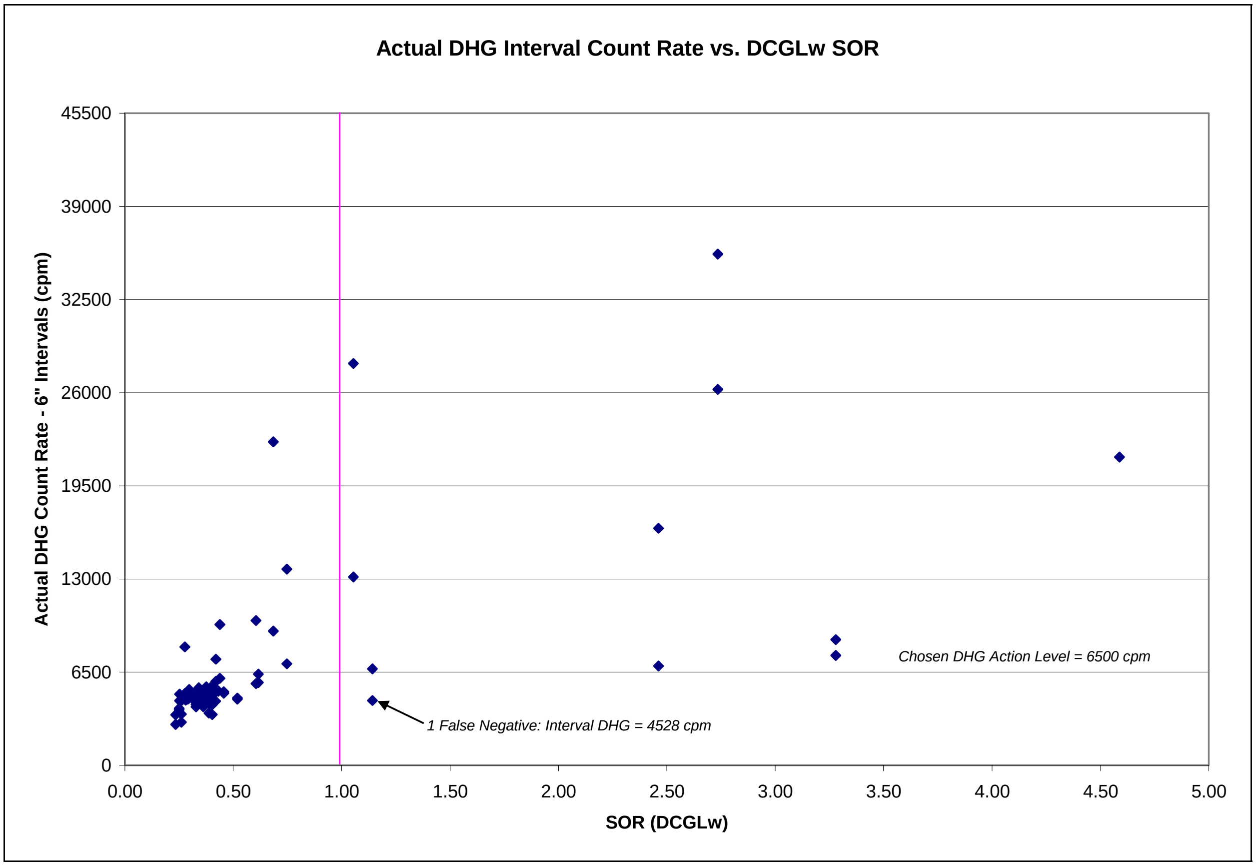


Figure 4-2. Results of Actual DHG Count Rates vs DCGL$_W$ SOR for Area A Correlation Samples.

Based on this positive correlation between DHG results and DCGL$_W$ SOR, a DHG gross count rate threshold of 6,500 cpm was used as the Action Level (AL) for screening borehole locations for soil processing and sampling. However, for boring locations where the hole collapsed prior to sleeving or had significant groundwater recharge, the Onsite Lab alone was used for sample screening purposes.

4.2 DOWNHOLE GAMMA SURVEY RESULTS

DHG counts were performed in all open boring locations that did not experience immediate complete groundwater recharge or borehole collapse. Each 6-in DHG count rate recorded on the Field Boring Log was evaluated against the 6,500 cpm AL discussed in Section 4.1.2 to determine which subsurface intervals to sample for onsite and offsite analyses. A total of 3,365 DHG counts were performed within boreholes at the Site. Within this total, 192 interval counts were found to exceed the AL. This corresponds to 5.7%. A complete DHG results table is provided in Appendix C. A summary of which is shown in Table 4-2.

Table 4-2. Summary of DHG Measurement Results for the Painesville Site.

Total Number of DHG Interval Counts	3,365
Number of Boring Locations with DHG Performed	208
Average Number of 6-in Interval Counts per Borehole	16
Number of Locations with No DHG Counts due to Groundwater Recharge or Hole Collapse	21
Number of DHG Intervals > 6,500 cpm AL	192 *(5.7%)*
Maximum Measured DHG Result (cpm)	242,507 *(SB017)*

DHG measurements proved to be a very informative tool at the Site. The positive correlation between Ra-226 and $DCGL_W$ SOR allowed the field team to rely on the DHG data as a decisive tool for interpreting results of adaptively placed samples, which in turn also allowed quick placement of new samples to ensure adequate bounding of contamination along investigation area boundaries and depths. Of the 62 adaptive locations placed during the pre-remediation sampling effort, 55 were screened with the DHG probe only.

4.3 GAMMA WALKOVER SURVEY RESULTS

The focus of the initial GWS was in the Class 2 SU's as originally drawn. Determination of GWS correlation factors was not able to be performed in the Class 2 SUs due to the lack of measurable contamination at any of the systematic sampling locations. Therefore, identification of elevated locations during the GWS was made using audible identification from the survey meter and/or visual identification during post-processing of the data. Each GWS data set was reduced and contoured using a geographical imaging program. Contour mapping of the GWS data allowed for close investigation of varying count rates throughout the SUs for trend analysis and potential follow-up/biased sampling.

These surveys resulted in the discovery of several areas of surface contamination not previously identified. Discrete areas of surface contamination were found in Class 2 SU's 13, 14, and 15. The identification of the areas of contamination prompted CABRERA to collect additional borehole samples to assess horizontal and vertical limits of the contamination. Identification of these discrete areas also led to the re-classification of these areas to Class 1 SUs for investigation during the remediation/FSS phase of the project.

A list of the biased borehole locations in the Class 2 SU's are shown in Table 4-3. GWS results are provided graphically as image plots on Maps 11 through 15 in the 'Maps' tab of the report.

Table 4-3. Description of Biased Sample Locations Resulting from Class 2 GWS.

Class 2 SU	No. of GWS Hotspot(s)	Surface Information	Location ID(s)	Notes
13	Numerous	Soil and asphalt.	222 - 225	Contamination pattern appears to follow remnants of former asphalt roadway between Area A and gate leading to Fairport Nursery Road. Area re-classified as Class 1 SUs #25 & #26.
14	1	Gravel road shoulder to the north of Site road	198 226 – 228	Original borehole. DHG counts revealed contamination to 1.5-ft bgs. Triangular pattern of bounding boreholes around 198. All biased DHG counts below AL. Area re-classified as Class 1 SU #29.
15	1	Soils between abandoned railroad bed and building slab to the north	169 – 171 195 – 197 229	Original 3 boreholes. DHG counts in these 3 locations revealed subsurface contamination. Bounding boreholes to the east, south, and west of 169-171 - all DHG clean. Bounding core to the north of 169 and 195 - DHG clean. Area reclassified as Class 1 SU #28, contiguous to SU #4.

4.4 SOIL SAMPLE ANALYSIS RESULTS

4.4.1 Class 1 Characterization Borehole Samples

For the 229 Class 1 borehole locations sampled during this field effort, a total of 475 soil samples were processed for offsite laboratory analysis, including field duplicate samples. A statistical summary of all results is provided in Table 4-4, including maximum concentrations, average, median, and standard deviation for each RCOC. A full listing of all offsite laboratory results is provided in Appendix C, Table C-1.

A summary of the sample results by Investigation Area is provided in Table 4-5. The results for each RCOC were divided by their respective DCGL values for comparison against the SOR criterion of 1. Soil samples with $DCGL_W$ SOR values > 1 are summarized in Table 4-6 with their corresponding $DCGL_{emc}$ SOR values. The statistics shown for Area C are skewed due to the results at location PVSB46. All maximum RCOC values were found in the 0 to 1-ft interval at this location with their corresponding $DCGL_{emc}$ SOR values. Calculated SOR results for each interval are also provided as classed post plots overlaid on the Site base map (please see Maps 1 through 10A for results).

Table 4-4. Summary of All Class 1 Borehole RCOC Concentration Data

		Concentration (pCi/g)			
RCOC	Number of Samples	Maximum	Minimum	Median	Average
Ra-226	475	183	-0.06*	1.13	3.90
Th-230	475	1140	0.29	1.29	5.06
Th-232	475	14.1	0.15	1.03	1.02
Total U	475	82.82	1.07	2.71	6.06

**Negative value is a net value, a result of the GEL sample result minus laboratory background.*

Table 4-5. Summary of Radiological Sample Results for Site Investigation Areas

Investigation Area	RCOC	Number of Samples	RCOC Concentrations (pCi/g)			
			Minimum	Maximum	Average	Std Dev (1σ)
Area A	Ra-226	171	-0.06*	103.0	4.94	11.51
	Th-230	171	0.49	37.3	3.30	5.19
	Th-232	171	0.24	1.72	1.02	0.26
	Total U	171	1.07	54.0	8.63	11.2
Area B	Ra-226	30	0.02	7.95	1.79	1.93
	Th-230	30	0.57	4.74	1.52	0.93
	Th-232	30	0.58	1.17	0.84	0.18
	Total U	30	1.21	7.18	2.60	1.19
Area C	Ra-226	115	-0.06*	183.0	5.68	24.5
	Th-230	115	0.64	1140	13.0	107
	Th-232	115	0.31	14.1	1.09	1.26
	Total U	115	1.33	82.8	6.58	12.8
Area D	Ra-226	23	-0.03*	12.0	1.74	2.67
	Th-230	23	0.62	13.6	2.72	3.11
	Th-232	23	0.32	1.00	0.72	0.16
	Total U	23	1.43	3.84	2.30	0.67
Area G	Ra-226	25	0.00	5.59	1.26	1.33
	Th-230	25	0.59	4.55	1.59	0.92
	Th-232	25	0.37	1.28	0.90	0.23
	Total U	25	1.34	9.94	3.17	1.98
Area H	Ra-226	80	-0.02*	35.3	2.66	5.24
	Th-230	80	0.84	12.4	2.04	2.04
	Th-232	80	0.60	1.64	1.15	0.18
	Total U	80	1.64	23.8	4.46	4.28
Rubble Pile	Ra-226	31	-0.03*	14.4	1.55	2.66
	Th-230	31	0.29	3.39	1.23	0.53
	Th-232	31	0.15	1.35	0.88	0.26
	Total U	31	1.07	4.78	2.50	0.80

** The negative value is a net value, a result of the GEL sample result minus laboratory background.*

Table 4-6. Class 1 Soil Samples with $DCGL_W$ SORs > 1.0

Sample ID	Invest. Area	SOR DCGLw	SOR $DCGL_{emc}$ (100 m^2)	Sample ID	Invest. Area	SOR DCGLw	SOR $DCGL_{emc}$ (100 m^2)
PVSB046-0-0.0-1.0	C	68.46	50.64	PVSB045-0-0.0-1.0	C	2.40	1.79
PVSB017-0-1.0-2.0	A	13.16	9.84	PVSB055-0-0.0-1.0	C	2.32	1.73
PVSB009-0-0.0-1.0	A	7.40	5.52	PVSB016-0-3.0-4.0	A	2.29	1.70
PVSB062-0-0.0-1.0	C	6.79	5.07	PVSB065-0-0.0-1.0	D	2.01	1.50
PVSB017-0-0.0-1.0	A	4.95	3.70	PVSB133-0-3.0-4.0	H	1.94	1.45
PVSB019-0-2.0-3.0	A	4.84	3.62	PVSB106-0-1.0-2.0	A	1.87	1.40
PVSB021-0-0.0-1.0	A	4.76	3.55	PVSB070-0-0.0-1.0	RP*	1.87	1.40
PVSB011-0-1.0-2.0	H	4.59	3.43	PVSB021-0-1.0-2.0	A	1.79	1.33
PVSB061-0-0.0-1.0	C	4.29	3.20	PVSB057-0-0.0-1.0	C	1.76	1.31
PVSB016-0-1.0-2.0	A	3.51	2.62	PVSB022-0-1.0-2.0	A	1.61	1.17
PVSB012-0-0.0-1.0	H	3.28	2.45	PVSB054-0-0.0-1.0	C	1.59	1.18
PVSB023-0-0.0-1.0	A	3.23	2.40	PVSB016-0-0.0-1.0	A	1.42	1.06
PVSB010-0-2.0-3.0	H	2.74	2.04	PVSB027-0-0.0-1.0	A	1.37	1.02
PVSB019-0-3.0-4.0	A	2.72	2.02	PVSB035-0-0.0-1.0	A	1.31	0.98
PVSB024-0-1.0-2.0	A	2.65	1.97	PVSB035-0-1.0-2.0	A	1.30	0.97
PVSB060-0-0.0-1.0	C	2.55	1.89	PVSB039-0-0.0-1.0	B	1.25	0.93
PVSB005-0-0.0-1.0	A	2.52	1.88	PVSB042-0-0.0-1.0	B	1.19	0.88
PVSB018-0-0.0-1.0	A	2.52	1.87	PVSB013-0-1.0-2.0	H	1.14	0.85
PVSB015-0-1.0-2.0	A	2.46	1.84	PVSB133-0-2.0-3.0	H	1.08	0.81
PVSB016-0-2.0-3.0	A	2.46	1.83	PVSB004-0-0.0-1.0	A	1.07	0.79
PVSB168-0-0.0-1.0	A	2.45	1.83	PVSB011-0-2.0-3.0	H	1.05	0.78

*RP = Rubble Pile

Calculated SOR values in Table 4-6 show 42 sample intervals with SOR results > 1.0 relative to the $DCGL_W$ and 34 relative to the $DCGL_{emc}$. A majority of these exceedances were found in the first few feet of sample depth with none found below a sample depth of 4-ft. A breakdown of SOR results with respect to interval depth is shown in Table 4-7.

Table 4-7. SOR Exceedances versus Sampling Depth

Interval Number	Depth (feet bgs)	No. Samples with SOR > 1	Percentage of Total	No. Samples with SOR > 1	Percentage of Total
		$DCGL_W$		$DCGL_{emc}$	
1	0 – 1	24	57.1 %	20	58.8 %
2	1 – 2	10	23.8 %	8	23.5 %
3	2 – 3	5	11.9 %	3	8.8 %
4	3 – 4	3	7.1 %	3	8.8 %
5	4 – 5	0	0 %	0	0 %
6	5 – 6	0	0 %	0	0 %
7	6 – 7	0	0 %	0	0 %
8	7 – 8	0	0 %	0	0 %
9	8 – 9	0	0 %	0	0 %
10	9 – 10	0	0 %	0	0 %

4.4.2 Class 2 Final Status Survey Samples

A total of 161 systematic surface soil samples were collected within the Class 2 SU boundaries for MARSSIM FSS testing. The overall results of the Class 2 systematic samples are summarized in Table 4-8.

Table 4-8. Summary of Class 2 Systematic Surface Sample Concentration Data

RCOC	Number of Samples	Concentration (pCi/g)			
		Maximum	Minimum	Median	Average
Ra-226	161	25.5	-0.11*	0.83	1.16
Th-230	161	6.37	0.26	0.99	1.06
Th-232	161	1.65	0.05	0.71	0.72
Total U	161	6.31	0.27	1.96	2.04

** Negative value is a net value, a result of the GEL sample result minus laboratory background.*

Two surface samples collected within the Class 2 SUs were found to contain Ra-226 in excess of project DCGLs. These were found at locations PVSS373-0-0.0-0.5 (SU 19, 12.0 pCi/g) and PVSS408-0-0.0-0.5 (SU 15, 25.5 pCi/g).

Samples from each of the 11 sampled SUs were compiled for statistical testing in accordance with the decision logic presented in the project DQOs (Cabrera, 2005b). The sample results were corrected for backgrounds by subtracting the established values provided in Table 4-1 prior to performing SOR calculations. The calculated SORs were then evaluated against the MARSSIM Sign Test and $DCGL_{emc}$ criteria to assess whether each SU preliminarily met the requirements for release. A summary of these results is shown in Table 4-9. The MARSSIM statistical worksheets for each SU are provided in Appendix C.

Table 4-9. Preliminary Results of MARSSIM Statistical Testing on Site Class 2 SUs

SU #	Number of Samples	Sign Test Result	$DCGL_{emc}$ Test Result	Overall SU Test Result
13	15	PASS	PASS	PASS
14	13	PASS	PASS	PASS
15	15	PASS	*FAIL*[1]	*FAIL*[1]
16	16	PASS	PASS	PASS
17	15	PASS	PASS	PASS
18	15	PASS	PASS	PASS
19	15	PASS	*FAIL*[1]	*FAIL*[1]
20	14	PASS	PASS	PASS
21	15	PASS	PASS	PASS
22	16	PASS	PASS	PASS
23	14	PASS	PASS	PASS
24	13	*Not Tested*[2]	*Not Tested*[2]	*Not Tested*[2]

Notes: 1. The two failures reported in Table 4-9 are preliminary, based on initial analytical results at locations PVSS373-0-0.0-0.5 (SU 19) and PVSS408-0-0.0-0.5 (SU 15). Two sets of follow-up analyses on these samples have not replicated the first analysis results.

2. Class 2 samples from SU 24 were not MARSSIM tested because not all locations could be sampled during the pre-remediation sampling event. The remainder will need to be collected during the FSS phase of the project.

4.4.3 Class 2 Biased Surface Soil Samples

Analysis of the 48 biased surface soil samples collected in the Class 2 SUs resulted in all having a net $DCGL_W$ SOR less than 1. A summary of these samples is presented in Table 4-10. A complete table of sample results is provided in Appendix C.

Table 4-10. Summary of Class 2 Biased Surface Soil Samples

		Concentration (pCi/g)			
RCOC	Number of Samples	Maximum	Minimum	Median	Average
Ra-226	48	4.22	-0.06*	1.00	1.27
Th-230	48	3.97	0.58	1.06	1.32
Th-232	48	1.32	0.15	0.68	0.68
Total U	48	6.24	1.11	2.11	2.78

** Negative value is a net value, a result of the GEL sample result minus laboratory background.*

4.5 ONSITE LABORATORY RESULTS

A total of 778 samples collected from the Class 1 borehole locations were analyzed using the Onsite Lab BEGe detector. This total includes internal QC duplicate samples counted at a frequency of 5% of the total.

Analyses of these samples showed that the BEGe detector frequently over-reported the Ra-226 result versus the corresponding result from the Lucas Cell method used at GEL. This condition was expected due to collocation of U-235 in Site soils. CABRERA examined the relationship of the two sample sets to evaluate whether a correction could be assigned to subtract the influence of the U-235 on the reported Ra-226 activities. The result of this evaluation showed that it is possible to apply a correction factor to the Ra-226 results. However, this procedure also decreases the correlation coefficient between the Onsite Lab Ra-226 results and those from GEL's Lucas Cell method. For this reason, it was decided that correcting the BEGe Ra-226 results would not be performed. Details of this evaluation are provided in Appendix B as a Technical Memorandum.

Despite the ineffectiveness of applying correction factors to the data, the BEGe Ra-226 results were still found to accurately predict $DCGL_W$ SOR exceedances for the Site RCOCs. Given a raw BEGe Ra-226 threshold value of 7 pCi/g, 100% of $DCGL_W$ SOR exceedances observed during pre-remediation sampling would have been predicted correctly. This equates to a 0% Type II error rate (i.e. false negative events). This threshold value does introduce Type I (i.e., false positive) sampling errors. As Figure 4-3 shows, there were 74 results reported as having >7 pCi/g Ra-226 on the BEGe. Of this total, 24 had $DCGL_W$ SOR values < 1, which leads to a Type I error rate of 32.4%. The Type I error rate can be reduced by raising the BEGe Ra-226 threshold value, although it must be recognized that doing so will increase the Type II errors in return. Since the object of the BEGe detector is to screen samples for FSS compliance, the Type I error rate is a tolerable byproduct given that the primary purpose is to ensure that all remediated SUs meet the requirements for closure.

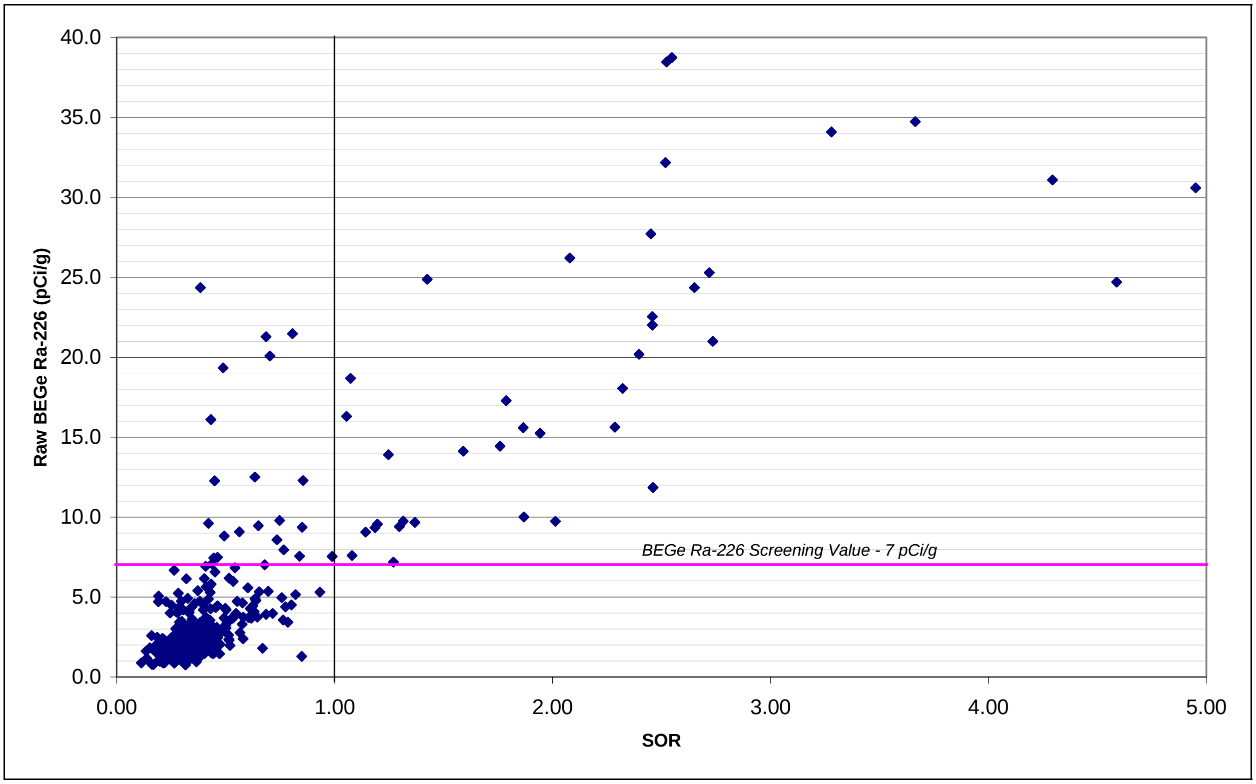


Figure 4-3. Plot of BEGe Ra-226 Results versus $DCGL_W$ SOR.

4.6 DISCUSSION OF RESULTS

4.6.1 General RCOC Behavior

Data from the Class 1 borehole samples displayed a strong correlation of Ra-226 to $DCGL_W$ SOR at the Site. This behavior is shown in Figure 4-4. Discovery of this behavior proved advantageous when characterizing the Site since more emphasis could be placed on the gross measurement screening techniques (DHG, GWS) for predicting $DCGL_W$ SOR exceedances. For the few sample results that did not follow a linear relationship in Figure 4-4, the $DCGL_W$ SOR calculation was being influenced by other RCOC constituents, primarily Th-230.

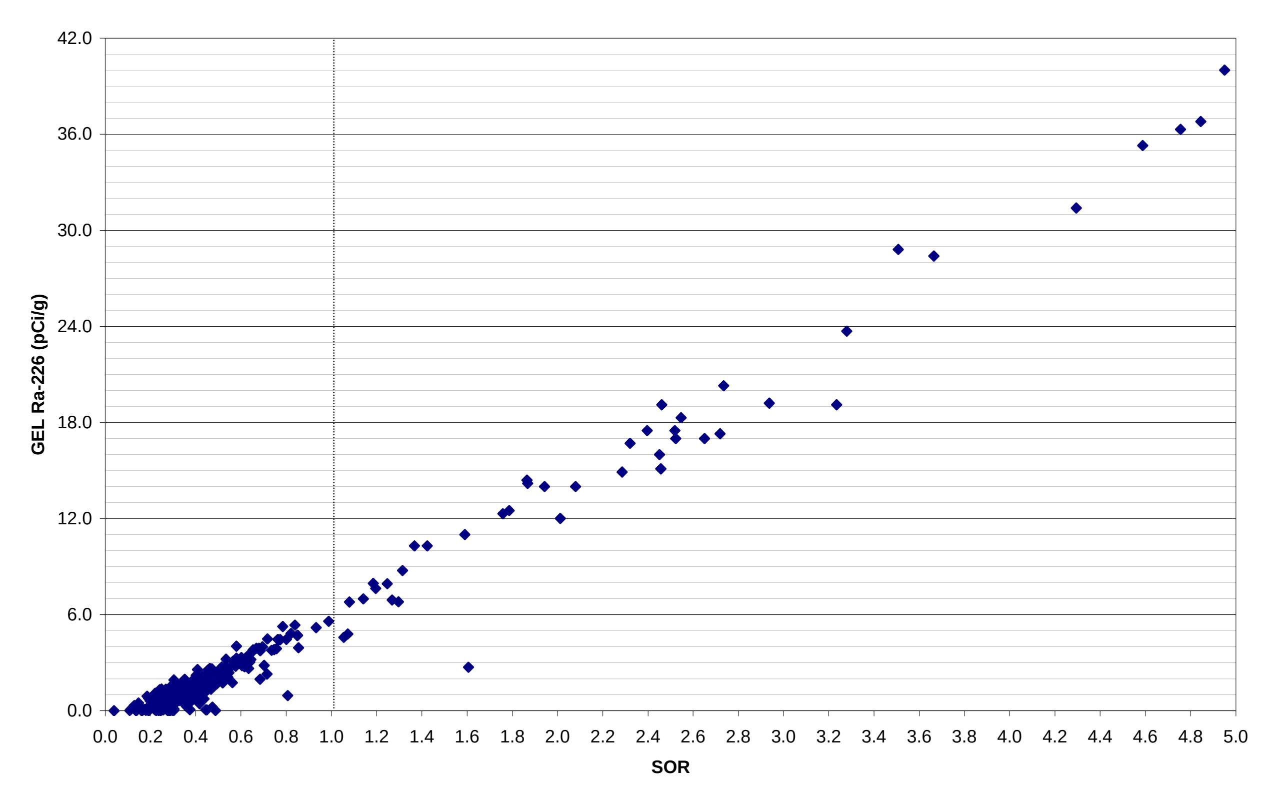


Figure 4-4. Relationship of Lucas Cell Ra-226 Concentration to $DCGL_W$ SOR.

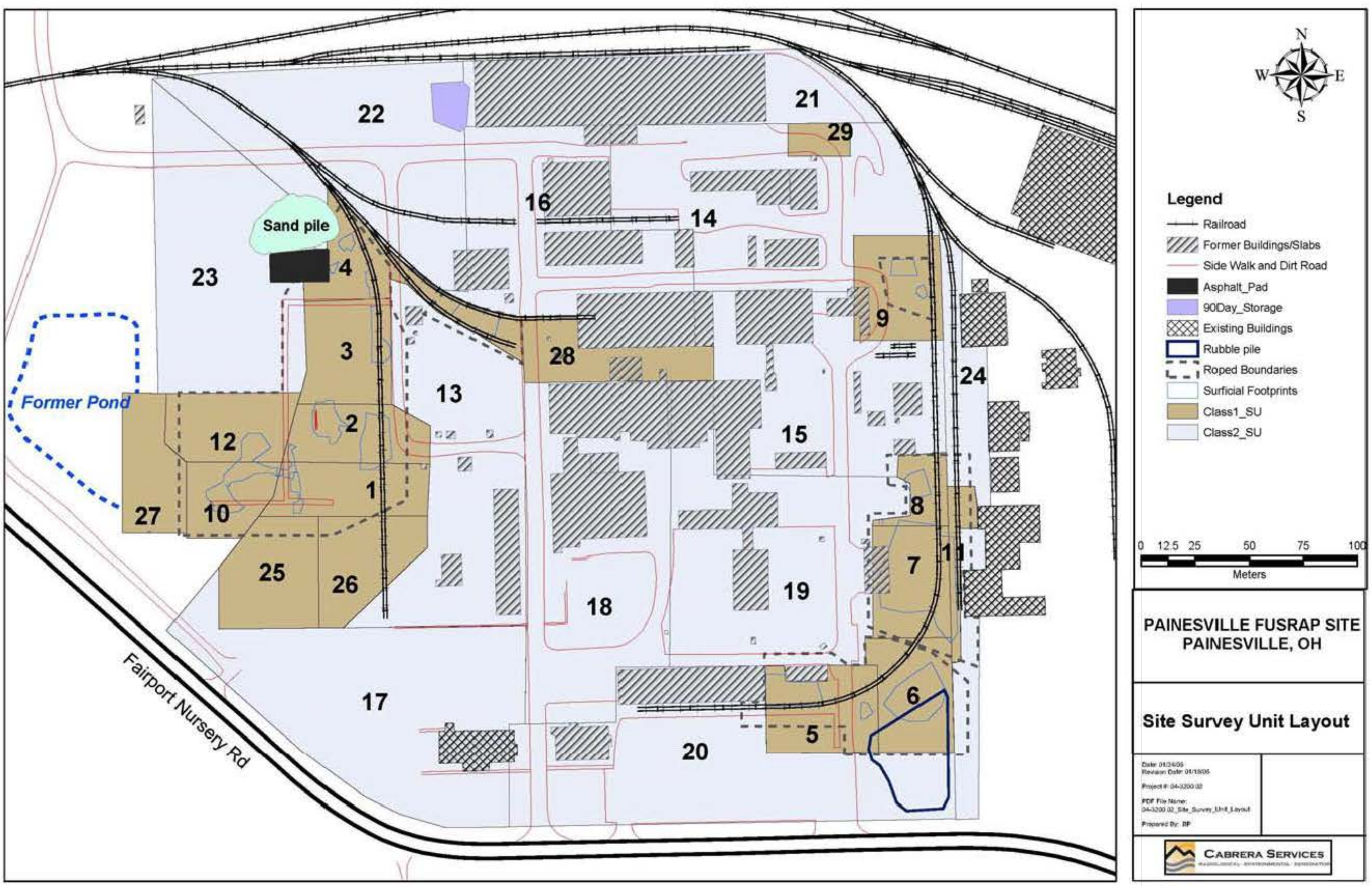
4.6.2 Refinement of FSS Design

The adaptive sampling and analysis procedures used during the pre-remediation sampling effort allowed for active refinement of the Site CSM. Near real-time results of DHG, GWS, and Onsite Lab gamma spectroscopy counts were used to analyze RCOC levels near the surface of the soil and at depth.

Based on the results of the field screening tools, three Class 1 SUs (1, 2, and 9) were found to need boundary adjustments to capture contamination patterns at the edges. In addition, five new Class 1 SUs were created: three (25, 26, and 27) are contiguous with previously defined Class 1 SUs and were created to capture contamination beyond their boundaries; and two new Class 1 SUs (28, 29) are the result of finding hotspots in previously defined Class 2 SUs (14, 15).

The impact of these findings is that the Site FSS design now has 17 Class 1 SUs, versus 12 at the onset of pre-remediation sampling. The number of Class 2 SUs remained constant, although the size and shape of many of these SUs required alteration based on the creation of the new Class 1 SUs. A plot of the revised Site SU layout is shown in Figure 4-5. The original SU layout is provided as Figure 2-2. These changes will be incorporated into the FSS Plan for the Site.

Figure 4-5. Revised Site Survey Unit Layout



4.7 CONCLUSIONS

Evaluation of the data from this pre-remediation sampling and survey effort indicates that a significant portion of the Painesville Class 1 AOC exceeds the Site DCGLs in both surface and subsurface soils. Three impacted areas were also found within Class 2 SUs, requiring reclassification of these units to Class 1.

The data supports the preliminary assumption that Ra-226 is the primary RCOC, with strong correlation between Ra-226 concentration and overall SOR values. The data also shows collocation of RCOCs Th-230 and U-238 in lower concentrations wherever Ra-226 is present. Based on the dominance of the Ra-226, it is expected that GWS will reliably identify surface $DCGL_{emc}$ SOR exceedances during FSS activities.

The following objectives of the pre-remediation sampling effort outlined in the Site FSP were also successfully achieved:

- Field screening measurements were effective at identifying Site RCOCs both at the surface and at depth. GWS and DHG counts both proved successful in identifying contamination in areas not previously identified.

- The adaptive sampling and analysis protocols outlined in the Site FSM were successfully implemented. These protocols allowed project team personnel to quickly assess RCOC levels in the various investigation areas and make informed judgments based on these results.

- The CSM for the Site is now believed to be adequately defined, based on the results of both systematic and adaptive samples collected during the course of the field work.

- The Onsite BEGe lab was shown to be a useful screening tool for predicting SOR exceedances at the Site. A BEGe screening threshold of 7 pCi/g Ra-226 is recommended for use during Site FSS activities to ensure that all SUs meet the requirements for closure.

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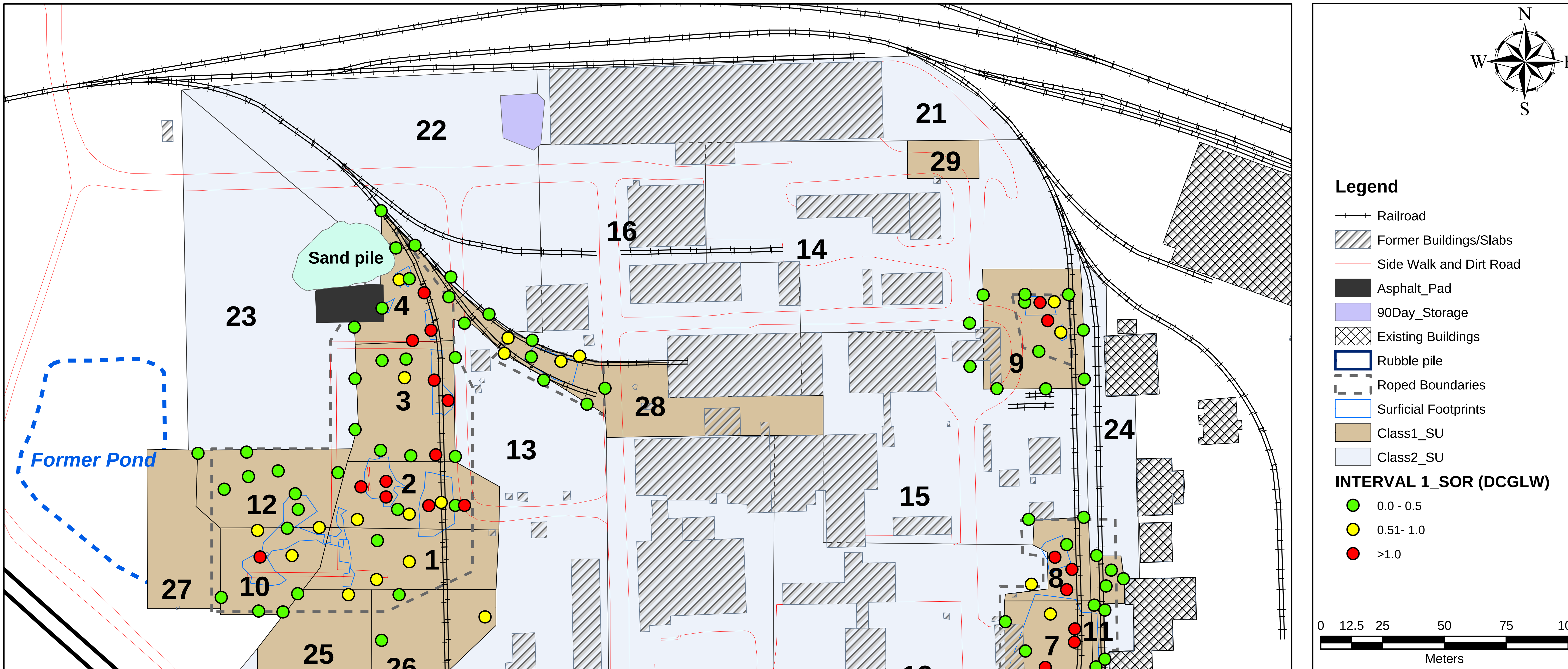
MAPS



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #1 (0-1 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL1_DCGLW

Prepared By: JW/JD/BP

MAP 1

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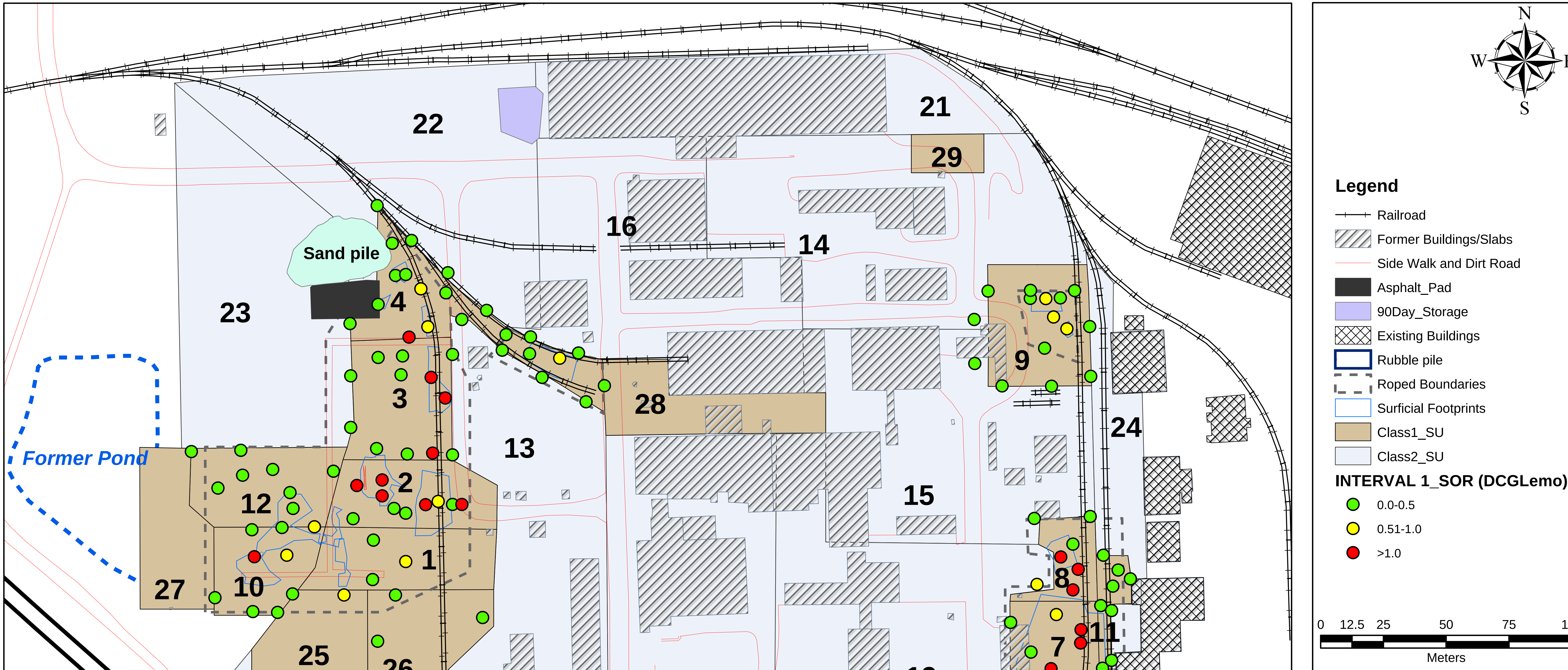

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #1 (0-1 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL1_DCGLemc

Prepared By: BP

MAP 1A

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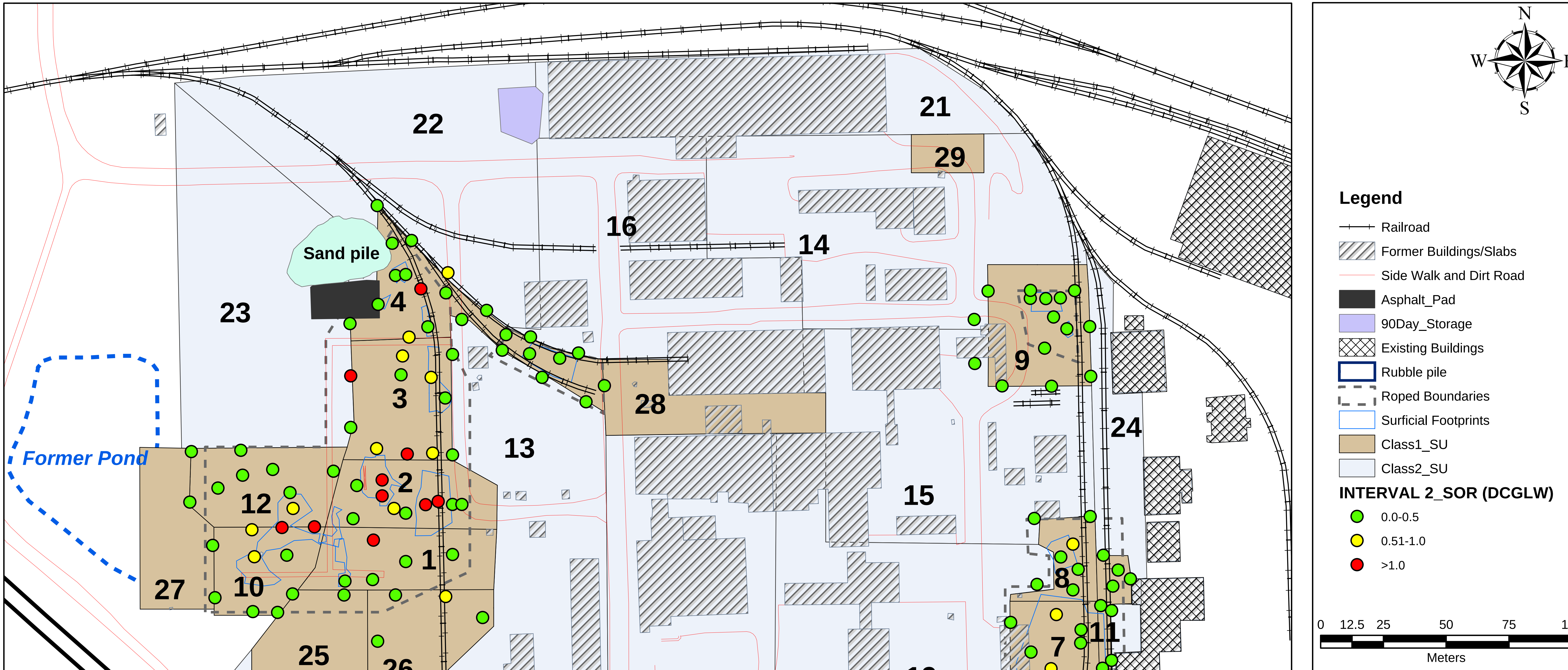

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #2 (1-2 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL2_DCGLW

Prepared By: BP

MAP 2

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PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #2 (1-2 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL2_DCGLemc

Prepared By: BP

MAP 2A

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**PAINESVILLE FUSRAP SITE
PAINESVILLE, OH**

**DCGLw SOR Results
Interval #3 (2-3 ft bgs)**

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL3_DCGLW

Prepared By: BP

MAP 3

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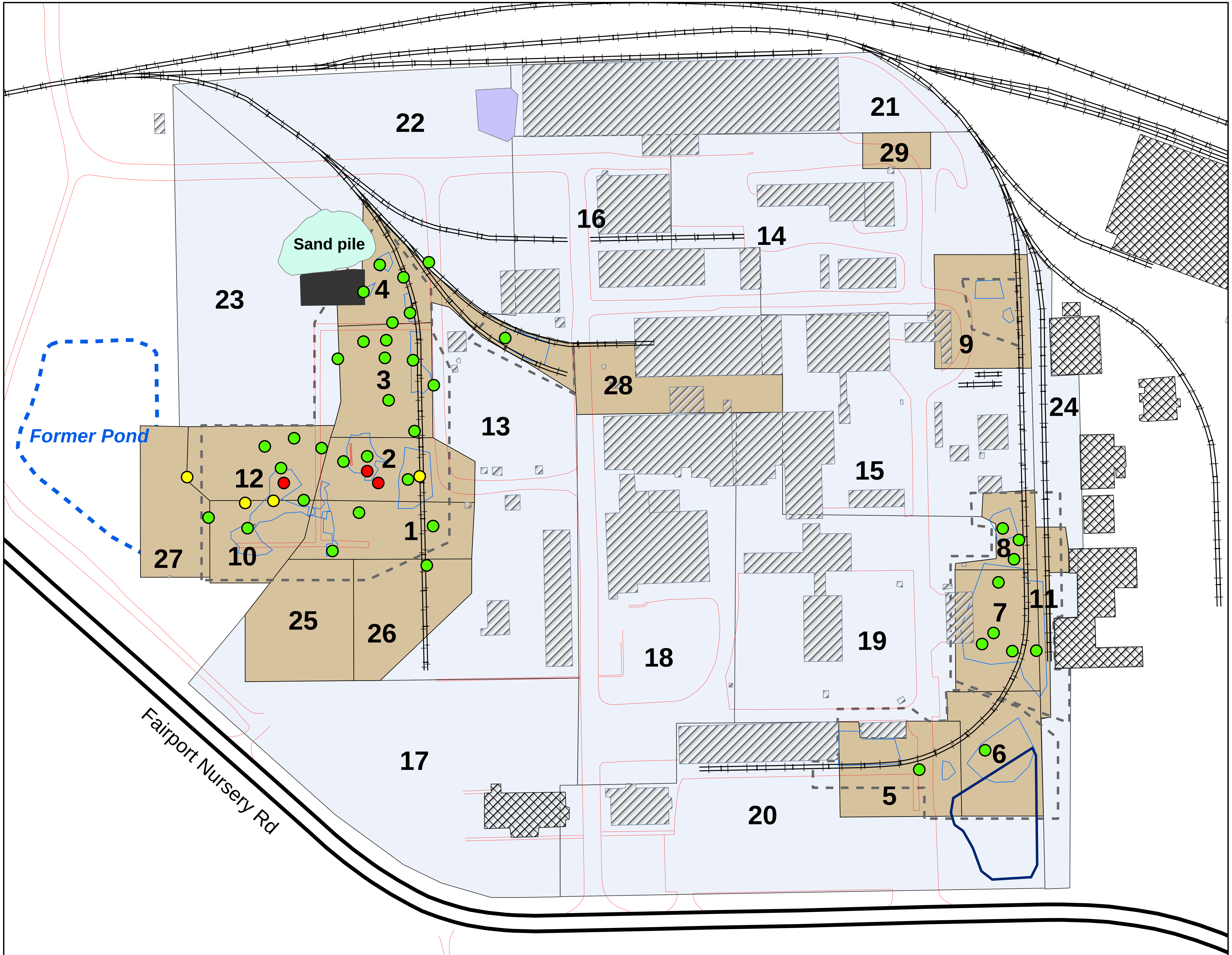

N
W E
S

Legend

- Railroad
- Former Buildings/Slabs
- Side Walk and Dirt Road
- Asphalt_Pad
- 90Day_Storage
- Existing Buildings
- Rubble pile
- Roped Boundaries
- Surficial Footprints
- Class1_SU
- Class2_SU

INTERVAL3_SOR (DCGLemc)

- 0.0-0.5
- 0.51 - 1.0
- >1.0

0 12.5 25 50 75 100
Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #3 (2-3 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL3_DCGLemc

Prepared By: BP

MAP 3A

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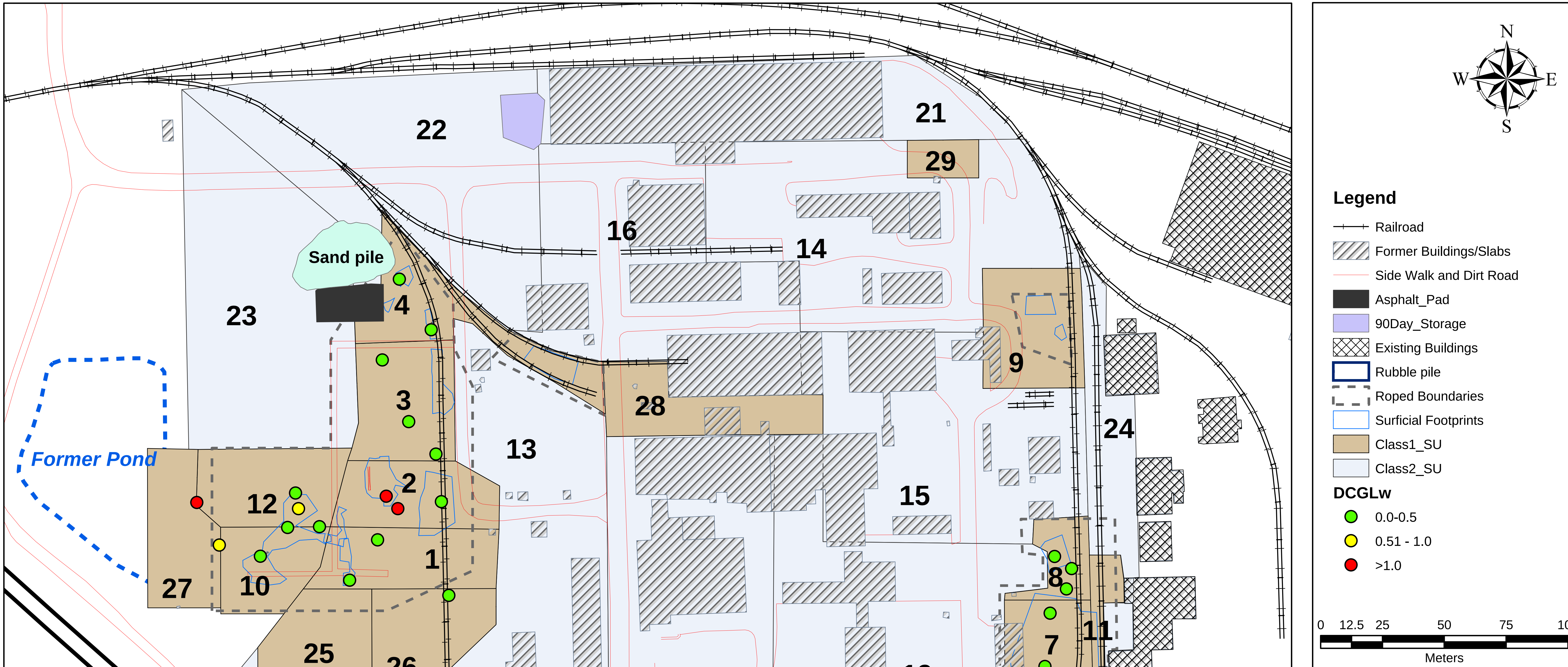

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results Interval #4 (3-4 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name: 04-3200.02_SOR_INTERVAL4_DCGLW

Prepared By: BP

MAP 4

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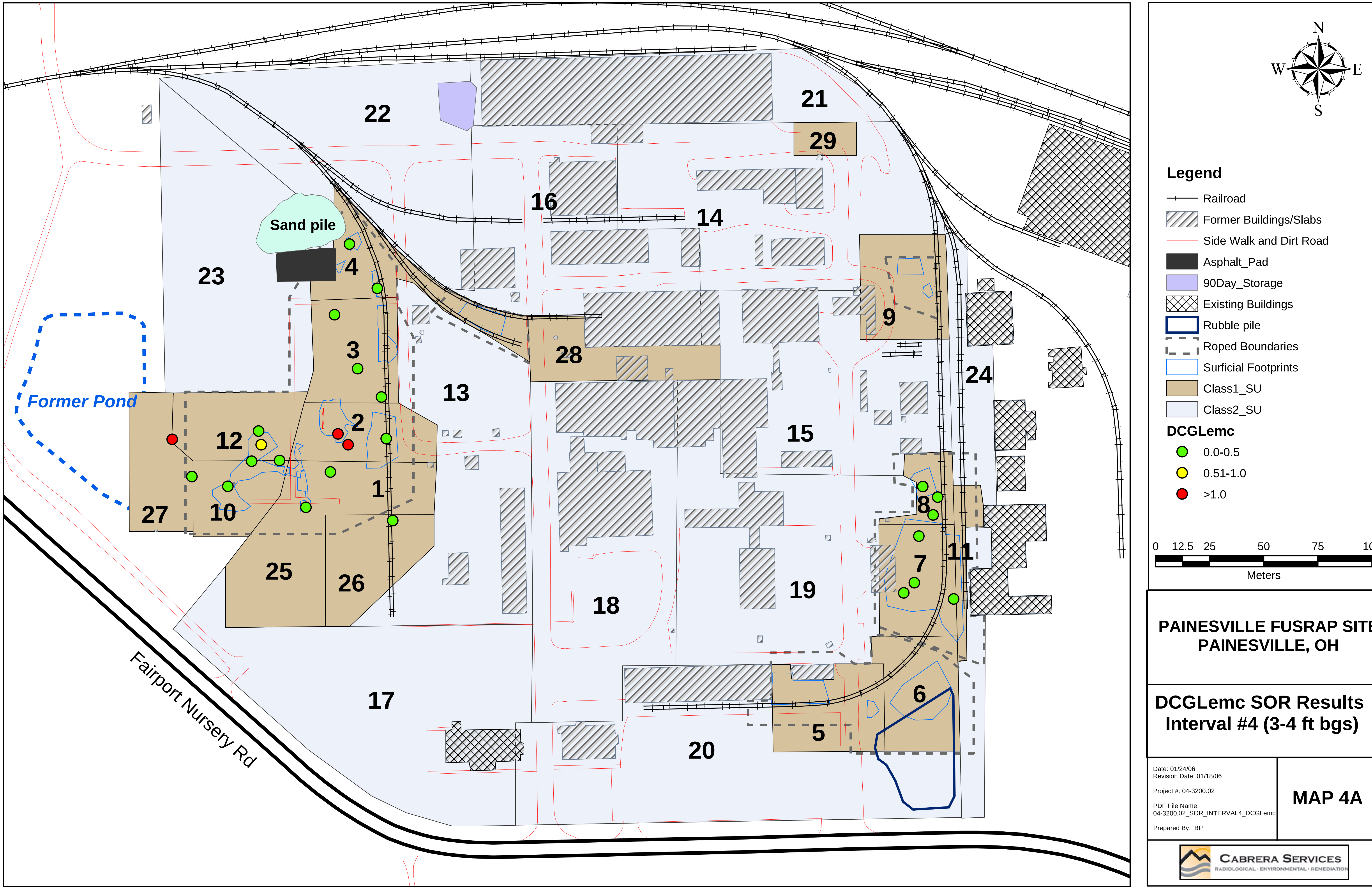

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #4 (3-4 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL4_DCGLemc

Prepared By: BP

MAP 4A

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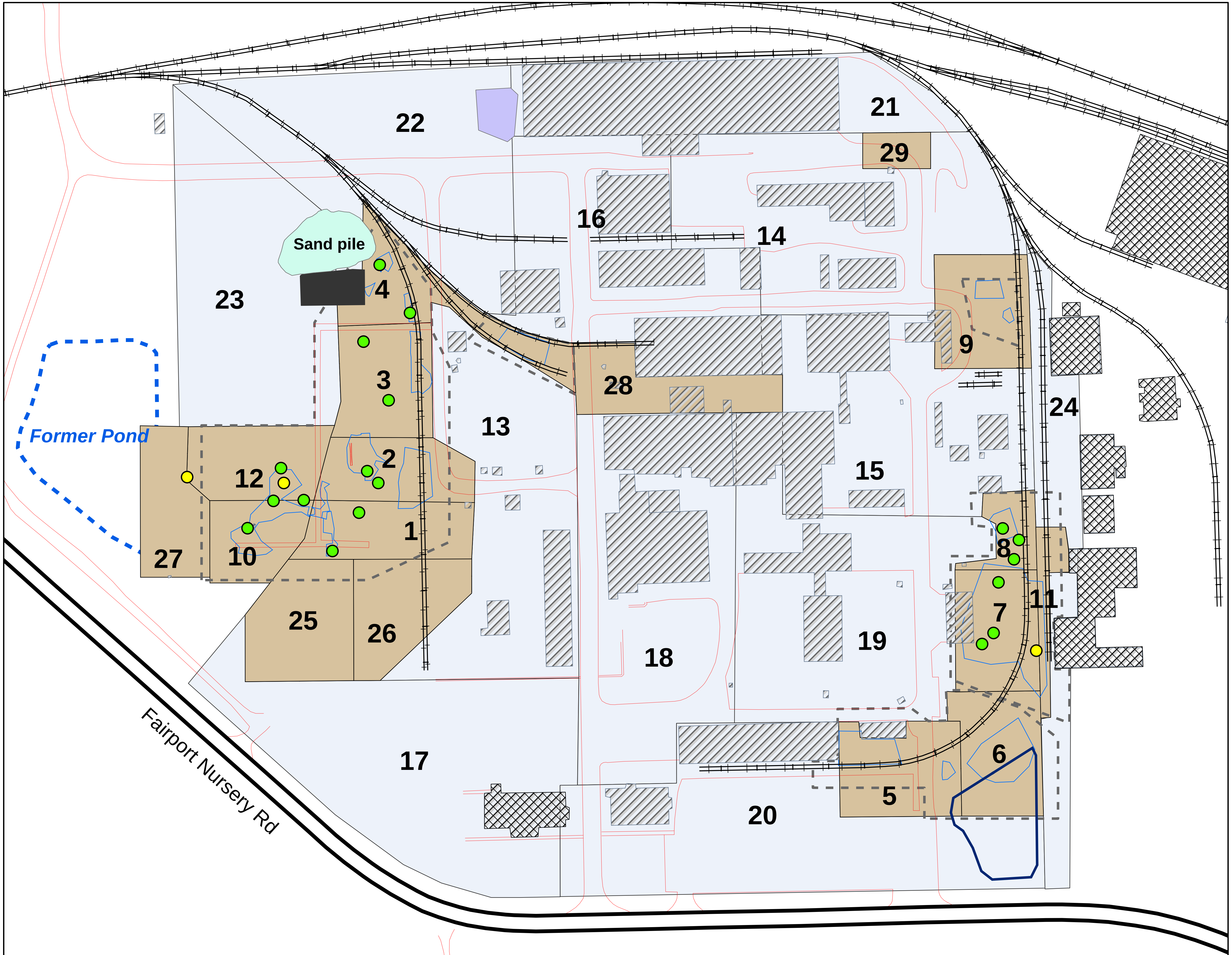

N
W E
S

Legend

- Railroad
- Former Buildings/Slabs
- Side Walk and Dirt Road
- Asphalt_Pad
- 90Day_Storage
- Existing Buildings
- Rubble pile
- Roped Boundaries
- Surficial Footprints
- Class1_SU
- Class2_SU

INTERVAL 5_SOR (DCGLw)

- 0.0-0.5
- 0.51-1.0

0 12.5 25 50 75 100
Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #5 (4-5 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL5_DCGLW

Prepared By: BP

MAP 5

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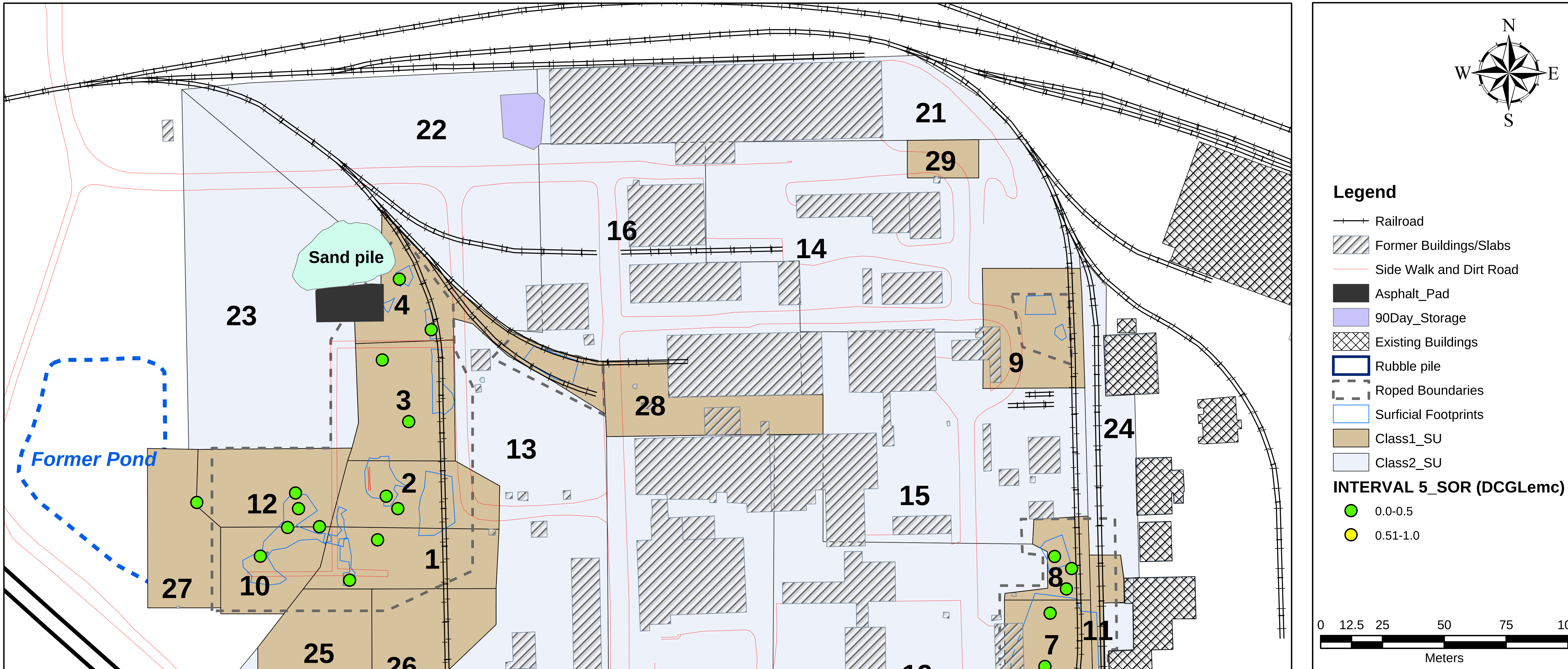

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #5 (4-5 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL5_DCGLemc

Prepared By: BP

MAP 5A

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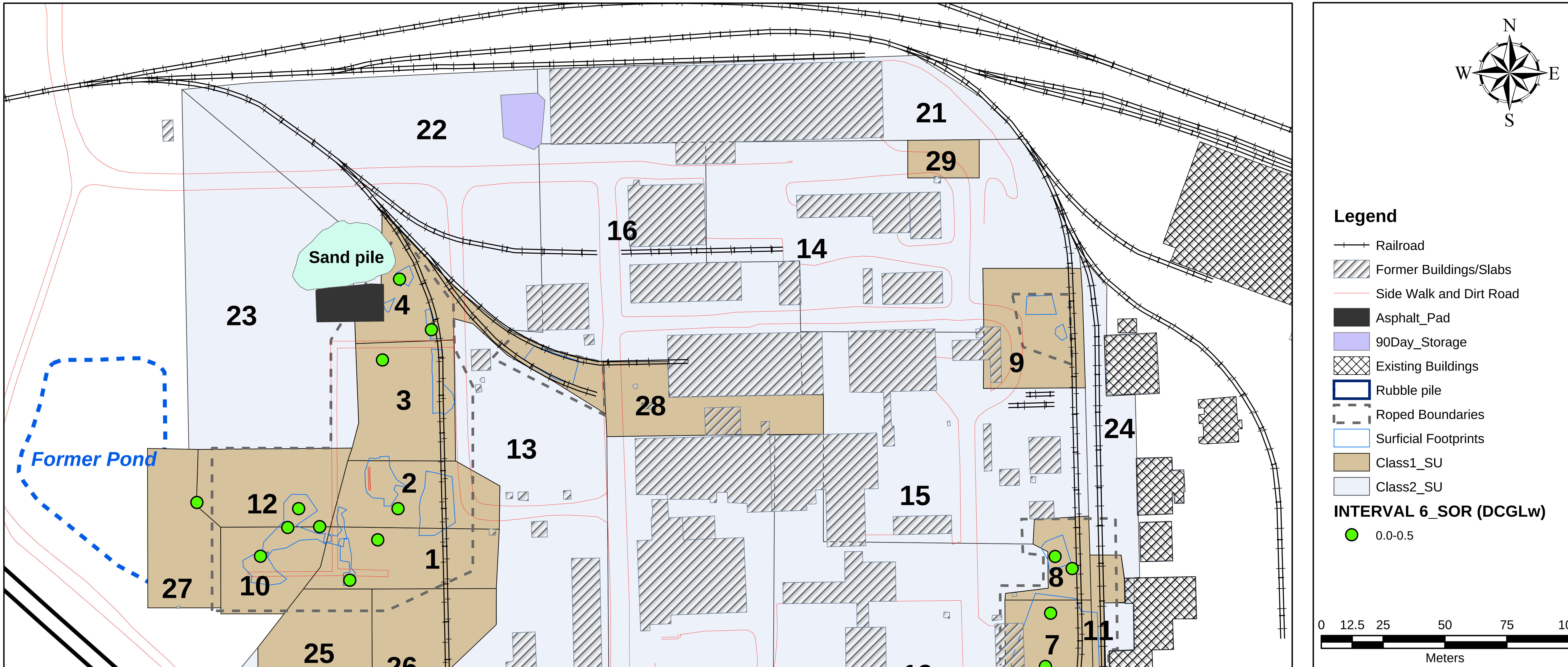

Legend

- Railroad
- Former Buildings/Slabs
- Side Walk and Dirt Road
- Asphalt_Pad
- 90Day_Storage
- Existing Buildings
- Rubble pile
- Roped Boundaries
- Surficial Footprints
- Class1_SU
- Class2_SU

INTERVAL 6_SOR (DCGLw)

- 0.0-0.5

0 12.5 25 50 75 100
Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #6 (5-6 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL6_DCGLW

Prepared By: BP

MAP 6

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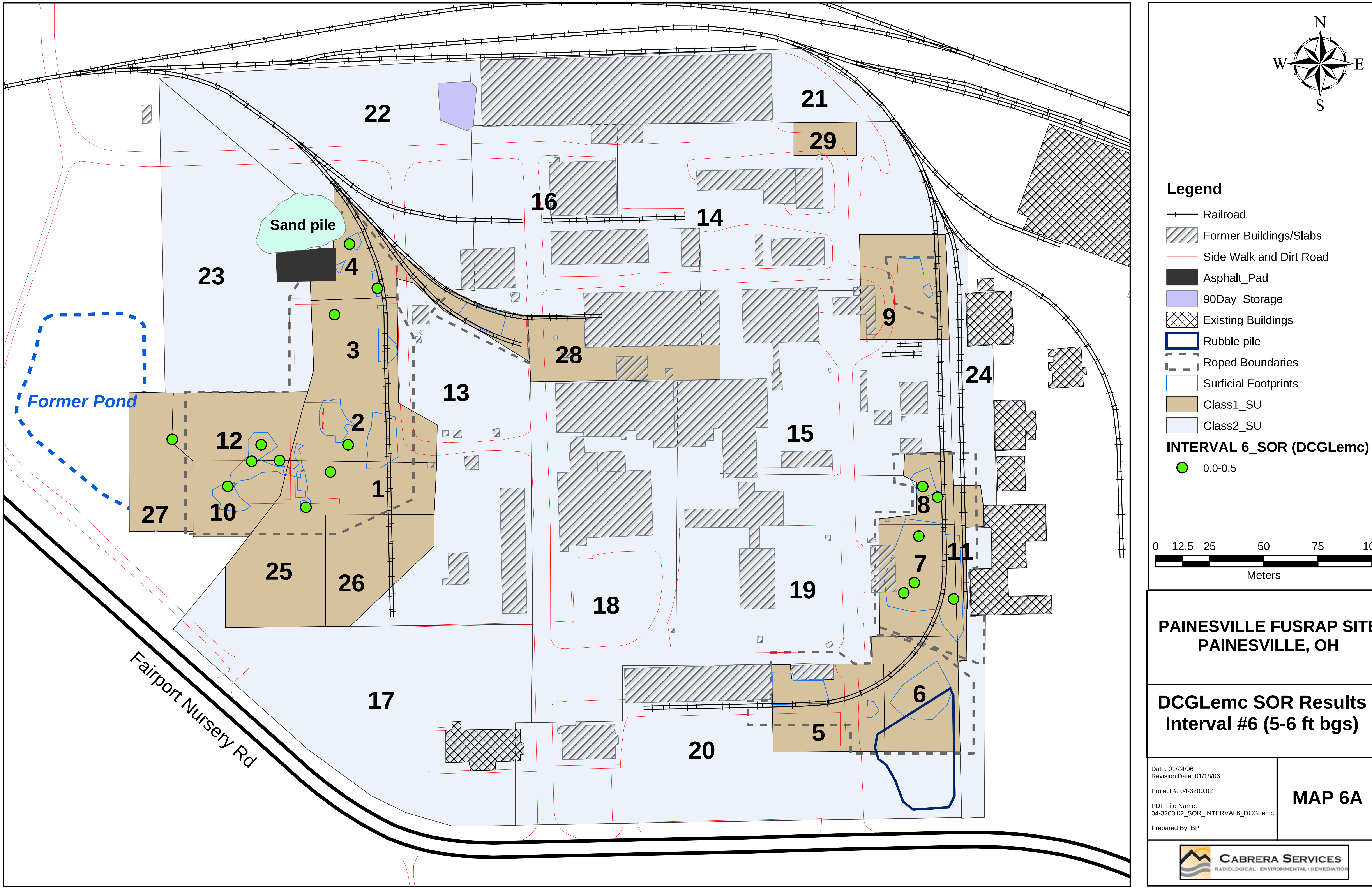

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PAINESVILLE, OH

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Revision Date: 01/18/06

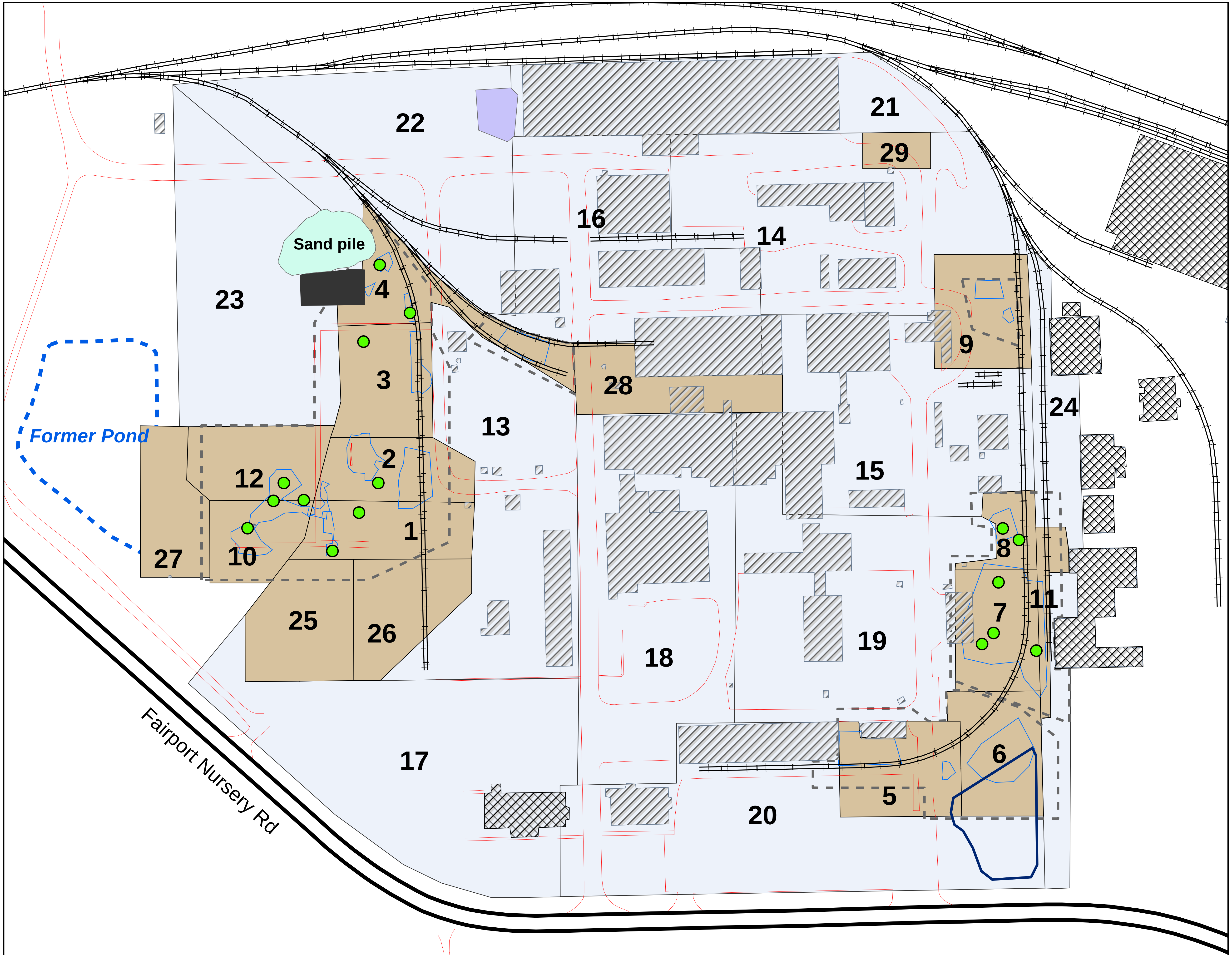
Project #: 04-3200.02

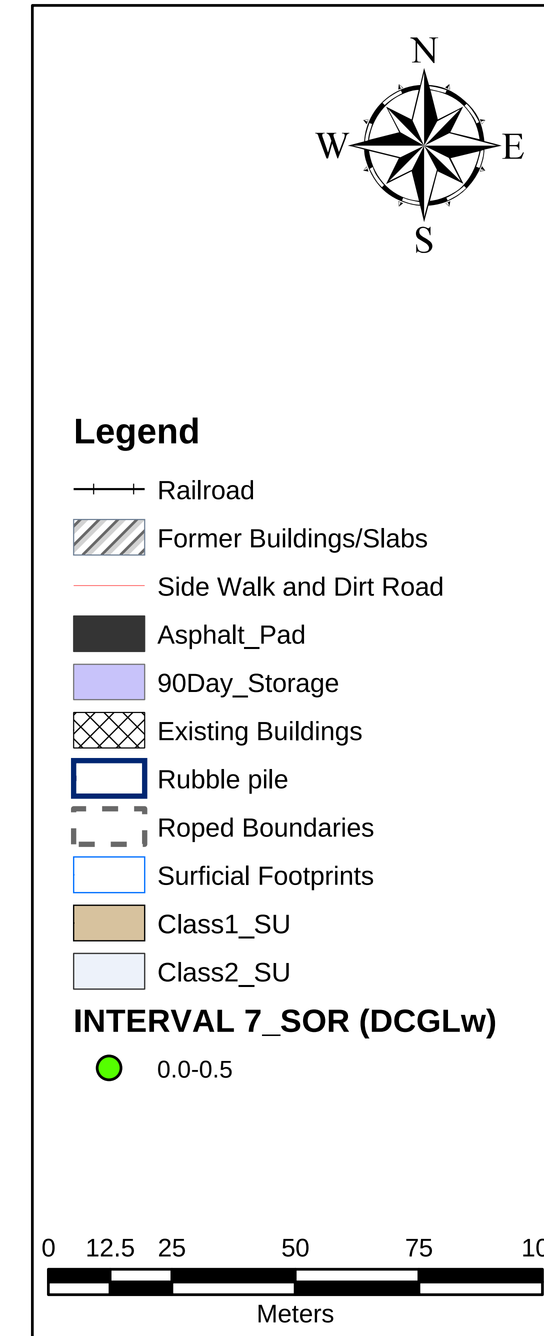
PDF File Name:
04-3200.02_SOR_INTERVAL6_DCGLemc

Prepared By: BP

MAP 6A

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION





PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #7 (6-7 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

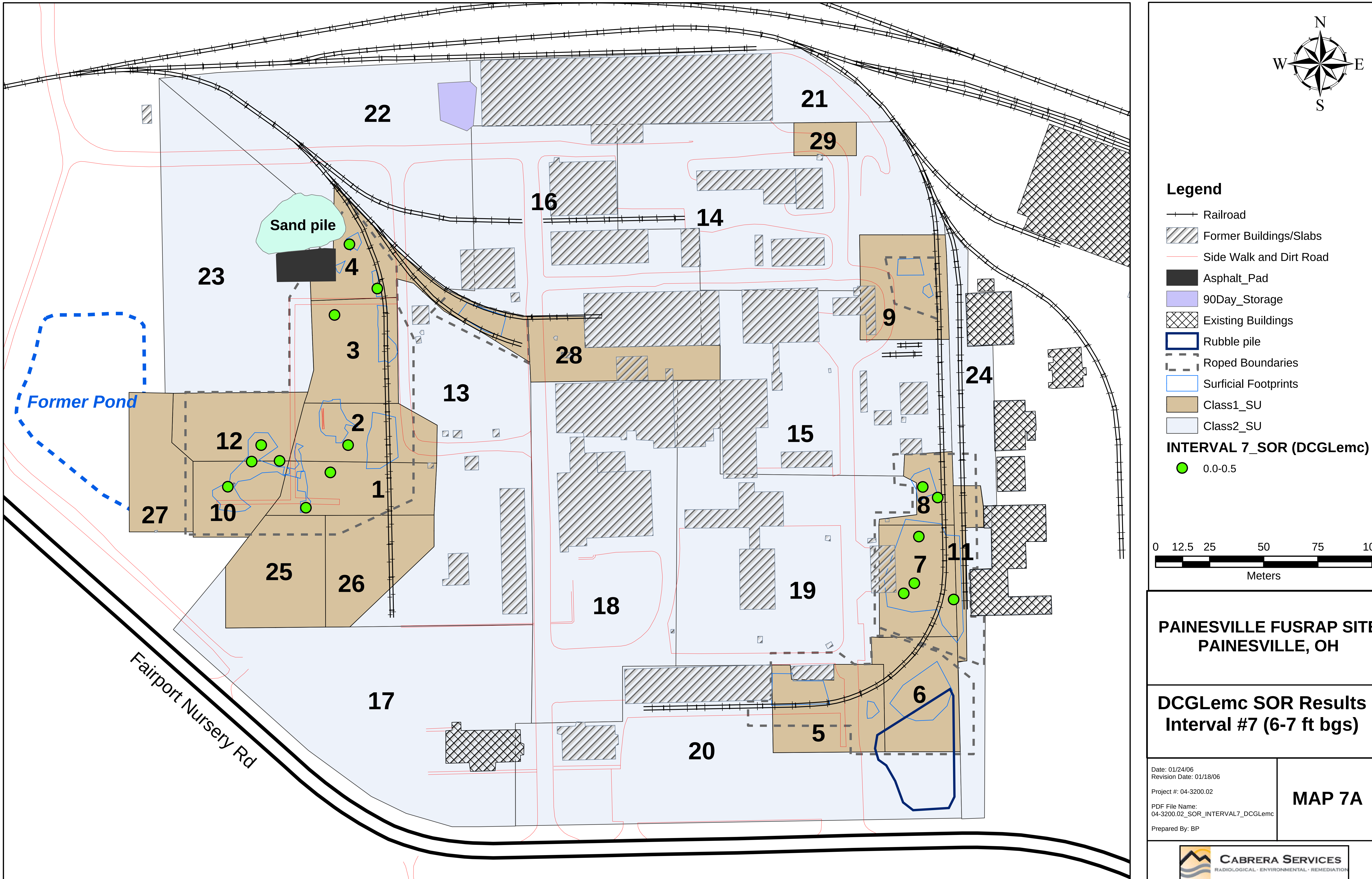
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL7_DCGLW

Prepared By: BP

MAP 7

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #7 (6-7 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

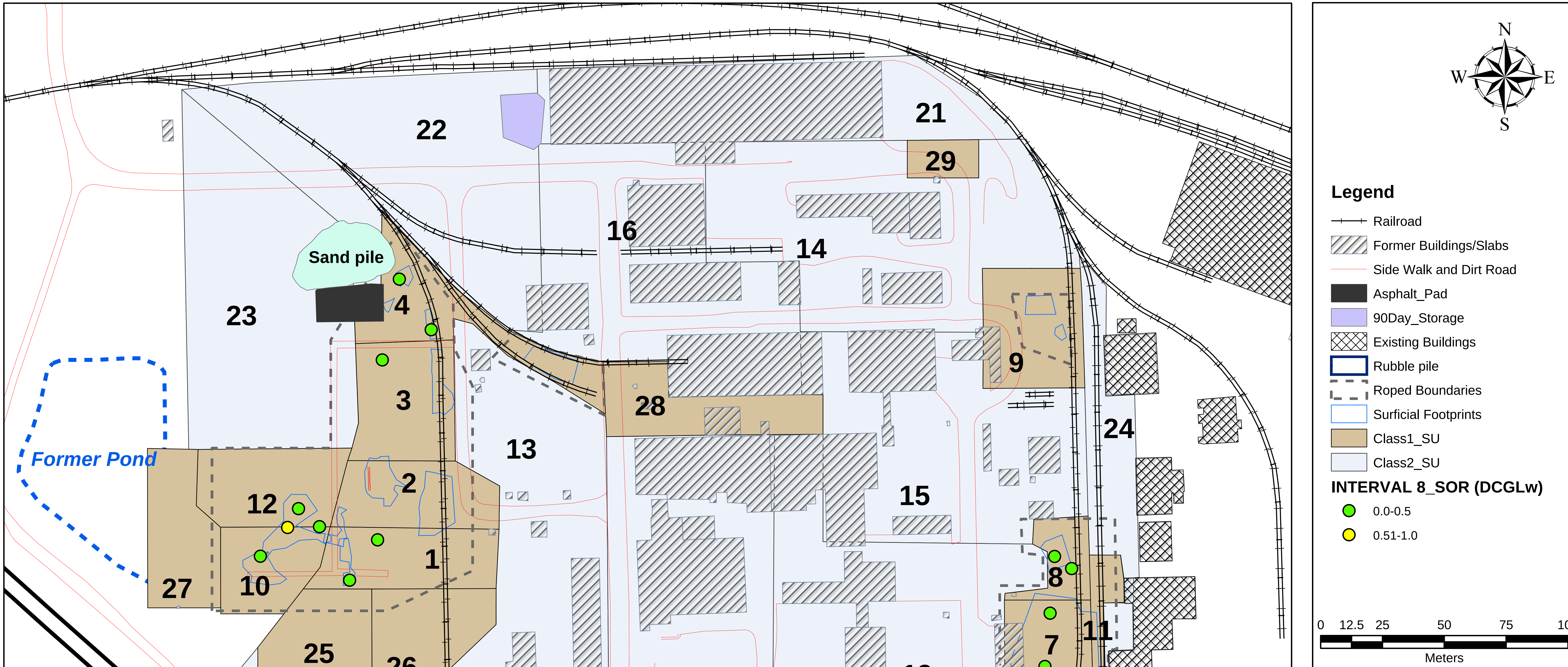
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL7_DCGLemc

Prepared By: BP

MAP 7A

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #8 (7-8 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

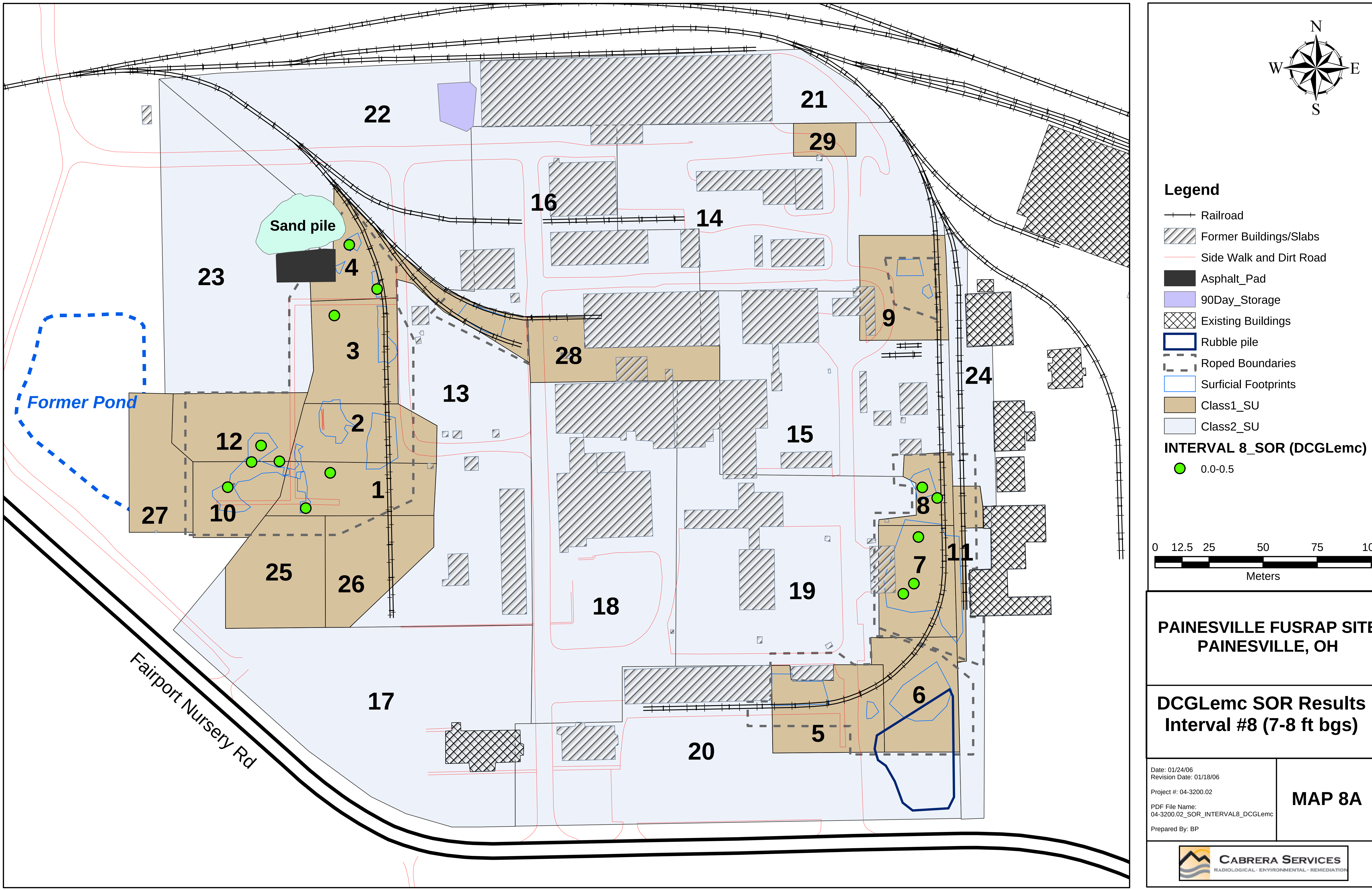
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL8_DCGLW

Prepared By: BP

MAP 8

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results
Interval #8 (7-8 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

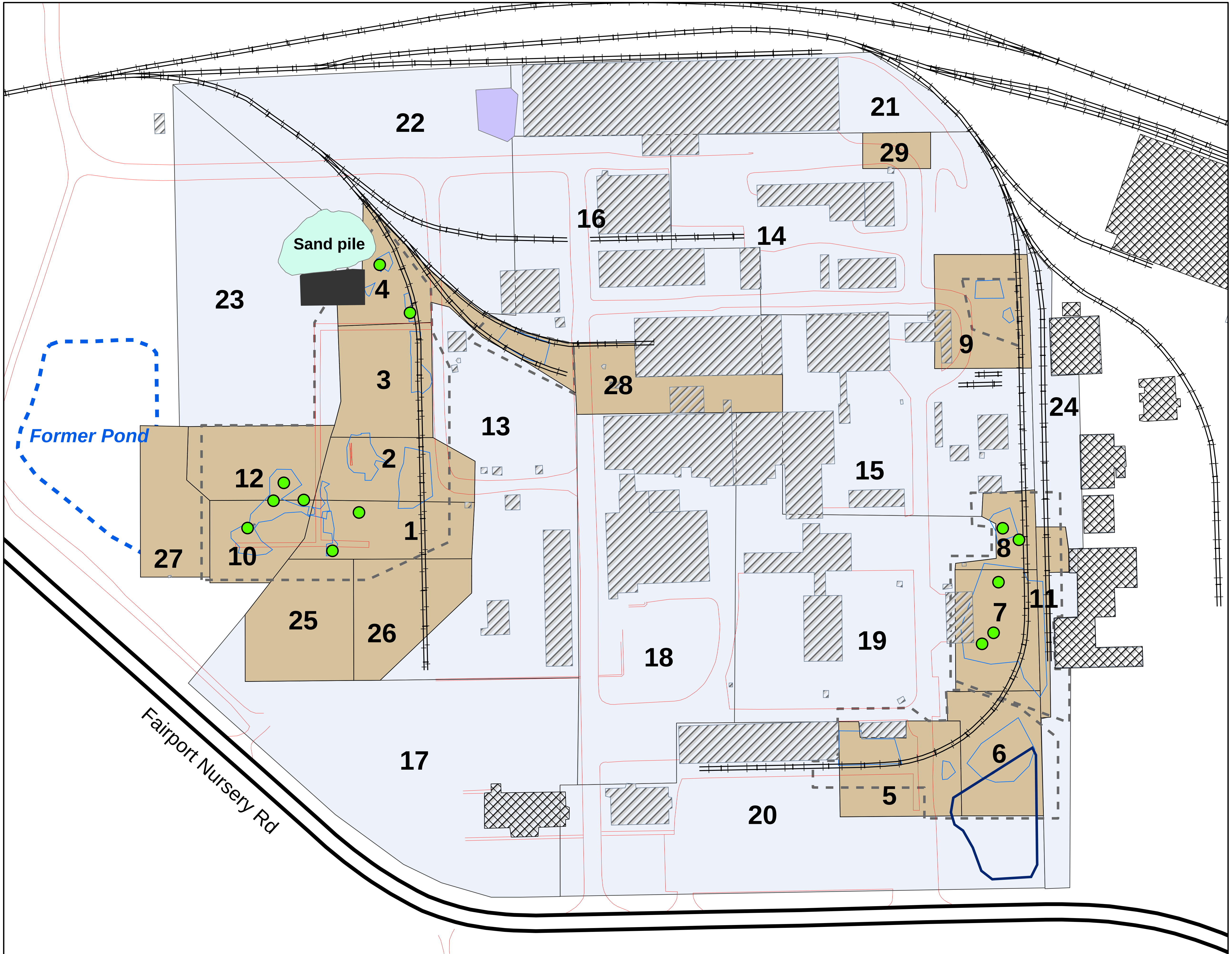
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL8_DCGLemc

Prepared By: BP

MAP 8A

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



N
W
E
S

Legend

- Railroad
- Former Buildings/Slabs
- Side Walk and Dirt Road
- Asphalt_Pad
- 90Day_Storage
- Existing Buildings
- Rubble pile
- Roped Boundaries
- Surficial Footprints
- Class1_SU
- Class2_SU

INTERVAL 9_SOR (DCGLw)

- 0.0-0.5

0 12.5 25 50 75 100

Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #9 (8-9 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

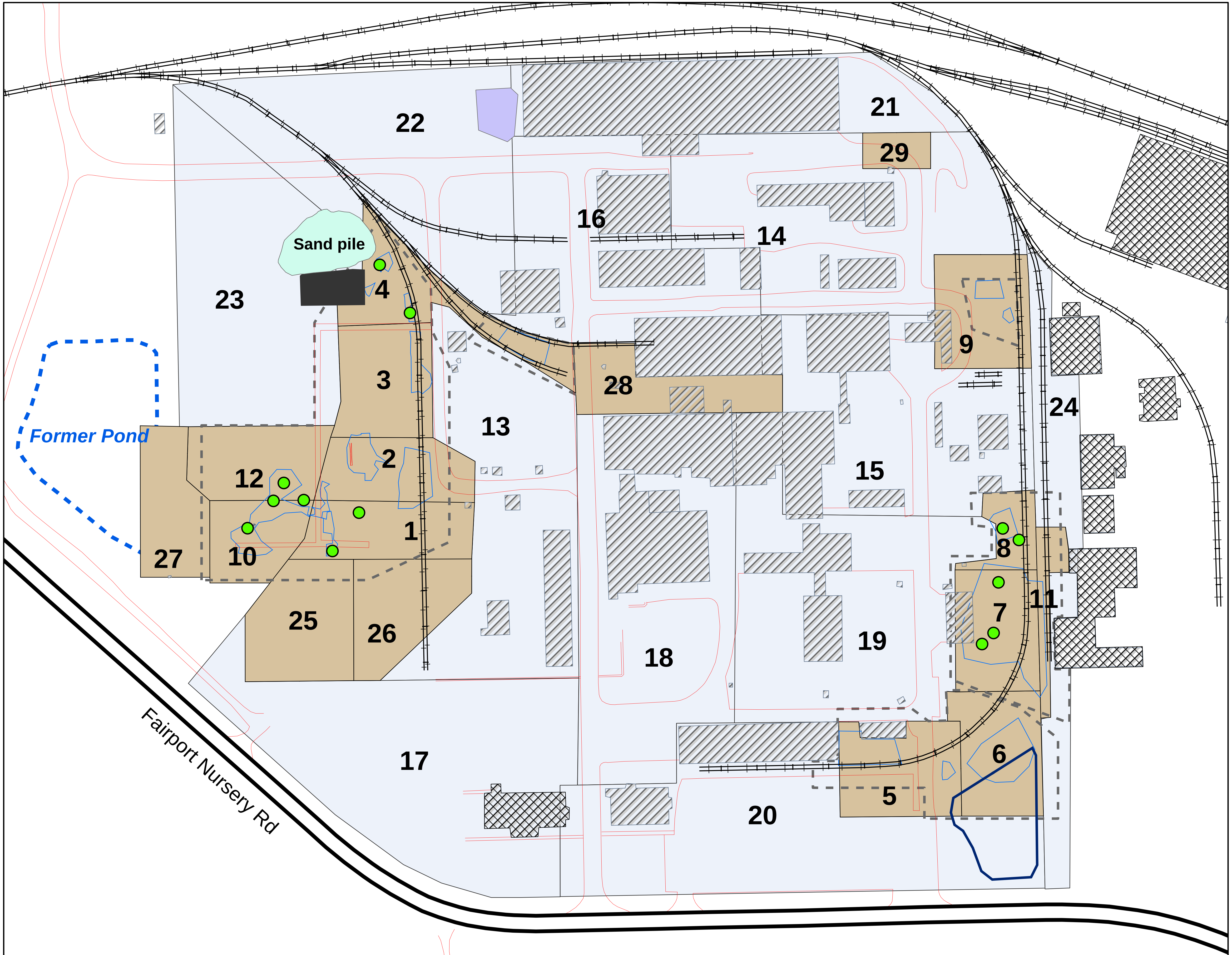
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL9_DCGLW

Prepared By: BP

MAP 9

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



N
W
E
S

Legend

- Railroad
- Former Buildings/Slabs
- Side Walk and Dirt Road
- Asphalt_Pad
- 90Day_Storage
- Existing Buildings
- Rubble pile
- Roped Boundaries
- Surficial Footprints
- Class1_SU
- Class2_SU

INTERVAL 9_SOR (DCGLemc)

- 0.0-0.5

0 12.5 25 50 75 100

Meters

PAINESVILLE FUSRAP SITE PAINESVILLE, OH

DCGLemc SOR Results Interval #9 (8-9 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

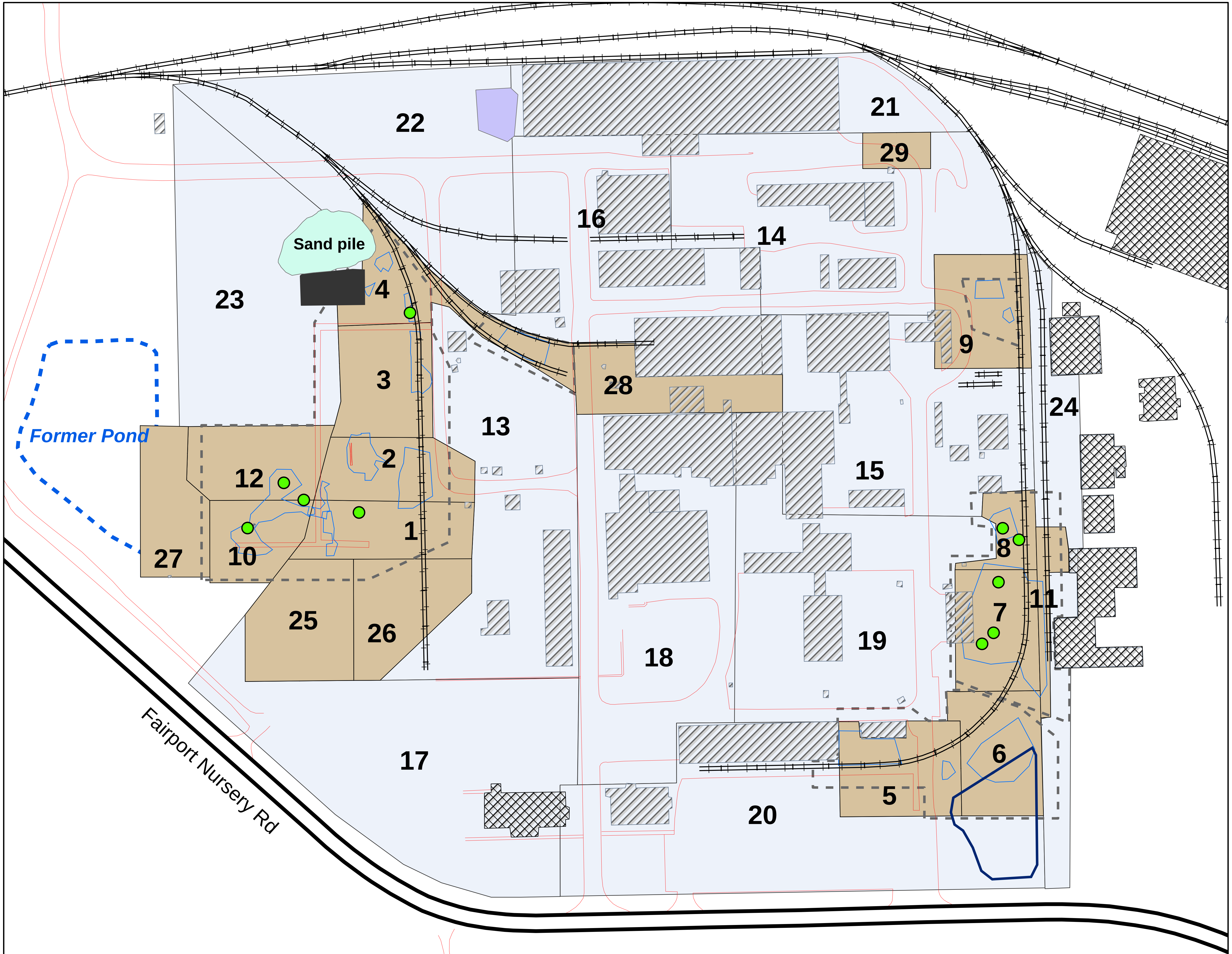
Project #: 04-3200.02

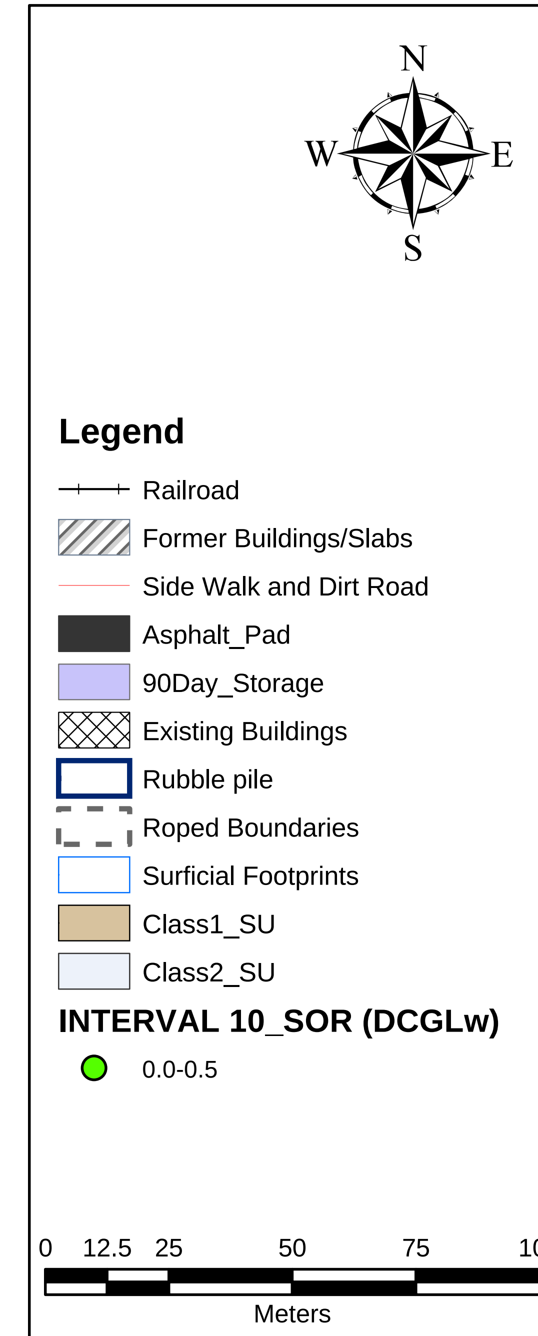
PDF File Name:
04-3200.02_SOR_INTERVAL9_DCGLemc

Prepared By: BP

MAP 9A

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION





PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLw SOR Results
Interval #10 (9-10 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

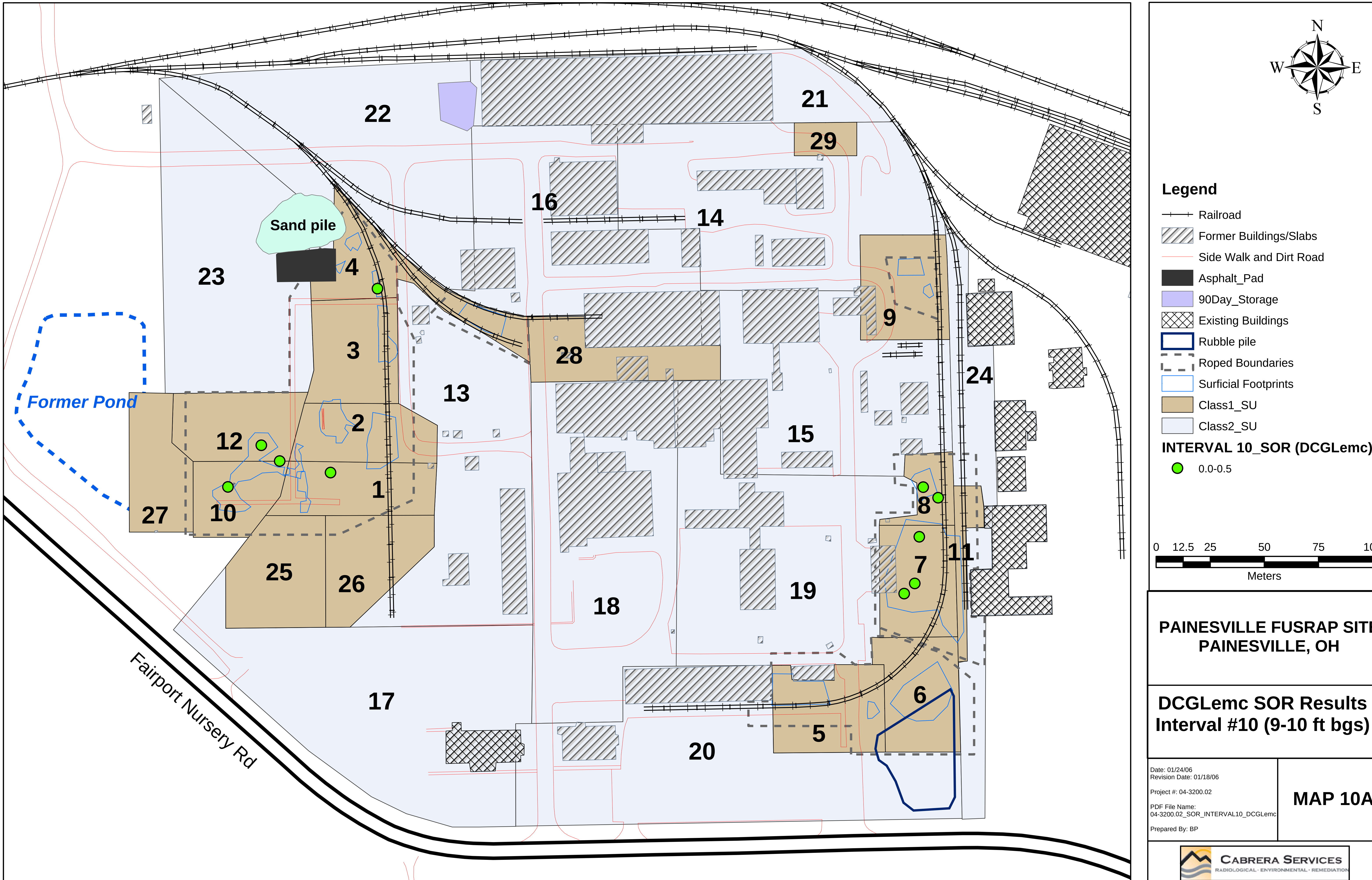
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL10_DCGLW

Prepared By: BP

MAP 10

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

DCGLemc SOR Results Interval #10 (9-10 ft bgs)

Date: 01/24/06
Revision Date: 01/18/06

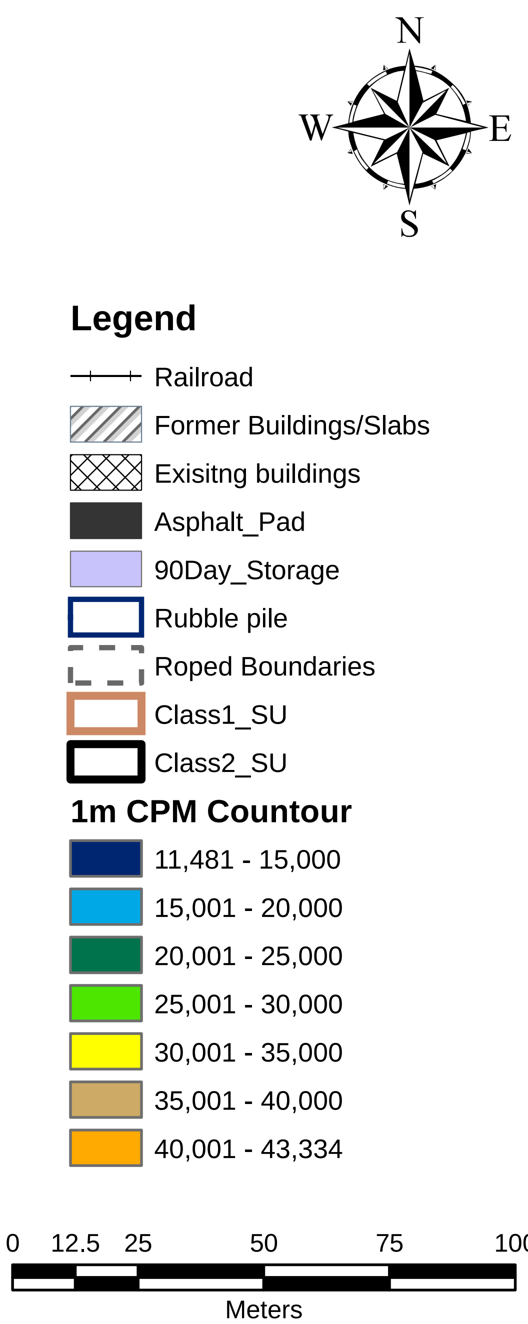
Project #: 04-3200.02

PDF File Name:
04-3200.02_SOR_INTERVAL10_DCGLemc

Prepared By: BP

MAP 10A

Cabrera Services
Radiological · Environmental · Remediation



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

CLASS_2 FULL GWS SITE MAP

Date: 01/31/06
Revision Date: 01/18/06

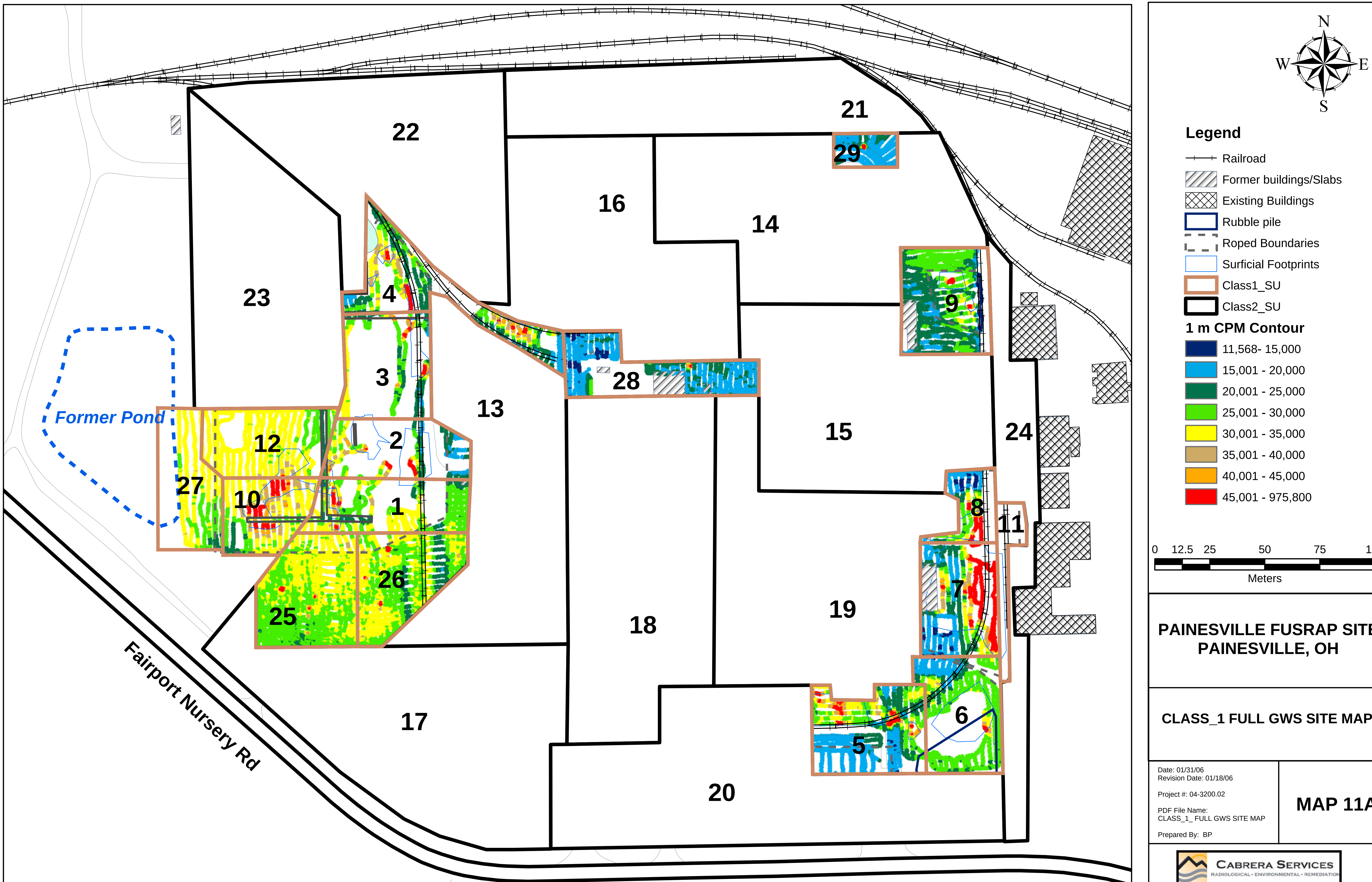
Project #: 04-3200.02

PDF File Name:
CLASS_2 FULL GWS SITE MAP.pdf

Prepared By: BP

MAP 11

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

CLASS_1 FULL GWS SITE MAP

Date: 01/31/06
Revision Date: 01/18/06

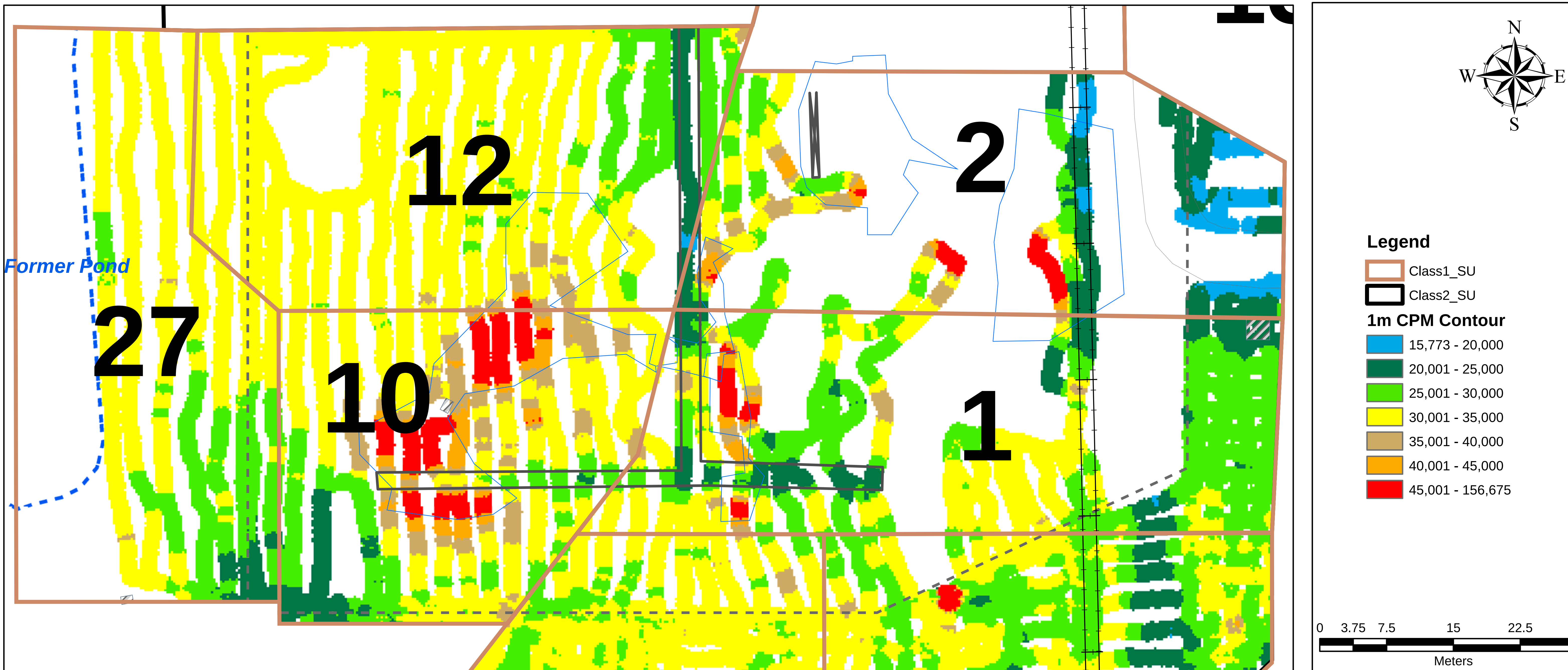
Project #: 04-3200.02

PDF File Name:
CLASS_1_ FULL GWS SITE MAP

Prepared By: BP

MAP 11A

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

GWS RESULTS SU# 1, 2, 10, 12, 25, 26, 27

Date: 01/31/06
Revision Date: 01/18/06

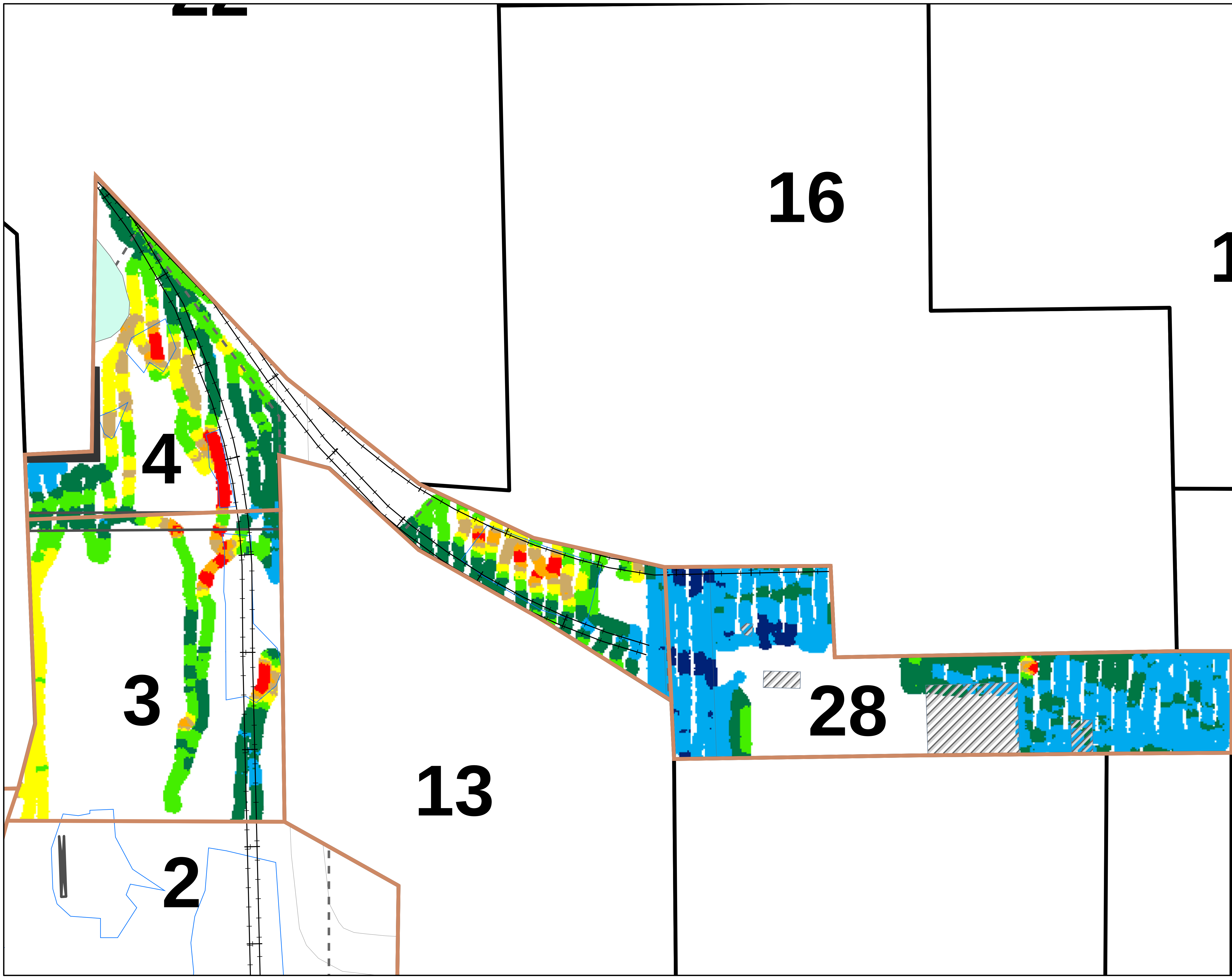
Project #: 04-3200.02

PDF File Name:
CLASS_1_ GES_SU_1_25

Prepared By: BP

MAP 12

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



N
W E
S

Legend

- Class1_SU
- Class2_SU

1m Contour of CPM

- 12,697 - 15,000
- 15,001 - 20,000
- 20,001 - 25,000
- 25,001 - 30,000
- 30,001 - 35,000
- 35,001 - 40,000
- 40,001 - 45,000
- 45,001 - 85,233

0 4.5 9 18 27 36
Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

GWS RESULTS SU# 3, 4, 28

Date: 01/31/06
Revision Date: 01/18/06

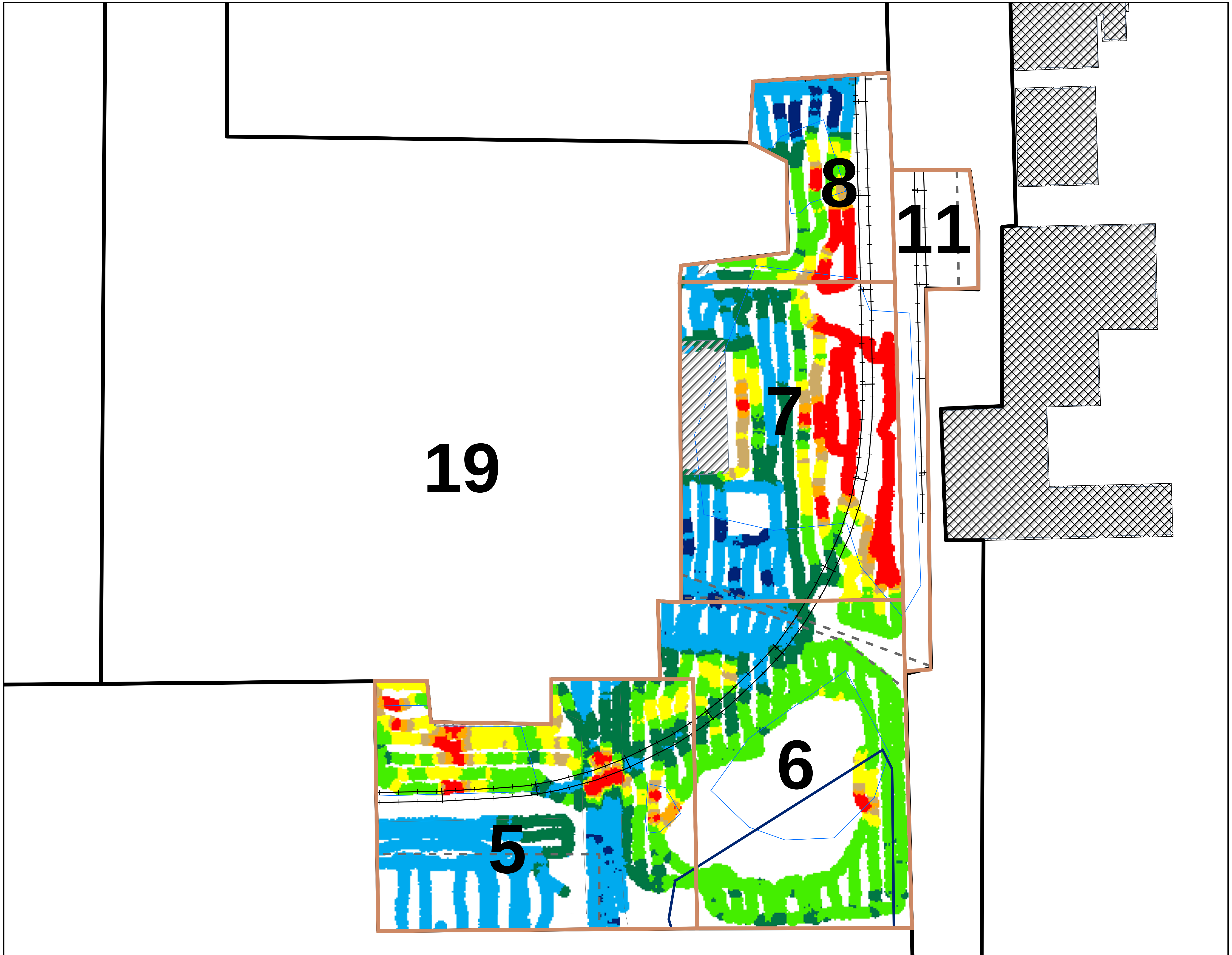
Project #: 04-3200.02

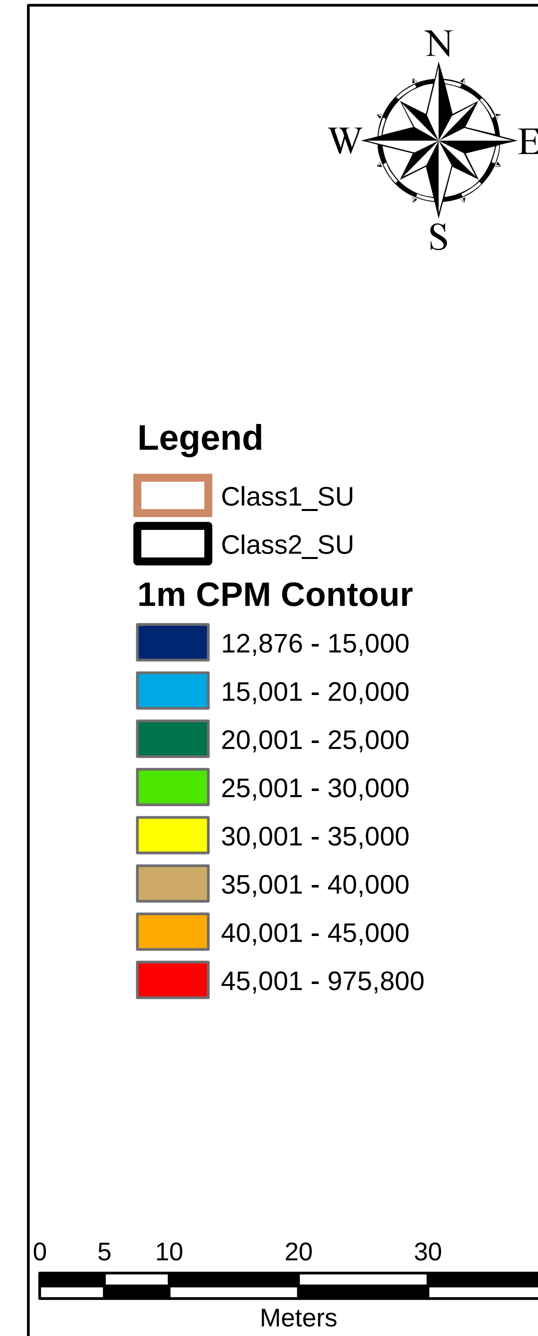
PDF File Name:
04-3200.02_GWS_SU# 3, 4, 28

Prepared By: BP

MAP 13

CABRERA SERVICES
RADIOLOGICAL • ENVIRONMENTAL • REMEDIATION





PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

GWS RESULTS SU# 5, 6, 7, 8, 11

Date: 01/31/06
Revision Date: 01/18/06

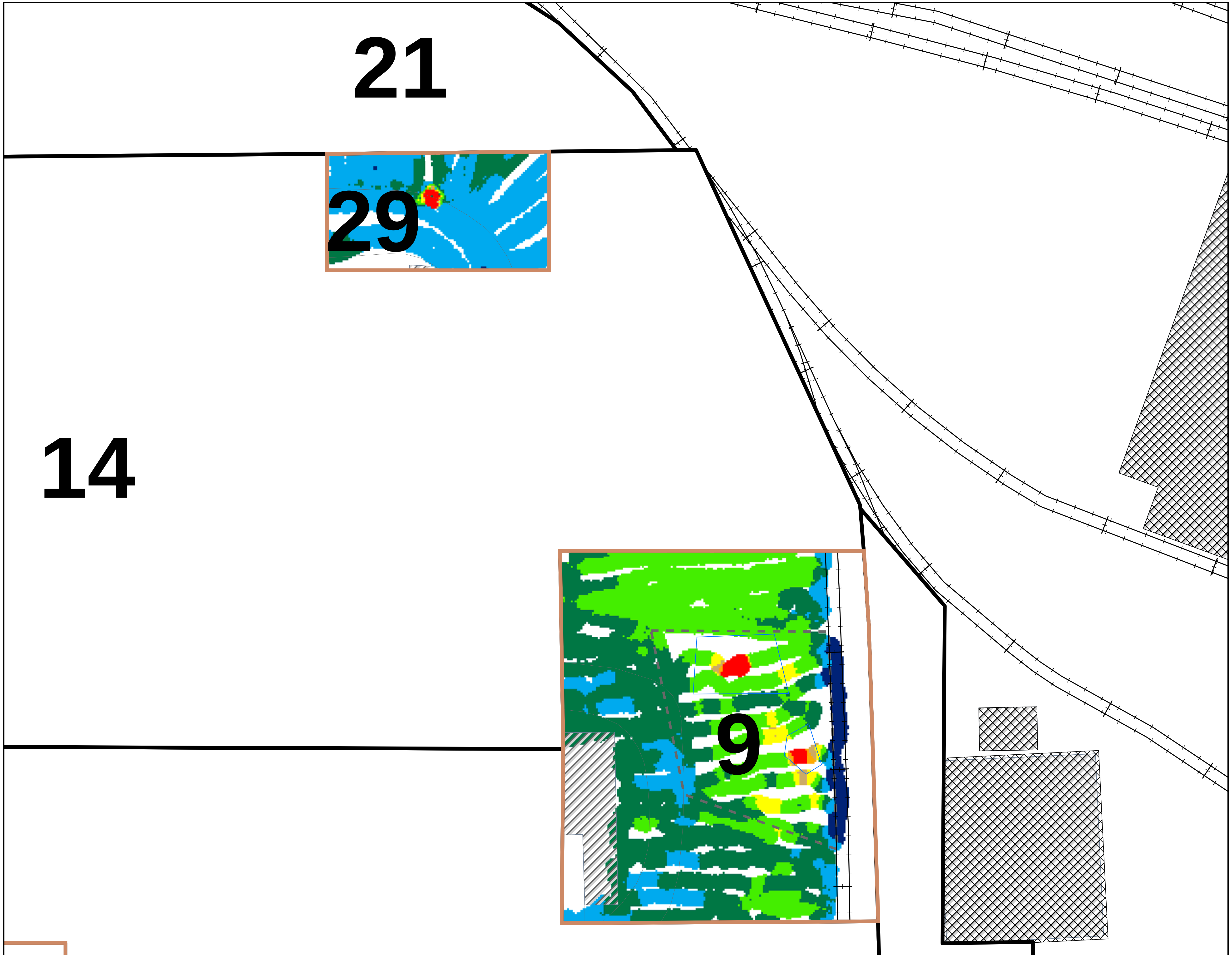
Project #: 04-3200.02

PDF File Name:
04-3200.02_GWS_SU#_5, 6, 7,8, 11

Prepared By: BP

MAP 14

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION



N
W E
S

Legend

Class1_SU

Class2_SU

1m CPM Contour

11,568 - 15,000

15,001 - 20,000

20,001 - 25,000

25,001 - 30,000

30,001 - 35,000

35,001 - 40,000

40,001 - 45,000

45,001 - 94,032

0 3.75 7.5 15 22.5 30

Meters

PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

GWS RESULTS SU# 9, 29

Date: 01/31/06
Revision Date: 01/18/06

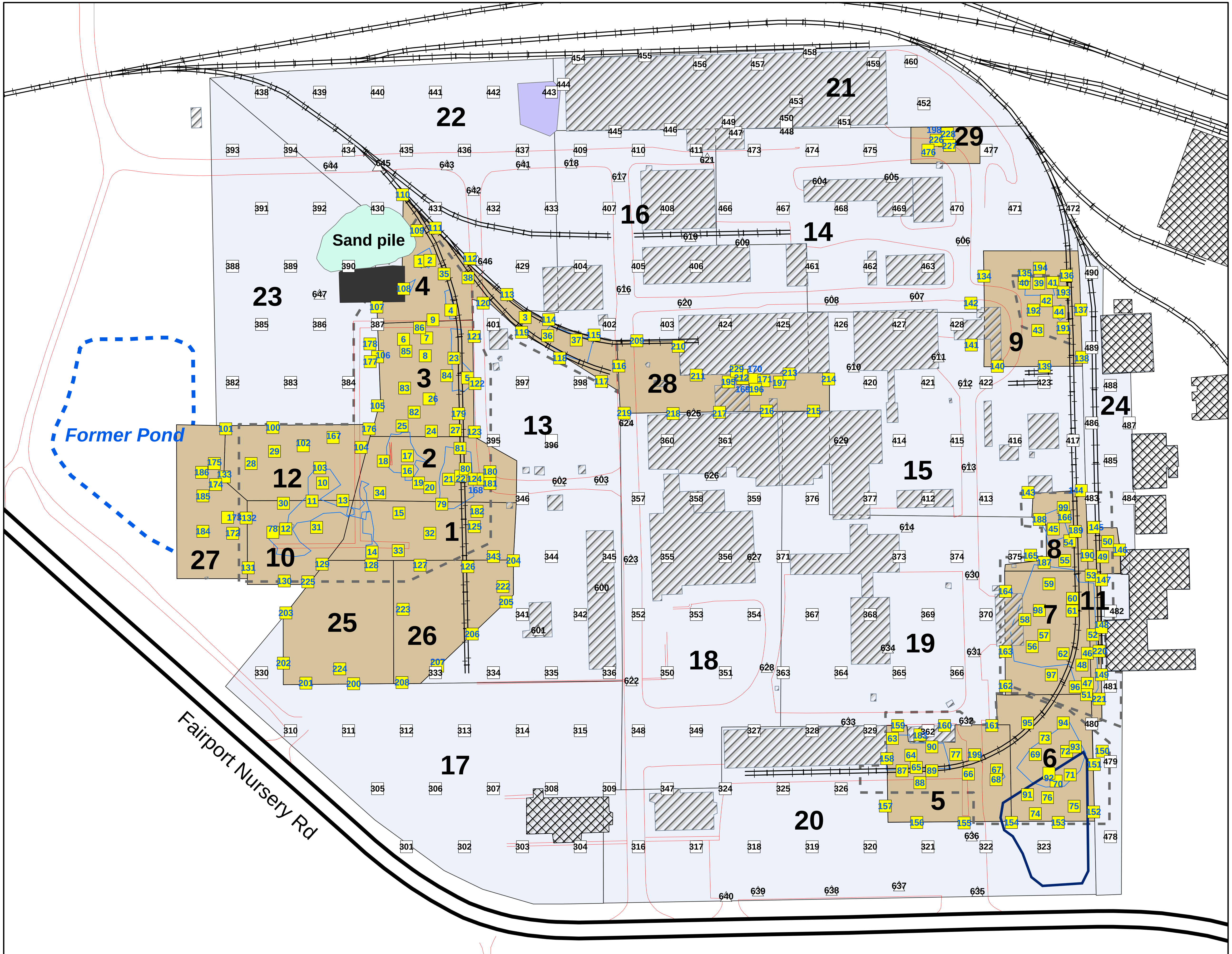
Project #: 04-3200.02

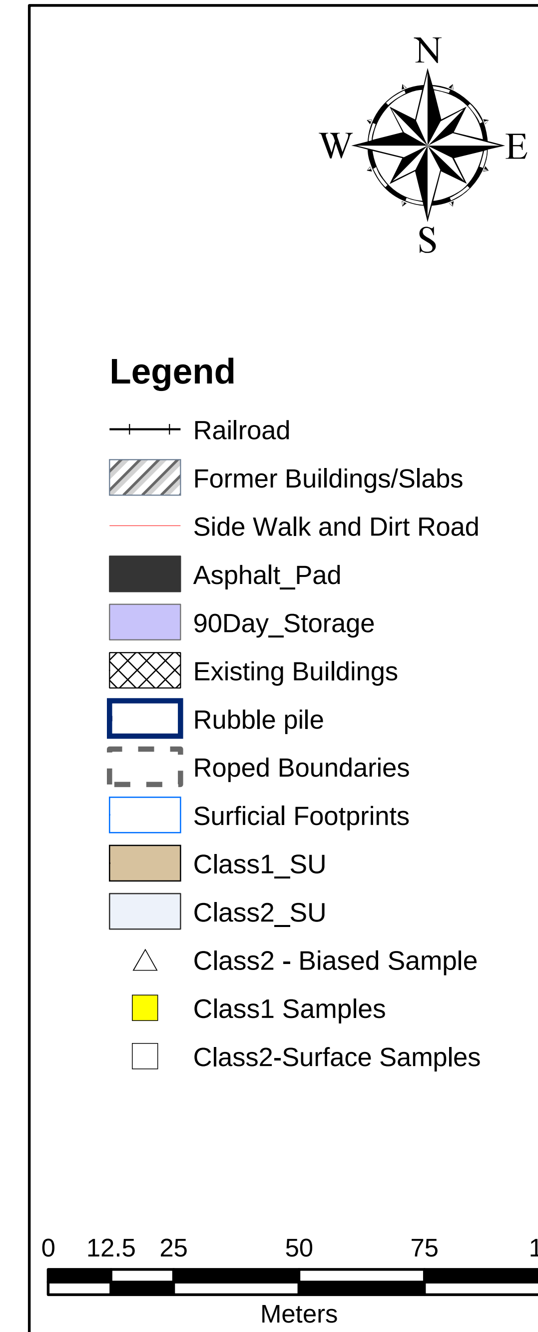
PDF File Name:
04-3200.02_GWS_SU#_9, 29

Prepared By: BP

MAP 15

CABRERA SERVICES
RADIOLOGICAL • ENVIRONMENTAL • REMEDIATION





PAINESVILLE FUSRAP SITE
PAINESVILLE, OH

Site Pre-Remediation Sampling Plan for All Samples

Date: 01/24/06
Revision Date: 01/18/06

Project #: 04-3200.02

PDF File Name:
04-3200.02_BASEMAP&Biased&Sysm1&2

Prepared By: BP

MAP 16

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION

APPENDIX A

SAMPLE LOCATION TABLE

Class	Location ID	Survey Unit	Easting	Northing	Notes
1	1	4	704990.80	232912.90	Depth bounding cores within Class 1
1	2	4	704994.90	232913.30	Depth bounding cores within Class 1
1	3	4	705034.80	232889.40	Depth bounding cores within Class 1
1	4	4	705003.70	232892.50	Depth bounding cores within Class 1
1	5	3	705010.60	232864.20	Depth bounding cores within Class 1
1	6	3	704983.90	232880.30	Depth bounding cores within Class 1
1	7	3	704993.60	232880.90	Depth bounding cores within Class 1
1	8	3	704993.00	232873.40	Depth bounding cores within Class 1
1	9	3	704996.20	232888.40	Depth bounding cores within Class 1
1	10	12	704950.00	232820.30	Depth bounding cores within Class 1
1	11	10	704945.60	232812.70	Depth bounding cores within Class 1
1	12	10	704934.60	232801.10	Depth bounding cores within Class 1
1	13	10	704958.50	232813.00	Depth bounding cores within Class 1
1	14	1	704970.70	232791.40	Depth bounding cores within Class 1
1	15	1	704982.00	232807.70	Depth bounding cores within Class 1
1	16	2	704985.50	232825.30	Depth bounding cores within Class 1
1	17	2	704985.50	232831.60	Depth bounding cores within Class 1
1	18	2	704975.40	232829.40	Depth bounding cores within Class 1
1	19	1	704990.20	232820.30	Depth bounding cores within Class 1
1	20	1	704994.90	232818.40	Depth bounding cores within Class 1
1	21	1	705002.80	232821.80	Depth bounding cores within Class 1
1	22	1	705007.80	232823.10	Depth bounding cores within Class 1
1	23	3	705005.00	232872.40	Depth bounding cores within Class 1
1	24	3	704995.50	232841.90	Depth bounding cores within Class 1
1	25	3	704983.30	232844.10	Depth bounding cores within Class 1
1	26	3	704994.60	232855.40	Depth bounding cores within Class 1
1	27	3	705005.60	232842.30	Depth bounding cores within Class 1
1	28	12	704920.10	232828.40	Depth bounding cores within Class 1
1	29	12	704929.90	232833.50	Depth bounding cores within Class 1
1	30	10	704933.60	232811.80	Depth bounding cores within Class 1
1	31	10	704947.50	232801.70	Depth bounding cores within Class 1
1	32	1	704994.90	232799.20	Depth bounding cores within Class 1
1	33	1	704981.70	232792.00	Depth bounding cores within Class 1
1	34	2	704973.90	232816.20	Depth bounding cores within Class 1
1	35	4	705000.90	232907.60	Depth bounding cores within Class 1
1	36	4	705044.20	232881.80	Depth bounding cores within Class 1
1	37	4	705056.20	232880.00	Depth bounding cores within Class 1
1	38	4	705010.90	232906.00	Depth bounding cores within Class 1
1	39	9	705249.80	232903.70	Depth bounding cores within Class 1
1	40	9	705243.60	232903.80	Depth bounding cores within Class 1
1	41	9	705255.60	232904.00	Depth bounding cores within Class 1
1	42	9	705252.90	232896.40	Depth bounding cores within Class 1
1	43	9	705249.30	232884.00	Depth bounding cores within Class 1
1	44	9	705258.20	232891.70	Depth bounding cores within Class 1
1	45	8	705255.80	232801.00	Depth bounding cores within Class 1
1	46	7	705270.10	232749.10	Depth bounding cores within Class 1
1	47	7	705270.10	232736.50	Depth bounding cores within Class 1
1	48	7	705267.80	232744.20	Depth bounding cores within Class 1
1	49	11	705276.50	232789.40	Depth bounding cores within Class 1
1	50	11	705278.60	232795.80	Depth bounding cores within Class 1
1	51	11	705269.70	232731.80	Depth bounding cores within Class 1
1	52	11	705272.40	232756.80	Depth bounding cores within Class 1

Class	Location ID	Survey Unit	Easting	Northing	Notes
1	53	11	705271.70	232781.70	Depth bounding cores within Class 1
1	54	8	705262.70	232796.10	Depth bounding cores within Class 1
1	55	8	705260.60	232787.90	Depth bounding cores within Class 1
1	56	7	705247.00	232751.90	Depth bounding cores within Class 1
1	57	7	705251.90	232756.60	Depth bounding cores within Class 1
1	58	7	705243.90	232763.20	Depth bounding cores within Class 1
1	59	7	705254.00	232778.10	Depth bounding cores within Class 1
1	60	7	705263.85	232772.08	Depth bounding cores within Class 1
1	61	7	705263.70	232766.80	Depth bounding cores within Class 1
1	62	7	705259.90	232748.90	Depth bounding cores within Class 1
1	63	5	705188.50	232713.50	Depth bounding cores within Class 1
1	64	5	705196.20	232706.50	Depth bounding cores within Class 1
1	65	5	705198.50	232701.40	Depth bounding cores within Class 1
1	66	5	705220.30	232698.60	Depth bounding cores within Class 1
1	67	5	705232.10	232700.40	Depth bounding cores within Class 1
1	68	5	705231.90	232696.30	Depth bounding cores within Class 1
1	69	6	705248.30	232706.80	Depth bounding cores within Class 1
1	70	6	705257.00	232695.70	Depth bounding cores within Class 1
1	71	6	705262.90	232698.30	Depth bounding cores within Class 1
1	72	6	705261.40	232708.10	Depth bounding cores within Class 1
1	73	6	705252.40	232713.70	Depth bounding cores within Class 1
1	74	6	705248.30	232682.10	Depth bounding cores within Class 1
1	75	6	705264.50	232685.20	Depth bounding cores within Class 1
1	76	6	705253.40	232688.80	Depth bounding cores within Class 1
1	77	5	705215.00	232706.80	Depth bounding cores within Class 1
1	78	10	704929.22	232799.62	BAASS Location
1	79	1	704999.89	232811.42	BAASS Location
1	80	2	705009.76	232826.15	BAASS Location
1	81	2	705007.51	232834.75	BAASS Location
1	82	3	704988.35	232849.87	BAASS Location
1	83	3	704984.37	232859.94	BAASS Location
1	84	3	705002.01	232865.11	BAASS Location
1	85	3	704984.90	232875.32	BAASS Location
1	86	3	704990.61	232885.13	BAASS Location
1	87	5	705192.50	232700.00	BAASS location west of hits. Field decision as to on or off RR track bed.
1	88	5	705200.00	232695.00	Modified BAASS location, near hits along RR track.
1	89	5	705205.00	232700.00	Modified BAASS location, in area between hits and misses. On or off RR track bed?
1	90	5	705205.00	232710.00	BAASS location. Addresses an open area between some hits and misses.
1	91	6	705245.00	232690.00	BAASS - Unsampled area near NW corner of Rubble Pile
1	92	6	705254.00	232699.00	Modified BAASS location, along edge of Rubble Pile contour.
1	93	6	705265.00	232710.00	BAASS location NE of RI hit
1	94	6	705260.00	232720.00	Modified BAASS location in unsampled area
1	95	6	705245.00	232720.00	BAASS location - unsampled area
1	96	7	705265.00	232735.00	BAASS location
1	97	7	705255.00	232740.00	BAASS location
1	98	7	705250.00	232767.00	BAASS location

Class	Location ID	Survey Unit	Easting	Northing	Notes
1	99	8	705260.00	232810.00	BAASS location
1	100	12	704929.20	232843.40	Areal bounding cores around Class 1
1	101	12	704909.50	232842.90	Areal bounding cores around Class 1
1	102	12	704941.90	232835.80	Areal bounding cores around Class 1
1	103	10	704948.80	232826.60	Areal bounding cores around Class 1
1	104	10	704966.10	232835.10	Areal bounding cores around Class 1
1	105	3	704973.00	232852.50	Areal bounding cores around Class 1
1	106	3	704973.00	232873.00	Areal bounding cores around Class 1
1	107	4	704972.70	232893.80	Areal bounding cores around Class 1
1	108	4	704983.90	232901.40	Areal bounding cores around Class 1
1	109	4	704989.50	232925.70	Areal bounding cores around Class 1
1	110	4	704983.50	232940.70	Areal bounding cores around Class 1
1	111	4	704997.20	232926.80	Areal bounding cores around Class 1
1	112	4	705011.70	232914.00	Areal bounding cores around Class 1
1	113	4	705027.10	232899.00	Areal bounding cores around Class 1
1	114	4	705044.60	232888.50	Areal bounding cores around Class 1
1	115	4	705063.70	232882.10	Areal bounding cores around Class 1
1	116	4	705074.00	232869.10	Areal bounding cores around Class 1
1	117	4	705066.70	232862.70	Areal bounding cores around Class 1
1	118	4	705049.20	232872.40	Areal bounding cores around Class 1
1	119	4	705033.30	232883.20	Areal bounding cores around Class 1
1	120	4	705017.20	232895.40	Areal bounding cores around Class 1
1	121	3	705013.50	232881.50	Areal bounding cores around Class 1
1	122	3	705013.80	232861.80	Areal bounding cores around Class 1
1	123	3	705013.50	232841.60	Areal bounding cores around Class 1
1	124	2	705013.50	232821.90	Areal bounding cores around Class 1
1	125	1	705013.50	232802.00	Areal bounding cores around Class 1
1	126	26	705010.80	232785.30	Areal bounding cores around Class 1
1	127	26	704990.80	232785.90	Areal bounding cores around Class 1
1	128	25	704970.30	232785.90	Areal bounding cores around Class 1
1	129	10	704949.80	232786.30	Areal bounding cores around Class 1
1	130	10	704934.00	232779.30	Areal bounding cores around Class 1
1	131	10	704918.90	232784.80	Areal bounding cores around Class 1
1	132	10	704918.00	232805.60	Areal bounding cores around Class 1
1	133	12	704908.90	232822.80	Areal bounding cores around Class 1
1	134	9	705226.80	232906.70	Areal bounding cores around Class 1
1	135	9	705243.70	232907.00	Areal bounding cores around Class 1
1	136	9	705261.30	232906.90	Areal bounding cores around Class 1
1	137	9	705267.30	232892.60	Areal bounding cores around Class 1
1	138	9	705267.70	232872.80	Areal bounding cores around Class 1
1	139	9	705252.10	232868.90	Areal bounding cores around Class 1
1	140	9	705232.40	232869.00	Areal bounding cores around Class 1
1	141	9	705221.50	232877.90	Areal bounding cores around Class 1. SU9 boundaries reconfigured based on pre-remediation sampling data.
1	142	9	705221.30	232895.40	Areal bounding cores around Class 1. SU9 boundaries reconfigured based on pre-remediation sampling data.
1	143	8	705245.20	232816.30	Areal bounding cores around Class 1
1	144	8	705267.50	232817.10	Areal bounding cores around Class 1
1	145	11	705272.70	232801.70	Areal bounding cores around Class 1 - Twin Rivers Technologies

Class	Location ID	Survey Unit	Easting	Northing	Notes
1	146	11	705283.50	232792.30	Areal bounding cores around Class 1 - Twin Rivers Technologies
1	147	11	705276.00	232779.70	Areal bounding cores around Class 1 - Twin Rivers Technologies
1	148	11	705276.00	232759.90	Areal bounding cores around Class 1 - Twin Rivers Technologies
1	149	11	705276.00	232740.10	Areal bounding cores around Class 1 - Twin Rivers Technologies
1	150	6	705276.30	232708.20	Areal bounding cores around Class 1 - Twin Rivers Technologies. Location bounding sample.
1	151	6	705273.00	232702.60	Areal bounding cores around Class 1
1	152	6	705272.70	232682.80	Areal bounding cores around Class 1
1	153	6	705257.90	232678.40	Areal bounding cores around Class 1
1	154	5	705238.30	232678.40	Areal bounding cores around Class 1
1	155	5	705218.50	232678.20	Areal bounding cores around Class 1
1	156	5	705198.70	232678.40	Areal bounding cores around Class 1
1	157	5	705185.50	232685.30	Areal bounding cores around Class 1
1	158	5	705186.10	232705.10	Areal bounding cores around Class 1
1	159	5	705190.70	232718.90	Areal bounding cores around Class 1
1	160	5	705210.30	232718.90	Areal bounding cores around Class 1. Location bounding sample.
1	161	5	705230.10	232718.90	Areal bounding cores around Class 1
1	162	7	705235.80	232735.40	Areal bounding cores around Class 1
1	163	7	705235.80	232749.90	Areal bounding cores around Class 1
1	164	7	705235.80	232775.00	Areal bounding cores around Class 1
1	165	8	705246.30	232790.10	Areal bounding cores around Class 1. Location bounding sample.
1	166	8	705260.60	232806.10	Areal bounding cores around Class 1
1	167	12	704954.39	232839.27	Manually placed new bounding core
1	168	1	705017.23	232821.90	Manually placed new bounding core
1	169	28	705125.85	232863.97	Manually placed new bounding core
1	170	28	705130.92	232863.55	Manually placed new bounding core
1	171	28	705134.70	232863.03	Manually placed new bounding core
1	172	27	704912.39	232799.22	Manually placed new bounding core
1	173	27	704910.26	232805.85	Manually placed new bounding core
1	174	27	704905.23	232819.64	Manually placed new bounding core
1	175	27	704904.70	232828.39	Manually placed new bounding core
1	176	12	704969.45	232842.87	Moved West to Class 1/2 boundary between 104 & 105
1	177	3	704969.92	232870.95	Location bounding sample
1	178	3	704969.79	232878.37	Location bounding sample
1	179	3	705006.91	232849.21	Moved East to Class 1/2 boundary
1	180	2	705020.04	232824.94	
1	181	2	705020.04	232820.04	
1	182	1	705014.62	232808.41	Moved SE to Class 1/2 boundary between 124 & 125
1	183	5	705200.00	232715.00	BAASS location below building slab.
1	184	27	704899.92	232800.02	BAASS location - West of SU 10 & 12
1	185	27	704899.92	232814.87	BAASS location - West of SU 10 & 12
1	186	27	704899.39	232824.68	BAASS location - West of SU 10 & 12
1	187	8	705252.00	232787.00	Manually placed new bounding core

Class	Location ID	Survey Unit	Easting	Northing	Notes
1	188	8	705250.00	232805.00	BAASS location
1	189	8	705265.00	232800.00	BAASS location
1	190	8	705270.00	232790.00	BAASS location
1	191	9	705260.00	232885.00	BAASS location
1	192	9	705247.50	232892.50	Modified BAASS location
1	193	9	705260.00	232900.00	BAASS location
1	194	9	705250.00	232910.00	BAASS location
1	195	28	705119.80	232862.50	Modified BAASS location
1	196	28	705131.20	232859.40	BAASS location, to characterize and constrain in SU 11 - Twin Rivers
1	197	28	705141.30	232862.40	
1	198	29	705210.30	232963.20	New location - Results of GWS. SU29 added based on pre-remediation sampling data.
1	199	5	705222.90	232706.70	New location - Results of GWS
1	200	25	704963.00	232736.36	New bounding cores around SU 25
1	201	25	704943.00	232736.62	New bounding cores around SU 25
1	202	25	704933.63	232744.97	New bounding cores around SU 25
1	203	25	704934.65	232765.99	New bounding cores around SU 25
1	204	26	705029.84	232787.76	New bounding cores around SU 25
1	205	26	705026.80	232770.54	New bounding cores around SU 26
1	206	26	705012.63	232757.13	New bounding cores around SU 26
1	207	26	704998.20	232743.71	New bounding cores around SU 26
1	208	26	704983.26	232736.87	New bounding cores around SU 26
1	209	28	705081.52	232879.70	New bounding cores around SU 28
1	210	28	705098.89	232877.34	New bounding cores around SU 28
1	211	28	705106.36	232865.32	New bounding cores around SU 28
1	212	28	705125.30	232865.28	New bounding cores around SU 28
1	213	28	705145.23	232865.81	New bounding cores around SU 28
1	214	28	705161.84	232863.72	New bounding cores around SU 28
1	215	28	705155.47	232850.32	New bounding cores around SU 28
1	216	28	705135.88	232850.32	New bounding cores around SU 28
1	217	28	705116.11	232849.79	New bounding cores around SU 28
1	218	28	705096.70	232849.25	New bounding cores around SU 28
1	219	28	705076.23	232849.42	BAASS Location - Twin Rivers Technologies
1	220	11	705275.00	232750.00	BAASS Location - Twin Rivers Technologies
1	221	11	705275.00	232730.00	New location - Results of GWS
1	222	26	705025.50	232776.93	New location - Results of GWS
1	223	26	704983.71	232767.49	New location - Results of GWS
1	224	25	704957.19	232742.61	New location - Results of GWS
1	225	25	704943.85	232778.96	New location - Results of GWS
1	226	29	705206.84	232963.46	Bounding Core around 198. SU29 added based on pre-remediation sampling data.
1	227	29	705212.40	232961.28	Bounding Core around 198. SU29 added based on pre-remediation sampling data.
1	228	29	705211.47	232966.29	Bounding Core around 198. SU29 added based on pre-remediation sampling data.
1	229	28	705123.23	232867.01	Bounding Core north of 170
1	343	1	705021.52	232789.52	Previously SU13, Class 2
1	464	9	705227.68	232910.79	Previously SU14, Class 2
1	476	29	705203.42	232959.30	Previously SU14, Class 2. SU29 added based on pre-remediation sampling data.
2	301	17	704985.14	232668.25	Systematic Class 2 Sample

Class	Location ID	Survey Unit	Easting	Northing	Notes
2	302	17	705009.39	232668.25	Systematic Class 2 Sample
2	303	17	705033.65	232668.25	Systematic Class 2 Sample
2	304	17	705057.90	232668.25	Systematic Class 2 Sample
2	305	17	704973.01	232692.51	Systematic Class 2 Sample
2	306	17	704997.27	232692.51	Systematic Class 2 Sample
2	307	17	705021.52	232692.51	Systematic Class 2 Sample
2	308	17	705045.77	232692.51	Systematic Class 2 Sample
2	309	17	705070.03	232692.51	Systematic Class 2 Sample
2	310	17	704936.63	232716.76	Systematic Class 2 Sample
2	311	17	704960.89	232716.76	Systematic Class 2 Sample
2	312	17	704985.14	232716.76	Systematic Class 2 Sample
2	313	17	705009.39	232716.76	Systematic Class 2 Sample
2	314	17	705033.65	232716.76	Systematic Class 2 Sample
2	315	17	705057.90	232716.76	Systematic Class 2 Sample
2	316	20	705082.16	232668.25	Systematic Class 2 Sample
2	317	20	705106.41	232668.25	Systematic Class 2 Sample
2	318	20	705130.66	232668.25	Systematic Class 2 Sample
2	319	20	705154.92	232668.25	Systematic Class 2 Sample
2	320	20	705179.17	232668.25	Systematic Class 2 Sample
2	321	20	705203.42	232668.25	Systematic Class 2 Sample
2	322	20	705227.68	232668.25	Systematic Class 2 Sample
2	323	20	705251.93	232668.25	Systematic Class 2 Sample
2	324	20	705118.54	232692.51	Systematic Class 2 Sample
2	325	20	705142.79	232692.51	Systematic Class 2 Sample
2	326	20	705167.04	232692.51	Systematic Class 2 Sample
2	327	20	705130.66	232716.76	Systematic Class 2 Sample
2	328	20	705154.92	232716.76	Systematic Class 2 Sample
2	329	20	705179.17	232716.76	Systematic Class 2 Sample
2	330	17	704924.51	232741.01	Systematic Class 2 Sample
2	333	13	704997.27	232741.01	Systematic Class 2 Sample
2	334	13	705021.52	232741.01	Systematic Class 2 Sample
2	335	13	705045.77	232741.01	Systematic Class 2 Sample
2	336	13	705070.03	232741.01	Systematic Class 2 Sample
2	341	13	705033.65	232765.27	Systematic Class 2 Sample
2	342	13	705057.90	232765.27	Systematic Class 2 Sample
2	344	13	705045.77	232789.52	Systematic Class 2 Sample
2	345	13	705070.03	232789.52	Systematic Class 2 Sample
2	346	13	705033.65	232813.77	Systematic Class 2 Sample
2	347	18	705094.28	232692.51	Systematic Class 2 Sample
2	348	18	705082.16	232716.76	Systematic Class 2 Sample
2	349	18	705106.41	232716.76	Systematic Class 2 Sample
2	350	18	705094.28	232741.01	Systematic Class 2 Sample
2	351	18	705118.54	232741.01	Systematic Class 2 Sample
2	352	18	705082.16	232765.27	Systematic Class 2 Sample
2	353	18	705106.41	232765.27	Systematic Class 2 Sample
2	354	18	705130.66	232765.27	Systematic Class 2 Sample
2	355	18	705094.28	232789.52	Systematic Class 2 Sample
2	356	18	705118.54	232789.52	Systematic Class 2 Sample
2	357	18	705082.16	232813.77	Systematic Class 2 Sample
2	358	18	705106.41	232813.77	Systematic Class 2 Sample
2	359	18	705130.66	232813.77	Systematic Class 2 Sample
2	360	18	705094.28	232838.03	Systematic Class 2 Sample

Class	Location ID	Survey Unit	Easting	Northing	Notes
2	361	18	705118.54	232838.03	Systematic Class 2 Sample
2	362	19	705203.42	232716.76	Systematic Class 2 Sample
2	363	19	705142.79	232741.01	Systematic Class 2 Sample
2	364	19	705167.04	232741.01	Systematic Class 2 Sample
2	365	19	705191.30	232741.01	Systematic Class 2 Sample
2	366	19	705215.55	232741.01	Systematic Class 2 Sample
2	367	19	705154.92	232765.27	Systematic Class 2 Sample
2	368	19	705179.17	232765.27	Systematic Class 2 Sample
2	369	19	705203.42	232765.27	Systematic Class 2 Sample
2	370	19	705227.68	232765.27	Systematic Class 2 Sample
2	371	19	705142.79	232789.52	Systematic Class 2 Sample
2	373	19	705191.30	232789.52	Systematic Class 2 Sample
2	374	19	705215.55	232789.52	Systematic Class 2 Sample
2	375	19	705239.80	232789.52	Systematic Class 2 Sample
2	376	19	705154.92	232813.77	Systematic Class 2 Sample
2	377	15	705179.17	232813.77	Systematic Class 2 Sample
2	382	23	704912.38	232862.28	Systematic Class 2 Sample
2	383	23	704936.63	232862.28	Systematic Class 2 Sample
2	384	23	704960.89	232862.28	Systematic Class 2 Sample
2	385	23	704924.51	232886.54	Systematic Class 2 Sample
2	386	23	704948.76	232886.54	Systematic Class 2 Sample
2	387	23	704973.01	232886.54	Systematic Class 2 Sample
2	388	23	704912.38	232910.79	Systematic Class 2 Sample
2	389	23	704936.63	232910.79	Systematic Class 2 Sample
2	390	23	704960.89	232910.79	Systematic Class 2 Sample
2	391	23	704924.51	232935.04	Systematic Class 2 Sample
2	392	23	704948.76	232935.04	Systematic Class 2 Sample
2	393	23	704912.38	232959.30	Systematic Class 2 Sample
2	394	23	704936.63	232959.30	Systematic Class 2 Sample
2	395	13	705021.52	232838.03	Moved to SU13 from SU16
2	396	13	705045.77	232838.03	Moved to SU13 from SU16
2	397	13	705033.65	232862.28	Moved to SU13 from SU16
2	398	13	705057.90	232862.28	Moved to SU13 from SU16
2	401	13	705021.52	232886.54	Moved to SU13 from SU16
2	402	16	705070.03	232886.54	Systematic Class 2 Sample
2	403	16	705094.28	232886.54	Systematic Class 2 Sample
2	404	16	705057.90	232910.79	Systematic Class 2 Sample
2	405	16	705082.16	232910.79	Systematic Class 2 Sample
2	406	16	705106.41	232910.79	Systematic Class 2 Sample
2	407	16	705070.03	232935.04	Systematic Class 2 Sample
2	408	16	705094.28	232935.04	Systematic Class 2 Sample
2	409	16	705057.90	232959.30	Systematic Class 2 Sample
2	410	16	705082.16	232959.30	Systematic Class 2 Sample
2	411	16	705106.41	232959.30	Systematic Class 2 Sample
2	412	15	705203.42	232813.77	Systematic Class 2 Sample
2	413	15	705227.68	232813.77	Systematic Class 2 Sample
2	414	15	705191.30	232838.03	Systematic Class 2 Sample
2	415	15	705215.55	232838.03	Systematic Class 2 Sample
2	416	15	705239.80	232838.03	Systematic Class 2 Sample
2	417	15	705264.06	232838.03	Systematic Class 2 Sample
2	420	15	705179.17	232862.28	Systematic Class 2 Sample
2	421	15	705203.42	232862.28	Systematic Class 2 Sample

Class	Location ID	Survey Unit	Easting	Northing	Notes
2	422	15	705227.68	232862.28	Systematic Class 2 Sample
2	423	15	705251.93	232862.28	Systematic Class 2 Sample
2	424	16	705118.54	232886.54	Systematic Class 2 Sample
2	425	16	705142.79	232886.54	Systematic Class 2 Sample
2	426	15	705167.04	232886.54	Systematic Class 2 Sample
2	427	15	705191.30	232886.54	Systematic Class 2 Sample
2	428	15	705215.55	232886.54	Systematic Class 2 Sample
2	429	22	705033.65	232910.79	Systematic Class 2 Sample
2	430	22	704973.01	232935.04	Systematic Class 2 Sample
2	431	22	704997.27	232935.04	Systematic Class 2 Sample
2	432	22	705021.52	232935.04	Systematic Class 2 Sample
2	433	22	705045.77	232935.04	Systematic Class 2 Sample
2	434	22	704960.89	232959.30	Systematic Class 2 Sample
2	435	22	704985.14	232959.30	Systematic Class 2 Sample
2	436	22	705009.39	232959.30	Systematic Class 2 Sample
2	437	22	705033.65	232959.30	Systematic Class 2 Sample
2	438	22	704924.51	232983.55	Systematic Class 2 Sample
2	439	22	704948.76	232983.55	Systematic Class 2 Sample
2	440	22	704973.01	232983.55	Systematic Class 2 Sample
2	441	22	704997.27	232983.55	Systematic Class 2 Sample
2	442	22	705021.52	232983.55	Systematic Class 2 Sample
2	443	22	705045.77	232983.55	Systematic Class 2 Sample
2	444	21	705050.80	232986.80	Systematic Class 2 Sample
2	445	21	705072.40	232967.20	Systematic Class 2 Sample
2	446	21	705095.50	232967.90	Systematic Class 2 Sample
2	447	21	705122.90	232966.60	Systematic Class 2 Sample
2	448	21	705144.30	232969.10	Systematic Class 2 Sample
2	449	21	705119.92	232971.14	Systematic Class 2 Sample
2	450	21	705144.17	232971.14	Systematic Class 2 Sample
2	451	21	705168.42	232971.14	Systematic Class 2 Sample
2	453	21	705096.39	232982.20	Systematic Class 2 Sample
2	454	21	705057.10	232997.80	Systematic Class 2 Sample
2	455	21	705084.90	232998.80	Systematic Class 2 Sample
2	456	21	705059.28	232995.39	Systematic Class 2 Sample
2	457	21	705083.62	232995.29	Systematic Class 2 Sample
2	458	21	705153.90	233000.30	Systematic Class 2 Sample
2	459	21	705180.46	232995.49	Systematic Class 2 Sample
2	460	21	705156.38	232995.29	Systematic Class 2 Sample
2	461	14	705154.92	232910.79	Systematic Class 2 Sample
2	462	14	705179.17	232910.79	Systematic Class 2 Sample
2	463	14	705203.42	232910.79	Systematic Class 2 Sample
2	466	14	705118.54	232935.04	Systematic Class 2 Sample
2	467	14	705142.79	232935.04	Systematic Class 2 Sample
2	468	14	705167.04	232935.04	Systematic Class 2 Sample
2	469	14	705191.30	232935.04	Systematic Class 2 Sample
2	470	14	705215.55	232935.04	Systematic Class 2 Sample
2	471	14	705239.80	232935.04	Systematic Class 2 Sample
2	472	14	705264.06	232935.04	Systematic Class 2 Sample
2	473	14	705130.66	232959.30	Systematic Class 2 Sample
2	474	14	705154.92	232959.30	Systematic Class 2 Sample
2	475	14	705179.17	232959.30	Systematic Class 2 Sample
2	477	14	705227.68	232959.30	Systematic Class 2 Sample

Class	Location ID	Survey Unit	Easting	Northing	Notes
2	478	24	705279.74	232672.44	Twin Rivers Technologies Location
2	479	24	705279.74	232703.87	Twin Rivers Technologies Location
2	480	24	705271.89	232719.59	Twin Rivers Technologies Location
2	481	24	705279.74	232735.31	Twin Rivers Technologies Location
2	482	24	705279.74	232766.74	Twin Rivers Technologies Location
2	483	24	705271.89	232813.90	Twin Rivers Technologies Location
2	484	24	705287.60	232813.90	Twin Rivers Technologies Location
2	485	24	705279.74	232829.62	Twin Rivers Technologies Location
2	486	24	705271.89	232845.34	Twin Rivers Technologies Location
2	487	24	705287.60	232845.34	Twin Rivers Technologies Location
2	488	24	705279.74	232861.05	Twin Rivers Technologies Location
2	489	24	705271.89	232876.77	Twin Rivers Technologies Location
2	490	24	705271.89	232908.21	Twin Rivers Technologies Location
2	600	13	705066.80	232776.50	Bias 13-1
2	601	13	705040.31	232758.65	Bias 13-2
2	602	13	705049.16	232821.09	Bias 13-3
2	603	13	705066.68	232821.58	Bias 13-4
2	604	14	705158.03	232946.42	Bias 14-1
2	605	14	705188.08	232948.04	Bias 14-2
2	606	14	705218.01	232921.50	Bias 14-3
2	607	14	705198.79	232898.25	Bias 14-4
2	608	14	705163.03	232896.69	Bias 14-5
2	609	14	705125.72	232920.71	Bias 14-6
2	610	15	705172.28	232868.68	Bias 15-1
2	611	15	705207.80	232872.90	Bias 15-2
2	612	15	705218.97	232861.87	Bias 15-3
2	613	15	705220.46	232826.91	Bias 15-4
2	614	19	705194.51	232801.82	Bias 15-5
2	616	16	705076.08	232901.21	Bias 16-2, Use as Class 2 Systematic Sample
2	617	16	705074.20	232948.31	Bias 16-3, Use as Class 2 Systematic Sample
2	618	16	705054.13	232953.93	Bias 16-4, Use as Class 2 Systematic Sample
2	619	16	705104.00	232923.26	Bias 16-5, Use as Class 2 Systematic Sample
2	620	16	705101.56	232895.57	Bias 16-6, Use as Class 2 Systematic Sample
2	621	16	705110.96	232956.17	Bias 16-7, Use as Class 2 Systematic Sample
2	622	18	705079.30	232737.59	Bias 18-1
2	623	18	705079.00	232788.40	Bias 18-2
2	624	18	705077.11	232846.38	Bias 18-3
2	625	18	705105.29	232849.35	Bias 18-4
2	626	18	705112.80	232823.43	Bias 18-5
2	627	18	705130.72	232789.31	Bias 18-6
2	628	18	705135.93	232743.20	Bias 18-7
2	629	15	704912.38	232765.27	Bias 19-1
2	630	19	705221.90	232781.93	Bias 19-2
2	631	19	705222.68	232749.77	Bias 19-3
2	632	19	705219.41	232720.87	Bias 19-4
2	633	19	705170.01	232720.45	Bias 19-5
2	634	19	705186.59	232751.34	Bias 19-6
2	635	20	705224.10	232649.60	Bias 20-1
2	636	20	705221.71	232672.77	Bias 20-2
2	637	20	705191.30	232651.90	Bias 20-3
2	638	20	705163.10	232650.10	Bias 20-4
2	639	20	705132.20	232649.80	Bias 20-5

Class	Location ID	Survey Unit	Easting	Northing	Notes
2	640	20	705118.90	232647.60	Bias 20-6
2	641	22	705033.93	232953.31	Bias 22-1
2	642	22	705013.22	232942.51	Bias 22-2
2	643	22	705002.01	232953.24	Bias 22-3
2	644	22	704953.33	232952.87	Bias 22-4
2	645	22	704973.17	232952.81	Bias 22-5
2	646	22	705014.75	232913.39	Bias 22-6
2	647	23	704948.76	232899.17	Bias 23-1

APPENDIX B

TECHNICAL MEMORANDUM - DEVELOPMENT OF RA-226 CORRELATION FACTORS FOR PAINESVILLE SITE

CABRERA SERVICES
RADIOLOGICAL · ENVIRONMENTAL · REMEDIATION

Date:	January 25, 2006
To:	[redacted]
From:	[redacted]
Tech Memo No.:	04-3200.02-01

SUBJECT:	**Development of Ra-226 Correlation Factors for Painesville Site**
Cc:	Painesville Project Team 04-3200.02 Project File

Summary

On-site and off-site radiological laboratory data collected during pre-remediation sampling at the Painesville FUSRAP site were analyzed to come up with acceptable predictors of Sum of Ratios (SOR) >1 for use during remediation and Final Status Survey (FSS) activities. By understanding the behavior of on-site BEGe Ra-226 results, field sampling activities can better direct remedial activities and help ensure FSS surveys pass required MARSSIM criteria with minimal re-work.

Results from the BEGe on-site gamma spectroscopy laboratory at the Painesville site were shown to over-report Ra-226 due to interference from colocated U-235. A method was developed to correct the BEGe Ra-226 results using a correction factor multiplied to the U-235 results with the product subtracted from the raw Ra-226 result. However, upon statistical analysis, the raw results were determined to be more closely related to the GEL off-site laboratory results than the corrected results. Therefore, it is recommended that a cut-off of 7 pCi/g be used as the best determinant for raw BEGe results to exceed an SOR >1.

Introduction/Purpose

Painesville off-site GEL and on-site BEGe results were compiled to evaluate the performance of the on-site gamma spectroscopy laboratory when reporting Ra-226 in soil. Comparisons between the BEGe Ra-226 data and GEL Ra-226 data (analyzed via Lucas Cell, EPA Method 903.1 modified) indicated that the BEGe consistently over-reported Ra-226. This condition was not unexpected since site soils also contain U-235, which has a gamma emission at a similar energy. The energy peak for U-235 photons is 185.7 keV, while the peak energy for Ra-226 is 186.2 keV. Due to resolution limitations of the BEGe system, Ra-226 results often include contributions from colocated U-235 due to their similar energy spectrums. Thus, the Ra-226 results are often over-reported.

Also studied, was whether the corrected BEGe Ra-226 results could reliably predict an SOR > 1 as determined from GEL pre-remediation sample data. This predictor is of particular importance to the upcoming remediation project at the site since the on-site lab will serve as a field-screening tool for remedial support and FSS activities. The goal is to develop means for properly interpreting and correcting the BEGe data so that remedial support decisions can be as accurate as possible to ensure successful remediation and FSS.

Methods

Correction of the BEGe Ra-226 data is done by subtracting the contribution from colocated U-235, as reported by GEL via alpha spectrometry (EML HASL-300 method). Since the probability of decay for the U-235 185.7 keV gamma is 54% versus a 3.8%[1] probability of decay for the Ra-226 186.2 keV gamma, there are approximately 14.2 U-235 photons for every Ra-226 photon, thus further exacerbating the interference problem in the shared range of the gamma spectroscopy spectrum. This 14.2 factor is the theoretical correction and assumes that any U-235 present in a sample is being incorrectly applied to the Ra-226 result. This assumption is rarely entirely true. It is therefore prudent to apply several different correction factors to see which factor results in the best correlation to the Lucas Cell Ra-226 results. A range of factors from 9 to 14.2 was applied. Statistical analysis in the form of a Spearman Rank test was used to determine the correlation of the corrected results to those of the off-site analyses.

Spearman Rank Correlation Coefficient

$$r_s \equiv 1 - 6\left(\sum \frac{d^2}{\left(N^3 - N\right)}\right)$$

Where: *d*= the difference in statistical rank of the two variables

N= number of samples

Results

The behavior of the corrected BEGe data at various levels to its raw values and GEL's Lucas Cell Results are shown in Figures 1 through 5. The data sets are plotted as sets of three for each measurement (GEL Lucas Cell Ra-226, Raw BEGe Ra-226, and 'corrected' BEGe Ra-226). The y-axis on each plot has been truncated to enhance relative behavior of each data series.

Application of the correction factors (CF) to the raw BEGe data visually showed better correlation to the GEL Lucas Cell results as CF decreased, to a limit of CF = 10 (Figure 2). This confirmed the assumption that applying the theoretical CF alone (14.2) would be inappropriate. As Figures 1 and 2 show, the CF = 9 and CF = 10 data sets show similar behavior with regard to overall agreement with the GEL Lucas Cell results. In order to evaluate which CF actually showed better correlation, each corrected BEGe measurement was subtracted from its GEL counterpart to obtain a distribution of the residuals. The object of this exercise was to see if one CF generated a more balanced distribution about

[1] Radiological Health Handbook, 3rd ed. (Baltimore: Lippincott, Williams, and Wilkins, 1998) 8-39, 8-40.

a mean of zero, indicating that the corrected BEGe distribution was optimized. The results of the calculated statistics are shown in Table 1. The most positive and negative observations were excluded from each data set as outliers.

Table 1. Comparison of Residuals between Corrected BEGe Ra-226 and GEL Lucas Cell Ra-226 for CF = 9 and CF = 10.

Parameter	CF = 9	CF = 10
Number of Observations (N)	430	430
Number BEGe < GEL	238	216
Number BEGe > GEL	192	214
Mean	-0.41	-0.17
Standard Deviation	4.69	4.73

The behavior of the CF = 10 residuals were also plotted against normal distribution and cumulative normal distribution functions using the descriptive statistics calculated in Table 1 (see Figures 8 and 9). The behavior of the residuals is seen to be largely normal, with a majority of the data falling between ± 1 standard deviation. These results confirmed that a CF = 10 was the best choice for the BEGe Ra-226 data. Applying factors greater than 10 actually 'over-corrects' the BEGe results, in that the U-235 result is given too much credit for potentially influencing the BEGe Ra-226 result. The opposite was observed for a CF equal to 9, in that an insufficient amount of correction was being made.

Once a CF of 10 was chosen, the focus of this investigation turned to calculating Type I and Type II error probabilities associated with using the Ra-226 result at the Painesville site for predicting an SOR > 1. The GEL Ra-226 data and the corrected BEGe data (CF = 10) were sorted according to SOR, and then filtered with respect to Ra-226 concentrations to formulate reasonable cut-off values for predicting SOR > 1. Choosing a cut-off value for the GEL Lucas Cell results was rather straightforward since the Lucas Cell results were shown to agree favorably with calculated SOR. This relationship is shown in Figure 6; Figure 10 shows the relationship between raw BEGe Ra-226 results and SOR. The few GEL Ra-226 results that report lower Ra-226 levels compared to SOR is likely due to unrepresentative aliquots taken to perform the Lucas Cell method. The Lucas Cell method calls for sample sizes on the order of grams, while the total sample collected for counting on the BEGe was on the order of kilograms. The relationship of corrected BEGe Ra-226 (CF = 10) to SOR is shown in Figure 7. As expected, this data shows greater variability but the overall trend of Ra-226 as a predictor of SOR is still shown.

The sorted and filtered data sets were then queried according to various Ra-226 cut-off values and Type I and Type II error rates calculated. The results of the queries are shown in Table 2.

Table 2. Type I and II Error Rates for Predicting SOR at Various Ra-226 Levels.

	Type II Errors (False Negatives)		Type I Errors (False Positives)	
Ra-226 (pCi/g)	GEL Lucas Cell	Corrected BEGe (CF = 10)	GEL Lucas Cell	Corrected BEGe (CF = 10)
N	*50*	*50*	*419*	*419*
6	3	8	0	12
	6.0%	*16.0%*	*0.0%*	*2.9%*
5	3	4	4	17
	6.0%	*8.0%*	*1.0%*	*4.1%*
4	1	3	13	23
	2.0%	*6.0%*	*3.1%*	*5.5%*

Finally, to test the correlation between the corrected BEGe Ra-226 and the GEL results a Spearman Rank test was used. The Spearman Rank test is a non-parametric statistical analysis which can be used to determine the correlation between two variables. The results are shown in Table 3.

Table 3. Results of Spearman Rank Test Comparing GEL Raw and Corrected BEGe Results.

		BEGe On-site Laboratory		
		Ra-226	**Corr (10) Ra-226**	**Th-232**
GEL Off-site Laboratory	**Ra-226**	0.57 (430) <0.05		
	Ra-226		0.47 (430) <0.05	
	Th-232			0.58 (467) <0.05

Surprisingly, the corrected BEGe Ra-226 results showed a worse relationship with respect to the GEL results than the raw Ra-226 results. This indicates that despite the qualitative improvement to the shape of the distribution, correcting Ra-226 based on U-235 actually introduces variability to the data set. This is likely due to applying corrections to data points that didn't require it. Based on these results, the concept of 'correcting' the BEGe Ra-226 results was abandoned.

The plot of raw BEGe Ra-226 vs. GEL SOR is provided in Figure 10. Investigation of the plot shows that for all Ra-226 results less than 7 pCi/g, there are zero Type II errors with respect to predicting SOR > 1. Therefore, it is recommended that a value of 7 pCi/g

Ra-226 be used for screening FSS samples with the BEGe during the remediation phase of the project.

Conclusions/Recommendations

Results from the BEGe on-site gamma spectroscopy laboratory at the Painesville site were shown to over-report Ra-226 due to interference from colocated U-235. A method was developed to correct the BEGe Ra-226 results using a CF multiplied to the U-235 result with the product subtracted from the raw Ra-226 result. Various correction factors were used, ranging from 9 to 14.2 to account for the presence of U-235 in the BEGe Ra-226 results. The corrected results were determined to have a poor correlation with GEL off-site results compared with the raw BEGe results. Therefore, it was determined that the best predictor for an SOR > 1 is a raw Ra-226 result of 7 pCi/g.

Lucas Cell Ra-226 results were observed to reliably predict SOR for the four ROPCs at the Painesville FUSRAP site, with reasonable Type I and Type II error rates.

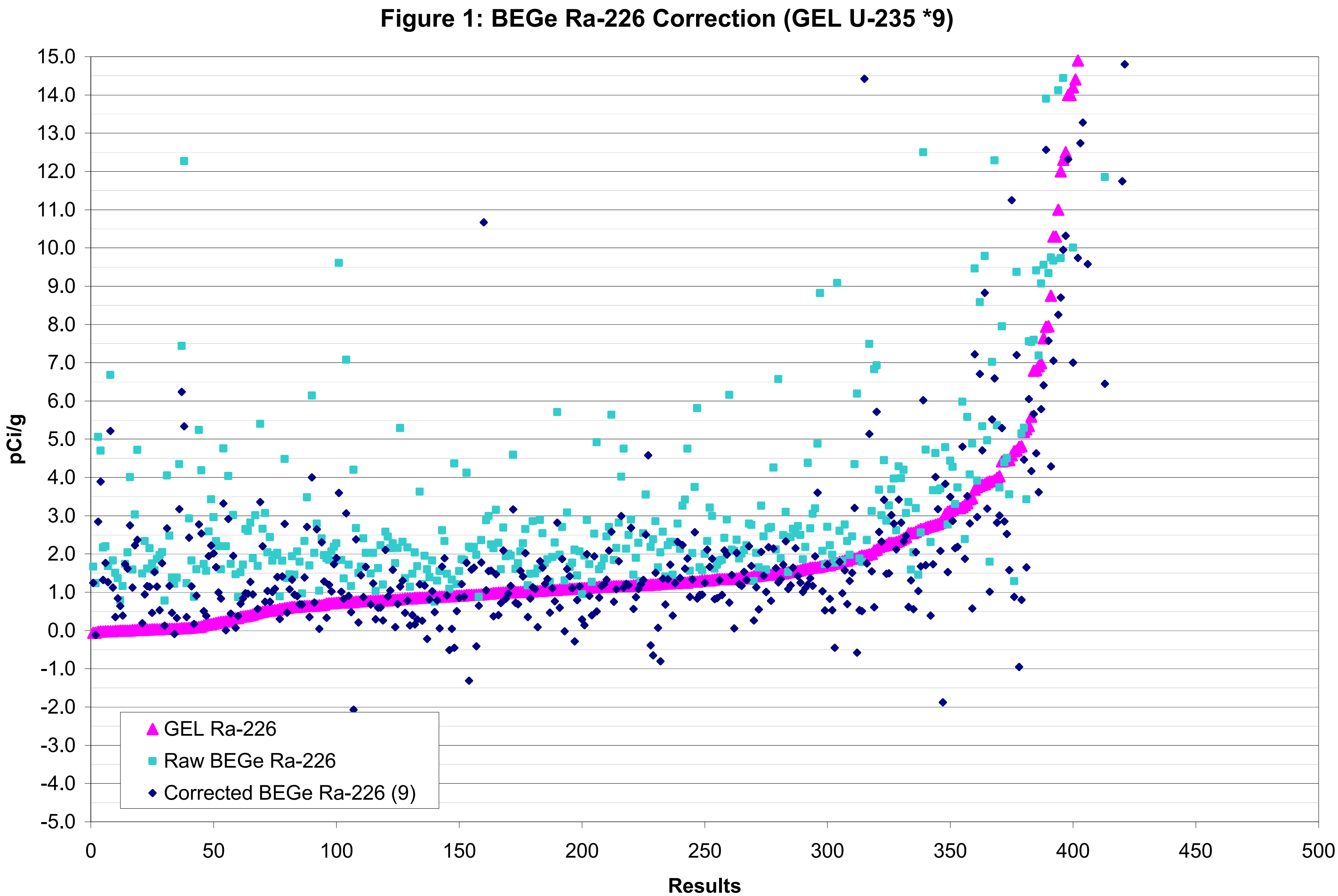


Figure 1: BEGe Ra-226 Correction (GEL U-235 *9)
pCi/g
Results
GEL Ra-226
Raw BEGe Ra-226
Corrected BEGe Ra-226 (9)
15.0
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
0
50
100
150
200
250
300
350
400
450
500

Figure 2: BEGe Ra-226 Correction (GEL U-235 *10)

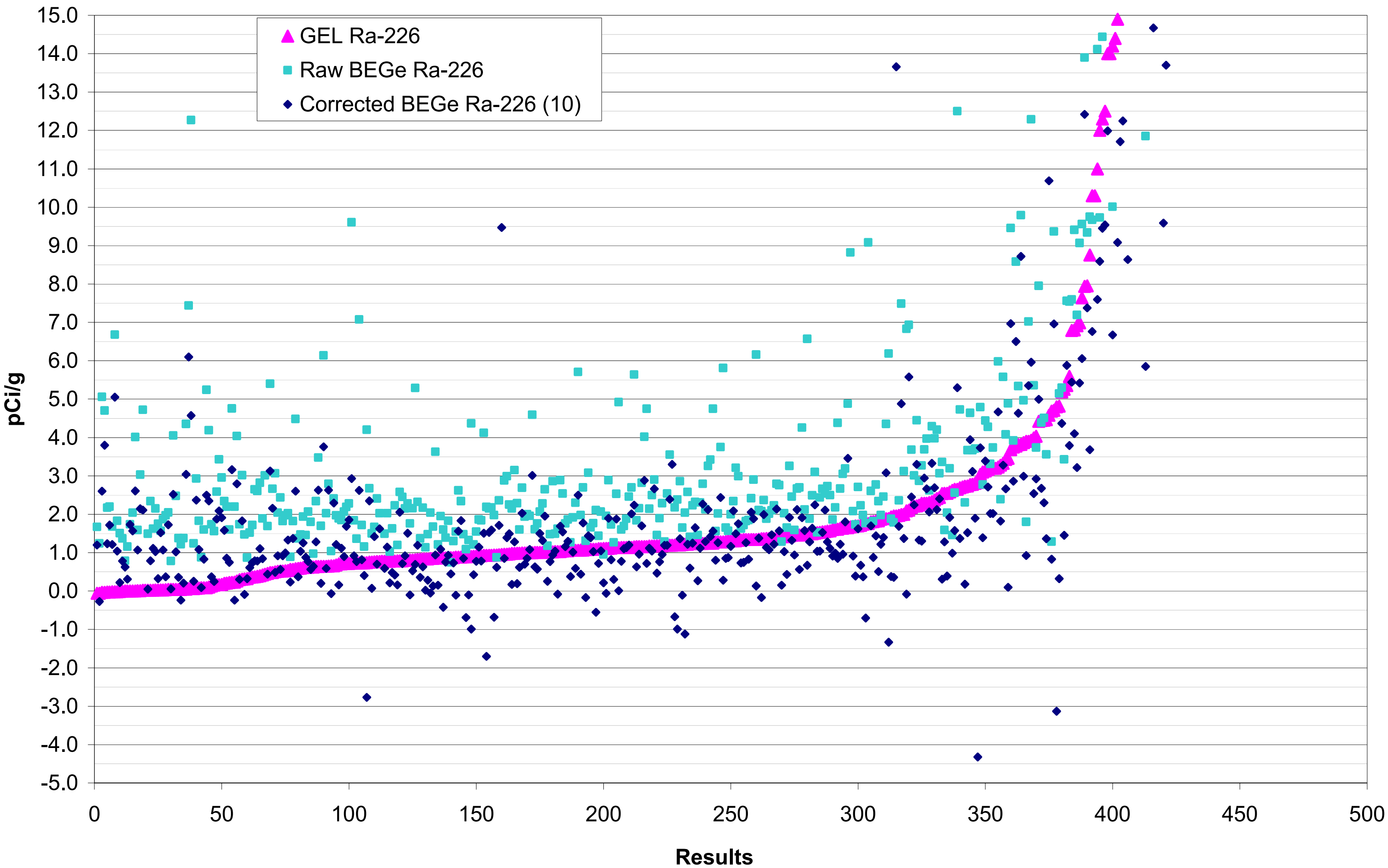


Figure 3: BEGe Ra-226 Correction (GEL U-235 *12)

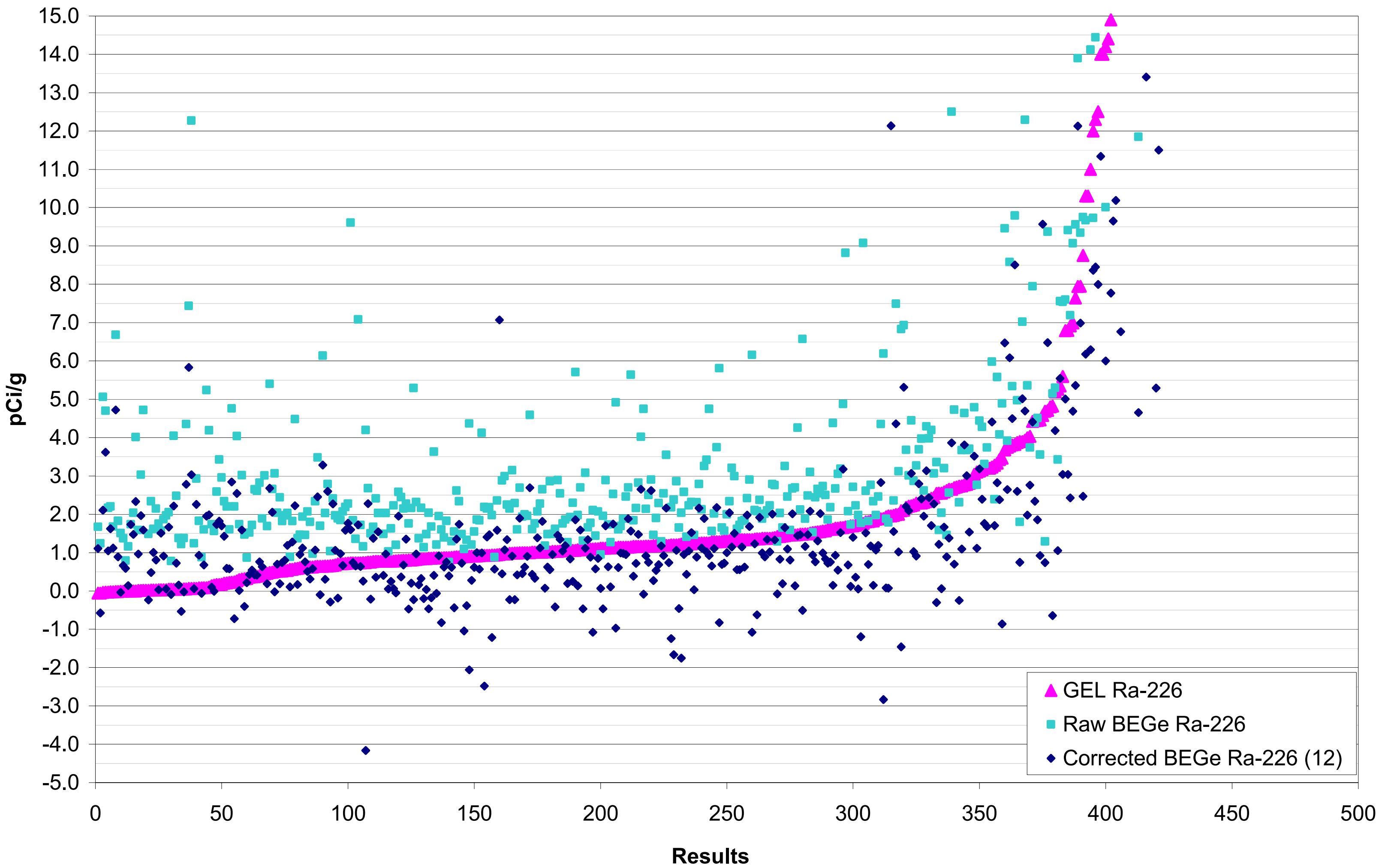


Figure 4: BEGe Ra-226 Correction (GEL U-235 *13)

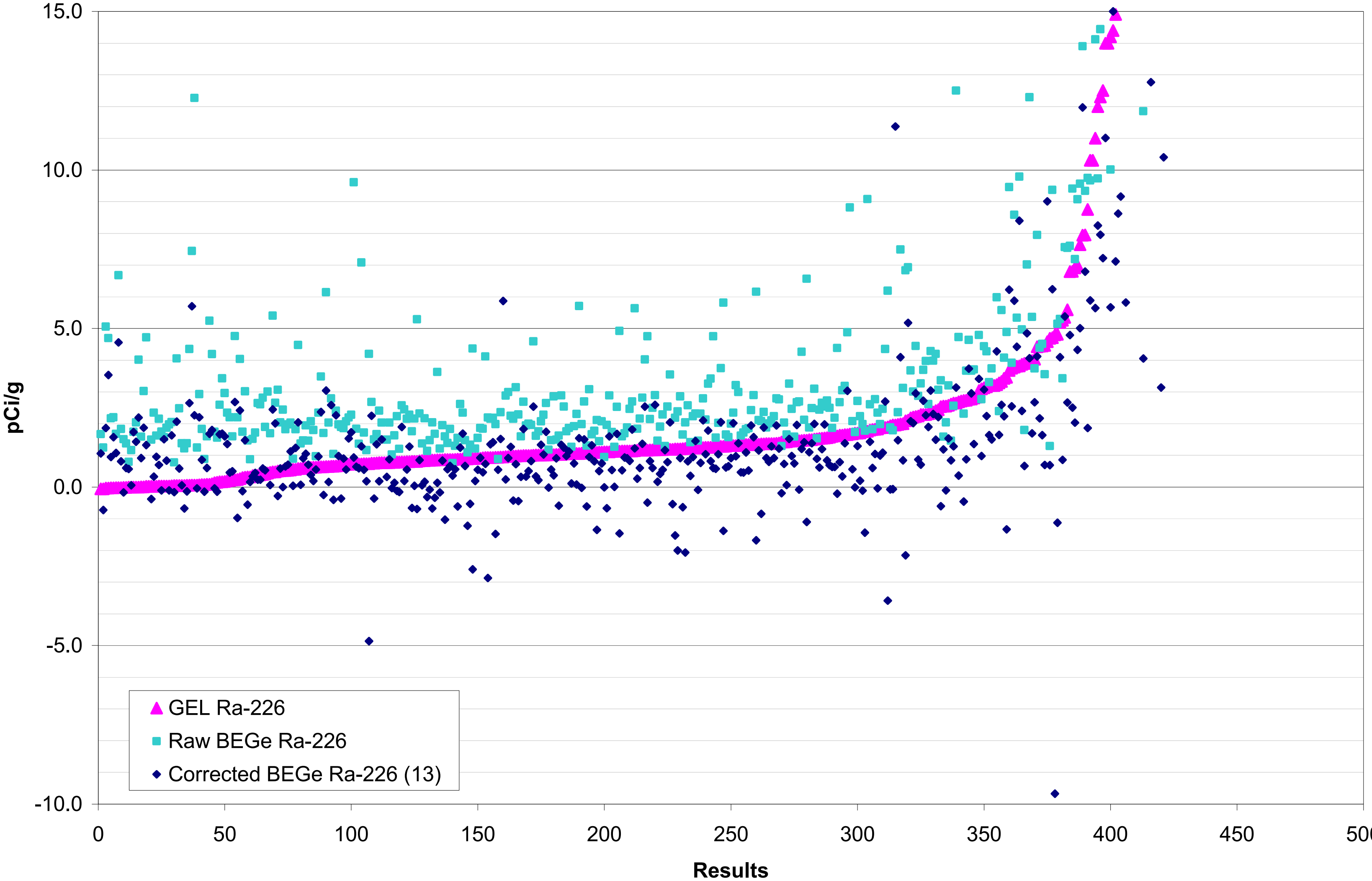


Figure 5: BEGe Ra-226 Correction (GEL U-235 *14.2)

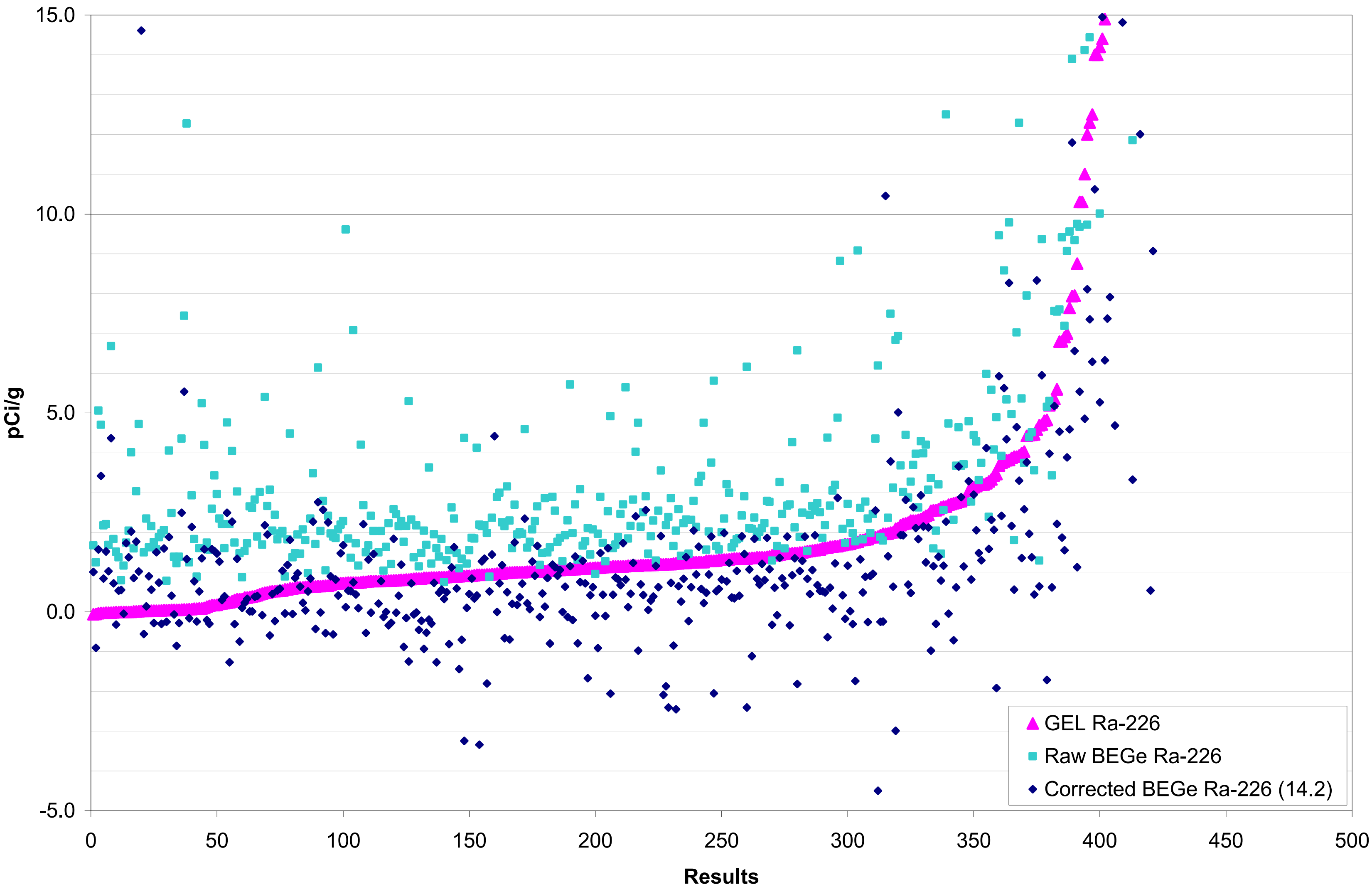


Figure 6: GEL Ra-226 vs SOR

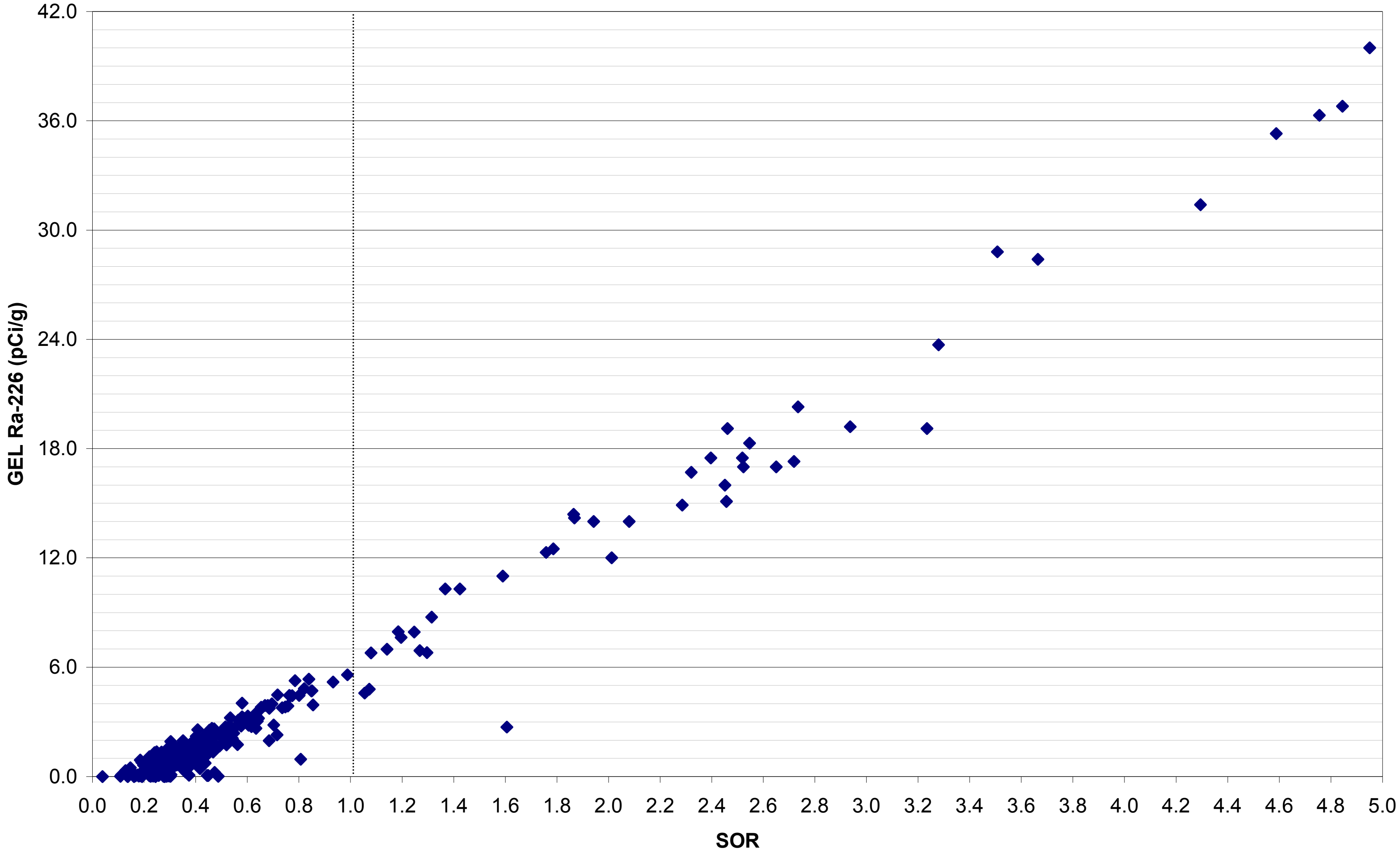


Figure 7: Corrected BEGe Ra-226 (CF=10) vs SOR

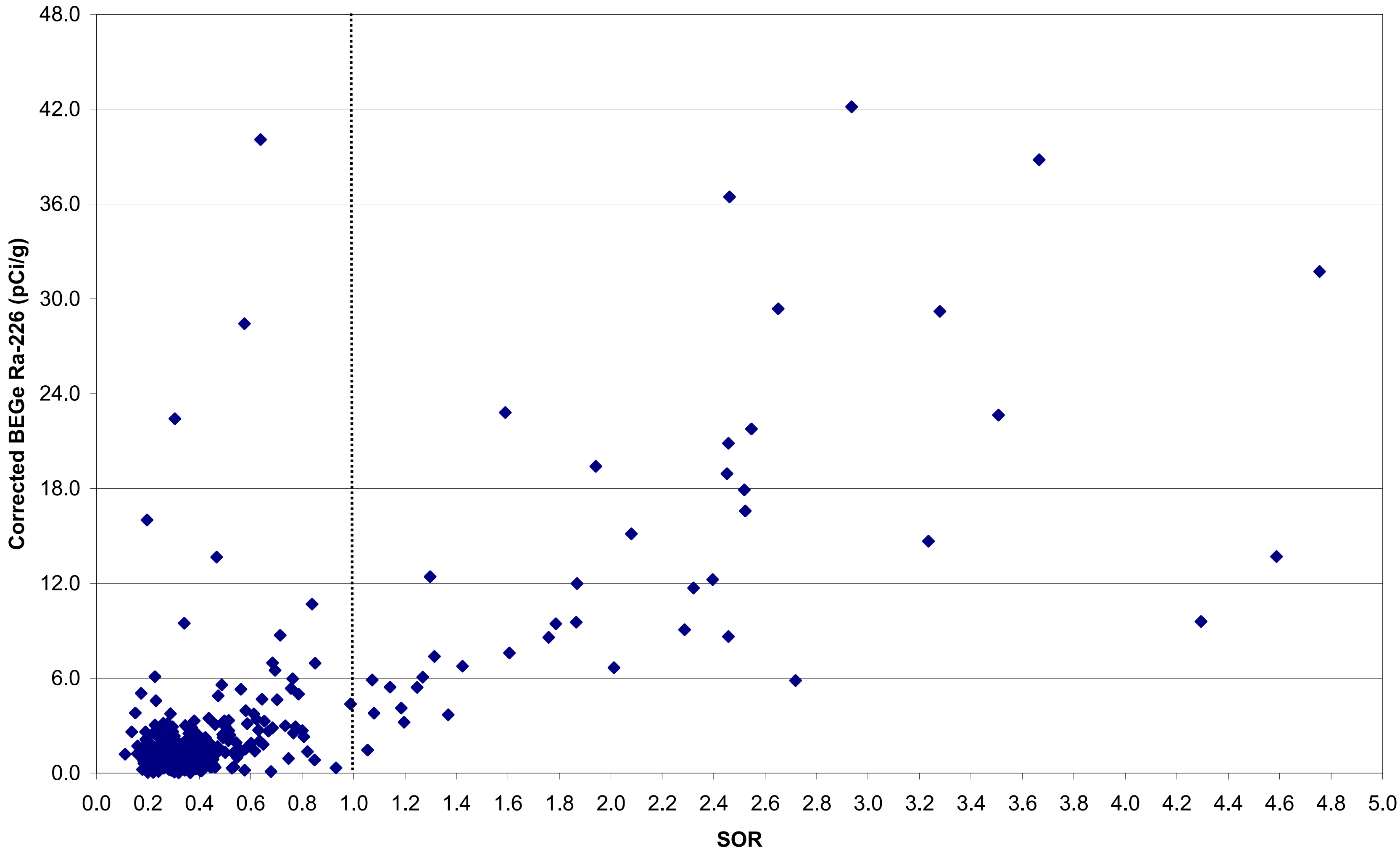


Figure 8: Distribution of Residuals for Corrected BEGe Ra-226 (CF=10) vs. GEL Lucas Cell Ra-226

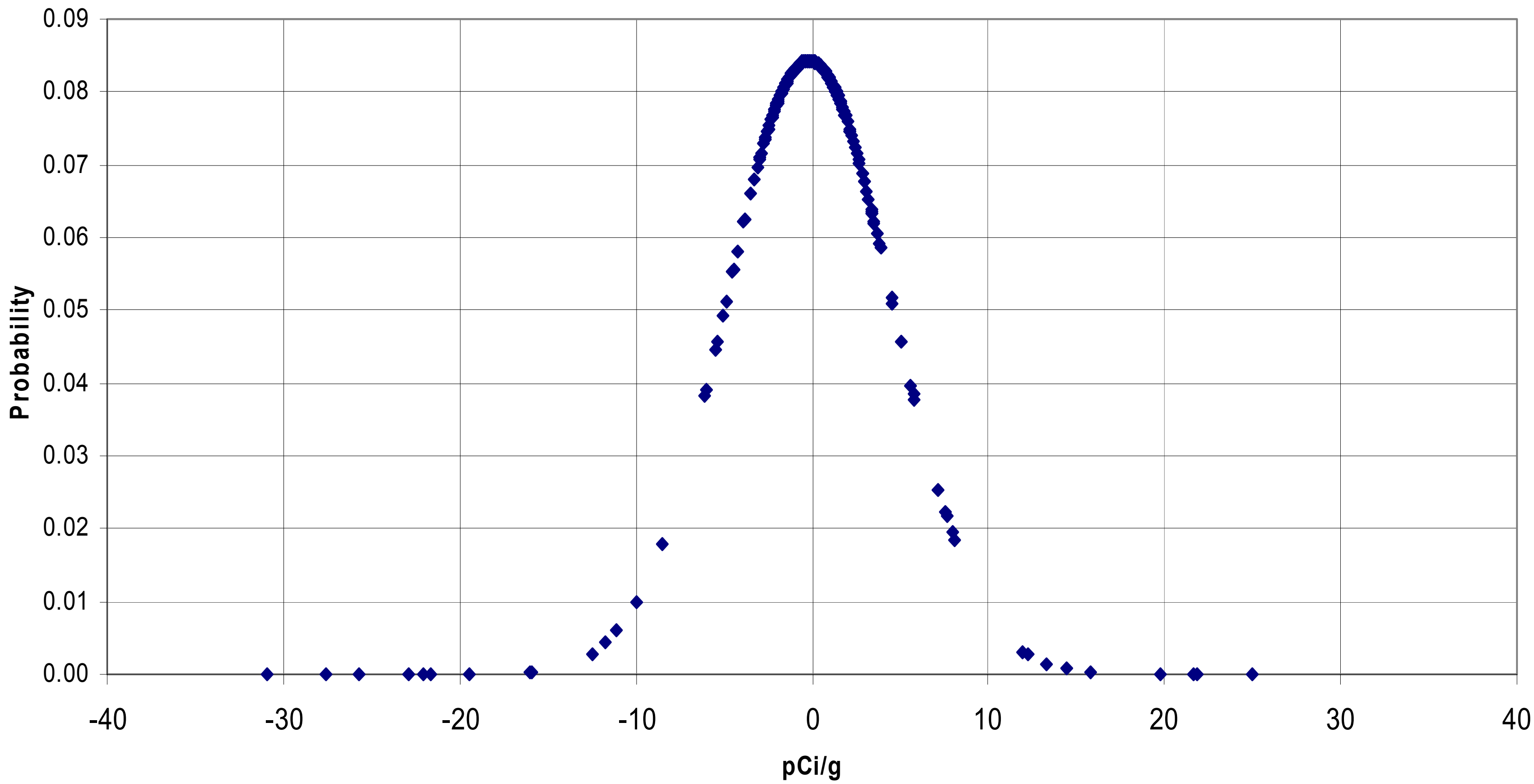


Figure 9: Cumulative Distribution of Residuals for Corrected BEGe Ra-226 (CF=10) vs. GEL Lucas Cell Ra-226

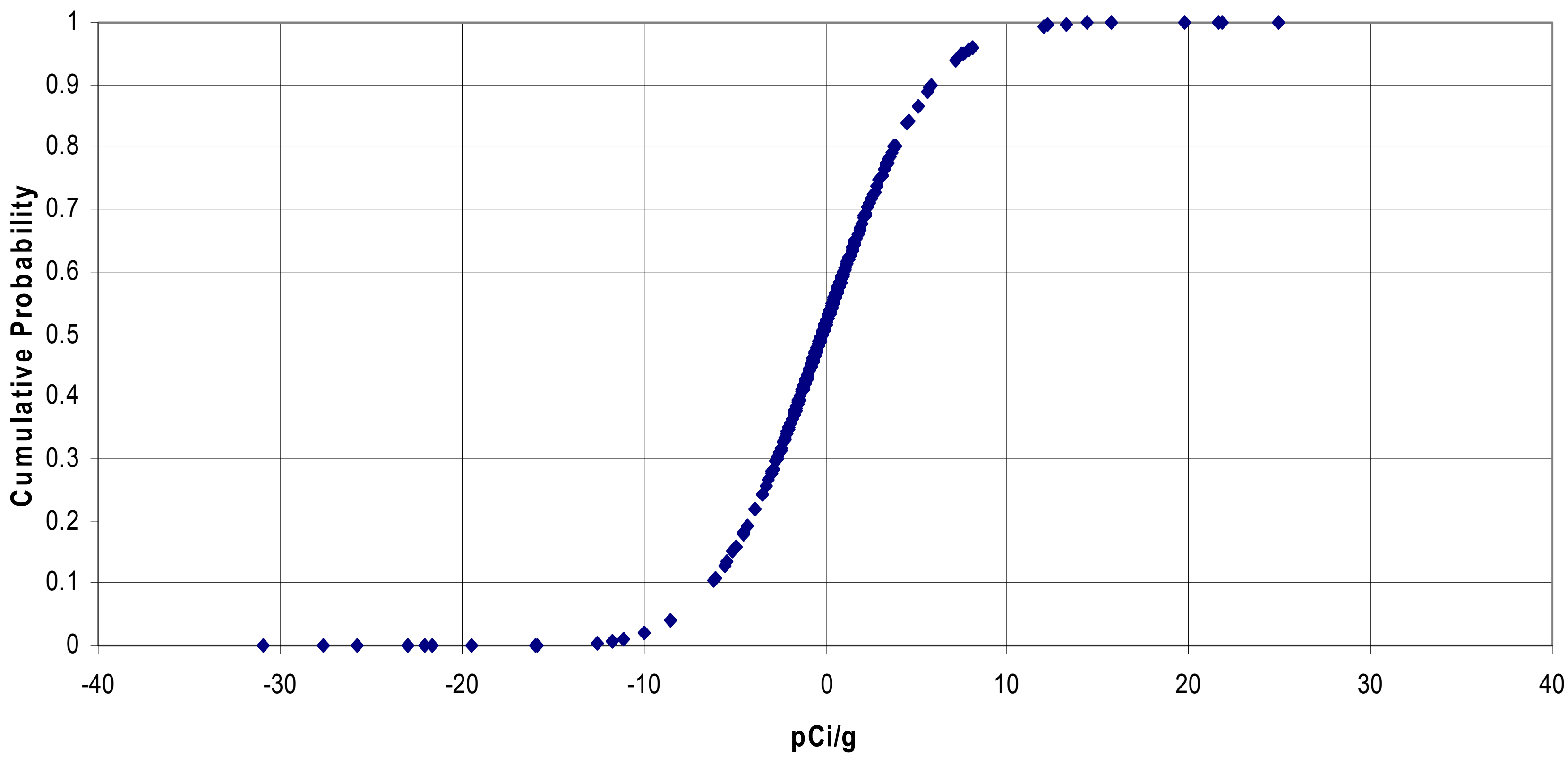
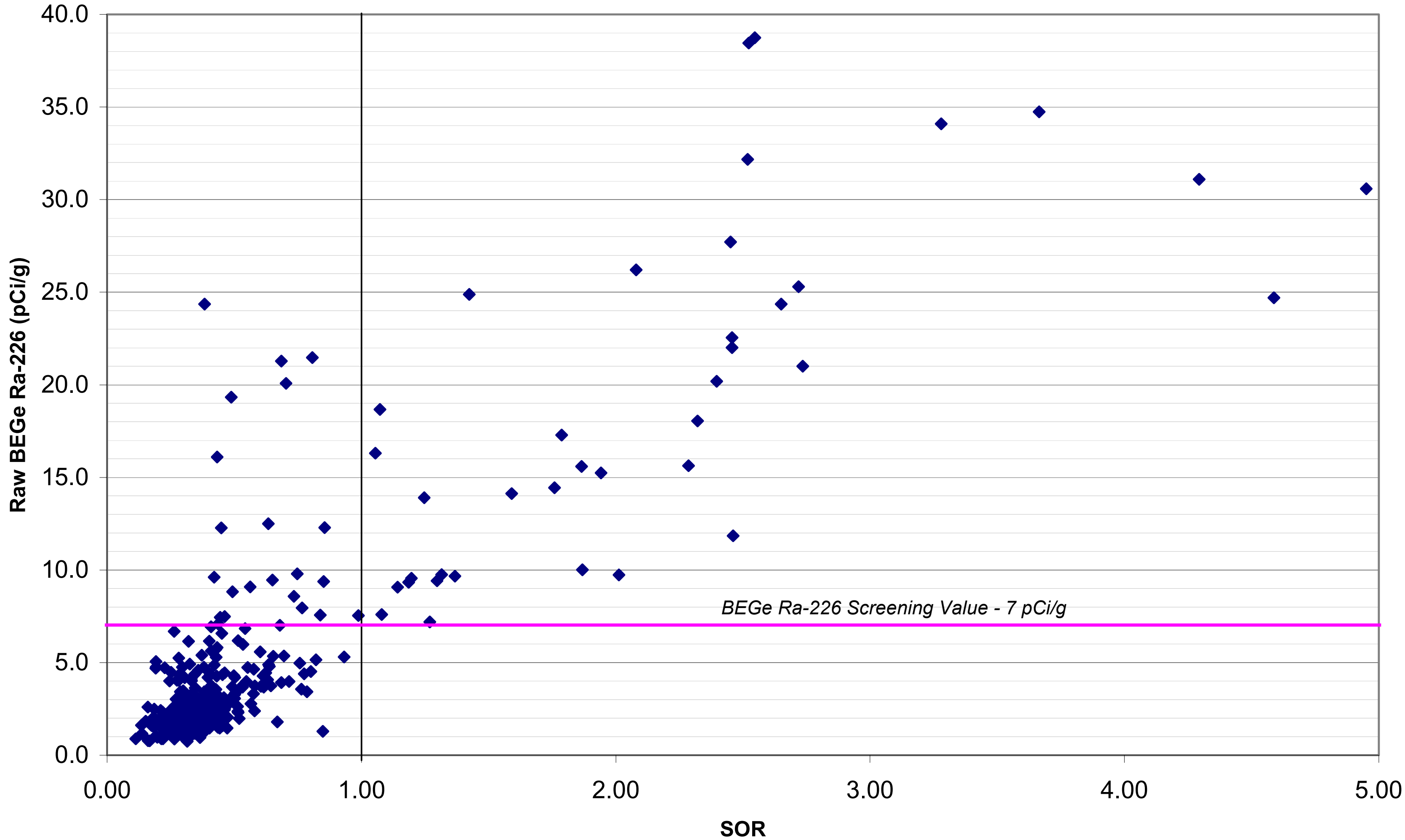


Figure 10: Raw BEGe Ra-226 Results vs SOR



APPENDIX C

DATA TABLES

TABLE C-1

MASTER SOIL DATA-DCGL SOR EVALUATIONS

CLASS 1 AND CLASS 2 SAMPLES

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSB001-0-0.0-1.0	3.20	0.34	2.74	0.26	1.02	0.16	4.45	0.37	0.64	0.48
PVSB001-0-1.0-2.0	0.52	0.15	1.13	0.16	1.18	0.17	3.28	0.30	0.31	0.23
PVSB001-0-2.0-3.0	0.49	0.14	1.15	0.19	1.12	0.18	2.68	0.29	0.29	0.22
PVSB001-0-3.0-4.0	1.02	0.21	1.21	0.19	1.28	0.19	2.83	0.28	0.38	0.28
PVSB001-0-4.0-5.0	1.14	0.20	1.52	0.23	1.35	0.21	2.23	0.26	0.42	0.31
PVSB001-0-5.0-6.0	1.28	0.23	1.16	0.17	1.23	0.17	2.35	0.24	0.40	0.30
PVSB001-0-6.0-7.0	0.66	0.16	1.13	0.17	1.03	0.16	2.22	0.24	0.29	0.22
PVSB001-0-7.0-8.0	1.14	0.23	1.12	0.17	1.15	0.17	1.91	0.21	0.37	0.27
PVSB001-0-8.0-9.0	1.16	0.21	1.06	0.18	1.14	0.18	2.49	0.26	0.37	0.27
PVSB002-0-0.0-1.0	1.65	0.44	1.53	0.25	0.99	0.21	5.36	0.52	0.42	0.31
PVSB002-0-1.0-2.0	0.46	0.26	1.56	0.44	1.00	0.35	2.54	0.36	0.29	0.21
PVSB003-0-0.0-1.0	2.73	0.39	1.49	0.29	0.87	0.22	3.60	0.44	0.52	0.38
PVSB003-0-1.0-2.0	1.00	0.23	0.96	0.21	0.98	0.21	2.58	0.37	0.32	0.24
PVSB004-0-0.0-1.0	4.80	0.37	7.19	0.42	1.07	0.16	35.28	1.24	1.07	0.79
PVSB004-0-1.0-2.0	1.34	0.23	1.14	0.16	1.11	0.16	10.77	0.61	0.40	0.30
PVSB004-0-2.0-3.0	0.79	0.14	0.76	0.12	0.73	0.12	4.80	0.36	0.25	0.19
PVSB004-0-3.0-4.0	0.96	0.19	1.09	0.15	1.00	0.15	4.93	0.34	0.33	0.24
PVSB004-0-4.0-5.0	1.13	0.19	1.22	0.18	0.78	0.15	10.16	0.71	0.33	0.24
PVSB004-0-5.0-6.0	0.89	0.20	1.05	0.15	1.12	0.15	2.34	0.27	0.33	0.25
PVSB004-0-6.0-7.0	1.61	0.24	1.23	0.17	0.98	0.15	7.06	0.41	0.41	0.30
PVSB004-0-7.0-8.0	0.21	0.11	0.92	0.17	0.97	0.17	3.00	0.28	0.23	0.17
PVSB004-0-8.0-9.0	1.31	0.22	1.19	0.17	0.87	0.15	4.08	0.31	0.35	0.26
PVSB004-0-9.0-10.0	1.21	0.22	1.12	0.18	1.11	0.18	2.50	0.30	0.37	0.28
PVSB005-0-0.0-1.0	17.00	0.89	12.70	0.72	0.64	0.16	9.42	0.51	2.52	1.88
PVSB005-0-1.0-2.0	1.09	0.24	1.06	0.24	1.19	0.25	2.99	0.28	0.37	0.27
PVSB006-0-0.0-1.0	1.46	0.21	1.27	0.18	0.99	0.16	2.95	0.30	0.38	0.29
PVSB006-0-2.0-3.0	1.67	0.27	1.17	0.22	1.02	0.20	43.74	1.43	0.49	0.36
PVSB006-0-3.0-4.0	0.89	0.20	1.13	0.23	1.16	0.23	2.24	0.23	0.34	0.25
PVSB006-0-4.0-5.0	1.46	0.25	1.12	0.26	1.23	0.27	3.46	0.30	0.42	0.31
PVSB006-0-5.0-6.0	1.19	0.22	1.28	0.24	1.26	0.24	3.70	0.30	0.40	0.30
PVSB006-0-6.0-7.0	0.93	0.18	1.09	0.21	1.04	0.21	5.29	0.33	0.33	0.25
PVSB006-0-7.0-8.0	0.15	0.10	0.74	0.14	0.82	0.15	2.82	0.25	0.19	0.14
PVSB007-0-0.0-1.0	0.71	0.18	0.81	0.12	0.76	0.12	2.69	0.24	0.24	0.18
PVSB007-0-1.0-2.0	1.76	0.24	2.29	0.20	1.07	0.14	46.63	1.08	0.56	0.41
PVSB007-0-2.0-3.0	0.89	0.16	1.03	0.14	1.26	0.16	1.69	0.20	0.35	0.26
PVSB008-0-0.0-1.0	3.68	0.54	1.59	0.13	0.93	0.10	10.72	0.50	0.65	0.48
PVSB008-0-1.0-2.0	1.39	0.34	1.29	0.12	1.19	0.11	3.18	0.28	0.41	0.31
PVSB008-0-2.0-3.0	0.05	0.14	1.28	0.12	1.17	0.12	2.53	0.23	0.26	0.19
PVSB009-0-0.0-1.0	56.20	1.77	23.00	2.39	0.93	0.49	37.22	1.00	7.40	5.52
PVSB009-0-1.0-2.0	2.65	0.42	2.01	0.23	1.23	0.18	26.22	0.91	0.63	0.47
PVSB009-0-2.0-3.0	1.34	0.33	1.24	0.18	1.22	0.18	2.28	0.22	0.41	0.30
PVSB010-0-0.0-1.0	2.33	0.27	1.83	0.21	0.96	0.15	3.12	0.28	0.50	0.37
PVSB010-0-1.0-2.0	3.82	0.57	2.66	0.26	1.25	0.18	4.05	0.31	0.75	0.56
PVSB010-0-2.0-3.0	20.30	0.71	7.16	0.42	0.98	0.15	14.20	0.57	2.74	2.04
PVSB010-0-3.0-4.0	1.96	0.25	6.87	0.42	0.95	0.16	16.19	0.64	0.68	0.50
PVSB010-0-4.0-5.0	2.74	0.32	1.75	0.21	1.39	0.19	4.92	0.37	0.62	0.46
PVSB010-0-5.0-6.0	1.08	0.18	1.32	0.18	1.35	0.19	3.45	0.29	0.40	0.30
PVSB010-0-6.0-7.0	0.50	0.13	1.02	0.15	1.10	0.16	4.67	0.37	0.29	0.22
PVSB010-0-7.0-8.0	1.20	0.18	1.01	0.17	0.96	0.16	5.13	0.37	0.34	0.26
PVSB010-0-8.0-9.0	1.16	0.18	1.21	0.19	1.24	0.19	2.44	0.26	0.39	0.29
PVSB010-0-9.0-10.0	1.10	0.17	0.98	0.15	0.94	0.15	2.78	0.27	0.32	0.24
PVSB011-0-0.0-1.0	1.65	0.23	1.51	0.19	1.12	0.16	3.62	0.32	0.44	0.33
PVSB011-0-1.0-2.0	35.30	1.72	12.40	0.52	0.81	0.13	16.62	0.64	4.59	3.43
PVSB011-0-2.0-3.0	4.58	0.34	7.55	0.48	1.27	0.20	15.40	0.66	1.05	0.78
PVSB011-0-3.0-4.0	1.83	0.23	1.09	0.16	1.00	0.16	3.46	0.29	0.42	0.31
PVSB011-0-4.0-5.0	1.47	0.23	1.24	0.18	1.26	0.18	3.62	0.31	0.43	0.32
PVSB011-0-5.0-6.0	1.16	0.21	1.03	0.17	1.03	0.17	2.84	0.27	0.35	0.26
PVSB011-0-6.0-7.0	1.80	0.27	1.36	0.18	1.18	0.17	2.56	0.24	0.46	0.34
PVSB011-0-7.0-8.0	1.74	0.22	1.47	0.22	1.57	0.23	2.56	0.37	0.52	0.39
PVSB011-0-8.0-9.0	0.08	0.08	1.32	0.20	1.12	0.18	2.21	0.24	0.25	0.19

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSB012-0-0.0-1.0	23.70	0.80	10.70	0.56	1.13	0.18	14.44	0.55	3.28	2.45
PVSB012-0-1.0-2.0	2.81	0.28	1.90	0.23	1.23	0.19	5.74	0.40	0.61	0.45
PVSB012-0-2.0-3.0	1.53	0.22	1.28	0.19	1.02	0.17	3.44	0.30	0.40	0.30
PVSB012-0-3.0-4.0	0.99	0.16	1.45	0.18	1.12	0.16	3.37	0.30	0.36	0.27
PVSB012-0-4.0-5.0	1.06	0.18	1.31	0.19	1.28	0.19	2.17	0.21	0.39	0.29
PVSB012-0-5.0-6.0	0.92	0.16	1.26	0.17	1.17	0.16	2.59	0.26	0.35	0.26
PVSB012-0-6.0-7.0	0.98	0.18	1.39	0.20	1.28	0.19	2.76	0.29	0.38	0.29
PVSB012-0-7.0-8.0	1.01	0.17	1.40	0.18	1.24	0.16	2.24	0.22	0.38	0.28
PVSB012-0-8.0-9.0	0.99	0.17	1.30	0.17	1.17	0.17	2.42	0.25	0.36	0.27
PVSB012-0-9.0-10.0	0.90	0.16	1.11	0.16	1.21	0.17	2.29	0.26	0.35	0.26
PVSB013-0-0.0-1.0	3.78	0.31	3.11	0.28	1.09	0.16	4.30	0.32	0.73	0.55
PVSB013-0-1.0-2.0	6.99	0.43	3.80	0.31	1.19	0.18	7.10	0.44	1.14	0.85
PVSB013-0-2.0-3.0	0.93	0.16	1.13	0.20	0.98	0.18	7.97	0.46	0.33	0.24
PVSB013-0-3.0-4.0	1.20	0.18	1.35	0.20	1.11	0.18	8.11	0.48	0.39	0.29
PVSB013-0-4.0-5.0	1.06	0.17	1.20	0.17	1.38	0.19	2.66	0.27	0.40	0.30
PVSB013-0-5.0-6.0	1.01	0.18	1.27	0.18	1.45	0.19	2.03	0.22	0.41	0.31
PVSB013-0-6.0-7.0	1.37	0.21	1.20	0.17	1.00	0.15	3.52	0.31	0.37	0.28
PVSB013-0-7.0-8.0	0.85	0.15	1.24	0.18	1.44	0.20	2.26	0.26	0.39	0.29
PVSB013-0-8.0-9.0	0.73	0.15	1.25	0.17	1.25	0.17	2.47	0.24	0.34	0.26
PVSB013-0-9.0-10.0	0.82	0.16	1.18	0.18	1.15	0.18	2.31	0.23	0.34	0.25
PVSB014-0-1.0-2.0	-0.06	0.04	1.39	0.25	1.45	0.26	2.82	0.27	0.30	0.22
PVSB014-0-2.0-3.0	1.12	0.20	1.17	0.16	1.19	0.16	2.98	0.39	0.38	0.28
PVSB014-0-3.0-4.0	0.53	0.14	1.45	0.19	1.31	0.18	2.89	0.26	0.34	0.25
PVSB014-0-4.0-5.0	0.93	0.17	1.21	0.18	1.49	0.20	2.33	0.24	0.41	0.30
PVSB014-0-5.0-6.0	-0.01	0.05	1.47	0.20	1.21	0.18	2.04	0.31	0.26	0.20
PVSB014-0-6.0-7.0	0.89	0.16	0.96	0.15	0.99	0.15	2.48	0.26	0.31	0.23
PVSB014-0-7.0-8.0	0.86	0.17	1.38	0.16	1.26	0.16	2.37	0.22	0.37	0.27
PVSB014-0-8.0-9.0	0.48	0.12	1.41	0.18	1.48	0.18	2.18	0.23	0.36	0.27
PVSB015-0-0.0-1.0	1.08	0.21	0.84	0.13	0.71	0.12	2.19	0.25	0.28	0.21
PVSB015-0-1.0-2.0	19.10	0.86	4.16	0.33	0.84	0.15	15.60	0.73	2.46	1.84
PVSB015-0-2.0-3.0	1.75	0.27	1.04	0.16	0.97	0.15	2.37	0.28	0.40	0.30
PVSB015-0-3.0-4.0	1.02	0.22	0.99	0.15	0.63	0.12	1.62	0.23	0.26	0.19
PVSB015-0-4.0-5.0	0.70	0.16	0.80	0.17	0.73	0.16	1.54	0.18	0.23	0.17
PVSB015-0-5.0-6.0	0.95	0.17	0.74	0.14	0.68	0.13	1.66	0.21	0.25	0.19
PVSB015-0-6.0-7.0	1.12	0.23	1.06	0.20	0.90	0.18	2.25	0.26	0.32	0.24
PVSB015-0-7.0-8.0	1.49	0.26	1.33	0.26	1.16	0.25	2.63	0.28	0.42	0.31
PVSB015-0-8.0-9.0	0.87	0.20	0.91	0.19	0.86	0.19	2.25	0.26	0.28	0.21
PVSB015-0-9.0-10.0	0.72	0.19	0.81	0.18	1.06	0.21	1.90	0.26	0.29	0.22
PVSB016-0-0.0-1.0	10.30	0.58	3.56	0.25	0.78	0.12	3.62	0.29	1.42	1.06
PVSB016-0-1.0-2.0	28.80	0.94	4.03	0.23	0.67	0.09	16.98	0.62	3.51	2.62
PVSB016-0-2.0-3.0	15.10	0.66	11.60	1.90	1.57	0.71	26.03	0.85	2.46	1.83
PVSB016-0-3.0-4.0	14.90	0.68	9.15	1.61	1.36	0.63	18.40	0.67	2.29	1.70
PVSB016-0-4.0-5.0	1.13	0.20	1.05	0.16	1.14	0.16	2.31	0.22	0.36	0.27
PVSB017-0-0.0-1.0	40.00	1.35	8.19	0.62	0.92	0.21	12.42	0.77	4.95	3.70
PVSB017-0-1.0-2.0	103.00	1.60	37.30	1.03	0.81	0.15	43.69	1.59	13.16	9.84
PVSB017-0-2.0-3.0	1.16	0.22	0.77	0.14	0.69	0.13	10.53	0.69	0.30	0.22
PVSB018-0-0.0-1.0	17.50	0.89	9.49	0.46	0.74	0.13	34.54	0.93	2.52	1.87
PVSB018-0-1.0-2.0	1.20	0.27	1.04	0.16	0.89	0.15	4.88	0.33	0.33	0.25
PVSB018-0-2.0-3.0	1.23	0.32	1.24	0.19	1.27	0.19	2.26	0.27	0.40	0.30
PVSB019-1-0.0-1.0	0.60	0.25	0.91	0.21	0.83	0.20	1.87	0.34	0.25	0.18
PVSB019-0-0.0-1.0	1.07	0.25	0.90	0.10	0.94	0.10	2.45	0.26	0.32	0.24
PVSB019-0-1.0-2.0	3.43	0.42	1.73	0.15	1.00	0.12	6.57	0.39	0.63	0.47
PVSB019-1-1.0-2.0	19.20	1.23	16.20	0.83	0.72	0.18	16.98	0.90	2.94	2.19
PVSB019-1-2.0-3.0	37.40	1.93	20.30	1.07	0.90	0.23	44.17	1.50	5.21	3.88
PVSB019-0-2.0-3.0	36.80	1.30	13.70	0.43	1.07	0.12	14.19	0.61	4.84	3.62
PVSB019-1-3.0-4.0	28.40	1.67	5.59	0.53	1.10	0.23	49.11	1.84	3.66	2.73
PVSB019-0-3.0-4.0	17.30	0.95	14.10	0.48	1.06	0.13	26.84	0.83	2.72	2.02
PVSB019-0-4.0-5.0	1.28	0.26	1.44	0.14	1.23	0.13	13.55	0.60	0.43	0.32
PVSB019-1-4.0-5.0	0.73	0.29	1.34	0.28	1.40	0.29	25.47	1.05	0.42	0.31
PVSB019-1-5.0-6.0	0.09	0.16	1.60	0.30	1.08	0.25	13.67	0.84	0.28	0.21

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR ($100m^2$ DCGLemc)
PVSB019-0-5.0-6.0	1.15	0.25	1.37	0.15	1.23	0.14	10.65	0.49	0.41	0.30
PVSB019-0-6.0-7.0	1.25	0.27	1.23	0.14	1.11	0.13	4.47	0.35	0.38	0.28
PVSB019-1-6.0-7.0	0.65	0.28	1.18	0.23	1.11	0.22	7.58	0.61	0.32	0.24
PVSB020-0-0.0-1.0	3.33	0.42	1.81	0.15	0.87	0.11	6.66	0.42	0.60	0.45
PVSB020-1-0.0-1.0	14.00	1.14	8.12	0.58	0.87	0.19	25.98	1.07	2.08	1.55
PVSB020-0-1.0-2.0	1.03	0.25	0.96	0.12	1.03	0.13	2.60	0.27	0.33	0.25
PVSB020-1-1.0-2.0	1.99	0.44	1.95	0.30	0.78	0.19	16.12	0.92	0.46	0.34
PVSB020-1-2.0-3.0	0.44	0.25	1.21	0.23	1.34	0.25	46.23	1.52	0.42	0.30
PVSB021-0-0.0-1.0	36.30	1.35	13.30	0.47	0.70	0.11	34.96	0.95	4.76	3.55
PVSB021-0-1.0-2.0	12.50	0.71	4.82	0.28	1.03	0.13	16.05	0.73	1.79	1.33
PVSB021-0-2.0-3.0	0.90	0.21	1.00	0.10	1.10	0.11	9.89	0.49	0.34	0.25
PVSB022-0-0.0-1.0	5.26	0.49	2.72	0.27	0.50	0.12	4.57	0.43	0.79	0.59
PVSB022-0-1.0-2.0	2.71	0.33	26.20	0.78	0.87	0.14	53.98	1.76	1.61	1.17
PVSB022-0-2.0-3.0	0.95	0.22	10.50	0.59	1.25	0.20	35.10	1.37	0.81	0.59
PVSB022-0-3.0-4.0	0.37	0.14	1.17	0.18	1.03	0.16	2.72	0.35	0.27	0.20
PVSB023-0-0.0-1.0	19.10	0.77	23.90	0.88	0.44	0.12	40.47	1.91	3.23	2.40
PVSB023-0-1.0-2.0	4.82	0.45	2.62	0.40	0.98	0.25	8.15	0.70	0.82	0.61
PVSB023-0-2.0-3.0	3.46	0.41	1.97	0.38	0.92	0.26	8.71	0.48	0.63	0.47
PVSB024-0-0.0-1.0	1.06	0.24	0.75	0.14	0.71	0.14	1.94	0.31	0.27	0.20
PVSB024-0-1.0-2.0	17.00	0.85	13.80	0.59	1.03	0.16	18.15	1.00	2.65	1.97
PVSB025-0-0.0-1.0	1.14	0.25	1.07	0.18	1.05	0.18	2.06	0.29	0.35	0.26
PVSB025-0-1.0-2.0	1.97	0.31	1.60	0.22	1.35	0.20	2.96	0.38	0.51	0.38
PVSB026-0-2.0-3.0	1.36	0.26	1.41	0.20	1.41	0.20	2.59	0.37	0.45	0.33
PVSB026-0-3.0-4.0	1.17	0.26	1.08	0.15	1.09	0.15	4.29	0.45	0.36	0.27
PVSB026-0-4.0-5.0	0.98	0.20	0.86	0.14	0.89	0.14	5.27	0.48	0.30	0.23
PVSB027-0-0.0-1.0	10.30	0.59	3.18	0.42	0.46	0.16	9.26	0.45	1.37	1.02
PVSB027-0-1.0-2.0	3.93	0.39	3.06	0.43	1.44	0.30	27.03	1.45	0.86	0.63
PVSB027-0-2.0-3.0	1.06	0.24	1.89	0.33	1.25	0.27	12.34	0.77	0.43	0.32
PVSB027-0-3.0-4.0	1.18	0.24	1.84	0.32	1.39	0.28	3.16	0.29	0.44	0.33
PVSB028-0-0.0-1.0	1.00	0.29	0.98	0.16	1.14	0.17	2.20	0.27	0.34	0.26
PVSB028-0-1.0-2.0	1.09	0.28	1.39	0.17	1.20	0.16	2.41	0.23	0.38	0.28
PVSB029-0-0.0-1.0	1.33	0.31	1.29	0.17	1.11	0.15	2.35	0.23	0.39	0.29
PVSB029-0-1.0-2.0	1.52	0.33	1.14	0.16	0.80	0.13	2.03	0.23	0.35	0.26
PVSB030-0-0.0-1.0	2.29	0.39	1.47	0.19	1.09	0.16	2.98	0.27	0.50	0.37
PVSB030-0-1.0-2.0	3.90	0.48	2.16	0.22	0.89	0.14	5.17	0.39	0.68	0.51
PVSB030-0-2.0-3.0	2.29	0.39	6.05	0.36	1.27	0.17	3.40	0.29	0.72	0.53
PVSB031-0-0.0-1.0	4.44	0.57	2.40	0.26	1.06	0.17	4.04	0.31	0.77	0.58
PVSB031-0-1.0-2.0	1.60	0.36	1.24	0.17	1.28	0.17	2.45	0.25	0.45	0.33
PVSB032-0-0.0-1.0	4.48	0.46	1.12	0.17	1.02	0.16	2.58	0.34	0.72	0.54
PVSB032-0-1.0-2.0	1.56	0.27	1.56	0.24	0.47	0.13	2.97	0.38	0.32	0.24
PVSB033-0-0.0-1.0	3.10	0.38	1.50	0.23	0.93	0.18	3.37	0.37	0.57	0.42
PVSB033-0-1.0-2.0	0.62	0.21	0.93	0.14	0.79	0.13	2.02	0.31	0.24	0.18
PVSB034-0-0.0-1.0	3.23	0.39	1.43	0.25	0.65	0.17	4.81	0.36	0.53	0.40
PVSB034-0-1.0-2.0	1.34	0.25	1.16	0.24	1.13	0.24	2.40	0.24	0.39	0.29
PVSB035-0-0.0-1.0	8.75	0.58	4.79	0.54	0.78	0.22	10.49	0.56	1.31	0.98
PVSB035-0-1.0-2.0	6.80	0.53	5.83	1.33	1.72	0.73	10.45	0.77	1.30	0.97
PVSB035-0-2.0-3.0	1.56	0.29	1.28	0.30	1.47	0.33	2.70	0.26	0.48	0.35
PVSB036-0-0.0-1.0	2.11	0.34	1.96	0.23	0.50	0.12	6.03	0.43	0.41	0.30
PVSB036-0-1.0-2.0	0.73	0.26	3.75	0.34	1.11	0.18	9.94	0.50	0.44	0.32
PVSB036-0-2.0-3.0	0.59	0.19	1.63	0.23	0.68	0.15	3.92	0.37	0.25	0.19
PVSB037-0-0.0-1.0	5.59	0.46	4.55	0.58	1.03	0.28	6.63	0.70	0.99	0.74
PVSB037-0-1.0-2.0	0.89	0.20	0.59	0.19	0.53	0.17	1.43	0.29	0.21	0.16
PVSB038-0-0.0-1.0	1.57	0.23	1.48	0.26	0.53	0.16	3.60	0.47	0.33	0.25
PVSB038-0-1.0-2.0	0.48	0.15	0.49	0.16	0.43	0.15	1.07	0.27	0.15	0.11
PVSB039-0-0.0-1.0	7.94	0.68	4.74	0.33	0.99	0.15	5.10	0.36	1.25	0.93
PVSB039-0-1.0-2.0	1.61	0.35	1.61	0.29	1.11	0.24	2.54	0.24	0.43	0.32
PVSB040-0-0.0-1.0	1.48	0.38	0.83	0.18	0.89	0.19	2.00	0.27	0.35	0.26
PVSB040-0-1.0-2.0	1.28	0.36	1.01	0.20	1.05	0.20	2.57	0.35	0.36	0.27
PVSB041-0-0.0-1.0	2.78	0.44	1.85	0.27	0.86	0.18	3.22	0.32	0.53	0.40
PVSB041-0-1.0-2.0	1.81	0.38	1.19	0.22	0.77	0.18	2.21	0.26	0.38	0.28

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSB042-0-0.0-1.0	7.95	0.81	4.07	0.40	0.75	0.17	7.18	0.59	1.19	0.88
PVSB042-0-1.0-2.0	1.00	0.28	1.39	0.26	0.92	0.21	2.51	0.32	0.32	0.24
PVSB043-0-0.0-1.0	1.42	0.34	0.77	0.18	1.09	0.21	1.83	0.27	0.37	0.28
PVSB043-0-1.0-2.0	1.01	0.30	0.57	0.16	0.68	0.17	1.21	0.24	0.25	0.19
PVSB044-0-0.0-1.0	5.35	0.66	3.04	0.34	0.68	0.16	4.27	0.39	0.84	0.63
PVSB044-0-1.0-2.0	0.64	0.27	1.05	0.23	0.89	0.21	2.21	0.31	0.27	0.20
PVSB045-0-0.0-1.0	17.50	0.69	6.34	0.36	1.05	0.15	11.26	0.61	2.40	1.79
PVSB045-0-1.0-2.0	1.14	0.18	1.25	0.17	1.12	0.16	2.25	0.26	0.37	0.27
PVSB045-0-2.0-3.0	0.87	0.17	1.48	0.20	1.20	0.18	2.53	0.25	0.36	0.27
PVSB045-0-3.0-4.0	0.86	0.14	1.39	0.26	1.19	0.24	2.23	0.23	0.35	0.26
PVSB045-0-4.0-5.0	1.24	0.21	1.07	0.17	0.98	0.16	2.25	0.25	0.35	0.26
PVSB045-0-5.0-6.0	0.89	0.18	0.97	0.11	0.96	0.11	1.77	0.20	0.30	0.22
PVSB045-0-6.0-7.0	1.04	0.20	1.11	0.11	1.16	0.12	2.18	0.25	0.36	0.27
PVSB045-0-7.0-8.0	1.11	0.19	0.67	0.08	0.65	0.07	2.77	0.29	0.26	0.20
PVSB045-0-8.0-9.0	0.91	0.17	1.19	0.11	1.07	0.11	2.29	0.23	0.33	0.25
PVSB045-0-9.0-10.0	1.11	0.19	1.22	0.12	1.13	0.12	2.30	0.25	0.37	0.27
PVSB046-0-0.0-1.0	183.00	2.91	1140.00	52.40	14.10	5.89	82.82	2.55	68.46	50.64
PVSB046-1-0.0-1.0	183.00	4.17	152.00	6.30	1.35	0.60	49.82	1.69	26.74	19.95
PVSB046-0-1.0-2.0	0.77	0.18	1.35	0.32	1.20	0.30	2.55	0.29	0.34	0.26
PVSB046-1-1.0-2.0	1.03	0.32	1.60	0.26	1.25	0.23	3.41	0.42	0.39	0.29
PVSB046-0-2.0-3.0	1.37	0.26	1.30	0.27	1.17	0.26	2.68	0.25	0.40	0.30
PVSB046-0-3.0-4.0	1.13	0.25	1.25	0.26	1.28	0.27	1.70	0.19	0.39	0.29
PVSB046-0-4.0-5.0	3.87	0.44	2.25	0.41	1.39	0.32	2.85	0.26	0.76	0.57
PVSB046-0-5.0-6.0	0.05	0.10	1.12	0.25	1.13	0.25	2.17	0.26	0.24	0.18
PVSB046-0-6.0-7.0	-0.02	0.06	2.56	0.36	0.94	0.22	3.60	0.32	0.26	0.19
PVSB047-0-0.0-1.0	4.46	0.40	3.33	0.48	0.73	0.23	6.29	0.62	0.76	0.57
PVSB047-0-1.0-2.0	0.03	0.09	1.36	0.32	1.39	0.33	3.10	0.46	0.30	0.22
PVSB048-0-0.0-1.0	-0.04	0.13	2.78	0.33	0.45	0.13	4.91	0.46	0.19	0.14
PVSB048-0-1.0-2.0	1.45	0.37	1.34	0.27	1.45	0.28	2.83	0.36	0.46	0.34
PVSB049-0-0.0-1.0	0.79	0.31	0.94	0.16	0.59	0.14	1.75	0.22	0.23	0.17
PVSB049-0-1.0-2.0	1.24	0.39	1.33	0.21	1.24	0.21	2.21	0.24	0.40	0.30
PVSB050-0-0.0-1.0	0.08	0.13	1.07	0.16	0.34	0.09	2.05	0.24	0.11	0.08
PVSB050-0-1.0-2.0	1.68	0.38	1.14	0.15	1.14	0.15	2.77	0.37	0.43	0.32
PVSB051-0-0.0-1.0	3.20	0.50	1.89	0.28	0.83	0.19	3.28	0.28	0.58	0.43
PVSB051-0-1.0-2.0	1.38	0.41	1.23	0.17	1.19	0.17	3.13	0.28	0.41	0.30
PVSB052-0-0.0-1.0	1.16	0.24	1.62	0.15	0.79	0.10	3.35	0.28	0.33	0.25
PVSB052-0-1.0-2.0	1.14	0.23	1.16	0.13	0.92	0.12	2.15	0.24	0.33	0.25
PVSB053-0-0.0-1.0	0.71	0.18	1.42	0.28	0.72	0.20	2.39	0.35	0.26	0.19
PVSB053-0-1.0-2.0	0.72	0.20	1.13	0.25	1.16	0.25	2.69	0.38	0.32	0.24
PVSB054-0-0.0-1.0	11.00	0.56	5.11	0.47	0.78	0.18	16.60	0.62	1.59	1.18
PVSB054-0-1.0-2.0	0.42	0.13	1.29	0.18	1.17	0.17	2.08	0.23	0.30	0.22
PVSB054-0-2.0-3.0	1.01	0.19	1.56	0.19	0.90	0.14	1.91	0.21	0.33	0.24
PVSB054-0-3.0-4.0	0.95	0.18	1.19	0.17	1.23	0.17	1.62	0.20	0.36	0.27
PVSB054-0-4.0-5.0	1.70	0.25	1.28	0.17	1.07	0.15	2.65	0.24	0.42	0.32
PVSB054-0-5.0-6.0	0.77	0.18	1.24	0.18	1.15	0.17	2.15	0.23	0.33	0.25
PVSB054-0-6.0-7.0	1.17	0.22	0.95	0.13	1.07	0.14	2.08	0.21	0.35	0.26
PVSB054-0-7.0-8.0	0.68	0.16	1.03	0.14	1.12	0.15	1.72	0.20	0.31	0.23
PVSB054-0-8.0-9.0	0.80	0.18	0.97	0.15	1.08	0.15	1.54	0.20	0.31	0.23
PVSB054-0-9.0-10.0	1.01	0.19	1.23	0.16	1.23	0.16	2.23	0.24	0.37	0.28
PVSB055-0-0.0-1.0	16.70	0.91	6.24	0.30	1.05	0.13	19.74	0.74	2.32	1.73
PVSB055-0-1.0-2.0	0.59	0.18	1.30	0.13	1.13	0.12	2.34	0.24	0.31	0.23
PVSB055-0-2.0-3.0	1.24	0.24	1.34	0.13	1.17	0.12	2.05	0.24	0.39	0.29
PVSB055-0-3.0-4.0	0.83	0.21	0.92	0.10	0.92	0.10	1.69	0.20	0.29	0.21
PVSB055-0-4.0-5.0	2.22	0.34	1.34	0.15	0.93	0.12	3.31	0.33	0.46	0.34
PVSB056-0-0.0-1.0	0.76	0.23	0.98	0.11	0.67	0.09	1.88	0.23	0.24	0.18
PVSB056-0-1.0-2.0	1.03	0.21	0.97	0.12	0.45	0.08	1.96	0.23	0.23	0.17
PVSB056-0-2.0-3.0	1.93	0.28	0.78	0.10	0.31	0.07	2.82	0.28	0.30	0.23
PVSB056-0-3.0-4.0	3.20	0.38	1.43	0.19	0.66	0.13	30.74	0.90	0.59	0.43
PVSB056-0-4.0-5.0	0.98	0.23	1.19	0.18	0.63	0.13	2.28	0.23	0.27	0.20
PVSB056-0-5.0-6.0	0.22	0.12	1.00	0.15	0.86	0.14	1.88	0.22	0.21	0.16

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSB056-0-6.0-7.0	0.54	0.19	1.03	0.16	0.99	0.15	1.76	0.23	0.27	0.20
PVSB056-0-7.0-8.0	0.84	0.21	0.99	0.12	0.86	0.11	1.94	0.24	0.28	0.21
PVSB056-0-8.0-9.0	0.91	0.21	1.09	0.16	1.02	0.15	2.33	0.23	0.32	0.24
PVSB056-0-9.0-10.0	1.18	0.24	1.02	0.12	1.08	0.13	2.25	0.25	0.36	0.27
PVSB057-0-0.0-1.0	12.30	0.82	6.80	0.27	0.60	0.08	9.66	0.61	1.76	1.31
PVSB057-0-1.0-2.0	2.77	0.34	1.84	0.15	1.13	0.12	3.32	0.33	0.58	0.43
PVSB057-0-2.0-3.0	3.81	0.39	1.58	0.14	0.97	0.11	2.59	0.28	0.65	0.49
PVSB057-0-3.0-4.0	0.06	0.10	1.43	0.15	1.83	0.17	2.28	0.26	0.37	0.28
PVSB057-0-4.0-5.0	1.00	0.22	1.71	0.17	1.03	0.13	3.17	0.27	0.36	0.27
PVSB057-0-5.0-6.0	0.81	0.22	1.08	0.12	1.00	0.11	2.06	0.26	0.30	0.23
PVSB057-0-6.0-7.0	0.46	0.16	1.03	0.13	1.08	0.13	2.15	0.26	0.28	0.21
PVSB057-0-7.0-8.0	1.29	0.23	0.92	0.11	1.09	0.12	2.02	0.22	0.37	0.27
PVSB057-0-8.0-9.0	1.05	0.21	1.03	0.12	1.10	0.12	1.83	0.20	0.34	0.26
PVSB057-0-9.0-10.0	1.18	0.26	1.26	0.16	1.21	0.15	2.21	0.27	0.39	0.29
PVSB058-0-0.0-1.0	0.00	0.08	1.37	0.30	1.31	0.29	3.10	0.51	0.28	0.21
PVSB058-0-1.0-2.0	1.25	0.23	0.96	0.27	1.23	0.30	2.35	0.38	0.39	0.29
PVSB059-0-0.0-1.0	4.42	0.39	3.21	0.22	0.76	0.11	9.92	0.54	0.77	0.57
PVSB059-0-1.0-2.0	2.83	0.30	2.42	0.16	0.97	0.10	62.84	1.31	0.70	0.51
PVSB059-0-2.0-3.0	1.19	0.20	0.99	0.11	0.99	0.11	46.48	1.11	0.43	0.31
PVSB059-0-3.0-4.0	1.48	0.21	1.16	0.13	1.23	0.14	16.98	0.71	0.45	0.33
PVSB059-0-4.0-5.0	1.25	0.19	1.17	0.13	1.05	0.12	9.45	0.49	0.38	0.28
PVSB059-0-5.0-6.0	0.86	0.19	1.13	0.12	1.14	0.12	7.29	0.43	0.35	0.26
PVSB059-0-6.0-7.0	0.74	0.15	1.21	0.13	1.23	0.13	1.92	0.27	0.34	0.25
PVSB059-0-7.0-8.0	0.62	0.14	1.16	0.12	1.11	0.12	2.50	0.29	0.31	0.23
PVSB059-0-8.0-9.0	1.43	0.22	1.19	0.12	1.21	0.12	2.61	0.33	0.41	0.31
PVSB059-0-9.0-10.0	0.32	0.12	1.63	0.13	0.95	0.10	2.09	0.22	0.26	0.20
PVSB060-0-0.0-1.0	18.30	1.35	7.42	0.65	0.86	0.22	35.24	1.31	2.55	1.89
PVSB060-0-1.0-2.0	0.77	0.30	1.72	0.32	1.30	0.28	5.88	0.61	0.38	0.28
PVSB061-0-0.0-1.0	31.40	1.56	13.60	0.59	1.07	0.17	39.85	1.11	4.29	3.20
PVSB061-0-1.0-2.0	1.04	0.28	1.16	0.17	1.20	0.17	2.43	0.25	0.37	0.27
PVSB062-0-0.0-1.0	51.40	2.14	21.10	0.68	0.90	0.14	42.67	1.08	6.79	5.07
PVSB062-0-1.0-2.0	1.89	0.42	1.81	0.21	1.16	0.17	19.11	0.69	0.52	0.38
PVSB062-0-2.0-3.0	1.78	0.40	1.28	0.18	1.21	0.17	3.00	0.26	0.46	0.34
PVSB063-0-0.0-1.0	5.19	0.69	4.99	0.35	0.90	0.15	2.63	0.26	0.93	0.70
PVSB063-0-1.0-2.0	0.56	0.26	0.78	0.15	0.73	0.14	1.71	0.21	0.22	0.16
PVSB064-0-0.0-1.0	0.05	0.08	3.01	0.40	0.92	0.22	2.43	0.36	0.28	0.21
PVSB064-0-1.0-2.0	0.00	0.08	0.96	0.26	0.71	0.22	1.92	0.37	0.16	0.12
PVSB065-0-0.0-1.0	12.00	1.04	13.60	0.54	0.78	0.13	2.90	0.27	2.01	1.50
PVSB065-0-1.0-2.0	1.55	0.40	1.36	0.18	0.72	0.13	1.64	0.19	0.35	0.26
PVSB066-0-0.0-1.0	0.02	0.07	2.78	0.29	0.63	0.15	3.84	0.50	0.23	0.17
PVSB066-0-1.0-2.0	-0.03	0.07	1.79	0.20	0.69	0.12	3.31	0.44	0.19	0.14
PVSB066-0-2.0-3.0	0.99	0.21	0.96	0.16	1.00	0.17	1.67	0.31	0.32	0.24
PVSB067-0-0.0-1.0	0.00	0.07	1.93	0.37	0.97	0.26	2.80	0.41	0.25	0.18
PVSB067-0-1.0-2.0	0.03	0.08	1.00	0.24	0.79	0.21	2.56	0.38	0.18	0.13
PVSB068-0-0.0-1.0	0.87	0.23	0.85	0.20	1.08	0.22	2.14	0.34	0.32	0.24
PVSB068-0-1.0-2.0	1.88	0.31	1.61	0.29	1.05	0.23	2.44	0.25	0.45	0.34
PVSB069-0-0.0-1.0	0.20	0.10	1.05	0.14	0.88	0.13	2.84	0.25	0.22	0.16
PVSB069-0-1.0-2.0	4.45	0.42	3.39	0.26	0.97	0.14	4.78	0.32	0.80	0.60
PVSB069-0-2.0-3.0	0.81	0.31	0.90	0.22	0.99	0.23	2.71	0.38	0.30	0.22
PVSB070-0-0.0-1.0	14.40	0.80	2.13	0.34	1.04	0.24	3.31	0.41	1.87	1.40
PVSB070-0-1.0-2.0	2.29	0.51	1.33	0.26	1.07	0.23	2.92	0.39	0.49	0.37
PVSB071-0-0.0-1.0	0.26	0.13	1.75	0.31	1.01	0.23	3.57	0.49	0.27	0.20
PVSB071-0-1.0-2.0	0.01	0.07	1.13	0.27	1.35	0.30	2.09	0.37	0.28	0.21
PVSB072-0-0.0-1.0	2.54	0.32	1.26	0.25	0.98	0.22	4.14	0.53	0.50	0.38
PVSB072-0-1.0-2.0	-0.02	0.07	0.93	0.21	0.66	0.18	3.47	0.45	0.15	0.11
PVSB073-0-0.0-1.0	1.87	0.31	1.29	0.12	0.86	0.10	2.37	0.24	0.41	0.30
PVSB073-0-1.0-2.0	2.55	0.34	1.05	0.23	0.75	0.19	1.76	0.21	0.45	0.34
PVSB074-0-0.0-1.0	0.04	0.08	1.02	0.24	0.80	0.21	3.18	0.43	0.19	0.14
PVSB074-0-1.0-2.0	0.05	0.09	1.07	0.16	1.01	0.15	2.40	0.25	0.22	0.16
PVSB075-0-0.0-1.0	-0.03	0.07	1.24	0.18	1.01	0.16	2.20	0.24	0.22	0.16

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSB075-0-1.0-2.0	1.70	0.26	1.41	0.21	0.96	0.17	2.22	0.22	0.41	0.31
PVSB076-0-0.0-1.0	-0.01	0.06	1.15	0.16	1.00	0.14	2.23	0.29	0.22	0.16
PVSB076-0-1.0-2.0	0.64	0.17	1.28	0.17	1.19	0.17	2.89	0.28	0.33	0.24
PVSB077-0-0.0-1.0	0.06	0.06	7.47	0.40	0.79	0.13	3.34	0.28	0.44	0.33
PVSB077-0-1.0-2.0	0.09	0.07	0.89	0.14	0.76	0.13	1.94	0.23	0.18	0.13
PVSB100-0-0.0-1.0	1.34	0.27	1.03	0.25	1.03	0.24	2.04	0.33	0.37	0.27
PVSB100-0-1.0-2.0	-0.02	0.08	1.36	0.30	1.23	0.28	2.23	0.36	0.26	0.19
PVSB101-0-0.0-1.0	0.65	0.17	1.07	0.30	1.41	0.34	1.65	0.28	0.35	0.26
PVSB101-0-1.0-2.0	0.77	0.17	1.15	0.28	0.85	0.24	1.88	0.31	0.28	0.21
PVSB102-0-0.0-1.0	-0.02	0.10	1.51	0.27	1.19	0.24	2.21	0.32	0.26	0.19
PVSB102-0-1.0-2.0	0.29	0.19	1.25	0.26	1.19	0.26	2.55	0.36	0.29	0.21
PVSB102-0-2.0-3.0	0.76	0.27	1.83	0.38	1.64	0.36	2.59	0.37	0.44	0.32
PVSB103-0-0.0-1.0	1.31	0.25	1.31	0.18	1.05	0.16	2.35	0.23	0.38	0.28
PVSB103-0-1.0-2.0	0.03	0.05	1.32	0.17	1.04	0.15	2.98	0.25	0.24	0.17
PVSB103-0-2.0-3.0	0.96	0.21	1.24	0.17	1.22	0.17	3.73	0.31	0.37	0.27
PVSB103-0-3.0-4.0	0.17	0.10	1.46	0.19	1.22	0.17	3.48	0.32	0.29	0.21
PVSB103-0-4.0-5.0	0.10	0.07	1.87	0.24	1.27	0.20	3.50	0.33	0.30	0.23
PVSB104-0-0.0-1.0	0.85	0.19	1.30	0.28	1.08	0.26	2.18	0.44	0.33	0.25
PVSB104-0-1.0-2.0	1.17	0.23	1.28	0.28	0.98	0.24	2.91	0.41	0.35	0.26
PVSB104-0-2.0-3.0	2.41	0.32	1.34	0.25	1.04	0.22	3.41	0.40	0.50	0.37
PVSB105-0-0.0-1.0	1.37	0.42	1.41	0.25	0.93	0.21	3.07	0.44	0.37	0.28
PVSB105-0-1.0-2.0	0.52	0.27	0.95	0.21	1.12	0.22	2.53	0.38	0.29	0.21
PVSB106-0-0.0-1.0	0.94	0.21	1.18	0.23	0.98	0.21	3.25	0.43	0.32	0.24
PVSB106-0-1.0-2.0	14.20	0.83	3.75	0.38	0.73	0.17	9.46	0.70	1.87	1.40
PVSB106-0-2.0-3.0	0.38	0.16	1.44	0.27	1.02	0.24	3.97	0.49	0.28	0.21
PVSB107-1-0.0-1.0	1.09	0.34	1.29	0.26	0.27	0.12	1.70	0.28	0.22	0.16
PVSB107-0-0.0-1.0	0.91	0.35	0.99	0.20	0.24	0.10	2.04	0.36	0.19	0.14
PVSB107-1-1.0-2.0	3.99	0.64	2.25	0.32	0.89	0.20	6.91	0.54	0.70	0.52
PVSB107-0-1.0-2.0	1.64	0.43	2.23	0.35	1.21	0.26	5.45	0.55	0.48	0.36
PVSB107-1-2.0-3.0	0.80	0.31	1.16	0.25	1.34	0.27	2.82	0.36	0.36	0.27
PVSB108-0-0.0-1.0	0.81	0.19	3.12	0.27	1.19	0.17	7.51	0.48	0.43	0.32
PVSB108-1-0.0-1.0	7.64	0.87	4.41	0.44	0.89	0.20	11.29	0.74	1.20	0.89
PVSB108-0-1.0-2.0	0.06	0.05	6.82	0.43	0.87	0.15	12.01	0.81	0.45	0.33
PVSB108-1-1.0-2.0	6.91	0.69	8.04	0.63	0.95	0.22	10.53	0.72	1.27	0.94
PVSB108-0-2.0-3.0	0.18	0.10	1.29	0.17	1.26	0.16	2.30	0.24	0.29	0.21
PVSB109-0-0.0-1.0	0.24	0.11	3.46	0.29	1.11	0.16	5.63	0.35	0.36	0.27
PVSB109-0-1.0-2.0	0.02	0.07	1.45	0.18	1.42	0.18	2.57	0.25	0.30	0.23
PVSB110-0-0.0-1.0	0.83	0.19	1.60	0.20	1.08	0.16	3.12	0.28	0.34	0.26
PVSB110-0-1.0-2.0	0.03	0.08	1.31	0.18	1.05	0.16	2.61	0.27	0.24	0.18
PVSB111-0-0.0-1.0	1.54	0.26	1.54	0.31	1.01	0.25	3.44	0.41	0.41	0.30
PVSB111-0-1.0-2.0	0.93	0.21	1.30	0.28	1.10	0.26	2.37	0.38	0.34	0.26
PVSB112-0-0.0-1.0	0.04	0.07	1.29	0.31	0.73	0.24	2.30	0.34	0.18	0.14
PVSB112-0-1.0-2.0	2.69	0.33	2.40	0.52	0.85	0.31	8.02	0.64	0.55	0.41
PVSB112-0-2.0-3.0	0.01	0.06	1.65	0.30	1.23	0.26	3.26	0.41	0.28	0.21
PVSB113-0-0.0-1.0	0.31	0.12	1.88	0.23	0.92	0.16	3.86	0.32	0.27	0.20
PVSB113-0-1.0-2.0	1.22	0.25	1.36	0.26	0.82	0.20	3.60	0.43	0.33	0.25
PVSB114-0-0.0-1.0	1.28	0.36	2.05	0.35	1.07	0.26	3.23	0.42	0.41	0.30
PVSB114-0-1.0-2.0	0.07	0.12	1.72	0.22	1.28	0.19	3.17	0.40	0.30	0.22
PVSB115-0-0.0-1.0	3.04	0.52	2.98	0.34	1.04	0.20	3.93	0.44	0.64	0.48
PVSB115-0-1.0-2.0	1.05	0.30	1.35	0.53	0.83	0.42	2.22	0.35	0.31	0.23
PVSB116-0-0.0-1.0	0.36	0.21	1.36	0.21	0.61	0.14	1.62	0.21	0.20	0.15
PVSB116-0-1.0-2.0	0.61	0.23	1.04	0.21	0.77	0.18	1.79	0.18	0.24	0.18
PVSB117-0-0.0-1.0	0.75	0.31	1.20	0.19	1.09	0.18	2.18	0.36	0.32	0.24
PVSB117-1-0.0-1.0	0.79	0.34	1.08	0.25	1.01	0.24	2.07	0.31	0.30	0.23
PVSB117-1-1.0-2.0	0.10	0.13	0.88	0.22	0.70	0.20	1.59	0.30	0.17	0.12
PVSB117-0-1.0-2.0	0.36	0.22	1.47	0.39	1.13	0.34	1.63	0.32	0.29	0.22
PVSB118-1-0.0-1.0	1.37	0.44	1.01	0.21	1.14	0.23	2.04	0.36	0.39	0.29
PVSB118-0-0.0-1.0	1.42	0.25	1.00	0.25	1.09	0.26	2.28	0.33	0.38	0.29
PVSB118-0-1.0-2.0	0.00	0.05	0.85	0.22	0.92	0.22	2.15	0.36	0.19	0.14
PVSB118-1-1.0-2.0	0.53	0.22	0.93	0.22	0.78	0.20	1.81	0.31	0.23	0.17

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR ($100m^2$ DCGLemc)
PVSB119-0-0.0-1.0	4.03	0.42	1.53	0.34	0.37	0.17	4.63	0.49	0.58	0.43
PVSB119-0-1.0-2.0	0.56	0.20	1.23	0.39	1.15	0.37	1.34	0.26	0.31	0.23
PVSB120-0-0.0-1.0	1.32	0.29	0.97	0.23	0.64	0.19	2.16	0.21	0.30	0.22
PVSB120-0-1.0-2.0	0.86	0.26	1.31	0.25	0.98	0.22	2.23	0.39	0.32	0.24
PVSB121-0-0.0-1.0	0.00	0.07	0.81	0.18	0.61	0.16	1.41	0.28	0.14	0.10
PVSB121-0-1.0-2.0	1.23	0.23	1.32	0.29	1.01	0.25	2.05	0.31	0.36	0.27
PVSB122-0-2.0-3.0	0.02	0.04	1.34	0.29	1.36	0.29	2.39	0.37	0.29	0.21
PVSB123-0-0.0-1.0	0.03	0.05	1.86	0.42	1.20	0.33	2.90	0.45	0.28	0.21
PVSB123-0-1.0-2.0	0.13	0.10	1.25	0.25	1.27	0.25	2.80	0.43	0.28	0.21
PVSB124-0-0.0-1.0	0.02	0.08	8.05	0.66	0.87	0.22	9.49	0.76	0.49	0.36
PVSB124-0-1.0-2.0	1.34	0.25	1.07	0.24	1.22	0.26	2.72	0.37	0.40	0.30
PVSB125-0-1.0-2.0	0.04	0.07	1.82	0.36	1.18	0.29	3.40	0.41	0.28	0.21
PVSB125-0-2.0-3.0	1.22	0.23	1.19	0.27	1.05	0.26	3.68	0.44	0.37	0.27
PVSB126-0-1.0-2.0	3.16	0.34	2.75	0.42	0.84	0.24	6.02	0.56	0.61	0.46
PVSB126-0-2.0-3.0	0.48	0.16	1.76	0.29	1.42	0.26	5.59	0.51	0.37	0.28
PVSB126-0-3.0-4.0	0.77	0.20	1.48	0.26	1.36	0.25	2.55	0.35	0.38	0.28
PVSB127-0-0.0-1.0	2.58	0.35	1.37	0.32	0.36	0.16	3.72	0.44	0.41	0.30
PVSB127-0-1.0-2.0	0.40	0.15	1.59	0.31	1.07	0.25	3.52	0.42	0.29	0.22
PVSB128-0-0.0-1.0	4.71	0.43	3.39	0.47	1.10	0.27	4.16	0.52	0.85	0.63
PVSB128-0-1.0-2.0	0.71	0.18	1.40	0.27	1.34	0.27	2.99	0.42	0.36	0.27
PVSB129-0-0.0-1.0	1.10	0.32	1.37	0.26	1.02	0.22	2.12	0.32	0.35	0.26
PVSB129-0-1.0-2.0	1.36	0.35	1.27	0.24	1.48	0.26	3.28	0.43	0.46	0.34
PVSB130-0-0.0-1.0	0.88	0.27	1.47	0.32	0.88	0.25	2.58	0.36	0.31	0.23
PVSB130-1-0.0-1.0	1.25	0.43	1.64	0.30	1.31	0.27	2.74	0.36	0.43	0.32
PVSB130-1-1.0-2.0	3.28	0.59	1.01	0.21	1.02	0.22	2.38	0.36	0.58	0.43
PVSB130-0-1.0-2.0	1.00	0.29	1.01	0.23	1.14	0.25	2.07	0.39	0.35	0.26
PVSB131-0-0.0-1.0	0.66	0.24	0.84	0.21	0.60	0.18	1.64	0.34	0.21	0.16
PVSB131-0-1.0-2.0	0.62	0.24	1.16	0.24	1.04	0.23	2.96	0.46	0.30	0.22
PVSB132-0-1.0-2.0	1.88	0.27	2.11	0.31	0.92	0.20	3.79	0.44	0.45	0.34
PVSB132-0-2.0-3.0	1.51	0.27	1.39	0.25	1.37	0.25	3.61	0.45	0.46	0.34
PVSB132-0-3.0-4.0	2.37	0.33	1.90	0.33	1.20	0.26	3.87	0.45	0.55	0.41
PVSB133-0-1.0-2.0	1.19	0.24	1.90	0.36	1.29	0.29	2.35	0.36	0.43	0.32
PVSB133-0-2.0-3.0	6.79	0.53	3.19	0.38	1.13	0.23	4.45	0.47	1.08	0.81
PVSB133-0-3.0-4.0	14.00	0.73	4.54	0.50	1.13	0.25	8.14	0.65	1.94	1.45
PVSB133-0-4.0-5.0	2.09	0.28	1.97	0.32	1.15	0.24	19.36	0.96	0.54	0.40
PVSB133-0-5.0-6.0	0.74	0.15	1.75	0.45	1.17	0.37	23.80	1.37	0.40	0.29
PVSB134-0-0.0-1.0	1.23	0.25	1.25	0.24	0.79	0.20	1.79	0.31	0.32	0.24
PVSB134-0-1.0-2.0	2.62	0.32	1.26	0.22	0.75	0.17	2.54	0.39	0.47	0.35
PVSB135-0-0.0-1.0	1.02	0.21	1.28	0.27	1.06	0.24	2.09	0.34	0.35	0.26
PVSB135-0-1.0-2.0	0.32	0.16	1.12	0.23	1.05	0.22	2.22	0.33	0.26	0.19
PVSB136-0-0.0-1.0	0.64	0.16	2.15	0.32	0.81	0.20	2.97	0.39	0.30	0.22
PVSB136-0-1.0-2.0	0.52	0.16	1.41	0.28	1.17	0.25	2.31	0.32	0.31	0.23
PVSB137-0-0.0-1.0	1.34	0.23	0.91	0.22	0.62	0.18	2.43	0.37	0.29	0.22
PVSB137-0-1.0-2.0	0.78	0.22	1.11	0.25	0.76	0.21	2.19	0.33	0.26	0.20
PVSB138-0-0.0-1.0	0.84	0.20	0.94	0.20	0.73	0.18	1.82	0.30	0.26	0.19
PVSB138-0-1.0-2.0	0.78	0.18	1.11	0.23	1.04	0.22	2.21	0.32	0.31	0.23
PVSB139-0-0.0-1.0	2.24	0.27	1.64	0.26	0.69	0.17	3.22	0.42	0.44	0.33
PVSB139-0-1.0-2.0	1.11	0.21	1.56	0.30	1.17	0.26	2.82	0.38	0.39	0.29
PVSB140-0-0.0-1.0	0.74	0.20	1.07	0.25	0.59	0.18	1.60	0.26	0.23	0.17
PVSB140-0-1.0-2.0	0.02	0.09	0.81	0.23	0.58	0.19	1.29	0.33	0.13	0.10
PVSB141-0-0.0-1.0	0.76	0.24	1.02	0.23	0.59	0.18	1.75	0.17	0.23	0.17
PVSB141-0-1.0-2.0	1.44	0.33	1.59	0.29	0.68	0.19	2.82	0.25	0.34	0.25
PVSB142-0-0.0-1.0	1.46	0.36	1.21	0.26	0.63	0.19	1.87	0.18	0.32	0.24
PVSB142-0-1.0-2.0	1.64	0.36	1.97	0.34	0.89	0.23	3.37	0.52	0.42	0.31
PVSB143-0-0.0-1.0	0.17	0.13	1.26	0.33	0.52	0.21	2.29	0.19	0.16	0.12
PVSB143-0-1.0-2.0	0.96	0.29	0.89	0.22	0.85	0.22	1.95	0.19	0.29	0.22
PVSB144-0-0.0-1.0	1.82	0.27	1.64	0.34	0.76	0.23	3.60	0.41	0.40	0.30
PVSB144-0-1.0-2.0	1.35	0.24	1.53	0.34	1.51	0.33	2.37	0.43	0.47	0.35
PVSB145-0-0.0-1.0	0.69	0.32	1.07	0.21	1.19	0.22	2.61	0.40	0.32	0.24
PVSB145-0-1.0-2.0	0.87	0.32	1.17	0.31	1.12	0.31	3.05	0.47	0.34	0.25

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m² DCGLemc)
PVSB146-0-0.0-1.0	0.94	0.33	1.27	0.27	0.33	0.14	1.96	0.30	0.21	0.16
PVSB146-0-1.0-2.0	0.86	0.32	0.79	0.22	0.67	0.20	2.46	0.35	0.24	0.18
PVSB147-0-0.0-1.0	0.78	0.35	1.17	0.27	0.32	0.14	2.04	0.34	0.19	0.14
PVSB147-0-1.0-2.0	0.65	0.25	0.80	0.19	1.03	0.21	2.37	0.34	0.28	0.21
PVSB148-0-0.0-1.0	0.90	0.32	1.45	0.29	0.52	0.17	2.32	0.36	0.25	0.18
PVSB148-0-1.0-2.0	0.70	0.28	1.23	0.31	1.08	0.30	2.71	0.42	0.31	0.23
PVSB149-0-0.0-1.0	1.36	0.40	1.06	0.26	0.31	0.15	1.44	0.28	0.25	0.19
PVSB149-0-1.0-2.0	2.36	0.50	1.93	0.30	0.64	0.17	2.24	0.32	0.45	0.34
PVSB150-0-0.0-1.0	0.81	0.33	1.05	0.29	1.16	0.30	1.82	0.33	0.33	0.25
PVSB150-0-1.0-2.0	0.84	0.30	1.38	0.28	1.09	0.25	2.30	0.37	0.33	0.25
PVSB151-0-0.0-1.0	3.90	0.77	1.10	0.25	1.12	0.25	2.41	0.34	0.67	0.50
PVSB151-0-1.0-2.0	2.55	0.66	1.16	0.23	0.83	0.19	2.64	0.36	0.47	0.35
PVSB152-0-0.0-1.0	1.01	0.40	1.23	0.23	1.13	0.22	2.22	0.32	0.35	0.26
PVSB152-0-1.0-2.0	0.87	0.41	0.76	0.18	0.50	0.14	1.64	0.29	0.21	0.16
PVSB153-0-0.0-1.0	1.35	0.47	0.91	0.20	0.47	0.14	1.94	0.29	0.27	0.20
PVSB153-0-1.0-2.0	1.31	0.51	1.10	0.23	1.05	0.22	1.94	0.31	0.37	0.28
PVSB154-0-0.0-1.0	1.19	0.40	1.06	0.23	0.45	0.15	1.52	0.25	0.25	0.19
PVSB154-0-1.0-2.0	1.31	0.45	0.91	0.22	0.65	0.18	1.91	0.33	0.29	0.22
PVSB155-0-0.0-1.0	2.21	0.55	1.47	0.27	0.56	0.16	2.10	0.30	0.40	0.30
PVSB155-0-1.0-2.0	0.73	0.39	0.71	0.18	0.69	0.18	2.07	0.32	0.23	0.17
PVSB156-0-0.0-1.0	1.96	0.56	0.78	0.20	0.59	0.17	1.87	0.31	0.35	0.26
PVSB156-0-1.0-2.0	1.09	0.44	0.99	0.23	0.66	0.19	2.03	0.34	0.27	0.20
PVSB157-0-0.0-1.0	1.32	0.42	0.95	0.20	0.32	0.11	1.65	0.29	0.24	0.18
PVSB157-0-1.0-2.0	0.63	0.36	0.62	0.16	0.60	0.16	1.65	0.29	0.20	0.15
PVSB158-0-0.0-1.0	3.13	0.69	3.66	0.38	0.74	0.18	2.70	0.33	0.62	0.46
PVSB158-0-1.0-2.0	0.69	0.36	0.74	0.20	0.63	0.18	1.43	0.27	0.21	0.16
PVSB159-0-0.0-1.0	4.69	0.90	4.26	0.46	0.92	0.21	2.16	0.32	0.85	0.63
PVSB159-0-1.0-2.0	0.23	0.19	0.77	0.18	0.79	0.18	2.98	0.39	0.19	0.14
PVSB160-0-0.0-1.0	2.65	0.62	1.92	0.26	0.51	0.13	3.05	0.37	0.46	0.34
PVSB160-0-1.0-2.0	0.23	0.21	7.15	0.63	0.95	0.23	1.89	0.30	0.47	0.35
PVSB161-0-0.0-1.0	0.00	0.12	0.29	0.13	0.15	0.09	1.07	0.24	0.04	0.03
PVSB161-0-1.0-2.0	0.01	0.06	0.75	0.18	0.44	0.14	1.29	0.25	0.11	0.08
PVSB162-0-0.0-1.0	2.44	0.52	1.69	0.30	0.94	0.22	2.77	0.38	0.50	0.37
PVSB162-0-1.0-2.0	-0.06	0.09	0.87	0.21	0.86	0.20	1.93	0.31	0.17	0.13
PVSB163-0-0.0-1.0	0.33	0.24	0.72	0.18	0.36	0.13	1.33	0.25	0.13	0.10
PVSB163-0-1.0-2.0	0.04	0.08	0.64	0.18	0.80	0.21	1.63	0.27	0.17	0.12
PVSB164-0-0.0-1.0	1.34	0.40	1.18	0.24	0.60	0.17	2.43	0.31	0.30	0.22
PVSB164-1-0.0-1.0	1.49	0.44	1.22	0.24	0.41	0.14	2.52	0.35	0.29	0.21
PVSB164-1-1.0-2.0	1.07	0.37	1.33	0.29	1.09	0.26	2.80	0.41	0.36	0.27
PVSB164-0-1.0-2.0	1.71	0.44	0.89	0.21	1.22	0.25	3.43	0.45	0.44	0.33
PVSB165-0-0.0-1.0	3.75	0.69	2.35	0.38	1.00	0.24	4.16	0.41	0.69	0.51
PVSB165-0-1.0-2.0	1.25	0.38	0.93	0.20	0.89	0.20	2.35	0.33	0.33	0.25
PVSB166-0-0.0-1.0	2.00	0.46	2.06	0.31	0.78	0.19	3.58	0.42	0.44	0.33
PVSB166-0-1.0-2.0	2.18	0.48	2.38	0.36	1.09	0.25	3.79	0.41	0.53	0.39
PVSB167-0-2.0-3.0	2.31	0.56	1.44	0.31	1.16	0.27	2.67	0.35	0.51	0.38
PVSB168-0-0.0-1.0	16.00	1.33	10.30	0.75	1.31	0.27	20.71	1.06	2.45	1.83
PVSB168-0-1.0-2.0	1.34	0.37	1.08	0.22	1.16	0.22	2.66	0.34	0.39	0.29
PVSB222-0-0.0-1.0	3.25	0.61	2.29	0.37	1.03	0.25	3.85	0.45	0.63	0.47
PVSB222-0-1.0-2.0	0.46	0.25	0.94	0.22	1.15	0.24	2.03	0.33	0.28	0.21
PVSB223-0-0.0-1.0	2.02	0.49	1.65	0.27	0.92	0.20	2.53	0.37	0.45	0.34
PVSB223-0-1.0-2.0	0.23	0.19	1.00	0.22	1.85	0.29	2.41	0.36	0.38	0.28
PVSB224-0-0.0-1.0	2.87	0.59	4.45	0.51	1.09	0.25	7.98	0.55	0.70	0.52
PVSB224-0-1.0-2.0	0.48	0.26	1.27	0.28	1.16	0.26	2.75	0.34	0.30	0.23
PVSB225-0-0.0-1.0	1.40	0.37	2.96	0.42	1.23	0.27	4.20	0.44	0.49	0.36
PVSB225-0-1.0-2.0	0.45	0.26	1.80	0.33	1.40	0.29	2.69	0.37	0.36	0.27
PVSS301-0-0.0-0.5	0.43	0.32	0.89	0.25	0.73	0.22	1.62	0.33	0.21	0.15
PVSS302-0-0.0-0.5	1.57	0.56	1.53	0.34	1.05	0.28	2.28	0.37	0.42	0.31
PVSS303-0-0.0-0.5	0.68	0.35	1.16	0.25	0.85	0.21	2.21	0.43	0.27	0.20
PVSS304-0-0.0-0.5	0.62	0.37	1.25	0.28	0.94	0.24	2.28	0.38	0.28	0.21
PVSS305-0-0.0-0.5	0.63	0.35	0.98	0.21	0.71	0.18	2.10	0.40	0.23	0.17

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSS306-0-0.0-0.5	0.83	0.38	1.06	0.16	0.36	0.10	1.60	0.36	0.20	0.15
PVSS307-0-0.0-0.5	0.74	0.37	0.88	0.22	0.57	0.18	1.46	0.31	0.22	0.16
PVSS308-0-0.0-0.5	0.57	0.33	1.11	0.25	0.96	0.23	1.88	0.34	0.27	0.20
PVSS309-0-0.0-0.5	1.30	0.48	1.18	0.30	0.93	0.27	2.07	0.37	0.35	0.26
PVSS310-0-0.0-0.5	0.59	0.33	1.02	0.28	0.70	0.23	2.11	0.42	0.23	0.17
PVSS311-0-0.0-0.5	0.35	0.28	1.15	0.23	0.99	0.21	1.63	0.31	0.25	0.19
PVSS312-0-0.0-0.5	0.93	0.41	0.64	0.19	0.71	0.19	1.42	0.31	0.25	0.19
PVSS313-0-0.0-0.5	1.12	0.47	1.41	0.26	1.04	0.23	2.08	0.37	0.36	0.27
PVSS314-0-0.0-0.5	1.30	0.45	1.12	0.23	1.17	0.24	1.83	0.34	0.39	0.29
PVSS315-0-0.0-0.5	1.25	0.47	1.23	0.30	0.94	0.26	1.68	0.37	0.35	0.26
PVSS316-0-0.0-0.5	2.59	0.68	1.78	0.37	0.74	0.24	4.15	0.58	0.49	0.37
PVSS317-0-0.0-0.5	0.82	0.41	0.96	0.21	0.46	0.15	1.42	0.33	0.21	0.16
PVSS318-0-0.0-0.5	0.84	0.41	0.42	0.14	0.63	0.17	2.46	0.44	0.22	0.16
PVSS319-0-0.0-0.5	0.74	0.40	0.92	0.23	0.87	0.22	1.48	0.45	0.27	0.20
PVSS320-0-0.0-0.5	0.82	0.39	0.75	0.19	0.56	0.17	1.42	0.34	0.22	0.16
PVSS321-0-0.0-0.5	1.45	0.49	1.61	0.32	0.80	0.22	2.28	0.58	0.36	0.27
PVSS322-0-0.0-0.5	1.10	0.42	0.74	0.20	0.38	0.14	2.19	0.62	0.22	0.16
PVSS323-0-0.0-0.5	1.67	0.49	1.02	0.24	0.52	0.17	2.31	0.68	0.32	0.24
PVSS324-0-0.0-0.5	0.95	0.42	1.08	0.23	0.98	0.21	1.82	0.61	0.32	0.24
PVSS325-0-0.0-0.5	0.65	0.36	1.35	0.27	0.90	0.22	2.66	0.75	0.28	0.21
PVSS326-0-0.0-0.5	0.97	0.41	0.79	0.19	0.41	0.14	1.76	0.54	0.21	0.16
PVSS327-0-0.0-0.5	0.74	0.38	1.14	0.23	1.16	0.23	2.01	0.58	0.33	0.24
PVSS328-0-0.0-0.5	0.93	0.41	0.89	0.20	0.81	0.19	1.76	0.48	0.28	0.21
PVSS329-0-0.0-0.5	0.92	0.41	0.71	0.18	0.64	0.17	1.61	0.45	0.24	0.18
PVSS330-0-0.0-0.5	0.89	0.39	1.13	0.26	1.24	0.27	2.32	0.62	0.36	0.26
PVSS333-0-0.0-0.5	0.96	0.40	1.23	0.28	1.02	0.25	1.97	0.60	0.33	0.25
PVSS334-0-0.0-0.5	0.74	0.35	1.14	0.22	0.68	0.17	2.14	0.55	0.24	0.18
PVSS335-0-0.0-0.5	1.23	0.41	1.16	0.28	0.60	0.20	1.87	0.49	0.29	0.21
PVSS336-0-0.0-0.5	0.98	0.41	0.99	0.26	0.49	0.19	2.16	0.72	0.23	0.17
PVSS341-0-0.0-0.5	1.97	0.53	1.37	0.26	0.72	0.19	2.27	0.52	0.40	0.30
PVSS342-0-0.0-0.5	0.95	0.39	0.69	0.17	0.71	0.17	1.63	0.34	0.25	0.19
PVSS343-0-0.0-0.5	1.36	0.47	1.57	0.28	1.16	0.24	2.70	0.60	0.41	0.31
PVSS344-0-0.0-0.5	1.22	0.44	0.88	0.26	0.77	0.24	2.11	0.42	0.30	0.23
PVSS345-0-0.0-0.5	1.19	0.41	0.65	0.19	0.43	0.16	1.64	0.35	0.23	0.17
PVSS346-0-0.0-0.5	1.26	0.43	1.14	0.29	0.89	0.25	2.32	0.44	0.34	0.25
PVSS347-0-0.0-0.5	0.83	0.43	1.09	0.24	0.66	0.19	1.90	0.36	0.25	0.19
PVSS348-0-0.0-0.5	3.20	0.69	2.57	0.49	0.93	0.29	6.31	0.73	0.63	0.47
PVSS349-0-0.0-0.5	0.91	0.40	1.24	0.53	0.76	0.41	1.96	0.33	0.28	0.21
PVSS350-0-0.0-0.5	2.11	0.53	1.08	0.22	0.94	0.21	2.36	0.41	0.44	0.33
PVSS351-0-0.0-0.5	1.36	0.43	1.08	0.24	0.79	0.21	1.70	0.36	0.33	0.25
PVSS352-0-0.0-0.5	1.84	0.56	0.93	0.27	1.32	0.32	1.95	0.37	0.47	0.35
PVSS353-0-0.0-0.5	1.05	0.36	0.72	0.19	0.42	0.14	1.52	0.33	0.22	0.16
PVSS354-0-0.0-0.5	0.72	0.35	0.93	0.23	0.58	0.19	1.68	0.38	0.22	0.16
PVSS355-0-0.0-0.5	1.82	0.52	1.26	0.26	0.83	0.21	2.68	0.40	0.40	0.30
PVSS356-0-0.0-0.5	1.02	0.39	1.48	0.42	1.23	0.38	2.26	0.40	0.38	0.29
PVSS357-0-0.0-0.5	0.79	0.32	0.76	0.27	0.65	0.25	1.31	0.34	0.23	0.17
PVSS358-0-0.0-0.5	0.89	0.38	1.04	0.24	1.18	0.25	1.82	0.35	0.34	0.25
PVSS359-0-0.0-0.5	1.12	0.44	0.91	0.21	0.09	0.07	2.20	0.40	0.18	0.13
PVSS360-0-0.0-0.5	0.83	0.37	0.71	0.18	0.63	0.17	1.13	0.26	0.23	0.17
PVSS361-0-0.0-0.5	1.03	0.43	0.91	0.20	1.18	0.22	2.54	0.42	0.35	0.26
PVSS362-0-0.0-0.5	-0.04	0.17	1.10	0.27	1.17	0.28	1.88	0.36	0.24	0.18
PVSS363-0-0.0-0.5	0.76	0.34	0.51	0.18	0.42	0.16	1.10	0.28	0.18	0.13
PVSS364-0-0.0-0.5	0.90	0.41	0.66	0.22	0.43	0.18	1.28	0.30	0.20	0.15
PVSS365-0-0.0-0.5	0.58	0.32	0.68	0.17	0.24	0.10	1.58	0.39	0.14	0.10
PVSS366-0-0.0-0.5	1.36	0.49	0.74	0.17	0.05	0.05	1.80	0.40	0.19	0.14
PVSS367-0-0.0-0.5	0.63	0.33	0.91	0.27	0.74	0.25	1.29	0.35	0.23	0.17
PVSS368-0-0.0-0.5	0.59	0.31	1.08	0.26	0.89	0.24	1.43	0.44	0.26	0.19
PVSS369-0-0.0-0.5	0.86	0.38	0.69	0.20	0.20	0.10	1.39	0.31	0.16	0.12
PVSS370-0-0.0-0.5	2.60	0.66	0.76	0.16	0.31	0.11	3.28	0.50	0.38	0.28
PVSS371-0-0.0-0.5	0.95	0.37	0.63	0.17	0.32	0.12	1.40	0.30	0.19	0.14

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m^2 DCGLemc)
PVSS373-0-0.0-0.5	12.00	1.25	0.62	0.13	0.15	0.07	1.29	0.30	1.39	1.04
PVSS374-0-0.0-0.5	-0.11	0.13	0.72	0.19	0.42	0.15	1.60	0.35	0.09	0.07
PVSS375-0-0.0-0.5	-0.07	0.11	0.75	0.18	0.66	0.17	1.80	0.37	0.14	0.10
PVSS376-0-0.0-0.5	-0.06	0.12	0.41	0.14	0.16	0.09	1.36	0.35	0.04	0.03
PVSS377-0-0.0-0.5	0.41	0.25	0.71	0.22	0.36	0.16	1.37	0.30	0.14	0.10
PVSS379-0-0.0-0.5	0.95	0.42	0.84	0.22	0.99	0.23	2.16	0.42	0.31	0.23
PVSS382-0-0.0-0.5	1.00	0.37	1.10	0.32	1.05	0.30	2.42	0.31	0.34	0.25
PVSS383-0-0.0-0.5	1.09	0.36	1.19	0.28	0.74	0.22	2.28	0.32	0.30	0.22
PVSS384-0-0.0-0.5	0.76	0.23	0.61	0.17	0.67	0.17	1.35	0.25	0.22	0.17
PVSS385-0-0.0-0.5	2.10	0.50	0.81	0.18	0.90	0.19	2.01	0.30	0.42	0.31
PVSS386-0-0.0-0.5	0.44	0.27	1.16	0.26	0.91	0.23	2.38	0.33	0.25	0.19
PVSS387-0-0.0-0.5	0.93	0.35	0.82	0.22	0.75	0.21	2.54	0.44	0.27	0.20
PVSS388-0-0.0-0.5	0.06	0.16	0.94	0.21	1.00	0.22	1.90	0.42	0.21	0.16
PVSS389-0-0.0-0.5	1.15	0.38	1.25	0.30	1.45	0.33	2.58	0.43	0.42	0.32
PVSS390-0-0.0-0.5	1.14	0.38	1.23	0.22	0.91	0.19	2.17	0.40	0.33	0.25
PVSS391-0-0.0-0.5	1.00	0.38	1.35	0.25	1.06	0.22	2.47	0.48	0.35	0.26
PVSS392-0-0.0-0.5	1.14	0.42	1.18	0.24	0.73	0.19	2.11	0.39	0.30	0.22
PVSS393-0-0.0-0.5	0.65	0.32	0.71	0.19	0.71	0.18	2.26	0.42	0.22	0.17
PVSS394-0-0.0-0.5	0.00	0.12	1.40	0.30	1.49	0.31	2.13	0.56	0.31	0.23
PVSS395-0-0.0-0.5	2.38	0.54	1.43	0.26	0.87	0.20	2.18	0.43	0.47	0.35
PVSS396-0-0.0-0.5	0.73	0.33	1.04	0.23	0.67	0.18	1.88	0.41	0.24	0.18
PVSS397-0-0.0-0.5	0.68	0.29	1.21	0.27	1.01	0.25	2.10	0.38	0.30	0.22
PVSS398-0-0.0-0.5	0.80	0.31	1.01	0.20	1.00	0.20	2.04	0.41	0.30	0.22
PVSS401-0-0.0-0.5	1.15	0.39	1.01	0.25	0.94	0.24	2.29	0.41	0.33	0.25
PVSS402-0-0.0-0.5	1.54	0.47	1.09	0.24	0.55	0.17	2.44	0.40	0.31	0.23
PVSS403-0-0.0-0.5	1.04	0.38	1.01	0.27	0.11	0.09	1.62	0.31	0.18	0.13
PVSS404-0-0.0-0.5	0.37	0.26	0.71	0.19	0.50	0.16	1.67	0.33	0.16	0.12
PVSS405-0-0.0-0.5	0.57	0.32	1.06	0.24	0.94	0.22	2.06	0.38	0.27	0.20
PVSS406-0-0.0-0.5	0.92	0.40	1.35	0.28	1.04	0.24	2.03	0.43	0.33	0.25
PVSS407-0-0.0-0.5	1.85	0.50	1.29	0.28	0.63	0.19	1.98	0.35	0.37	0.27
PVSS408-0-0.0-0.5	25.50	1.75	6.37	0.61	0.70	0.20	4.41	0.53	3.21	2.41
PVSS409-0-0.0-0.5	-0.04	0.13	1.18	0.28	0.33	0.14	2.32	0.39	0.10	0.08
PVSS410-0-0.0-0.5	0.80	0.35	0.95	0.21	0.97	0.21	1.99	0.38	0.29	0.22
PVSS411-0-0.0-0.5	0.66	0.32	0.57	0.16	0.37	0.13	1.12	0.27	0.16	0.12
PVSS412-0-0.0-0.5	0.57	0.29	1.03	0.27	0.65	0.22	1.92	0.49	0.22	0.16
PVSS413-0-0.0-0.5	1.06	0.41	0.85	0.22	0.69	0.20	1.79	0.33	0.27	0.20
PVSS414-0-0.0-0.5	0.36	0.25	0.88	0.21	0.52	0.16	1.73	0.34	0.17	0.12
PVSS415-0-0.0-0.5	0.90	0.34	1.08	0.26	0.52	0.18	1.88	0.34	0.23	0.17
PVSS416-0-0.0-0.5	0.05	0.09	0.75	0.21	0.71	0.20	2.35	0.39	0.16	0.12
PVSS417-0-0.0-0.5	1.22	0.18	0.86	0.19	0.20	0.09	0.99	0.26	0.20	0.15
PVSS420-0-0.0-0.5	1.05	0.35	0.66	0.18	0.30	0.12	1.54	0.32	0.20	0.15
PVSS421-0-0.0-0.5	0.56	0.29	0.57	0.27	0.33	0.20	2.21	0.40	0.14	0.11
PVSS422-0-0.0-0.5	0.68	0.32	1.54	0.41	0.77	0.29	2.20	0.39	0.27	0.20
PVSS423-0-0.0-0.5	0.63	0.34	1.01	0.35	1.09	0.36	2.16	0.37	0.30	0.22
PVSS424-0-0.0-0.5	0.36	0.27	0.62	0.29	0.99	0.36	1.66	0.34	0.23	0.17
PVSS425-0-0.0-0.5	0.76	0.33	0.83	0.38	0.71	0.36	1.77	0.33	0.24	0.18
PVSS426-0-0.0-0.5	0.10	0.17	0.38	0.24	0.17	0.15	0.71	0.20	0.06	0.04
PVSS427-0-0.0-0.5	0.18	0.18	1.49	0.43	1.65	0.46	2.62	0.43	0.36	0.27
PVSS428-0-0.0-0.5	0.69	0.33	0.66	0.29	0.69	0.29	1.98	0.35	0.22	0.17
PVSS429-0-0.0-0.5	4.08	0.71	2.84	0.54	0.64	0.26	4.17	0.67	0.68	0.51
PVSS430-0-0.0-0.5	3.51	0.72	1.91	0.43	0.90	0.29	4.05	0.47	0.62	0.47
PVSS431-0-0.0-0.5	1.28	0.42	1.48	0.42	1.03	0.35	2.94	0.42	0.38	0.28
PVSS432-0-0.0-0.5	1.27	0.40	1.00	0.32	0.27	0.17	1.50	0.29	0.23	0.17
PVSS433-0-0.0-0.5	1.70	0.45	0.81	0.26	0.96	0.28	2.63	0.45	0.39	0.29
PVSS434-0-0.0-0.5	0.76	0.29	1.15	0.38	0.32	0.20	2.04	0.36	0.19	0.14
PVSS435-0-0.0-0.5	0.58	0.29	0.58	0.25	0.28	0.17	1.27	0.28	0.14	0.10
PVSS436-0-0.0-0.5	0.42	0.28	0.85	0.38	0.38	0.25	1.13	0.30	0.15	0.11
PVSS437-0-0.0-0.5	0.68	0.33	0.57	0.26	0.24	0.17	1.30	0.29	0.14	0.10
PVSS438-0-0.0-0.5	0.66	0.32	1.62	0.41	1.18	0.35	3.01	0.40	0.34	0.25
PVSS439-0-0.0-0.5	0.69	0.35	0.87	0.29	0.93	0.29	2.43	0.37	0.27	0.20

Sample ID	Ra-226	Uncert Ra-226	Th-230	Uncert Th-230	Th-232	Uncert Th-232	Total U	Uncert Total U	SOR (DCGLw)	SOR (100m² DCGLemc)
PVSS440-0-0.0-0.5	0.74	0.32	0.94	0.40	1.39	0.44	2.66	0.39	0.36	0.27
PVSS441-0-0.0-0.5	0.80	0.31	1.19	0.26	1.42	0.28	2.71	0.44	0.38	0.28
PVSS442-0-0.0-0.5	0.96	0.33	1.27	0.20	1.34	0.20	2.66	0.40	0.39	0.29
PVSS443-0-0.0-0.5	0.81	0.31	0.98	0.15	0.78	0.13	2.26	0.36	0.26	0.20
PVSS444-0-0.0-0.5	0.59	0.24	0.80	0.14	0.59	0.12	1.69	0.33	0.20	0.15
PVSS445-0-0.0-0.5	0.39	0.21	0.74	0.15	0.30	0.10	1.40	0.29	0.13	0.09
PVSS446-0-0.0-0.5	0.68	0.25	0.89	0.25	0.30	0.15	1.56	0.32	0.16	0.12
PVSS447-0-0.0-0.5	0.57	0.26	0.85	0.22	0.78	0.21	1.40	0.29	0.23	0.17
PVSS448-0-0.0-0.5	0.25	0.20	0.26	0.11	0.14	0.08	0.48	0.17	0.06	0.05
PVSS449-0-0.0-0.5	0.22	0.18	0.26	0.11	0.10	0.07	0.27	0.15	0.05	0.04
PVSS450-0-0.0-0.5	0.74	0.24	0.65	0.18	0.11	0.08	1.52	0.30	0.13	0.10
PVSS451-0-0.0-0.5	0.65	0.27	0.71	0.19	0.28	0.12	1.62	0.31	0.15	0.11
PVSS452-0-0.0-0.5	0.34	0.17	0.68	0.21	0.19	0.11	1.56	0.33	0.10	0.07
PVSS454-0-0.0-0.5	1.08	0.34	1.04	0.25	1.09	0.25	2.31	0.39	0.35	0.26
PVSS455-0-0.0-0.5	0.34	0.21	1.04	0.22	1.03	0.22	2.49	0.52	0.26	0.19
PVSS456-0-0.0-0.5	0.78	0.29	0.96	0.22	0.78	0.20	1.32	0.27	0.26	0.19
PVSS457-0-0.0-0.5	0.86	0.29	0.88	0.22	0.68	0.20	1.66	0.32	0.25	0.18
PVSS458-0-0.0-0.5	0.65	0.28	0.59	0.18	0.64	0.18	1.47	0.31	0.21	0.15
PVSS459-0-0.0-0.5	0.73	0.29	1.17	0.25	1.09	0.25	1.96	0.32	0.31	0.23
PVSS460-0-0.0-0.5	1.10	0.32	0.74	0.23	0.21	0.13	1.72	0.30	0.19	0.14
PVSS461-0-0.0-0.5	0.55	0.33	1.23	0.26	0.68	0.20	1.97	0.37	0.23	0.17
PVSS462-0-0.0-0.5	0.93	0.41	0.96	0.24	0.76	0.21	1.90	0.37	0.27	0.20
PVSS463-0-0.0-0.5	0.71	0.31	1.11	0.26	0.67	0.20	2.47	0.41	0.24	0.18
PVSS464-0-0.0-0.5	1.25	0.46	1.03	0.24	0.62	0.18	1.91	0.48	0.29	0.21
PVSS465-0-0.0-0.5	0.74	0.37	1.65	0.35	1.37	0.31	2.36	0.38	0.38	0.28
PVSS466-0-0.0-0.5	0.91	0.40	1.03	0.22	0.54	0.16	1.93	0.34	0.24	0.18
PVSS467-0-0.0-0.5	0.72	0.36	0.72	0.18	0.23	0.10	1.74	0.34	0.15	0.11
PVSS468-0-0.0-0.5	1.03	0.38	1.30	0.27	0.70	0.19	2.27	0.37	0.29	0.21
PVSS469-0-0.0-0.5	0.66	0.34	1.64	0.28	0.93	0.21	2.97	0.39	0.30	0.22
PVSS470-0-0.0-0.5	3.58	0.71	2.36	0.34	0.95	0.22	5.90	0.57	0.66	0.49
PVSS471-0-0.0-0.5	0.07	0.20	0.95	0.24	0.84	0.22	1.94	0.43	0.19	0.14
PVSS473-0-0.0-0.5	0.58	0.35	0.68	0.22	0.51	0.20	1.23	0.41	0.18	0.13
PVSS474-0-0.0-0.5	1.05	0.39	0.98	0.22	0.65	0.18	2.02	0.33	0.27	0.20
PVSS475-0-0.0-0.5	1.04	0.41	1.98	0.38	1.33	0.31	1.93	0.38	0.42	0.31
PVSS476-0-0.0-0.5	2.39	0.60	1.73	0.31	0.71	0.20	4.20	0.78	0.46	0.34
PVSS477-0-0.0-0.5	0.18	0.20	0.77	0.20	0.41	0.15	1.58	0.32	0.12	0.09

TABLE C-2

CLASS 2 SIGN TEST WORKSHEETS

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	13
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	**Ra-226**	**Th-230**	**Th-232**	**Total U**	**Net $DCGL_W$ SOR**	***$DCGL_W$ SOR Signs***
PVSS330-0-0.0-0.5	0.89	1.13	1.24	2.32	0.01	1
PVSS333-0-0.0-0.5	0.96	1.23	1.02	1.97	-0.02	1
PVSS334-0-0.0-0.5	0.74	1.14	0.68	2.14	-0.10	1
PVSS335-0-0.0-0.5	1.23	1.16	0.60	1.87	-0.06	1
PVSS336-0-0.0-0.5	0.98	0.99	0.49	2.16	-0.11	1
PVSS341-0-0.0-0.5	1.97	1.37	0.72	2.27	0.05	1
PVSS342-0-0.0-0.5	0.95	0.69	0.71	1.63	-0.09	1
PVSS344-0-0.0-0.5	1.22	0.88	0.77	2.11	-0.04	1
PVSS345-0-0.0-0.5	1.19	0.65	0.43	1.64	-0.11	1
PVSS346-0-0.0-0.5	1.26	1.14	0.89	2.32	-0.01	1
PVSS395-0-0.0-0.5	2.38	1.43	0.87	2.18	0.12	1
PVSS396-0-0.0-0.5	0.73	1.04	0.67	1.88	-0.11	1
PVSS397-0-0.0-0.5	0.68	1.21	1.01	2.10	-0.05	1
PVSS398-0-0.0-0.5	0.80	1.01	1.00	2.04	-0.05	1
PVSS401-0-0.0-0.5	1.15	1.01	0.94	2.29	-0.02	1
				Average	**-0.04**	
				Sum of Positive Signs		***15***
				Sign Test Critical Value for N=15		***11***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed: 2005
Survey Unit #: 14
MARSSIM Classification: Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS461-0-0.0-0.5	0.55	1.23	0.68	1.97	-0.12	1
PVSS462-0-0.0-0.5	0.93	0.96	0.76	1.90	-0.07	1
PVSS463-0-0.0-0.5	0.71	1.11	0.67	2.47	-0.11	1
PVSS466-0-0.0-0.5	0.91	1.03	0.54	1.93	-0.11	1
PVSS467-0-0.0-0.5	0.72	0.72	0.23	1.74	-0.20	1
PVSS468-0-0.0-0.5	1.03	1.30	0.70	2.27	-0.06	1
PVSS469-0-0.0-0.5	0.66	1.64	0.93	2.97	-0.05	1
PVSS470-0-0.0-0.5	3.58	2.36	0.95	5.90	0.31	1
PVSS471-0-0.0-0.5	0.07	0.95	0.84	1.94	-0.16	1
PVSS473-0-0.0-0.5	0.58	0.68	0.51	1.23	-0.17	1
PVSS474-0-0.0-0.5	1.05	0.98	0.65	2.02	-0.08	1
PVSS475-0-0.0-0.5	1.04	1.98	1.33	1.93	0.07	1
PVSS477-0-0.0-0.5	0.18	0.77	0.41	1.58	-0.23	1
				Average	**-0.07**	
				Sum of Positive Signs		***13***
				Sign Test Critical Value for N=13		***10***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	15
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS412-0-0.0-0.5	0.57	1.03	0.65	1.92	-0.13	1
PVSS413-0-0.0-0.5	1.06	0.85	0.69	1.79	-0.08	1
PVSS414-0-0.0-0.5	0.36	0.88	0.52	1.73	-0.18	1
PVSS415-0-0.0-0.5	0.90	1.08	0.52	1.88	-0.11	1
PVSS416-0-0.0-0.5	0.05	0.75	0.71	2.35	-0.19	1
PVSS417-0-0.0-0.5	1.22	0.86	0.20	0.99	-0.14	1
PVSS420-0-0.0-0.5	1.05	0.66	0.30	1.54	-0.15	1
PVSS421-0-0.0-0.5	0.56	0.57	0.33	2.21	-0.20	1
PVSS422-0-0.0-0.5	0.68	1.54	0.77	2.20	-0.08	1
PVSS423-0-0.0-0.5	0.63	1.01	1.09	2.16	-0.05	1
PVSS424-0-0.0-0.5	0.36	0.62	0.99	1.66	-0.11	1
PVSS425-0-0.0-0.5	0.76	0.83	0.71	1.77	-0.11	1
PVSS426-0-0.0-0.5	0.10	0.38	0.17	0.71	-0.29	1
PVSS427-0-0.0-0.5	0.18	1.49	1.65	2.62	0.01	1
PVSS428-0-0.0-0.5	0.69	0.66	0.69	1.98	-0.13	1
				Average	**-0.13**	
					Sum of Positive Signs	***15***
					Sign Test Critical Value for N=15	***11***
					Survey Unit Evaluation	**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	16
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS402-0-0.0-0.5	1.54	1.09	0.55	2.44	-0.04	1
PVSS403-0-0.0-0.5	1.04	1.01	0.11	1.62	-0.17	1
PVSS404-0-0.0-0.5	0.37	0.71	0.50	1.67	-0.19	1
PVSS405-0-0.0-0.5	0.57	1.06	0.94	2.06	-0.08	1
PVSS406-0-0.0-0.5	0.92	1.35	1.04	2.03	-0.01	1
PVSS407-0-0.0-0.5	1.85	1.29	0.63	1.98	0.02	1
PVSS408-0-0.0-0.5	25.50	6.37	0.70	4.41	2.87	-1
PVSS409-0-0.0-0.5	-0.04	1.18	0.33	2.32	-0.24	1
PVSS410-0-0.0-0.5	0.80	0.95	0.97	1.99	-0.05	1
PVSS411-0-0.0-0.5	0.66	0.57	0.37	1.12	-0.19	1
PVSS616-3-0.0-0.5	1.00	1.06	0.64	1.67	-0.08	1
PVSS617-3-0.0-0.5	0.85	0.65	0.65	1.11	-0.12	1
PVSS618-3-0.0-0.5	0.64	0.77	0.29	2.18	-0.19	1
PVSS619-3-0.0-0.5	1.41	1.21	0.90	2.33	0.01	1
PVSS620-3-0.0-0.5	0.76	0.79	0.52	2.16	-0.14	1
PVSS621-3-0.0-0.5	0.48	0.81	0.15	1.60	-0.23	1
					0.07	
				Sum of Positive Signs		***15***
				Sign Test Critical Value for N=16		***12***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	17
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS301-0-0.0-0.5	0.43	0.89	0.73	1.62	-0.14	1
PVSS302-0-0.0-0.5	1.57	1.53	1.05	2.28	0.07	1
PVSS303-0-0.0-0.5	0.68	1.16	0.85	2.21	-0.08	1
PVSS304-0-0.0-0.5	0.62	1.25	0.94	2.28	-0.07	1
PVSS305-0-0.0-0.5	0.63	0.98	0.71	2.10	-0.12	1
PVSS306-0-0.0-0.5	0.83	1.06	0.36	1.60	-0.15	1
PVSS307-0-0.0-0.5	0.74	0.88	0.57	1.46	-0.13	1
PVSS308-0-0.0-0.5	0.57	1.11	0.96	1.88	-0.08	1
PVSS309-0-0.0-0.5	1.30	1.18	0.93	2.07	0.00	1
PVSS310-0-0.0-0.5	0.59	1.02	0.70	2.11	-0.12	1
PVSS311-0-0.0-0.5	0.35	1.15	0.99	1.63	-0.09	1
PVSS312-0-0.0-0.5	0.93	0.64	0.71	1.42	-0.10	1
PVSS313-0-0.0-0.5	1.12	1.41	1.04	2.08	0.01	1
PVSS314-0-0.0-0.5	1.30	1.12	1.17	1.83	0.04	1
PVSS315-0-0.0-0.5	1.25	1.23	0.94	1.68	0.00	1
				Average	**-0.06**	
				Sum of Positive Signs		***15***
				Sign Test Critical Value for N=15		***11***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	18
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS347-0-0.0-0.5	0.83	1.09	0.66	1.90	-0.10	1
PVSS348-0-0.0-0.5	3.20	2.57	0.93	6.31	0.28	1
PVSS349-0-0.0-0.5	0.91	1.24	0.76	1.96	-0.07	1
PVSS350-0-0.0-0.5	2.11	1.08	0.94	2.36	0.09	1
PVSS351-0-0.0-0.5	1.36	1.08	0.79	1.70	-0.02	1
PVSS352-0-0.0-0.5	1.84	0.93	1.32	1.95	0.12	1
PVSS353-0-0.0-0.5	1.05	0.72	0.42	1.52	-0.13	1
PVSS354-0-0.0-0.5	0.72	0.93	0.58	1.68	-0.13	1
PVSS355-0-0.0-0.5	1.82	1.26	0.83	2.68	0.05	1
PVSS356-0-0.0-0.5	1.02	1.48	1.23	2.26	0.03	1
PVSS357-0-0.0-0.5	0.79	0.76	0.65	1.31	-0.12	1
PVSS358-0-0.0-0.5	0.89	1.04	1.18	1.82	-0.01	1
PVSS359-0-0.0-0.5	1.12	0.91	0.09	2.20	-0.17	1
PVSS360-0-0.0-0.5	0.83	0.71	0.63	1.13	-0.12	1
PVSS361-0-0.0-0.5	1.03	0.91	1.18	2.54	0.01	1
				Average	**-0.02**	
					Sum of Positive Signs	***15***
					Sign Test Critical Value for N=15	***11***
					Survey Unit Evaluation	**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	19
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	**Ra-226**	**Th-230**	**Th-232**	**Total U**
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	**Ra-226**	**Th-230**	**Th-232**	**Total U**	**Net $DCGL_W$ SOR**	***$DCGL_W$ SOR Signs***
PVSS362-0-0.0-0.5	-0.04	1.10	1.17	1.88	-0.11	1
PVSS363-0-0.0-0.5	0.76	0.51	0.42	1.10	-0.17	1
PVSS364-0-0.0-0.5	0.90	0.66	0.43	1.28	-0.15	1
PVSS365-0-0.0-0.5	0.58	0.68	0.24	1.58	-0.21	1
PVSS366-0-0.0-0.5	1.36	0.74	0.05	1.80	-0.15	1
PVSS367-0-0.0-0.5	0.63	0.91	0.74	1.29	-0.12	1
PVSS368-0-0.0-0.5	0.59	1.08	0.89	1.43	-0.09	1
PVSS369-0-0.0-0.5	0.86	0.69	0.20	1.39	-0.19	1
PVSS370-0-0.0-0.5	2.60	0.76	0.31	3.28	0.03	1
PVSS371-0-0.0-0.5	0.95	0.63	0.32	1.40	-0.16	1
PVSS373-0-0.0-0.5	12.00	0.62	0.15	1.29	1.04	-1
PVSS374-0-0.0-0.5	-0.11	0.72	0.42	1.60	-0.26	1
PVSS375-0-0.0-0.5	-0.07	0.75	0.66	1.80	-0.21	1
PVSS376-0-0.0-0.5	-0.06	0.41	0.16	1.36	-0.31	1
PVSS377-0-0.0-0.5	0.41	0.71	0.36	1.37	-0.21	1
				Average	**-0.08**	
				Sum of Positive Signs		***14***
				Sign Test Critical Value for N=15		***11***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	20
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	Ra-226	Th-230	Th-232	Total U	Net $DCGL_W$ SOR	*$DCGL_W$ SOR Signs*
PVSS316-0-0.0-0.5	2.59	1.78	0.74	4.15	0.14	1
PVSS317-0-0.0-0.5	0.82	0.96	0.46	1.42	-0.14	1
PVSS318-0-0.0-0.5	0.84	0.42	0.63	2.46	-0.13	1
PVSS319-0-0.0-0.5	0.74	0.92	0.87	1.48	-0.08	1
PVSS320-0-0.0-0.5	0.82	0.75	0.56	1.42	-0.13	1
PVSS321-0-0.0-0.5	1.45	1.61	0.80	2.28	0.02	1
PVSS322-0-0.0-0.5	1.10	0.74	0.38	2.19	-0.13	1
PVSS323-0-0.0-0.5	1.67	1.02	0.52	2.31	-0.03	1
PVSS324-0-0.0-0.5	0.95	1.08	0.98	1.82	-0.03	1
PVSS325-0-0.0-0.5	0.65	1.35	0.90	2.66	-0.07	1
PVSS326-0-0.0-0.5	0.97	0.79	0.41	1.76	-0.14	1
PVSS327-0-0.0-0.5	0.74	1.14	1.16	2.01	-0.02	1
PVSS328-0-0.0-0.5	0.93	0.89	0.81	1.76	-0.07	1
PVSS329-0-0.0-0.5	0.92	0.71	0.64	1.61	-0.11	1
				Average	**-0.06**	
				Sum of Positive Signs		***14***
				Sign Test Critical Value for N=14		***11***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	21
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	**Ra-226**	**Th-230**	**Th-232**	**Total U**
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	**Ra-226**	**Th-230**	**Th-232**	**Total U**	**Net $DCGL_W$ SOR**	***$DCGL_W$ SOR Signs***
PVSS445-0-0.0-0.5	0.39	0.74	0.30	1.40	-0.22	1
PVSS446-0-0.0-0.5	0.68	0.89	0.30	1.56	-0.18	1
PVSS447-0-0.0-0.5	0.57	0.85	0.78	1.40	-0.12	1
PVSS448-0-0.0-0.5	0.25	0.26	0.14	0.48	-0.29	1
PVSS449-0-0.0-0.5	0.22	0.26	0.10	0.27	-0.30	1
PVSS450-0-0.0-0.5	0.74	0.65	0.11	1.52	-0.22	1
PVSS451-0-0.0-0.5	0.65	0.71	0.28	1.62	-0.20	1
PVSS452-0-0.0-0.5	0.34	0.68	0.19	1.56	-0.25	1
PVSS454-0-0.0-0.5	1.08	1.04	1.09	2.31	0.00	1
PVSS455-0-0.0-0.5	0.34	1.04	1.03	2.49	-0.09	1
PVSS456-0-0.0-0.5	0.78	0.96	0.78	1.32	-0.09	1
PVSS457-0-0.0-0.5	0.86	0.88	0.68	1.66	-0.10	1
PVSS458-0-0.0-0.5	0.65	0.59	0.64	1.47	-0.14	1
PVSS459-0-0.0-0.5	0.73	1.17	1.09	1.96	-0.03	1
PVSS460-0-0.0-0.5	1.10	0.74	0.21	1.72	-0.16	1
				Average	**-0.16**	
					Sum of Positive Signs	***15***
					Sign Test Critical Value for N=15	***11***
					Survey Unit Evaluation	**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	22
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	Ra-226	Th-230	Th-232	Total U
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	**Ra-226**	**Th-230**	**Th-232**	**Total U**	**Net $DCGL_W$ SOR**	***$DCGL_W$ SOR Signs***
PVSS429-0-0.0-0.5	4.08	2.84	0.64	4.17	0.33	1
PVSS430-0-0.0-0.5	3.51	1.91	0.90	4.05	0.28	1
PVSS431-0-0.0-0.5	1.28	1.48	1.03	2.94	0.03	1
PVSS432-0-0.0-0.5	1.27	1.00	0.27	1.50	-0.12	1
PVSS433-0-0.0-0.5	1.70	0.81	0.96	2.63	0.04	1
PVSS434-0-0.0-0.5	0.76	1.15	0.32	2.04	-0.16	1
PVSS435-0-0.0-0.5	0.58	0.58	0.28	1.27	-0.21	1
PVSS436-0-0.0-0.5	0.42	0.85	0.38	1.13	-0.20	1
PVSS437-0-0.0-0.5	0.68	0.57	0.24	1.30	-0.21	1
PVSS438-0-0.0-0.5	0.66	1.62	1.18	3.01	-0.01	1
PVSS439-0-0.0-0.5	0.69	0.87	0.93	2.43	-0.08	1
PVSS440-0-0.0-0.5	0.74	0.94	1.39	2.66	0.01	1
PVSS441-0-0.0-0.5	0.80	1.19	1.42	2.71	0.03	1
PVSS442-0-0.0-0.5	0.96	1.27	1.34	2.66	0.04	1
PVSS443-0-0.0-0.5	0.81	0.98	0.78	2.26	-0.08	1
PVSS444-0-0.0-0.5	0.59	0.80	0.59	1.69	-0.15	1
				Average	**-0.03**	
				Sum of Positive Signs		***16***
				Sign Test Critical Value for N=16		***12***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

Painesville Systematic Samples - Surface Sign Test Evaluation

Surveyed:	2005
Survey Unit #:	23
MARSSIM Classification:	Class 2

DCGLs & Backgrounds[1]	**Ra-226**	**Th-230**	**Th-232**	**Total U**
Background	*0.95*	*1.45*	*1.07*	*2.64*
DCGLw	*9*	*25*	*6*	*482*

1	2	3	4	5	6	7
	Raw Results [1]					
Sample ID	**Ra-226**	**Th-230**	**Th-232**	**Total U**	**Net $DCGL_W$ SOR**	***$DCGL_W$ SOR Signs***
PVSS379-0-0.0-0.5	0.95	0.84	0.99	2.16	-0.04	1
PVSS382-0-0.0-0.5	1.00	1.10	1.05	2.42	-0.01	1
PVSS383-0-0.0-0.5	1.09	1.19	0.74	2.28	-0.05	1
PVSS384-0-0.0-0.5	0.76	0.61	0.67	1.35	-0.12	1
PVSS385-0-0.0-0.5	2.10	0.81	0.90	2.01	0.07	1
PVSS386-0-0.0-0.5	0.44	1.16	0.91	2.38	-0.10	1
PVSS387-0-0.0-0.5	0.93	0.82	0.75	2.54	-0.08	1
PVSS388-0-0.0-0.5	0.06	0.94	1.00	1.90	-0.13	1
PVSS389-0-0.0-0.5	1.15	1.25	1.45	2.58	0.08	1
PVSS390-0-0.0-0.5	1.14	1.23	0.91	2.17	-0.01	1
PVSS391-0-0.0-0.5	1.00	1.35	1.06	2.47	0.00	1
PVSS392-0-0.0-0.5	1.14	1.18	0.73	2.11	-0.05	1
PVSS393-0-0.0-0.5	0.65	0.71	0.71	2.26	-0.12	1
PVSS394-0-0.0-0.5	0.00	1.40	1.49	2.13	-0.04	1
				Average	**-0.04**	
				Sum of Positive Signs		***14***
				Sign Test Critical Value for N=14		***11***
				Survey Unit Evaluation		**PASS**

1 - All results in pCi/g

TABLE C-3

MASTER DOWNHOLE GAMMA RESULTS TABLE

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
1	1	0.0-0.5	4530	cpm		[redacted]
1	2	0.5-1.0	5188	cpm		[redacted]
1	3	1.0-1.5	4618	cpm		[redacted]
1	4	1.5-2.0	5079	cpm		[redacted]
1	5	2.0-2.5	5590	cpm		[redacted]
1	6	2.5-3.0	5572	cpm		[redacted]
1	7	3.0-3.5	5566	cpm		[redacted]
1	8	3.5-4.0	5498	cpm		[redacted]
1	9	4.0-4.5	5215	cpm		[redacted]
1	10	4.5-5.0	5019	cpm		[redacted]
1	11	5.0-5.5	4867	cpm		[redacted]
1	12	5.5-6.0	4710	cpm		[redacted]
1	13	6.0-6.5	4740	cpm		[redacted]
1	14	6.5-7.0	4874	cpm		[redacted]
1	15	7.0-7.5	4875	cpm		[redacted]
1	16	7.5-8.0	4797	cpm		[redacted]
2	1	0.0-0.5	4600	cpm		[redacted]
2	2	0.5-1.0	4629	cpm		[redacted]
2	3	1.0-1.5	4714	cpm		[redacted]
2	4	1.5-2.0	5170	cpm		[redacted]
2	5	2.0-2.5	5544	cpm		[redacted]
2	6	2.5-3.0	5502	cpm		[redacted]
2	7	3.0-3.5	5508	cpm		[redacted]
2	8	3.5-4.0	5222	cpm		[redacted]
3	1	0.0-0.5	3639	cpm		[redacted]
3	2	0.5-1.0	3891	cpm		[redacted]
3	3	1.0-1.5	3790	cpm		[redacted]
3	4	1.5-2.0	4144	cpm		[redacted]
3	5	2.0-2.5	4235	cpm		[redacted]
3	6	2.5-3.0	4071	cpm		[redacted]
3	7	3.0-3.5	4136	cpm		[redacted]
3	8	3.5-4.0	4069	cpm		[redacted]
3	9	4.0-4.5	3994	cpm		[redacted]
3	10	4.5-5.0	3919	cpm		[redacted]
3	11	5.0-5.5	4279	cpm		[redacted]
3	12	5.5-6.0	4757	cpm		[redacted]
3	13	6.0-6.5	4881	cpm		[redacted]
3	14	6.5-7.0	4863	cpm		[redacted]
3	15	7.0-7.5	4533	cpm		[redacted]
3	16	7.5-8.0	4043	cpm		[redacted]
4	1	0.0-0.5	8970	cpm		[redacted]
4	2	0.5-1.0	6995	cpm		[redacted]
4	3	1.0-1.5	6133	cpm		[redacted]
4	4	1.5-2.0	4653	cpm		[redacted]
4	5	2.0-2.5	5544	cpm		[redacted]
4	6	2.5-3.0	5613	cpm		[redacted]
4	7	3.0-3.5	4939	cpm		[redacted]
4	8	3.5-4.0	4174	cpm		[redacted]
4	9	4.0-4.5	3896	cpm		[redacted]
4	10	4.5-5.0	4323	cpm		[redacted]
4	11	5.0-5.5	4499	cpm		[redacted]
4	12	5.5-6.0	4432	cpm		[redacted]
4	13	6.0-6.5	4168	cpm		[redacted]
4	14	6.5-7.0	4013	cpm		[redacted]
4	15	7.0-7.5	3950	cpm		[redacted]
4	16	7.5-8.0	3987	cpm		[redacted]
4	17	8.0-8.5	4056	cpm		[redacted]
4	18	8.5-9.0	4260	cpm		[redacted]
4	19	9.0-9.5	4393	cpm		[redacted]
4	20	9.5-10.0	4404	cpm		[redacted]
5	1	0.0-0.5	9867	cpm		[redacted]
5	2	0.5-1.0	7906	cpm		[redacted]
5	3	1.0-1.5	5457	cpm		[redacted]
5	4	1.5-2.0	4901	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
5	5	2.0-2.5	5152	cpm		[redacted]
5	6	2.5-3.0	4965	cpm		[redacted]
5	7	3.0-3.5	4521	cpm		[redacted]
5	8	3.5-4.0	4923	cpm		[redacted]
5	9	4.0-4.5	4655	cpm		[redacted]
5	10	4.5-5.0	4467	cpm		[redacted]
5	11	5.0-5.5	3705	cpm		[redacted]
5	12	5.5-6.0	3696	cpm		[redacted]
5	13	6.0-6.5	3916	cpm		[redacted]
5	14	6.5-7.0	4049	cpm		[redacted]
5	15	7.0-7.5	4362	cpm		[redacted]
5	16	7.5-8.0	4867	cpm		[redacted]
6	1	0.0-0.5	4101	cpm		[redacted]
6	2	0.5-1.0	5038	cpm		[redacted]
6	3	1.0-1.5	5661	cpm		[redacted]
6	4	1.5-2.0	11029	cpm		[redacted]
6	5	2.0-2.5	8631	cpm		[redacted]
6	6	2.5-3.0	5493	cpm		[redacted]
6	7	3.0-3.5	5026	cpm		[redacted]
6	8	3.5-4.0	4620	cpm		[redacted]
6	9	4.0-4.5	4688	cpm		[redacted]
6	10	4.5-5.0	4674	cpm		[redacted]
6	11	5.0-5.5	4519	cpm		[redacted]
6	12	5.5-6.0	4613	cpm		[redacted]
6	13	6.0-6.5	4500	cpm		[redacted]
6	14	6.5-7.0	4507	cpm		[redacted]
6	15	7.0-7.5	4599	cpm		[redacted]
6	16	7.5-8.0	4576	cpm		[redacted]
6	17	8.0-8.5	4784	cpm		[redacted]
6	18	8.5-9.0	4619	cpm		[redacted]
6	19	9.0-9.5	4712	cpm		[redacted]
7	1	0.0-0.5	3609	cpm		[redacted]
7	2	0.5-1.0	3680	cpm		[redacted]
7	3	1.0-1.5	5038	cpm		[redacted]
7	4	1.5-2.0	5047	cpm		[redacted]
7	5	2.0-2.5	4832	cpm		[redacted]
7	6	2.5-3.0	4662	cpm		[redacted]
7	7	3.0-3.5	4666	cpm		[redacted]
7	8	3.5-4.0	4610	cpm		[redacted]
7	9	4.0-4.5	4528	cpm		[redacted]
7	10	4.5-5.0	4730	cpm		[redacted]
7	11	5.0-5.5	4255	cpm		[redacted]
7	12	5.5-6.0	4030	cpm		[redacted]
7	13	6.0-6.5	4019	cpm		[redacted]
7	14	6.5-7.0	4157	cpm		[redacted]
7	15	7.0-7.5	4316	cpm		[redacted]
7	16	7.5-8.0	4566	cpm		[redacted]
7	17	8.0-8.5	4849	cpm		[redacted]
7	18	8.5-9.0	4687	cpm		[redacted]
7	19	9.0-9.5	4667	cpm		[redacted]
7	20	9.5-10.0	4737	cpm		[redacted]
8	1	0.0-0.5	3609	cpm		[redacted]
8	2	0.5-1.0	6157	cpm		[redacted]
8	3	1.0-1.5	6888	cpm		[redacted]
8	4	1.5-2.0	5227	cpm		[redacted]
8	5	2.0-2.5	5143	cpm		[redacted]
8	6	2.5-3.0	4977	cpm		[redacted]
8	7	3.0-3.5	5106	cpm		[redacted]
8	8	3.5-4.0	4898	cpm		[redacted]
8	9	4.0-4.5	4994	cpm		[redacted]
8	10	4.5-5.0	4665	cpm		[redacted]
8	11	5.0-5.5	4429	cpm		[redacted]
8	12	5.5-6.0	4541	cpm		[redacted]
8	13	6.0-6.5	4452	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
8	14	6.5-7.0	4619	cpm		[redacted]
8	15	7.0-7.5	4906	cpm		[redacted]
8	16	7.5-8.0	4015	cpm		[redacted]
8	17	8.0-8.5	3977	cpm		[redacted]
8	18	8.5-9.0	4315	cpm		[redacted]
8	19	9.0-9.5	4303	cpm		[redacted]
9	1	0.0-0.5	19012	cpm		[redacted]
9	2	0.5-1.0	61570	cpm		[redacted]
9	3	1.0-1.5	66621	cpm		[redacted]
9	4	1.5-2.0	9409	cpm		[redacted]
9	5	2.0-2.5	7275	cpm		[redacted]
9	6	2.5-3.0	4501	cpm		[redacted]
9	7	3.0-3.5	4516	cpm		[redacted]
9	8	3.5-4.0	4505	cpm		[redacted]
9	9	4.0-4.5	4671	cpm		[redacted]
9	10	4.5-5.0	4729	cpm		[redacted]
9	11	5.0-5.5	4526	cpm		[redacted]
10	1	0.0-0.5	4878	cpm		[redacted]
10	1	0.0-0.5	4500	cpm		[redacted]
10	2	0.5-1.0	6537	cpm		[redacted]
10	3	1.0-1.5	7083	cpm		[redacted]
10	4	1.5-2.0	13686	cpm		[redacted]
10	5	2.0-2.5	26232	cpm		[redacted]
10	6	2.5-3.0	35681	cpm		[redacted]
10	7	3.0-3.5	22568	cpm		[redacted]
10	8	3.5-4.0	9361	cpm		[redacted]
10	9	4.0-4.5	6357	cpm		[redacted]
10	10	4.5-5.0	5778	cpm		[redacted]
10	11	5.0-5.5	5579	cpm		[redacted]
10	12	5.5-6.0	5516	cpm		[redacted]
10	13	6.0-6.5	4899	cpm		[redacted]
10	14	6.5-7.0	4614	cpm		[redacted]
10	15	7.0-7.5	4541	cpm		[redacted]
10	16	7.5-8.0	4699	cpm		[redacted]
10	17	8.0-8.5	4702	cpm		[redacted]
10	18	8.5-9.0	4759	cpm		[redacted]
10	19	9.0-9.5	4638	cpm		[redacted]
11	1	0.0-0.5	6073	cpm		[redacted]
11	2	0.5-1.0	9823	cpm		[redacted]
11	3	1.0-1.5	21501	cpm		[redacted]
11	4	1.5-2.0	47584	cpm		[redacted]
11	5	2.0-2.5	28043	cpm		[redacted]
11	6	2.5-3.0	13142	cpm		[redacted]
11	7	3.0-3.5	7405	cpm		[redacted]
11	8	3.5-4.0	5861	cpm		[redacted]
11	9	4.0-4.5	5202	cpm		[redacted]
11	10	4.5-5.0	5172	cpm		[redacted]
11	11	5.0-5.5	4894	cpm		[redacted]
11	12	5.5-6.0	4828	cpm		[redacted]
11	13	6.0-6.5	5033	cpm		[redacted]
11	14	6.5-7.0	5130	cpm		[redacted]
11	15	7.0-7.5	4617	cpm		[redacted]
11	16	7.5-8.0	4694	cpm		[redacted]
11	17	8.0-8.5	4509	cpm		[redacted]
11	18	8.5-9.0	4968	cpm		[redacted]
11	19	9.0-9.5	5217	cpm		[redacted]
12	1	0.0-0.5	7664	cpm		[redacted]
12	2	0.5-1.0	8774	cpm		[redacted]
12	3	1.0-1.5	10098	cpm		[redacted]
12	4	1.5-2.0	5707	cpm		[redacted]
12	5	2.0-2.5	5365	cpm		[redacted]
12	6	2.5-3.0	5331	cpm		[redacted]
12	7	3.0-3.5	4608	cpm		[redacted]
12	8	3.5-4.0	4100	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
12	9	4.0-4.5	3656	cpm		[redacted]
13	1	0.0-0.5	4144	cpm		[redacted]
13	2	0.5-1.0	5922	cpm		[redacted]
13	3	1.0-1.5	6727	cpm		[redacted]
13	4	1.5-2.0	4528	cpm		[redacted]
13	5	2.0-2.5	4071	cpm		[redacted]
13	6	2.5-3.0	4239	cpm		[redacted]
13	7	3.0-3.5	4298	cpm		[redacted]
13	8	3.5-4.0	4628	cpm		[redacted]
13	9	4.0-4.5	5074	cpm		[redacted]
13	10	4.5-5.0	5260	cpm		[redacted]
13	11	5.0-5.5	5315	cpm		[redacted]
13	12	5.5-6.0	5319	cpm		[redacted]
13	13	6.0-6.5	5203	cpm		[redacted]
13	14	6.5-7.0	5055	cpm		[redacted]
13	15	7.0-7.5	4897	cpm		[redacted]
13	16	7.5-8.0	4948	cpm		[redacted]
13	17	8.0-8.5	5008	cpm		[redacted]
13	18	8.5-9.0	4973	cpm		[redacted]
13	19	9.0-9.5	4887	cpm		[redacted]
14	1	0.0-0.5	7468	cpm		[redacted]
14	2	0.5-1.0	6205	cpm		[redacted]
14	3	1.0-1.5	4955	cpm		[redacted]
14	4	1.5-2.0	5296	cpm		[redacted]
14	5	2.0-2.5	5474	cpm		[redacted]
14	6	2.5-3.0	5468	cpm		[redacted]
14	7	3.0-3.5	5419	cpm		[redacted]
14	8	3.5-4.0	5206	cpm		[redacted]
14	9	4.0-4.5	4899	cpm		[redacted]
14	10	4.5-5.0	4556	cpm		[redacted]
14	11	5.0-5.5	4556	cpm		[redacted]
14	12	5.5-6.0	4660	cpm		[redacted]
14	13	6.0-6.5	4939	cpm		[redacted]
14	14	6.5-7.0	4919	cpm		[redacted]
14	15	7.0-7.5	4925	cpm		[redacted]
14	16	7.5-8.0	4937	cpm		[redacted]
14	17	8.0-8.5	4885	cpm		[redacted]
14	18	8.5-9.0	4765	cpm		[redacted]
14	19	9.0-9.5	4840	cpm		[redacted]
15	1	0.0-0.5	5011	cpm		[redacted]
15	2	0.5-1.0	8261	cpm		[redacted]
15	3	1.0-1.5	16547	cpm		[redacted]
15	4	1.5-2.0	6928	cpm		[redacted]
15	5	2.0-2.5	4229	cpm		[redacted]
15	6	2.5-3.0	3536	cpm		[redacted]
15	7	3.0-3.5	3010	cpm		[redacted]
15	8	3.5-4.0	3574	cpm		[redacted]
15	9	4.0-4.5	3533	cpm		[redacted]
15	10	4.5-5.0	2851	cpm		[redacted]
15	11	5.0-5.5	3978	cpm		[redacted]
15	12	5.5-6.0	3882	cpm		[redacted]
15	13	6.0-6.5	4771	cpm		[redacted]
15	14	6.5-7.0	4502	cpm		[redacted]
15	15	7.0-7.5	4475	cpm		[redacted]
15	16	7.5-8.0	4481	cpm		[redacted]
15	17	8.0-8.5	4549	cpm		[redacted]
15	18	8.5-9.0	4978	cpm		[redacted]
15	19	9.0-9.5	4639	cpm		[redacted]
17	1	0.0-0.5	40110	cpm		[redacted]
17	2	0.5-1.0	58576	cpm		[redacted]
17	3	1.0-1.5	242507	cpm		[redacted]
17	4	1.5-2.0	201772	cpm		[redacted]
17	5	2.0-2.5	69509	cpm		[redacted]
17	6	2.5-3.0	15008	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
17	7	3.0-3.5	5676	cpm		[redacted]
17	8	3.5-4.0	4606	cpm		[redacted]
17	9	4.0-4.5	4674	cpm		[redacted]
17	10	4.5-5.0	4577	cpm		[redacted]
17	11	5.0-5.5	4511	cpm		[redacted]
17	12	5.5-6.0	4573	cpm		[redacted]
17	13	6.0-6.5	4028	cpm		[redacted]
17	14	6.5-7.0	3573	cpm		[redacted]
17	15	7.0-7.5	4202	cpm		[redacted]
17	16	7.5-8.0	4754	cpm		[redacted]
17	17	8.0-8.5	4614	cpm		[redacted]
17	18	8.5-9.0	4600	cpm		[redacted]
19	1	0.0-0.5	3811	cpm		[redacted]
19	2	0.5-1.0	8272	cpm		[redacted]
19	3	1.0-1.5	19669	cpm		[redacted]
19	4	1.5-2.0	38970	cpm		[redacted]
19	5	2.0-2.5	57300	cpm		[redacted]
19	6	2.5-3.0	52963	cpm		[redacted]
19	7	3.0-3.5	28908	cpm		[redacted]
19	8	3.5-4.0	12876	cpm		[redacted]
19	9	4.0-4.5	7205	cpm		[redacted]
19	10	4.5-5.0	5733	cpm		[redacted]
19	11	5.0-5.5	5030	cpm		[redacted]
19	12	5.5-6.0	4713	cpm		[redacted]
19	13	6.0-6.5	4309	cpm		[redacted]
19	14	6.5-7.0	4587	cpm		[redacted]
19	15	7.0-7.5	4722	cpm		[redacted]
19	16	7.5-8.0	4893	cpm		[redacted]
19	17	8.0-8.5	4844	cpm		[redacted]
19	18	8.5-9.0	4716	cpm		[redacted]
19	19	9.0-9.5	4911	cpm		[redacted]
20	1	0.0-0.5	9703	cpm		[redacted]
20	2	0.5-1.0	9825	cpm		[redacted]
20	3	1.0-1.5	8009	cpm		[redacted]
20	4	1.5-2.0	8319	cpm		[redacted]
20	5	2.0-2.5	8055	cpm		[redacted]
20	6	2.5-3.0	6713	cpm		[redacted]
20	7	3.0-3.5	6334	cpm		[redacted]
20	8	3.5-4.0	5945	cpm		[redacted]
20	9	4.0-4.5	5840	cpm		[redacted]
20	10	4.5-5.0	5597	cpm		[redacted]
20	11	5.0-5.5	5341	cpm		[redacted]
20	12	5.5-6.0	5086	cpm		[redacted]
20	13	6.0-6.5	4976	cpm		[redacted]
20	14	6.5-7.0	4903	cpm		[redacted]
20	15	7.0-7.5	4912	cpm		[redacted]
20	16	7.5-8.0	4890	cpm		[redacted]
20	17	8.0-8.5	4905	cpm		[redacted]
20	18	8.5-9.0	4760	cpm		[redacted]
21	1	0.0-0.5	12402	cpm		[redacted]
21	2	0.5-1.0	26412	cpm		[redacted]
21	3	1.0-1.5	42722	cpm		[redacted]
21	4	1.5-2.0	14101	cpm		[redacted]
21	5	2.0-2.5	7106	cpm		[redacted]
21	6	2.5-3.0	5478	cpm		[redacted]
21	7	3.0-3.5	5100	cpm		[redacted]
21	8	3.5-4.0	5401	cpm		[redacted]
21	9	4.0-4.5	5506	cpm		[redacted]
21	10	4.5-5.0	5572	cpm		[redacted]
21	11	5.0-5.5	4553	cpm		[redacted]
21	12	5.5-6.0	4603	cpm		[redacted]
21	13	6.0-6.5	4657	cpm		[redacted]
21	14	6.5-7.0	4707	cpm		[redacted]
21	15	7.0-7.5	4640	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
21	16	7.5-8.0	4708	cpm		[redacted]
21	17	8.0-8.5	4709	cpm		[redacted]
22	1	0.0-0.5	1301	cpm		[redacted]
22	2	0.5-1.0	1506	cpm		[redacted]
22	3	1.0-1.5	3407	cpm		[redacted]
22	4	1.5-2.0	8100	cpm		[redacted]
22	5	2.0-2.5	13014	cpm		[redacted]
22	6	2.5-3.0	12214	cpm		[redacted]
22	7	3.0-3.5	10117	cpm		[redacted]
22	8	3.5-4.0	5675	cpm		[redacted]
22	9	4.0-4.5	5548	cpm		[redacted]
22	10	4.5-5.0	5209	cpm		[redacted]
22	11	5.0-5.5	5050	cpm		[redacted]
22	12	5.5-6.0	4605	cpm		[redacted]
22	13	6.0-6.5	4526	cpm		[redacted]
22	14	6.5-7.0	4677	cpm		[redacted]
22	15	7.0-7.5	4606	cpm		[redacted]
22	16	7.5-8.0	4616	cpm		[redacted]
22	17	8.0-8.5	4619	cpm		[redacted]
23	1	0.0-0.5	6328	cpm		[redacted]
23	2	0.5-1.0	8732	cpm		[redacted]
23	3	1.0-1.5	33391	cpm		[redacted]
23	4	1.5-2.0	40400	cpm		[redacted]
23	5	2.0-2.5	12271	cpm		[redacted]
23	6	2.5-3.0	5742	cpm		[redacted]
23	7	3.0-3.5	4965	cpm		[redacted]
23	8	3.5-4.0	4948	cpm		[redacted]
23	9	4.0-4.5	4977	cpm		[redacted]
23	10	4.5-5.0	4863	cpm		[redacted]
23	11	5.0-5.5	4571	cpm		[redacted]
23	12	5.5-6.0	4501	cpm		[redacted]
23	13	6.0-6.5	4411	cpm		[redacted]
23	14	6.5-7.0	4591	cpm		[redacted]
23	15	7.0-7.5	4920	cpm		[redacted]
23	16	7.5-8.0	4960	cpm		[redacted]
23	17	8.0-8.5	4794	cpm		[redacted]
23	18	8.5-9.0	4643	cpm		[redacted]
24	1	0.0-0.5	3603	cpm		[redacted]
24	2	0.5-1.0	8129	cpm		[redacted]
24	3	1.0-1.5	20209	cpm		[redacted]
24	4	1.5-2.0	19005	cpm		[redacted]
24	5	2.0-2.5	8606	cpm		[redacted]
24	6	2.5-3.0	6007	cpm		[redacted]
24	7	3.0-3.5	5503	cpm		[redacted]
24	8	3.5-4.0	5417	cpm		[redacted]
24	9	4.0-4.5	5506	cpm		[redacted]
25	1	0.0-0.5	2300	cpm		[redacted]
25	2	0.5-1.0	2572	cpm		[redacted]
25	3	1.0-1.5	3579	cpm		[redacted]
25	4	1.5-2.0	5007	cpm		[redacted]
25	5	2.0-2.5	4470	cpm		[redacted]
25	6	2.5-3.0	4521	cpm		[redacted]
25	7	3.0-3.5	4500	cpm		[redacted]
25	8	3.5-4.0	4507	cpm		[redacted]
25	9	4.0-4.5	4501	cpm		[redacted]
25	10	4.5-5.0	4070	cpm		[redacted]
25	11	5.0-5.5	4201	cpm		[redacted]
25	12	5.5-6.0	4100	cpm		[redacted]
25	13	6.0-6.5	4005	cpm		[redacted]
25	14	6.5-7.0	4607	cpm		[redacted]
25	15	7.0-7.5	4707	cpm		[redacted]
25	16	7.5-8.0	4671	cpm		[redacted]
25	17	8.0-8.5	4527	cpm		[redacted]
26	1	0.0-0.5	4100	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
26	2	0.5-1.0	4507	cpm		[redacted]
26	3	1.0-1.5	5551	cpm		[redacted]
26	4	1.5-2.0	5519	cpm		[redacted]
26	5	2.0-2.5	6055	cpm		[redacted]
26	6	2.5-3.0	6506	cpm		[redacted]
26	7	3.0-3.5	6275	cpm		[redacted]
26	8	3.5-4.0	5603	cpm		[redacted]
26	9	4.0-4.5	4607	cpm		[redacted]
27	1	0.0-0.5	3027	cpm		[redacted]
27	2	0.5-1.0	3148	cpm		[redacted]
27	3	1.0-1.5	7573	cpm		[redacted]
27	4	1.5-2.0	7678	cpm		[redacted]
27	5	2.0-2.5	7246	cpm		[redacted]
27	6	2.5-3.0	6400	cpm		[redacted]
27	7	3.0-3.5	5445	cpm		[redacted]
27	8	3.5-4.0	5559	cpm		[redacted]
27	9	4.0-4.5	5246	cpm		[redacted]
27	10	4.5-5.0	5073	cpm		[redacted]
27	11	5.0-5.5	4506	cpm		[redacted]
27	12	5.5-6.0	4611	cpm		[redacted]
27	13	6.0-6.5	4778	cpm		[redacted]
27	14	6.5-7.0	4707	cpm		[redacted]
27	15	7.0-7.5	4628	cpm		[redacted]
27	16	7.5-8.0	4719	cpm		[redacted]
30	1	0.0-0.5	4214	cpm		[redacted]
30	2	0.5-1.0	5287	cpm		[redacted]
30	3	1.0-1.5	6218	cpm		[redacted]
30	4	1.5-2.0	6702	cpm		[redacted]
30	5	2.0-2.5	6228	cpm		[redacted]
30	6	2.5-3.0	5430	cpm		[redacted]
30	7	3.0-3.5	5014	cpm		[redacted]
30	8	3.5-4.0	5419	cpm		[redacted]
30	9	4.0-4.5	5281	cpm		[redacted]
30	10	4.5-5.0	6268	cpm		[redacted]
30	11	5.0-5.5	5106	cpm		[redacted]
30	12	5.5-6.0	4887	cpm		[redacted]
30	13	6.0-6.5	4741	cpm		[redacted]
30	14	6.5-7.0	4792	cpm		[redacted]
30	15	7.0-7.5	4872	cpm		[redacted]
30	16	7.5-8.0	4834	cpm		[redacted]
30	17	8.0-8.5	4872	cpm		[redacted]
30	18	8.5-9.0	4767	cpm		[redacted]
31	1	0.0-0.5	4884	cpm		[redacted]
31	2	0.5-1.0	5232	cpm		[redacted]
31	3	1.0-1.5	4879	cpm		[redacted]
31	4	1.5-2.0	5028	cpm		[redacted]
31	5	2.0-2.5	5097	cpm		[redacted]
31	6	2.5-3.0	4887	cpm		[redacted]
31	7	3.0-3.5	5044	cpm		[redacted]
31	8	3.5-4.0	5159	cpm		[redacted]
31	9	4.0-4.5	5111	cpm		[redacted]
31	10	4.5-5.0	4860	cpm		[redacted]
31	11	5.0-5.5	5017	cpm		[redacted]
31	12	5.5-6.0	4994	cpm		[redacted]
31	13	6.0-6.5	5021	cpm		[redacted]
31	14	6.5-7.0	4971	cpm		[redacted]
31	15	7.0-7.5	4928	cpm		[redacted]
31	16	7.5-8.0	4883	cpm		[redacted]
31	17	8.0-8.5	5056	cpm		[redacted]
31	18	8.5-9.0	4970	cpm		[redacted]
31	19	9.0-9.5	4830	cpm		[redacted]
32	1	0.0-0.5	3450	cpm		[redacted]
32	2	0.5-1.0	3613	cpm		[redacted]
32	3	1.0-1.5	4503	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
32	4	1.5-2.0	4006	cpm		[redacted]
32	5	2.0-2.5	2615	cpm		[redacted]
32	6	2.5-3.0	1714	cpm		[redacted]
32	7	3.0-3.5	2007	cpm		[redacted]
32	8	3.5-4.0	3108	cpm		[redacted]
32	9	4.0-4.5	3229	cpm		[redacted]
32	10	4.5-5.0	3511	cpm		[redacted]
32	11	5.0-5.5	3712	cpm		[redacted]
32	12	5.5-6.0	3575	cpm		[redacted]
32	13	6.0-6.5	4508	cpm		[redacted]
32	14	6.5-7.0	4473	cpm		[redacted]
32	15	7.0-7.5	4504	cpm		[redacted]
32	16	7.5-8.0	4755	cpm		[redacted]
32	17	8.0-8.5	4554	cpm		[redacted]
32	18	8.5-9.0	4700	cpm		[redacted]
32	19	9.0-9.5	4671	cpm		[redacted]
32	20	9.5-10.0	4554	cpm		[redacted]
33	1	0.0-0.5	3516	cpm		[redacted]
33	2	0.5-1.0	3781	cpm		[redacted]
33	3	1.0-1.5	3656	cpm		[redacted]
33	4	1.5-2.0	3825	cpm		[redacted]
33	5	2.0-2.5	3821	cpm		[redacted]
33	6	2.5-3.0	4080	cpm		[redacted]
33	7	3.0-3.5	4653	cpm		[redacted]
33	8	3.5-4.0	4518	cpm		[redacted]
33	9	4.0-4.5	4524	cpm		[redacted]
33	10	4.5-5.0	4617	cpm		[redacted]
33	11	5.0-5.5	4784	cpm		[redacted]
33	12	5.5-6.0	4653	cpm		[redacted]
33	13	6.0-6.5	4796	cpm		[redacted]
33	14	6.5-7.0	5046	cpm		[redacted]
33	15	7.0-7.5	5047	cpm		[redacted]
33	16	7.5-8.0	4908	cpm		[redacted]
33	17	8.0-8.5	4914	cpm		[redacted]
33	18	8.5-9.0	4841	cpm		[redacted]
34	1	0.0-0.5	5075	cpm		[redacted]
34	2	0.5-1.0	6603	cpm		[redacted]
34	3	1.0-1.5	4899	cpm		[redacted]
34	4	1.5-2.0	4327	cpm		[redacted]
34	5	2.0-2.5	4335	cpm		[redacted]
34	6	2.5-3.0	4300	cpm		[redacted]
34	7	3.0-3.5	4184	cpm		[redacted]
34	8	3.5-4.0	4160	cpm		[redacted]
34	9	4.0-4.5	3777	cpm		[redacted]
34	10	4.5-5.0	4001	cpm		[redacted]
34	11	5.0-5.5	4257	cpm		[redacted]
34	12	5.5-6.0	4707	cpm		[redacted]
34	13	6.0-6.5	4843	cpm		[redacted]
34	14	6.5-7.0	4563	cpm		[redacted]
34	15	7.0-7.5	4494	cpm		[redacted]
34	16	7.5-8.0	4475	cpm		[redacted]
34	17	8.0-8.5	4654	cpm		[redacted]
34	18	8.5-9.0	4839	cpm		[redacted]
34	19	9.0-9.5	4855	cpm		[redacted]
34	20	9.5-10.0	4725	cpm		[redacted]
35	1	0.0-0.5	5429	cpm		[redacted]
35	2	0.5-1.0	9205	cpm		[redacted]
35	3	1.0-1.5	10108	cpm		[redacted]
35	4	1.5-2.0	6321	cpm		[redacted]
35	5	2.0-2.5	5288	cpm		[redacted]
35	6	2.5-3.0	5187	cpm		[redacted]
35	7	3.0-3.5	5088	cpm		[redacted]
35	8	3.5-4.0	4752	cpm		[redacted]
35	9	4.0-4.5	4495	cpm	1st round stop-water in hole.	[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
36	1	0.0-0.5	2800	cpm		[redacted]
36	2	0.5-1.0	2671	cpm		[redacted]
36	3	1.0-1.5	4573	cpm		[redacted]
36	4	1.5-2.0	5515	cpm		[redacted]
36	5	2.0-2.5	5444	cpm		[redacted]
36	6	2.5-3.0	5409	cpm		[redacted]
36	7	3.0-3.5	5528	cpm		[redacted]
36	8	3.5-4.0	4505	cpm		[redacted]
36	9	4.0-4.5	4520	cpm		[redacted]
36	10	4.5-5.0	4655	cpm		[redacted]
36	11	5.0-5.5	4601	cpm		[redacted]
36	12	5.5-6.0	4501	cpm		[redacted]
36	13	6.0-6.5	4106	cpm		[redacted]
36	14	6.5-7.0	4208	cpm		[redacted]
36	15	7.0-7.5	4642	cpm		[redacted]
37	1	0.0-0.5	4680	cpm		[redacted]
37	2	0.5-1.0	4266	cpm		[redacted]
37	3	1.0-1.5	3714	cpm		[redacted]
37	4	1.5-2.0	3906	cpm		[redacted]
37	5	2.0-2.5	4611	cpm		[redacted]
37	6	2.5-3.0	4656	cpm		[redacted]
37	7	3.0-3.5	4589	cpm		[redacted]
37	8	3.5-4.0	4444	cpm		[redacted]
37	9	4.0-4.5	4605	cpm		[redacted]
37	10	4.5-5.0	4422	cpm		[redacted]
37	11	5.0-5.5	4286	cpm		[redacted]
37	12	5.5-6.0	4034	cpm		[redacted]
37	13	6.0-6.5	4453	cpm		[redacted]
37	14	6.5-7.0	4631	cpm		[redacted]
38	1	0.0-0.5	2656	cpm	Second borehole. Hole collapsed at first location.	[redacted]
38	2	0.5-1.0	3573	cpm		[redacted]
38	3	1.0-1.5	3409	cpm		[redacted]
38	4	1.5-2.0	3603	cpm		[redacted]
38	5	2.0-2.5	4527	cpm		[redacted]
38	6	2.5-3.0	4604	cpm		[redacted]
38	7	3.0-3.5	4278	cpm		[redacted]
38	8	3.5-4.0	4572	cpm		[redacted]
38	9	4.0-4.5	4803	cpm		[redacted]
38	10	4.5-5.0	5100	cpm		[redacted]
38	11	5.0-5.5	5125	cpm		[redacted]
38	12	5.5-6.0	4632	cpm		[redacted]
38	13	6.0-6.5	4709	cpm		[redacted]
38	14	6.5-7.0	4643	cpm		[redacted]
38	15	7.0-7.5	4727	cpm		[redacted]
38	16	7.5-8.0	4674	cpm		[redacted]
39	1	0.0-0.5	5400	cpm		[redacted]
39	2	0.5-1.0	5846	cpm		[redacted]
39	3	1.0-1.5	4995	cpm		[redacted]
39	4	1.5-2.0	4877	cpm		[redacted]
39	5	2.0-2.5	4732	cpm		[redacted]
39	6	2.5-3.0	4776	cpm		[redacted]
39	7	3.0-3.5	4693	cpm		[redacted]
39	8	3.5-4.0	4513	cpm		[redacted]
39	9	4.0-4.5	4182	cpm		[redacted]
39	10	4.5-5.0	4099	cpm		[redacted]
39	11	5.0-5.5	4103	cpm		[redacted]
39	12	5.5-6.0	4287	cpm		[redacted]
39	13	6.0-6.5	4501	cpm		[redacted]
39	14	6.5-7.0	4663	cpm		[redacted]
39	15	7.0-7.5	4730	cpm		[redacted]
39	16	7.5-8.0	4799	cpm		[redacted]
39	17	8.0-8.5	4856	cpm		[redacted]
39	18	8.5-9.0	4663	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
40	1	0.0-0.5	3482	cpm		[redacted]
40	2	0.5-1.0	4750	cpm		[redacted]
40	3	1.0-1.5	4200	cpm		[redacted]
40	4	1.5-2.0	4184	cpm		[redacted]
40	5	2.0-2.5	4162	cpm		[redacted]
40	6	2.5-3.0	4612	cpm		[redacted]
40	7	3.0-3.5	4556	cpm		[redacted]
40	8	3.5-4.0	4817	cpm		[redacted]
40	9	4.0-4.5	4480	cpm		[redacted]
40	10	4.5-5.0	4115	cpm		[redacted]
40	11	5.0-5.5	4530	cpm		[redacted]
40	12	5.5-6.0	4701	cpm		[redacted]
40	13	6.0-6.5	4655	cpm		[redacted]
40	14	6.5-7.0	4650	cpm		[redacted]
40	15	7.0-7.5	4602	cpm		[redacted]
40	16	7.5-8.0	4522	cpm		[redacted]
40	17	8.0-8.5	4801	cpm		[redacted]
40	18	8.5-9.0	4451	cpm		[redacted]
42	1	0.0-0.5	4371	cpm		[redacted]
42	2	0.5-1.0	6790	cpm		[redacted]
42	3	1.0-1.5	5648	cpm		[redacted]
42	4	1.5-2.0	4689	cpm		[redacted]
42	5	2.0-2.5	4559	cpm		[redacted]
42	6	2.5-3.0	4366	cpm		[redacted]
42	7	3.0-3.5	4393	cpm		[redacted]
42	8	3.5-4.0	4736	cpm		[redacted]
42	9	4.0-4.5	4473	cpm		[redacted]
42	10	4.5-5.0	4376	cpm		[redacted]
42	11	5.0-5.5	4418	cpm		[redacted]
42	12	5.5-6.0	4343	cpm		[redacted]
42	13	6.0-6.5	4015	cpm		[redacted]
42	14	6.5-7.0	3889	cpm		[redacted]
42	15	7.0-7.5	4077	cpm		[redacted]
42	16	7.5-8.0	3870	cpm		[redacted]
42	17	8.0-8.5	4215	cpm		[redacted]
42	18	8.5-9.0	4179	cpm		[redacted]
43	1	0.0-0.5	3103	cpm		[redacted]
43	2	0.5-1.0	3898	cpm		[redacted]
43	3	1.0-1.5	3493	cpm		[redacted]
43	4	1.5-2.0	3379	cpm		[redacted]
43	5	2.0-2.5	4914	cpm		[redacted]
43	6	2.5-3.0	4772	cpm		[redacted]
43	7	3.0-3.5	4871	cpm		[redacted]
43	8	3.5-4.0	4831	cpm		[redacted]
43	9	4.0-4.5	4718	cpm		[redacted]
43	10	4.5-5.0	4654	cpm		[redacted]
43	21	10.0-10.5	3618	cpm		[redacted]
43	22	10.5-11.0	3531	cpm		[redacted]
43	23	11.0-11.5	3741	cpm		[redacted]
43	24	11.5-12.0	3993	cpm		[redacted]
43	25	12.0-12.5	4185	cpm		[redacted]
43	26	12.5-13.0	4512	cpm		[redacted]
43	27	13.0-13.5	4574	cpm		[redacted]
43	28	13.5-14.0	4843	cpm		[redacted]
46	1	0.0-0.5	82204	cpm		[redacted]
46	2	0.5-1.0	44006	cpm		[redacted]
46	3	1.0-1.5	12649	cpm		[redacted]
46	4	1.5-2.0	6116	cpm		[redacted]
46	5	2.0-2.5	5416	cpm		[redacted]
46	6	2.5-3.0	5051	cpm		[redacted]
46	7	3.0-3.5	4871	cpm		[redacted]
46	8	3.5-4.0	4501	cpm		[redacted]
46	9	4.0-4.5	4717	cpm		[redacted]
46	10	4.5-5.0	4707	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
46	11	5.0-5.5	4724	cpm		[redacted]
46	12	5.5-6.0	4706	cpm		
46	13	6.0-6.5	4610	cpm		
46	14	6.5-7.0	4725	cpm		
46	15	7.0-7.5	4676	cpm		
46	16	7.5-8.0	4741	cpm		
48	1	0.0-0.5	4718	cpm		
48	2	0.5-1.0	6017	cpm		
48	3	1.0-1.5	5755	cpm		
48	4	1.5-2.0	5172	cpm		
48	5	2.0-2.5	4965	cpm		
48	6	2.5-3.0	4704	cpm		
48	7	3.0-3.5	4771	cpm		
48	8	3.5-4.0	4687	cpm		
48	9	4.0-4.5	4609	cpm		
48	10	4.5-5.0	4502	cpm		
48	11	5.0-5.5	4664	cpm		
48	12	5.5-6.0	4711	cpm		
48	13	6.0-6.5	4797	cpm		
48	14	6.5-7.0	4689	cpm		
48	15	7.0-7.5	4652	cpm		
48	16	7.5-8.0	4726	cpm		
48	17	8.0-8.5	4953	cpm		
48	18	8.5-9.0	4792	cpm		
48	19	9.0-9.5	4557	cpm		
49	1	0.0-0.5	2306	cpm		
49	2	0.5-1.0	2937	cpm		
49	3	1.0-1.5	3600	cpm		
49	4	1.5-2.0	4703	cpm		
49	5	2.0-2.5	4908	cpm		
49	6	2.5-3.0	4826	cpm		
49	7	3.0-3.5	4419	cpm		
49	8	3.5-4.0	4104	cpm		
49	9	4.0-4.5	3875	cpm		
49	10	4.5-5.0	4089	cpm		
49	11	5.0-5.5	4204	cpm		
49	12	5.5-6.0	4287	cpm		
49	13	6.0-6.5	4289	cpm		
49	14	6.5-7.0	4477	cpm		
49	15	7.0-7.5	4876	cpm		
49	16	7.5-8.0	4472	cpm		
49	17	8.0-8.5	4654	cpm		
49	18	8.5-9.0	4577	cpm		
49	19	9.0-9.5	4588	cpm		
51	1	0.0-0.5	3318	cpm		
51	2	0.5-1.0	4507	cpm		
51	3	1.0-1.5	5217	cpm		
51	4	1.5-2.0	4989	cpm		
51	5	2.0-2.5	4690	cpm		
51	6	2.5-3.0	4579	cpm		
51	7	3.0-3.5	4382	cpm		
51	8	3.5-4.0	4415	cpm		
51	9	4.0-4.5	4550	cpm		
51	10	4.5-5.0	4658	cpm		
51	11	5.0-5.5	4596	cpm		
51	12	5.5-6.0	4610	cpm		
51	13	6.0-6.5	4665	cpm		
51	14	6.5-7.0	4771	cpm		
51	15	7.0-7.5	4833	cpm		
51	16	7.5-8.0	4828	cpm		
51	17	8.0-8.5	4539	cpm		
51	18	8.5-9.0	4547	cpm		
52	1	0.0-0.5	2381	cpm		
52	2	0.5-1.0	3221	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
52	3	1.0-1.5	4492	cpm		[redacted]
52	4	1.5-2.0	5387	cpm		[redacted]
52	5	2.0-2.5	4545	cpm		[redacted]
52	6	2.5-3.0	4534	cpm		[redacted]
52	7	3.0-3.5	4417	cpm		[redacted]
52	8	3.5-4.0	4247	cpm		[redacted]
52	9	4.0-4.5	4312	cpm		[redacted]
52	10	4.5-5.0	4215	cpm		[redacted]
52	11	5.0-5.5	4425	cpm		[redacted]
52	12	5.5-6.0	4528	cpm		[redacted]
52	13	6.0-6.5	4323	cpm		[redacted]
52	14	6.5-7.0	4475	cpm		[redacted]
52	15	7.0-7.5	4715	cpm		[redacted]
52	16	7.5-8.0	4761	cpm		[redacted]
52	17	8.0-8.5	4774	cpm		[redacted]
52	18	8.5-9.0	4700	cpm		[redacted]
52	19	9.0-9.5	4919	cpm		[redacted]
52	20	9.5-10.0	4893	cpm		[redacted]
53	1	0.0-0.5	3205	cpm		[redacted]
53	2	0.5-1.0	4362	cpm		[redacted]
53	3	1.0-1.5	4674	cpm		[redacted]
53	4	1.5-2.0	4072	cpm		[redacted]
53	5	2.0-2.5	3962	cpm		[redacted]
53	6	2.5-3.0	4080	cpm		[redacted]
53	7	3.0-3.5	4084	cpm		[redacted]
53	8	3.5-4.0	4221	cpm		[redacted]
53	9	4.0-4.5	4173	cpm		[redacted]
53	10	4.5-5.0	4160	cpm		[redacted]
53	11	5.0-5.5	4208	cpm		[redacted]
53	12	5.5-6.0	4304	cpm		[redacted]
53	13	6.0-6.5	4514	cpm		[redacted]
53	14	6.5-7.0	5023	cpm		[redacted]
53	15	7.0-7.5	4956	cpm		[redacted]
53	16	7.5-8.0	5208	cpm		[redacted]
53	17	8.0-8.5	5204	cpm		[redacted]
53	18	8.5-9.0	5106	cpm		[redacted]
53	19	9.0-9.5	4977	cpm		[redacted]
53	20	9.5-10.0	4606	cpm		[redacted]
58	1	0.0-0.5	1899	cpm		[redacted]
58	2	0.5-1.0	2368	cpm		[redacted]
58	3	1.0-1.5	3510	cpm		[redacted]
58	4	1.5-2.0	4019	cpm		[redacted]
58	5	2.0-2.5	4336	cpm		[redacted]
58	6	2.5-3.0	4251	cpm		[redacted]
58	7	3.0-3.5	4757	cpm		[redacted]
58	8	3.5-4.0	4581	cpm		[redacted]
58	9	4.0-4.5	4550	cpm		[redacted]
58	10	4.5-5.0	4770	cpm		[redacted]
58	11	5.0-5.5	4623	cpm		[redacted]
58	12	5.5-6.0	4665	cpm		[redacted]
58	13	6.0-6.5	4716	cpm		[redacted]
58	14	6.5-7.0	4726	cpm		[redacted]
58	15	7.0-7.5	4615	cpm		[redacted]
58	16	7.5-8.0	4776	cpm		[redacted]
58	17	8.0-8.5	4506	cpm		[redacted]
58	18	8.5-9.0	4653	cpm		[redacted]
58	19	9.0-9.5	4611	cpm		[redacted]
58	20	9.5-10.0	4481	cpm		[redacted]
62	1	0.0-0.5	28173	cpm		[redacted]
62	2	0.5-1.0	8535	cpm		[redacted]
62	3	1.0-1.5	10581	cpm		[redacted]
62	4	1.5-2.0	7734	cpm		[redacted]
62	5	2.0-2.5	5888	cpm		[redacted]
62	6	2.5-3.0	4856	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
62	7	3.0-3.5	4454	cpm		[redacted]
62	8	3.5-4.0	4286	cpm		[redacted]
62	9	4.0-4.5	4998	cpm		[redacted]
62	10	4.5-5.0	4461	cpm		[redacted]
62	11	5.0-5.5	4508	cpm		[redacted]
62	12	5.5-6.0	4491	cpm		[redacted]
62	13	6.0-6.5	4536	cpm		[redacted]
62	14	6.5-7.0	4476	cpm		[redacted]
62	15	7.0-7.5	4600	cpm		[redacted]
62	16	7.5-8.0	4409	cpm		[redacted]
62	17	8.0-8.5	4546	cpm		[redacted]
62	18	8.5-9.0	4448	cpm		[redacted]
62	19	9.0-9.5	4638	cpm		[redacted]
62	20	9.5-10.0	4421	cpm		[redacted]
63	1	0.0-0.5	4521	cpm		[redacted]
63	2	0.5-1.0	3523	cpm		[redacted]
63	3	1.0-1.5	3133	cpm		[redacted]
63	4	1.5-2.0	2890	cpm		[redacted]
63	5	2.0-2.5	2780	cpm		[redacted]
63	6	2.5-3.0	2984	cpm		[redacted]
63	7	3.0-3.5	3300	cpm		[redacted]
63	8	3.5-4.0	3628	cpm		[redacted]
63	9	4.0-4.5	3893	cpm		[redacted]
63	10	4.5-5.0	3702	cpm		[redacted]
63	11	5.0-5.5	3741	cpm		[redacted]
63	12	5.5-6.0	4420	cpm		[redacted]
63	13	6.0-6.5	4667	cpm		[redacted]
64	1	0.0-0.5	3530	cpm		[redacted]
64	2	0.5-1.0	3780	cpm		[redacted]
64	3	1.0-1.5	3794	cpm		[redacted]
64	4	1.5-2.0	3593	cpm		[redacted]
64	5	2.0-2.5	3351	cpm		[redacted]
64	6	2.5-3.0	3419	cpm		[redacted]
64	7	3.0-3.5	3494	cpm		[redacted]
64	8	3.5-4.0	3496	cpm		[redacted]
64	9	4.0-4.5	3863	cpm		[redacted]
64	10	4.5-5.0	3815	cpm		[redacted]
64	11	5.0-5.5	3696	cpm		[redacted]
64	12	5.5-6.0	4067	cpm		[redacted]
64	13	6.0-6.5	4461	cpm		[redacted]
64	14	6.5-7.0	4750	cpm		[redacted]
64	15	7.0-7.5	4615	cpm		[redacted]
65	1	0.0-0.5	6850	cpm		[redacted]
65	2	0.5-1.0	6909	cpm		[redacted]
65	3	1.0-1.5	5712	cpm		[redacted]
65	4	1.5-2.0	5280	cpm		[redacted]
65	5	2.0-2.5	5096	cpm		[redacted]
65	6	2.5-3.0	3908	cpm		[redacted]
65	7	3.0-3.5	3628	cpm		[redacted]
65	8	3.5-4.0	3676	cpm		[redacted]
65	9	4.0-4.5	3991	cpm		[redacted]
65	10	4.5-5.0	3894	cpm		[redacted]
65	11	5.0-5.5	3822	cpm		[redacted]
65	12	5.5-6.0	3776	cpm		[redacted]
65	13	6.0-6.5	4210	cpm		[redacted]
65	14	6.5-7.0	4271	cpm		[redacted]
65	15	7.0-7.5	4115	cpm		[redacted]
65	16	7.5-8.0	4421	cpm		[redacted]
65	17	8.0-8.5	4606	cpm		[redacted]
65	18	8.5-9.0	4804	cpm		[redacted]
66	1	0.0-0.5	4691	cpm		[redacted]
66	2	0.5-1.0	5517	cpm		[redacted]
66	3	1.0-1.5	4975	cpm		[redacted]
66	4	1.5-2.0	3816	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
66	5	2.0-2.5	3424	cpm		[redacted]
66	6	2.5-3.0	3316	cpm		[redacted]
66	7	3.0-3.5	3490	cpm		[redacted]
66	8	3.5-4.0	3447	cpm		[redacted]
66	9	4.0-4.5	3589	cpm		[redacted]
66	10	4.5-5.0	3745	cpm		[redacted]
66	11	5.0-5.5	3657	cpm		[redacted]
66	12	5.5-6.0	3910	cpm		[redacted]
66	13	6.0-6.5	4270	cpm		[redacted]
66	14	6.5-7.0	4523	cpm		[redacted]
66	15	7.0-7.5	4249	cpm		[redacted]
66	16	7.5-8.0	4349	cpm		[redacted]
66	17	8.0-8.5	4158	cpm		[redacted]
67	1	0.0-0.5	3850	cpm		[redacted]
67	2	0.5-1.0	4309	cpm		[redacted]
67	3	1.0-1.5	4424	cpm		[redacted]
67	4	1.5-2.0	4602	cpm		[redacted]
67	5	2.0-2.5	3745	cpm		[redacted]
67	6	2.5-3.0	3505	cpm		[redacted]
67	7	3.0-3.5	3244	cpm		[redacted]
67	8	3.5-4.0	3358	cpm		[redacted]
67	9	4.0-4.5	3376	cpm		[redacted]
67	10	4.5-5.0	3476	cpm		[redacted]
67	11	5.0-5.5	3505	cpm		[redacted]
67	12	5.5-6.0	4106	cpm		[redacted]
67	13	6.0-6.5	4421	cpm		[redacted]
67	14	6.5-7.0	4474	cpm		[redacted]
67	15	7.0-7.5	4406	cpm		[redacted]
67	16	7.5-8.0	4575	cpm		[redacted]
67	17	8.0-8.5	4405	cpm		[redacted]
67	18	8.5-9.0	4577	cpm		[redacted]
67	19	9.0-9.5	4709	cpm		[redacted]
67	20	9.5-10.0	4503	cpm		[redacted]
68	1	0.0-0.5	3458	cpm		[redacted]
68	2	0.5-1.0	4271	cpm		[redacted]
68	3	1.0-1.5	3507	cpm		[redacted]
68	4	1.5-2.0	3709	cpm		[redacted]
68	5	2.0-2.5	3725	cpm		[redacted]
68	6	2.5-3.0	3708	cpm		[redacted]
68	7	3.0-3.5	3545	cpm		[redacted]
68	8	3.5-4.0	3408	cpm		[redacted]
68	9	4.0-4.5	3604	cpm		[redacted]
68	10	4.5-5.0	3606	cpm		[redacted]
68	11	5.0-5.5	3759	cpm		[redacted]
68	12	5.5-6.0	4171	cpm		[redacted]
68	13	6.0-6.5	4405	cpm		[redacted]
68	14	6.5-7.0	4576	cpm		[redacted]
68	15	7.0-7.5	4671	cpm		[redacted]
69	1	0.0-0.5	3014	cpm		[redacted]
69	2	0.5-1.0	3502	cpm		[redacted]
69	3	1.0-1.5	4009	cpm		[redacted]
69	4	1.5-2.0	3608	cpm		[redacted]
69	5	2.0-2.5	3651	cpm		[redacted]
69	6	2.5-3.0	3771	cpm		[redacted]
69	7	3.0-3.5	3608	cpm		[redacted]
69	8	3.5-4.0	3509	cpm		[redacted]
69	9	4.0-4.5	4147	cpm		[redacted]
69	10	4.5-5.0	4500	cpm		[redacted]
69	11	5.0-5.5	4714	cpm		[redacted]
69	12	5.5-6.0	4673	cpm		[redacted]
69	13	6.0-6.5	4502	cpm		[redacted]
69	14	6.5-7.0	4479	cpm		[redacted]
69	15	7.0-7.5	4475	cpm		[redacted]
69	16	7.5-8.0	4573	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
69	17	8.0-8.5	4628	cpm		[redacted]
69	18	8.5-9.0	4808	cpm		[redacted]
69	19	9.0-9.5	4713	cpm		[redacted]
69	20	9.5-10.0	4807	cpm		[redacted]
70	1	0.0-0.5	7509	cpm	Rubble pile. Above ground surface.	[redacted]
70	2	0.5-1.0	7141	cpm	Rubble pile. Above ground surface.	[redacted]
70	3	1.0-1.5	5577	cpm	Rubble pile. Above ground surface.	[redacted]
70	4	1.5-2.0	5573	cpm	Rubble pile. Above ground surface.	[redacted]
70	5	2.0-2.5	5157	cpm	Rubble pile. Above ground surface.	[redacted]
70	6	2.5-3.0	5609	cpm	Rubble pile. Above ground surface.	[redacted]
70	7	3.0-3.5	5506	cpm	Rubble pile. Above ground surface.	[redacted]
70	8	3.5-4.0	5501	cpm	Rubble pile. Above ground surface.	[redacted]
70	9	4.0-4.5	5048	cpm		[redacted]
70	10	4.5-5.0	4921	cpm		[redacted]
70	11	5.0-5.5	4605	cpm		[redacted]
70	12	5.5-6.0	4219	cpm		[redacted]
70	13	6.0-6.5	4078	cpm		[redacted]
70	14	6.5-7.0	4112	cpm		[redacted]
70	15	7.0-7.5	4171	cpm		[redacted]
70	16	7.5-8.0	4206	cpm		[redacted]
70	17	8.0-8.5	4509	cpm		[redacted]
70	18	8.5-9.0	4504	cpm		[redacted]
70	19	9.0-9.5	4502	cpm		[redacted]
70	20	9.5-10.0	4354	cpm		[redacted]
71	1	0.0-0.5	4909	cpm		[redacted]
71	2	0.5-1.0	4882	cpm		[redacted]
71	3	1.0-1.5	4428	cpm		[redacted]
71	4	1.5-2.0	4203	cpm		[redacted]
71	5	2.0-2.5	3854	cpm		[redacted]
71	6	2.5-3.0	4008	cpm		[redacted]
71	7	3.0-3.5	4000	cpm		[redacted]
71	8	3.5-4.0	4218	cpm		[redacted]
71	9	4.0-4.5	4742	cpm		[redacted]
71	10	4.5-5.0	4908	cpm		[redacted]
71	11	5.0-5.5	4676	cpm		[redacted]
71	12	5.5-6.0	4614	cpm		[redacted]
71	13	6.0-6.5	4707	cpm		[redacted]
71	14	6.5-7.0	4505	cpm		[redacted]
71	15	7.0-7.5	4473	cpm		[redacted]
71	16	7.5-8.0	4571	cpm		[redacted]
72	1	0.0-0.5	3509	cpm		[redacted]
72	2	0.5-1.0	4158	cpm		[redacted]
72	3	1.0-1.5	3974	cpm		[redacted]
72	4	1.5-2.0	3912	cpm		[redacted]
72	5	2.0-2.5	4074	cpm		[redacted]
72	6	2.5-3.0	4058	cpm		[redacted]
72	7	3.0-3.5	4006	cpm		[redacted]
72	8	3.5-4.0	4001	cpm		[redacted]
72	9	4.0-4.5	4329	cpm		[redacted]
72	10	4.5-5.0	4307	cpm		[redacted]
72	11	5.0-5.5	4455	cpm		[redacted]
72	12	5.5-6.0	4503	cpm		[redacted]
72	13	6.0-6.5	4372	cpm		[redacted]
72	14	6.5-7.0	4503	cpm		[redacted]
72	15	7.0-7.5	4408	cpm		[redacted]
72	16	7.5-8.0	4509	cpm		[redacted]
72	17	8.0-8.5	4928	cpm		[redacted]
72	18	8.5-9.0	4806	cpm		[redacted]
72	19	9.0-9.5	5025	cpm		[redacted]
72	20	9.5-10.0	4671	cpm		[redacted]
73	1	0.0-0.5	2981	cpm		[redacted]
73	2	0.5-1.0	3895	cpm		[redacted]
73	3	1.0-1.5	3974	cpm		[redacted]
73	4	1.5-2.0	4157	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
73	5	2.0-2.5	4204	cpm		[redacted]
73	6	2.5-3.0	4226	cpm		[redacted]
73	7	3.0-3.5	4357	cpm		[redacted]
73	8	3.5-4.0	4371	cpm		[redacted]
73	9	4.0-4.5	4593	cpm		[redacted]
73	10	4.5-5.0	4595	cpm		[redacted]
73	11	5.0-5.5	4442	cpm		[redacted]
73	12	5.5-6.0	4483	cpm		[redacted]
73	13	6.0-6.5	4574	cpm		[redacted]
73	14	6.5-7.0	4584	cpm		[redacted]
73	15	7.0-7.5	4997	cpm		[redacted]
73	16	7.5-8.0	4790	cpm		[redacted]
73	17	8.0-8.5	4506	cpm		[redacted]
73	18	8.5-9.0	4588	cpm		[redacted]
73	19	9.0-9.5	4454	cpm		[redacted]
73	20	9.5-10.0	4459	cpm		[redacted]
74	1	0.0-0.5	3508	cpm		[redacted]
74	2	0.5-1.0	3690	cpm		[redacted]
74	3	1.0-1.5	3700	cpm		[redacted]
74	4	1.5-2.0	3671	cpm		[redacted]
74	5	2.0-2.5	3679	cpm		[redacted]
74	6	2.5-3.0	3510	cpm		[redacted]
74	7	3.0-3.5	3608	cpm		[redacted]
74	8	3.5-4.0	4070	cpm		[redacted]
74	9	4.0-4.5	4507	cpm		[redacted]
74	10	4.5-5.0	4677	cpm		[redacted]
74	11	5.0-5.5	4702	cpm		[redacted]
74	12	5.5-6.0	4604	cpm		[redacted]
74	13	6.0-6.5	4513	cpm		[redacted]
74	14	6.5-7.0	5017	cpm		[redacted]
74	15	7.0-7.5	4607	cpm		[redacted]
74	16	7.5-8.0	4701	cpm		[redacted]
74	17	8.0-8.5	4526	cpm		[redacted]
74	18	8.5-9.0	4500	cpm		[redacted]
74	19	9.0-9.5	4771	cpm		[redacted]
74	20	9.5-10.0	4706	cpm		[redacted]
75	1	0.0-0.5	3528	cpm		[redacted]
75	2	0.5-1.0	3508	cpm		[redacted]
75	3	1.0-1.5	4571	cpm		[redacted]
75	4	1.5-2.0	4503	cpm		[redacted]
75	5	2.0-2.5	4005	cpm		[redacted]
75	6	2.5-3.0	4000	cpm		[redacted]
75	7	3.0-3.5	4007	cpm		[redacted]
75	8	3.5-4.0	3576	cpm		[redacted]
75	9	4.0-4.5	4707	cpm		[redacted]
75	10	4.5-5.0	4559	cpm		[redacted]
75	11	5.0-5.5	4508	cpm		[redacted]
75	12	5.5-6.0	4503	cpm		[redacted]
75	13	6.0-6.5	4573	cpm		[redacted]
75	14	6.5-7.0	4516	cpm		[redacted]
75	15	7.0-7.5	4627	cpm		[redacted]
75	16	7.5-8.0	4773	cpm		[redacted]
75	17	8.0-8.5	4700	cpm		[redacted]
75	18	8.5-9.0	4506	cpm		[redacted]
75	19	9.0-9.5	4325	cpm		[redacted]
75	20	9.5-10.0	4403	cpm		[redacted]
76	1	0.0-0.5	4301	cpm		[redacted]
76	2	0.5-1.0	4758	cpm		[redacted]
76	3	1.0-1.5	4776	cpm		[redacted]
76	4	1.5-2.0	4700	cpm		[redacted]
76	5	2.0-2.5	4506	cpm		[redacted]
76	6	2.5-3.0	4306	cpm		[redacted]
76	7	3.0-3.5	4347	cpm		[redacted]
76	8	3.5-4.0	4073	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
76	9	4.0-4.5	4306	cpm		[redacted]
76	10	4.5-5.0	4420	cpm		[redacted]
76	11	5.0-5.5	4503	cpm		[redacted]
76	12	5.5-6.0	4275	cpm		[redacted]
76	13	6.0-6.5	4546	cpm		[redacted]
76	14	6.5-7.0	4410	cpm		[redacted]
76	15	7.0-7.5	4500	cpm		[redacted]
76	16	7.5-8.0	4502	cpm		[redacted]
76	17	8.0-8.5	4673	cpm		[redacted]
76	18	8.5-9.0	4709	cpm		[redacted]
76	19	9.0-9.5	4679	cpm		[redacted]
76	20	9.5-10.0	4558	cpm		[redacted]
78	1	0.0-0.5	3500	cpm		[redacted]
78	2	0.5-1.0	8507	cpm		[redacted]
78	3	1.0-1.5	6400	cpm		[redacted]
78	4	1.5-2.0	5516	cpm		[redacted]
78	5	2.0-2.5	4600	cpm		[redacted]
78	6	2.5-3.0	4400	cpm		[redacted]
78	7	3.0-3.5	4528	cpm		[redacted]
78	8	3.5-4.0	4450	cpm		[redacted]
78	9	4.0-4.5	4503	cpm		[redacted]
78	10	4.5-5.0	4703	cpm		[redacted]
78	11	5.0-5.5	4677	cpm		[redacted]
78	12	5.5-6.0	4707	cpm		[redacted]
78	13	6.0-6.5	4678	cpm		[redacted]
78	14	6.5-7.0	4572	cpm		[redacted]
78	15	7.0-7.5	4506	cpm		[redacted]
78	16	7.5-8.0	4675	cpm		[redacted]
79	1	0.0-0.5	5427	cpm		[redacted]
79	2	0.5-1.0	15501	cpm		[redacted]
79	3	1.0-1.5	23252	cpm		[redacted]
79	4	1.5-2.0	31545	cpm		[redacted]
79	5	2.0-2.5	55604	cpm		[redacted]
79	6	2.5-3.0	46489	cpm		[redacted]
79	7	3.0-3.5	27564	cpm		[redacted]
79	8	3.5-4.0	29209	cpm		[redacted]
79	9	4.0-4.5	44684	cpm		[redacted]
79	10	4.5-5.0	85507	cpm		[redacted]
79	11	5.0-5.5	39201	cpm		[redacted]
79	12	5.5-6.0	19501	cpm		[redacted]
80	1	0.0-0.5	1401	cpm		[redacted]
80	2	0.5-1.0	1520	cpm		[redacted]
80	3	1.0-1.5	1676	cpm		[redacted]
80	4	1.5-2.0	2720	cpm		[redacted]
80	5	2.0-2.5	6605	cpm		[redacted]
80	6	2.5-3.0	9171	cpm		[redacted]
80	7	3.0-3.5	11640	cpm		[redacted]
80	8	3.5-4.0	11247	cpm		[redacted]
81	1	0.0-0.5	1537	cpm		[redacted]
81	2	0.5-1.0	1604	cpm		[redacted]
81	3	1.0-1.5	2647	cpm		[redacted]
81	4	1.5-2.0	6609	cpm		[redacted]
81	5	2.0-2.5	14507	cpm		[redacted]
81	6	2.5-3.0	10028	cpm		[redacted]
81	7	3.0-3.5	6751	cpm		[redacted]
81	8	3.5-4.0	5571	cpm		[redacted]
81	9	4.0-4.5	5220	cpm		[redacted]
81	10	4.5-5.0	4508	cpm		[redacted]
81	11	5.0-5.5	4756	cpm		[redacted]
81	12	5.5-6.0	4709	cpm		[redacted]
81	13	6.0-6.5	4656	cpm		[redacted]
81	14	6.5-7.0	4756	cpm		[redacted]
81	15	7.0-7.5	4602	cpm		[redacted]
81	16	7.5-8.0	4678	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
82	1	0.0-0.5	2225	cpm		[redacted]
82	2	0.5-1.0	3005	cpm		[redacted]
82	3	1.0-1.5	4179	cpm		[redacted]
82	4	1.5-2.0	8602	cpm		[redacted]
82	5	2.0-2.5	11520	cpm		[redacted]
82	6	2.5-3.0	7578	cpm		[redacted]
82	7	3.0-3.5	5616	cpm		[redacted]
82	8	3.5-4.0	4958	cpm		[redacted]
82	9	4.0-4.5	4473	cpm		[redacted]
82	10	4.5-5.0	4011	cpm		[redacted]
82	11	5.0-5.5	4009	cpm		[redacted]
82	12	5.5-6.0	3925	cpm		[redacted]
82	13	6.0-6.5	4243	cpm		[redacted]
82	14	6.5-7.0	4657	cpm		[redacted]
82	15	7.0-7.5	5002	cpm		[redacted]
82	16	7.5-8.0	4903	cpm		[redacted]
83	1	0.0-0.5	2102	cpm		[redacted]
83	2	0.5-1.0	2515	cpm		[redacted]
83	3	1.0-1.5	3600	cpm		[redacted]
83	4	1.5-2.0	4955	cpm		[redacted]
83	5	2.0-2.5	5607	cpm		[redacted]
83	6	2.5-3.0	4925	cpm		[redacted]
83	7	3.0-3.5	4606	cpm		[redacted]
83	8	3.5-4.0	4207	cpm		[redacted]
83	9	4.0-4.5	3908	cpm		[redacted]
83	10	4.5-5.0	3678	cpm		[redacted]
83	11	5.0-5.5	3712	cpm		[redacted]
83	12	5.5-6.0	3607	cpm		[redacted]
83	13	6.0-6.5	3653	cpm		[redacted]
83	14	6.5-7.0	3972	cpm		[redacted]
83	15	7.0-7.5	4205	cpm		[redacted]
83	16	7.5-8.0	4007	cpm		[redacted]
84	1	0.0-0.5	2103	cpm		[redacted]
84	2	0.5-1.0	2205	cpm		[redacted]
84	3	1.0-1.5	3206	cpm		[redacted]
84	4	1.5-2.0	4453	cpm		[redacted]
84	5	2.0-2.5	5573	cpm		[redacted]
84	6	2.5-3.0	5416	cpm		[redacted]
84	7	3.0-3.5	5202	cpm		[redacted]
84	8	3.5-4.0	5246	cpm		[redacted]
84	9	4.0-4.5	4907	cpm		[redacted]
84	10	4.5-5.0	4605	cpm		[redacted]
84	11	5.0-5.5	4777	cpm		[redacted]
84	12	5.5-6.0	4606	cpm		[redacted]
84	13	6.0-6.5	4478	cpm		[redacted]
84	14	6.5-7.0	3506	cpm		[redacted]
84	15	7.0-7.5	3720	cpm		[redacted]
84	16	7.5-8.0	3673	cpm		[redacted]
85	1	0.0-0.5	2104	cpm		[redacted]
85	2	0.5-1.0	3008	cpm		[redacted]
85	3	1.0-1.5	4240	cpm		[redacted]
85	4	1.5-2.0	4545	cpm		[redacted]
85	5	2.0-2.5	4608	cpm		[redacted]
85	6	2.5-3.0	4570	cpm		[redacted]
85	7	3.0-3.5	4627	cpm		[redacted]
85	8	3.5-4.0	4501	cpm		[redacted]
85	9	4.0-4.5	4600	cpm		[redacted]
85	10	4.5-5.0	4976	cpm		[redacted]
85	11	5.0-5.5	4771	cpm		[redacted]
85	12	5.5-6.0	4474	cpm		[redacted]
85	13	6.0-6.5	4407	cpm		[redacted]
85	14	6.5-7.0	4376	cpm		[redacted]
85	15	7.0-7.5	4008	cpm		[redacted]
85	16	7.5-8.0	4502	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
86	1	0.0-0.5	2276	cpm		[redacted]
86	2	0.5-1.0	4506	cpm		
86	3	1.0-1.5	7575	cpm		
86	4	1.5-2.0	15529	cpm		
86	5	2.0-2.5	7674	cpm		
86	6	2.5-3.0	5578	cpm		
86	7	3.0-3.5	4503	cpm		
86	8	3.5-4.0	4600	cpm		
86	9	4.0-4.5	4423	cpm		
86	10	4.5-5.0	4171	cpm		
86	11	5.0-5.5	3507	cpm		
86	12	5.5-6.0	3521	cpm		
86	13	6.0-6.5	4208	cpm		
86	14	6.5-7.0	4708	cpm		
86	15	7.0-7.5	4571	cpm		
86	16	7.5-8.0	4614	cpm		
87	1	0.0-0.5	1401	cpm		
87	2	0.5-1.0	1672	cpm		
87	3	1.0-1.5	2270	cpm		
87	4	1.5-2.0	3520	cpm		
87	5	2.0-2.5	3757	cpm		
87	6	2.5-3.0	3512	cpm		
87	7	3.0-3.5	4009	cpm		
87	8	3.5-4.0	4706	cpm		
87	9	4.0-4.5	4528	cpm		
87	10	4.5-5.0	4520	cpm		
87	11	5.0-5.5	3576	cpm		
87	12	5.5-6.0	3575	cpm		
87	13	6.0-6.5	4421	cpm		
87	14	6.5-7.0	4577	cpm		
87	15	7.0-7.5	4727	cpm		
87	16	7.5-8.0	4610	cpm		
88	1	0.0-0.5	1504	cpm		
88	2	0.5-1.0	1773	cpm		
88	3	1.0-1.5	2589	cpm		
88	4	1.5-2.0	3512	cpm		
88	5	2.0-2.5	3108	cpm		
88	6	2.5-3.0	3170	cpm		
88	7	3.0-3.5	3201	cpm		
88	8	3.5-4.0	3204	cpm		
88	9	4.0-4.5	3576	cpm		
88	10	4.5-5.0	3457	cpm		
88	11	5.0-5.5	3604	cpm		
88	12	5.5-6.0	3655	cpm		
89	1	0.0-0.5	1571	cpm		
89	2	0.5-1.0	2103	cpm		
89	3	1.0-1.5	3610	cpm		
89	4	1.5-2.0	3677	cpm		
89	5	2.0-2.5	3625	cpm		
89	6	2.5-3.0	3501	cpm		
89	7	3.0-3.5	3401	cpm		
89	8	3.5-4.0	3620	cpm		
89	9	4.0-4.5	3635	cpm		
89	10	4.5-5.0	3672	cpm		
89	11	5.0-5.5	4072	cpm		
89	12	5.5-6.0	4405	cpm		
89	13	6.0-6.5	4507	cpm		
89	14	6.5-7.0	4579	cpm		
89	15	7.0-7.5	4519	cpm		
90	1	0.0-0.5	4477	cpm		
90	2	0.5-1.0	4410	cpm		
90	3	1.0-1.5	3702	cpm		
90	4	1.5-2.0	3578	cpm		
90	5	2.0-2.5	3577	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
90	6	2.5-3.0	3500	cpm		[redacted]
90	7	3.0-3.5	3622	cpm		[redacted]
90	8	3.5-4.0	3611	cpm		[redacted]
90	9	4.0-4.5	3702	cpm		[redacted]
90	10	4.5-5.0	3572	cpm		[redacted]
90	11	5.0-5.5	3714	cpm		[redacted]
90	12	5.5-6.0	3510	cpm		[redacted]
90	13	6.0-6.5	4622	cpm		[redacted]
90	14	6.5-7.0	4603	cpm		[redacted]
90	15	7.0-7.5	4573	cpm		[redacted]
90	16	7.5-8.0	4777	cpm		[redacted]
91	1	0.0-0.5	2079	cpm		[redacted]
91	2	0.5-1.0	3659	cpm		[redacted]
91	3	1.0-1.5	5675	cpm		[redacted]
91	4	1.5-2.0	8521	cpm		[redacted]
91	5	2.0-2.5	9407	cpm		[redacted]
91	6	2.5-3.0	6746	cpm		[redacted]
91	7	3.0-3.5	5005	cpm		[redacted]
91	8	3.5-4.0	4415	cpm		[redacted]
91	9	4.0-4.5	4103	cpm		[redacted]
91	10	4.5-5.0	4216	cpm		[redacted]
91	11	5.0-5.5	4671	cpm		[redacted]
91	12	5.5-6.0	4600	cpm		[redacted]
91	13	6.0-6.5	4545	cpm		[redacted]
91	14	6.5-7.0	4607	cpm		[redacted]
91	15	7.0-7.5	4509	cpm		[redacted]
92	1	0.0-0.5	3410	cpm		[redacted]
92	2	0.5-1.0	4202	cpm		[redacted]
92	3	1.0-1.5	4444	cpm		[redacted]
92	4	1.5-2.0	4303	cpm		[redacted]
92	5	2.0-2.5	4571	cpm		[redacted]
92	6	2.5-3.0	4206	cpm		[redacted]
92	7	3.0-3.5	4503	cpm		[redacted]
92	8	3.5-4.0	4601	cpm		[redacted]
92	9	4.0-4.5	4707	cpm		[redacted]
92	10	4.5-5.0	4601	cpm		[redacted]
92	11	5.0-5.5	4403	cpm		[redacted]
92	12	5.5-6.0	4447	cpm		[redacted]
92	13	6.0-6.5	4404	cpm		[redacted]
92	14	6.5-7.0	4530	cpm		[redacted]
92	15	7.0-7.5	4409	cpm		[redacted]
92	16	7.5-8.0	4573	cpm		[redacted]
93	1	0.0-0.5	3675	cpm		[redacted]
93	2	0.5-1.0	4605	cpm		[redacted]
93	3	1.0-1.5	4848	cpm		[redacted]
93	4	1.5-2.0	4575	cpm		[redacted]
93	5	2.0-2.5	4505	cpm		[redacted]
93	6	2.5-3.0	4544	cpm		[redacted]
93	7	3.0-3.5	4740	cpm		[redacted]
93	8	3.5-4.0	4612	cpm		[redacted]
93	9	4.0-4.5	4601	cpm		[redacted]
93	10	4.5-5.0	4708	cpm		[redacted]
93	11	5.0-5.5	4607	cpm		[redacted]
93	12	5.5-6.0	7122	cpm		[redacted]
94	1	0.0-0.5	2309	cpm		[redacted]
94	2	0.5-1.0	3500	cpm		[redacted]
94	3	1.0-1.5	4003	cpm		[redacted]
94	4	1.5-2.0	4573	cpm		[redacted]
94	5	2.0-2.5	4203	cpm		[redacted]
94	6	2.5-3.0	4111	cpm		[redacted]
94	7	3.0-3.5	4271	cpm		[redacted]
94	8	3.5-4.0	4516	cpm		[redacted]
94	9	4.0-4.5	4504	cpm		[redacted]
94	10	4.5-5.0	4506	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	
94	11	5.0-5.5	4504	cpm		[redacted]
94	12	5.5-6.0	4415	cpm		[redacted]
94	13	6.0-6.5	4611	cpm		[redacted]
94	14	6.5-7.0	4605	cpm		[redacted]
94	15	7.0-7.5	4501	cpm		[redacted]
95	1	0.0-0.5	2901	cpm		[redacted]
95	2	0.5-1.0	3206	cpm		[redacted]
95	3	1.0-1.5	2574	cpm		[redacted]
95	4	1.5-2.0	2124	cpm		[redacted]
95	5	2.0-2.5	3903	cpm		[redacted]
95	6	2.5-3.0	4158	cpm		[redacted]
95	7	3.0-3.5	4587	cpm		[redacted]
95	8	3.5-4.0	4504	cpm		[redacted]
95	9	4.0-4.5	4504	cpm		[redacted]
95	10	4.5-5.0	4676	cpm		[redacted]
95	11	5.0-5.5	4600	cpm		[redacted]
95	12	5.5-6.0	4674	cpm		[redacted]
95	13	6.0-6.5	4774	cpm		[redacted]
95	14	6.5-7.0	4675	cpm		[redacted]
96	1	0.0-0.5	3153	cpm		[redacted]
96	2	0.5-1.0	4617	cpm		[redacted]
96	3	1.0-1.5	5030	cpm		[redacted]
96	4	1.5-2.0	4546	cpm		[redacted]
96	5	2.0-2.5	4716	cpm		[redacted]
96	6	2.5-3.0	4537	cpm		[redacted]
96	7	3.0-3.5	4520	cpm		[redacted]
96	8	3.5-4.0	4509	cpm		[redacted]
96	9	4.0-4.5	4520	cpm		[redacted]
96	10	4.5-5.0	4541	cpm		[redacted]
96	11	5.0-5.5	4571	cpm		[redacted]
96	12	5.5-6.0	4758	cpm		[redacted]
96	13	6.0-6.5	4629	cpm		[redacted]
96	14	6.5-7.0	4670	cpm		[redacted]
96	15	7.0-7.5	4930	cpm		[redacted]
96	16	7.5-8.0	4102	cpm		[redacted]
97	1	0.0-0.5	4902	cpm		[redacted]
97	2	0.5-1.0	4709	cpm		[redacted]
97	3	1.0-1.5	8529	cpm		[redacted]
97	4	1.5-2.0	5257	cpm		[redacted]
97	5	2.0-2.5	4622	cpm		[redacted]
97	6	2.5-3.0	4677	cpm		[redacted]
97	7	3.0-3.5	4533	cpm		[redacted]
97	8	3.5-4.0	4704	cpm		[redacted]
97	9	4.0-4.5	4701	cpm		[redacted]
97	10	4.5-5.0	4606	cpm		[redacted]
97	11	5.0-5.5	4739	cpm		[redacted]
97	12	5.5-6.0	4635	cpm		[redacted]
97	13	6.0-6.5	4574	cpm		[redacted]
97	14	6.5-7.0	4656	cpm		[redacted]
98	1	0.0-0.5	1408	cpm		[redacted]
98	2	0.5-1.0	6043	cpm		[redacted]
98	3	1.0-1.5	10109	cpm		[redacted]
98	4	1.5-2.0	6012	cpm		[redacted]
98	5	2.0-2.5	4907	cpm		[redacted]
98	6	2.5-3.0	4748	cpm		[redacted]
98	7	3.0-3.5	4651	cpm		[redacted]
98	8	3.5-4.0	4678	cpm		[redacted]
98	9	4.0-4.5	4528	cpm		[redacted]
98	10	4.5-5.0	4407	cpm		[redacted]
98	11	5.0-5.5	4453	cpm		[redacted]
98	12	5.5-6.0	4553	cpm		[redacted]
98	13	6.0-6.5	4604	cpm		[redacted]
98	14	6.5-7.0	4606	cpm		[redacted]
98	15	7.0-7.5	4720	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
99	1	0.0-0.5	1508	cpm		[redacted]
99	2	0.5-1.0	2142	cpm		[redacted]
99	3	1.0-1.5	4109	cpm		[redacted]
99	4	1.5-2.0	4570	cpm		[redacted]
99	5	2.0-2.5	4578	cpm		[redacted]
99	6	2.5-3.0	4627	cpm		[redacted]
99	7	3.0-3.5	4700	cpm		[redacted]
99	8	3.5-4.0	4403	cpm		[redacted]
99	9	4.0-4.5	4256	cpm		[redacted]
99	10	4.5-5.0	4114	cpm		[redacted]
99	11	5.0-5.5	4506	cpm		[redacted]
99	12	5.5-6.0	4200	cpm		[redacted]
100	1	0.0-0.5	4604	cpm		[redacted]
100	2	0.5-1.0	4555	cpm		[redacted]
100	3	1.0-1.5	4657	cpm		[redacted]
100	4	1.5-2.0	4833	cpm		[redacted]
100	5	2.0-2.5	4674	cpm		[redacted]
100	6	2.5-3.0	5737	cpm		[redacted]
100	7	3.0-3.5	4853	cpm		[redacted]
100	8	3.5-4.0	4586	cpm		[redacted]
100	9	4.0-4.5	4131	cpm		[redacted]
100	10	4.5-5.0	4024	cpm		[redacted]
100	11	5.0-5.5	3972	cpm		[redacted]
100	12	5.5-6.0	3794	cpm		[redacted]
100	13	6.0-6.5	3402	cpm		[redacted]
100	14	6.5-7.0	2991	cpm		[redacted]
100	15	7.0-7.5	2586	cpm		[redacted]
100	16	7.5-8.0	2323	cpm		[redacted]
100	17	8.0-8.5	1878	cpm		[redacted]
100	18	8.5-9.0	1686	cpm		[redacted]
100	19	9.0-9.5	1714	cpm		[redacted]
100	20	9.5-10.0	1603	cpm		[redacted]
101	1	0.0-0.5	3570	cpm		[redacted]
101	2	0.5-1.0	4436	cpm		[redacted]
101	3	1.0-1.5	4669	cpm		[redacted]
101	4	1.5-2.0	4546	cpm		[redacted]
101	5	2.0-2.5	4394	cpm		[redacted]
101	6	2.5-3.0	4447	cpm		[redacted]
101	7	3.0-3.5	4213	cpm		[redacted]
101	8	3.5-4.0	4867	cpm		[redacted]
101	9	4.0-4.5	4751	cpm		[redacted]
101	10	4.5-5.0	4778	cpm		[redacted]
101	11	5.0-5.5	4758	cpm		[redacted]
101	12	5.5-6.0	4726	cpm		[redacted]
101	13	6.0-6.5	4741	cpm		[redacted]
101	14	6.5-7.0	4613	cpm		[redacted]
101	15	7.0-7.5	4742	cpm		[redacted]
101	16	7.5-8.0	4800	cpm		[redacted]
101	17	8.0-8.5	4917	cpm		[redacted]
101	18	8.5-9.0	4965	cpm		[redacted]
101	19	9.0-9.5	4885	cpm		[redacted]
101	20	9.5-10.0	4888	cpm		[redacted]
102	1	0.0-0.5	3205	cpm		[redacted]
102	2	0.5-1.0	4470	cpm		[redacted]
102	3	1.0-1.5	4707	cpm		[redacted]
102	4	1.5-2.0	4785	cpm		[redacted]
102	5	2.0-2.5	5684	cpm		[redacted]
102	6	2.5-3.0	5613	cpm		[redacted]
102	7	3.0-3.5	7029	cpm		[redacted]
102	8	3.5-4.0	6536	cpm		[redacted]
102	9	4.0-4.5	4820	cpm		[redacted]
102	10	4.5-5.0	2991	cpm		[redacted]
102	11	5.0-5.5	2778	cpm		[redacted]
102	12	5.5-6.0	1997	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
102	13	6.0-6.5	2249	cpm		[redacted]
102	14	6.5-7.0	2766	cpm		[redacted]
102	15	7.0-7.5	3352	cpm		[redacted]
102	16	7.5-8.0	3781	cpm		[redacted]
102	17	8.0-8.5	4116	cpm		[redacted]
102	18	8.5-9.0	4294	cpm		[redacted]
102	19	9.0-9.5	4251	cpm		[redacted]
102	20	9.5-10.0	4182	cpm		[redacted]
102	21	10.0-10.5	4110	cpm		[redacted]
102	22	10.5-11.0	4013	cpm		[redacted]
102	23	11.0-11.5	4348	cpm		[redacted]
102	24	11.5-12.0	4592	cpm		[redacted]
103	1	0.0-0.5	4213	cpm		[redacted]
103	2	0.5-1.0	4679	cpm		[redacted]
103	3	1.0-1.5	4595	cpm		[redacted]
103	4	1.5-2.0	5972	cpm		[redacted]
103	5	2.0-2.5	6535	cpm		[redacted]
103	6	2.5-3.0	6453	cpm		[redacted]
103	7	3.0-3.5	6310	cpm		[redacted]
103	8	3.5-4.0	6681	cpm		[redacted]
103	9	4.0-4.5	7457	cpm		[redacted]
103	10	4.5-5.0	6519	cpm		[redacted]
103	11	5.0-5.5	6004	cpm		[redacted]
103	12	5.5-6.0	6210	cpm		[redacted]
103	13	6.0-6.5	6797	cpm		[redacted]
103	14	6.5-7.0	5470	cpm		[redacted]
103	15	7.0-7.5	5014	cpm		[redacted]
103	16	7.5-8.0	5089	cpm		[redacted]
103	17	8.0-8.5	5050	cpm		[redacted]
103	18	8.5-9.0	4756	cpm		[redacted]
103	19	9.0-9.5	4525	cpm		[redacted]
104	1	0.0-0.5	3317	cpm		[redacted]
104	2	0.5-1.0	4085	cpm		[redacted]
104	3	1.0-1.5	4888	cpm		[redacted]
104	4	1.5-2.0	6291	cpm		[redacted]
104	5	2.0-2.5	6948	cpm		[redacted]
104	6	2.5-3.0	6818	cpm		[redacted]
104	7	3.0-3.5	4745	cpm		[redacted]
104	8	3.5-4.0	4191	cpm		[redacted]
104	9	4.0-4.5	3751	cpm		[redacted]
104	10	4.5-5.0	3923	cpm		[redacted]
104	11	5.0-5.5	3718	cpm		[redacted]
104	12	5.5-6.0	3523	cpm		[redacted]
104	13	6.0-6.5	3589	cpm		[redacted]
104	14	6.5-7.0	3787	cpm		[redacted]
104	15	7.0-7.5	3896	cpm		[redacted]
104	16	7.5-8.0	3734	cpm		[redacted]
104	17	8.0-8.5	3805	cpm		[redacted]
104	18	8.5-9.0	3594	cpm		[redacted]
105	2	0.5-1.0	4712	cpm		[redacted]
105	3	1.0-1.5	4616	cpm		[redacted]
105	4	1.5-2.0	4950	cpm		[redacted]
105	5	2.0-2.5	4638	cpm		[redacted]
105	6	2.5-3.0	4649	cpm		[redacted]
105	7	3.0-3.5	3579	cpm		[redacted]
105	8	3.5-4.0	3751	cpm		[redacted]
105	9	4.0-4.5	3679	cpm		[redacted]
105	10	4.5-5.0	4467	cpm		[redacted]
105	11	5.0-5.5	4867	cpm		[redacted]
105	12	5.5-6.0	4635	cpm		[redacted]
105	13	6.0-6.5	4657	cpm		[redacted]
105	14	6.5-7.0	4718	cpm		[redacted]
105	15	7.0-7.5	4747	cpm		[redacted]
105	16	7.5-8.0	4674	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
105	17	8.0-8.5	4515	cpm		[redacted]
105	18	8.5-9.0	4477	cpm		[redacted]
105	19	9.0-9.5	4422	cpm		[redacted]
105	20	9.5-10.0	4409	cpm		[redacted]
105	21	10.0-10.5	4302	cpm		[redacted]
105	22	10.5-11.0	4209	cpm		[redacted]
105	23	11.0-11.5	4500	cpm		[redacted]
105	24	11.5-12.0	4579	cpm		[redacted]
106	1	0.0-0.5	4128	cpm		[redacted]
106	2	0.5-1.0	6429	cpm		[redacted]
106	3	1.0-1.5	6752	cpm		[redacted]
106	4	1.5-2.0	6727	cpm		[redacted]
106	5	2.0-2.5	6003	cpm		[redacted]
106	6	2.5-3.0	5314	cpm		[redacted]
106	7	3.0-3.5	4937	cpm		[redacted]
106	8	3.5-4.0	4992	cpm		[redacted]
106	9	4.0-4.5	5108	cpm		[redacted]
106	10	4.5-5.0	4933	cpm		[redacted]
106	11	5.0-5.5	4941	cpm		[redacted]
106	12	5.5-6.0	4929	cpm		[redacted]
106	13	6.0-6.5	4752	cpm		[redacted]
106	14	6.5-7.0	4501	cpm		[redacted]
106	15	7.0-7.5	4511	cpm		[redacted]
106	16	7.5-8.0	4633	cpm		[redacted]
106	17	8.0-8.5	4560	cpm		[redacted]
106	18	8.5-9.0	4398	cpm		[redacted]
106	19	9.0-9.5	4211	cpm		[redacted]
106	20	9.5-10.0	4185	cpm		[redacted]
107	1	0.0-0.5	1780	cpm		[redacted]
107	2	0.5-1.0	2019	cpm		[redacted]
107	3	1.0-1.5	4501	cpm		[redacted]
107	4	1.5-2.0	5506	cpm		[redacted]
107	5	2.0-2.5	5105	cpm		[redacted]
107	6	2.5-3.0	5004	cpm		[redacted]
107	7	3.0-3.5	4576	cpm		[redacted]
107	8	3.5-4.0	4206	cpm		[redacted]
107	9	4.0-4.5	4225	cpm		[redacted]
107	10	4.5-5.0	4621	cpm		[redacted]
107	11	5.0-5.5	5002	cpm		[redacted]
107	12	5.5-6.0	5520	cpm		[redacted]
107	13	6.0-6.5	5071	cpm		[redacted]
107	14	6.5-7.0	5102	cpm		[redacted]
107	15	7.0-7.5	4679	cpm		[redacted]
107	16	7.5-8.0	4653	cpm		[redacted]
107	17	8.0-8.5	4577	cpm		[redacted]
107	18	8.5-9.0	4755	cpm		[redacted]
108	1	0.0-0.5	1593	cpm		[redacted]
108	2	0.5-1.0	2509	cpm		[redacted]
108	3	1.0-1.5	5527	cpm		[redacted]
108	4	1.5-2.0	5724	cpm		[redacted]
108	5	2.0-2.5	5033	cpm		[redacted]
108	6	2.5-3.0	4777	cpm		[redacted]
108	7	3.0-3.5	4452	cpm		[redacted]
108	8	3.5-4.0	4143	cpm		[redacted]
108	9	4.0-4.5	4565	cpm		[redacted]
108	10	4.5-5.0	5004	cpm		[redacted]
108	11	5.0-5.5	5281	cpm		[redacted]
108	12	5.5-6.0	5245	cpm		[redacted]
108	13	6.0-6.5	4837	cpm		[redacted]
108	14	6.5-7.0	5034	cpm		[redacted]
108	15	7.0-7.5	4505	cpm		[redacted]
108	16	7.5-8.0	4587	cpm		[redacted]
108	17	8.0-8.5	4544	cpm		[redacted]
108	18	8.5-9.0	4689	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
108	19	9.0-9.5	4522	cpm		[redacted]
108	20	9.5-10.0	4655	cpm		[redacted]
109	1	0.0-0.5	4512	cpm		[redacted]
109	2	0.5-1.0	4297	cpm		[redacted]
109	3	1.0-1.5	3620	cpm		[redacted]
109	4	1.5-2.0	5028	cpm		[redacted]
109	5	2.0-2.5	5324	cpm		[redacted]
109	6	2.5-3.0	4344	cpm		[redacted]
109	7	3.0-3.5	5444	cpm		[redacted]
109	8	3.5-4.0	5035	cpm		[redacted]
109	9	4.0-4.5	4646	cpm		[redacted]
109	10	4.5-5.0	4656	cpm		[redacted]
109	11	5.0-5.5	5131	cpm		[redacted]
109	12	5.5-6.0	4778	cpm		[redacted]
109	13	6.0-6.5	4638	cpm		[redacted]
109	14	6.5-7.0	4634	cpm		[redacted]
109	15	7.0-7.5	5055	cpm		[redacted]
109	16	7.5-8.0	4649	cpm		[redacted]
109	17	8.0-8.5	4606	cpm		[redacted]
109	18	8.5-9.0	4524	cpm		[redacted]
109	19	9.0-9.5	4463	cpm		[redacted]
109	20	9.5-10.0	4475	cpm		[redacted]
110	1	0.0-0.5	3939	cpm		[redacted]
110	2	0.5-1.0	3508	cpm		[redacted]
110	3	1.0-1.5	4177	cpm		[redacted]
110	4	1.5-2.0	5173	cpm		[redacted]
110	5	2.0-2.5	5174	cpm		[redacted]
110	6	2.5-3.0	4543	cpm		[redacted]
110	7	3.0-3.5	4550	cpm		[redacted]
110	8	3.5-4.0	4549	cpm		[redacted]
110	9	4.0-4.5	4570	cpm		[redacted]
110	10	4.5-5.0	4613	cpm		[redacted]
110	11	5.0-5.5	5052	cpm		[redacted]
110	12	5.5-6.0	4506	cpm		[redacted]
110	13	6.0-6.5	5051	cpm		[redacted]
110	14	6.5-7.0	4709	cpm		[redacted]
111	1	0.0-0.5	5524	cpm		[redacted]
111	2	0.5-1.0	5633	cpm		[redacted]
111	3	1.0-1.5	5641	cpm		[redacted]
111	4	1.5-2.0	5178	cpm		[redacted]
111	5	2.0-2.5	5018	cpm		[redacted]
111	6	2.5-3.0	4574	cpm		[redacted]
111	7	3.0-3.5	5013	cpm		[redacted]
111	8	3.5-4.0	4537	cpm		[redacted]
111	9	4.0-4.5	4636	cpm		[redacted]
111	10	4.5-5.0	4642	cpm		[redacted]
111	11	5.0-5.5	4573	cpm		[redacted]
111	12	5.5-6.0	4580	cpm		[redacted]
111	13	6.0-6.5	4635	cpm		[redacted]
111	14	6.5-7.0	4944	cpm		[redacted]
111	15	7.0-7.5	5043	cpm		[redacted]
111	16	7.5-8.0	4622	cpm		[redacted]
111	17	8.0-8.5	4935	cpm		[redacted]
111	18	8.5-9.0	5023	cpm		[redacted]
111	19	9.0-9.5	5068	cpm		[redacted]
111	20	9.5-10.0	4683	cpm		[redacted]
112	1	0.0-0.5	3587	cpm		[redacted]
112	2	0.5-1.0	4621	cpm		[redacted]
112	3	1.0-1.5	6113	cpm		[redacted]
112	4	1.5-2.0	6094	cpm		[redacted]
112	5	2.0-2.5	5193	cpm		[redacted]
112	6	2.5-3.0	5138	cpm		[redacted]
112	7	3.0-3.5	5093	cpm		[redacted]
112	8	3.5-4.0	5174	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
112	9	4.0-4.5	5099	cpm		[redacted]
112	10	4.5-5.0	4634	cpm		[redacted]
112	11	5.0-5.5	5118	cpm		[redacted]
112	12	5.5-6.0	4842	cpm		[redacted]
112	13	6.0-6.5	5033	cpm		[redacted]
112	14	6.5-7.0	4501	cpm		[redacted]
112	15	7.0-7.5	4608	cpm		[redacted]
112	16	7.5-8.0	4598	cpm		[redacted]
112	17	8.0-8.5	4693	cpm		[redacted]
112	18	8.5-9.0	4678	cpm		[redacted]
113	1	0.0-0.5	3652	cpm		[redacted]
113	2	0.5-1.0	4710	cpm		[redacted]
113	3	1.0-1.5	4623	cpm		[redacted]
113	4	1.5-2.0	4465	cpm		[redacted]
113	5	2.0-2.5	4240	cpm		[redacted]
113	6	2.5-3.0	3589	cpm		[redacted]
113	7	3.0-3.5	4024	cpm		[redacted]
113	8	3.5-4.0	4027	cpm		[redacted]
113	9	4.0-4.5	3668	cpm		[redacted]
113	10	4.5-5.0	3629	cpm		[redacted]
113	11	5.0-5.5	3531	cpm		[redacted]
113	12	5.5-6.0	4409	cpm		[redacted]
113	13	6.0-6.5	4685	cpm		[redacted]
113	14	6.5-7.0	4777	cpm		[redacted]
113	15	7.0-7.5	4594	cpm		[redacted]
114	1	0.0-0.5	3684	cpm		[redacted]
114	2	0.5-1.0	5403	cpm		[redacted]
114	3	1.0-1.5	5591	cpm		[redacted]
114	4	1.5-2.0	5708	cpm		[redacted]
114	5	2.0-2.5	5161	cpm		[redacted]
114	6	2.5-3.0	4588	cpm		[redacted]
114	7	3.0-3.5	4541	cpm		[redacted]
114	8	3.5-4.0	4221	cpm		[redacted]
114	9	4.0-4.5	3664	cpm		[redacted]
114	10	4.5-5.0	3622	cpm		[redacted]
114	11	5.0-5.5	3754	cpm		[redacted]
114	12	5.5-6.0	3659	cpm		[redacted]
114	13	6.0-6.5	4222	cpm		[redacted]
114	14	6.5-7.0	4704	cpm		[redacted]
114	15	7.0-7.5	4568	cpm		[redacted]
114	16	7.5-8.0	4543	cpm		[redacted]
114	17	8.0-8.5	4219	cpm		[redacted]
114	18	8.5-9.0	4521	cpm		[redacted]
115	1	0.0-0.5	4551	cpm		[redacted]
115	2	0.5-1.0	5484	cpm		[redacted]
115	3	1.0-1.5	5126	cpm		[redacted]
115	4	1.5-2.0	4544	cpm		[redacted]
115	5	2.0-2.5	5731	cpm		[redacted]
115	6	2.5-3.0	5525	cpm		[redacted]
115	7	3.0-3.5	5238	cpm		[redacted]
115	8	3.5-4.0	5465	cpm		[redacted]
115	9	4.0-4.5	5194	cpm		[redacted]
115	10	4.5-5.0	5025	cpm		[redacted]
115	11	5.0-5.5	4553	cpm		[redacted]
115	12	5.5-6.0	4627	cpm		[redacted]
115	13	6.0-6.5	4671	cpm		[redacted]
115	14	6.5-7.0	4713	cpm		[redacted]
115	15	7.0-7.5	4563	cpm		[redacted]
115	16	7.5-8.0	4231	cpm		[redacted]
116	1	0.0-0.5	1301	cpm		[redacted]
116	2	0.5-1.0	1450	cpm		[redacted]
116	3	1.0-1.5	1559	cpm		[redacted]
116	4	1.5-2.0	3695	cpm		[redacted]
116	5	2.0-2.5	5066	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
116	6	2.5-3.0	4795	cpm		[redacted]
116	7	3.0-3.5	4677	cpm		[redacted]
116	8	3.5-4.0	4323	cpm		[redacted]
116	9	4.0-4.5	4404	cpm		[redacted]
116	10	4.5-5.0	4756	cpm		[redacted]
116	11	5.0-5.5	4757	cpm		[redacted]
116	12	5.5-6.0	4734	cpm		[redacted]
116	13	6.0-6.5	4558	cpm		[redacted]
116	14	6.5-7.0	4395	cpm		[redacted]
116	15	7.0-7.5	4568	cpm		[redacted]
116	16	7.5-8.0	4874	cpm		[redacted]
116	17	8.0-8.5	4826	cpm		[redacted]
116	18	8.5-9.0	4756	cpm		[redacted]
116	19	9.0-9.5	4525	cpm		[redacted]
116	20	9.5-10.0	4587	cpm		[redacted]
117	1	0.0-0.5	3423	cpm		[redacted]
117	2	0.5-1.0	3506	cpm		[redacted]
117	3	1.0-1.5	3497	cpm		[redacted]
117	4	1.5-2.0	3299	cpm		[redacted]
117	5	2.0-2.5	3542	cpm		[redacted]
117	6	2.5-3.0	3482	cpm		[redacted]
117	7	3.0-3.5	3405	cpm		[redacted]
117	8	3.5-4.0	3403	cpm		[redacted]
117	9	4.0-4.5	3671	cpm		[redacted]
117	10	4.5-5.0	4299	cpm		[redacted]
117	11	5.0-5.5	4637	cpm		[redacted]
117	12	5.5-6.0	4860	cpm		[redacted]
117	13	6.0-6.5	5076	cpm		[redacted]
117	14	6.5-7.0	5119	cpm		[redacted]
117	15	7.0-7.5	5000	cpm		[redacted]
117	16	7.5-8.0	4764	cpm		[redacted]
117	17	8.0-8.5	4547	cpm		[redacted]
117	18	8.5-9.0	4673	cpm		[redacted]
117	19	9.0-9.5	4886	cpm		[redacted]
117	20	9.5-10.0	4554	cpm		[redacted]
118	1	0.0-0.5	3756	cpm		[redacted]
118	2	0.5-1.0	3760	cpm		[redacted]
118	3	1.0-1.5	3980	cpm		[redacted]
118	4	1.5-2.0	4119	cpm		[redacted]
118	5	2.0-2.5	4208	cpm		[redacted]
118	6	2.5-3.0	4473	cpm		[redacted]
118	7	3.0-3.5	4561	cpm		[redacted]
118	8	3.5-4.0	4620	cpm		[redacted]
118	9	4.0-4.5	4561	cpm		[redacted]
118	10	4.5-5.0	4572	cpm		[redacted]
118	11	5.0-5.5	4599	cpm		[redacted]
118	12	5.5-6.0	4621	cpm		[redacted]
118	13	6.0-6.5	4633	cpm		[redacted]
118	14	6.5-7.0	4598	cpm		[redacted]
118	15	7.0-7.5	4620	cpm		[redacted]
118	16	7.5-8.0	4617	cpm		[redacted]
119	1	0.0-0.5	1701	cpm		[redacted]
119	2	0.5-1.0	1751	cpm		[redacted]
119	3	1.0-1.5	3553	cpm		[redacted]
119	4	1.5-2.0	4588	cpm		[redacted]
119	5	2.0-2.5	4805	cpm		[redacted]
119	6	2.5-3.0	5077	cpm		[redacted]
119	7	3.0-3.5	5026	cpm		[redacted]
119	8	3.5-4.0	4671	cpm		[redacted]
119	9	4.0-4.5	4296	cpm		[redacted]
119	10	4.5-5.0	4021	cpm		[redacted]
119	11	5.0-5.5	3834	cpm		[redacted]
119	12	5.5-6.0	4105	cpm		[redacted]
119	13	6.0-6.5	4902	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
119	14	6.5-7.0	5079	cpm		[redacted]
119	15	7.0-7.5	5073	cpm		[redacted]
119	16	7.5-8.0	5092	cpm		[redacted]
119	17	8.0-8.5	4823	cpm		[redacted]
119	18	8.5-9.0	4637	cpm		[redacted]
119	19	9.0-9.5	4615	cpm		[redacted]
119	20	9.5-10.0	4571	cpm		[redacted]
120	1	0.0-0.5	2661	cpm		[redacted]
120	2	0.5-1.0	2574	cpm		[redacted]
120	3	1.0-1.5	3573	cpm		[redacted]
120	4	1.5-2.0	4563	cpm		[redacted]
120	5	2.0-2.5	4501	cpm		[redacted]
120	6	2.5-3.0	4645	cpm		[redacted]
120	7	3.0-3.5	4450	cpm		[redacted]
120	8	3.5-4.0	4654	cpm		[redacted]
120	9	4.0-4.5	4639	cpm		[redacted]
120	10	4.5-5.0	4668	cpm		[redacted]
120	11	5.0-5.5	4108	cpm		[redacted]
120	12	5.5-6.0	3649	cpm		[redacted]
120	13	6.0-6.5	4402	cpm		[redacted]
120	14	6.5-7.0	4728	cpm		[redacted]
120	15	7.0-7.5	4613	cpm		[redacted]
120	16	7.5-8.0	4683	cpm		[redacted]
120	17	8.0-8.5	4762	cpm		[redacted]
120	18	8.5-9.0	4524	cpm		[redacted]
121	1	0.0-0.5	1601	cpm		[redacted]
121	2	0.5-1.0	1627	cpm		[redacted]
121	3	1.0-1.5	3255	cpm		[redacted]
121	4	1.5-2.0	3673	cpm		[redacted]
121	5	2.0-2.5	4757	cpm		[redacted]
121	6	2.5-3.0	5073	cpm		[redacted]
121	7	3.0-3.5	5070	cpm		[redacted]
121	8	3.5-4.0	4507	cpm		[redacted]
121	9	4.0-4.5	4521	cpm		[redacted]
121	10	4.5-5.0	4620	cpm		[redacted]
121	11	5.0-5.5	4511	cpm		[redacted]
121	12	5.5-6.0	4615	cpm		[redacted]
121	13	6.0-6.5	4600	cpm		[redacted]
121	14	6.5-7.0	4009	cpm		[redacted]
121	15	7.0-7.5	4147	cpm		[redacted]
121	16	7.5-8.0	3502	cpm		[redacted]
121	17	8.0-8.5	3518	cpm		[redacted]
121	18	8.5-9.0	4247	cpm		[redacted]
121	19	9.0-9.5	4572	cpm		[redacted]
122	1	0.0-0.5	1701	cpm		[redacted]
122	2	0.5-1.0	2078	cpm		[redacted]
122	3	1.0-1.5	3608	cpm		[redacted]
122	4	1.5-2.0	4474	cpm		[redacted]
122	5	2.0-2.5	4701	cpm		[redacted]
122	6	2.5-3.0	4572	cpm		[redacted]
122	7	3.0-3.5	4511	cpm		[redacted]
122	8	3.5-4.0	4571	cpm		[redacted]
122	9	4.0-4.5	4209	cpm		[redacted]
122	10	4.5-5.0	3516	cpm		[redacted]
122	11	5.0-5.5	4507	cpm		[redacted]
122	12	5.5-6.0	4606	cpm		[redacted]
122	13	6.0-6.5	5000	cpm		[redacted]
122	14	6.5-7.0	5505	cpm		[redacted]
122	15	7.0-7.5	4500	cpm		[redacted]
122	16	7.5-8.0	4707	cpm		[redacted]
122	17	8.0-8.5	4600	cpm		[redacted]
122	18	8.5-9.0	4442	cpm		[redacted]
123	1	0.0-0.5	2117	cpm		[redacted]
123	2	0.5-1.0	3040	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
123	3	1.0-1.5	3074	cpm		[redacted]
123	4	1.5-2.0	5017	cpm		[redacted]
123	5	2.0-2.5	5213	cpm		[redacted]
123	6	2.5-3.0	5114	cpm		[redacted]
123	7	3.0-3.5	5205	cpm		[redacted]
123	8	3.5-4.0	5059	cpm		[redacted]
123	9	4.0-4.5	4556	cpm		[redacted]
123	10	4.5-5.0	4529	cpm		[redacted]
123	11	5.0-5.5	5045	cpm		[redacted]
123	12	5.5-6.0	4609	cpm		[redacted]
123	13	6.0-6.5	4608	cpm		[redacted]
123	14	6.5-7.0	4243	cpm		[redacted]
123	15	7.0-7.5	4216	cpm		[redacted]
123	16	7.5-8.0	4103	cpm		[redacted]
123	17	8.0-8.5	4547	cpm		[redacted]
124	1	0.0-0.5	6409	cpm		[redacted]
124	2	0.5-1.0	10650	cpm		[redacted]
124	3	1.0-1.5	6009	cpm		[redacted]
124	4	1.5-2.0	5543	cpm		[redacted]
124	5	2.0-2.5	5517	cpm		[redacted]
124	6	2.5-3.0	5545	cpm		[redacted]
124	7	3.0-3.5	5554	cpm		[redacted]
124	8	3.5-4.0	5209	cpm		[redacted]
124	9	4.0-4.5	5028	cpm		[redacted]
124	10	4.5-5.0	4626	cpm		[redacted]
124	11	5.0-5.5	4749	cpm		[redacted]
124	12	5.5-6.0	4775	cpm		[redacted]
124	13	6.0-6.5	4618	cpm		[redacted]
124	14	6.5-7.0	4709	cpm		[redacted]
124	15	7.0-7.5	4652	cpm		[redacted]
124	16	7.5-8.0	4655	cpm		[redacted]
124	17	8.0-8.5	4523	cpm		[redacted]
124	18	8.5-9.0	4743	cpm		[redacted]
124	19	9.0-9.5	4624	cpm		[redacted]
124	20	9.5-10.0	4778	cpm		[redacted]
125	1	0.0-0.5	3516	cpm		[redacted]
125	2	0.5-1.0	4708	cpm		[redacted]
125	3	1.0-1.5	4516	cpm		[redacted]
125	4	1.5-2.0	4509	cpm		[redacted]
125	5	2.0-2.5	5552	cpm		[redacted]
125	6	2.5-3.0	5105	cpm		[redacted]
125	7	3.0-3.5	5390	cpm		[redacted]
125	8	3.5-4.0	5501	cpm		[redacted]
125	9	4.0-4.5	5600	cpm		[redacted]
125	10	4.5-5.0	5177	cpm		[redacted]
125	11	5.0-5.5	4506	cpm		[redacted]
125	12	5.5-6.0	4676	cpm		[redacted]
125	13	6.0-6.5	4507	cpm		[redacted]
125	14	6.5-7.0	4557	cpm		[redacted]
125	15	7.0-7.5	4500	cpm		[redacted]
125	16	7.5-8.0	4409	cpm		[redacted]
125	17	8.0-8.5	4459	cpm		[redacted]
125	18	8.5-9.0	4602	cpm		[redacted]
125	19	9.0-9.5	4624	cpm		[redacted]
125	20	9.5-10.0	4652	cpm		[redacted]
126	1	0.0-0.5	2001	cpm		[redacted]
126	2	0.5-1.0	2673	cpm		[redacted]
126	3	1.0-1.5	3527	cpm		[redacted]
126	4	1.5-2.0	4504	cpm		[redacted]
126	5	2.0-2.5	5716	cpm		[redacted]
126	6	2.5-3.0	5575	cpm		[redacted]
126	7	3.0-3.5	5270	cpm		[redacted]
126	8	3.5-4.0	4677	cpm		[redacted]
126	9	4.0-4.5	4605	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
126	10	4.5-5.0	4602	cpm		[redacted]
126	11	5.0-5.5	4608	cpm		[redacted]
126	12	5.5-6.0	5076	cpm		[redacted]
126	13	6.0-6.5	5105	cpm		[redacted]
126	14	6.5-7.0	5100	cpm		[redacted]
126	15	7.0-7.5	5009	cpm		[redacted]
126	16	7.5-8.0	5004	cpm		[redacted]
126	17	8.0-8.5	4571	cpm		[redacted]
126	18	8.5-9.0	4505	cpm		[redacted]
126	19	9.0-9.5	4600	cpm		[redacted]
126	20	9.5-10.0	5001	cpm		[redacted]
127	1	0.0-0.5	2110	cpm		[redacted]
127	2	0.5-1.0	4357	cpm		[redacted]
127	3	1.0-1.5	4930	cpm		[redacted]
127	4	1.5-2.0	4642	cpm		[redacted]
127	5	2.0-2.5	4522	cpm		[redacted]
127	6	2.5-3.0	4497	cpm		[redacted]
127	7	3.0-3.5	4599	cpm		[redacted]
127	8	3.5-4.0	4783	cpm		[redacted]
127	9	4.0-4.5	4493	cpm		[redacted]
127	10	4.5-5.0	4554	cpm		[redacted]
127	11	5.0-5.5	4809	cpm		[redacted]
127	12	5.5-6.0	4750	cpm		[redacted]
127	13	6.0-6.5	4431	cpm		[redacted]
127	14	6.5-7.0	4453	cpm		[redacted]
127	15	7.0-7.5	4652	cpm		[redacted]
127	16	7.5-8.0	4423	cpm		[redacted]
127	17	8.0-8.5	4591	cpm		[redacted]
127	18	8.5-9.0	4678	cpm		[redacted]
128	1	0.0-0.5	4179	cpm		[redacted]
128	2	0.5-1.0	4762	cpm		[redacted]
128	3	1.0-1.5	4989	cpm		[redacted]
128	4	1.5-2.0	5282	cpm		[redacted]
128	5	2.0-2.5	5237	cpm		[redacted]
128	6	2.5-3.0	5322	cpm		[redacted]
128	7	3.0-3.5	5098	cpm		[redacted]
128	8	3.5-4.0	4663	cpm		[redacted]
128	9	4.0-4.5	4557	cpm		[redacted]
128	10	4.5-5.0	4521	cpm		[redacted]
128	11	5.0-5.5	4755	cpm		[redacted]
128	12	5.5-6.0	4608	cpm		[redacted]
129	1	0.0-0.5	3826	cpm		[redacted]
129	2	0.5-1.0	4049	cpm		[redacted]
129	3	1.0-1.5	4216	cpm		[redacted]
129	4	1.5-2.0	4703	cpm		[redacted]
129	5	2.0-2.5	5241	cpm		[redacted]
129	6	2.5-3.0	4470	cpm		[redacted]
129	7	3.0-3.5	5210	cpm		[redacted]
129	8	3.5-4.0	5039	cpm		[redacted]
129	9	4.0-4.5	4849	cpm		[redacted]
129	10	4.5-5.0	4584	cpm		[redacted]
129	11	5.0-5.5	4716	cpm		[redacted]
129	12	5.5-6.0	4947	cpm		[redacted]
129	13	6.0-6.5	4931	cpm		[redacted]
129	14	6.5-7.0	4840	cpm		[redacted]
129	15	7.0-7.5	4816	cpm		[redacted]
129	16	7.5-8.0	4680	cpm		[redacted]
129	17	8.0-8.5	4725	cpm		[redacted]
129	18	8.5-9.0	4801	cpm		[redacted]
130	1	0.0-0.5	3764	cpm		[redacted]
130	2	0.5-1.0	4590	cpm		[redacted]
130	3	1.0-1.5	4441	cpm		[redacted]
130	4	1.5-2.0	4638	cpm		[redacted]
130	5	2.0-2.5	4614	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
130	6	2.5-3.0	5003	cpm		[redacted]
130	7	3.0-3.5	4553	cpm		[redacted]
130	8	3.5-4.0	4799	cpm		[redacted]
130	9	4.0-4.5	4675	cpm		[redacted]
130	10	4.5-5.0	4986	cpm		[redacted]
130	11	5.0-5.5	4789	cpm		[redacted]
130	12	5.5-6.0	4640	cpm		[redacted]
130	13	6.0-6.5	4948	cpm		[redacted]
130	14	6.5-7.0	4912	cpm		[redacted]
130	15	7.0-7.5	4929	cpm		[redacted]
130	16	7.5-8.0	5032	cpm		[redacted]
130	17	8.0-8.5	4665	cpm		[redacted]
130	18	8.5-9.0	4888	cpm		[redacted]
131	1	0.0-0.5	3038	cpm		[redacted]
131	2	0.5-1.0	3880	cpm		[redacted]
131	3	1.0-1.5	4404	cpm		[redacted]
131	4	1.5-2.0	4632	cpm		[redacted]
131	5	2.0-2.5	4902	cpm		[redacted]
131	6	2.5-3.0	4863	cpm		[redacted]
131	7	3.0-3.5	4908	cpm		[redacted]
131	8	3.5-4.0	4989	cpm		[redacted]
131	9	4.0-4.5	4859	cpm		[redacted]
131	10	4.5-5.0	4590	cpm		[redacted]
131	11	5.0-5.5	4515	cpm		[redacted]
131	12	5.5-6.0	4616	cpm		[redacted]
131	13	6.0-6.5	4681	cpm		[redacted]
131	14	6.5-7.0	4625	cpm		[redacted]
131	15	7.0-7.5	4744	cpm		[redacted]
131	16	7.5-8.0	4703	cpm		[redacted]
131	17	8.0-8.5	4458	cpm		[redacted]
132	1	0.0-0.5	4151	cpm		[redacted]
132	2	0.5-1.0	4740	cpm		[redacted]
132	3	1.0-1.5	6151	cpm		[redacted]
132	4	1.5-2.0	6404	cpm		[redacted]
132	5	2.0-2.5	6078	cpm		[redacted]
132	6	2.5-3.0	7257	cpm		[redacted]
132	7	3.0-3.5	7576	cpm		[redacted]
132	8	3.5-4.0	5657	cpm		[redacted]
132	9	4.0-4.5	5874	cpm		[redacted]
132	10	4.5-5.0	5388	cpm		[redacted]
132	11	5.0-5.5	4803	cpm		[redacted]
132	12	5.5-6.0	4276	cpm		[redacted]
132	13	6.0-6.5	4296	cpm		[redacted]
132	14	6.5-7.0	4580	cpm		[redacted]
132	15	7.0-7.5	4874	cpm		[redacted]
132	16	7.5-8.0	4835	cpm		[redacted]
132	17	8.0-8.5	4891	cpm		[redacted]
133	1	0.0-0.5	3566	cpm		[redacted]
133	2	0.5-1.0	4077	cpm		[redacted]
133	3	1.0-1.5	4767	cpm		[redacted]
133	4	1.5-2.0	5320	cpm		[redacted]
133	5	2.0-2.5	8499	cpm		[redacted]
133	6	2.5-3.0	10503	cpm		[redacted]
133	7	3.0-3.5	11477	cpm		[redacted]
133	8	3.5-4.0	11040	cpm		[redacted]
133	9	4.0-4.5	7853	cpm		[redacted]
133	10	4.5-5.0	6333	cpm		[redacted]
133	11	5.0-5.5	5422	cpm		[redacted]
133	12	5.5-6.0	5123	cpm		[redacted]
133	13	6.0-6.5	4659	cpm		[redacted]
133	14	6.5-7.0	3893	cpm		[redacted]
133	15	7.0-7.5	3416	cpm		[redacted]
133	16	7.5-8.0	2837	cpm		[redacted]
133	17	8.0-8.5	2503	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
134	1	0.0-0.5	1715	cpm		[redacted]
134	2	0.5-1.0	1701	cpm		
134	3	1.0-1.5	1805	cpm		
134	4	1.5-2.0	1821	cpm		
134	5	2.0-2.5	1883	cpm		
134	6	2.5-3.0	2857	cpm		
134	7	3.0-3.5	3755	cpm		
134	8	3.5-4.0	3802	cpm		
134	9	4.0-4.5	3735	cpm		
134	10	4.5-5.0	3515	cpm		
135	1	0.0-0.5	3627	cpm		
135	2	0.5-1.0	4227	cpm		
135	3	1.0-1.5	4157	cpm		
135	4	1.5-2.0	4142	cpm		
135	5	2.0-2.5	4284	cpm		
135	6	2.5-3.0	4454	cpm		
135	7	3.0-3.5	4373	cpm		
135	8	3.5-4.0	4238	cpm		
135	9	4.0-4.5	4251	cpm		
135	10	4.5-5.0	4541	cpm		
135	11	5.0-5.5	4598	cpm		
135	12	5.5-6.0	4516	cpm		
135	13	6.0-6.5	4669	cpm		
135	14	6.5-7.0	4654	cpm		
135	15	7.0-7.5	4644	cpm		
135	16	7.5-8.0	4575	cpm		
135	17	8.0-8.5	4537	cpm		
135	18	8.5-9.0	4874	cpm		
135	19	9.0-9.5	5042	cpm		
135	20	9.5-10.0	5038	cpm		
136	1	0.0-0.5	1214	cpm		
136	2	0.5-1.0	1201	cpm		
136	3	1.0-1.5	1345	cpm		
136	4	1.5-2.0	1313	cpm		
136	5	2.0-2.5	1458	cpm		
136	6	2.5-3.0	1582	cpm		
136	7	3.0-3.5	3162	cpm		
136	8	3.5-4.0	4063	cpm		
136	9	4.0-4.5	4412	cpm		
136	10	4.5-5.0	4355	cpm		
136	11	5.0-5.5	4388	cpm		
136	12	5.5-6.0	4427	cpm		
136	13	6.0-6.5	4430	cpm		
136	14	6.5-7.0	4613	cpm		
136	15	7.0-7.5	4472	cpm		
136	16	7.5-8.0	4259	cpm		
136	17	8.0-8.5	3491	cpm		
136	18	8.5-9.0	3639	cpm		
136	19	9.0-9.5	4343	cpm		
136	20	9.5-10.0	4668	cpm		
137	1	0.0-0.5	1894	cpm		
137	2	0.5-1.0	3254	cpm		
137	3	1.0-1.5	4335	cpm		
137	4	1.5-2.0	4139	cpm		
137	5	2.0-2.5	3948	cpm		
137	6	2.5-3.0	4212	cpm		
137	7	3.0-3.5	4333	cpm		
137	8	3.5-4.0	4267	cpm		
137	9	4.0-4.5	4318	cpm		
137	10	4.5-5.0	4891	cpm		
137	11	5.0-5.5	4299	cpm		
138	1	0.0-0.5	3428	cpm		
138	2	0.5-1.0	3770	cpm		
138	3	1.0-1.5	3929	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
138	4	1.5-2.0	3837	cpm		[redacted]
138	5	2.0-2.5	4082	cpm		
138	6	2.5-3.0	4391	cpm		
138	7	3.0-3.5	4450	cpm		
138	8	3.5-4.0	4163	cpm		
138	9	4.0-4.5	4319	cpm		
138	10	4.5-5.0	4356	cpm		
138	11	5.0-5.5	4318	cpm		
138	12	5.5-6.0	4302	cpm		
138	13	6.0-6.5	4258	cpm		
138	14	6.5-7.0	4308	cpm		
138	15	7.0-7.5	4178	cpm		
138	16	7.5-8.0	4199	cpm		
138	17	8.0-8.5	4192	cpm		
138	18	8.5-9.0	4401	cpm		
138	19	9.0-9.5	4604	cpm		
138	20	9.5-10.0	4332	cpm		
139	1	0.0-0.5	2549	cpm		
139	2	0.5-1.0	3920	cpm		
139	3	1.0-1.5	4921	cpm		
139	4	1.5-2.0	5215	cpm		
139	5	2.0-2.5	5107	cpm		
139	6	2.5-3.0	4416	cpm		
139	7	3.0-3.5	4244	cpm		
139	8	3.5-4.0	4028	cpm		
139	9	4.0-4.5	4006	cpm		
139	10	4.5-5.0	4314	cpm		
139	11	5.0-5.5	4612	cpm		
139	12	5.5-6.0	4670	cpm		
139	13	6.0-6.5	4523	cpm		
139	14	6.5-7.0	4439	cpm		
139	15	7.0-7.5	4681	cpm		
139	16	7.5-8.0	4705	cpm		
139	17	8.0-8.5	4587	cpm		
139	18	8.5-9.0	426	cpm		
139	19	9.0-9.5	4240	cpm		
139	20	9.5-10.0	4500	cpm		
140	1	0.0-0.5	3066	cpm		
140	2	0.5-1.0	3029	cpm		
140	3	1.0-1.5	3228	cpm		
140	4	1.5-2.0	3147	cpm		
140	5	2.0-2.5	3698	cpm		
140	6	2.5-3.0	4420	cpm		
140	7	3.0-3.5	4101	cpm		
140	8	3.5-4.0	4208	cpm		
140	9	4.0-4.5	4398	cpm		
140	10	4.5-5.0	4589	cpm		
140	11	5.0-5.5	4570	cpm		
140	12	5.5-6.0	4579	cpm		
140	13	6.0-6.5	4501	cpm		
140	14	6.5-7.0	4429	cpm		
140	15	7.0-7.5	4502	cpm		
140	16	7.5-8.0	4519	cpm		
140	17	8.0-8.5	4561	cpm		
140	18	8.5-9.0	4601	cpm		
141	1	0.0-0.5	2515	cpm		
141	2	0.5-1.0	2659	cpm		
141	3	1.0-1.5	3069	cpm		
141	4	1.5-2.0	4207	cpm		
141	5	2.0-2.5	4241	cpm		
141	6	2.5-3.0	4433	cpm		
141	7	3.0-3.5	4437	cpm		
141	8	3.5-4.0	4193	cpm		
141	9	4.0-4.5	4104	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
141	10	4.5-5.0	4127	cpm		[redacted]
141	11	5.0-5.5	4249	cpm		
141	12	5.5-6.0	4631	cpm		
141	13	6.0-6.5	4551	cpm		
141	14	6.5-7.0	4548	cpm		
141	15	7.0-7.5	4547	cpm		
141	16	7.5-8.0	4537	cpm		
141	17	8.0-8.5	4562	cpm		
141	18	8.5-9.0	4541	cpm		
141	19	9.0-9.5	4531	cpm		
141	20	9.5-10.0	4636	cpm		
142	1	0.0-0.5	3901	cpm		
142	2	0.5-1.0	3819	cpm		
142	3	1.0-1.5	4193	cpm		
142	4	1.5-2.0	4270	cpm		
142	5	2.0-2.5	4249	cpm		
142	6	2.5-3.0	4390	cpm		
142	7	3.0-3.5	4471	cpm		
142	8	3.5-4.0	4319	cpm		
142	9	4.0-4.5	4481	cpm		
142	10	4.5-5.0	4536	cpm		
142	11	5.0-5.5	4524	cpm		
142	12	5.5-6.0	4578	cpm		
142	13	6.0-6.5	4631	cpm		
142	14	6.5-7.0	4891	cpm		
142	15	7.0-7.5	4950	cpm		
142	16	7.5-8.0	4608	cpm		
142	17	8.0-8.5	4553	cpm		
142	18	8.5-9.0	4598	cpm		
142	19	9.0-9.5	4621	cpm		
142	20	9.5-10.0	4614	cpm		
143	1	0.0-0.5	2200	cpm	Offset 3m west due to refusal.	
143	2	0.5-1.0	4050	cpm		
143	3	1.0-1.5	4507	cpm		
143	4	1.5-2.0	4501	cpm		
143	5	2.0-2.5	4240	cpm		
143	6	2.5-3.0	3606	cpm		
143	7	3.0-3.5	4173	cpm		
143	8	3.5-4.0	4129	cpm		
143	9	4.0-4.5	4531	cpm		
143	10	4.5-5.0	4207	cpm		
143	11	5.0-5.5	4075	cpm		
143	12	5.5-6.0	4710	cpm		
144	1	0.0-0.5	1300	cpm		
144	2	0.5-1.0	1401	cpm		
144	3	1.0-1.5	1490	cpm		
144	4	1.5-2.0	1594	cpm		
144	5	2.0-2.5	3304	cpm		
144	6	2.5-3.0	5226	cpm		
144	7	3.0-3.5	5864	cpm		
144	8	3.5-4.0	5200	cpm		
144	9	4.0-4.5	4816	cpm		
144	10	4.5-5.0	4759	cpm		
144	11	5.0-5.5	4560	cpm		
150	1	0.0-0.5	3618	cpm		
150	2	0.5-1.0	3506	cpm		
150	3	1.0-1.5	3471	cpm		
150	4	1.5-2.0	5007	cpm		
150	5	2.0-2.5	4744	cpm		
150	6	2.5-3.0	4726	cpm		
150	7	3.0-3.5	4886	cpm		
150	8	3.5-4.0	4779	cpm		
150	9	4.0-4.5	4732	cpm		
150	10	4.5-5.0	4654	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
150	11	5.0-5.5	4740	cpm		[redacted]
150	12	5.5-6.0	4869	cpm		[redacted]
150	13	6.0-6.5	4942	cpm		[redacted]
150	14	6.5-7.0	4941	cpm		[redacted]
150	15	7.0-7.5	4824	cpm		[redacted]
150	16	7.5-8.0	4735	cpm		[redacted]
150	17	8.0-8.5	4615	cpm		[redacted]
150	18	8.5-9.0	4665	cpm		[redacted]
151	1	0.0-0.5	3225	cpm	Offset 1m west due to fenceline.	[redacted]
151	2	0.5-1.0	3716	cpm		[redacted]
151	3	1.0-1.5	3508	cpm		[redacted]
151	4	1.5-2.0	4241	cpm		[redacted]
151	5	2.0-2.5	4260	cpm		[redacted]
151	6	2.5-3.0	4244	cpm		[redacted]
151	7	3.0-3.5	4277	cpm		[redacted]
151	8	3.5-4.0	4379	cpm		[redacted]
151	9	4.0-4.5	4503	cpm		[redacted]
151	10	4.5-5.0	4501	cpm		[redacted]
151	11	5.0-5.5	4717	cpm		[redacted]
151	12	5.5-6.0	4506	cpm		[redacted]
151	13	6.0-6.5	4500	cpm		[redacted]
151	14	6.5-7.0	4729	cpm		[redacted]
152	1	0.0-0.5	3301	cpm		[redacted]
152	2	0.5-1.0	3702	cpm		[redacted]
152	3	1.0-1.5	3757	cpm		[redacted]
152	4	1.5-2.0	3997	cpm		[redacted]
152	5	2.0-2.5	4103	cpm		[redacted]
152	6	2.5-3.0	4129	cpm		[redacted]
152	7	3.0-3.5	4397	cpm		[redacted]
152	8	3.5-4.0	4590	cpm		[redacted]
152	9	4.0-4.5	4450	cpm		[redacted]
152	10	4.5-5.0	4387	cpm		[redacted]
152	11	5.0-5.5	4361	cpm		[redacted]
152	12	5.5-6.0	4375	cpm		[redacted]
152	13	6.0-6.5	4302	cpm		[redacted]
152	14	6.5-7.0	4394	cpm		[redacted]
152	15	7.0-7.5	4930	cpm		[redacted]
152	16	7.5-8.0	4494	cpm		[redacted]
152	17	8.0-8.5	4513	cpm		[redacted]
152	18	8.5-9.0	4607	cpm		[redacted]
152	19	9.0-9.5	4296	cpm		[redacted]
153	1	0.0-0.5	2359	cpm		[redacted]
153	2	0.5-1.0	3370	cpm		[redacted]
153	3	1.0-1.5	4015	cpm		[redacted]
153	4	1.5-2.0	3873	cpm		[redacted]
153	5	2.0-2.5	3953	cpm		[redacted]
153	6	2.5-3.0	3878	cpm		[redacted]
153	7	3.0-3.5	4055	cpm		[redacted]
153	8	3.5-4.0	4207	cpm		[redacted]
153	9	4.0-4.5	4436	cpm		[redacted]
153	10	4.5-5.0	4447	cpm		[redacted]
153	11	5.0-5.5	4407	cpm		[redacted]
153	12	5.5-6.0	4564	cpm		[redacted]
153	13	6.0-6.5	4601	cpm		[redacted]
153	14	6.5-7.0	4822	cpm		[redacted]
153	15	7.0-7.5	4659	cpm		[redacted]
153	16	7.5-8.0	4359	cpm		[redacted]
153	17	8.0-8.5	4703	cpm		[redacted]
153	18	8.5-9.0	4614	cpm		[redacted]
153	19	9.0-9.5	4741	cpm		[redacted]
153	20	9.5-10.0	4773	cpm		[redacted]
154	1	0.0-0.5	3208	cpm		[redacted]
154	2	0.5-1.0	3216	cpm		[redacted]
154	3	1.0-1.5	3301	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
154	4	1.5-2.0	3854	cpm		[redacted]
154	5	2.0-2.5	3601	cpm		
154	6	2.5-3.0	3408	cpm		
154	7	3.0-3.5	3101	cpm		
154	8	3.5-4.0	3353	cpm		
154	9	4.0-4.5	3500	cpm		
154	10	4.5-5.0	3741	cpm		
154	11	5.0-5.5	4204	cpm		
154	12	5.5-6.0	4421	cpm		
154	13	6.0-6.5	4626	cpm		
154	14	6.5-7.0	4360	cpm		
154	15	7.0-7.5	4073	cpm		
154	16	7.5-8.0	4312	cpm		
154	17	8.0-8.5	4577	cpm		
154	18	8.5-9.0	4727	cpm		
154	19	9.0-9.5	4850	cpm		
154	20	9.5-10.0	4804	cpm		
155	1	0.0-0.5	1702	cpm		
155	2	0.5-1.0	2526	cpm		
155	3	1.0-1.5	3077	cpm		
155	4	1.5-2.0	3307	cpm		
155	5	2.0-2.5	3573	cpm		
155	6	2.5-3.0	3512	cpm		
155	7	3.0-3.5	3309	cpm		
155	8	3.5-4.0	3609	cpm		
155	10	4.5-5.0	3505	cpm		
155	11	5.0-5.5	3616	cpm		
155	12	5.5-6.0	3514	cpm		
155	13	6.0-6.5	4605	cpm		
155	14	6.5-7.0	4709	cpm		
155	15	7.0-7.5	4601	cpm		
155	16	7.5-8.0	4543	cpm		
155	17	8.0-8.5	4677	cpm		
156	1	0.0-0.5	2108	cpm		
156	2	0.5-1.0	3222	cpm		
156	3	1.0-1.5	3574	cpm		
156	4	1.5-2.0	3940	cpm		
156	5	2.0-2.5	3070	cpm		
156	6	2.5-3.0	3506	cpm		
156	7	3.0-3.5	3527	cpm		
156	8	3.5-4.0	3476	cpm		
156	9	4.0-4.5	3400	cpm		
156	10	4.5-5.0	3717	cpm		
156	11	5.0-5.5	3706	cpm		
156	12	5.5-6.0	3802	cpm		
156	13	6.0-6.5	4174	cpm		
156	14	6.5-7.0	4748	cpm		
156	15	7.0-7.5	4702	cpm		
156	16	7.5-8.0	4614	cpm		
156	17	8.0-8.5	4421	cpm		
156	18	8.5-9.0	4279	cpm		
157	1	0.0-0.5	2706	cpm		
157	2	0.5-1.0	3614	cpm		
157	3	1.0-1.5	4629	cpm		
157	4	1.5-2.0	3777	cpm		
157	5	2.0-2.5	3504	cpm		
157	6	2.5-3.0	3277	cpm		
157	7	3.0-3.5	3656	cpm		
157	8	3.5-4.0	3672	cpm		
157	9	4.0-4.5	3609	cpm		
157	10	4.5-5.0	3753	cpm		
157	11	5.0-5.5	4055	cpm		
157	12	5.5-6.0	4320	cpm		
157	13	6.0-6.5	4610	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
157	14	6.5-7.0	4619	cpm		[redacted]
157	15	7.0-7.5	4824	cpm		[redacted]
157	16	7.5-8.0	4810	cpm		[redacted]
157	17	8.0-8.5	4950	cpm		[redacted]
157	18	8.5-9.0	4800	cpm		[redacted]
158	1	0.0-0.5	2640	cpm		[redacted]
158	2	0.5-1.0	3575	cpm		[redacted]
158	3	1.0-1.5	4150	cpm		[redacted]
158	4	1.5-2.0	3620	cpm		[redacted]
158	5	2.0-2.5	3275	cpm		[redacted]
158	6	2.5-3.0	3200	cpm		[redacted]
158	7	3.0-3.5	3101	cpm		[redacted]
158	8	3.5-4.0	3275	cpm		[redacted]
158	9	4.0-4.5	3612	cpm		[redacted]
158	10	4.5-5.0	3709	cpm		[redacted]
158	11	5.0-5.5	3770	cpm		[redacted]
158	12	5.5-6.0	3613	cpm		[redacted]
158	13	6.0-6.5	3651	cpm		[redacted]
158	14	6.5-7.0	4347	cpm		[redacted]
158	15	7.0-7.5	4658	cpm		[redacted]
158	16	7.5-8.0	4577	cpm		[redacted]
158	17	8.0-8.5	4405	cpm		[redacted]
158	18	8.5-9.0	4540	cpm		[redacted]
159	1	0.0-0.5	3475	cpm		[redacted]
159	2	0.5-1.0	3419	cpm		[redacted]
159	3	1.0-1.5	4417	cpm		[redacted]
159	4	1.5-2.0	3851	cpm		[redacted]
159	5	2.0-2.5	3620	cpm		[redacted]
159	6	2.5-3.0	3616	cpm		[redacted]
159	7	3.0-3.5	3645	cpm		[redacted]
159	8	3.5-4.0	3680	cpm		[redacted]
159	9	4.0-4.5	3727	cpm		[redacted]
159	10	4.5-5.0	3698	cpm		[redacted]
159	11	5.0-5.5	3751	cpm		[redacted]
159	12	5.5-6.0	3708	cpm		[redacted]
159	13	6.0-6.5	4408	cpm		[redacted]
159	14	6.5-7.0	4501	cpm		[redacted]
159	15	7.0-7.5	3670	cpm		[redacted]
159	16	7.5-8.0	4540	cpm		[redacted]
159	17	8.0-8.5	4508	cpm		[redacted]
159	18	8.5-9.0	5203	cpm		[redacted]
159	19	9.0-9.5	4624	cpm		[redacted]
159	20	9.5-10.0	4659	cpm		[redacted]
160	1	0.0-0.5	3390	cpm		[redacted]
160	2	0.5-1.0	3408	cpm		[redacted]
160	3	1.0-1.5	4402	cpm		[redacted]
160	4	1.5-2.0	3805	cpm		[redacted]
160	5	2.0-2.5	3727	cpm		[redacted]
160	6	2.5-3.0	3403	cpm		[redacted]
160	7	3.0-3.5	3540	cpm		[redacted]
160	8	3.5-4.0	3471	cpm		[redacted]
160	9	4.0-4.5	3300	cpm		[redacted]
160	10	4.5-5.0	3620	cpm		[redacted]
160	11	5.0-5.5	3616	cpm		[redacted]
160	12	5.5-6.0	4551	cpm		[redacted]
160	13	6.0-6.5	3751	cpm		[redacted]
161	1	0.0-0.5	3372	cpm		[redacted]
161	2	0.5-1.0	4380	cpm		[redacted]
161	3	1.0-1.5	4068	cpm		[redacted]
161	4	1.5-2.0	4196	cpm		[redacted]
161	5	2.0-2.5	4158	cpm		[redacted]
161	6	2.5-3.0	4127	cpm		[redacted]
161	7	3.0-3.5	4005	cpm		[redacted]
161	8	3.5-4.0	4409	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	
161	9	4.0-4.5	4291	cpm		[redacted]
161	10	4.5-5.0	4296	cpm		
161	11	5.0-5.5	4129	cpm		
162	1	0.0-0.5	1307	cpm		
162	2	0.5-1.0	1342	cpm		
162	3	1.0-1.5	1405	cpm		
162	4	1.5-2.0	2152	cpm		
162	5	2.0-2.5	3986	cpm		
162	6	2.5-3.0	4097	cpm		
162	7	3.0-3.5	3947	cpm		
162	8	3.5-4.0	4122	cpm		
162	9	4.0-4.5	4026	cpm		
162	10	4.5-5.0	4087	cpm		
162	11	5.0-5.5	4319	cpm		
162	12	5.5-6.0	4550	cpm		
162	13	6.0-6.5	4616	cpm		
162	14	6.5-7.0	4785	cpm		
162	15	7.0-7.5	4693	cpm		
162	16	7.5-8.0	4669	cpm		
162	17	8.0-8.5	4653	cpm		
162	18	8.5-9.0	4675	cpm		
162	19	9.0-9.5	4399	cpm		
162	20	9.5-10.0	4231	cpm		
164	1	0.0-0.5	3645	cpm		
164	2	0.5-1.0	4755	cpm		
164	3	1.0-1.5	5061	cpm		
164	4	1.5-2.0	4874	cpm		
164	5	2.0-2.5	5165	cpm		
164	6	2.5-3.0	5137	cpm		
164	7	3.0-3.5	5004	cpm		
164	8	3.5-4.0	4715	cpm		
164	9	4.0-4.5	4648	cpm		
164	10	4.5-5.0	4665	cpm		
164	11	5.0-5.5	4650	cpm		
164	12	5.5-6.0	4641	cpm		
164	13	6.0-6.5	4687	cpm		
164	14	6.5-7.0	5172	cpm		
164	15	7.0-7.5	5175	cpm		
164	16	7.5-8.0	5104	cpm		
164	17	8.0-8.5	4688	cpm		
164	18	8.5-9.0	4643	cpm		
164	19	9.0-9.5	4509	cpm		
164	20	9.5-10.0	4598	cpm		
165	1	0.0-0.5	5036	cpm	Offset 3m NE from original location.	
165	2	0.5-1.0	5016	cpm		
165	3	1.0-1.5	4617	cpm		
165	4	1.5-2.0	5034	cpm		
165	5	2.0-2.5	4570	cpm		
165	6	2.5-3.0	4508	cpm		
165	7	3.0-3.5	4609	cpm		
165	8	3.5-4.0	4502	cpm		
165	9	4.0-4.5	4173	cpm		
165	10	4.5-5.0	4407	cpm		
165	11	5.0-5.5	4442	cpm		
165	12	5.5-6.0	4535	cpm		
165	13	6.0-6.5	4924	cpm		
165	14	6.5-7.0	5149	cpm		
165	15	7.0-7.5	5004	cpm		
165	16	7.5-8.0	4579	cpm		
165	17	8.0-8.5	4940	cpm		
165	18	8.5-9.0	4675	cpm		
165	19	9.0-9.5	4606	cpm		
167	1	0.0-0.5	4208	cpm		
167	2	0.5-1.0	4514	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
167	3	1.0-1.5	4549	cpm		[redacted]
167	4	1.5-2.0	5636	cpm		[redacted]
167	5	2.0-2.5	6474	cpm		[redacted]
167	6	2.5-3.0	6003	cpm		[redacted]
167	7	3.0-3.5	5250	cpm		[redacted]
167	8	3.5-4.0	3672	cpm		[redacted]
167	9	4.0-4.5	1540	cpm		[redacted]
167	10	4.5-5.0	674	cpm	Loose, white fluffy material. No K-40?	[redacted]
167	11	5.0-5.5	476	cpm	Loose, white fluffy material. No K-40?	[redacted]
167	12	5.5-6.0	575	cpm	Mix of white material & sludge. No K-40?	[redacted]
167	13	6.0-6.5	619	cpm	Mix of white material & sludge. No K-40?	[redacted]
167	14	6.5-7.0	1160	cpm	Mix of white material & sludge. No K-40?	[redacted]
167	15	7.0-7.5	2119	cpm		[redacted]
167	16	7.5-8.0	3513	cpm		[redacted]
167	17	8.0-8.5	4608	cpm		[redacted]
167	18	8.5-9.0	4975	cpm		[redacted]
167	19	9.0-9.5	4770	cpm		[redacted]
168	1	0.0-0.5	31554	cpm		[redacted]
168	2	0.5-1.0	9175	cpm		[redacted]
168	3	1.0-1.5	8647	cpm		[redacted]
168	4	1.5-2.0	5679	cpm		[redacted]
168	5	2.0-2.5	5625	cpm		[redacted]
168	6	2.5-3.0	5528	cpm		[redacted]
168	7	3.0-3.5	5576	cpm		[redacted]
168	8	3.5-4.0	4558	cpm		[redacted]
168	9	4.0-4.5	4603	cpm		[redacted]
168	10	4.5-5.0	4654	cpm		[redacted]
168	11	5.0-5.5	4635	cpm		[redacted]
168	12	5.5-6.0	4627	cpm		[redacted]
168	13	6.0-6.5	4456	cpm		[redacted]
168	14	6.5-7.0	4583	cpm		[redacted]
168	15	7.0-7.5	4600	cpm		[redacted]
168	16	7.5-8.0	4615	cpm		[redacted]
168	17	8.0-8.5	4509	cpm		[redacted]
168	18	8.5-9.0	4608	cpm		[redacted]
168	19	9.0-9.5	4645	cpm		[redacted]
168	20	9.5-10.0	4650	cpm		[redacted]
169	1	0.0-0.5	3501	cpm		[redacted]
169	2	0.5-1.0	3977	cpm		[redacted]
169	3	1.0-1.5	10301	cpm		[redacted]
169	4	1.5-2.0	12008	cpm		[redacted]
169	5	2.0-2.5	8206	cpm		[redacted]
169	6	2.5-3.0	7403	cpm		[redacted]
169	7	3.0-3.5	7778	cpm		[redacted]
169	8	3.5-4.0	7271	cpm		[redacted]
169	9	4.0-4.5	5503	cpm		[redacted]
169	10	4.5-5.0	4758	cpm		[redacted]
169	11	5.0-5.5	4409	cpm		[redacted]
169	12	5.5-6.0	5012	cpm		[redacted]
170	1	0.0-0.5	13641	cpm		[redacted]
170	2	0.5-1.0	9722	cpm		[redacted]
170	3	1.0-1.5	8670	cpm		[redacted]
170	4	1.5-2.0	9604	cpm		[redacted]
170	5	2.0-2.5	5401	cpm		[redacted]
170	6	2.5-3.0	4770	cpm		[redacted]
170	7	3.0-3.5	4627	cpm		[redacted]
170	8	3.5-4.0	4510	cpm		[redacted]
170	9	4.0-4.5	4601	cpm		[redacted]
170	10	4.5-5.0	4755	cpm		[redacted]
170	11	5.0-5.5	4501	cpm		[redacted]
170	12	5.5-6.0	4405	cpm		[redacted]
171	1	0.0-0.5	6521	cpm		[redacted]
171	2	0.5-1.0	7618	cpm		[redacted]
171	3	1.0-1.5	6477	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
171	4	1.5-2.0	5208	cpm		[redacted]
171	5	2.0-2.5	4578	cpm		[redacted]
171	6	2.5-3.0	4504	cpm		[redacted]
171	7	3.0-3.5	4025	cpm		[redacted]
171	8	3.5-4.0	4575	cpm		[redacted]
171	9	4.0-4.5	4501	cpm		[redacted]
171	10	4.5-5.0	4627	cpm		[redacted]
172	1	0.0-0.5	3526	cpm		[redacted]
172	2	0.5-1.0	3527	cpm		[redacted]
172	3	1.0-1.5	5606	cpm		[redacted]
172	4	1.5-2.0	8526	cpm		[redacted]
172	5	2.0-2.5	7174	cpm		[redacted]
172	6	2.5-3.0	5400	cpm		[redacted]
172	7	3.0-3.5	4647	cpm		[redacted]
172	8	3.5-4.0	4576	cpm		[redacted]
172	9	4.0-4.5	4505	cpm		[redacted]
172	10	4.5-5.0	4606	cpm		[redacted]
172	11	5.0-5.5	4619	cpm		[redacted]
172	12	5.5-6.0	4618	cpm		[redacted]
172	13	6.0-6.5	4504	cpm		[redacted]
172	14	6.5-7.0	4508	cpm		[redacted]
172	15	7.0-7.5	4606	cpm		[redacted]
172	16	7.5-8.0	4570	cpm		[redacted]
173	1	0.0-0.5	3301	cpm		[redacted]
173	2	0.5-1.0	3454	cpm		[redacted]
173	3	1.0-1.5	4703	cpm		[redacted]
173	4	1.5-2.0	4644	cpm		[redacted]
173	5	2.0-2.5	4501	cpm		[redacted]
173	6	2.5-3.0	5029	cpm		[redacted]
173	7	3.0-3.5	5112	cpm		[redacted]
173	8	3.5-4.0	4678	cpm		[redacted]
173	9	4.0-4.5	4578	cpm		[redacted]
173	10	4.5-5.0	4674	cpm		[redacted]
173	11	5.0-5.5	4708	cpm		[redacted]
173	12	5.5-6.0	4623	cpm		[redacted]
173	13	6.0-6.5	4775	cpm		[redacted]
173	14	6.5-7.0	4655	cpm		[redacted]
173	15	7.0-7.5	4652	cpm		[redacted]
173	16	7.5-8.0	4601	cpm		[redacted]
174	1	0.0-0.5	4672	cpm		[redacted]
174	2	0.5-1.0	6503	cpm		[redacted]
174	3	1.0-1.5	10600	cpm		[redacted]
174	4	1.5-2.0	40540	cpm		[redacted]
174	5	2.0-2.5	65746	cpm		[redacted]
174	6	2.5-3.0	9708	cpm		[redacted]
174	7	3.0-3.5	6573	cpm		[redacted]
174	8	3.5-4.0	5613	cpm		[redacted]
174	9	4.0-4.5	5453	cpm		[redacted]
174	10	4.5-5.0	4612	cpm		[redacted]
174	11	5.0-5.5	4100	cpm		[redacted]
174	12	5.5-6.0	4071	cpm		[redacted]
174	13	6.0-6.5	4028	cpm		[redacted]
174	14	6.5-7.0	4525	cpm		[redacted]
174	15	7.0-7.5	4546	cpm		[redacted]
174	16	7.5-8.0	5003	cpm		[redacted]
175	1	0.0-0.5	3801	cpm		[redacted]
175	2	0.5-1.0	4529	cpm		[redacted]
175	3	1.0-1.5	5043	cpm		[redacted]
175	4	1.5-2.0	6022	cpm		[redacted]
175	5	2.0-2.5	10105	cpm		[redacted]
175	6	2.5-3.0	7675	cpm		[redacted]
175	7	3.0-3.5	5608	cpm		[redacted]
175	8	3.5-4.0	4757	cpm		[redacted]
175	9	4.0-4.5	4508	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
175	10	4.5-5.0	4178	cpm		[redacted]
175	11	5.0-5.5	3624	cpm		[redacted]
175	12	5.5-6.0	3521	cpm		[redacted]
175	13	6.0-6.5	3401	cpm		[redacted]
175	14	6.5-7.0	3501	cpm		[redacted]
175	15	7.0-7.5	3106	cpm		[redacted]
175	16	7.5-8.0	3578	cpm		[redacted]
176	1	0.0-0.5	2622	cpm		[redacted]
176	2	0.5-1.0	4674	cpm		[redacted]
176	3	1.0-1.5	5672	cpm		[redacted]
176	4	1.5-2.0	5677	cpm		[redacted]
176	5	2.0-2.5	4553	cpm		[redacted]
176	6	2.5-3.0	4600	cpm		[redacted]
176	7	3.0-3.5	4505	cpm		[redacted]
176	8	3.5-4.0	5007	cpm		[redacted]
176	9	4.0-4.5	5021	cpm		[redacted]
176	10	4.5-5.0	4647	cpm		[redacted]
176	11	5.0-5.5	4701	cpm		[redacted]
176	12	5.5-6.0	4615	cpm		[redacted]
176	13	6.0-6.5	4705	cpm		[redacted]
176	14	6.5-7.0	4457	cpm		[redacted]
176	15	7.0-7.5	4770	cpm		[redacted]
176	16	7.5-8.0	4779	cpm		[redacted]
177	1	0.0-0.5	3100	cpm		[redacted]
177	2	0.5-1.0	3774	cpm		[redacted]
177	3	1.0-1.5	4706	cpm		[redacted]
177	4	1.5-2.0	5102	cpm		[redacted]
177	5	2.0-2.5	5511	cpm		[redacted]
177	6	2.5-3.0	4606	cpm		[redacted]
177	7	3.0-3.5	4719	cpm		[redacted]
177	8	3.5-4.0	4509	cpm		[redacted]
177	9	4.0-4.5	4518	cpm		[redacted]
177	10	4.5-5.0	4559	cpm		[redacted]
177	11	5.0-5.5	4753	cpm		[redacted]
177	12	5.5-6.0	4513	cpm		[redacted]
177	13	6.0-6.5	4517	cpm		[redacted]
177	14	6.5-7.0	4678	cpm		[redacted]
177	15	7.0-7.5	4505	cpm		[redacted]
177	16	7.5-8.0	4625	cpm		[redacted]
178	1	0.0-0.5	2542	cpm		[redacted]
178	2	0.5-1.0	3701	cpm		[redacted]
178	3	1.0-1.5	4602	cpm		[redacted]
178	4	1.5-2.0	5103	cpm		[redacted]
178	5	2.0-2.5	4725	cpm		[redacted]
178	6	2.5-3.0	4575	cpm		[redacted]
178	7	3.0-3.5	4754	cpm		[redacted]
178	8	3.5-4.0	4666	cpm		[redacted]
178	9	4.0-4.5	4678	cpm		[redacted]
178	10	4.5-5.0	4605	cpm		[redacted]
178	11	5.0-5.5	4747	cpm		[redacted]
178	12	5.5-6.0	4602	cpm		[redacted]
178	13	6.0-6.5	4506	cpm		[redacted]
178	14	6.5-7.0	4613	cpm		[redacted]
178	15	7.0-7.5	4670	cpm		[redacted]
178	16	7.5-8.0	4679	cpm		[redacted]
180	1	0.0-0.5	3100	cpm		[redacted]
180	2	0.5-1.0	4100	cpm		[redacted]
180	3	1.0-1.5	5200	cpm		[redacted]
180	4	1.5-2.0	5517	cpm		[redacted]
180	5	2.0-2.5	5450	cpm		[redacted]
180	6	2.5-3.0	5217	cpm		[redacted]
180	7	3.0-3.5	5200	cpm		[redacted]
180	8	3.5-4.0	4503	cpm		[redacted]
180	9	4.0-4.5	4670	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
180	10	4.5-5.0	4627	cpm		[redacted]
180	11	5.0-5.5	4740	cpm		[redacted]
180	12	5.5-6.0	4600	cpm		[redacted]
180	13	6.0-6.5	4710	cpm		[redacted]
180	14	6.5-7.0	4510	cpm		[redacted]
180	15	7.0-7.5	4507	cpm		[redacted]
180	16	7.5-8.0	4572	cpm		[redacted]
181	1	0.0-0.5	2701	cpm		[redacted]
181	2	0.5-1.0	8201	cpm		[redacted]
181	3	1.0-1.5	4205	cpm		[redacted]
181	4	1.5-2.0	8502	cpm		[redacted]
181	5	2.0-2.5	5707	cpm		[redacted]
181	6	2.5-3.0	5507	cpm		[redacted]
181	7	3.0-3.5	5200	cpm		[redacted]
181	8	3.5-4.0	4577	cpm		[redacted]
181	9	4.0-4.5	4701	cpm		[redacted]
181	10	4.5-5.0	4602	cpm		[redacted]
181	11	5.0-5.5	4557	cpm		[redacted]
181	12	5.5-6.0	4110	cpm		[redacted]
181	13	6.0-6.5	3504	cpm		[redacted]
181	14	6.5-7.0	3605	cpm		[redacted]
181	15	7.0-7.5	3700	cpm		[redacted]
182	1	0.0-0.5	1414	cpm		[redacted]
182	2	0.5-1.0	1501	cpm		[redacted]
182	3	1.0-1.5	1574	cpm		[redacted]
182	4	1.5-2.0	1411	cpm		[redacted]
182	5	2.0-2.5	2647	cpm		[redacted]
182	6	2.5-3.0	5701	cpm		[redacted]
182	7	3.0-3.5	6177	cpm		[redacted]
182	8	3.5-4.0	5110	cpm		[redacted]
182	9	4.0-4.5	4500	cpm		[redacted]
182	10	4.5-5.0	4503	cpm		[redacted]
182	11	5.0-5.5	4527	cpm		[redacted]
182	12	5.5-6.0	4505	cpm		[redacted]
182	13	6.0-6.5	4612	cpm		[redacted]
182	14	6.5-7.0	4606	cpm		[redacted]
182	15	7.0-7.5	5009	cpm		[redacted]
183	1	0.0-0.5	2574	cpm		[redacted]
183	2	0.5-1.0	3102	cpm		[redacted]
183	3	1.0-1.5	3104	cpm		[redacted]
183	4	1.5-2.0	3152	cpm		[redacted]
183	5	2.0-2.5	3200	cpm		[redacted]
183	6	2.5-3.0	3509	cpm		[redacted]
183	7	3.0-3.5	3577	cpm		[redacted]
183	8	3.5-4.0	3502	cpm		[redacted]
183	9	4.0-4.5	3552	cpm		[redacted]
183	10	4.5-5.0	3640	cpm		[redacted]
183	11	5.0-5.5	3550	cpm		[redacted]
183	12	5.5-6.0	3705	cpm		[redacted]
183	13	6.0-6.5	4200	cpm		[redacted]
183	14	6.5-7.0	4677	cpm		[redacted]
183	15	7.0-7.5	4671	cpm		[redacted]
183	16	7.5-8.0	4607	cpm		[redacted]
184	1	0.0-0.5	4312	cpm		[redacted]
184	2	0.5-1.0	4617	cpm		[redacted]
184	3	1.0-1.5	4670	cpm		[redacted]
184	4	1.5-2.0	4612	cpm		[redacted]
184	5	2.0-2.5	4591	cpm		[redacted]
184	6	2.5-3.0	4639	cpm		[redacted]
184	7	3.0-3.5	4698	cpm		[redacted]
184	8	3.5-4.0	4701	cpm		[redacted]
184	9	4.0-4.5	4722	cpm		[redacted]
184	10	4.5-5.0	4603	cpm		[redacted]
184	11	5.0-5.5	4531	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
184	12	5.5-6.0	4561	cpm		[redacted]
184	13	6.0-6.5	4617	cpm		
184	14	6.5-7.0	4510	cpm		
184	15	7.0-7.5	4628	cpm		
184	16	7.5-8.0	4635	cpm		
185	1	0.0-0.5	4419	cpm		
185	2	0.5-1.0	4525	cpm		
185	3	1.0-1.5	4608	cpm		
185	4	1.5-2.0	4776	cpm		
185	5	2.0-2.5	4727	cpm		
185	6	2.5-3.0	4600	cpm		
185	7	3.0-3.5	4769	cpm		
185	8	3.5-4.0	4775	cpm		
185	9	4.0-4.5	5006	cpm		
185	10	4.5-5.0	4707	cpm		
185	11	5.0-5.5	4527	cpm		
185	12	5.5-6.0	4579	cpm		
185	13	6.0-6.5	4519	cpm		
185	14	6.5-7.0	4707	cpm		
185	15	7.0-7.5	4614	cpm		
185	16	7.5-8.0	4606	cpm		
186	1	0.0-0.5	4253	cpm		
186	2	0.5-1.0	4510	cpm		
186	3	1.0-1.5	4745	cpm		
186	4	1.5-2.0	4758	cpm		
186	5	2.0-2.5	4609	cpm		
186	6	2.5-3.0	4675	cpm		
186	7	3.0-3.5	4614	cpm		
186	8	3.5-4.0	4704	cpm		
186	9	4.0-4.5	4550	cpm		
186	10	4.5-5.0	4127	cpm		
186	11	5.0-5.5	3516	cpm		
186	12	5.5-6.0	1701	cpm		
186	13	6.0-6.5	1572	cpm		
186	14	6.5-7.0	2010	cpm		
186	15	7.0-7.5	2819	cpm		
186	16	7.5-8.0	3561	cpm		
187	1	0.0-0.5	4513	cpm		
187	2	0.5-1.0	6601	cpm		
187	3	1.0-1.5	7073	cpm		
188	1	0.0-0.5	2721	cpm		
188	2	0.5-1.0	6500	cpm		
188	3	1.0-1.5	6649	cpm		
188	4	1.5-2.0	7209	cpm		
188	5	2.0-2.5	6051	cpm		
188	6	2.5-3.0	4701	cpm		
188	7	3.0-3.5	4574	cpm		
188	8	3.5-4.0	4506	cpm		
188	9	4.0-4.5	4241	cpm		
188	10	4.5-5.0	4545	cpm		
188	11	5.0-5.5	4600	cpm		
189	1	0.0-0.5	3602	cpm		
189	2	0.5-1.0	5317	cpm		
189	3	1.0-1.5	5608	cpm		
189	4	1.5-2.0	5212	cpm		
189	5	2.0-2.5	4614	cpm		
190	1	0.0-0.5	4270	cpm		
190	2	0.5-1.0	5804	cpm		
190	3	1.0-1.5	4553	cpm		
190	4	1.5-2.0	4708	cpm		
190	5	2.0-2.5	5104	cpm		
190	6	2.5-3.0	5056	cpm		
190	7	3.0-3.5	5053	cpm		
190	8	3.5-4.0	4673	cpm		

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
190	9	4.0-4.5	4778	cpm		[redacted]
190	10	4.5-5.0	4773	cpm		[redacted]
190	11	5.0-5.5	4774	cpm		[redacted]
190	12	5.5-6.0	4601	cpm		[redacted]
190	13	6.0-6.5	4748	cpm		[redacted]
190	14	6.5-7.0	4849	cpm		[redacted]
191	1	0.0-0.5	3504	cpm		[redacted]
191	2	0.5-1.0	7409	cpm		[redacted]
191	3	1.0-1.5	5675	cpm		[redacted]
192	1	0.0-0.5	3544	cpm		[redacted]
192	2	0.5-1.0	4407	cpm		[redacted]
192	3	1.0-1.5	4646	cpm		[redacted]
192	4	1.5-2.0	4578	cpm		[redacted]
192	5	2.0-2.5	4703	cpm		[redacted]
192	6	2.5-3.0	4507	cpm		[redacted]
192	7	3.0-3.5	4476	cpm		[redacted]
192	8	3.5-4.0	4172	cpm		[redacted]
192	9	4.0-4.5	4207	cpm		[redacted]
192	10	4.5-5.0	4224	cpm		[redacted]
192	11	5.0-5.5	4405	cpm		[redacted]
192	12	5.5-6.0	4241	cpm		[redacted]
192	13	6.0-6.5	4523	cpm		[redacted]
192	14	6.5-7.0	4543	cpm		[redacted]
192	15	7.0-7.5	4546	cpm		[redacted]
192	16	7.5-8.0	4646	cpm		[redacted]
193	1	0.0-0.5	2109	cpm		[redacted]
193	2	0.5-1.0	4004	cpm		[redacted]
193	3	1.0-1.5	4475	cpm		[redacted]
193	4	1.5-2.0	4073	cpm		[redacted]
193	5	2.0-2.5	3740	cpm		[redacted]
193	6	2.5-3.0	3903	cpm		[redacted]
193	7	3.0-3.5	4209	cpm		[redacted]
193	8	3.5-4.0	4502	cpm		[redacted]
193	9	4.0-4.5	4504	cpm		[redacted]
193	10	4.5-5.0	4108	cpm		[redacted]
193	11	5.0-5.5	4270	cpm		[redacted]
193	12	5.5-6.0	4349	cpm		[redacted]
193	13	6.0-6.5	4577	cpm		[redacted]
193	14	6.5-7.0	4600	cpm		[redacted]
194	1	0.0-0.5	4106	cpm		[redacted]
194	2	0.5-1.0	4648	cpm		[redacted]
194	3	1.0-1.5	4603	cpm		[redacted]
194	4	1.5-2.0	4650	cpm		[redacted]
194	5	2.0-2.5	4404	cpm		[redacted]
194	6	2.5-3.0	4627	cpm		[redacted]
194	7	3.0-3.5	4678	cpm		[redacted]
194	8	3.5-4.0	4670	cpm		[redacted]
194	9	4.0-4.5	4604	cpm		[redacted]
194	10	4.5-5.0	4575	cpm		[redacted]
194	11	5.0-5.5	4503	cpm		[redacted]
194	12	5.5-6.0	4512	cpm		[redacted]
194	13	6.0-6.5	4710	cpm		[redacted]
194	14	6.5-7.0	4642	cpm		[redacted]
194	15	7.0-7.5	4612	cpm		[redacted]
195	1	0.0-0.5	1527	cpm		[redacted]
195	2	0.5-1.0	2607	cpm		[redacted]
195	3	1.0-1.5	4673	cpm		[redacted]
195	4	1.5-2.0	6577	cpm		[redacted]
195	5	2.0-2.5	6507	cpm		[redacted]
195	6	2.5-3.0	5200	cpm		[redacted]
195	7	3.0-3.5	5037	cpm		[redacted]
195	8	3.5-4.0	4634	cpm		[redacted]
195	9	4.0-4.5	4578	cpm		[redacted]
195	10	4.5-5.0	4607	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
195	11	5.0-5.5	4714	cpm		[redacted]
195	12	5.5-6.0	4541	cpm		[redacted]
195	13	6.0-6.5	4570	cpm		[redacted]
195	14	6.5-7.0	4653	cpm		[redacted]
195	15	7.0-7.5	4503	cpm		[redacted]
195	16	7.5-8.0	5016	cpm		[redacted]
196	1	0.0-0.5	2508	cpm		[redacted]
196	2	0.5-1.0	4615	cpm		[redacted]
196	3	1.0-1.5	6000	cpm		[redacted]
196	4	1.5-2.0	6519	cpm		[redacted]
196	5	2.0-2.5	5908	cpm		[redacted]
196	6	2.5-3.0	4072	cpm		[redacted]
196	7	3.0-3.5	4572	cpm		[redacted]
196	8	3.5-4.0	4621	cpm		[redacted]
196	9	4.0-4.5	4626	cpm		[redacted]
196	10	4.5-5.0	5001	cpm		[redacted]
196	11	5.0-5.5	4600	cpm		[redacted]
196	12	5.5-6.0	4676	cpm		[redacted]
196	13	6.0-6.5	4654	cpm		[redacted]
196	14	6.5-7.0	4657	cpm		[redacted]
196	15	7.0-7.5	4705	cpm		[redacted]
197	1	0.0-0.5	1905	cpm		[redacted]
197	2	0.5-1.0	3579	cpm		[redacted]
197	3	1.0-1.5	6020	cpm		[redacted]
197	4	1.5-2.0	7010	cpm		[redacted]
197	5	2.0-2.5	6614	cpm		[redacted]
197	6	2.5-3.0	5240	cpm		[redacted]
197	7	3.0-3.5	4552	cpm		[redacted]
197	8	3.5-4.0	5004	cpm		[redacted]
197	9	4.0-4.5	5105	cpm		[redacted]
197	10	4.5-5.0	5023	cpm		[redacted]
197	11	5.0-5.5	5011	cpm		[redacted]
197	12	5.5-6.0	4625	cpm		[redacted]
197	13	6.0-6.5	4678	cpm		[redacted]
197	14	6.5-7.0	4674	cpm		[redacted]
198	1	0.0-0.5	32643	cpm		[redacted]
198	2	0.5-1.0	12607	cpm		[redacted]
198	3	1.0-1.5	6401	cpm		[redacted]
198	4	1.5-2.0	5240	cpm		[redacted]
198	5	2.0-2.5	5103	cpm		[redacted]
198	6	2.5-3.0	4978	cpm		[redacted]
198	7	3.0-3.5	5003	cpm		[redacted]
198	8	3.5-4.0	4950	cpm		[redacted]
199	1	0.0-0.5	2208	cpm		[redacted]
199	2	0.5-1.0	4508	cpm		[redacted]
199	3	1.0-1.5	5119	cpm		[redacted]
199	4	1.5-2.0	4216	cpm		[redacted]
199	5	2.0-2.5	3570	cpm		[redacted]
199	6	2.5-3.0	3504	cpm		[redacted]
199	7	3.0-3.5	3578	cpm		[redacted]
199	8	3.5-4.0	3511	cpm		[redacted]
199	9	4.0-4.5	3554	cpm		[redacted]
199	10	4.5-5.0	3728	cpm		[redacted]
199	11	5.0-5.5	3651	cpm		[redacted]
199	12	5.5-6.0	3604	cpm		[redacted]
199	13	6.0-6.5	3943	cpm		[redacted]
199	14	6.5-7.0	3709	cpm		[redacted]
199	15	7.0-7.5	4573	cpm		[redacted]
199	16	7.5-8.0	4279	cpm		[redacted]
200	1	0.0-0.5	2503	cpm		[redacted]
200	2	0.5-1.0	2774	cpm		[redacted]
200	3	1.0-1.5	3722	cpm		[redacted]
200	4	1.5-2.0	4603	cpm		[redacted]
200	5	2.0-2.5	5507	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
200	6	2.5-3.0	5211	cpm		[redacted]
200	7	3.0-3.5	5013	cpm		[redacted]
200	8	3.5-4.0	4602	cpm		[redacted]
200	9	4.0-4.5	4709	cpm		[redacted]
200	10	4.5-5.0	4758	cpm		[redacted]
200	11	5.0-5.5	4650	cpm		[redacted]
200	12	5.5-6.0	4570	cpm		[redacted]
200	13	6.0-6.5	4706	cpm		[redacted]
200	14	6.5-7.0	4502	cpm		[redacted]
200	15	7.0-7.5	4722	cpm		[redacted]
200	16	7.5-8.0	4719	cpm		[redacted]
201	1	0.0-0.5	3079	cpm		[redacted]
201	2	0.5-1.0	4154	cpm		[redacted]
201	3	1.0-1.5	4501	cpm		[redacted]
201	4	1.5-2.0	4556	cpm		[redacted]
201	5	2.0-2.5	4517	cpm		[redacted]
201	6	2.5-3.0	4209	cpm		[redacted]
201	7	3.0-3.5	3612	cpm		[redacted]
201	8	3.5-4.0	2601	cpm		[redacted]
201	9	4.0-4.5	2506	cpm		[redacted]
201	10	4.5-5.0	2025	cpm		[redacted]
201	11	5.0-5.5	2028	cpm		[redacted]
201	12	6.0-6.5	2755	cpm		[redacted]
201	13	6.5-7.0	4055	cpm		[redacted]
201	14	7.0-7.5	4500	cpm		[redacted]
201	15	7.5-8.0	4454	cpm		[redacted]
201	16	8.0-8.5	4543	cpm		[redacted]
202	1	0.0-0.5	2507	cpm		[redacted]
202	2	0.5-1.0	3504	cpm		[redacted]
202	3	1.0-1.5	4119	cpm		[redacted]
202	4	1.5-2.0	4420	cpm		[redacted]
202	5	2.0-2.5	4704	cpm		[redacted]
202	6	2.5-3.0	5007	cpm		[redacted]
202	7	3.0-3.5	5108	cpm		[redacted]
202	8	3.5-4.0	5106	cpm		[redacted]
202	9	4.0-4.5	4604	cpm		[redacted]
202	10	4.5-5.0	4605	cpm		[redacted]
202	11	5.0-5.5	4606	cpm		[redacted]
202	12	6.0-6.5	4625	cpm		[redacted]
202	13	6.5-7.0	4601	cpm		[redacted]
202	14	7.0-7.5	4645	cpm		[redacted]
202	15	7.5-8.0	463	cpm		[redacted]
202	16	8.0-8.5	4742	cpm		[redacted]
203	1	0.0-0.5	3510	cpm		[redacted]
203	2	0.5-1.0	4607	cpm		[redacted]
203	3	1.0-1.5	5009	cpm		[redacted]
203	4	1.5-2.0	5270	cpm		[redacted]
203	5	2.0-2.5	5509	cpm		[redacted]
203	6	2.5-3.0	5105	cpm		[redacted]
203	7	3.0-3.5	5010	cpm		[redacted]
203	8	3.5-4.0	4558	cpm		[redacted]
203	9	4.0-4.5	5004	cpm		[redacted]
203	10	4.5-5.0	4670	cpm		[redacted]
203	11	5.0-5.5	4545	cpm		[redacted]
203	12	6.0-6.5	4708	cpm		[redacted]
203	13	6.5-7.0	4604	cpm		[redacted]
203	14	7.0-7.5	4719	cpm		[redacted]
203	15	7.5-8.0	4614	cpm		[redacted]
203	16	8.0-8.5	4508	cpm		[redacted]
204	1	0.0-0.5	3570	cpm		[redacted]
204	2	0.5-1.0	4575	cpm		[redacted]
204	3	1.0-1.5	4546	cpm		[redacted]
204	4	1.5-2.0	4745	cpm		[redacted]
204	5	2.0-2.5	5205	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
204	6	2.5-3.0	4512	cpm		[redacted]
204	7	3.0-3.5	4598	cpm		[redacted]
204	8	3.5-4.0	4700	cpm		[redacted]
204	9	4.0-4.5	4691	cpm		[redacted]
204	10	4.5-5.0	4716	cpm		[redacted]
204	11	5.0-5.5	4615	cpm		[redacted]
204	12	6.0-6.5	4749	cpm		[redacted]
204	13	6.5-7.0	4609	cpm		[redacted]
204	14	7.0-7.5	4529	cpm		[redacted]
204	15	7.5-8.0	4774	cpm		[redacted]
204	16	8.0-8.5	4755	cpm		[redacted]
205	1	0.0-0.5	3623	cpm		[redacted]
205	2	0.5-1.0	3770	cpm		[redacted]
205	3	1.0-1.5	4113	cpm		[redacted]
205	4	1.5-2.0	4607	cpm		[redacted]
205	5	2.0-2.5	4551	cpm		[redacted]
205	6	2.5-3.0	4503	cpm		[redacted]
205	7	3.0-3.5	4621	cpm		[redacted]
205	8	3.5-4.0	4671	cpm		[redacted]
205	9	4.0-4.5	4808	cpm		[redacted]
205	10	4.5-5.0	5200	cpm		[redacted]
205	11	5.0-5.5	4108	cpm		[redacted]
205	12	6.0-6.5	5016	cpm		[redacted]
206	1	0.0-0.5	4328	cpm		[redacted]
206	2	0.5-1.0	4101	cpm		[redacted]
206	3	1.0-1.5	2528	cpm		[redacted]
206	4	1.5-2.0	1547	cpm		[redacted]
206	5	2.0-2.5	1775	cpm		[redacted]
206	6	2.5-3.0	3657	cpm		[redacted]
206	7	3.0-3.5	4458	cpm		[redacted]
206	8	3.5-4.0	4217	cpm		[redacted]
206	9	4.0-4.5	4144	cpm		[redacted]
206	10	4.5-5.0	4111	cpm		[redacted]
206	11	5.0-5.5	3713	cpm		[redacted]
206	12	6.0-6.5	3998	cpm		[redacted]
206	13	6.5-7.0	4010	cpm		[redacted]
206	14	7.0-7.5	4002	cpm		[redacted]
206	15	7.5-8.0	4108	cpm		[redacted]
206	16	8.0-8.5	3679	cpm		[redacted]
207	1	0.0-0.5	3502	cpm		[redacted]
207	2	0.5-1.0	4209	cpm		[redacted]
207	3	1.0-1.5	4416	cpm		[redacted]
207	4	1.5-2.0	4376	cpm		[redacted]
207	5	2.0-2.5	4570	cpm		[redacted]
207	6	2.5-3.0	4611	cpm		[redacted]
207	7	3.0-3.5	4574	cpm		[redacted]
207	8	3.5-4.0	4720	cpm		[redacted]
207	9	4.0-4.5	4777	cpm		[redacted]
207	10	4.5-5.0	4751	cpm		[redacted]
207	11	5.0-5.5	5003	cpm		[redacted]
207	12	6.0-6.5	5071	cpm		[redacted]
207	13	6.5-7.0	4933	cpm		[redacted]
207	14	7.0-7.5	4704	cpm		[redacted]
207	15	7.5-8.0	4761	cpm		[redacted]
207	16	8.0-8.5	4757	cpm		[redacted]
208	1	0.0-0.5	3616	cpm		[redacted]
208	2	0.5-1.0	4573	cpm		[redacted]
208	3	1.0-1.5	4001	cpm		[redacted]
208	4	1.5-2.0	3601	cpm		[redacted]
208	5	2.0-2.5	3675	cpm		[redacted]
208	6	2.5-3.0	4512	cpm		[redacted]
208	7	3.0-3.5	4617	cpm		[redacted]
208	8	3.5-4.0	4609	cpm		[redacted]
208	9	4.0-4.5	4621	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
208	10	4.5-5.0	4632	cpm		[redacted]
208	11	5.0-5.5	4614	cpm		[redacted]
208	12	6.0-6.5	4502	cpm		[redacted]
208	13	6.5-7.0	4588	cpm		[redacted]
208	14	7.0-7.5	4613	cpm		[redacted]
208	15	7.5-8.0	4471	cpm		[redacted]
208	16	8.0-8.5	4508	cpm		[redacted]
209	1	0.0-0.5	3518	cpm		[redacted]
209	2	0.5-1.0	4548	cpm		[redacted]
209	3	1.0-1.5	4656	cpm		[redacted]
209	4	1.5-2.0	4711	cpm		[redacted]
209	5	2.0-2.5	4451	cpm		[redacted]
209	6	2.5-3.0	4174	cpm		[redacted]
209	7	3.0-3.5	3505	cpm		[redacted]
209	8	3.5-4.0	3641	cpm		[redacted]
209	9	4.0-4.5	3676	cpm		[redacted]
209	10	4.5-5.0	4614	cpm		[redacted]
209	11	5.0-5.5	4622	cpm		[redacted]
209	12	6.0-6.5	4659	cpm		[redacted]
209	13	6.5-7.0	3651	cpm		[redacted]
209	14	7.0-7.5	4000	cpm		[redacted]
209	15	7.5-8.0	4611	cpm		[redacted]
210	1	0.0-0.5	3557	cpm		[redacted]
210	2	0.5-1.0	4057	cpm		[redacted]
210	3	1.0-1.5	5071	cpm		[redacted]
210	4	1.5-2.0	4600	cpm		[redacted]
210	5	2.0-2.5	5770	cpm		[redacted]
210	6	2.5-3.0	5206	cpm		[redacted]
210	7	3.0-3.5	4556	cpm		[redacted]
210	8	3.5-4.0	4603	cpm		[redacted]
210	9	4.0-4.5	4503	cpm		[redacted]
210	10	4.5-5.0	4504	cpm		[redacted]
210	11	5.0-5.5	4614	cpm		[redacted]
210	12	6.0-6.5	4620	cpm		[redacted]
210	13	6.5-7.0	4579	cpm		[redacted]
210	14	7.0-7.5	4607	cpm		[redacted]
210	15	7.5-8.0	4719	cpm		[redacted]
210	16	8.0-8.5	4621	cpm		[redacted]
211	1	0.0-0.5	3272	cpm		[redacted]
211	2	0.5-1.0	4645	cpm		[redacted]
211	3	1.0-1.5	5953	cpm		[redacted]
211	4	1.5-2.0	5906	cpm		[redacted]
211	5	2.0-2.5	5774	cpm		[redacted]
211	6	2.5-3.0	5170	cpm		[redacted]
211	7	3.0-3.5	4672	cpm		[redacted]
211	8	3.5-4.0	4504	cpm		[redacted]
211	9	4.0-4.5	4514	cpm		[redacted]
211	10	4.5-5.0	4401	cpm		[redacted]
211	11	5.0-5.5	4503	cpm		[redacted]
211	12	6.0-6.5	4604	cpm		[redacted]
212	1	0.0-0.5	3603	cpm		[redacted]
212	2	0.5-1.0	5003	cpm		[redacted]
212	3	1.0-1.5	5671	cpm		[redacted]
212	4	1.5-2.0	6174	cpm		[redacted]
212	5	2.0-2.5	6727	cpm		[redacted]
212	6	2.5-3.0	6705	cpm		[redacted]
212	7	3.0-3.5	5178	cpm		[redacted]
212	8	3.5-4.0	4601	cpm		[redacted]
212	9	4.0-4.5	4657	cpm		[redacted]
212	10	4.5-5.0	4517	cpm		[redacted]
212	11	5.0-5.5	4849	cpm		[redacted]
212	12	6.0-6.5	4747	cpm		[redacted]
212	13	6.5-7.0	4702	cpm		[redacted]
212	14	7.0-7.5	4651	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
212	15	7.5-8.0	4571	cpm		[redacted]
212	16	8.0-8.5	4709	cpm		[redacted]
213	1	0.0-0.5	1601	cpm		[redacted]
213	2	0.5-1.0	2000	cpm		[redacted]
213	3	1.0-1.5	3575	cpm		[redacted]
213	4	1.5-2.0	4736	cpm		[redacted]
213	5	2.0-2.5	5205	cpm		[redacted]
213	6	2.5-3.0	4701	cpm		[redacted]
213	7	3.0-3.5	4507	cpm		[redacted]
213	8	3.5-4.0	4578	cpm		[redacted]
213	9	4.0-4.5	4608	cpm		[redacted]
213	10	4.5-5.0	5018	cpm		[redacted]
213	11	5.0-5.5	4671	cpm		[redacted]
213	12	6.0-6.5	4676	cpm		[redacted]
213	13	6.5-7.0	4502	cpm		[redacted]
213	14	7.0-7.5	4573	cpm		[redacted]
213	15	7.5-8.0	4159	cpm		[redacted]
213	16	8.0-8.5	4146	cpm		[redacted]
214	1	0.0-0.5	1752	cpm		[redacted]
214	2	0.5-1.0	2609	cpm		[redacted]
214	3	1.0-1.5	5179	cpm		[redacted]
214	4	1.5-2.0	6572	cpm		[redacted]
214	5	2.0-2.5	5400	cpm		[redacted]
214	6	2.5-3.0	5170	cpm		[redacted]
214	7	3.0-3.5	5503	cpm		[redacted]
214	8	3.5-4.0	5575	cpm		[redacted]
214	9	4.0-4.5	5413	cpm		[redacted]
214	10	4.5-5.0	5102	cpm		[redacted]
214	11	5.0-5.5	5535	cpm		[redacted]
214	12	6.0-6.5	5508	cpm		[redacted]
214	13	6.5-7.0	5072	cpm		[redacted]
214	14	7.0-7.5	4606	cpm		[redacted]
214	15	7.5-8.0	4702	cpm		[redacted]
214	16	8.0-8.5	4543	cpm		[redacted]
215	1	0.0-0.5	1707	cpm		[redacted]
215	2	0.5-1.0	1605	cpm		[redacted]
215	3	1.0-1.5	3601	cpm		[redacted]
215	4	1.5-2.0	3640	cpm		[redacted]
215	5	2.0-2.5	3529	cpm		[redacted]
215	6	2.5-3.0	4503	cpm		[redacted]
215	7	3.0-3.5	4579	cpm		[redacted]
215	8	3.5-4.0	4407	cpm		[redacted]
215	9	4.0-4.5	4600	cpm		[redacted]
215	10	4.5-5.0	4574	cpm		[redacted]
215	11	5.0-5.5	4575	cpm		[redacted]
215	12	6.0-6.5	4617	cpm		[redacted]
215	13	6.5-7.0	4608	cpm		[redacted]
215	14	7.0-7.5	4507	cpm		[redacted]
215	15	7.5-8.0	4470	cpm		[redacted]
215	16	8.0-8.5	4509	cpm		[redacted]
216	1	0.0-0.5	1575	cpm		[redacted]
216	2	0.5-1.0	2120	cpm		[redacted]
216	3	1.0-1.5	2518	cpm		[redacted]
216	4	1.5-2.0	4073	cpm		[redacted]
216	5	2.0-2.5	3751	cpm		[redacted]
216	6	2.5-3.0	3505	cpm		[redacted]
216	7	3.0-3.5	3418	cpm		[redacted]
216	8	3.5-4.0	3329	cpm		[redacted]
216	9	4.0-4.5	3103	cpm		[redacted]
216	10	4.5-5.0	3179	cpm		[redacted]
216	11	5.0-5.5	2705	cpm		[redacted]
217	1	0.0-0.5	1504	cpm		[redacted]
217	2	0.5-1.0	2601	cpm		[redacted]
217	3	1.0-1.5	3602	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
217	4	1.5-2.0	3750	cpm		[redacted]
217	5	2.0-2.5	3675	cpm		[redacted]
217	6	2.5-3.0	4109	cpm		[redacted]
217	7	3.0-3.5	4009	cpm		[redacted]
217	8	3.5-4.0	4279	cpm		[redacted]
217	9	4.0-4.5	4245	cpm		[redacted]
217	10	4.5-5.0	4700	cpm		[redacted]
217	11	5.0-5.5	4641	cpm		[redacted]
217	12	6.0-6.5	4651	cpm		[redacted]
217	13	6.5-7.0	4572	cpm		[redacted]
217	14	7.0-7.5	4639	cpm		[redacted]
217	15	7.5-8.0	4504	cpm		[redacted]
217	16	8.0-8.5	4606	cpm		[redacted]
218	1	0.0-0.5	2273	cpm		[redacted]
218	2	0.5-1.0	3772	cpm		[redacted]
218	3	1.0-1.5	4503	cpm		[redacted]
218	4	1.5-2.0	4507	cpm		[redacted]
218	5	2.0-2.5	4527	cpm		[redacted]
218	6	2.5-3.0	4578	cpm		[redacted]
218	7	3.0-3.5	4528	cpm		[redacted]
218	8	3.5-4.0	4507	cpm		[redacted]
218	9	4.0-4.5	5101	cpm		[redacted]
218	10	4.5-5.0	4209	cpm		[redacted]
218	11	5.0-5.5	4029	cpm		[redacted]
218	12	6.0-6.5	4416	cpm		[redacted]
218	13	6.5-7.0	4705	cpm		[redacted]
218	14	7.0-7.5	4917	cpm		[redacted]
218	15	7.5-8.0	4971	cpm		[redacted]
218	16	8.0-8.5	4978	cpm		[redacted]
219	1	0.0-0.5	1609	cpm		[redacted]
219	2	0.5-1.0	3912	cpm		[redacted]
219	3	1.0-1.5	5502	cpm		[redacted]
219	4	1.5-2.0	4600	cpm		[redacted]
219	5	2.0-2.5	4676	cpm		[redacted]
219	6	2.5-3.0	4611	cpm		[redacted]
219	7	3.0-3.5	4650	cpm		[redacted]
219	8	3.5-4.0	4519	cpm		[redacted]
219	9	4.0-4.5	4103	cpm		[redacted]
219	10	4.5-5.0	4012	cpm		[redacted]
219	11	5.0-5.5	3904	cpm		[redacted]
219	12	6.0-6.5	4632	cpm		[redacted]
219	13	6.5-7.0	5216	cpm		[redacted]
219	14	7.0-7.5	5003	cpm		[redacted]
219	15	7.5-8.0	4652	cpm		[redacted]
219	16	8.0-8.5	4523	cpm		[redacted]
220	1	0.0-0.5	1754	cpm		[redacted]
220	2	0.5-1.0	1678	cpm		[redacted]
220	3	1.0-1.5	3555	cpm		[redacted]
220	4	1.5-2.0	4710	cpm		[redacted]
220	5	2.0-2.5	4613	cpm		[redacted]
220	6	2.5-3.0	4572	cpm		[redacted]
220	7	3.0-3.5	4605	cpm		[redacted]
220	8	3.5-4.0	4725	cpm		[redacted]
220	9	4.0-4.5	4617	cpm		[redacted]
220	10	4.5-5.0	4570	cpm		[redacted]
220	11	5.0-5.5	4706	cpm		[redacted]
220	12	6.0-6.5	4640	cpm		[redacted]
220	13	6.5-7.0	4602	cpm		[redacted]
220	14	7.0-7.5	4614	cpm		[redacted]
220	15	7.5-8.0	4206	cpm		[redacted]
221	1	0.0-0.5	2574	cpm		[redacted]
221	2	0.5-1.0	3525	cpm		[redacted]
221	3	1.0-1.5	4223	cpm		[redacted]
221	4	1.5-2.0	4572	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
221	5	2.0-2.5	4406	cpm		[redacted]
221	6	2.5-3.0	4501	cpm		[redacted]
221	7	3.0-3.5	4427	cpm		[redacted]
221	8	3.5-4.0	4501	cpm		[redacted]
221	9	4.0-4.5	4527	cpm		[redacted]
221	10	4.5-5.0	4549	cpm		[redacted]
221	11	5.0-5.5	4500	cpm		[redacted]
221	12	6.0-6.5	4523	cpm		[redacted]
221	13	6.5-7.0	4674	cpm		[redacted]
221	14	7.0-7.5	4578	cpm		[redacted]
221	15	7.5-8.0	4745	cpm		[redacted]
221	16	8.0-8.5	4650	cpm		[redacted]
222	1	0.0-0.5	15271	cpm		[redacted]
222	2	0.5-1.0	16513	cpm		[redacted]
222	3	1.0-1.5	11451	cpm		[redacted]
222	4	1.5-2.0	5575	cpm		[redacted]
222	5	2.0-2.5	4575	cpm		[redacted]
222	6	2.5-3.0	4603	cpm		[redacted]
222	7	3.0-3.5	4571	cpm		[redacted]
222	8	3.5-4.0	4578	cpm		[redacted]
222	9	4.0-4.5	4622	cpm		[redacted]
222	10	4.5-5.0	4770	cpm		[redacted]
222	11	5.0-5.5	4782	cpm		[redacted]
222	12	6.0-6.5	4642	cpm		[redacted]
222	13	6.5-7.0	4501	cpm		[redacted]
222	14	7.0-7.5	4577	cpm		[redacted]
223	0	10.0-10.5	4603	cpm		[redacted]
223	0	9.5-10.0	4676	cpm		[redacted]
223	0	9.0-9.5	4600	cpm		[redacted]
223	0	8.5-9.0	4633	cpm		[redacted]
223	1	0.0-0.5	3714	cpm		[redacted]
223	2	0.5-1.0	4675	cpm		[redacted]
223	3	1.0-1.5	4300	cpm		[redacted]
223	4	1.5-2.0	4244	cpm		[redacted]
223	5	2.0-2.5	4704	cpm		[redacted]
223	6	2.5-3.0	5278	cpm		[redacted]
223	7	3.0-3.5	5501	cpm		[redacted]
223	8	3.5-4.0	5556	cpm		[redacted]
223	9	4.0-4.5	5214	cpm		[redacted]
223	10	4.5-5.0	5103	cpm		[redacted]
223	11	5.0-5.5	4540	cpm		[redacted]
223	12	6.0-6.5	4659	cpm		[redacted]
223	13	6.5-7.0	4619	cpm		[redacted]
223	14	7.0-7.5	4650	cpm		[redacted]
223	15	7.5-8.0	4644	cpm		[redacted]
223	16	8.0-8.5	4621	cpm		[redacted]
224	0	8.5-9.0	4733	cpm		[redacted]
224	0	9.5-10.0	4699	cpm		[redacted]
224	0	9.0-9.5	4681	cpm		[redacted]
224	1	0.0-0.5	11519	cpm		[redacted]
224	2	0.5-1.0	12567	cpm		[redacted]
224	3	1.0-1.5	4756	cpm		[redacted]
224	4	1.5-2.0	4643	cpm		[redacted]
224	5	2.0-2.5	4576	cpm		[redacted]
224	6	2.5-3.0	4604	cpm		[redacted]
224	7	3.0-3.5	5020	cpm		[redacted]
224	8	3.5-4.0	5109	cpm		[redacted]
224	9	4.0-4.5	5102	cpm		[redacted]
224	10	4.5-5.0	4576	cpm		[redacted]
224	11	5.0-5.5	4722	cpm		[redacted]
224	12	6.0-6.5	4913	cpm		[redacted]
224	13	6.5-7.0	4916	cpm		[redacted]
224	14	7.0-7.5	4703	cpm		[redacted]
224	15	7.5-8.0	4719	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
224	16	8.0-8.5	4628	cpm		[redacted]
225	0	9.0-9.5	5006	cpm		[redacted]
225	0	8.5-9.0	4950	cpm		[redacted]
225	1	0.0-0.5	17651	cpm		[redacted]
225	2	0.5-1.0	8905	cpm		[redacted]
225	3	1.0-1.5	6614	cpm		[redacted]
225	4	1.5-2.0	5519	cpm		[redacted]
225	5	2.0-2.5	5304	cpm		[redacted]
225	6	2.5-3.0	5116	cpm		[redacted]
225	7	3.0-3.5	5029	cpm		[redacted]
225	8	3.5-4.0	5111	cpm		[redacted]
225	9	4.0-4.5	5207	cpm		[redacted]
225	10	4.5-5.0	5164	cpm		[redacted]
225	11	5.0-5.5	5108	cpm		[redacted]
225	12	6.0-6.5	4786	cpm		[redacted]
225	13	6.5-7.0	4711	cpm		[redacted]
225	14	7.0-7.5	4806	cpm		[redacted]
225	15	7.5-8.0	5105	cpm		[redacted]
225	16	8.0-8.5	5115	cpm		[redacted]
226	1	0.0-0.5	3304	cpm		[redacted]
226	2	0.5-1.0	4543	cpm		[redacted]
226	3	1.0-1.5	5446	cpm		[redacted]
226	4	1.5-2.0	4705	cpm		[redacted]
226	5	2.0-2.5	4620	cpm		[redacted]
226	6	2.5-3.0	4552	cpm		[redacted]
226	7	3.0-3.5	4475	cpm		[redacted]
226	8	3.5-4.0	4676	cpm		[redacted]
226	9	4.0-4.5	4600	cpm		[redacted]
226	10	4.5-5.0	4578	cpm		[redacted]
226	11	5.0-5.5	4272	cpm		[redacted]
226	12	6.0-6.5	4513	cpm		[redacted]
226	13	6.5-7.0	4209	cpm		[redacted]
226	14	7.0-7.5	4172	cpm		[redacted]
226	15	7.5-8.0	4278	cpm		[redacted]
226	16	8.0-8.5	4181	cpm		[redacted]
227	1	0.0-0.5	5109	cpm		[redacted]
227	2	0.5-1.0	5400	cpm		[redacted]
227	3	1.0-1.5	4710	cpm		[redacted]
227	4	1.5-2.0	4473	cpm		[redacted]
227	5	2.0-2.5	4501	cpm		[redacted]
227	6	2.5-3.0	4543	cpm		[redacted]
227	7	3.0-3.5	4571	cpm		[redacted]
227	8	3.5-4.0	4573	cpm		[redacted]
227	9	4.0-4.5	4519	cpm		[redacted]
227	10	4.5-5.0	4511	cpm		[redacted]
227	11	5.0-5.5	4502	cpm		[redacted]
227	12	6.0-6.5	4157	cpm		[redacted]
227	13	6.5-7.0	4119	cpm		[redacted]
227	14	7.0-7.5	4051	cpm		[redacted]
228	1	0.0-0.5	3578	cpm		[redacted]
228	2	0.5-1.0	4503	cpm		[redacted]
228	3	1.0-1.5	4644	cpm		[redacted]
228	4	1.5-2.0	4705	cpm		[redacted]
228	5	2.0-2.5	4515	cpm		[redacted]
228	6	2.5-3.0	4513	cpm		[redacted]
228	7	3.0-3.5	4708	cpm		[redacted]
228	8	3.5-4.0	4401	cpm		[redacted]
228	9	4.0-4.5	4071	cpm		[redacted]
228	10	4.5-5.0	4102	cpm		[redacted]
228	11	5.0-5.5	3647	cpm		[redacted]
228	12	6.0-6.5	4203	cpm		[redacted]
228	13	6.5-7.0	4209	cpm		[redacted]
228	14	7.0-7.5	4511	cpm		[redacted]
228	15	7.5-8.0	45056	cpm		[redacted]

Location ID	Interval ID	Interval	Results	Units	Notes	Initials
228	16	8.0-8.5	4517	cpm		[redacted]
229	1	0.0-0.5	3514	cpm		
229	2	0.5-1.0	3523	cpm		
229	3	1.0-1.5	3423	cpm		
229	4	1.5-2.0	3109	cpm		
229	5	2.0-2.5	3533	cpm		
229	6	2.5-3.0	3508	cpm		
229	7	3.0-3.5	3578	cpm		
229	8	3.5-4.0	4312	cpm		
229	9	4.0-4.5	4714	cpm		
229	10	4.5-5.0	4976	cpm		
229	11	5.0-5.5	4918	cpm		
229	12	6.0-6.5	5601	cpm		
229	13	6.5-7.0	5110	cpm		
229	14	7.0-7.5	5003	cpm		
229	15	7.5-8.0	4508	cpm		
229	16	8.0-8.5	4559	cpm		

TABLE C-4

FIELD SAMPLE PREP BEGe COUNTING MATRIX

X	Sample must be prepped for counting
	Sample counted in Onsite BEGe lab
	Sample sent to GEL for analysis (also screened with BEGe)

As of: **Friday, November 11, 2005**

Core Number (PVSB-)	Intervals										Comments	Date Shipped to GEL	GEL COC#	Total Number of Samples	GEL Work Order #
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10					
1	X	X	X	X	X	X	X	X	X	X		09/30/05	2	9	146946
2	X	X		X	X						Water in hole at 5'. Ready for GEL.	11/10/05	12	2	150019
3	X	X										10/28/05	9	2	149055
4	X	X	X	X	X	X	X	X	X	X		09/30/05	2	10	146946
5	X	X										10/21/05	7	2	148561
6	X	X	X	X	X	X	X	X	X	X	1-2' interval not sent to GEL. Within excav. area. DHG result > AL	09/30/05	2	7	146948
7	X	X	X	X	X	X	X	X	X	X		10/10/05	4	3	147569
8	X	X	X	X	X	X	X	X	X	X		10/14/05	5	3	148034
9	X	X	X	X	X	X	X	X	X	X		10/14/05	5	3	148034
10	X	X	X	X	X	X	X	X	X	X		09/23/05	1	10	147600
11	X	X	X	X	X	X	X	X	X	X		09/23/05	1	9	147600
12	X	X	X	X	X	X	X	X	X	X		09/23/05	1	10	146537, 146542
13	X	X	X	X	X	X	X	X	X	X		09/23/05	1	10	146542
14	X	X	X	X	X	X	X	X	X	X	0-1' interval not sent to GEL. Within excav. area. DHG result >AL	09/23/05	1	8	146542, 146548
15	X	X	X	X	X	X	X	X	X	X		09/30/05	2	10	146946, 146948
16	X	X	X	X	X	X	X	X	X	X		10/10/05	4	5	147569
17	X	X	X	X	X							10/28/05	9	3	149055
18	X	X	X	X	X	X	X	X	X	X		10/14/05	5	3	148034
19	X	X	X	X	X	X	X	X	X	X		10/21/05	7	7	148558
20	X	X	X	X								10/21/05	7	2	148558
21	X	X	X	X								10/21/05	7	3	148558
22	X	X	X	X	X	X						10/28/05	9	4	149055
23	X	X	X	X								10/21/05	7	3	148561
24	X	X	X	X								10/28/05	9	2	149055
25	X	X										10/28/05	9	2	149055
26	X	X	X	X	X						0-1' & 1-2' intervals not sent to GEL. DHG > AL starting at 3' bgs.	10/28/05	9	3	149055
27	X	X	X	X								11/01/05	11	4	149212
28	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148034
29	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148034
30	X	X	X	X	X	X	X	X	X	X		10/14/05	5	3	148034
31	X	X	X									10/14/05	5	2	148034
32	X	X										10/28/05	9	2	149055
33	X	X										10/28/05	9	2	149055
34	X	X										10/21/05	7	2	148561
35	X	X	X									10/21/05	7	3	148561
36	X	X	X	X								10/24/05	8	3	148582
37	X	X										10/31/05	10	2	149087
38	X	X										10/31/05	10	2	149087
39	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148034
40	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
41	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
42	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
43	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
44	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
45	X	X	X	X	X	X	X	X	X	X		10/07/05	3	10	147468
46	X	X	X	X	X	X	X	X	X	X		10/21/05	7	7	148561
47	X	X	X	X	X	X	X	X	X	X		10/31/05	10	2	149087
48	X	X	X	X	X	X	X	X	X	X		10/14/05	5	2	148039
49	X	X	X									10/24/05	8	2	148582
50	X	X	X	X	X	X	X	X	X	X		10/24/05	8	2	148582
51	X	X	X									10/24/05	8	2	148582
52	X	X	X									10/21/05	7	2	148558
53	X	X	X									10/31/05	10	2	149108
54	X	X	X	X	X	X	X	X	X	X		10/10/05	4	10	147569

X	Sample must be prepped for counting
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	Sample sent to GEL for analysis (also screened with BEGe)

As of: **Friday, November 11, 2005**

Core Number (PVSB-)	Intervals										Comments	Date Shipped to GEL	GEL COC#	Total Number of Samples	GEL Work Order #
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10					
55	X	X	X	X	X							10/21/05	7	5	148558
56	X	X	X	X	X	X	X	X	X	X		10/07/05	3	10	147470
57	X	X	X	X	X	X	X	X	X	X		10/07/05	3	10	147470
58	X	X										10/31/05	10	2	149087
59	X	X	X	X	X	X	X	X	X	X		10/07/05	3	10	147468
60											N/A. Refusal at 6'. Drilled 60A				
60A	X	X	X	X	X	X	X	X	X	X	60A is actual sample set for 60.	11/10/05	12	2	150019
61	X	X	X	X	X	X	X	X	X	X		10/24/05	8	2	148582
62	X	X	X	X								10/24/05	8	3	148582
63	X	X	X					X	X	X		10/24/05	8	2	148582
64	X	X										10/31/05	10	2	149087
65	X	X	X									10/24/05	8	2	148582
66	X	X	X									10/31/05	10	3	149087
67	X	X										10/31/05	10	2	149087
68	X	X										11/01/05	11	2	149212
69	X	X	X	X	X	X	X	X	X	X		10/10/05	4	3	147569, 147570
70	X	X										11/01/05	11	2	149212
71	X	X										10/31/05	10	2	149087
72	X	X										10/31/05	10	2	149087
73	X	X	X	X	X	X	X	X	X	X		10/21/05	7	2	148558, 148561
74	X	X										10/31/05	10	2	149087, 149088
75	X	X										10/31/05	10	2	149088
76	X	X										10/31/05	10	2	149088
77	X	X	X	X	X	X	X	X	X	X		10/31/05	10	2	149088
78											BAASS core location. No prep. DHG Only				
79											BAASS core location. DHG Only				
80					X	X					BAASS core location. Water in hole at 4'. DHG Only				
81											BAASS core location. No prep. DHG Only				
82											BAASS core location. No prep. DHG Only				
83											BAASS core location. No prep. DHG Only				
84											BAASS core location. No prep. DHG Only				
85											BAASS core location. No prep. DHG Only				
86											BAASS core location. No prep. DHG Only				
87											BAASS core location. No prep. DHG Only				
88											BAASS core location. No prep. DHG Only				
89											BAASS core location. No prep. DHG Only				
90											BAASS core location. No prep. DHG Only				
91											BAASS core location. No prep. DHG Only				
92											BAASS core location. No prep. DHG Only				
93											BAASS core location. No prep. DHG Only				
94											BAASS core location. No prep. DHG Only				
95											BAASS core location. No prep. DHG Only				
96											(C-h) - BAASS core location. No prep. DHG Only				
97											(C-b) - BAASS core location. No prep. DHG Only				
98											(C-f) - BAASS core location. No prep. DHG Only				
99											(C-c) - BAASS core location. No prep. DHG Only				
100	X	X	X									10/31/05	10	2	149111
101	X	X										10/31/05	10	2	149111
102	X	X	X	X	X							11/01/05	11	3	149212
103	X	X	X	X	X	X	X	X				10/31/05	10	5	149088
104	X	X	X	X								10/31/05	10	3	149111
105	X	X										11/10/05	12	2	150019
106	X	X	X	X								10/31/05	10	3	149111
107	X	X										11/10/05	12	2	150019, 150025
108	X	X	X									10/31/05	10	3	149088

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As of: **Friday, November 11, 2005**

Core Number (PVSB-)	Intervals										Comments	Date Shipped to GEL	GEL COC#	Total Number of Samples	GEL Work Order #
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10					
109	X	X										10/31/05	10	2	149088
110	X	X										10/31/05	10	2	149088
111	X	X										10/31/05	10	2	149111
112	X	X	X									10/31/05	10	3	149106
113	X	X										10/31/05	10	2	149088, 149106
114	X	X	X									11/01/05	11	2	149212
115	X	X	X	X	X							11/01/05	11	2	149212
116	X	X	X									11/01/05	11	2	149212, 149218
117	X	X										11/01/05	11	2	149212
118	X	X										10/31/05	10	2	149106
119	X	X	X									11/01/05	11	2	149212
120	X	X										11/01/05	11	2	149218
121	X	X	X									10/31/05	10	2	149106
122	X	X	X									10/31/05	10	1	149106
123	X	X	X									10/31/05	10	2	149106
124	X	X	X	X								10/31/05	10	2	149106
125	X	X	X	X								10/31/05	10	2	149106
126	X	X	X	X								10/31/05	10	3	149108
127	X	X										10/31/05	10	2	149106
128	X	X									Water in hole at 6'	10/31/05	10	2	149108
129	X	X										11/01/05	11	2	149218
130	X	X										11/01/05	11	2	149218
131	X	X										11/01/05	11	2	149218
132	X	X	X	X								10/31/05	10	3	149108
133	X	X	X	X	X	X						10/31/05	10	5	149108
134	X	X										10/31/05	10	2	149106
135	X	X										10/31/05	10	2	149108
136	X	X										10/31/05	10	2	149108
137	X	X									Cave-in at 6'. No DHG at bottom depths.	10/31/05	10	2	149106, 149108
138	X	X										10/31/05	10	2	149111
139	X	X										10/31/05	10	2	149111
140	X	X										10/31/05	10	2	149111
141	X	X										11/01/05	11	2	149218
142	X	X										11/01/05	11	2	149218
143	X	X									Refusal	11/01/05	11	2	149218
144	X	X	X									10/31/05	10	2	149111
145	X	X	X	X							No DHG. TRT - water & cave-in	11/10/05	12	2	150019
146	X	X	X	X							No DHG. TRT - water & cave-in	11/10/05	12	2	150019
147	X	X	X	X							No DHG. TRT - water & cave-in	11/10/05	12	2	150019
148	X	X	X	X							No DHG. TRT - water & cave-in	11/10/05	12	2	150019
149	X	X	X	X							No DHG. TRT - water & cave-in	11/10/05	12	2	150019
150	X	X										11/10/05	12	2	150019
151	X	X										11/10/05	12	2	150045
152	X	X										11/10/05	12	2	150045
153	X	X										11/10/05	12	2	150045
154	X	X										11/10/05	12	2	150045
155	X	X										11/10/05	12	2	150045
156	X	X										11/10/05	12	2	150045
157	X	X										11/10/05	12	2	150045
158	X	X										11/10/05	12	2	150045
159	X	X									Refusal	11/10/05	12	2	150045
160	X	X										11/10/05	12	2	150045
161	X	X										11/10/05	12	2	150039
162	X	X										11/10/05	12	2	150039
163	X	X	X	X							Refusal	11/10/05	12	2	150039

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As of: **Friday, November 11, 2005**

Core Number (PVSB-)	Intervals										Comments	Date Shipped to GEL	GEL COC#	Total Number of Samples	GEL Work Order #
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10					
164	X	X										11/10/05	12	2	150039, 150047
165	X	X									Refusal	11/10/05	12	2	150039
166	X	X	X	X							Refusal	11/10/05	12	2	150039
167	X	X	X								Biased Core #1. Suspect DHG counts at 2' bgs.	11/10/05	12	1	150039
168	X	X									Biased Core #2	11/10/05	12	2	150039
169											GWS Biased Core. No prep. DHG Only				
170											GWS Biased Core. No prep. DHG Only				
171											GWS Biased Core. No prep. DHG Only				
172											BAASS core location. No prep. DHG Only				
173											BAASS core location. No prep. DHG Only				
174											BAASS core location. No prep. DHG Only				
175											BAASS core location. No prep. DHG Only				
176											BAASS core location. No prep. DHG Only				
177											BAASS core location. No prep. DHG Only				
178											BAASS core location. No prep. DHG Only				
179	X	X	X	X	X	X					BAASS biased core				
180											BAASS core location. No prep. DHG Only				
181											BAASS core location. No prep. DHG Only				
182											BAASS core location. No prep. DHG Only				
183											BAASS core location. No prep. DHG Only				
184											BAASS core location. No prep. DHG Only				
185											BAASS core location. No prep. DHG Only				
186											BAASS core location. No prep. DHG Only				
187											BAASS core location. No prep. DHG Only				
188											BAASS core location. No prep. DHG Only				
189											BAASS core location. No prep. DHG Only				
190											BAASS core location. No prep. DHG Only				
191											BAASS core location. No prep. DHG Only				
192											BAASS core location. No prep. DHG Only				
193											BAASS core location. No prep. DHG Only				
194											BAASS core location. No prep. DHG Only				
195											Manually placed core location. Bounding 169 to W. DHG Only				
196											Manually placed core location. Bounding 170 to S. DHG Only				
197											Manually placed core location. Bounding 171 to E. DHG Only				
198											Manually placed core location. Sampling GWS hotspot in SU 14. DHG Only				
199											Manually placed core location. Sampling GWS hotspot in SU 5. DHG Only				
200											BAASS core location. No prep. DHG Only				
201											BAASS core location. No prep. DHG Only				
202											BAASS core location. No prep. DHG Only				
203											BAASS core location. No prep. DHG Only				
204											BAASS core location. No prep. DHG Only				
205											BAASS core location. No prep. DHG Only				
206											BAASS core location. No prep. DHG Only				
207											BAASS core location. No prep. DHG Only				
208											BAASS core location. No prep. DHG Only				
209											BAASS core location. No prep. DHG Only				
210											BAASS core location. No prep. DHG Only				
211											BAASS core location. No prep. DHG Only				
212											BAASS core location. No prep. DHG Only				
213											BAASS core location. No prep. DHG Only				
214											BAASS core location. No prep. DHG Only				
215											BAASS core location. No prep. DHG Only				
216											BAASS core location. No prep. DHG Only				
217											BAASS core location. No prep. DHG Only				
218											BAASS core location. No prep. DHG Only				

X	Sample must be prepped for counting
	Sample counted in Onsite BEGe lab
	Sample sent to GEL for analysis (also screened with BEGe)

As of: **Friday, November 11, 2005**

Core Number (PVSB-)	Intervals										Comments	Date Shipped to GEL	GEL COC#	Total Number of Samples	GEL Work Order #
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10					
219											BAASS core location. No prep. DHG Only				
220											BAASS core location. - TRT east of 46	DHG Clean	N/A		
221											BAASS core location. - TRT south of 51	DHG Clean	N/A		
222	X	X									Manually placed core location. Internal to SU 25	11/10/05	12	2	150039
223	X	X									Manually placed core location. Internal to SU 25	11/10/05	12	2	150039
224	X	X									Manually placed core location. Internal to SU 26	11/10/05	12	2	150025, 150039
225	X	X									Manually placed core location. Internal to SU 26	11/10/05	12	2	150025
226											Manually placed core location. SW bounding core GWS hotspot in SU 14	DHG Clean	N/A		
227											Manually placed core location. SE bounding core GWS hotspot in SU 14	DHG Clean	N/A		
228											Manually placed core location. N bounding core GWS hotspot in SU 14	DHG Clean	N/A		
229											Manually placed core location. Bounding core N of 212	DHG Clean	N/A		
107-1	X	X	X								Field Duplicate.	11/10/05	12	3	150019, 150025
108-1	X	X									Field Duplicate.	11/10/05	12	2	150025
117-1	X	X									Field Duplicate.	11/10/05	12	2	150047
118-1	X	X									Field Duplicate.	11/10/05	12	2	150047
12-3	X										Waste profile sample	10/19/05	6	1	148252
1-3			X	X							Waste profile sample; Interval actually 2.0-4.0	10/19/05	6	1	148252
130-1	X	X									Field Duplicate.	11/10/05	12	2	150047
151-2	X										USACE QA Splits	11/10/05	Paragon	1	
152-2	X										USACE QA Splits	11/10/05	Paragon	1	
153-2	X										USACE QA Splits	11/10/05	Paragon	1	
154-2	X										USACE QA Splits	11/10/05	Paragon	1	
164-1	X	X									Field Duplicate.	11/10/05	12	2	150039, 150047
18-2	X	X									USACE QA Splits	11/10/05	Paragon	2	
19-1	X	X	X	X	X	X	X	X	X	X	Field Duplicate.	11/10/05	12	7	150025
20-1	X	X	X								Field Duplicate.	11/10/05	12	3	150025
21-2	X	X									USACE QA Splits	11/10/05	Paragon	2	
2-2	X	X									USACE QA Splits	11/10/05	Paragon	2	
27-3		X	X								Waste profile sample; Interval actually 1.5-2.5	10/19/05	6	1	148252
35-2		X									USACE QA Splits	11/10/05	Paragon	1	
39-2	X										USACE QA Splits	11/10/05	Paragon	1	
42-3			X	X	X						Waste profile sample; Interval actually 2.5-4.0	10/19/05	6	1	148252
44-2	X										USACE QA Splits	11/10/05	Paragon	1	
46-1	X	X									Field Duplicate.	11/10/05	12	2	150025
46-2						X					USACE QA Splits	11/10/05	Paragon	1	
52-3	X	X									Waste profile sample; Interval actually 0.0-2.0	10/19/05	6	1	148252
55-2	X										USACE QA Splits	11/10/05	Paragon	1	
61-2	X	X									USACE QA Splits	11/10/05	Paragon	2	
65-3	X	X									Waste profile sample; Interval actually 0.0-2.0	10/19/05	6	1	148252
73-2	X	X									USACE QA Splits	11/10/05	Paragon	2	
76-3	X	X	X								Waste profile sample; Interval actually 0.0-3.0	10/19/05	6	1	148252
8-2	X	X									USACE QA Splits	11/10/05	Paragon	2	

TABLE C-5

ONSITE LAB BEGe SAMPLE SCREENING ANALYSIS LOG

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB010-0-0.0-1.0	09/19/05	15:43	1357	238.51	1460.51	0.16	1.02	5.75	N/D	1.63	4.29	2.29	N/D	LP	
PVSB010-0-6.0-7.0	09/20/05	17:26	1232	238.51	1460.51	0.04	1.15	0.78	N/D	0.22	3.07	0.35	1.67	LP	Over night count
PVSB010-0-5.0-6.0	09/20/05	15:58	1289	238.57	1460.65	0.31	1.11	5.76	N/D	1.56	3.08	2.14	N/D	LP	
PVSB010-0-4.0-5.0	09/20/05	15:39	1315	238.53	1460.67	0.32	1.01	6.08	N/D	1.38	3.67	2.28	1.71	LP	
PVSB010-0-1.0-2.0	09/20/05	14:16	1226	238.49	1460.48	0.34	0.84	8.23	N/D	2.60	9.79	3.17	N/D	LP	
PVSB010-0-2.0-3.0	09/20/05	15:00	934	238.54	1460.71	0.49	1.05	12.90	N/D	3.12	21.00	3.17	3.31	LP	
PVSB010-0-3.0-4.0	09/20/05	16:21	906	238.54	1460.84	0.54	0.75	13.70	N/D	4.83	21.28	4.66	4.24	LP	Re-count
PVSB011-0-9.0-10.0	09/21/05	13:54	1524	238.50	1460.39	0.25	0.85	4.83	N/D	1.16	1.75	1.80	N/D	LP	
PVSB011-0-8.0-9.0	09/21/05	13:37	1431	238.54	1460.40	0.27	0.90	4.98	N/D	1.47	1.83	1.83	N/D	LP	
PVSB012-0-5.0-6.0	09/21/05	16:59	1493	238.52	1460.56	0.03	1.00	0.62	N/D	0.15	1.84	0.34	0.96	LP	Over night count
PVSB012-0-4.0-5.0	09/21/05	15:47	1417	238.55	1460.75	0.22	0.94	5.18	N/D	1.15	1.92	2.05	N/D	LP	
PVSB011-0-7.0-8.0	09/21/05	13:08	1385	238.54	1460.47	0.29	1.01	5.56	N/D	1.42	1.98	1.98	N/D	LP	
PVSB010-0-9.0-10.0	09/21/05	9:33	1466	238.52	1460.54	0.29	0.97	5.47	N/D	1.47	2.07	2.49	1.45	LP	
PVSB011-0-5.0-6.0	09/21/05	11:56	1335	238.50	1460.36	0.64	0.86	5.24	N/D	1.41	2.16	1.47	0.92	LP	
PVSB010-0-7.0-8.0	09/21/05	8:39	1091	238.50	1460.43	0.42	0.93	6.19	N/D	1.41	2.18	1.61	0.98	LP	
PVSB012-0-3.0-4.0	09/21/05	15:25	1288	238.58	1460.74	0.60	0.98	5.68	N/D	1.67	2.29	2.18	N/D	LP	
PVSB011-0-3.0-4.0	09/21/05	11:12	1243	238.55	1460.61	0.29	1.17	5.87	N/D	1.33	2.34	2.20	N/D	LP	
PVSB012-0-2.0-3.0	09/21/05	15:07	979	238.54	1460.64	0.28	1.00	7.42	N/D	1.67	2.44	2.46	N/D	LP	
PVSB011-0-6.0-7.0	09/21/05	12:15	1559	238.47	1460.39	0.28	0.90	4.93	N/D	1.74	2.61	2.07	N/D	LP	
PVSB010-0-8.0-9.0	09/21/05	8:59	1318	238.49	1460.27	0.27	1.37	6.25	N/D	1.59	2.82	1.96	1.75	LP	
PVSB011-0-0.0-1.0	09/21/05	10:05	897	238.54	1460.74	0.31	1.01	7.17	N/D	1.76	3.19	1.96	2.09	LP	
PVSB012-0-1.0-2.0	09/21/05	14:43	1470	238.59	1460.75	0.25	0.96	5.68	N/D	1.44	3.71	1.56	0.99	LP	
PVSB011-0-4.0-5.0	09/21/05	11:33	1600	238.54	1460.50	0.24	1.00	5.54	N/D	1.71	4.26	1.64	1.00	LP	
PVSB011-0-2.0-3.0	09/21/05	10:51	1199	238.57	1460.75	0.86	1.00	11.10	N/D	3.32	16.30	3.46	3.26	LP	
PVSB011-0-1.0-2.0	09/21/05	10:30	1253	238.57	1460.87	0.56	1.09	12.80	N/D	3.37	24.70	5.12	5.34	LP	
PVSB012-0-0.0-1.0	09/21/05	14:38	1144	238.50	1460.86	0.61	0.72	12.60	N/D	3.11	34.09	7.14	6.91	LP	
PVSB014-0-1.0-2.0	09/22/05	14:40	1471	238.57	1460.63	0.28	0.90	5.11	N/D	1.57	1.24	1.99	N/D	LP	
PVSB012-0-9.0-10.0	09/22/05	10:49	1365	238.55	1460.64	0.27	1.12	5.01	N/D	1.19	1.33	1.97	N/D	LP	
PVSB014-0-5.0-6.0	09/22/05	15:55	1386	238.50	1460.61	0.20	0.88	5.06	N/D	1.24	1.37	1.98	N/D	LP	
PVSB012-0-8.0-9.0	09/22/05	10:25	1387	238.53	1460.60	0.63	0.87	5.38	N/D	0.97	1.60	2.03	N/D	LP	
PVSB012-0-7.0-8.0	09/22/05	10:07	1406	238.53	1460.67	0.32	0.84	5.16	N/D	1.45	1.61	1.98	N/D	LP	
PVSB013-0-7.0-8.0	09/22/05	13:22	1381	238.54	1460.76	0.25	1.06	5.21	N/D	1.22	1.68	2.03	N/D	LP	
PVSB014-0-2.0-3.0	09/22/05	15:02	1330	238.53	1460.66	0.25	1.12	5.54	N/D	1.41	1.73	2.10	N/D	LP	
PVSB013-0-8.0-9.0	09/22/05	13:42	1389	238.56	1460.48	0.28	0.94	5.31	N/D	1.25	1.84	1.30	1.01	LP	
PVSB014-0-7.0-8.0	09/22/05	16:49	1477	238.53	1460.66	0.04	0.99	0.64	N/D	0.20	1.95	0.19	0.85	LP	Over night count
PVSB014-0-3.0-4.0	09/22/05	15:20	1404	238.56	1460.67	0.30	0.85	5.05	N/D	1.10	1.97	1.94	N/D	LP	
PVSB012-0-6.0-7.0	09/22/05	9:44	1474	238.54	1460.60	0.29	0.88	5.20	N/D	1.98	2.15	2.02	N/D	LP	
PVSB014-0-4.0-5.0	09/22/05	15:37	1528	238.51	1460.55	0.24	0.97	4.71	N/D	1.25	2.15	1.95	N/D	LP	
PVSB013-0-2.0-3.0	09/22/05	11:47	746	238.52	1460.51	0.69	0.50	7.64	N/D	1.58	2.19	2.33	N/D	LP	
PVSB013-0-6.0-7.0	09/22/05	13:16	1434	238.55	1460.73	0.22	0.84	5.01	N/D	1.36	2.23	1.85	N/D	LP	
PVSB013-0-4.0-5.0	09/22/05	12:22	1478	238.55	1460.69	0.28	0.98	4.84	N/D	1.26	2.30	2.06	N/D	LP	
PVSB013-0-9.0-10.0	09/22/05	14:03	1369	238.55	1460.53	0.32	0.87	5.36	N/D	1.44	2.32	1.98	N/D	LP	
PVSB014-0-6.0-7.0	09/22/05	16:12	1335	238.54	1460.68	0.23	0.97	5.43	N/D	1.53	2.34	2.08	N/D	LP	
PVSB013-0-3.0-4.0	09/22/05	12:04	751	238.59	1460.57	0.39	0.99	7.98	N/D	1.69	2.38	2.49	1.92	LP	
PVSB013-0-5.0-6.0	09/22/05	12:39	1207	238.54	1460.73	0.32	1.09	5.84	N/D	1.61	2.65	2.12	N/D	LP	
PVSB013-0-0.0-1.0	09/22/05	11:25	955	238.56	1460.52	0.35	0.79	8.00	N/D	2.07	8.58	3.63	2.48	LP	
PVSB014-0-0.0-1.0	09/22/05	14:22	1277	238.53	1460.63	0.28	0.79	7.59	N/D	2.30	8.93	2.55	1.84	LP	
PVSB013-0-1.0-2.0	09/22/05	11:31	1231	238.54	1460.69	0.38	0.70	7.60	N/D	2.28	9.07	2.91	3.59	LP	
PVSB016-0-4.0-5.0	09/23/05	16:18	1332	238.53	1460.56	0.28	0.99	5.44	N/D	1.25	1.27	2.07	N/D	LP	
PVSB015-0-0.0-1.0	09/23/05	10:21	1425	238.49	1460.59	0.52	0.84	5.07	N/D	1.09	1.31	1.77	N/D	LP	
PVSB015-0-3.0-4.0	09/23/05	11:22	1118	238.53	1460.61	0.27	0.67	5.68	N/D	1.01	1.48	1.92	N/D	LP	
PVSB015-0-2.0-3.0	09/23/05	11:04	1176	238.53	1460.71	0.62	0.86	5.80	N/D	1.14	1.77	2.06	N/D	LP	
PVSB014-0-9.0-10.0	09/23/05	9:41	1461	238.48	1460.42	0.28	0.77	9.97	29.13	1.38	1.81	1.99	N/D	LP	
PVSB015-0-8.0-9.0	09/23/05	13:04	1449	238.49	1460.53	0.25	1.05	5.48	N/D	1.33	1.83	2.15	N/D	LP	
PVSB014-0-9.0-10.0	09/23/05	17:13	1461	238.52	1460.60	0.03	0.96	0.43	0.46	0.18	1.84	0.27	0.87	LP	Over night count (Re-Count)
PVSB015-0-7.0-8.0	09/23/05	12:57	813	238.54	1460.51	0.34	1.15	7.22	N/D	1.69	1.88	1.48	1.22	LP	
PVSB015-0-9.0-10.0	09/23/05	13:24	1236	238.54	1460.45	0.30	0.94	5.57	N/D	1.32	2.28	2.20	N/D	LP	
PVSB014-0-8.0-9.0	09/23/05	9:30	1464	238.49	1460.59	0.27	0.90	5.24	N/D	1.75	2.66	2.01	N/D	LP	
PVSB015-0-1.0-2.0	09/23/05	10:58	1412	238.47	1460.41	0.33	0.61	8.03	N/D	2.35	11.85	2.34	1.70	LP	
PVSB016-0-3.0-4.0	09/23/05	15:59	1040	238.52	1460.61	0.84	0.38	11.30	N/D	3.98	15.63	3.48	5.22	LP	
PVSB016-0-2.0-3.0	09/23/05	15:52	600	238.42	1460.58	0.85	0.87	9.81	8.51	3.91	22.55	4.28	3.18	LP	
PVSB016-0-0.0-1.0	09/23/05	14:21	769	238.47	1460.40	0.96	0.73	13.20	N/D	3.25	24.88	4.03	N/D	LP	
PVSB016-0-1.0-2.0	09/23/05	15:14	1119	238.57	1460.72	0.97	0.72	14.10	N/D	4.33	44.97	4.08	5.96	LP	
PVSB015-0-4.0-5.0	09/23/05	11:42	1150	238.52	1460.46	0.20	0.68	5.14	N/D	1.78	N/D	1.82	N/D	LP	
PVSB015-0-5.0-6.0	09/23/05	11:58	983	238.51	1460.53	0.66	0.73	6.14	N/D	1.84	N/D	2.03	N/D	LP	
PVSB015-0-6.0-7.0	09/23/05	12:18	744	238.50	1460.42	0.40	1.14	7.76	N/D	2.39	N/D	2.09	N/D	LP	
PVSB011-4-9.0-10.0	09/24/05	12:46	1524	238.50	1460.31	0.30	0.82	4.78	N/D	1.28	1.48	1.92	N/D	LP	Duplicate

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB015-4-8.0-9.0	09/24/05	13:32	1449	238.57	1460.70	0.22	1.15	5.23	N/D	1.64	1.89	2.07	N/D	LP	Duplicate
PVSB016-0-7.0-8.0	09/24/05	11:53	1116	238.56	1460.76	0.35	1.06	6.75	N/D	1.42	2.16	2.33	N/D	LP	
PVSB016-0-5.0-6.0	09/24/05	11:07	1256	238.53	1460.55	0.30	1.00	5.73	N/D	1.33	2.41	2.10	N/D	LP	
PVSB016-0-8.0-9.0	09/24/05	12:11	1475	238.49	1460.47	0.22	0.98	5.21	N/D	1.55	2.75	1.78	1.62	LP	
PVSB016-0-6.0-7.0	09/24/05	11:24	1319	238.49	1460.38	0.31	1.17	6.02	N/D	2.00	2.86	2.22	N/D	LP	
PVSB016-0-9.0-10.0	09/24/05	12:28	1460	238.54	1460.52	0.24	0.95	5.33	N/D	1.35	3.08	2.05	2.11	LP	
PVSB014-4-0.0-1.0	09/24/05	13:13	1277	238.55	1460.76	0.34	0.72	7.46	N/D	1.64	7.92	3.77	2.93	LP	Duplicate
PVSB016-0-2.0-3.0	09/24/05	13:56	600	238.59	1461.00	0.08	0.76	0.99	4.78	0.53	22.01	0.52	4.20	LP	Over night count
PVSB004-0-5.0-6.0	09/26/05	11:06	890	238.50	1460.63	0.36	0.94	7.36	N/D	1.93	1.09	2.36	N/D	LP	
PVSB006-0-9.0-10.0	09/26/05	15:48	834	238.57	1460.91	0.39	1.12	7.67	N/D	1.75	1.44	2.17	N/D	LP	
PVSB006-0-7.0-8.0	09/26/05	15:14	747	238.55	1460.80	0.41	1.08	8.11	N/D	1.69	1.56	2.29	N/D	LP	
PVSB004-0-9.0-10.0	09/26/05	12:17	1078	238.57	1460.61	0.33	1.13	6.49	N/D	1.43	1.65	2.28	N/D	LP	
PVSB004-0-7.0-8.0	09/26/05	11:40	835	238.52	1460.53	0.36	1.07	9.82	N/D	1.54	2.20	2.56	N/D	LP	
PVSB001-0-1.0-2.0	09/26/05	16:28	1487	238.59	1461.08	0.27	1.15	5.12	N/D	1.16	2.44	1.32	1.06	LP	
PVSB004-0-2.0-3.0	09/26/05	9:49	601	238.47	1460.44	0.87	0.89	9.68	N/D	2.03	2.45	2.73	N/D	LP	
PVSB006-0-5.0-6.0	09/26/05	14:32	880	238.59	1460.86	0.38	1.26	7.95	N/D	1.57	2.54	2.54	N/D	LP	
PVSB006-0-3.0-4.0	09/26/05	13:59	1245	238.58	1460.98	0.24	1.05	5.68	N/D	1.26	2.62	1.53	1.21	LP	
PVSB006-0-0.0-1.0	09/26/05	12:37	1491	238.55	1460.72	0.23	0.72	4.59	N/D	1.60	2.67	1.83	N/D	LP	
PVSB006-0-4.0-5.0	09/26/05	14:16	1217	238.61	1460.95	0.28	1.12	5.97	N/D	1.50	2.70	2.23	N/D	LP	
PVSB001-0-3.0-4.0	09/26/05	17:16	1192	238.57	1461.10	0.32	0.85	5.38	N/D	1.65	2.86	1.90	N/D	LP	
PVSB004-0-3.0-4.0	09/26/05	10:35	604	238.50	1460.64	0.32	0.85	14.80	N/D	1.97	2.88	1.52	0.77	LP	
PVSB006-0-8.0-9.0	09/26/05	15:31	925	238.61	1460.88	0.29	1.01	7.66	N/D	1.31	2.89	1.74	1.79	LP	
PVSB004-0-8.0-9.0	09/26/05	11:57	1093	238.55	1460.74	0.32	1.13	6.81	N/D	1.46	3.21	2.48	N/D	LP	
PVSB001-0-0.0-1.0	09/26/05	16:21	1352	238.59	1461.09	0.25	0.87	5.21	N/D	1.17	3.74	1.97	N/D	LP	
PVSB006-0-6.0-7.0	09/26/05	14:53	810	238.59	1460.84	0.30	1.22	8.19	N/D	1.38	4.12	2.27	N/D	LP	
PVSB004-0-6.0-7.0	09/26/05	11:23	912	238.47	1460.40	0.42	0.98	8.53	N/D	1.79	4.38	1.48	1.59	LP	
PVSB006-0-1.0-2.0	09/26/05	12:54	1494	238.58	1460.68	0.32	0.86	5.83	N/D	1.89	4.73	3.13	1.62	LP	
PVSB004-0-4.0-5.0	09/26/05	10:46	672	238.52	1460.49	0.84	0.55	9.02	N/D	2.17	4.92	2.36	3.12	LP	
PVSB004-0-1.0-2.0	09/26/05	9:15	1094	238.43	1460.47	0.44	0.75	12.50	N/D	2.43	6.16	3.08	7.11	LP	
PVSB006-0-2.0-3.0	09/26/05	13:49	1030	238.56	1460.77	0.25	1.02	5.66	N/D	1.03	8.82	1.91	4.60	LP	
PVSB004-0-0.0-1.0	09/26/05	8:54	996	238.48	1460.45	0.56	0.67	12.10	N/D	2.94	18.67	3.68	7.65	LP	
PVSB001-0-2.0-3.0	09/26/05	16:44	1392	238.60	1461.06	0.28	1.06	5.16	N/D	1.74	N/D	2.14	N/D	LP	
PVSB001-0-6.0-7.0	09/27/05	9:24	1500	238.49	1460.57	0.28	0.90	4.78	N/D	1.16	1.04	1.86	N/D	LP	
PVSB060-0-2.0-3.0	09/27/05	14:43	1459	238.53	1460.52	0.42	0.51	4.57	N/D	0.76	1.14	1.62	N/D	LP	
PVSB057-0-3.0-4.0	09/27/05	11:25	1334	238.52	1460.62	0.20	0.91	5.23	N/D	1.26	1.24	1.96	N/D	LP	
PVSB045-0-2.0-3.0	09/27/05	16:31	1099	238.54	1460.72	0.25	0.83	5.76	N/D	1.24	1.30	1.98	N/D	LP	
PVSB060-0-5.0-6.0	09/27/05	15:39	1397	238.51	1460.54	0.41	0.43	4.24	N/D	0.76	1.46	1.02	0.67	LP	
PVSB001-0-5.0-6.0	09/27/05	9:08	1411	238.48	1460.54	0.21	1.06	5.15	N/D	1.42	1.56	2.08	N/D	LP	
PVSB060-0-3.0-4.0	09/27/05	14:59	1477	238.53	1460.69	0.39	0.30	4.04	N/D	0.87	1.59	1.38	N/D	LP	
PVSB045-0-1.0-2.0	09/27/05	16:13	1302	238.50	1460.81	0.24	0.71	5.48	N/D	1.11	1.60	1.96	N/D	LP	
PVSB057-0-7.0-8.0	09/27/05	12:42	793	238.50	1460.63	0.22	0.87	7.13	N/D	1.52	1.65	1.26	0.89	LP	
PVSB001-0-7.0-8.0	09/27/05	9:41	1472	238.51	1460.49	0.28	0.91	4.96	N/D	1.09	1.69	1.85	N/D	LP	
PVSB057-0-5.0-6.0	09/27/05	11:58	1273	238.46	1460.42	0.28	1.11	5.69	N/D	1.21	1.76	1.96	N/D	LP	
PVSB001-0-9.0-10.0	09/27/05	10:17	1515	238.52	1460.41	0.24	0.83	5.14	N/D	1.49	1.80	1.46	0.99	LP	
PVSB001-0-8.0-9.0	09/27/05	10:00	1496	238.49	1460.61	0.19	1.05	5.12	N/D	1.50	1.84	2.00	N/D	LP	
PVSB057-0-8.0-9.0	09/27/05	12:59	1475	238.52	1460.46	0.28	1.05	4.99	N/D	1.09	1.86	1.88	N/D	LP	
PVSB060-0-4.0-5.0	09/27/05	15:16	1377	238.57	1460.61	0.46	0.45	4.54	N/D	1.08	2.13	1.67	N/D	LP	
PVSB057-0-9.0-10.0	09/27/05	13:36	1440	238.52	1460.37	0.27	0.87	4.32	N/D	1.15	2.29	1.39	0.97	LP	
PVSB001-0-4.0-5.0	09/27/05	9:00	1562	238.52	1460.55	0.21	1.08	5.15	N/D	1.44	2.46	1.94	N/D	LP	
PVSB057-0-4.0-5.0	09/27/05	11:42	1490	238.51	1460.44	0.29	0.78	5.97	N/D	1.98	4.59	2.49	N/D	LP	
PVSB057-0-1.0-2.0	09/27/05	10:51	1477	238.53	1460.51	0.33	0.82	6.11	N/D	1.57	4.64	2.37	N/D	LP	
PVSB057-0-2.0-3.0	09/27/05	11:08	1326	238.54	1460.53	0.37	0.88	6.61	N/D	2.17	5.34	2.62	N/D	LP	
PVSB057-0-0.0-1.0	09/27/05	10:34	1010	238.46	1460.82	0.81	0.83	11.20	N/D	3.15	14.44	3.54	N/D	LP	
PVSB045-0-0.0-1.0	09/27/05	15:56	1308	238.52	1460.70	0.77	0.91	10.40	N/D	2.27	20.18	3.25	2.89	LP	
PVSB060-0-1.0-2.0	09/27/05	14:25	1400	238.54	1460.67	0.41	0.66	11.00	N/D	3.37	24.36	3.09	4.19	LP	
PVSB060-0-0.0-1.0	09/27/05	14:12	634	238.54	1460.54	0.90	0.30	13.40	N/D	4.41	38.74	3.11	2.09	LP	
PVSB057-0-6.0-7.0	09/27/05	12:15	829	238.49	1460.36	0.34	0.80	7.33	N/D	2.28	N/D	2.14	N/D	LP	
PVSB045-0-9.0-10.0	09/28/05	11:00	1355	238.53	1460.60	0.25	0.88	5.38	N/D	1.50	0.95	2.01	N/D	LP	
PVSB045-0-3.0-4.0	09/28/05	8:57	1482	238.45	1460.45	0.25	0.88	4.73	N/D	0.95	1.21	1.82	N/D	LP	
PVSB055-0-1.0-2.0	09/28/05	14:45	1453	238.49	1460.49	0.17	0.98	5.15	N/D	1.21	1.37	1.89	1.62	LP	
PVSB055-0-3.0-4.0	09/28/05	15:27	1322	238.52	1460.50	0.27	0.82	4.81	N/D	1.25	1.37	1.97	N/D	LP	
PVSB054-0-5.0-6.0	09/28/05	13:02	1178	238.50	1460.77	0.26	0.84	5.70	N/D	1.26	1.49	2.00	N/D	LP	
PVSB054-0-9.0-10.0	09/28/05	14:11	1407	238.57	1460.45	0.21	0.99	5.24	N/D	0.97	1.76	1.90	N/D	LP	
PVSB045-0-8.0-9.0	09/28/05	10:41	1475	238.51	1460.49	0.27	0.85	5.15	N/D	1.07	1.86	1.97	N/D	LP	
PVSB055-0-6.0-7.0	09/28/05	16:19	825	238.51	1460.58	0.05	0.94	0.89	N/D	0.32	1.86	0.23	0.39	LP	Over night count
PVSB054-0-1.0-2.0	09/28/05	11:42	1312	238.54	1460.53	0.21	0.95	5.33	N/D	1.45	1.89	1.95	N/D	LP	
PVSB045-0-7.0-8.0	09/28/05	10:24	1500	238.55	1460.45	0.23	0.92	5.21	N/D	1.17	1.96	1.72	1.36	LP	
PVSB054-0-7.0-8.0	09/28/05	13:36	1457	238.55	1460.56	0.57	0.81	4.83	N/D	1.44	1.97	1.62	1.29	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB054-0-2.0-3.0	09/28/05	11:59	1072	238.51	1460.71	0.62	0.68	5.75	N/D	1.26	2.07	2.13	N/D	LP	
PVSB054-0-6.0-7.0	09/28/05	13:20	1194	238.52	1460.50	0.26	0.89	6.04	N/D	1.27	2.14	1.96	N/D	LP	
PVSB054-0-8.0-9.0	09/28/05	13:53	1314	238.52	1460.65	0.31	0.73	5.28	N/D	1.42	2.28	1.82	N/D	LP	
PVSB045-0-4.0-5.0	09/28/05	9:19	1234	238.42	1460.30	0.29	0.81	5.95	N/D	1.52	2.31	2.01	N/D	LP	
PVSB054-0-3.0-4.0	09/28/05	12:16	1335	238.56	1460.47	0.60	0.87	5.07	N/D	1.30	2.36	1.89	N/D	LP	
PVSB054-0-4.0-5.0	09/28/05	12:55	1331	238.51	1460.70	0.21	0.88	4.63	N/D	1.31	2.71	1.85	N/D	LP	
PVSB055-0-2.0-3.0	09/28/05	15:02	1339	238.51	1460.51	0.27	1.08	5.32	N/D	1.53	2.79	1.92	N/D	LP	
PVSB055-0-4.0-5.0	09/28/05	15:43	1412	238.53	1460.57	0.33	0.68	5.94	N/D	1.32	4.45	1.27	0.72	LP	
PVSB054-0-0.0-1.0	09/28/05	11:38	1067	238.53	1460.73	0.60	0.94	7.69	N/D	2.46	14.12	2.51	2.47	LP	
PVSB055-0-0.0-1.0	09/28/05	14:28	1106	238.52	1460.46	0.40	0.88	9.65	N/D	2.75	18.04	3.65	5.38	LP	
PVSB045-0-5.0-6.0	09/28/05	9:49	1160	238.46	1460.82	0.29	0.90	5.70	N/D	1.74	N/D	1.88	N/D	LP	
PVSB045-0-6.0-7.0	09/28/05	10:07	1139	238.53	1460.58	0.35	0.92	5.82	N/D	1.94	N/D	2.09	N/D	LP	
PVSB055-0-5.0-6.0	09/28/05	16:01	1230	238.51	1460.56	0.22	0.87	5.13	N/D	1.73	N/D	2.00	N/D	LP	
PVSB059-0-9.0-10.0	09/29/05	11:34	1495	238.53	1460.59	0.22	0.77	4.33	N/D	1.46	0.87	1.80	N/D	LP	
PVSB060A-0-8.0-9.0	09/29/05	14:30	1483	238.50	1460.62	0.25	0.65	4.72	N/D	1.12	1.38	1.74	N/D	LP	
PVSB056-0-1.0-2.0	09/29/05	15:51	1165	238.48	1460.67	0.45	0.32	4.76	N/D	0.93	1.49	1.58	N/D	LP	
PVSB060A-0-9.0-10.0	09/29/05	14:46	1472	238.58	1460.76	0.22	0.74	4.64	N/D	1.44	1.54	1.65	1.30	LP	
PVSB059-0-8.0-9.0	09/29/05	11:15	1500	238.54	1460.61	0.28	0.99	4.82	N/D	1.03	1.65	2.02	N/D	LP	
PVSB060A-0-7.0-8.0	09/29/05	14:25	1478	238.52	1460.63	0.24	0.93	4.31	N/D	1.02	1.67	1.68	N/D	LP	
PVSB059-0-6.0-7.0	09/29/05	10:42	1455	238.51	1460.44	0.24	0.79	4.66	N/D	1.55	1.72	1.81	N/D	LP	
PVSB060A-0-5.0-6.0	09/29/05	13:34	1494	238.53	1460.63	0.25	0.87	5.05	N/D	1.24	1.81	1.93	N/D	LP	
PVSB056-0-2.0-3.0	09/29/05	15:58	1130	238.52	1460.52	0.49	0.26	5.69	N/D	1.24	1.88	1.74	N/D	LP	
PVSB055-0-7.0-8.0	09/29/05	7:55	755	238.51	1460.73	0.35	0.84	7.70	N/D	1.95	1.96	2.42	N/D	LP	
PVSB059-0-7.0-8.0	09/29/05	10:58	1491	238.48	1460.46	0.24	0.95	5.21	N/D	1.20	2.07	1.90	N/D	LP	
PVSB055-0-8.0-9.0	09/29/05	8:12	1360	238.52	1460.48	0.22	0.85	5.29	N/D	1.37	2.20	2.00	N/D	LP	
PVSB060A-0-4.0-5.0	09/29/05	13:16	1465	238.54	1460.69	0.31	0.94	5.21	N/D	1.68	2.21	1.94	N/D	LP	
PVSB060A-0-6.0-7.0	09/29/05	13:51	1354	238.53	1460.61	0.25	0.93	5.27	N/D	1.23	2.60	1.64	1.06	LP	
PVSB060A-0-2.0-3.0	09/29/05	12:42	1357	238.53	1460.63	0.28	1.06	5.62	N/D	1.49	3.27	1.95	1.24	LP	
PVSB060A-0-1.0-2.0	09/29/05	12:25	1355	238.52	1460.63	0.31	1.09	5.48	N/D	1.32	3.35	2.43	2.13	LP	
PVSB059-0-5.0-6.0	09/29/05	10:25	1386	238.45	1460.49	0.27	1.00	5.81	N/D	1.77	3.63	2.04	2.25	LP	
PVSB059-0-4.0-5.0	09/29/05	10:22	1396	238.51	1460.72	0.30	0.85	5.54	N/D	1.16	4.75	2.03	2.82	LP	
PVSB059-0-3.0-4.0	09/29/05	9:58	1341	238.50	1460.47	0.34	0.75	6.01	N/D	1.50	6.57	2.38	7.65	LP	
PVSB059-0-0.0-1.0	09/29/05	8:46	849	238.47	1460.77	0.69	0.47	8.97	N/D	2.40	7.95	2.46	2.11	LP	
PVSB059-0-2.0-3.0	09/29/05	9:36	1341	238.53	1460.36	0.26	0.96	6.13	N/D	1.47	16.10	3.09	14.93	LP	U-235 0.83pCi/g
PVSB059-0-1.0-2.0	09/29/05	9:03	1145	238.53	1460.46	0.33	0.92	8.45	N/D	2.37	20.08	4.08	17.44	LP	U-235 1.21pCi/g
PVSB060A-0-0.0-1.0	09/29/05	12:06	617	238.53	N/A	0.98	0.63	14.30	N/D	3.59	24.07	5.86	10.51	LP	Suspected backfill no K-40
PVSB056-0-3.0-4.0	09/29/05	16:42	625	238.54	1460.71	0.15	0.77	2.47	10.19	0.87	53.47	0.72	4.97	LP	Over night count
PVSB055-0-9.0-10.0	09/29/05	8:29	1353	238.48	1460.51	0.28	0.85	5.25	N/D	1.79	N/D	1.94	N/D	LP	
PVSB056-0-0.0-1.0	09/29/05	15:17	680	238.58	N/A	0.64	0.39	7.02	N/D	1.94	N/D	1.96	N/D	LP	Suspected backfill no K-40
PVSB060A-0-3.0-4.0	09/29/05	12:59	1425	238.55	1460.74	0.61	0.82	4.96	N/D	1.76	N/D	1.30	0.64	LP	
PVSB056-0-7.0-8.0	09/30/05	10:15	1263	238.52	1460.66	0.22	0.93	5.31	N/D	1.43	1.14	1.98	N/D	LP	
PVSB069-0-8.0-9.0	09/30/05	13:27	1339	238.56	1460.78	0.22	0.93	5.37	N/D	1.16	1.17	2.06	N/D	LP	
PVSB056-0-8.0-9.0	09/30/05	10:32	732	238.54	1460.50	0.93	0.88	7.92	N/D	1.66	1.21	2.33	N/D	LP	
PVSB007-0-5.0-6.0	09/30/05	14:52	1084	238.62	1460.91	0.36	1.15	7.07	N/D	1.53	1.39	2.25	N/D	LP	
PVSB069-0-3.0-4.0	09/30/05	12:02	1299	238.54	1460.62	0.28	0.82	4.95	N/D	1.12	1.47	2.06	N/D	LP	
PVSB056-0-5.0-6.0	09/30/05	9:44	1152	238.47	1460.34	0.23	0.96	5.31	N/D	1.34	1.60	1.78	N/D	LP	
PVSB069-0-5.0-6.0	09/30/05	12:35	1352	238.51	1460.60	0.29	1.00	5.53	N/D	1.58	1.83	2.05	N/D	LP	
PVSB007-0-3.0-4.0	09/30/05	14:58	955	238.55	1461.08	0.25	1.02	7.32	N/D	1.93	1.84	2.28	N/D	LP	
PVSB007-0-0.0-1.0	09/30/05	14:03	1381	238.57	1460.92	0.50	0.56	4.49	N/D	1.32	1.85	1.46	0.76	LP	
PVSB069-0-4.0-5.0	09/30/05	12:19	1297	238.55	1460.61	0.21	1.04	5.17	N/D	1.21	1.86	1.53	1.74	LP	
PVSB056-0-9.0-10.0	09/30/05	11:06	772	238.54	1460.67	0.73	0.94	6.45	N/D	1.62	1.90	2.16	N/D	LP	
PVSB056-0-6.0-7.0	09/30/05	9:59	1320	238.53	1460.72	0.29	0.96	4.86	N/D	1.30	2.03	1.94	N/D	LP	
PVSB069-0-6.0-7.0	09/30/05	12:52	1239	238.56	1460.66	0.26	0.90	5.57	N/D	1.30	2.06	2.12	N/D	LP	
PVSB007-0-6.0-7.0	09/30/05	15:58	841	238.54	1460.70	0.05	1.09	0.89	N/D	0.21	2.09	0.24	0.60	LP	Over night count
PVSB069-0-9.0-10.0	09/30/05	13:46	1399	238.52	1460.93	0.28	0.91	5.32	N/D	1.38	2.12	1.93	N/D	LP	
PVSB069-0-2.0-3.0	09/30/05	11:46	1341	238.51	1460.63	0.21	0.86	5.20	N/D	1.17	2.16	1.21	0.72	LP	
PVSB007-0-4.0-5.0	09/30/05	15:15	943	238.57	1460.79	0.34	1.25	7.22	N/D	2.06	2.21	2.40	N/D	LP	
PVSB069-0-7.0-8.0	09/30/05	13:09	1338	238.52	1460.83	0.25	0.92	5.65	N/D	1.19	2.21	2.00	N/D	LP	
PVSB069-0-0.0-1.0	09/30/05	11:11	1356	238.52	1460.61	0.52	0.69	4.73	N/D	1.51	2.34	1.39	0.76	LP	
PVSB069-0-1.0-2.0	09/30/05	11:28	1489	238.52	1460.53	0.23	0.86	4.96	N/D	1.73	4.51	1.76	1.51	LP	
PVSB007-0-1.0-2.0	09/30/05	14:35	1229	238.59	1460.83	0.28	1.02	6.24	N/D	2.32	9.08	1.97	3.73	LP	
PVSB007-0-2.0-3.0	09/30/05	14:42	1005	238.54	1461.02	0.33	1.10	6.81	N/D	2.14	N/D	2.31	N/D	LP	
PVSB056-0-4.0-5.0	09/30/05	9:05	609	238.42	1460.59	0.57	0.50	6.94	N/D	1.97	N/D	1.63	N/D	LP	
PVSB055-4-5.0-6.0	10/01/05	10:34	1230	238.54	1460.52	0.32	0.91	5.26	N/D	1.46	1.65	1.92	N/D	LP	Duplicate
PVSB060A-4-5.0-6.0	10/01/05	10:56	1494	238.50	1460.54	0.22	0.90	4.99	N/D	1.27	1.93	1.93	N/D	LP	Duplicate
PVSB007-0-7.0-8.0	10/01/05	12:00	909	238.89	1460.75	0.03	1.07	0.42	0.53	0.11	2.05	0.23	0.95	LP	Duplicate
PVSB001-4-9.0-10.0	10/01/05	9:24	1515	238.48	1460.69	0.23	0.92	4.83	N/D	1.14	2.08	1.86	N/D	LP	Duplicate
PVSB069-4-5.0-6.0	10/01/05	11:22	1352	238.54	1460.48	0.23	0.95	5.03	N/D	1.21	2.24	2.02	N/D	LP	Duplicate

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB006-4-1.0-2.0	10/01/05	9:03	1494	238.55	1460.63	0.30	0.92	5.81	N/D	1.55	4.72	1.93	2.09	LP	Duplicate
PVSB045-4-5.0-6.0	10/01/05	10:02	1160	238.46	1460.12	0.16	0.69	5.03	N/D	1.82	N/D	1.85	N/D	LP	Duplicate K-40 fell low. Did Z-score and passed. K-40 is within 1 KeV will keep the dup count and adjust K-40 within half KeV.
PVSB008-0-6.0-7.0	10/03/05	12:28	898	238.60	1460.88	0.40	1.07	7.52	N/D	1.48	1.25	2.47	N/D	LP	
PVSB008-0-2.0-3.0	10/03/05	10:16	1280	238.53	1460.49	0.30	0.99	5.45	N/D	1.23	1.38	2.16	N/D	LP	
PVSB009-0-2.0-3.0	10/03/05	14:26	1391	238.60	1460.95	0.22	0.97	4.61	N/D	1.10	1.82	1.74	N/D	LP	
PVSB008-0-5.0-6.0	10/03/05	12:12	915	238.56	1460.95	0.25	1.10	5.51	N/D	1.80	1.94	1.55	0.93	LP	
PVSB009-0-3.0-4.0	10/03/05	14:29	1322	238.61	1461.15	0.24	1.09	5.36	N/D	1.36	2.22	2.08	N/D	LP	
PVSB008-0-9.0-10.0	10/03/05	13:12	945	238.60	1461.03	0.34	1.11	7.88	N/D	1.37	2.48	2.43	N/D	LP	
PVSB007-0-8.0-9.0	10/03/05	8:49	1048	238.50	1460.44	0.37	1.17	6.88	N/D	2.17	2.56	2.71	N/D	LP	
PVSB008-0-3.0-4.0	10/03/05	11:03	1189	238.48	1460.82	0.26	0.97	6.43	N/D	1.32	2.56	2.20	N/D	LP	
PVSB009-0-5.0-6.0	10/03/05	15:18	801	238.59	1461.01	0.34	1.04	7.26	N/D	1.50	2.69	2.20	N/D	LP	
PVSB008-0-1.0-2.0	10/03/05	10:08	1481	238.51	1460.46	0.25	0.93	4.27	N/D	1.44	2.76	1.84	1.24	LP	
PVSB009-0-6.0-7.0	10/03/05	15:24	806	238.56	1460.91	0.27	1.03	8.47	N/D	1.67	2.80	2.45	N/D	LP	
PVSB009-0-7.0-8.0	10/03/05	15:41	1084	238.59	1461.19	0.30	1.23	6.30	N/D	1.94	2.91	2.27	N/D	LP	
PVSB009-0-8.0-9.0	10/03/05	15:57	1135	238.64	1461.16	0.32	0.97	6.24	N/D	1.33	2.99	2.45	N/D	LP	
PVSB007-0-9.0-10.0	10/03/05	9:19	1074	238.52	1460.56	0.38	1.25	6.70	N/D	1.82	3.25	2.45	N/D	LP	
PVSB009-0-4.0-5.0	10/03/05	14:46	1264	238.60	1461.10	0.32	0.99	6.26	N/D	1.61	3.72	2.31	1.35	LP	
PVSB009-0-9.0-10.0	10/03/05	16:14	1381	238.61	1461.01	0.33	0.92	8.19	N/D	2.48	8.48	3.87	4.75	LP	
PVSB008-0-0.0-1.0	10/03/05	9:36	1306	238.50	1460.54	0.28	0.51	6.96	N/D	2.81	9.46	2.63	4.35	LP	
PVSB009-0-1.0-2.0	10/03/05	13:51	1247	238.61	1460.95	0.30	0.96	7.49	N/D	1.63	12.50	2.99	6.78	LP	
PVSB009-0-0.0-1.0	10/03/05	13:45	1375	238.63	1461.17	0.99	0.46	15.30	N/D	4.10	58.77	5.37	10.27	LP	
PVSB008-0-4.0-5.0	10/03/05	11:42	1075	238.53	1460.82	0.24	1.01	4.89	N/D	1.60	N/D	1.15	1.21	LP	
PVSB008-0-7.0-8.0	10/03/05	12:35	931	238.60	1460.85	0.36	0.97	7.35	N/D	2.15	N/D	2.26	N/D	LP	
PVSB008-0-8.0-9.0	10/03/05	12:51	882	238.56	1460.84	0.28	1.11	7.16	N/D	2.23	N/D	2.51	N/D	LP	
PVSB073-0-8.0-9.0	10/04/05	10:43	1154	238.53	1460.66	0.29	0.93	5.96	N/D	1.39	1.04	2.20	N/D	LP	
PVSB018-0-3.0-4.0	10/04/05	13:49	827	238.57	1460.78	0.56	0.99	4.95	N/D	1.25	1.41	1.44	1.26	LP	
PVSB073-0-1.0-2.0	10/04/05	8:37	1421	238.52	1460.46	0.18	0.78	4.82	N/D	1.28	1.59	1.93	N/D	LP	
PVSB073-0-5.0-6.0	10/04/05	9:54	1207	238.52	1460.75	0.31	1.05	6.09	N/D	1.46	1.68	2.13	N/D	LP	
PVSB073-0-9.0-10.0	10/04/05	11:17	1243	238.58	1460.86	0.28	1.13	6.10	N/D	1.33	1.68	2.14	N/D	LP	
PVSB073-0-3.0-4.0	10/04/05	9:11	1009	238.55	1460.41	0.32	1.09	6.50	N/D	1.88	1.71	2.38	N/D	LP	
PVSB018-0-9.0-10.0	10/04/05	15:22	1253	238.55	1460.85	0.29	0.98	5.91	N/D	1.30	1.72	2.15	N/D	LP	
PVSB028-0-1.0-2.0	10/04/05	15:55	1455	238.55	1460.94	0.23	0.80	5.24	N/D	1.37	1.77	1.91	N/D	LP	
PVSB073-0-6.0-7.0	10/04/05	10:10	1273	238.53	1460.79	0.27	1.03	6.03	N/D	1.24	1.82	2.07	N/D	LP	
PVSB028-0-0.0-1.0	10/04/05	15:39	1333	238.55	1460.85	0.61	0.90	5.16	N/D	1.21	1.96	1.83	N/D	LP	
PVSB073-0-0.0-1.0	10/04/05	8:20	1309	238.50	1460.81	0.19	0.80	4.99	N/D	1.14	1.98	1.93	N/D	LP	
PVSB018-0-6.0-7.0	10/04/05	14:31	1084	238.54	1460.72	0.35	1.02	6.50	N/D	1.36	1.99	2.01	N/D	LP	
PVSB073-0-7.0-8.0	10/04/05	10:27	1121	238.59	1460.77	0.31	0.98	6.47	N/D	1.55	2.01	2.29	N/D	LP	
PVSB073-0-2.0-3.0	10/04/05	8:55	1161	238.57	1460.48	0.31	0.87	5.35	N/D	1.25	2.07	1.99	N/D	LP	
PVSB028-0-3.0-4.0	10/04/05	14:29	1003	238.57	1460.69	0.26	1.09	6.13	N/D	1.34	2.18	2.24	N/D	LP	
PVSB018-0-8.0-9.0	10/04/05	15:03	1204	238.54	1460.88	0.24	1.27	6.48	N/D	1.79	2.19	2.11	1.99	LP	
PVSB018-0-2.0-3.0	10/04/05	13:22	1020	238.50	1460.99	0.26	0.92	5.12	N/D	1.42	2.23	1.67	1.90	LP	
PVSB073-0-4.0-5.0	10/04/05	9:37	983	238.56	1460.80	0.34	1.18	7.48	N/D	1.72	2.23	2.46	N/D	LP	
PVSB028-0-2.0-3.0	10/04/05	16:12	1004	238.54	1460.93	0.29	1.15	6.68	N/D	1.49	2.33	2.30	N/D	LP	
PVSB018-0-7.0-8.0	10/04/05	14:47	1054	238.53	1460.70	0.25	1.13	6.57	N/D	1.36	2.63	1.53	1.54	LP	
PVSB018-0-1.0-2.0	10/04/05	12:50	1241	238.56	1460.78	0.25	0.87	5.75	N/D	1.14	2.86	2.06	1.25	LP	
PVSB018-0-0.0-1.0	10/04/05	12:30	1168	238.57	1460.74	0.46	0.74	11.60	N/D	3.46	32.17	5.51	12.76	LP	
PVSB018-0-4.0-5.0	10/04/05	13:56	1072	238.52	1460.60	0.26	0.83	5.65	N/D	1.88	N/D	2.13	N/D	LP	
PVSB018-0-5.0-6.0	10/04/05	14:14	999	238.49	1460.80	0.19	1.02	5.89	N/D	1.94	N/D	1.96	N/D	LP	
PVSB029-0-9.0-10.0	10/05/05	13:26	603	238.59	1460.75	0.78	1.47	7.06	N/D	1.34	1.32	2.11	N/D	LP	Low volume 20min ct used MDA sheet for Ac-228 results
PVSB028-0-9.0-10.0	10/05/05	10:26	890	238.51	1460.62	0.27	0.93	6.64	N/D	1.52	1.44	2.28	N/D	LP	
PVSB029-0-1.0-2.0	10/05/05	10:59	1484	238.54	1460.73	0.25	0.80	5.70	N/D	1.45	1.53	2.00	N/D	LP	
PVSB029-0-0.0-1.0	10/05/05	10:42	1442	238.55	1460.74	0.20	0.93	5.88	N/D	1.57	1.62	2.04	N/D	LP	
PVSB030-0-9.0-10.0	10/05/05	16:14	1497	238.56	1460.69	0.28	0.95	5.10	N/D	1.21	1.68	1.93	N/D	LP	
PVSB029-0-7.0-8.0	10/05/05	12:46	431	238.55	1460.63	0.91	0.83	10.80	N/D	1.28	1.76	2.33	N/D	LP	
PVSB030-0-7.0-8.0	10/05/05	15:40	1152	238.54	1460.64	0.36	0.92	6.34	N/D	1.36	1.79	2.18	N/D	LP	
PVSB028-0-8.0-9.0	10/05/05	10:09	941	238.52	1460.79	0.30	0.86	6.64	N/D	1.61	1.99	2.27	N/D	LP	
PVSB028-0-4.0-5.0	10/05/05	8:36	528	238.52	1460.30	0.77	1.41	7.02	N/D	1.81	2.17	2.00	N/D	LP	Low volume 30min ct used MDA sheet for Ac-228 results
PVSB030-0-4.0-5.0	10/05/05	14:47	1271	238.51	1460.65	0.33	1.04	5.80	N/D	1.36	2.25	2.23	N/D	LP	
PVSB030-0-6.0-7.0	10/05/05	15:23	1492	238.56	1460.66	0.25	1.01	4.86	N/D	1.38	2.27	1.68	1.11	LP	
PVSB028-0-6.0-7.0	10/05/05	9:27	469	238.56	1460.51	0.94	0.98	9.96	N/D	2.16	2.35	2.88	N/D	LP	
PVSB029-0-8.0-9.0	10/05/05	12:52	564	238.56	1461.20	0.87	0.74	9.06	N/D	1.77	2.46	2.40	N/D	LP	
PVSB030-0-8.0-9.0	10/05/05	15:57	1450	238.56	1460.82	0.23	0.88	5.16	N/D	1.10	2.55	2.00	N/D	LP	
PVSB028-0-7.0-8.0	10/05/05	10:05	621	238.54	1460.87	0.28	0.80	8.95	N/D	1.67	2.59	1.41	0.98	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB030-0-5.0-6.0	10/05/05	15:03	1434	238.51	1460.63	0.27	0.81	5.09	N/D	1.58	2.69	2.05	N/D	LP	
PVSB029-0-5.0-6.0	10/05/05	11:57	530	238.58	N/A	0.41	1.08	9.42	N/D	1.79	2.70	3.35	N/D	LP	Low volume reached Ac-228 MDA but not long enough ct for K-40 or no K-40 present.
PVSB030-0-3.0-4.0	10/05/05	14:31	1292	238.50	1460.48	0.32	0.90	6.00	N/D	1.74	2.75	2.22	N/D	LP	
PVSB030-0-0.0-1.0	10/05/05	13:32	1227	238.59	1460.86	0.26	0.74	5.80	N/D	1.60	3.27	1.53	1.70	LP	
PVSB028-0-5.0-6.0	10/05/05	9:15	441	238.54	1460.77	0.86	1.29	8.93	N/D	2.18	3.86	2.63	N/D	LP	Low volume 30min ct used MDA sheet for Ac-228 results
PVSB030-0-2.0-3.0	10/05/05	14:24	926	238.53	1460.62	0.30	0.98	6.58	N/D	2.19	3.97	2.27	N/D	LP	
PVSB029-0-2.0-3.0	10/05/05	11:15	976	238.56	1460.67	0.35	0.88	8.06	N/D	2.37	4.09	2.82	N/D	LP	
PVSB030-0-1.0-2.0	10/05/05	13:51	1376	238.51	1460.59	0.27	0.64	6.16	N/D	2.38	7.02	2.16	1.16	LP	
PVSB046-0-0.0-1.0	10/05/05	17:14	1040	238.57	1460.87	0.18	1.16	3.11	30.81	1.41	157.89	0.91	19.57	LP	Over night count
PVSB029-0-3.0-4.0	10/05/05	11:31	831	238.54	1460.52	0.31	0.83	7.49	N/D	2.27	N/D	1.51	0.73	LP	
PVSB029-0-4.0-5.0	10/05/05	11:48	710	238.54	1460.52	0.36	0.97	8.77	N/D	2.66	N/D	1.76	0.85	LP	
PVSB029-0-6.0-7.0	10/05/05	12:14	548	238.57	1460.71	0.93	0.65	10.50	N/D	2.94	N/D	2.86	N/D	LP	
PVSB046-0-7.0-8.0	10/06/05	10:04	1475	238.60	1460.99	0.26	0.88	4.84	N/D	1.08	1.13	1.81	N/D	LP	
PVSB046-0-5.0-6.0	10/06/05	9:31	1489	238.58	1460.92	0.23	0.95	5.67	N/D	1.12	1.22	1.82	N/D	LP	
PVSB039-0-4.0-5.0	10/06/05	14:59	1184	238.56	1460.87	0.24	0.82	5.62	N/D	1.28	1.26	2.17	N/D	LP	
PVSB040-0-8.0-9.0	10/06/05	13:17	1244	238.61	1461.18	0.26	1.09	5.90	N/D	1.23	1.35	2.06	N/D	LP	
PVSB040-0-3.0-4.0	10/06/05	11:48	1347	238.59	1460.98	0.21	0.81	5.16	N/D	1.05	1.55	1.90	N/D	LP	
PVSB046-0-9.0-10.0	10/06/05	10:38	1469	238.56	1461.02	0.25	0.98	4.80	N/D	1.07	1.62	1.91	N/D	LP	
PVSB039-0-3.0-4.0	10/06/05	14:42	1395	238.56	1460.77	0.24	1.06	5.40	N/D	1.02	1.70	1.73	1.96	LP	
PVSB039-0-8.0-9.0	10/06/05	16:16	1251	238.56	1460.92	0.23	1.09	6.33	N/D	1.43	1.74	2.11	N/D	LP	
PVSB040-0-4.0-5.0	10/06/05	12:04	1305	238.59	1461.12	0.28	0.93	4.95	N/D	1.11	1.83	1.96	N/D	LP	
PVSB046-0-8.0-9.0	10/06/05	10:21	1382	238.58	1460.99	0.56	0.72	5.15	N/D	1.00	1.87	1.96	N/D	LP	
PVSB046-0-2.0-3.0	10/06/05	8:31	1369	238.51	1460.39	0.26	0.99	5.57	N/D	1.38	1.88	2.03	N/D	LP	
PVSB039-0-2.0-3.0	10/06/05	14:26	1191	238.55	1460.85	0.26	1.19	5.54	N/D	1.14	1.89	2.10	N/D	LP	
PVSB040-0-6.0-7.0	10/06/05	12:43	1338	238.61	1461.10	0.27	1.03	5.48	N/D	1.37	1.94	2.06	N/D	LP	
PVSB039-0-7.0-8.0	10/06/05	15:48	1203	238.57	1460.78	0.26	1.07	6.06	N/D	1.60	2.00	1.70	1.22	LP	
PVSB040-0-9.0-10.0	10/06/05	13:36	1380	238.61	1460.97	0.30	1.00	5.79	N/D	1.39	2.01	2.09	N/D	LP	
PVSB040-0-1.0-2.0	10/06/05	11:14	1376	238.62	1461.05	0.23	0.89	5.06	N/D	1.26	2.02	1.90	N/D	LP	
PVSB040-0-0.0-1.0	10/06/05	10:55	1199	238.62	1461.11	0.26	0.73	4.87	N/D	1.14	2.12	2.04	N/D	LP	
PVSB039-0-6.0-7.0	10/06/05	15:31	1382	238.60	1460.77	0.26	1.02	5.26	N/D	1.37	2.14	1.99	N/D	LP	
PVSB039-0-1.0-2.0	10/06/05	14:09	1473	238.59	1460.98	0.28	0.80	5.11	N/D	1.03	2.18	1.96	N/D	LP	
PVSB040-0-5.0-6.0	10/06/05	12:27	1327	238.58	1461.00	0.25	0.89	5.04	N/D	1.46	2.39	1.84	N/D	LP	
PVSB046-0-1.0-2.0	10/06/05	8:14	1453	238.53	1460.49	0.25	1.02	6.16	N/D	1.37	2.41	2.01	N/D	LP	
PVSB046-0-3.0-4.0	10/06/05	8:57	1482	238.52	1460.81	0.53	0.79	4.93	N/D	1.51	2.53	1.77	N/D	LP	
PVSB040-0-2.0-3.0	10/06/05	11:31	978	238.65	1460.92	0.31	0.92	6.80	N/D	1.66	2.59	2.36	N/D	LP	
PVSB039-0-9.0-10.0	10/06/05	16:34	1153	238.58	1460.92	0.33	1.03	5.94	N/D	1.65	2.75	2.27	N/D	LP	
PVSB040-0-7.0-8.0	10/06/05	13:00	1346	238.59	1461.03	0.25	1.10	5.37	N/D	1.64	2.87	2.07	N/D	LP	
PVSB031-0-0.0-1.0	10/06/05	16:51	1243	238.57	1461.01	0.05	0.91	0.79	N/D	0.28	4.39	0.31	1.30	LP	Over night count
PVSB046-0-4.0-5.0	10/06/05	9:15	1473	238.57	1460.84	0.29	0.92	6.88	N/D	1.74	4.97	1.94	1.55	LP	
PVSB046-0-6.0-7.0	10/06/05	9:47	1431	238.59	1461.12	0.65	0.85	6.78	N/D	2.25	6.68	2.61	1.98	LP	
PVSB039-0-0.0-1.0	10/06/05	13:53	1379	238.56	1460.96	0.41	0.93	8.35	N/D	2.17	13.90	3.04	2.06	LP	
PVSB039-0-5.0-6.0	10/06/05	15:15	575	238.57	1461.00	0.48	0.96	9.76	N/D	2.80	N/D	2.66	N/D	LP	
PVSB031-0-2.0-3.0	10/07/05	9:15	1416	238.51	1460.44	0.23	0.95	5.44	N/D	1.46	1.42	1.56	1.33	LP	
PVSB041-0-3.0-4.0	10/07/05	10:59	1378	238.52	1460.57	0.57	0.90	4.78	N/D	1.07	1.48	2.05	N/D	LP	
PVSB041-0-2.0-3.0	10/07/05	10:43	1271	238.53	1460.70	0.27	0.90	5.60	N/D	1.24	1.49	2.09	N/D	LP	
PVSB042-0-3.0-4.0	10/07/05	13:59	1454	238.56	1460.70	0.20	0.74	4.85	N/D	1.37	1.65	1.92	N/D	LP	
PVSB042-0-6.0-7.0	10/07/05	14:49	1406	238.53	1460.54	0.17	0.97	5.16	N/D	1.18	1.65	2.07	N/D	LP	
PVSB042-0-7.0-8.0	10/07/05	15:06	1252	238.50	1460.71	0.25	1.03	6.24	N/D	1.41	1.69	2.12	N/D	LP	
PVSB042-0-9.0-10.0	10/07/05	15:40	1313	238.54	1460.69	0.26	1.08	5.10	N/D	1.22	1.74	2.02	N/D	LP	
PVSB041-0-1.0-2.0	10/07/05	10:27	879	238.55	1460.76	0.26	0.95	7.09	N/D	1.95	1.82	2.41	N/D	LP	
PVSB041-0-9.0-10.0	10/07/05	12:52	1396	238.47	1460.57	0.31	0.88	5.23	N/D	1.18	1.83	1.95	N/D	LP	
PVSB042-0-8.0-9.0	10/07/05	15:24	1235	238.50	1460.71	0.27	0.91	5.90	N/D	1.17	1.84	2.02	N/D	LP	
PVSB031-0-1.0-2.0	10/07/05	8:57	1481	238.46	1460.43	0.30	0.93	5.11	N/D	1.41	1.86	2.02	N/D	LP	
PVSB041-0-7.0-8.0	10/07/05	12:18	1155	238.52	1460.57	0.29	1.21	6.35	N/D	1.54	1.91	2.43	N/D	LP	
PVSB042-0-1.0-2.0	10/07/05	13:25	1080	238.51	1460.38	0.26	0.74	6.14	N/D	1.23	1.94	2.27	N/D	LP	
PVSB041-0-8.0-9.0	10/07/05	12:35	1275	238.53	1460.72	0.21	1.12	5.47	N/D	1.46	1.98	2.09	N/D	LP	
PVSB042-0-5.0-6.0	10/07/05	14:32	1211	238.52	1460.68	0.30	0.90	6.37	N/D	1.40	2.01	1.75	1.45	LP	
PVSB042-0-4.0-5.0	10/07/05	14:16	1257	238.51	1460.68	0.25	1.02	5.70	N/D	1.26	2.05	1.26	0.82	LP	
PVSB048-0-1.0-2.0	10/07/05	16:29	1434	238.56	1460.86	0.01	1.03	0.34	0.77	0.09	2.46	0.15	1.19	LP	Over night count
PVSB041-0-4.0-5.0	10/07/05	11:16	1184	238.53	1460.51	0.30	0.90	6.08	N/D	1.83	2.91	2.30	N/D	LP	
PVSB041-0-6.0-7.0	10/07/05	11:53	1191	238.56	1460.65	0.33	1.06	5.98	N/D	1.44	2.98	2.36	N/D	LP	
PVSB041-0-0.0-1.0	10/07/05	9:32	821	238.55	1460.40	0.27	0.87	7.35	N/D	1.63	3.67	2.51	N/D	LP	
PVSB048-0-0.0-1.0	10/07/05	15:57	714	238.52	1460.97	0.70	0.33	9.29	N/D	2.10	5.06	2.59	N/D	LP	
PVSB042-0-0.0-1.0	10/07/05	13:08	1036	238.56	1460.78	0.68	0.97	8.87	N/D	2.20	9.34	2.69	2.25	LP	
PVSB041-0-5.0-6.0	10/07/05	11:37	639	238.57	1460.67	0.37	1.09	9.35	N/D	2.67	N/D	2.72	N/D	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB042-0-2.0-3.0	10/07/05	13:42	1198	238.54	1460.85	0.24	0.87	5.35	N/D	1.83	N/D	2.03	N/D	LP	
PVSB043-0-2.0-3.0	10/10/05	12:23	1242	238.57	1460.83	0.26	0.69	5.66	N/D	1.16	1.03	1.07	0.56	LP	
PVSB048-0-2.0-3.0	10/10/05	9:16	1394	238.55	1460.58	0.28	1.03	5.34	N/D	1.19	1.15	2.03	N/D	LP	
PVSB043-0-8.0-9.0	10/10/05	14:04	1345	238.59	1461.00	0.32	1.00	5.57	N/D	1.06	1.19	2.02	N/D	LP	
PVSB043-0-3.0-4.0	10/10/05	12:42	1119	238.57	1460.67	0.26	0.94	5.86	N/D	1.22	1.60	2.08	N/D	LP	
PVSB043-0-4.0-5.0	10/10/05	12:59	1167	238.57	1460.86	0.31	0.75	5.58	N/D	1.35	1.62	2.03	N/D	LP	
PVSB048-0-7.0-8.0	10/10/05	10:43	1421	238.54	1460.76	0.23	0.90	5.13	N/D	1.06	1.62	1.93	N/D	LP	
PVSB043-0-6.0-7.0	10/10/05	13:31	1119	238.58	1460.85	0.34	1.15	6.46	N/D	1.38	1.69	1.82	1.51	LP	
PVSB043-0-5.0-6.0	10/10/05	13:15	1163	238.57	1460.90	0.34	1.05	6.05	N/D	1.36	1.75	2.20	N/D	LP	
PVSB048-0-4.0-5.0	10/10/05	9:51	1398	238.56	1460.62	0.28	0.98	5.17	N/D	1.16	1.77	2.04	N/D	LP	
PVSB044-0-4.0-5.0	10/10/05	15:54	1158	238.57	1460.88	0.28	0.83	5.79	N/D	1.13	1.78	2.22	N/D	LP	
PVSB043-0-7.0-8.0	10/10/05	13:48	1180	238.58	1460.92	0.31	1.13	6.41	N/D	1.50	1.81	2.12	N/D	LP	
PVSB048-0-9.0-10.0	10/10/05	11:39	1470	238.57	1460.80	0.18	0.87	3.75	N/D	0.86	1.81	1.38	1.32	LP	
PVSB048-0-5.0-6.0	10/10/05	10:08	1365	238.52	1460.75	0.26	0.89	5.18	N/D	1.35	1.97	1.91	N/D	LP	
PVSB043-0-9.0-10.0	10/10/05	14:22	1483	238.57	1460.91	0.23	0.69	5.83	N/D	1.40	2.01	1.85	N/D	LP	
PVSB048-0-8.0-9.0	10/10/05	11:01	1399	238.55	1460.70	0.26	1.00	4.78	N/D	1.15	2.01	2.06	N/D	LP	
PVSB043-0-0.0-1.0	10/10/05	11:47	947	238.57	1460.97	0.25	0.99	6.14	N/D	1.58	2.03	2.21	N/D	LP	
PVSB044-0-3.0-4.0	10/10/05	15:47	670	238.54	1460.87	0.37	0.99	7.83	N/D	1.65	2.08	2.20	N/D	LP	
PVSB048-0-6.0-7.0	10/10/05	10:25	1375	238.52	1460.66	0.26	0.91	5.13	N/D	1.35	2.22	2.01	N/D	LP	
PVSB044-0-1.0-2.0	10/10/05	14:57	1342	238.63	1460.87	0.30	0.83	5.65	N/D	1.35	2.34	2.09	N/D	LP	
PVSB044-0-6.0-7.0	10/10/05	16:30	1156	238.57	1460.88	0.04	1.15	0.85	N/D	0.21	2.36	0.23	1.01	LP	Over night count
PVSB044-0-5.0-6.0	10/10/05	16:13	994	238.60	1461.16	0.25	1.17	6.59	N/D	1.47	3.01	2.40	N/D	LP	
PVSB044-0-0.0-1.0	10/10/05	14:40	1248	238.61	1461.03	0.62	0.83	7.18	N/D	1.75	7.56	2.46	N/D	LP	
PVSB043-0-1.0-2.0	10/10/05	12:04	1425	238.55	1460.95	0.42	0.38	4.63	N/D	1.40	N/D	1.45	N/D	LP	
PVSB044-0-2.0-3.0	10/10/05	15:15	1137	238.64	1461.03	0.18	0.80	5.73	N/D	1.77	N/D	1.94	N/D	LP	
PVSB048-0-3.0-4.0	10/10/05	9:33	1376	238.56	1460.88	0.26	1.02	5.24	N/D	1.72	N/D	2.08	N/D	LP	
PVSB044-0-9.0-10.0	10/11/05	9:08	1272	238.53	1460.40	0.26	0.96	6.92	N/D	1.13	1.32	2.09	N/D	LP	
PVSB051-0-2.0-3.0	10/11/05	15:16	1355	238.53	1460.76	0.25	0.96	6.36	N/D	1.28	1.56	2.03	N/D	LP	
PVSB052-0-2.0-3.0	10/11/05	16:07	1286	238.56	1460.72	0.23	0.95	7.06	N/D	1.49	1.73	2.05	N/D	LP	
PVSB073-4-5.0-6.0	10/11/05	10:09	1207	238.47	1460.37	0.29	1.14	6.03	N/D	1.46	1.87	2.16	N/D	LP	Duplicate
PVSB048-4-5.0-6.0	10/11/05	12:37	1365	238.50	1460.50	0.28	0.99	6.31	N/D	1.33	1.94	1.99	N/D	LP	Duplicate
PVSB044-4-5.0-6.0	10/11/05	12:18	994	238.47	1460.41	0.29	1.15	7.84	N/D	1.54	2.04	2.15	N/D	LP	Duplicate
PVSB044-0-8.0-9.0	10/11/05	8:59	1375	238.49	1460.40	3.00	0.78	5.50	N/D	1.55	2.09	1.58	1.43	LP	
PVSB040-4-7.0-8.0	10/11/05	11:22	1346	238.49	1460.41	0.25	1.03	5.76	N/D	1.14	2.16	2.12	N/D	LP	Duplicate
PVSB044-0-7.0-8.0	10/11/05	9:32	1339	238.48	1460.57	0.20	1.15	6.60	N/D	1.41	2.17	2.10	N/D	LP	
PVSB008-4-3.0-4.0	10/11/05	9:51	1189	238.45	1460.45	0.65	0.68	6.20	N/D	1.50	2.21	1.83	N/D	LP	Duplicate
PVSB030-4-4.0-5.0	10/11/05	11:09	1271	238.47	1460.41	0.19	1.06	7.87	N/D	1.48	2.27	2.25	N/D	LP	Duplicate
PVSB041-4-7.0-8.0	10/11/05	11:40	1155	238.52	1460.49	0.28	1.44	8.25	N/D	2.29	2.44	2.33	N/D	LP	Duplicate
PVSB028-4-2.0-3.0	10/11/05	10:29	1004	238.45	1460.36	0.31	1.01	6.84	N/D	1.62	2.61	2.40	N/D	LP	Duplicate
PVSB052-0-1.0-2.0	10/11/05	15:50	1199	238.54	1460.77	0.65	0.94	7.68	N/D	2.12	2.70	2.13	N/D	LP	
PVSB035-0-2.0-3.0	10/11/05	14:07	1222	238.54	1460.75	0.36	0.96	7.70	N/D	1.40	2.73	2.27	N/D	LP	
PVSB051-0-1.0-2.0	10/11/05	15:00	1356	238.58	1460.64	0.24	1.02	5.59	N/D	1.52	2.79	1.77	1.30	LP	
PVSB051-0-0.0-1.0	10/11/05	14:54	812	238.59	1460.65	0.53	1.09	5.84	N/D	1.45	3.31	1.11	0.97	LP	Low volume 30min ct used MDA sheet for Ac-228 results
PVSB052-0-0.0-1.0	10/11/05	15:33	478	238.52	1460.76	0.48	0.83	18.00	N/D	2.29	4.02	3.14	N/D	LP	
PVSB036-0-0.0-1.0	10/11/05	16:24	655	238.47	1460.46	0.73	0.34	13.80	N/D	2.53	6.93	3.00	N/D	LP	
PVSB036-0-1.0-2.0	10/11/05	16:58	384	238.53	1460.60	0.08	0.99	3.37	18.84	0.58	7.08	0.38	1.36	LP	Over night count
PVSB035-0-1.0-2.0	10/11/05	14:02	726	238.52	1460.68	0.38	0.93	11.30	N/D	2.28	9.41	3.54	2.69	LP	
PVSB035-0-0.0-1.0	10/11/05	12:55	628	238.46	N/A	0.85	0.37	14.40	N/D	2.95	9.75	3.75	N/D	LP	No K-40 was dected in this sample had low vol. But did reach Ac-228 MDA.
PVSB050-0-0.0-1.0	10/12/05	17:02	302	238.55	1460.78	0.05	0.19	2.31	N/D	0.25	0.88	0.28	N/D	LP	Over night count
PVSB063-0-1.0-2.0	10/12/05	9:29	1445	238.55	1460.70	0.49	0.88	7.28	N/D	1.01	0.89	1.55	N/D	LP	
PVSB049-0-0.0-1.0	10/12/05	15:51	647	238.59	1460.91	0.70	0.67	12.40	N/D	1.18	1.20	1.98	N/D	LP	
PVSB063-0-9.0-10.0	10/12/05	10:55	1300	238.54	1460.80	0.25	1.09	5.79	N/D	1.36	1.36	1.95	N/D	LP	
PVSB049-0-1.0-2.0	10/12/05	16:08	1331	238.58	1460.93	0.61	0.98	5.30	N/D	1.40	1.46	1.95	N/D	LP	
PVSB049-0-2.0-3.0	10/12/05	16:24	1500	238.58	1460.86	0.22	1.02	5.20	N/D	1.22	1.54	1.10	0.63	LP	
PVSB020-0-1.0-2.0	10/12/05	11:38	1217	238.55	1460.73	0.24	0.81	6.24	N/D	1.22	1.62	2.07	N/D	LP	
PVSB063-0-7.0-8.0	10/12/05	10:08	1242	238.52	1460.67	0.27	1.08	8.60	N/D	1.22	1.84	2.14	N/D	LP	
PVSB020-0-3.0-4.0	10/12/05	12:23	1318	238.56	1460.82	0.27	1.05	5.53	N/D	1.57	1.93	2.05	N/D	LP	
PVSB063-0-8.0-9.0	10/12/05	10:27	1191	238.56	1460.73	0.31	1.08	8.90	N/D	1.77	1.93	2.06	N/D	LP	
PVSB019-0-0.0-1.0	10/12/05	12:40	1483	238.57	1460.82	0.21	0.73	4.86	N/D	0.85	1.98	1.71	N/D	LP	
PVSB065-0-2.0-3.0	10/12/05	15:35	1254	238.60	1461.13	0.24	0.64	5.00	N/D	1.10	2.13	1.80	N/D	LP	
PVSB020-0-2.0-3.0	10/12/05	12:17	1040	238.56	1460.81	0.31	0.79	5.76	N/D	1.14	2.14	1.45	1.35	LP	
PVSB036-0-3.0-4.0	10/12/05	14:54	624	238.57	1460.73	0.34	0.88	8.76	N/D	1.58	2.33	2.71	N/D	LP	
PVSB065-0-1.0-2.0	10/12/05	15:18	1288	238.56	1460.98	0.47	0.31	4.92	N/D	1.12	2.54	1.78	N/D	LP	
PVSB019-0-1.0-2.0	10/12/05	13:04	1179	238.56	1460.89	0.33	0.75	6.56	N/D	1.87	4.08	2.59	2.18	LP	
PVSB036-0-2.0-3.0	10/12/05	8:53	485	238.55	1460.70	0.88	0.87	21.60	N/D	2.31	4.48	2.97	N/D	LP	Need to count #36 3.0-4.0 (counted)

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB063-0-0.0-1.0	10/12/05	9:51	1478	238.57	1460.82	0.25	0.79	9.38	N/D	1.80	5.30	2.21	N/D	LP	Had to recount must not have saved the sample
PVSB020-0-0.0-1.0	10/12/05	11:13	1066	238.55	1460.92	0.64	0.77	6.72	N/D	1.89	5.58	2.19	2.27	LP	
PVSB019-0-4.0-5.0	10/12/05	14:21	1171	238.61	1460.73	0.23	1.00	6.43	N/D	1.38	5.81	2.41	3.41	LP	Need to count #19 5.0-6.0 (counted)
PVSB065-0-0.0-1.0	10/12/05	15:02	1307	238.65	1460.77	0.55	0.46	7.10	N/D	2.43	9.73	2.74	N/D	LP	
PVSB019-0-3.0-4.0	10/12/05	14:05	1141	238.64	1461.08	0.97	0.76	12.60	N/D	3.47	25.29	5.23	7.77	LP	
PVSB019-0-2.0-3.0	10/12/05	13:55	887	238.59	1461.01	0.71	0.83	15.00	N/D	5.51	69.78	9.15	8.55	LP	
PVSB061-0-9.0-10.0	10/13/05	14:41	1542	238.56	1460.81	0.23	0.75	6.04	N/D	1.10	1.10	1.67	N/D	LP	
PVSB050-0-5.0-6.0	10/13/05	9:40	1431	238.53	1460.54	0.28	1.10	6.61	N/D	1.24	1.32	2.05	N/D	LP	
PVSB053-0-2.0-3.0	10/13/05	16:11	1245	238.58	1460.94	0.27	0.95	5.62	N/D	1.32	1.38	1.23	1.41	LP	
PVSB061-0-8.0-9.0	10/13/05	14:32	1368	238.52	1460.88	0.19	0.88	6.60	N/D	0.99	1.39	1.70	N/D	LP	
PVSB050-0-3.0-4.0	10/13/05	9:02	1444	238.53	1460.65	0.26	1.13	6.11	N/D	1.32	1.64	1.71	N/D	LP	
PVSB061-0-7.0-8.0	10/13/05	13:52	728	238.59	1460.86	0.80	0.77	14.90	N/D	1.97	1.80	1.53	0.99	LP	
PVSB050-0-2.0-3.0	10/13/05	8:25	1342	238.52	1460.62	0.30	1.40	6.74	N/D	1.41	2.00	2.10	N/D	LP	
PVSB050-0-9.0-10.0	10/13/05	10:46	1491	238.55	1460.88	0.27	0.94	6.28	N/D	1.14	2.02	1.99	N/D	LP	
PVSB061-0-4.0-5.0	10/13/05	12:32	1230	238.54	1460.77	0.64	0.77	6.67	N/D	1.72	2.03	1.79	1.18	LP	
PVSB053-0-0.0-1.0	10/13/05	15:40	525	238.55	1460.85	0.64	0.45	8.13	N/D	1.16	2.07	1.79	N/D	LP	
PVSB050-0-1.0-2.0	10/13/05	8:08	1174	238.53	1460.71	0.66	0.97	8.11	N/D	1.41	2.08	2.26	N/D	LP	
PVSB053-0-1.0-2.0	10/13/05	15:55	1399	238.59	1461.04	0.28	1.05	5.62	N/D	1.37	2.19	1.98	N/D	LP	
PVSB061-0-3.0-4.0	10/13/05	12:02	1099	238.54	1460.79	0.32	0.99	8.30	N/D	1.10	2.30	1.90	1.14	LP	
PVSB050-0-6.0-7.0	10/13/05	9:56	1482	238.54	1460.62	0.26	1.13	6.75	N/D	1.65	2.39	2.07	N/D	LP	
PVSB061-0-1.0-2.0	10/13/05	11:25	1287	238.57	1460.69	0.26	0.82	7.63	N/D	1.20	2.54	2.34	1.57	LP	
PVSB050-0-8.0-9.0	10/13/05	10:30	1480	238.55	1460.79	0.25	0.99	5.87	N/D	1.67	2.56	2.11	N/D	LP	
PVSB061-0-5.0-6.0	10/13/05	13:13	1288	238.51	1460.75	0.29	0.82	6.62	N/D	1.43	2.67	2.07	N/D	LP	
PVSB050-0-7.0-8.0	10/13/05	10:13	1123	238.53	1460.80	0.35	1.19	7.12	N/D	1.50	2.80	2.19	N/D	LP	
PVSB061-0-2.0-3.0	10/13/05	11:42	1041	238.52	1460.59	0.30	1.01	7.20	N/D	1.92	3.17	2.22	N/D	LP	
PVSB019-0-5.0-6.0	10/13/05	15:01	1143	238.58	1460.97	0.34	1.19	6.34	N/D	2.07	5.64	2.43	2.06	LP	Need to count #19 6.0-7.0 (counted)
PVSB062-0-1.0-2.0	10/13/05	17:25	916	238.53	1460.68	0.04	1.06	1.12	N/D	0.32	6.19	0.49	3.34	LP	Over night count
PVSB061-0-0.0-1.0	10/13/05	11:07	1177	238.51	1460.97	0.41	0.85	12.10	N/D	2.86	31.09	3.59	9.55	LP	
PVSB062-0-0.0-1.0	10/13/05	16:48	1249	238.55	1461.25	0.93	0.51	14.50	N/D	4.10	43.13	5.73	7.18	LP	
PVSB050-0-4.0-5.0	10/13/05	9:28	427	238.51	1460.59	0.67	0.67	8.08	N/D	1.95	N/D	1.98	N/D	LP	30min ct very low vol.
PVSB061-0-6.0-7.0	10/13/05	13:35	724	238.49	1460.79	0.83	0.68	12.10	N/D	2.36	N/D	2.33	N/D	LP	
PVSB024-0-0.0-1.0	10/14/05	15:08	1408	238.55	1460.71	0.50	0.69	5.30	N/D	0.89	1.27	1.44	1.09	LP	
PVSB034-0-1.0-2.0	10/14/05	16:12	1312	238.55	1460.51	0.23	0.89	5.13	N/D	0.99	1.72	1.91	N/D	LP	
PVSB062-0-3.0-4.0	10/14/05	9:49	1184	238.47	1460.45	0.24	0.89	5.91	N/D	2.25	1.97	2.08	N/D	LP	
PVSB019-0-9.0-10.0	10/14/05	11:15	1452	238.55	1460.57	0.25	0.91	5.27	N/D	1.33	2.05	1.97	N/D	LP	
PVSB021-0-3.0-4.0	10/14/05	13:22	1457	238.57	1460.65	0.58	0.85	5.25	N/D	1.42	2.09	2.12	N/D	LP	
PVSB005-0-1.0-2.0	10/14/05	16:46	1461	238.53	1460.59	0.22	0.97	5.06	N/D	1.20	2.11	1.92	N/D	LP	
PVSB023-0-3.0-4.0	10/14/05	14:51	1165	238.55	1460.70	0.27	1.10	5.97	N/D	1.67	2.75	2.38	N/D	LP	
PVSB019-0-7.0-8.0	10/14/05	10:26	1371	238.49	1460.43	0.23	0.91	5.14	N/D	1.27	2.79	2.16	N/D	LP	
PVSB019-0-6.0-7.0	10/14/05	10:08	1417	238.48	1460.46	0.20	0.95	5.31	N/D	1.49	3.42	1.46	1.26	LP	
PVSB022-0-0.0-1.0	10/14/05	17:04	320	238.49	1460.38	0.82	0.31	1.38	1.23	0.40	3.43	0.52	0.64	LP	Over night count
PVSB021-0-2.0-3.0	10/14/05	13:03	1399	238.54	1460.71	0.27	1.08	5.48	N/D	1.81	4.37	2.38	3.14	LP	
PVSB023-0-2.0-3.0	10/14/05	14:34	920	238.53	1460.73	0.75	0.78	7.62	N/D	2.08	4.89	2.58	2.12	LP	
PVSB023-0-1.0-2.0	10/14/05	14:17	1471	238.53	1460.80	0.29	0.89	6.20	N/D	1.64	5.15	1.90	1.77	LP	
PVSB034-0-0.0-1.0	10/14/05	16:06	1208	238.55	1460.51	0.29	0.77	6.17	N/D	1.51	5.98	1.63	1.50	LP	
PVSB021-0-1.0-2.0	10/14/05	12:44	1280	238.54	1460.75	0.79	0.83	10.10	N/D	2.94	17.28	3.71	6.05	LP	
PVSB024-0-1.0-2.0	10/14/05	15:26	1363	238.53	1460.62	0.45	0.78	11.20	N/D	4.17	24.35	5.46	9.59	LP	Need to count #24 2.0-3.0 (counted)
PVSB005-0-0.0-1.0	10/14/05	16:28	1192	238.53	1460.70	0.62	0.86	14.30	N/D	4.91	38.46	4.39	3.20	LP	
PVSB021-0-0.0-1.0	10/14/05	12:36	1040	238.61	1461.04	0.96	0.10	14.70	N/D	5.39	48.33	4.91	11.72	LP	U-235 1.06pCi/g
PVSB023-0-0.0-1.0	10/14/05	14:11	980	238.57	1460.95	0.95	0.01	15.60	N/D	5.18	67.68	5.39	13.38	LP	
PVSB019-0-8.0-9.0	10/14/05	10:43	1365	238.49	1460.48	0.29	0.91	5.71	N/D	1.87	N/D	1.59	2.09	LP	
PVSB062-0-2.0-3.0	10/14/05	9:41	987	238.48	1460.42	0.27	0.91	5.41	N/D	1.89	N/D	1.98	N/D	LP	
PVSB074-0-1.0-2.0	10/17/05	16:45	1406	238.59	1460.82	0.50	0.65	4.83	N/D	1.21	1.38	1.86	N/D	LP	
PVSB033-0-1.0-2.0	10/17/05	13:20	1398	238.59	1460.80	0.55	0.73	4.72	N/D	1.03	1.46	1.77	N/D	LP	
PVSB037-0-1.0-2.0	10/17/05	13:54	1499	238.60	1460.97	0.20	0.66	4.28	N/D	1.13	1.48	1.58	N/D	LP	
PVSB071-0-1.0-2.0	10/17/05	15:03	1353	238.56	1460.92	0.54	0.52	4.96	N/D	1.25	1.59	2.01	N/D	LP	
PVSB072-0-1.0-2.0	10/17/05	16:12	1340	238.54	1460.78	0.20	0.86	4.86	N/D	1.17	1.83	1.96	N/D	LP	
PVSB168-0-1.0-2.0	10/17/05	15:37	1495	238.58	1460.83	0.25	1.04	5.13	N/D	1.24	1.85	2.12	N/D	LP	
PVSB022-0-5.0-6.0	10/17/05	11:01	1465	238.55	1460.54	0.25	0.95	5.09	N/D	1.25	2.12	2.04	N/D	LP	
PVSB003-0-0.0-1.0	10/17/05	11:52	909	238.53	1460.82	0.68	0.43	6.55	N/D	2.18	2.31	2.50	N/D	LP	
PVSB024-0-2.0-3.0	10/17/05	11:18	1310	238.52	1460.62	0.31	1.02	5.93	N/D	1.46	2.35	2.21	N/D	LP	
PVSB024-0-3.0-4.0	10/17/05	11:35	1242	238.53	1460.59	0.23	1.02	5.50	N/D	1.40	2.36	2.21	N/D	LP	
PVSB074-0-0.0-1.0	10/17/05	16:28	964	238.50	1460.61	0.30	0.77	7.31	N/D	1.47	2.48	2.04	1.54	LP	
PVSB022-0-3.0-4.0	10/17/05	10:23	1182	238.48	1460.61	0.31	1.20	6.15	N/D	1.88	2.65	2.32	N/D	LP	
PVSB003-0-1.0-2.0	10/17/05	12:10	877	238.56	1460.62	0.19	1.26	6.83	N/D	1.36	2.69	2.36	N/D	LP	
PVSB033-0-0.0-1.0	10/17/05	13:03	1102	238.56	1460.67	0.56	0.47	5.87	N/D	1.78	2.77	2.25	N/D	LP	
PVSB072-0-0.0-1.0	10/17/05	15:54	987	238.59	1460.78	0.60	0.70	6.37	N/D	1.59	3.36	2.32	N/D	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB070-0-1.0-2.0	10/17/05	14:28	1208	238.52	1460.77	0.30	0.86	5.97	N/D	1.96	3.69	1.65	1.41	LP	
PVSB022-0-4.0-5.0	10/17/05	10:41	1375	238.54	1460.70	0.31	0.92	5.55	N/D	1.55	3.98	2.35	N/D	LP	
PVSB071-0-0.0-1.0	10/17/05	14:46	1295	238.54	1460.88	0.59	0.44	6.16	N/D	1.60	4.04	2.45	N/D	LP	
PVSB037-0-0.0-1.0	10/17/05	13:37	1184	238.58	1460.85	0.67	0.85	7.45	N/D	2.14	7.54	2.51	1.43	LP	
PVSB070-0-0.0-1.0	10/17/05	14:12	1033	238.55	1460.79	0.86	0.94	10.40	N/D	2.07	15.59	3.58	N/D	LP	
PVSB022-0-2.0-3.0	10/17/05	10:17	660	238.50	1460.60	0.84	0.90	11.80	N/D	3.02	21.47	4.48	5.62	LP	
PVSB168-0-0.0-1.0	10/17/05	15:20	1167	238.61	1460.75	0.51	0.72	13.30	N/D	3.91	27.71	4.34	6.90	LP	
PVSB022-0-1.0-2.0	10/17/05	9:50	570	238.50	1460.61	0.97	0.22	15.40	8.74	4.30	46.23	4.03	7.75	LP	
PVSB032-0-0.0-1.0	10/17/05	12:29	645	238.54	1460.98	0.72	0.36	8.63	N/D	2.58	N/D	2.29	N/D	LP	
PVSB068-0-0.0-1.0	10/18/05	10:29	1348	238.54	1460.45	0.53	0.78	4.57	N/D	1.26	0.75	1.09	0.93	LP	
PVSB064-0-1.0-2.0	10/18/05	9:38	1474	238.50	1460.55	0.18	0.55	4.28	N/D	0.94	0.79	1.42	0.93	LP	
PVSB017-0-3.0-4.0	10/18/05	13:43	1356	238.56	1460.97	0.55	0.66	5.03	N/D	1.20	1.45	1.74	2.07	LP	
PVSB067-0-1.0-2.0	10/18/05	10:12	1485	238.55	1460.58	0.48	0.53	4.32	N/D	1.10	1.57	1.76	N/D	LP	
PVSB002-0-1.0-2.0	10/18/05	14:34	1471	238.55	1460.74	0.24	0.99	5.27	N/D	1.14	1.69	1.93	N/D	LP	
PVSB075-0-1.0-2.0	10/18/05	11:54	785	238.55	1460.64	0.26	1.03	7.15	N/D	1.67	1.73	2.38	N/D	LP	
PVSB002-0-4.0-5.0	10/18/05	15:10	1422	238.57	1460.78	0.25	0.99	5.45	N/D	1.43	1.94	1.92	N/D	LP	
PVSB058-0-0.0-1.0	10/18/05	8:46	1450	238.55	1460.55	0.27	0.84	5.07	N/D	1.45	2.04	1.97	N/D	LP	
PVSB075-0-0.0-1.0	10/18/05	11:38	932	238.48	1460.72	0.26	0.83	6.48	N/D	1.41	2.17	2.17	N/D	LP	
PVSB002-0-3.0-4.0	10/18/05	14:52	1420	238.55	1460.78	0.24	0.92	5.40	N/D	1.39	2.28	2.03	N/D	LP	
PVSB026-0-2.0-3.0	10/18/05	16:00	1108	238.55	1460.67	0.25	1.15	6.13	N/D	1.39	2.37	2.24	N/D	LP	
PVSB068-0-1.0-2.0	10/18/05	11:03	1331	238.50	1460.69	0.57	0.90	5.58	N/D	1.69	2.46	2.21	N/D	LP	
PVSB026-0-3.0-4.0	10/18/05	16:17	1151	238.58	1460.67	0.67	0.83	5.75	N/D	1.57	2.50	2.32	N/D	LP	
PVSB026-0-0.0-1.0	10/18/05	15:27	1288	238.56	1460.59	0.20	0.77	4.85	N/D	1.35	2.93	2.10	1.39	LP	
PVSB026-0-4.0-5.0	10/18/05	16:34	1050	238.57	1460.90	0.25	0.81	6.48	N/D	1.70	3.15	2.03	2.28	LP	
PVSB026-0-1.0-2.0	10/18/05	15:43	1495	238.52	1460.69	0.27	0.88	5.70	N/D	1.71	3.85	2.22	N/D	LP	
PVSB067-0-0.0-1.0	10/18/05	9:55	1029	238.55	1460.50	0.58	0.68	6.13	N/D	2.09	4.01	1.88	1.92	LP	
PVSB017-0-4.0-5.0	10/18/05	14:00	1217	238.55	1460.76	0.63	0.67	6.50	N/D	1.93	4.09	2.94	N/D	LP	Need to count #17 5.0-6.0 (counted)
PVSB064-0-0.0-1.0	10/18/05	9:21	1481	238.51	1460.68	0.20	0.98	5.36	N/D	1.64	4.35	2.12	N/D	LP	
PVSB066-0-1.0-2.0	10/18/05	8:29	736	238.55	1460.37	0.78	0.99	8.20	N/D	2.21	4.70	2.51	N/D	LP	Need to count #66 2.0-3.0 (counted)
PVSB066-0-0.0-1.0	10/18/05	17:05	743	238.54	1460.70	0.05	0.55	0.99	1.32	0.31	4.72	0.46	1.08	LP	Over night count
PVSB017-0-2.0-3.0	10/18/05	13:26	1162	238.59	1460.76	0.28	0.85	5.67	N/D	1.26	4.75	2.10	3.69	LP	
PVSB002-0-0.0-1.0	10/18/05	14:17	1387	238.54	1460.68	0.57	0.77	6.23	N/D	1.63	4.88	3.09	2.49	LP	
PVSB027-0-0.0-1.0	10/18/05	16:51	451	238.42	1460.72	0.87	0.09	14.00	N/D	2.97	9.67	4.25	N/D	LP	
PVSB027-0-1.0-2.0	10/18/05	17:15	859	238.55	1460.80	0.07	1.07	1.10	2.91	0.38	12.29	0.45	6.65	LP	Over night count
PVSB017-0-0.0-1.0	10/18/05	12:11	1124	238.56	1460.89	0.94	0.56	14.30	N/D	3.78	30.59	5.31	N/D	LP	
PVSB017-0-1.0-2.0	10/18/05	13:23	875	238.58	1460.91	0.98	0.82	12.60	38.71	3.73	97.11	7.55	15.65	LP	
PVSB058-0-1.0-2.0	10/18/05	9:04	1474	238.54	1460.58	0.32	0.87	4.92	N/D	1.75	N/D	2.03	N/D	LP	
PVSB066-0-2.0-3.0	10/18/05	11:20	950	238.51	1460.40	0.66	0.58	6.05	N/D	1.91	N/D	1.90	N/D	LP	
PVSB077-0-2.0-3.0	10/19/05	12:25	710	238.58	1460.71	0.29	0.81	6.49	N/D	1.29	1.05	1.67	N/D	LP	
PVSB077-0-6.0-7.0	10/19/05	13:43	642	238.57	1460.86	0.37	1.11	6.92	N/D	1.48	1.28	1.78	N/D	LP	
PVSB047-0-3.0-4.0	10/19/05	15:56	1354	238.60	1461.02	0.61	0.90	5.21	N/D	1.13	1.35	2.11	2.06	LP	
PVSB047-0-5.0-6.0	10/19/05	16:32	1464	238.60	1460.95	0.31	0.97	4.78	N/D	1.40	1.42	1.99	N/D	LP	
PVSB027-0-3.0-4.0	10/19/05	8:58	1220	238.50	1460.65	0.23	0.95	5.59	N/D	1.26	1.46	2.29	N/D	LP	
PVSB076-0-0.0-1.0	10/19/05	9:51	1243	238.53	1460.85	0.29	0.72	5.44	N/D	1.11	1.51	1.90	N/D	LP	
PVSB077-0-1.0-2.0	10/19/05	11:52	1333	238.59	1460.81	0.59	0.99	5.06	N/D	1.08	1.60	1.27	0.94	LP	
PVSB077-0-8.0-9.0	10/19/05	14:05	1388	238.57	1460.87	0.27	1.09	5.56	N/D	1.42	1.61	1.83	1.41	LP	
PVSB047-0-7.0-8.0	10/19/05	17:16	1486	238.58	1460.84	0.03	0.92	0.60	N/D	0.18	1.69	0.20	0.69	LP	Over night count
PVSB076-0-1.0-2.0	10/19/05	10:10	1393	238.56	1460.78	0.26	0.80	5.03	N/D	1.20	1.70	1.21	1.07	LP	
PVSB077-0-9.0-10.0	10/19/05	14:23	1448	238.58	1460.74	0.29	1.07	5.23	N/D	1.19	1.70	1.96	N/D	LP	
PVSB047-0-6.0-7.0	10/19/05	16:49	1385	238.60	1460.99	0.26	0.91	4.70	N/D	1.22	1.72	1.99	N/D	LP	
PVSB047-0-4.0-5.0	10/19/05	16:14	1374	238.62	1460.86	0.29	0.88	5.05	N/D	1.46	1.79	2.02	N/D	LP	
PVSB077-0-3.0-4.0	10/19/05	12:31	1240	238.59	1460.88	0.24	1.08	5.38	N/D	1.52	1.84	1.91	N/D	LP	
PVSB025-0-0.0-1.0	10/19/05	11:16	1102	238.55	1460.90	0.24	0.79	5.75	N/D	1.33	1.88	1.86	N/D	LP	
PVSB047-0-1.0-2.0	10/19/05	15:07	1502	238.60	1460.78	0.22	0.94	5.08	N/D	1.39	1.97	1.30	0.94	LP	
PVSB017-0-5.0-6.0	10/19/05	9:44	941	238.58	1460.75	0.21	0.97	4.85	N/D	0.99	2.09	1.37	1.31	LP	
PVSB047-0-2.0-3.0	10/19/05	15:40	1441	238.56	1460.83	0.31	0.91	5.10	N/D	1.48	2.09	2.03	N/D	LP	
PVSB077-0-5.0-6.0	10/19/05	13:05	1283	238.58	1460.70	0.29	1.08	5.48	N/D	1.39	2.30	2.14	N/D	LP	
PVSB025-0-1.0-2.0	10/19/05	11:19	1280	238.56	1460.84	0.31	1.23	5.72	N/D	1.44	2.36	1.63	0.94	LP	
PVSB038-0-0.0-1.0	10/19/05	10:27	1300	238.59	1460.84	0.47	0.52	4.49	N/D	1.06	2.50	1.86	N/D	LP	
PVSB047-0-0.0-1.0	10/19/05	14:50	770	238.56	1460.95	0.77	0.47	8.89	N/D	2.04	3.56	2.90	N/D	LP	
PVSB027-0-2.0-3.0	10/19/05	8:42	892	238.49	1460.65	0.35	1.17	8.28	N/D	2.39	5.71	2.05	3.80	LP	
PVSB077-0-0.0-1.0	10/19/05	11:36	1414	238.58	1460.87	0.57	0.28	6.57	N/D	1.84	7.44	2.65	N/D	LP	
PVSB038-0-1.0-2.0	10/19/05	10:44	1414	238.60	1460.88	0.21	0.59	4.22	N/D	1.49	N/D	1.69	N/D	LP	
PVSB077-0-4.0-5.0	10/19/05	12:48	1159	238.60	1460.86	0.30	0.81	6.13	N/D	1.93	N/D	2.03	N/D	LP	
PVSB077-0-7.0-8.0	10/19/05	13:48	667	238.59	1460.79	0.92	0.82	8.27	N/D	2.66	N/D	2.29	N/D	LP	
PVSB167-0-0.0-1.0	10/20/05	13:31	1167	238.59	1460.74	0.63	0.48	5.25	N/D	1.25	1.35	2.29	N/D	LP	
PVSB102-0-2.0-3.0	10/20/05	12:51	756	238.55	1460.72	0.29	0.99	6.56	N/D	1.58	1.50	2.06	1.35	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB107-0-0.0-1.0	10/20/05	15:12	1244	238.64	1461.02	0.40	0.22	4.14	N/D	1.04	1.55	1.40	N/D	LP	
PVSB100-0-1.0-2.0	10/20/05	10:26	1473	238.50	1460.55	0.60	0.88	5.20	N/D	1.31	1.68	2.02	N/D	LP	
PVSB102-0-1.0-2.0	10/20/05	12:12	1224	238.58	1460.81	0.23	0.91	5.80	N/D	1.32	1.74	2.10	N/D	LP	
PVSB167-0-1.0-2.0	10/20/05	13:49	1473	238.55	1460.75	0.25	0.98	5.33	N/D	1.10	1.76	2.01	N/D	LP	
PVSB105-0-1.0-2.0	10/20/05	14:56	1393	238.59	1461.01	0.56	0.83	5.17	N/D	1.34	1.82	1.77	1.04	LP	
PVSB047-0-8.0-9.0	10/20/05	9:35	1482	238.57	1460.62	0.19	0.92	4.87	N/D	1.01	1.91	1.48	0.77	LP	
PVSB105-0-0.0-1.0	10/20/05	14:23	982	238.56	1460.96	0.73	0.69	6.34	N/D	1.40	2.01	2.35	1.96	LP	
PVSB101-0-0.0-1.0	10/20/05	11:01	1447	238.47	1460.37	0.25	0.88	5.16	N/D	1.17	2.03	1.90	N/D	LP	
PVSB101-0-1.0-2.0	10/20/05	11:30	1400	238.52	1460.71	0.25	0.91	5.10	N/D	1.48	2.03	1.90	N/D	LP	
PVSB103-0-1.0-2.0	10/20/05	16:36	1254	238.63	1461.20	0.29	1.04	5.65	N/D	1.27	2.15	2.23	N/D	LP	
PVSB047-0-9.0-10.0	10/20/05	9:53	1485	238.55	1460.62	0.27	0.74	4.57	N/D	1.68	2.17	1.92	N/D	LP	
PVSB102-0-0.0-1.0	10/20/05	11:46	1418	238.59	1460.66	0.29	0.75	4.96	N/D	1.51	2.20	2.05	N/D	LP	
PVSB103-0-0.0-1.0	10/20/05	16:20	1231	238.61	1461.24	0.31	0.95	5.45	N/D	1.37	2.34	1.98	N/D	LP	
PVSB167-0-2.0-3.0	10/20/05	14:06	747	238.58	1460.68	0.43	0.89	8.88	N/D	2.10	2.62	2.52	N/D	LP	
PVSB107-0-1.0-2.0	10/20/05	15:29	1405	238.59	1461.06	0.31	0.75	5.26	N/D	1.40	3.05	1.53	1.23	LP	
PVSB102-0-3.0-4.0	10/20/05	12:56	682	238.55	1460.71	0.53	0.93	10.20	N/D	1.93	4.93	3.31	N/D	LP	
PVSB108-0-0.0-1.0	10/20/05	15:46	979	238.61	1461.03	0.39	0.88	7.64	N/D	1.70	5.29	2.97	N/D	LP	
PVSB108-0-1.0-2.0	10/20/05	16:09	1153	238.59	1460.95	0.38	0.60	9.16	N/D	3.02	12.27	3.72	3.52	LP	Need to count #108 2.0-3.0 (counted)
PVSB100-0-0.0-1.0	10/20/05	10:09	1501	238.54	1460.69	0.25	0.99	5.03	N/D	1.71	N/D	2.02	N/D	LP	
PVSB100-0-2.0-3.0	10/20/05	10:43	662	238.50	1460.48	0.32	0.81	8.33	N/D	2.49	N/D	2.45	N/D	LP	
PVSB102-0-4.0-5.0	10/20/05	13:12	554	238.56	1460.58	0.93	0.96	9.24	N/D	3.05	N/D	2.40	N/D	LP	
PVSB109-0-1.0-2.0	10/21/05	13:28	1472	238.55	1460.69	0.31	0.97	5.25	N/D	1.52	1.49	2.01	N/D	LP	
PVSB107-1-0.0-1.0	10/21/05	11:47	1385	238.54	1460.55	0.30	0.12	4.03	N/D	0.94	1.66	1.37	N/D	LP	
PVSB108-0-3.0-4.0	10/21/05	10:47	1376	238.51	1460.52	0.54	0.75	4.86	N/D	1.22	1.81	1.89	N/D	LP	
PVSB103-0-7.0-8.0	10/21/05	10:10	1328	238.50	1460.67	0.28	0.89	5.82	N/D	1.22	1.86	2.19	N/D	LP	
PVSB110-0-1.0-2.0	10/21/05	12:55	1484	238.58	1460.74	0.25	1.06	5.08	N/D	1.39	1.87	1.90	N/D	LP	
PVSB106-0-0.0-1.0	10/21/05	15:09	1135	238.56	1460.73	0.33	0.94	6.28	N/D	1.36	1.98	2.28	N/D	LP	
PVSB104-0-0.0-1.0	10/21/05	13:47	1191	238.56	1460.85	0.28	0.73	5.44	N/D	1.27	2.04	1.84	N/D	LP	
PVSB107-1-2.0-3.0	10/21/05	16:55	1135	238.56	1469.83	0.05	0.97	0.71	N/D	0.21	2.15	0.35	1.15	LP	Over night count
PVSB110-0-0.0-1.0	10/21/05	12:38	1117	238.56	1460.68	0.66	0.99	6.44	N/D	1.46	2.17	2.20	N/D	LP	
PVSB111-0-1.0-2.0	10/21/05	16:38	1479	238.54	1460.76	0.21	0.98	5.39	N/D	1.39	2.18	2.09	N/D	LP	
PVSB109-0-0.0-1.0	10/21/05	13:12	898	238.55	1460.52	0.74	0.69	7.30	N/D	1.62	2.20	2.48	N/D	LP	
PVSB106-0-3.0-4.0	10/21/05	16:02	1139	238.51	1460.85	0.25	0.83	5.77	N/D	1.74	2.26	2.18	2.61	LP	
PVSB103-0-5.0-6.0	10/21/05	9:37	1052	238.60	1460.60	0.68	0.80	6.60	N/D	1.65	2.59	2.34	N/D	LP	
PVSB106-0-2.0-3.0	10/21/05	15:43	878	238.57	1461.00	0.29	0.88	7.69	N/D	1.90	2.61	2.25	1.33	LP	
PVSB111-0-0.0-1.0	10/21/05	16:34	768	238.52	1460.72	0.27	0.88	7.12	N/D	2.04	2.66	2.53	N/D	LP	
PVSB104-0-1.0-2.0	10/21/05	14:07	1227	238.57	1460.80	0.28	1.07	6.26	N/D	2.37	2.90	2.32	N/D	LP	
PVSB108-0-2.0-3.0	10/21/05	10:28	1311	238.51	1460.73	0.27	0.98	5.53	N/D	1.64	2.96	2.10	N/D	LP	
PVSB103-0-2.0-3.0	10/21/05	8:33	1030	238.58	1460.52	0.31	0.82	6.63	N/D	1.54	2.99	2.47	N/D	LP	
PVSB104-0-3.0-4.0	10/21/05	14:47	1005	238.57	1460.71	0.30	0.90	6.87	N/D	1.46	3.02	2.23	N/D	LP	
PVSB103-0-3.0-4.0	10/21/05	9:15	1177	238.52	1460.65	0.25	1.03	4.85	N/D	1.05	3.43	1.87	1.50	LP	
PVSB103-0-6.0-7.0	10/21/05	9:54	1310	238.56	1460.67	0.27	0.85	6.08	N/D	1.42	3.76	2.70	3.60	LP	
PVSB103-0-4.0-5.0	10/21/05	9:19	976	238.54	1460.70	0.24	0.96	8.24	N/D	1.96	4.19	2.81	N/D	LP	
PVSB104-0-2.0-3.0	10/21/05	14:44	873	238.53	1460.80	0.37	0.89	7.10	N/D	1.77	4.20	2.25	N/D	LP	
PVSB107-1-1.0-2.0	10/21/05	12:04	1251	238.54	1460.75	0.33	0.80	7.04	N/D	1.66	5.36	2.53	N/D	LP	Need to count #107-1- 2.0-3.0 (counted)
PVSB108-1-1.0-2.0	10/21/05	11:41	777	238.52	1460.83	0.37	0.73	7.88	N/D	2.05	7.19	3.11	3.52	LP	
PVSB108-1-0.0-1.0	10/21/05	11:03	1085	238.54	1460.52	0.69	0.66	8.34	N/D	2.29	9.56	2.80	4.18	LP	
PVSB106-0-1.0-2.0	10/21/05	15:26	1255	238.54	1460.85	0.70	0.88	7.36	N/D	2.93	10.01	3.06	3.35	LP	
PVSB050-4-2.0-3.0	10/22/05	10:32	1342	238.53	1460.62	0.28	1.24	6.28	N/D	1.59	1.27	2.38	N/D	LP	Duplicate
PVSB108-4-3.0-4.0	10/22/05	12:19	1376	238.53	1460.63	0.27	0.73	5.02	N/D	1.10	1.35	1.79	1.33	LP	Duplicate
PVSB047-4-2.0-3.0	10/22/05	10:16	1441	238.51	1460.77	0.26	0.80	4.98	N/D	1.52	1.42	1.98	N/D	LP	Duplicate
PVSB063-4-8.0-9.0	10/22/05	11:24	1191	238.55	1460.67	0.26	1.08	6.02	N/D	1.75	1.79	1.91	N/D	LP	Duplicate
PVSB027-4-3.0-4.0	10/22/05	9:54	1220	238.54	1460.76	0.34	1.04	5.93	N/D	1.18	2.00	2.23	N/D	LP	Duplicate
PVSB023-4-3.0-4.0	10/22/05	9:35	1165	238.57	1460.77	0.41	0.94	5.96	N/D	1.86	2.02	2.32	N/D	LP	Duplicate
PVSB112-0-0.0-1.0	10/22/05	12:53	1463	238.53	1460.55	0.47	0.63	4.38	N/D	1.27	2.05	1.63	N/D	LP	
PVSB053-4-1.0-2.0	10/22/05	10:49	1399	238.55	1460.70	0.28	0.86	5.26	N/D	1.36	2.15	2.05	N/D	LP	Duplicate
PVSB113-0-1.0-2.0	10/22/05	14:20	824	238.54	1460.87	0.35	0.80	7.86	N/D	1.72	2.58	2.04	2.25	LP	
PVSB106-4-2.0-3.0	10/22/05	12:02	878	238.52	1460.82	0.69	0.53	7.26	N/D	1.84	2.82	1.67	1.42	LP	Duplicate
PVSB167-4-2.0-3.0	10/22/05	12:37	747	238.53	1460.90	0.45	0.92	10.00	N/D	2.11	3.00	2.65	N/D	LP	Duplicate
PVSB113-0-0.0-1.0	10/22/05	14:14	746	238.54	1460.55	0.54	0.98	5.33	N/D	1.10	3.02	1.60	N/D	LP	
PVSB112-0-2.0-3.0	10/22/05	13:27	948	238.56	1460.65	0.24	0.91	7.53	N/D	1.78	3.03	2.67	N/D	LP	
PVSB068-4-1.0-2.0	10/22/05	11:27	1331	238.52	1460.89	0.21	0.72	5.62	N/D	1.49	3.15	1.70	1.82	LP	Duplicate
PVSB070-4-1.0-2.0	10/22/05	11:46	1208	238.54	1460.76	0.65	0.78	6.44	N/D	1.70	3.63	2.35	N/D	LP	Duplicate
PVSB114-0-0.0-1.0	10/22/05	14:39	602	238.55	1460.81	0.04	1.04	0.66	1.04	0.24	3.75	0.24	1.11	LP	Over night count
PVSB112-0-1.0-2.0	10/22/05	13:11	689	238.53	1460.67	0.90	0.97	10.30	N/D	2.83	4.73	4.17	2.21	LP	
PVSB122-0-0.0-1.0	10/24/05	16:35	678	238.52	1460.82	0.45	0.08	7.00	N/D	1.10	1.01	1.86	N/D	LP	
PVSB121-0-0.0-1.0	10/24/05	15:08	1233	238.52	1460.95	0.48	0.71	4.49	N/D	1.01	1.16	1.63	N/D	LP	
PVSB118-0-0.0-1.0	10/24/05	13:08	1556	238.54	1460.67	0.28	0.86	4.85	N/D	1.08	1.29	1.83	N/D	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB121-0-1.0-2.0	10/24/05	15:26	984	238.56	1460.85	0.65	0.71	6.33	N/D	1.42	1.41	1.72	1.28	LP	
PVSB116-0-2.0-3.0	10/24/05	12:10	1276	238.57	1460.70	0.24	0.96	5.33	N/D	1.25	1.50	1.96	N/D	LP	
PVSB117-0-1.0-2.0	10/24/05	12:50	1393	238.55	1460.81	0.27	0.66	4.66	N/D	1.23	1.52	1.83	N/D	LP	
PVSB119-0-2.0-3.0	10/24/05	14:18	1066	238.59	1460.75	0.31	1.01	6.22	N/D	1.45	1.52	1.53	1.09	LP	
PVSB120-0-1.0-2.0	10/24/05	14:52	1522	238.55	1460.86	0.21	0.87	4.72	N/D	1.06	1.60	1.29	0.84	LP	
PVSB116-0-0.0-1.0	10/24/05	11:35	1373	238.57	1460.61	0.46	0.48	4.61	N/D	1.03	1.72	1.58	N/D	LP	
PVSB118-0-1.0-2.0	10/24/05	13:24	1207	238.52	1460.63	0.55	0.85	4.71	N/D	1.28	1.74	1.90	N/D	LP	
PVSB115-0-1.0-2.0	10/24/05	10:17	1424	238.51	1460.44	0.25	0.78	4.87	N/D	1.06	1.76	1.98	N/D	LP	
PVSB119-0-1.0-2.0	10/24/05	14:01	1045	238.61	1460.73	0.16	0.70	5.44	N/D	1.28	1.82	2.08	N/D	LP	
PVSB116-0-1.0-2.0	10/24/05	11:54	1139	238.59	1460.88	0.61	0.77	5.65	N/D	1.22	1.94	2.04	N/D	LP	
PVSB115-0-2.0-3.0	10/24/05	10:34	1229	238.47	1460.47	0.21	1.03	5.84	N/D	1.40	2.04	1.53	1.55	LP	
PVSB122-0-1.0-2.0	10/24/05	17:10	987	238.56	1460.73	0.62	1.15	5.89	N/D	1.00	2.06	1.92	N/D	LP	The Ac-228 results are from the 911.2 from the MDA report
PVSS483-3-0.0-0.5	10/24/05	16;18	771	238.54	1460.83	0.71	0.56	7.46	N/D	1.68	2.27	1.19	1.03	LP	
PVSB115-0-3.0-4.0	10/24/05	10:50	1045	238.47	1460.43	0.30	0.94	6.85	N/D	1.49	2.30	1.79	1.56	LP	
PVSB121-0-2.0-3.0	10/24/05	15:44	1295	238.57	1460.67	0.29	0.95	5.56	N/D	1.39	2.30	2.14	N/D	LP	
PVSB122-0-2.0-3.0	10/24/05	17:19	1081	238.58	1460.78	0.69	1.13	6.37	N/D	1.19	2.34	2.13	N/D	LP	The Ac-228 results are from the 911.2 from the MDA report
PVSB117-0-0.0-1.0	10/24/05	12:27	1376	238.57	1460.86	0.22	1.01	5.27	N/D	1.42	2.68	1.98	N/D	LP	
PVSB114-0-1.0-2.0	10/24/05	9:04	805	238.52	1460.63	0.21	1.16	8.60	N/D	1.77	2.93	2.83	2.64	LP	
PVSB120-0-0.0-1.0	10/24/05	14:35	1225	238.60	1460.71	0.50	0.53	4.89	N/D	1.01	2.99	1.72	N/D	LP	
PVSB114-0-2.0-3.0	10/24/05	9:48	589	238.51	1460.52	0.27	1.02	6.81	N/D	1.44	3.06	2.00	N/D	LP	
PVSB115-0-4.0-5.0	10/24/05	11:18	799	238.52	1460.73	0.38	0.94	8.23	N/D	2.15	3.09	2.74	N/D	LP	
PVSB119-0-0.0-1.0	10/24/05	13:41	863	238.54	N/D	0.54	0.36	7.14	N/D	1.46	3.74	1.75	1.68	LP	Interference Corrected report showed no dection of K-40.
PVSB115-0-0.0-1.0	10/24/05	10:00	989	238.48	1460.37	0.34	0.59	7.58	N/D	1.74	4.79	2.65	N/D	LP	
PVSS482-3-0.0-0.5	10/24/05	16:00	653	238.61	1460.84	0.86	0.54	10.70	N/D	2.25	4.93	3.50	N/D	LP	
PVSB129-0-0.0-1.0	10/25/05	15:16	1208	238.57	1460.96	0.22	0.85	5.07	N/D	1.57	1.44	2.02	N/D	LP	
PVSB130-0-0.0-1.0	10/25/05	15:49	877	238.60	1460.78	0.71	0.99	6.73	N/D	1.33	1.55	2.32	N/D	LP	
PVSB124-0-3.0-4.0	10/25/05	12:22	1298	238.54	1460.66	0.28	1.05	5.68	N/D	1.39	1.65	1.53	1.01	LP	
PVSB133-0-0.0-1.0	10/25/05	8:19	1361	238.56	1460.89	0.27	1.01	5.37	N/D	1.23	1.72	1.23	0.61	LP	
PVSB123-0-1.0-2.0	10/25/05	10:57	1249	238.51	1460.86	0.29	1.11	6.35	N/D	1.24	1.74	2.19	N/D	LP	
PVSB123-0-0.0-1.0	10/25/05	10:37	1293	238.59	1460.59	0.45	0.31	4.67	N/D	1.13	1.75	1.60	N/D	LP	
PVSB123-0-2.0-3.0	10/25/05	11:14	1302	238.57	1460.70	0.35	0.96	5.82	N/D	1.20	1.80	2.07	N/D	LP	
PVSB131-0-1.0-2.0	10/25/05	16:41	1278	238.59	1460.81	0.23	0.91	5.57	N/D	1.43	1.80	2.03	N/D	LP	
PVSB124-0-2.0-3.0	10/25/05	12:05	1224	238.59	1460.77	0.26	1.12	6.29	N/D	1.26	1.84	2.14	N/D	LP	
PVSB128-0-1.0-2.0	10/25/05	15:00	1436	238.58	1460.82	0.23	1.03	5.19	N/D	1.10	1.89	2.13	N/D	LP	
PVSB130-0-1.0-2.0	10/25/05	16:05	1120	238.60	1460.69	0.32	0.94	6.01	N/D	1.39	2.00	1.99	1.57	LP	
PVSB125-0-2.0-3.0	10/25/05	13:18	913	238.56	1460.60	0.31	0.92	7.00	N/D	2.08	2.04	2.36	N/D	LP	
PVSB129-0-1.0-2.0	10/25/05	15:33	1149	238.59	1460.88	0.22	0.81	6.37	N/D	1.70	2.08	1.94	1.17	LP	
PVSB131-0-0.0-1.0	10/25/05	16:25	1088	238.59	1460.87	0.30	0.68	6.06	N/D	1.18	2.41	2.04	N/D	LP	
PVSB127-0-1.0-2.0	10/25/05	14:26	1316	238.56	1460.76	0.27	0.88	5.76	N/D	1.42	2.82	2.23	N/D	LP	
PVSB124-0-1.0-2.0	10/25/05	11:49	1234	238.55	1460.73	0.32	0.97	5.87	N/D	1.29	2.90	2.22	N/D	LP	
PVSB125-0-3.0-4.0	10/25/05	13:58	932	238.53	1461.07	0.31	0.76	6.17	N/D	1.67	2.92	2.18	N/D	LP	
PVSB127-0-0.0-1.0	10/25/05	14:02	1016	238.53	1460.81	0.45	0.26	6.01	N/D	1.31	3.20	1.78	N/D	LP	
PVSB133-0-1.0-2.0	10/25/05	8:41	1332	238.56	1460.86	0.27	0.86	5.51	N/D	1.38	3.55	2.18	N/D	LP	
PVSB125-0-1.0-2.0	10/25/05	13:01	1207	238.55	1460.68	0.24	1.04	5.75	N/D	1.37	4.05	1.91	0.93	LP	
PVSB133-0-5.0-6.0	10/25/05	10:31	387	238.57	1460.71	0.82	0.84	9.41	N/D	1.51	4.20	2.55	N/D	LP	Need to count #133 6.0-7.0 (counted)
PVSB126-0-1.0-2.0	10/25/05	16:58	328	238.56	1460.75	0.08	0.62	1.93	N/D	0.43	4.28	0.42	0.35	LP	Over night count
PVSB133-0-4.0-5.0	10/25/05	7:02	182	238.53	1460.65	0.37	0.75	8.94	N/D	2.03	6.83	1.99	N/D	LP	Over night count
PVSB133-0-2.0-3.0	10/25/05	9:27	639	238.57	1460.78	0.99	0.55	12.30	N/D	2.92	7.60	4.09	N/D	LP	
PVSB128-0-0.0-1.0	10/25/05	14:43	1070	238.55	1460.91	0.38	0.72	9.03	N/D	2.63	9.37	3.42	N/D	LP	
PVSB133-0-3.0-4.0	10/25/05	9:44	603	238.64	1460.84	0.64	1.12	16.50	N/D	4.49	15.25	4.87	N/D	LP	
PVSB124-0-0.0-1.0	10/25/05	11:31	961	238.59	1460.92	0.88	0.08	13.20	N/D	3.67	19.33	3.60	2.79	LP	
PVSB125-0-0.0-1.0	10/25/05	12:43	467	238.61	N/D	0.77	0.50	8.01	N/D	2.50	N/D	2.17	N/D	LP	Interference Corrected report showed no dection of K-40. Very low vol. in sample.
PVSB126-0-0.0-1.0	10/26/05	13:58	533	238.55	1460.73	0.52	0.66	6.81	N/D	1.04	1.00	1.51	N/D	LP	
PVSB140-0-0.0-1.0	10/26/05	16:51	1237	238.51	1460.57	0.49	0.41	4.85	N/D	1.19	1.16	1.81	N/D	LP	
PVSB135-0-0.0-1.0	10/26/05	11:06	1039	238.52	1460.61	0.27	0.88	6.91	N/D	1.32	1.18	2.24	N/D	LP	
PVSB134-0-1.0-2.0	10/26/05	10:48	971	238.55	1460.65	0.67	0.83	6.31	N/D	1.74	1.46	2.29	N/D	LP	
PVSB135-0-1.0-2.0	10/26/05	11:23	831	238.58	1460.67	0.76	0.91	7.29	N/D	1.37	1.47	2.14	N/D	LP	
PVSB140-0-1.0-2.0	10/26/05	17:07	1369	238.55	1460.61	0.49	0.51	4.55	N/D	0.98	1.62	1.61	N/D	LP	
PVSB138-0-1.0-2.0	10/26/05	15:37	687	238.55	1460.95	0.83	0.73	8.13	N/D	1.89	1.63	2.37	N/D	LP	
PVSB132-0-0.0-1.0	10/26/05	8:33	1322	238.53	1460.78	0.21	0.74	5.26	N/D	0.92	1.75	1.62	0.82	LP	
PVSB133-0-6.0-7.0	10/26/05	10:16	364	238.51	1460.55	0.71	0.39	8.50	N/D	1.46	1.95	1.99	N/D	LP	
PVSB126-0-3.0-4.0	10/26/05	17:24	467	238.56	1460.76	0.07	1.04	1.34	0.72	0.32	2.03	0.26	0.56	LP	Over night count
PVSB136-0-1.0-2.0	10/26/05	12:13	1168	238.55	1460.72	0.20	0.85	5.97	N/D	1.21	2.04	2.15	N/D	LP	
PVSB137-0-1.0-2.0	10/26/05	13:25	890	238.56	1460.75	0.69	0.70	6.93	N/D	1.55	2.23	2.03	N/D	LP	

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB134-0-0.0-1.0	10/26/05	10:32	1191	238.51	1460.83	0.49	0.59	4.83	N/D	1.19	2.32	1.49	0.80	LP	
PVSB139-0-0.0-1.0	10/26/05	15:55	855	238.56	1460.65	0.64	0.70	6.98	N/D	1.60	2.87	2.46	N/D	LP	
PVSB139-0-1.0-2.0	10/26/05	16:46	457	238.55	1460.68	0.79	1.24	8.10	N/D	1.96	2.89	2.26	N/D	LP	The Ac-228 results are from the 911.2 from the MDA report low vol. 30min ct
PVSB132-0-2.0-3.0	10/26/05	9:25	827	238.50	1460.77	0.34	0.93	7.34	N/D	1.67	3.10	2.38	N/D	LP	
PVSB136-0-0.0-1.0	10/26/05	12:07	659	238.53	1460.69	0.25	0.62	5.85	N/D	1.70	3.48	1.14	0.68	LP	
PVSB132-0-3.0-4.0	10/26/05	9:47	1037	238.52	1460.66	0.34	0.93	5.86	N/D	1.42	3.98	2.32	N/D	LP	
PVSB132-0-1.0-2.0	10/26/05	8:51	1283	238.54	1460.74	0.30	1.01	6.08	N/D	2.13	4.35	2.27	1.57	LP	
PVSB126-0-2.0-3.0	10/26/05	14:25	429	238.52	1460.59	0.37	1.03	9.99	N/D	1.83	5.40	2.76	N/D	LP	Need to count #126 3.0-4.0 (counted)
PVSB137-0-0.0-1.0	10/26/05	12:48	457	238.56	1460.56	0.50	0.17	6.77	N/D	1.87	N/D	1.69	N/D	LP	
PVSB138-0-0.0-1.0	10/26/05	15:27	388	238.53	1460.61	0.73	0.65	9.06	N/D	2.14	N/D	1.95	N/D	LP	
PVSB147-0-0.0-1.0	10/27/05	17:12	970	238.51	1460.40	0.10	0.21	2.88	N/D	0.40	1.03	0.49	N/D	LP	Over night count
PVSB019-1-0.0-1.0	10/27/05	12:51	899	238.53	1460.62	0.24	0.58	5.46	N/D	1.14	1.47	1.70	N/D	LP	
PVSB153-0-1.0-2.0	10/27/05	17:05	898	238.54	1460.81	0.20	0.91	5.96	N/D	1.34	1.57	1.87	N/D	LP	
PVSB142-0-0.0-1.0	10/27/05	8:40	1095	238.50	1460.49	0.56	0.75	5.16	N/D	1.23	1.59	1.77	N/D	LP	
PVSB141-0-0.0-1.0	10/27/05	8:05	839	238.45	1460.60	0.59	0.49	5.72	N/D	1.20	1.67	1.70	N/D	LP	
PVSB118-1-0.0-1.0	10/27/05	12:00	1265	238.51	1460.62	0.33	0.86	5.44	N/D	1.18	2.10	2.06	N/D	LP	
PVSB144-0-1.0-2.0	10/27/05	10:55	692	238.50	1460.44	0.72	1.06	6.27	N/D	1.47	2.11	2.19	N/D	LP	The Ac-228 results are from the 911.2 from the MDA report low vol. 30min ct
PVSB130-1-0.0-1.0	10/27/05	15:33	725	238.56	1460.78	0.81	1.57	6.51	N/D	1.47	2.13	2.23	N/D	LP	The Ac-228 results are from the 911.2 from the MDA report low vol. 20min ct
PVSB143-0-1.0-2.0	10/27/05	9:38	1052	238.50	1460.67	0.66	0.69	6.43	N/D	1.27	2.25	2.14	N/D	LP	
PVSB130-1-1.0-2.0	10/27/05	15:37	1185	238.51	1460.58	0.28	0.98	6.38	N/D	1.53	2.39	2.11	N/D	LP	
PVSB164-1-0.0-1.0	10/27/05	15:54	969	238.53	1460.43	0.52	0.14	5.86	N/D	1.16	2.49	1.86	N/D	LP	
PVSB117-1-0.0-1.0	10/27/05	11:16	1155	238.53	1460.80	0.18	0.85	5.50	N/D	1.41	2.58	2.12	N/D	LP	
PVSB143-0-0.0-1.0	10/27/05	9:21	1207	238.54	1460.45	0.54	0.79	5.46	N/D	1.01	2.59	1.51	1.34	LP	
PVSB142-0-1.0-2.0	10/27/05	9:15	868	238.49	1460.62	0.27	0.71	6.32	N/D	1.87	2.67	2.13	N/D	LP	
PVSB164-1-1.0-2.0	10/27/05	16:10	859	238.50	1460.68	0.84	0.63	7.51	N/D	1.52	2.70	2.30	N/D	LP	
PVSB144-0-0.0-1.0	10/27/05	10:09	893	238.46	1460.85	0.57	0.48	6.04	N/D	1.28	2.77	1.85	1.05	LP	
PVSB046-1-1.0-2.0	10/27/05	14:56	987	238.57	1460.78	0.30	1.03	6.78	N/D	1.74	2.89	2.43	N/D	LP	
PVSB141-0-1.0-2.0	10/27/05	8:22	1257	238.50	1460.74	0.58	0.92	5.62	N/D	1.57	3.26	2.51	1.46	LP	
PVSB020-1-1.0-2.0	10/27/05	14:01	1168	238.54	1460.58	0.62	0.70	6.50	N/D	1.88	7.49	2.79	5.31	LP	Need to count #020-1 2.0-3.0
PVSB020-1-0.0-1.0	10/27/05	13:36	659	238.58	1460.50	0.99	0.65	14.90	N/D	3.90	26.20	4.45	4.70	LP	
PVSB019-1-1.0-2.0	10/27/05	13:43	1155	238.56	1460.80	0.71	1.06	15.40	N/D	5.64	45.65	4.79	5.45	LP	Need to count #019-1 2.0-3.0 (counted)
PVSB046-1-0.0-1.0	10/27/05	14:52	637	238.59	N/D	2.06	1.78	28.30	40.84	9.00	220.28	8.62	14.02	LP	No k-40 was detected but high Ra-226 ct. 30min ct could not reach Ac-228 MDA & Ac-228 results from 911.2 MDA report.
PVSB117-1-1.0-2.0	10/27/05	11:43	1339	238.55	1460.53	0.54	0.82	4.70	N/D	1.57	N/D	1.78	N/D	LP	
PVSB118-1-1.0-2.0	10/27/05	12:18	661	238.54	1460.46	0.80	0.55	9.03	N/D	2.41	N/D	2.32	N/D	LP	
PVSB144-0-2.0-3.0	10/27/05	11:00	1190	238.52	1460.74	0.27	0.92	5.36	N/D	1.93	N/D	2.21	N/D	LP	
PVSB153-0-0.0-1.0	10/27/05	16:29	1097	238.52	1460.69	0.49	0.11	5.16	N/D	1.58	N/D	1.59	N/D	LP	
PVSB145-0-2.0-3.0	10/28/05	12:04	840	238.57	1460.83	0.77	0.94	6.87	N/D	1.54	1.23	2.31	N/D	LP	
PVSB154-0-0.0-1.0	10/28/05	14:20	1034	238.59	1460.75	0.45	0.39	5.29	N/D	1.40	1.29	1.76	N/D	LP	
PVSB155-0-1.0-2.0	10/28/05	16:01	756	238.56	1460.77	0.29	0.79	6.71	N/D	1.20	1.36	2.15	N/D	LP	
PVSB145-0-1.0-2.0	10/28/05	11:48	1060	238.57	1460.78	0.26	1.12	6.29	N/D	1.65	1.39	2.29	N/D	LP	
PVSB150-0-1.0-2.0	10/28/05	13:28	609	238.58	1460.76	0.80	0.85	8.66	N/D	1.50	1.48	2.67	N/D	LP	
PVSB147-0-3.0-4.0	10/28/05	10:51	902	238.56	1460.67	0.27	1.13	7.09	N/D	1.37	1.63	2.30	N/D	LP	
PVSB151-0-0.0-1.0	10/28/05	16:22	887	238.58	1460.64	0.38	0.84	6.38	N/D	1.45	1.80	2.25	N/D	LP	
PVSB154-0-1.0-2.0	10/28/05	14:58	903	238.57	1460.72	0.60	0.84	5.52	N/D	1.02	2.00	1.82	N/D	LP	
PVSB151-0-1.0-2.0	10/28/05	16:45	266	238.54	1460.70	0.08	0.55	1.40	0.99	0.36	2.04	0.44	0.25	LP	Over night count
PVSB152-0-0.0-1.0	10/28/05	13:47	1062	238.52	1460.57	0.18	0.78	5.54	N/D	1.26	2.28	1.99	N/D	LP	
PVSB147-0-1.0-2.0	10/28/05	10:31	582	238.54	1460.73	0.26	1.00	6.51	N/D	1.59	2.79	2.14	N/D	LP	
PVSB020-1-2.0-3.0	10/28/05	9:44	1155	238.51	1460.70	0.20	0.83	6.12	N/D	1.51	3.01	1.76	1.52	LP	
PVSB155-0-0.0-1.0	10/28/05	15:44	913	238.54	1460.70	0.57	0.61	6.12	N/D	1.48	3.01	2.09	N/D	LP	
PVSB147-0-2.0-3.0	10/28/05	10:34	815	238.57	1460.76	0.32	1.04	7.30	N/D	1.78	3.14	2.40	N/D	LP	
PVSB019-1-5.0-6.0	10/28/05	15:22	1214	238.56	1460.93	0.21	0.94	6.54	N/D	1.51	5.24	2.54	5.57	LP	Need to count #019-1 6.0-7.0 (counted)
PVSB019-1-4.0-5.0	10/28/05	15:05	1044	238.52	1460.58	0.26	0.91	6.89	N/D	2.06	9.61	2.33	9.88	LP	
PVSB019-1-3.0-4.0	10/28/05	11:28	801	238.57	1460.93	0.54	0.63	14.60	N/D	4.11	34.74	4.17	10.87	LP	Need to count #019-1 4.0-5.0 (counted) also had 5.0-6.0 processed
PVSB019-1-2.0-3.0	10/28/05	9:40	848	238.54	1460.88	0.99	0.73	15.50	N/D	5.14	65.98	5.55	11.38	LP	Need to count #019-1 3.0-4.0 (counted)
PVSB145-0-0.0-1.0	10/28/05	11:31	970	238.50	1460.74	0.22	1.09	7.09	N/D	2.11	N/D	2.49	N/D	LP	
PVSB145-0-3.0-4.0	10/28/05	13:06	293	238.69	N/D	0.50	0.30	7.75	N/D	1.93	N/D	1.61	N/D	LP	No K-40 was dected in this sample had low vol. But did reach Ac-228 MDA.
PVSB150-0-0.0-1.0	10/28/05	13:11	810	238.58	1460.65	0.31	0.82	7.10	N/D	2.28	N/D	2.31	N/D	LP	
PVSB152-0-1.0-2.0	10/28/05	14:02	714	238.62	1460.62	0.71	0.82	7.42	N/D	2.12	N/D	2.19	N/D	LP	
PVSB146-0-0.0-1.0	10/29/05	14:23	276	238.54	1460.67	0.04	0.21	1.14	1.09	0.16	0.88	0.18	N/D	LP	Over night count

Sample ID	Sample Count Date	Sample Count Time	Sample Mass (g)	Low Peak 238.1-239.1 or 351.4 - 352.4 KeV	High Peak 1460.3 - 1461.3 KeV	Th-232 (Ac-228) MDA	Th-232 (Ac-228) Result	Th-230 MDA	Th-230 Result	Ra-226 MDA	Ra-226 Result	U-238 (Th-234) MDA	U-238 (Th-234) Result	Initials	Comments
PVSB133-4-0.0-1.0	10/29/05	12:06	1361	238.57	1460.70	0.29	0.74	5.19	N/D	1.40	1.44	1.98	N/D	LP	Duplicate
PVSB020-4-2.0-3.0	10/29/05	10:43	1155	238.54	1460.56	0.25	1.03	4.95	N/D	1.10	1.78	1.36	1.48	LP	Duplicate
PVSB143-4-1.0-2.0	10/29/05	13:07	1052	238.52	1460.62	0.25	0.79	4.72	N/D	1.14	2.03	1.85	N/D	LP	Duplicate
PVSB129-4-0.0-1.0	10/29/05	10:55	1208	238.53	1460.58	0.64	1.42	5.49	N/D	1.22	2.12	1.93	1.19	LP	Duplicate (Ac-228 results come from 911.2 on the MDA report achieved Ra-226 for Z-score passed)
PVSB116-4-1.0-2.0	10/29/05	11:47	1139	238.50	1460.54	0.25	0.74	5.38	N/D	1.18	2.26	2.06	N/D	LP	Duplicate
PVSB141-4-1.0-2.0	10/29/05	12:57	1257	238.51	1460.58	0.30	0.63	5.50	N/D	1.49	2.41	2.08	N/D	LP	Duplicate
PVSB019-1-7.0-8.0	10/29/05	14:11	1096	238.54	1460.74	0.32	1.08	6.33	N/D	1.48	3.12	1.57	1.35	LP	
PVSB019-1-6.0-7.0	10/29/05	13:43	956	238.58	1460.49	0.33	0.99	7.84	N/D	1.53	6.14	2.03	1.08	LP	Need to count #019-1 7.0-8.0 (counted)
PVSB149-0-2.0-3.0	11/01/05	13:37	799	238.44	1460.56	0.35	1.02	6.41	N/D	1.86	1.10	2.32	N/D	LP	
PVSB148-0-3.0-4.0	11/01/05	11:51	903	238.47	1460.50	0.44	1.08	5.78	N/D	2.03	1.77	2.08	N/D	LP	
PVSB156-0-0.0-1.0	11/01/05	14:16	1083	238.41	1460.64	0.47	0.42	3.89	N/D	0.94	1.79	1.43	N/D	LP	
PVSB149-0-3.0-4.0	11/01/05	14:00	1076	238.41	1460.61	0.32	0.92	4.71	N/D	1.69	1.99	1.97	N/D	LP	
PVSB146-0-3.0-4.0	11/01/05	9:48	723	238.43	1460.62	0.26	0.85	3.59	N/D	1.26	2.25	1.35	N/D	LP	
PVSB165-0-1.0-2.0	11/01/05	15:12	1262	238.47	1460.59	0.31	0.84	4.18	N/D	1.49	3.26	1.91	N/D	LP	
PVSB165-0-0.0-1.0	11/01/05	14:55	1183	238.42	1460.51	0.55	0.34	5.49	N/D	1.92	3.92	2.22	N/D	LP	
PVSB146-0-1.0-2.0	11/01/05	8:34	374	238.45	1460.53	0.76	0.91	5.80	N/D	2.29	N/D	1.85	N/D	LP	
PVSB146-0-2.0-3.0	11/01/05	8:52	837	238.45	1460.63	0.37	0.81	5.60	N/D	2.09	N/D	2.02	N/D	LP	
PVSB148-0-0.0-1.0	11/01/05	10:33	391	238.46	1460.15	0.58	0.81	5.47	N/D	1.71	N/D	1.40	N/D	LP	K-40 fell low but within 1KeV, very low vol. Will keep this ct. ct'd no-salt
PVSB148-0-1.0-2.0	11/01/05	11:07	709	238.45	1460.68	0.37	1.08	6.93	N/D	2.45	N/D	2.29	N/D	LP	
PVSB148-0-2.0-3.0	11/01/05	11:32	912	238.42	1460.71	0.41	1.13	5.70	N/D	2.13	N/D	2.01	N/D	LP	
PVSB149-0-0.0-1.0	11/01/05	12:40	363	238.42	1460.68	0.40	0.01	4.39	N/D	1.30	N/D	1.17	N/D	LP	
PVSB149-0-1.0-2.0	11/01/05	13:51	333	238.41	1460.42	0.71	0.60	6.87	N/D	2.42	N/D	1.74	N/D	LP	
PVSB156-0-1.0-2.0	11/01/05	14:34	912	238.54	1460.43	0.65	0.50	5.30	N/D	2.01	N/D	1.96	N/D	LP	
PVSB163-0-1.0-2.0	11/02/05	16:49	631	238.47	1460.76	0.35	0.21	3.23	N/D	0.82	0.78	0.93	N/D	LP	
PVSB157-0-1.0-2.0	11/02/05	10:49	405	238.46	1460.49	0.54	0.52	5.22	N/D	1.40	0.97	1.36	N/D	LP	
PVSB159-0-0.0-1.0	11/02/05	12:02	574	238.54	1460.76	0.69	0.68	6.24	N/D	2.20	1.29	1.97	N/D	LP	
PVSB162-0-1.0-2.0	11/02/05	15:13	967	238.44	1460.72	0.20	0.90	2.92	N/D	1.16	1.67	1.09	N/D	LP	
PVSB160-0-0.0-1.0	11/02/05	12:25	841	238.46	1460.82	0.65	0.50	5.78	N/D	2.25	2.56	2.19	N/D	LP	
PVSB162-0-0.0-1.0	11/02/05	14:22	852	238.50	1460.80	0.62	0.47	5.41	N/D	1.95	3.07	2.12	N/D	LP	
PVSB158-0-0.0-1.0	11/02/05	11:13	702	238.49	1460.64	0.78	0.39	6.92	N/D	2.43	4.44	2.44	N/D	LP	
PVSB159-0-1.0-2.0	11/02/05	12:09	661	238.43	1460.28	0.82	0.85	7.51	N/D	2.23	4.76	2.64	N/D	LP	Need to count #159 2.0-3.0 (counted)
PVSB157-0-0.0-1.0	11/02/05	10:09	829	238.40	1460.70	0.49	0.35	4.37	N/D	1.50	N/D	1.32	N/D	LP	
PVSB158-0-1.0-2.0	11/02/05	11:29	1078	238.49	1460.58	0.57	0.57	3.73	N/D	1.53	N/D	1.69	N/D	LP	
PVSB160-0-1.0-2.0	11/02/05	12:58	1046	238.43	1460.58	0.29	0.65	4.29	N/D	1.66	N/D	1.72	N/D	LP	
PVSB161-0-0.0-1.0	11/02/05	13:15	1112	238.54	N/D	0.43	0.13	3.70	N/D	1.41	N/D	1.50	N/D	LP	No K-40 was dected in this sample. But did reach Ac-228 MDA.
PVSB161-0-1.0-2.0	11/02/05	14:13	714	238.46	1460.80	0.14	0.58	4.38	N/D	1.38	N/D	1.37	N/D	LP	
PVSB163-0-0.0-1.0	11/02/05	15:42	1081	238.41	1460.65	0.34	0.19	2.86	N/D	1.05	N/D	0.95	N/D	LP	
PVSB163-0-3.0-4.0	11/03/05	10:51	1019	238.45	1460.65	0.14	0.52	2.77	N/D	0.81	1.30	1.04	N/D	LP	
PVSB163-0-2.0-3.0	11/03/05	9:53	379	238.44	1460.59	0.44	0.50	4.75	N/D	0.94	1.33	1.26	N/D	LP	
PVSB166-0-3.0-4.0	11/03/05	13:41	829	238.50	1460.83	0.65	0.60	4.77	N/D	1.37	1.60	1.81	N/D	LP	
PVSB159-0-2.0-3.0	11/03/05	11:53	926	238.48	1460.55	0.25	0.92	3.90	N/D	1.41	2.21	1.45	N/D	LP	
PVSB164-0-1.0-2.0	11/03/05	11:13	921	238.47	1460.63	0.74	0.65	5.70	N/D	1.97	2.23	2.32	N/D	LP	
PVSB179-0-5.0-6.0	11/03/05	16:17	949	238.49	1460.75	0.04	1.23	0.67	N/D	0.36	2.24	0.39	0.70	LP	Over night count
PVSB179-0-0.0-1.0	11/03/05	14:02	763	238.45	1460.87	0.47	0.51	4.61	N/D	1.21	2.38	1.55	N/D	LP	
PVSB164-0-0.0-1.0	11/03/05	10:56	934	238.36	1460.75	0.53	0.34	4.41	N/D	1.40	2.42	1.60	N/D	LP	
PVSB179-0-4.0-5.0	11/03/05	16:00	972	238.51	1460.78	0.35	1.12	5.45	N/D	1.77	2.44	2.01	N/D	LP	
PVSB166-0-2.0-3.0	11/03/05	13:09	831	238.49	1460.80	0.18	0.90	5.97	N/D	1.36	2.49	1.95	N/D	LP	
PVSB166-0-0.0-1.0	11/03/05	12:14	1080	238.47	1460.37	0.22	0.59	4.62	N/D	1.35	3.12	1.92	N/D	LP	
PVSB166-0-1.0-2.0	11/03/05	12:52	1034	238.49	1460.90	0.27	0.66	5.08	N/D	1.75	3.68	2.09	N/D	LP	
PVSB179-0-2.0-3.0	11/03/05	15:23	225	238.51	1460.61	0.99	0.56	9.62	N/D	2.72	10.54	3.14	N/D	LP	
PVSB179-0-1.0-2.0	11/03/05	14:31	348	238.44	N/D	0.89	0.86	8.59	N/D	2.72	10.59	2.47	2.09	LP	No K-40 was detected in this sample very low vol. But did reach Ac-228 MDA.
PVSB179-0-3.0-4.0	11/03/05	15:49	684	238.47	1460.71	0.31	1.05	4.40	N/D	1.67	N/D	1.45	N/D	LP	
PVSB149-4-3.0-4.0	11/04/05	10:23	1076	238.45	1460.80	0.58	0.73	4.83	N/D	1.64	1.89	2.02	N/D	LP	Duplicate
PVSB166-4-0.0-1.0	11/04/05	11:09	1080	238.46	1460.75	0.49	0.48	4.07	N/D	1.37	2.07	1.59	N/D	LP	Duplicate
PVSB162-4-0.0-1.0	11/04/05	10:48	852	238.50	1460.87	0.43	1.13	6.56	N/D	2.90	2.75	2.42	N/D	LP	Duplicate
PVSB179-0-4.0-5.0	11/04/05	12:13	972	238.47	1460.76	0.37	1.16	5.82	N/D	1.93	2.76	2.21	N/D	LP	Duplicate
PVSB214-0-1.0-2.0	11/08/05	11:10	134	238.54	1460.84	0.71	0.90	8.89	N/D	1.90	2.43	1.85	N/D	LP	

APPENDIX D

FIELD BORING LOGS AND FIELD CHAIN OF CUSTODY FORMS

(Provided in PDF file format on accompanying CD)

APPENDIX E

SAMPLE ID TO GEL SDG CROSS REFERENCE TABLE

Sample ID	Location ID	Interval	GEL SDG
PVSB001-0-0.0-1.0	1	0.0-1.0	146946
PVSB001-0-1.0-2.0	1	1.0-2.0	146946
PVSB001-0-2.0-3.0	1	2.0-3.0	146946
PVSB001-0-3.0-4.0	1	3.0-4.0	146946
PVSB001-0-4.0-5.0	1	4.0-5.0	146946
PVSB001-0-5.0-6.0	1	5.0-6.0	146946
PVSB001-0-6.0-7.0	1	6.0-7.0	146946
PVSB001-0-7.0-8.0	1	7.0-8.0	146946
PVSB001-0-8.0-9.0	1	8.0-9.0	146946
PVSB002-0-0.0-1.0	2	0.0-1.0	150019
PVSB002-0-1.0-2.0	2	1.0-2.0	150019
PVSB003-0-0.0-1.0	3	0.0-1.0	149055
PVSB003-0-1.0-2.0	3	1.0-2.0	149055
PVSB004-0-0.0-1.0	4	0.0-1.0	146946
PVSB004-0-1.0-2.0	4	1.0-2.0	146946
PVSB004-0-2.0-3.0	4	2.0-3.0	146946
PVSB004-0-3.0-4.0	4	3.0-4.0	146946
PVSB004-0-4.0-5.0	4	4.0-5.0	146946
PVSB004-0-5.0-6.0	4	5.0-6.0	146946
PVSB004-0-6.0-7.0	4	6.0-7.0	146946
PVSB004-0-7.0-8.0	4	7.0-8.0	146946
PVSB004-0-8.0-9.0	4	8.0-9.0	146946
PVSB004-0-9.0-10.0	4	9.0-10.0	146946
PVSB005-0-0.0-1.0	5	0.0-1.0	148561
PVSB005-0-1.0-2.0	5	1.0-2.0	148561
PVSB006-0-0.0-1.0	6	0.0-1.0	146948
PVSB006-0-2.0-3.0	6	2.0-3.0	146948
PVSB006-0-3.0-4.0	6	3.0-4.0	146948
PVSB006-0-4.0-5.0	6	4.0-5.0	146948
PVSB006-0-5.0-6.0	6	5.0-6.0	146948
PVSB006-0-6.0-7.0	6	6.0-7.0	146948
PVSB006-0-7.0-8.0	6	7.0-8.0	146948
PVSB007-0-0.0-1.0	7	0.0-1.0	147569
PVSB007-0-1.0-2.0	7	1.0-2.0	147569
PVSB007-0-2.0-3.0	7	2.0-3.0	147569
PVSB008-0-0.0-1.0	8	0.0-1.0	148034
PVSB008-0-1.0-2.0	8	1.0-2.0	148034
PVSB008-0-2.0-3.0	8	2.0-3.0	148034
PVSB009-0-0.0-1.0	9	0.0-1.0	148034
PVSB009-0-1.0-2.0	9	1.0-2.0	148034
PVSB009-0-2.0-3.0	9	2.0-3.0	148034
PVSB010-0-0.0-1.0	10	0.0-1.0	146537
PVSB010-0-1.0-2.0	10	1.0-2.0	146537
PVSB010-0-1.0-2.0	10	1.0-2.0	147600
PVSB010-0-2.0-3.0	10	2.0-3.0	146537
PVSB010-0-3.0-4.0	10	3.0-4.0	146537
PVSB010-0-4.0-5.0	10	4.0-5.0	146537
PVSB010-0-5.0-6.0	10	5.0-6.0	146537
PVSB010-0-6.0-7.0	10	6.0-7.0	146537
PVSB010-0-7.0-8.0	10	7.0-8.0	146537
PVSB010-0-8.0-9.0	10	8.0-9.0	146537
PVSB010-0-9.0-10.0	10	9.0-10.0	146537
PVSB011-0-0.0-1.0	11	0.0-1.0	146537
PVSB011-0-1.0-2.0	11	1.0-2.0	146537

Sample ID	Location ID	Interval	GEL SDG
PVSB011-0-1.0-2.0	11	1.0-2.0	147600
PVSB011-0-2.0-3.0	11	2.0-3.0	146537
PVSB011-0-3.0-4.0	11	3.0-4.0	146537
PVSB011-0-4.0-5.0	11	4.0-5.0	146537
PVSB011-0-5.0-6.0	11	5.0-6.0	146537
PVSB011-0-6.0-7.0	11	6.0-7.0	146537
PVSB011-0-7.0-8.0	11	7.0-8.0	146537
PVSB011-0-8.0-9.0	11	8.0-9.0	146537
PVSB012-0-0.0-1.0	12	0.0-1.0	146537
PVSB012-0-1.0-2.0	12	1.0-2.0	146542
PVSB012-0-2.0-3.0	12	2.0-3.0	146542
PVSB012-0-3.0-4.0	12	3.0-4.0	146542
PVSB012-0-4.0-5.0	12	4.0-5.0	146542
PVSB012-0-5.0-6.0	12	5.0-6.0	146542
PVSB012-0-6.0-7.0	12	6.0-7.0	146542
PVSB012-0-7.0-8.0	12	7.0-8.0	146542
PVSB012-0-8.0-9.0	12	8.0-9.0	146542
PVSB012-0-9.0-10.0	12	9.0-10.0	146542
PVSB013-0-0.0-1.0	13	0.0-1.0	146542
PVSB013-0-1.0-2.0	13	1.0-2.0	146542
PVSB013-0-2.0-3.0	13	2.0-3.0	146542
PVSB013-0-3.0-4.0	13	3.0-4.0	146542
PVSB013-0-4.0-5.0	13	4.0-5.0	146542
PVSB013-0-5.0-6.0	13	5.0-6.0	146542
PVSB013-0-6.0-7.0	13	6.0-7.0	146542
PVSB013-0-7.0-8.0	13	7.0-8.0	146542
PVSB013-0-8.0-9.0	13	8.0-9.0	146542
PVSB013-0-9.0-10.0	13	9.0-10.0	146542
PVSB014-0-1.0-2.0	14	1.0-2.0	146542
PVSB014-0-2.0-3.0	14	2.0-3.0	146548
PVSB014-0-3.0-4.0	14	3.0-4.0	146548
PVSB014-0-4.0-5.0	14	4.0-5.0	146548
PVSB014-0-5.0-6.0	14	5.0-6.0	146548
PVSB014-0-6.0-7.0	14	6.0-7.0	146548
PVSB014-0-7.0-8.0	14	7.0-8.0	146548
PVSB014-0-8.0-9.0	14	8.0-9.0	146548
PVSB015-0-0.0-1.0	15	0.0-1.0	146946
PVSB015-0-1.0-2.0	15	1.0-2.0	146948
PVSB015-0-2.0-3.0	15	2.0-3.0	146948
PVSB015-0-3.0-4.0	15	3.0-4.0	146948
PVSB015-0-4.0-5.0	15	4.0-5.0	146948
PVSB015-0-5.0-6.0	15	5.0-6.0	146948
PVSB015-0-6.0-7.0	15	6.0-7.0	146948
PVSB015-0-7.0-8.0	15	7.0-8.0	146948
PVSB015-0-8.0-9.0	15	8.0-9.0	146948
PVSB015-0-9.0-10.0	15	9.0-10.0	146948
PVSB016-0-0.0-1.0	16	0.0-1.0	147569
PVSB016-0-1.0-2.0	16	1.0-2.0	147569
PVSB016-0-2.0-3.0	16	2.0-3.0	147569
PVSB016-0-3.0-4.0	16	3.0-4.0	147569
PVSB016-0-4.0-5.0	16	4.0-5.0	147569
PVSB017-0-0.0-1.0	17	0.0-1.0	149055
PVSB017-0-1.0-2.0	17	1.0-2.0	149055
PVSB017-0-2.0-3.0	17	2.0-3.0	149055

Sample ID	Location ID	Interval	GEL SDG
PVSB018-0-0.0-1.0	18	0.0-1.0	148034
PVSB018-0-1.0-2.0	18	1.0-2.0	148034
PVSB018-0-2.0-3.0	18	2.0-3.0	148034
PVSB019-0-0.0-1.0	19	0.0-1.0	148558
PVSB019-1-0.0-1.0	19	0.0-1.0	150025
PVSB019-0-1.0-2.0	19	1.0-2.0	148558
PVSB019-1-1.0-2.0	19	1.0-2.0	150025
PVSB019-0-2.0-3.0	19	2.0-3.0	148558
PVSB019-1-2.0-3.0	19	2.0-3.0	150025
PVSB019-0-3.0-4.0	19	3.0-4.0	148558
PVSB019-1-3.0-4.0	19	3.0-4.0	150025
PVSB019-0-4.0-5.0	19	4.0-5.0	148558
PVSB019-1-4.0-5.0	19	4.0-5.0	150025
PVSB019-0-5.0-6.0	19	5.0-6.0	148558
PVSB019-1-5.0-6.0	19	5.0-6.0	150025
PVSB019-0-6.0-7.0	19	6.0-7.0	148558
PVSB019-1-6.0-7.0	19	6.0-7.0	150025
PVSB020-0-0.0-1.0	20	0.0-1.0	148558
PVSB020-1-0.0-1.0	20	0.0-1.0	150025
PVSB020-0-1.0-2.0	20	1.0-2.0	148558
PVSB020-1-1.0-2.0	20	1.0-2.0	150025
PVSB020-1-2.0-3.0	20	2.0-3.0	150025
PVSB021-0-0.0-1.0	21	0.0-1.0	148558
PVSB021-0-1.0-2.0	21	1.0-2.0	148558
PVSB021-0-2.0-3.0	21	2.0-3.0	148558
PVSB022-0-0.0-1.0	22	0.0-1.0	149055
PVSB022-0-1.0-2.0	22	1.0-2.0	149055
PVSB022-0-2.0-3.0	22	2.0-3.0	149055
PVSB022-0-3.0-4.0	22	3.0-4.0	149055
PVSB023-0-0.0-1.0	23	0.0-1.0	148561
PVSB023-0-1.0-2.0	23	1.0-2.0	148561
PVSB023-0-2.0-3.0	23	2.0-3.0	148561
PVSB024-0-0.0-1.0	24	0.0-1.0	149055
PVSB024-0-1.0-2.0	24	1.0-2.0	149055
PVSB025-0-0.0-1.0	25	0.0-1.0	149055
PVSB025-0-1.0-2.0	25	1.0-2.0	149055
PVSB026-0-2.0-3.0	26	2.0-3.0	149055
PVSB026-0-3.0-4.0	26	3.0-4.0	149055
PVSB026-0-4.0-5.0	26	4.0-5.0	149055
PVSB027-0-0.0-1.0	27	0.0-1.0	149212
PVSB027-0-1.0-2.0	27	1.0-2.0	149212
PVSB027-0-2.0-3.0	27	2.0-3.0	149212
PVSB027-0-3.0-4.0	27	3.0-4.0	149212
PVSB028-0-0.0-1.0	28	0.0-1.0	148034
PVSB028-0-1.0-2.0	28	1.0-2.0	148034
PVSB029-0-0.0-1.0	29	0.0-1.0	148034
PVSB029-0-1.0-2.0	29	1.0-2.0	148034
PVSB030-0-0.0-1.0	30	0.0-1.0	148034
PVSB030-0-1.0-2.0	30	1.0-2.0	148034
PVSB030-0-2.0-3.0	30	2.0-3.0	148034
PVSB031-0-0.0-1.0	31	0.0-1.0	148034
PVSB031-0-1.0-2.0	31	1.0-2.0	148034
PVSB032-0-0.0-1.0	32	0.0-1.0	149055
PVSB032-0-1.0-2.0	32	1.0-2.0	149055

Sample ID	Location ID	Interval	GEL SDG
PVSB033-0-0.0-1.0	33	0.0-1.0	149055
PVSB033-0-1.0-2.0	33	1.0-2.0	149055
PVSB034-0-0.0-1.0	34	0.0-1.0	148561
PVSB034-0-1.0-2.0	34	1.0-2.0	148561
PVSB035-0-0.0-1.0	35	0.0-1.0	148561
PVSB035-0-1.0-2.0	35	1.0-2.0	148561
PVSB035-0-2.0-3.0	35	2.0-3.0	148561
PVSB036-0-0.0-1.0	36	0.0-1.0	148582
PVSB036-0-1.0-2.0	36	1.0-2.0	148582
PVSB036-0-2.0-3.0	36	2.0-3.0	148582
PVSB037-0-0.0-1.0	37	0.0-1.0	149087
PVSB037-0-1.0-2.0	37	1.0-2.0	149087
PVSB038-0-0.0-1.0	38	0.0-1.0	149087
PVSB038-0-1.0-2.0	38	1.0-2.0	149087
PVSB039-0-0.0-1.0	39	0.0-1.0	148034
PVSB039-0-1.0-2.0	39	1.0-2.0	148034
PVSB040-0-0.0-1.0	40	0.0-1.0	148039
PVSB040-0-1.0-2.0	40	1.0-2.0	148039
PVSB041-0-0.0-1.0	41	0.0-1.0	148039
PVSB041-0-1.0-2.0	41	1.0-2.0	148039
PVSB042-0-0.0-1.0	42	0.0-1.0	148039
PVSB042-0-1.0-2.0	42	1.0-2.0	148039
PVSB043-0-0.0-1.0	43	0.0-1.0	148039
PVSB043-0-1.0-2.0	43	1.0-2.0	148039
PVSB044-0-0.0-1.0	44	0.0-1.0	148039
PVSB044-0-1.0-2.0	44	1.0-2.0	148039
PVSB045-0-0.0-1.0	45	0.0-1.0	147468
PVSB045-0-1.0-2.0	45	1.0-2.0	147468
PVSB045-0-2.0-3.0	45	2.0-3.0	147468
PVSB045-0-3.0-4.0	45	3.0-4.0	147468
PVSB045-0-4.0-5.0	45	4.0-5.0	147468
PVSB045-0-5.0-6.0	45	5.0-6.0	147468
PVSB045-0-6.0-7.0	45	6.0-7.0	147468
PVSB045-0-7.0-8.0	45	7.0-8.0	147468
PVSB045-0-8.0-9.0	45	8.0-9.0	147468
PVSB045-0-9.0-10.0	45	9.0-10.0	147468
PVSB046-0-0.0-1.0	46	0.0-1.0	148561
PVSB046-1-0.0-1.0	46	0.0-1.0	150025
PVSB046-0-1.0-2.0	46	1.0-2.0	148561
PVSB046-1-1.0-2.0	46	1.0-2.0	150025
PVSB046-0-2.0-3.0	46	2.0-3.0	148561
PVSB046-0-3.0-4.0	46	3.0-4.0	148561
PVSB046-0-4.0-5.0	46	4.0-5.0	148561
PVSB046-0-5.0-6.0	46	5.0-6.0	148561
PVSB046-0-6.0-7.0	46	6.0-7.0	148561
PVSB047-0-0.0-1.0	47	0.0-1.0	149087
PVSB047-0-1.0-2.0	47	1.0-2.0	149087
PVSB048-0-0.0-1.0	48	0.0-1.0	148039
PVSB048-0-1.0-2.0	48	1.0-2.0	148039
PVSB049-0-0.0-1.0	49	0.0-1.0	148582
PVSB049-0-1.0-2.0	49	1.0-2.0	148582
PVSB050-0-0.0-1.0	50	0.0-1.0	148582
PVSB050-0-1.0-2.0	50	1.0-2.0	148582
PVSB051-0-0.0-1.0	51	0.0-1.0	148582

Sample ID	Location ID	Interval	GEL SDG
PVSB051-0-1.0-2.0	51	1.0-2.0	148582
PVSB052-0-0.0-1.0	52	0.0-1.0	148558
PVSB052-0-1.0-2.0	52	1.0-2.0	148558
PVSB053-0-0.0-1.0	53	0.0-1.0	149108
PVSB053-0-1.0-2.0	53	1.0-2.0	149108
PVSB054-0-0.0-1.0	54	0.0-1.0	147569
PVSB054-0-1.0-2.0	54	1.0-2.0	147569
PVSB054-0-2.0-3.0	54	2.0-3.0	147569
PVSB054-0-3.0-4.0	54	3.0-4.0	147569
PVSB054-0-4.0-5.0	54	4.0-5.0	147569
PVSB054-0-5.0-6.0	54	5.0-6.0	147569
PVSB054-0-6.0-7.0	54	6.0-7.0	147569
PVSB054-0-7.0-8.0	54	7.0-8.0	147569
PVSB054-0-8.0-9.0	54	8.0-9.0	147569
PVSB054-0-9.0-10.0	54	9.0-10.0	147569
PVSB055-0-0.0-1.0	55	0.0-1.0	148558
PVSB055-0-1.0-2.0	55	1.0-2.0	148558
PVSB055-0-2.0-3.0	55	2.0-3.0	148558
PVSB055-0-3.0-4.0	55	3.0-4.0	148558
PVSB055-0-4.0-5.0	55	4.0-5.0	148558
PVSB056-0-0.0-1.0	56	0.0-1.0	147470
PVSB056-0-1.0-2.0	56	1.0-2.0	147470
PVSB056-0-2.0-3.0	56	2.0-3.0	147470
PVSB056-0-3.0-4.0	56	3.0-4.0	147470
PVSB056-0-4.0-5.0	56	4.0-5.0	147470
PVSB056-0-5.0-6.0	56	5.0-6.0	147470
PVSB056-0-6.0-7.0	56	6.0-7.0	147470
PVSB056-0-7.0-8.0	56	7.0-8.0	147470
PVSB056-0-8.0-9.0	56	8.0-9.0	147470
PVSB056-0-9.0-10.0	56	9.0-10.0	147470
PVSB057-0-0.0-1.0	57	0.0-1.0	147470
PVSB057-0-1.0-2.0	57	1.0-2.0	147470
PVSB057-0-2.0-3.0	57	2.0-3.0	147470
PVSB057-0-3.0-4.0	57	3.0-4.0	147470
PVSB057-0-4.0-5.0	57	4.0-5.0	147470
PVSB057-0-5.0-6.0	57	5.0-6.0	147470
PVSB057-0-6.0-7.0	57	6.0-7.0	147470
PVSB057-0-7.0-8.0	57	7.0-8.0	147470
PVSB057-0-8.0-9.0	57	8.0-9.0	147470
PVSB057-0-9.0-10.0	57	9.0-10.0	147470
PVSB058-0-0.0-1.0	58	0.0-1.0	149087
PVSB058-0-1.0-2.0	58	1.0-2.0	149087
PVSB059-0-0.0-1.0	59	0.0-1.0	147468
PVSB059-0-1.0-2.0	59	1.0-2.0	147468
PVSB059-0-2.0-3.0	59	2.0-3.0	147468
PVSB059-0-3.0-4.0	59	3.0-4.0	147468
PVSB059-0-4.0-5.0	59	4.0-5.0	147468
PVSB059-0-5.0-6.0	59	5.0-6.0	147468
PVSB059-0-6.0-7.0	59	6.0-7.0	147468
PVSB059-0-7.0-8.0	59	7.0-8.0	147468
PVSB059-0-8.0-9.0	59	8.0-9.0	147468
PVSB059-0-9.0-10.0	59	9.0-10.0	147468
PVSB060-0-0.0-1.0	60	0.0-1.0	150019
PVSB060-0-1.0-2.0	60	1.0-2.0	150019

Sample ID	Location ID	Interval	GEL SDG
PVSB061-0-0.0-1.0	61	0.0-1.0	148582
PVSB061-0-1.0-2.0	61	1.0-2.0	148582
PVSB062-0-0.0-1.0	62	0.0-1.0	148582
PVSB062-0-1.0-2.0	62	1.0-2.0	148582
PVSB062-0-2.0-3.0	62	2.0-3.0	148582
PVSB063-0-0.0-1.0	63	0.0-1.0	148582
PVSB063-0-1.0-2.0	63	1.0-2.0	148582
PVSB064-0-0.0-1.0	64	0.0-1.0	149087
PVSB064-0-1.0-2.0	64	1.0-2.0	149087
PVSB065-0-0.0-1.0	65	0.0-1.0	148582
PVSB065-0-1.0-2.0	65	1.0-2.0	148582
PVSB066-0-0.0-1.0	66	0.0-1.0	149087
PVSB066-0-1.0-2.0	66	1.0-2.0	149087
PVSB066-0-2.0-3.0	66	2.0-3.0	149087
PVSB067-0-0.0-1.0	67	0.0-1.0	149087
PVSB067-0-1.0-2.0	67	1.0-2.0	149087
PVSB068-0-0.0-1.0	68	0.0-1.0	149212
PVSB068-0-1.0-2.0	68	1.0-2.0	149212
PVSB069-0-0.0-1.0	69	0.0-1.0	147569
PVSB069-0-1.0-2.0	69	1.0-2.0	147569
PVSB069-0-2.0-3.0	69	2.0-3.0	147570
PVSB070-0-0.0-1.0	70	0.0-1.0	149212
PVSB070-0-1.0-2.0	70	1.0-2.0	149212
PVSB071-0-0.0-1.0	71	0.0-1.0	149087
PVSB071-0-1.0-2.0	71	1.0-2.0	149087
PVSB072-0-0.0-1.0	72	0.0-1.0	149087
PVSB072-0-1.0-2.0	72	1.0-2.0	149087
PVSB073-0-0.0-1.0	73	0.0-1.0	148558
PVSB073-0-1.0-2.0	73	1.0-2.0	148561
PVSB074-0-0.0-1.0	74	0.0-1.0	149087
PVSB074-0-1.0-2.0	74	1.0-2.0	149088
PVSB075-0-0.0-1.0	75	0.0-1.0	149088
PVSB075-0-1.0-2.0	75	1.0-2.0	149088
PVSB076-0-0.0-1.0	76	0.0-1.0	149088
PVSB076-0-1.0-2.0	76	1.0-2.0	149088
PVSB077-0-0.0-1.0	77	0.0-1.0	149088
PVSB077-0-1.0-2.0	77	1.0-2.0	149088
PVSB100-0-0.0-1.0	100	0.0-1.0	149111
PVSB100-0-1.0-2.0	100	1.0-2.0	149111
PVSB101-0-0.0-1.0	101	0.0-1.0	149111
PVSB101-0-1.0-2.0	101	1.0-2.0	149111
PVSB102-0-0.0-1.0	102	0.0-1.0	149212
PVSB102-0-1.0-2.0	102	1.0-2.0	149212
PVSB102-0-2.0-3.0	102	2.0-3.0	149212
PVSB103-0-0.0-1.0	103	0.0-1.0	149088
PVSB103-0-1.0-2.0	103	1.0-2.0	149088
PVSB103-0-2.0-3.0	103	2.0-3.0	149088
PVSB103-0-3.0-4.0	103	3.0-4.0	149088
PVSB103-0-4.0-5.0	103	4.0-5.0	149088
PVSB104-0-0.0-1.0	104	0.0-1.0	149111
PVSB104-0-1.0-2.0	104	1.0-2.0	149111
PVSB104-0-2.0-3.0	104	2.0-3.0	149111
PVSB105-0-0.0-1.0	105	0.0-1.0	150019
PVSB105-0-1.0-2.0	105	1.0-2.0	150019

Sample ID	Location ID	Interval	GEL SDG
PVSB106-0-0.0-1.0	106	0.0-1.0	149111
PVSB106-0-1.0-2.0	106	1.0-2.0	149111
PVSB106-0-2.0-3.0	106	2.0-3.0	149111
PVSB107-0-0.0-1.0	107	0.0-1.0	150019
PVSB107-1-0.0-1.0	107	0.0-1.0	150025
PVSB107-0-1.0-2.0	107	1.0-2.0	150019
PVSB107-1-1.0-2.0	107	1.0-2.0	150025
PVSB107-1-2.0-3.0	107	2.0-3.0	150025
PVSB108-0-0.0-1.0	108	0.0-1.0	149088
PVSB108-1-0.0-1.0	108	0.0-1.0	150025
PVSB108-0-1.0-2.0	108	1.0-2.0	149088
PVSB108-1-1.0-2.0	108	1.0-2.0	150025
PVSB108-0-2.0-3.0	108	2.0-3.0	149088
PVSB109-0-0.0-1.0	109	0.0-1.0	149088
PVSB109-0-1.0-2.0	109	1.0-2.0	149088
PVSB110-0-0.0-1.0	110	0.0-1.0	149088
PVSB110-0-1.0-2.0	110	1.0-2.0	149088
PVSB111-0-0.0-1.0	111	0.0-1.0	149111
PVSB111-0-1.0-2.0	111	1.0-2.0	149111
PVSB112-0-0.0-1.0	112	0.0-1.0	149106
PVSB112-0-1.0-2.0	112	1.0-2.0	149106
PVSB112-0-2.0-3.0	112	2.0-3.0	149106
PVSB113-0-0.0-1.0	113	0.0-1.0	149088
PVSB113-0-1.0-2.0	113	1.0-2.0	149106
PVSB114-0-0.0-1.0	114	0.0-1.0	149212
PVSB114-0-1.0-2.0	114	1.0-2.0	149212
PVSB115-0-0.0-1.0	115	0.0-1.0	149212
PVSB115-0-1.0-2.0	115	1.0-2.0	149212
PVSB116-0-0.0-1.0	116	0.0-1.0	149212
PVSB116-0-1.0-2.0	116	1.0-2.0	149218
PVSB117-0-0.0-1.0	117	0.0-1.0	149212
PVSB117-1-0.0-1.0	117	0.0-1.0	150047
PVSB117-0-1.0-2.0	117	1.0-2.0	149212
PVSB117-1-1.0-2.0	117	1.0-2.0	150047
PVSB118-0-0.0-1.0	118	0.0-1.0	149106
PVSB118-1-0.0-1.0	118	0.0-1.0	150047
PVSB118-0-1.0-2.0	118	1.0-2.0	149106
PVSB118-1-1.0-2.0	118	1.0-2.0	150047
PVSB119-0-0.0-1.0	119	0.0-1.0	149212
PVSB119-0-1.0-2.0	119	1.0-2.0	149212
PVSB120-0-0.0-1.0	120	0.0-1.0	149218
PVSB120-0-1.0-2.0	120	1.0-2.0	149218
PVSB121-0-0.0-1.0	121	0.0-1.0	149106
PVSB121-0-1.0-2.0	121	1.0-2.0	149106
PVSB122-0-2.0-3.0	122	2.0-3.0	149106
PVSB123-0-0.0-1.0	123	0.0-1.0	149106
PVSB123-0-1.0-2.0	123	1.0-2.0	149106
PVSB124-0-0.0-1.0	124	0.0-1.0	149106
PVSB124-0-1.0-2.0	124	1.0-2.0	149106
PVSB125-0-1.0-2.0	125	1.0-2.0	149106
PVSB125-0-2.0-3.0	125	2.0-3.0	149106
PVSB126-0-1.0-2.0	126	1.0-2.0	149108
PVSB126-0-2.0-3.0	126	2.0-3.0	149108
PVSB126-0-3.0-4.0	126	3.0-4.0	149108

Sample ID	Location ID	Interval	GEL SDG
PVSB127-0-0.0-1.0	127	0.0-1.0	149106
PVSB127-0-1.0-2.0	127	1.0-2.0	149106
PVSB128-0-0.0-1.0	128	0.0-1.0	149108
PVSB128-0-1.0-2.0	128	1.0-2.0	149108
PVSB129-0-0.0-1.0	129	0.0-1.0	149218
PVSB129-0-1.0-2.0	129	1.0-2.0	149218
PVSB130-0-0.0-1.0	130	0.0-1.0	149218
PVSB130-1-0.0-1.0	130	0.0-1.0	150047
PVSB130-0-1.0-2.0	130	1.0-2.0	149218
PVSB130-1-1.0-2.0	130	1.0-2.0	150047
PVSB131-0-0.0-1.0	131	0.0-1.0	149218
PVSB131-0-1.0-2.0	131	1.0-2.0	149218
PVSB132-0-1.0-2.0	132	1.0-2.0	149108
PVSB132-0-2.0-3.0	132	2.0-3.0	149108
PVSB132-0-3.0-4.0	132	3.0-4.0	149108
PVSB133-0-1.0-2.0	133	1.0-2.0	149108
PVSB133-0-2.0-3.0	133	2.0-3.0	149108
PVSB133-0-3.0-4.0	133	3.0-4.0	149108
PVSB133-0-4.0-5.0	133	4.0-5.0	149108
PVSB133-0-5.0-6.0	133	5.0-6.0	149108
PVSB134-0-0.0-1.0	134	0.0-1.0	149106
PVSB134-0-1.0-2.0	134	1.0-2.0	149106
PVSB135-0-0.0-1.0	135	0.0-1.0	149108
PVSB135-0-1.0-2.0	135	1.0-2.0	149108
PVSB136-0-0.0-1.0	136	0.0-1.0	149108
PVSB136-0-1.0-2.0	136	1.0-2.0	149108
PVSB137-0-0.0-1.0	137	0.0-1.0	149106
PVSB137-0-1.0-2.0	137	1.0-2.0	149108
PVSB138-0-0.0-1.0	138	0.0-1.0	149111
PVSB138-0-1.0-2.0	138	1.0-2.0	149111
PVSB139-0-0.0-1.0	139	0.0-1.0	149111
PVSB139-0-1.0-2.0	139	1.0-2.0	149111
PVSB140-0-0.0-1.0	140	0.0-1.0	149111
PVSB140-0-1.0-2.0	140	1.0-2.0	149111
PVSB141-0-0.0-1.0	141	0.0-1.0	149218
PVSB141-0-1.0-2.0	141	1.0-2.0	149218
PVSB142-0-0.0-1.0	142	0.0-1.0	149218
PVSB142-0-1.0-2.0	142	1.0-2.0	149218
PVSB143-0-0.0-1.0	143	0.0-1.0	149218
PVSB143-0-1.0-2.0	143	1.0-2.0	149218
PVSB144-0-0.0-1.0	144	0.0-1.0	149111
PVSB144-0-1.0-2.0	144	1.0-2.0	149111
PVSB145-0-0.0-1.0	145	0.0-1.0	150019
PVSB145-0-1.0-2.0	145	1.0-2.0	150019
PVSB146-0-0.0-1.0	146	0.0-1.0	150019
PVSB146-0-1.0-2.0	146	1.0-2.0	150019
PVSB147-0-0.0-1.0	147	0.0-1.0	150019
PVSB147-0-1.0-2.0	147	1.0-2.0	150019
PVSB148-0-0.0-1.0	148	0.0-1.0	150019
PVSB148-0-1.0-2.0	148	1.0-2.0	150019
PVSB149-0-0.0-1.0	149	0.0-1.0	150019
PVSB149-0-1.0-2.0	149	1.0-2.0	150019
PVSB150-0-0.0-1.0	150	0.0-1.0	150019
PVSB150-0-1.0-2.0	150	1.0-2.0	150019

Sample ID	Location ID	Interval	GEL SDG
PVSB151-0-0.0-1.0	151	0.0-1.0	150045
PVSB151-0-1.0-2.0	151	1.0-2.0	150045
PVSB152-0-0.0-1.0	152	0.0-1.0	150045
PVSB152-0-1.0-2.0	152	1.0-2.0	150045
PVSB153-0-0.0-1.0	153	0.0-1.0	150045
PVSB153-0-1.0-2.0	153	1.0-2.0	150045
PVSB154-0-0.0-1.0	154	0.0-1.0	150045
PVSB154-0-1.0-2.0	154	1.0-2.0	150045
PVSB155-0-0.0-1.0	155	0.0-1.0	150045
PVSB155-0-1.0-2.0	155	1.0-2.0	150045
PVSB156-0-0.0-1.0	156	0.0-1.0	150045
PVSB156-0-1.0-2.0	156	1.0-2.0	150045
PVSB157-0-0.0-1.0	157	0.0-1.0	150045
PVSB157-0-1.0-2.0	157	1.0-2.0	150045
PVSB158-0-0.0-1.0	158	0.0-1.0	150045
PVSB158-0-1.0-2.0	158	1.0-2.0	150045
PVSB159-0-0.0-1.0	159	0.0-1.0	150045
PVSB159-0-1.0-2.0	159	1.0-2.0	150045
PVSB160-0-0.0-1.0	160	0.0-1.0	150045
PVSB160-0-1.0-2.0	160	1.0-2.0	150045
PVSB161-0-0.0-1.0	161	0.0-1.0	150039
PVSB161-0-1.0-2.0	161	1.0-2.0	150039
PVSB162-0-0.0-1.0	162	0.0-1.0	150039
PVSB162-0-1.0-2.0	162	1.0-2.0	150039
PVSB163-0-0.0-1.0	163	0.0-1.0	150039
PVSB163-0-1.0-2.0	163	1.0-2.0	150039
PVSB164-0-0.0-1.0	164	0.0-1.0	150039
PVSB164-1-0.0-1.0	164	0.0-1.0	150047
PVSB164-0-1.0-2.0	164	1.0-2.0	150039
PVSB164-1-1.0-2.0	164	1.0-2.0	150047
PVSB165-0-0.0-1.0	165	0.0-1.0	150039
PVSB165-0-1.0-2.0	165	1.0-2.0	150039
PVSB166-0-0.0-1.0	166	0.0-1.0	150039
PVSB166-0-1.0-2.0	166	1.0-2.0	150039
PVSB167-0-2.0-3.0	167	2.0-3.0	150039
PVSB168-0-0.0-1.0	168	0.0-1.0	150039
PVSB168-0-1.0-2.0	168	1.0-2.0	150039
PVSB222-0-0.0-1.0	222	0.0-1.0	150039
PVSB222-0-1.0-2.0	222	1.0-2.0	150039
PVSB223-0-0.0-1.0	223	0.0-1.0	150039
PVSB223-0-1.0-2.0	223	1.0-2.0	150039
PVSB224-0-0.0-1.0	224	0.0-1.0	150039
PVSB224-0-1.0-2.0	224	1.0-2.0	150025
PVSB225-0-0.0-1.0	225	0.0-1.0	150025
PVSB225-0-1.0-2.0	225	1.0-2.0	150025
PVSS301-0-0.0-0.5	301	0.0-0.5	152296
PVSS302-0-0.0-0.5	302	0.0-0.5	152296
PVSS303-0-0.0-0.5	303	0.0-0.5	152296
PVSS304-0-0.0-0.5	304	0.0-0.5	152296
PVSS305-0-0.0-0.5	305	0.0-0.5	152296
PVSS306-0-0.0-0.5	306	0.0-0.5	152296
PVSS307-0-0.0-0.5	307	0.0-0.5	152296
PVSS308-0-0.0-0.5	308	0.0-0.5	152296
PVSS309-0-0.0-0.5	309	0.0-0.5	152296

Sample ID	Location ID	Interval	GEL SDG
PVSS310-0-0.0-0.5	310	0.0-0.5	152296
PVSS311-0-0.0-0.5	311	0.0-0.5	152296
PVSS312-0-0.0-0.5	312	0.0-0.5	152296
PVSS313-0-0.0-0.5	313	0.0-0.5	152296
PVSS314-0-0.0-0.5	314	0.0-0.5	152296
PVSS315-0-0.0-0.5	315	0.0-0.5	152296
PVSS316-0-0.0-0.5	316	0.0-0.5	152296
PVSS317-0-0.0-0.5	317	0.0-0.5	152296
PVSS318-0-0.0-0.5	318	0.0-0.5	152296
PVSS319-0-0.0-0.5	319	0.0-0.5	152296
PVSS320-0-0.0-0.5	320	0.0-0.5	152296
PVSS321-0-0.0-0.5	321	0.0-0.5	152298
PVSS322-0-0.0-0.5	322	0.0-0.5	152298
PVSS323-0-0.0-0.5	323	0.0-0.5	152298
PVSS324-0-0.0-0.5	324	0.0-0.5	152298
PVSS325-0-0.0-0.5	325	0.0-0.5	152298
PVSS326-0-0.0-0.5	326	0.0-0.5	152298
PVSS327-0-0.0-0.5	327	0.0-0.5	152298
PVSS328-0-0.0-0.5	328	0.0-0.5	152298
PVSS329-0-0.0-0.5	329	0.0-0.5	152298
PVSS330-0-0.0-0.5	330	0.0-0.5	152298
PVSS333-0-0.0-0.5	333	0.0-0.5	152298
PVSS334-0-0.0-0.5	334	0.0-0.5	152298
PVSS335-0-0.0-0.5	335	0.0-0.5	152298
PVSS336-0-0.0-0.5	336	0.0-0.5	152298
PVSS341-0-0.0-0.5	341	0.0-0.5	152304
PVSS342-0-0.0-0.5	342	0.0-0.5	152304
PVSS343-0-0.0-0.5	343	0.0-0.5	152304
PVSS344-0-0.0-0.5	344	0.0-0.5	152304
PVSS345-0-0.0-0.5	345	0.0-0.5	152304
PVSS346-0-0.0-0.5	346	0.0-0.5	152304
PVSS347-0-0.0-0.5	347	0.0-0.5	152304
PVSS348-0-0.0-0.5	348	0.0-0.5	152304
PVSS349-0-0.0-0.5	349	0.0-0.5	152304
PVSS350-0-0.0-0.5	350	0.0-0.5	152304
PVSS351-0-0.0-0.5	351	0.0-0.5	152304
PVSS352-0-0.0-0.5	352	0.0-0.5	152304
PVSS353-0-0.0-0.5	353	0.0-0.5	152304
PVSS354-0-0.0-0.5	354	0.0-0.5	152304
PVSS355-0-0.0-0.5	355	0.0-0.5	152304
PVSS356-0-0.0-0.5	356	0.0-0.5	152304
PVSS357-0-0.0-0.5	357	0.0-0.5	152304
PVSS358-0-0.0-0.5	358	0.0-0.5	152304
PVSS359-0-0.0-0.5	359	0.0-0.5	152304
PVSS360-0-0.0-0.5	360	0.0-0.5	152304
PVSS361-0-0.0-0.5	361	0.0-0.5	152310
PVSS362-0-0.0-0.5	362	0.0-0.5	152310
PVSS363-0-0.0-0.5	363	0.0-0.5	152310
PVSS364-0-0.0-0.5	364	0.0-0.5	152310
PVSS365-0-0.0-0.5	365	0.0-0.5	152310
PVSS366-0-0.0-0.5	366	0.0-0.5	152310
PVSS367-0-0.0-0.5	367	0.0-0.5	152310
PVSS368-0-0.0-0.5	368	0.0-0.5	152310
PVSS369-0-0.0-0.5	369	0.0-0.5	152310

Sample ID	Location ID	Interval	GEL SDG
PVSS370-0-0.0-0.5	370	0.0-0.5	152310
PVSS371-0-0.0-0.5	371	0.0-0.5	152310
PVSS373-0-0.0-0.5	373	0.0-0.5	152310
PVSS374-0-0.0-0.5	374	0.0-0.5	152310
PVSS375-0-0.0-0.5	375	0.0-0.5	152310
PVSS376-0-0.0-0.5	376	0.0-0.5	152310
PVSS377-0-0.0-0.5	377	0.0-0.5	152310
PVSS379-0-0.0-0.5	379	0.0-0.5	152310
PVSS382-0-0.0-0.5	382	0.0-0.5	152312
PVSS383-0-0.0-0.5	383	0.0-0.5	152312
PVSS384-0-0.0-0.5	384	0.0-0.5	152312
PVSS385-0-0.0-0.5	385	0.0-0.5	152312
PVSS386-0-0.0-0.5	386	0.0-0.5	152312
PVSS387-0-0.0-0.5	387	0.0-0.5	152312
PVSS388-0-0.0-0.5	388	0.0-0.5	152312
PVSS389-0-0.0-0.5	389	0.0-0.5	152312
PVSS390-0-0.0-0.5	390	0.0-0.5	152312
PVSS391-0-0.0-0.5	391	0.0-0.5	152312
PVSS392-0-0.0-0.5	392	0.0-0.5	152312
PVSS393-0-0.0-0.5	393	0.0-0.5	152312
PVSS394-0-0.0-0.5	394	0.0-0.5	152312
PVSS395-0-0.0-0.5	395	0.0-0.5	152312
PVSS396-0-0.0-0.5	396	0.0-0.5	152312
PVSS397-0-0.0-0.5	397	0.0-0.5	152312
PVSS398-0-0.0-0.5	398	0.0-0.5	152312
PVSS401-0-0.0-0.5	401	0.0-0.5	152265
PVSS402-0-0.0-0.5	402	0.0-0.5	152265
PVSS403-0-0.0-0.5	403	0.0-0.5	152265
PVSS404-0-0.0-0.5	404	0.0-0.5	152265
PVSS405-0-0.0-0.5	405	0.0-0.5	152265
PVSS406-0-0.0-0.5	406	0.0-0.5	152265
PVSS407-0-0.0-0.5	407	0.0-0.5	152265
PVSS408-0-0.0-0.5	408	0.0-0.5	152265
PVSS409-0-0.0-0.5	409	0.0-0.5	152265
PVSS410-0-0.0-0.5	410	0.0-0.5	152265
PVSS411-0-0.0-0.5	411	0.0-0.5	152265
PVSS412-0-0.0-0.5	412	0.0-0.5	152265
PVSS413-0-0.0-0.5	413	0.0-0.5	152265
PVSS414-0-0.0-0.5	414	0.0-0.5	152265
PVSS415-0-0.0-0.5	415	0.0-0.5	152265
PVSS416-0-0.0-0.5	416	0.0-0.5	152265
PVSS417-0-0.0-0.5	417	0.0-0.5	152265
PVSS420-0-0.0-0.5	420	0.0-0.5	152265
PVSS421-0-0.0-0.5	421	0.0-0.5	152266
PVSS422-0-0.0-0.5	422	0.0-0.5	152266
PVSS423-0-0.0-0.5	423	0.0-0.5	152266
PVSS424-0-0.0-0.5	424	0.0-0.5	152266
PVSS425-0-0.0-0.5	425	0.0-0.5	152266
PVSS426-0-0.0-0.5	426	0.0-0.5	152266
PVSS427-0-0.0-0.5	427	0.0-0.5	152266
PVSS428-0-0.0-0.5	428	0.0-0.5	152266
PVSS429-0-0.0-0.5	429	0.0-0.5	152266
PVSS430-0-0.0-0.5	430	0.0-0.5	152266
PVSS431-0-0.0-0.5	431	0.0-0.5	152266

Sample ID	Location ID	Interval	GEL SDG
PVSS432-0-0.0-0.5	432	0.0-0.5	152266
PVSS433-0-0.0-0.5	433	0.0-0.5	152266
PVSS434-0-0.0-0.5	434	0.0-0.5	152266
PVSS435-0-0.0-0.5	435	0.0-0.5	152266
PVSS436-0-0.0-0.5	436	0.0-0.5	152266
PVSS437-0-0.0-0.5	437	0.0-0.5	152266
PVSS438-0-0.0-0.5	438	0.0-0.5	152266
PVSS439-0-0.0-0.5	439	0.0-0.5	152266
PVSS440-0-0.0-0.5	440	0.0-0.5	152266
PVSS441-0-0.0-0.5	441	0.0-0.5	152268
PVSS442-0-0.0-0.5	442	0.0-0.5	152268
PVSS443-0-0.0-0.5	443	0.0-0.5	152268
PVSS444-0-0.0-0.5	444	0.0-0.5	152268
PVSS445-0-0.0-0.5	445	0.0-0.5	152268
PVSS446-0-0.0-0.5	446	0.0-0.5	152268
PVSS447-0-0.0-0.5	447	0.0-0.5	152268
PVSS448-0-0.0-0.5	448	0.0-0.5	152268
PVSS449-0-0.0-0.5	449	0.0-0.5	152268
PVSS450-0-0.0-0.5	450	0.0-0.5	152268
PVSS451-0-0.0-0.5	451	0.0-0.5	152268
PVSS452-0-0.0-0.5	452	0.0-0.5	152268
PVSS454-0-0.0-0.5	454	0.0-0.5	152268
PVSS455-0-0.0-0.5	455	0.0-0.5	152268
PVSS456-0-0.0-0.5	456	0.0-0.5	152268
PVSS457-0-0.0-0.5	457	0.0-0.5	152268
PVSS458-0-0.0-0.5	458	0.0-0.5	152268
PVSS459-0-0.0-0.5	459	0.0-0.5	152268
PVSS460-0-0.0-0.5	460	0.0-0.5	152268
PVSS461-0-0.0-0.5	461	0.0-0.5	152286
PVSS462-0-0.0-0.5	462	0.0-0.5	152286
PVSS463-0-0.0-0.5	463	0.0-0.5	152286
PVSS464-0-0.0-0.5	464	0.0-0.5	152286
PVSS465-0-0.0-0.5	465	0.0-0.5	152286
PVSS466-0-0.0-0.5	466	0.0-0.5	152286
PVSS467-0-0.0-0.5	467	0.0-0.5	152286
PVSS468-0-0.0-0.5	468	0.0-0.5	152286
PVSS469-0-0.0-0.5	469	0.0-0.5	152286
PVSS470-0-0.0-0.5	470	0.0-0.5	152286
PVSS471-0-0.0-0.5	471	0.0-0.5	152286
PVSS473-0-0.0-0.5	473	0.0-0.5	152286
PVSS474-0-0.0-0.5	474	0.0-0.5	152286
PVSS475-0-0.0-0.5	475	0.0-0.5	152286
PVSS476-0-0.0-0.5	476	0.0-0.5	152286
PVSS477-0-0.0-0.5	477	0.0-0.5	152286

APPENDIX F

RADIOLOGICAL CONTROL INFORMATION

Radiation Work Permits

Air Monitoring Worksheets

Radiological Survey Forms

AP-012-01
RADIATION WORK PERMIT

Job Supervisor: [redacted]	Date 9/1/05	No. 04-3200.02-001

Location of Work :Painesville FUSRAP Site, Painesville, OH

Description of Work : Pre-remediation Field Work, including surface soil sampling; subsurface coring with Geoprobe, and sample collection and preparation.

SUMMARY OF RADIOLOGICAL CONDITIONS

Location	Contamination Levels	Radiation Levels	Airborne Concentrations
Main Fenced Area	< 1000 dpm/100 cm^2	10-20 μRem/hr	ND
Corral Area	< 1000 dpm/100 cm^2	10-20 μRem/hr	ND

REQUIRED RADIOLOGICAL CONTROLS

X	Coveralls	Glove Liners	X	Lapel Air Sampler
	Hood	Plastic Shoe Covers		Lab Coat
	Surgeons Cap	Rubber Shoe Covers	X	Pre-Job Meeting
X	Surgeons Gloves	Tape Gloves to Sleeves	X	Continuous HP Coverage
	Rubber Gloves	Plastic Suit		TLD
X	Trained Radiation Worker(s)			

SPECIAL INSTRUCTIONS : Tyvek coveralls required during all intrusive sampling activities. Glove liners optional. No initial field air sampling required. Lapel A/S will be placed on drillers at onset of intrusive work. If first 5 days of A/S show negative results, lapel monitoring may be discontinued. Positive ID of contamination may trigger protection or monitoring upgrades.

SIGNATURE INDICATES THAT YOU HAVE READ AND UNDERSTAND THE RADIOLOGICAL CONDITIONS AND CONTROLS

Name	Signature	Name	Signature

[redacted]

APPROVED BY: [redacted] DATE: 9/1/05

REAPPROVED BY:________________ DATE:________

RWP TERMINATED BY: [redacted] DATE: 11/11/05

AP-012-01
RADIATION WORK PERMIT

Job Supervisor: [redacted]	Date 9/1/05	No. 04-3200.02-002

Location of Work :Painesville FUSRAP Site, Painesville, OH

Description of Work : Onsite Gamma Spec Lab Operations – Preparation of soil samples, sample drying and containerization, sample counting and reporting.

SUMMARY OF RADIOLOGICAL CONDITIONS

Location	Contamination Levels	Radiation Levels	Airborne Concentrations
Gamma Spec Lab	< 1000 dpm/100 cm^2	10-20 μRem/hr	ND
n			

REQUIRED RADIOLOGICAL CONTROLS

	Coveralls	Glove Liners	X	Air Sampler
	Hood	Plastic Shoe Covers	X	Lab Coat
	Surgeons Cap	Rubber Shoe Covers	X	Pre-Job Meeting
X	Surgeons Gloves	Tape Gloves to Sleeves		Continuous HP Coverage
	Rubber Gloves	Plastic Suit		TLD
X	Trained Radiation Worker(s)			

SPECIAL INSTRUCTIONS : Glove liners optional. Low-volume air sampler required during all sample handling and prep activities. Weekly contamination surveys to be performed in lab during course of field work. Calibration source to be kept in safe when not in use.

SIGNATURE INDICATES THAT YOU HAVE READ AND UNDERSTAND THE RADIOLOGICAL CONDITIONS AND CONTROLS

Name	Signature	Name	Signature
[redacted]			

APPROVED BY: [redacted] DATE: 9/1/05

REAPPROVED BY: [redacted] DATE:

[redacted] DATE: 11/11/05

PERSONNEL AIR MONITORING DATA CALCULATION LOG (Rev 3)

Counting Instrument:	Ludlum 2929	Detector:	43-10-1	Cal. Date:	1/17/2005
Serial #:	180830	Serial #:	207849	Cal. Due Date OK?	WARNING

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Sample Count time (min)	Background Count time (min)
Alpha	0.3580	Th-230	FD763	20,340	9/30/96	7.54E+04	20338	1	20
Beta	0.2330	Tc-99	FS454	23,100	9/30/97	2.11E+05	23099	1	20

Isotope of Concern

Isotope	10CFR20 Occup. DAC
Th-230	3.00E-12

Person Monitored	Air Sample Start Time Period Date/Time	Air Sample End Time Period Date/Time	Count Date	Total BZ Run Time (min)	Flow rate (lpm)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha DAC-hours	Beta DAC-hours	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
Drill Rig 1	9/13/05 13:52	9/13/05 16:39	09/26/05	287	4.0	1	52	0.10	57.10	1.00	3	-22	9.86E-13	-8.59E-12	1.6	-13.7	4.14E-12	4.75E-11
Drill Rig 2	9/14/05 0:00	9/14/05 0:00	09/26/05	510	4.0	1	59	0.10	57.10	1.00	3	8	5.55E-13	1.80E-12	1.6	5.1	2.33E-12	2.67E-11
Drill Rig 3	9/15/05 0:00	9/15/05 0:00	09/26/05	292	4.0	0	71	0.10	57.10	1.00	0	60	-1.08E-13	2.30E-11	-0.2	37.3	4.07E-12	4.67E-11
Drill Rig 4	9/19/05 0:00	9/19/05 0:00	09/26/05	403	4.0	1	45	0.10	57.10	1.00	3	-52	7.02E-13	-1.45E-11	1.6	-32.5	2.95E-12	3.38E-11
Drill Rig 5	9/20/05 0:00	9/20/05 0:00	09/26/05	486	4.0	0	54	0.10	57.10	1.00	0	-13	-6.47E-14	-3.08E-12	-0.2	-8.3	2.44E-12	2.80E-11
Drill Rig 6	9/21/05 0:00	9/21/05 0:00	09/26/05	487	4.0	0	48	0.10	57.10	1.00	0	-39	-6.46E-14	-9.03E-12	-0.2	-24.4	2.44E-12	2.80E-11
Drill Rig 7	9/22/05 0:00	9/22/05 0:00	10/03/05	480	4.0	0	50	0.20	49.80	1.00	-1	1	-1.31E-13	2.01E-13	-0.3	0.5	2.76E-12	2.67E-11
Drill Rig 8	9/23/05 0:00	9/23/05 0:00	09/26/05	480	4.0	1	54	0.10	57.10	1.00	3	-13	5.90E-13	-3.12E-12	1.6	-8.3	2.47E-12	2.84E-11
Drill Rig 9	9/26/05 0:00	9/26/05 0:00	10/03/05	240	4.0	3	42	0.20	49.80	1.00	8	-33	3.67E-12	-1.57E-11	4.9	-20.9	5.53E-12	5.34E-11
Drill Rig 10	9/27/05 0:00	9/27/05 0:00	10/10/05	461	4.0	1	49	0.10	51.50	1.00	3	-11	6.14E-13	-2.62E-12	1.6	-6.7	2.58E-12	2.82E-11
Drill Rig 11	9/28/05 0:00	9/28/05 0:00	10/10/05	480	4.0	1	57	0.10	51.50	1.00	3	24	5.90E-13	5.54E-12	1.6	14.8	2.47E-12	2.71E-11
Drill Rig 12	9/29/05 0:00	9/29/05 0:00	10/10/05	480	4.0	0	54	0.10	51.50	1.00	0	11	-6.55E-14	2.52E-12	-0.2	6.7	2.47E-12	2.71E-11
Drill Rig 13	9/30/05 0:00	9/30/05 0:00	10/10/05	354	4.0	0	44	0.10	51.50	1.00	0	-32	-8.89E-14	-1.02E-11	-0.2	-20.1	3.36E-12	3.67E-11
Drill Rig 14	10/3/05 0:00	10/3/05 0:00	10/12/05	435	4.0	0	58	0.10	49.30	1.00	0	37	-7.23E-14	9.67E-12	-0.2	23.4	2.73E-12	2.93E-11
Drill Rig 15	10/4/05 0:00	10/4/05 0:00	10/12/05	512	4.0	1	69	0.10	49.30	1.00	3	85	5.53E-13	1.86E-11	1.6	52.9	2.32E-12	2.49E-11
Lab A/S #1	9/15/05 0:00	9/23/05 0:00	09/26/05	3390	80.0	1	60	0.10	57.10	1.00	3	12	4.18E-15	2.07E-14	0.1	0.4	1.75E-14	2.01E-13
Lab A/S #2	9/15/05 0:00	9/27/05 0:00	01/10/05	1320	80.0	1	47	0.20	40.40	1.00	2	28	9.53E-15	1.21E-13	0.1	0.9	5.03E-14	4.42E-13

OP-001-01
ROUTINE SURVEY SCHEDULE

Survey Designation	Location of Survey
04-3200.02 - 001	Mixed γ source leak test
PV-1	OFFICE TRAILER ROUTINE
PV-2	ROUTINE ONSITE LAB
PV-3	ROUTINE OFFICE TRAILER
PV-4	ROUTINE ONSITE LAB
PV-5	GEL COOLER #1 9/23/05
PV-6	GEL COOLER #2
PV-7	GEL COOLER #3
PV-8	GEL COOLER #1 9/30/05
PV-9	GEL COOLER #2
PV-10	ROUTINE ONSITE LAB
PV-11	ROUTINE SOIL PREP
PV-12	GEL COOLER #1 10/7/05
PV-13	GEL COOLER #2 10/7/05
PV-14	ROUTINE SOIL PREP
PV-15	ROUTINE ONSITE LAB
PV-16	GEL COOLER 10/10/05

[redacted]

Date: 10/10/05

Date: 11/15/05

OP-001-01
ROUTINE SURVEY SCHEDULE

Survey Designation	Location of Survey
PV-17	GEL COOLER #1 10/14/05
PV-18	GEL COOLER #2 ↓
PV-19	ROUTINE ONSITE LAB
PV-20	ROUTINE SOIL PREP
PV-21	GEL COOLER (CHEM SAMPLES) 10/18/05
PV-22	GEL COOLER #1 10/21/05
PV-23	GEL COOLER #2 ↓
PV-24	ROUTINE SOIL PREP
PV-25	ROUTINE ONSITE LAB
PV-26	GEL COOLER 10/22/05
PV-27	Duratek B2's S/N 15541 S/N 15544
PV-28	GPS TO US ENVIRONMENTAL
PV-29	GEL COOLER
PV-30	ROUTINE ONSITE LAB
PV-31	ROUTINE SOIL PREP
PV-32	GEL COOLER #1
PV-33	GEL COOLER #2

[redacted]

Date: 10/29/05

Date: 11/15/05

OP-001-01
ROUTINE SURVEY SCHEDULE

Survey Designation	Location of Survey
PV-34	GEL COOLER #3
PV-35	GEL COOLER #4
PV-36	GEL COOLER #5
PV-37	GEL COOLER #1
PV-38	GEL COOLER #2
PV-39	ROUTINE ONSITE LAB
PV-40	ROUTINE SOIL PREPS
PV-41	Nature's Way Geo Probe Rig
PV-42	On-site Lab CLOSEOUT
PV-43	PARAGON COOLER
PV-44	GEL COOLER #1
PV-45	GEL COOLER #2
PV-46	GEL COOLER #3
PV-47	GEL COOLER #4
PV-49	GPS RETURN TO US ENVIRONMENTAL
PV-48	GEL COOLER #5
PV-50	LV1 TO EH. S/N 002802

[redacted]

Date: 11/11/08

Date: 11/15/08

OP-001-01
ROUTINE SURVEY SCHEDULE

Survey Designation	Location of Survey
PV-51	GPS S/N 0224022532 To Cabrera
PV-52	L-22241-3 w/ 6-1 S/N 142299 L-2221 w/44-2 S/N 176952 to Cabrera
PV-53	PID to Cabrera (MSA)
PV-54	Interface probe to Cabrera
PV-55	Duratek Sources
PV-56	Waste Connex Box Survey - Dec 2005

[redacted]ate: 12/16/05

ate: 1/10/06

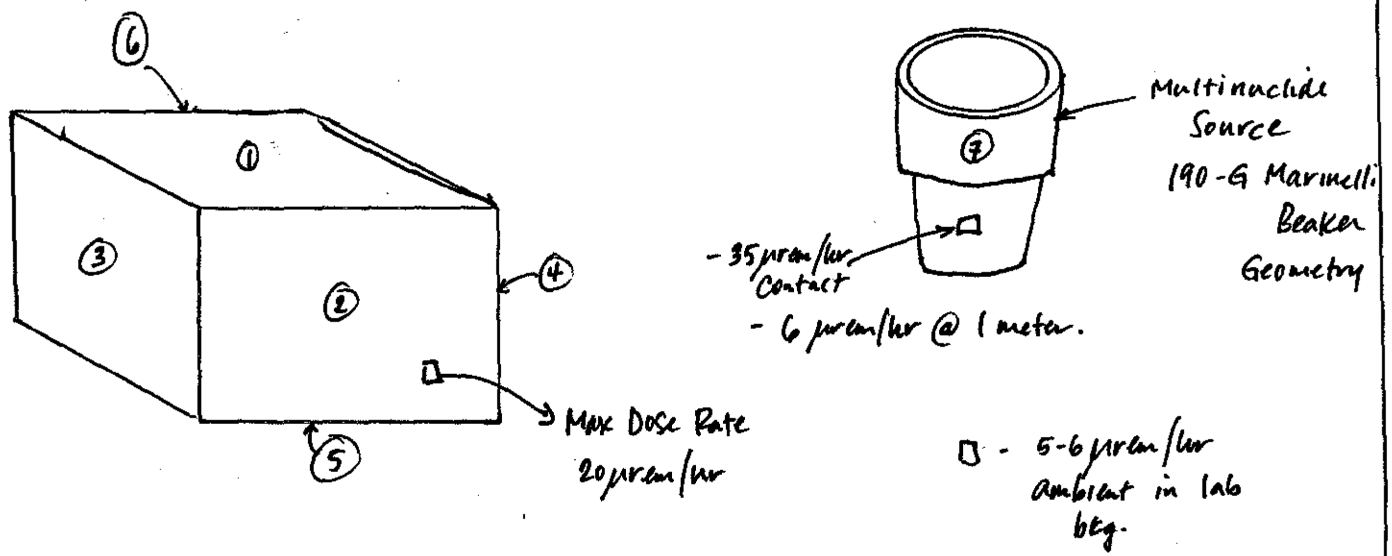
OP-001-02 Radiological Survey Sheet

Location:	RWP#	Survey #	Survey Type:	
Painesville Onsite Lab Trailer	04-3206.02 - 002	001	Source Receipt	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	-0.4	-17	26		
2	0.4	18	27		
3	0.4	23	28		
4	0.4	-12	29		
5	.4	-22	30		
6	0.4	23	31		
7	0.4	3	32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments
Source Received @ 0915
Survey performed @ 0936.



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	9/2/05	Bicron MicroRem	1546	N/A	N/A	N/A	N/A	8/30/06
Reviewed By:	Date:	Ludlum 2929	171599	0.34 (Th-230)	0.20 (Tc-99)	0.1 cpm	37.4 cpm	11/24/05

Key			
⬭	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
•	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-009-02
Sealed Source Leak Test Data Sheet

Source Information Source ID Number 1088-82-2

Source Manufacturer: Isotope Products Date of Assay: 15 Jan 05

Source Model Number: 1L Mar. Beaker Source Serial # 1088-82-2

Activity of Source at Assay Date: 3.079 μCi Source Today: ________ Ci

Radionuclide name: Multi-nuclide Half-life of radionuclide See Cal. Cert.

Leak Test Sample Information

Location of Leak Test Work Area Painesville Field Lab Trailer

Describe the method of leak testing: Smear testing & direct dose rate measurement

Sample Geometry: Smear Detector: Ludlum 2929

Detection Efficiency: 0.20 c/d Background count time: 60 min.

Background count rate: 37.4 cpm MDA: 111 dpm ~~microcuries~~ JDh 9/2/05

Sample net count rate: 0.6 cpm Sample count time: 1 min.

Leak test sample activity: 1.35×10^{-8} microcuries

Leak Test Result – Check all boxes that apply

- ☐ The leak test sample is in excess of the 0.005 microcurie limit
- ☑ The leak test sample is below the 0.005 microcurie limit
- ☑ The source has been controlled to prevent the spread of activity from the shield.

Source Leak Test Performed [redacted]

Leak Test Analysis Conducted [redacted]

Radiation Safety Officer: ______________________ Date: ________

OP-009-01
SEALED SOURCE INVENTORY AND LEAK TEST

Inventory Period: First Quarter ☐ Second Quarter ☐ Third Quarter ☐ Fourth Quarter ☐

Isotope	Source (Type/Form)	Serial Number	Location	Initial Activity	Corrected Activity	Leak Test uCi/smear
Mixed γ Source	Sealed Source-Solid Plastic Matrix	1088-82-2	Painesville FUSRAP Site	3.079 μCi		1.35×10^{-8}

Comments Leak Test performed after Shipment of Source to temporary work site. Smears taken upon receipt of source.

Date Performed: 9/2/05 By: [redacted]

Reviewed/Approved By: ______________________ Date: __________
Print/Sign

OP-001-02 Radiological Survey Sheet

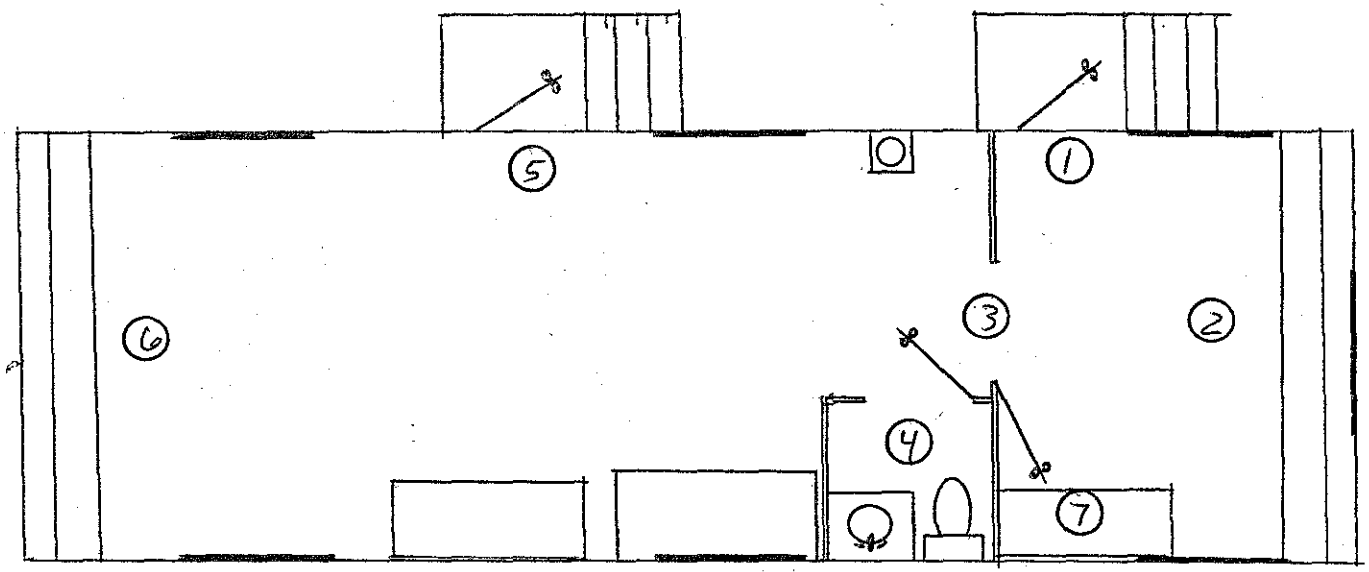
Location:	RWP#	Survey #	Survey Type:	
Painesville Office Trailer	04-3200.02-001	PV-1	Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA	<MDA	26		
2			27		
3			28		
4			29		
5			30		
6		<MDA	31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	A
13			38		
14			39		
15			40		
16	N	A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

[redacted]



Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
2929	180830	36%	23%	.1	50.0	1/17/06

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mr/hr	▩	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

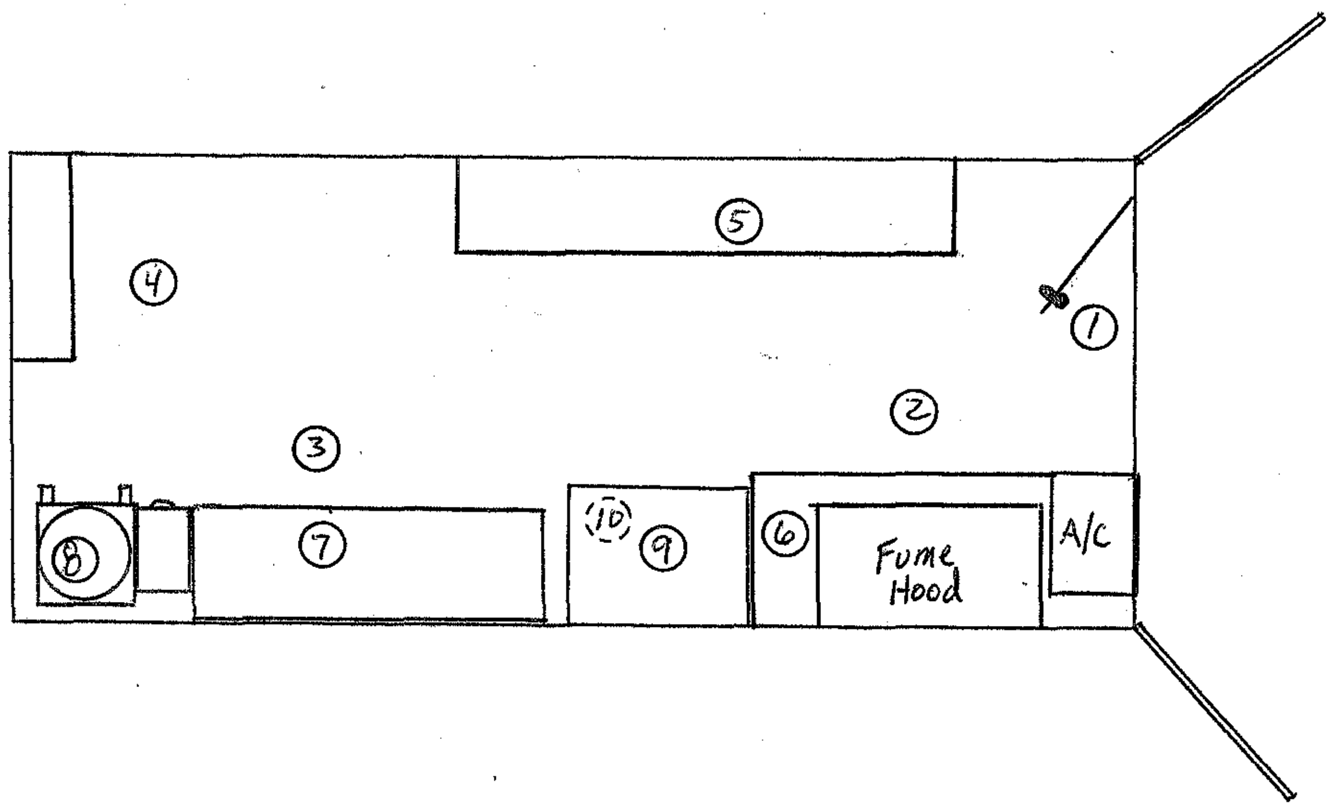
OP-001-02 Radiological Survey Sheet

Location:	RWP#	Survey #	Survey Type:	
Painesville On-Site Lab	04-3200.02-002	PV-2	Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	0	1	26		
2	Same		27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	
14			39		
15			40		A
16	N		41		
17			42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
2929	180830	36%	23%	.1	50.0	1/17/06

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
•	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

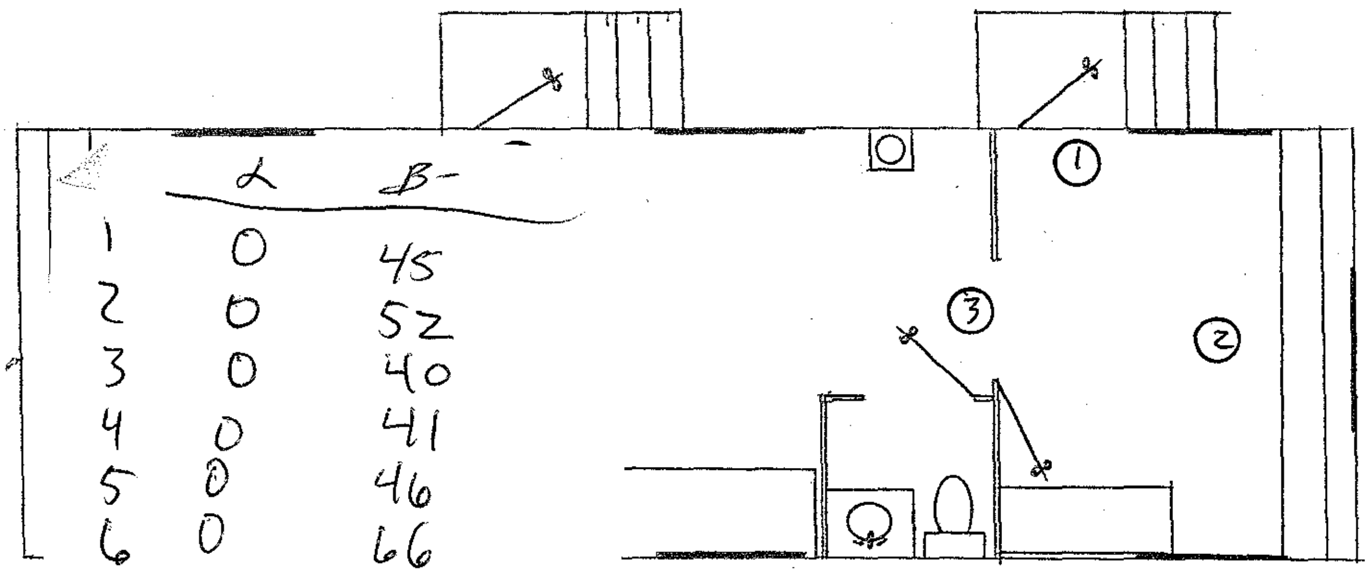
Location:	RWP#	Survey #	Survey Type:	
Painesville Office Trailer	04-3200.02-001	PV-3	Routine	pg. 1 of 1

Smear Results

DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		A
14	N		39		
15			40		
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



	α	β-
1	0	45
2	0	52
3	0	40
4	0	41
5	0	46
6	0	66

	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	2929	180830	36%	23%	.1	50.0	1/17/06

Key			
⬭	Smear	*-*	Boundary
☐	Dose Rate mr/hr		A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

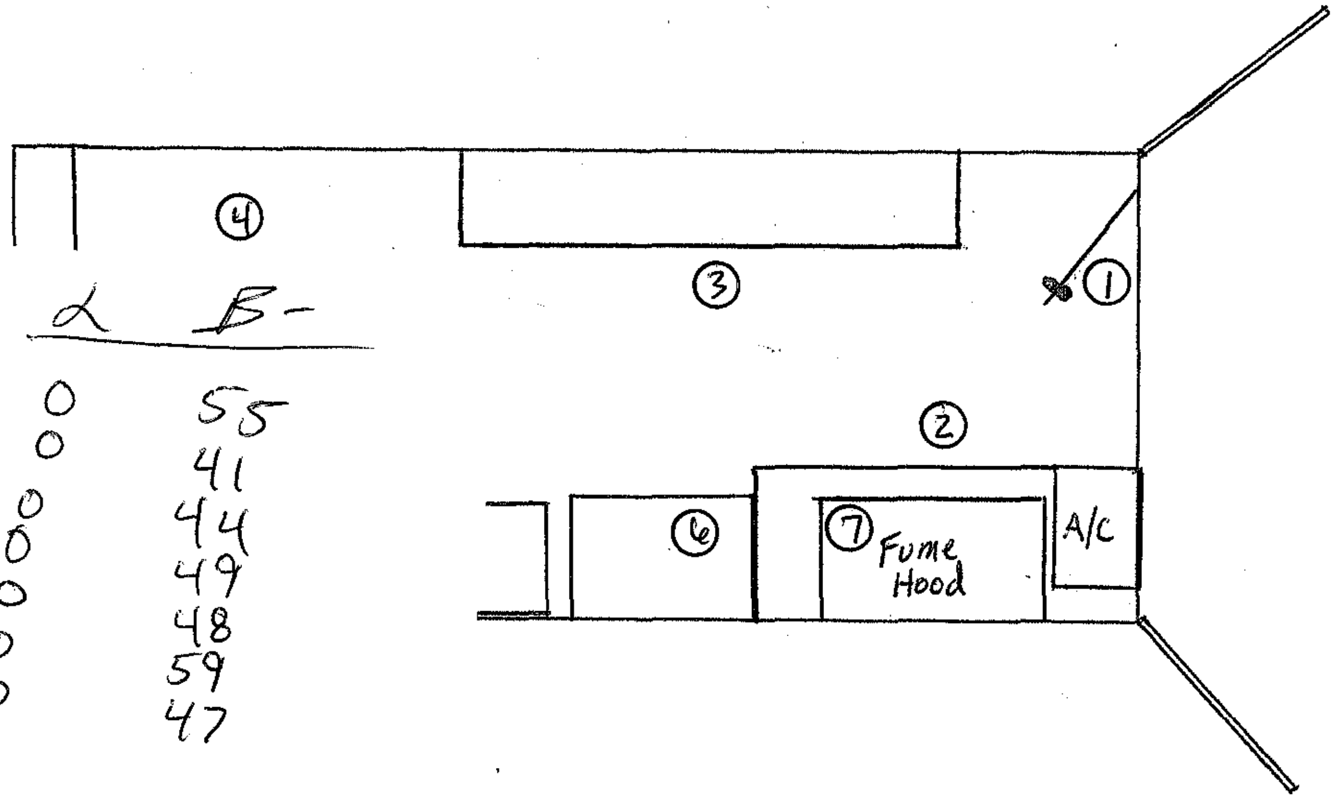
Location:	RWP#	Survey #	Survey Type:	
Painesville On-Site Lab	04-3200.02-002	PV-4	Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N/A	
14			39		
15	N/A		40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

	α	β-
1	0	55
2	0	41
3	0	44
4	0	49
5	0	48
6	0	59
7	0	47



[redacted]

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
2929	180830	36%	23%	.1	50.0	1/7/06

Key

○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 5	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N	A	38	N	A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	9/23/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	53.3	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	7	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 9/28/05							

Key

⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 6	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13		A	38		A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	9/23/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	53.3	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	7	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 9/20/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #3 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 7	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

9 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	9/23/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	53.3	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	7	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 9/28/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 8	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11	N		36		
12			37	N	
13		A	38		A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	/30/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0	53	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	299	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/4/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 9	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N		38	N	A
14			39		
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	9/30/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0	53	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	299	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/4/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

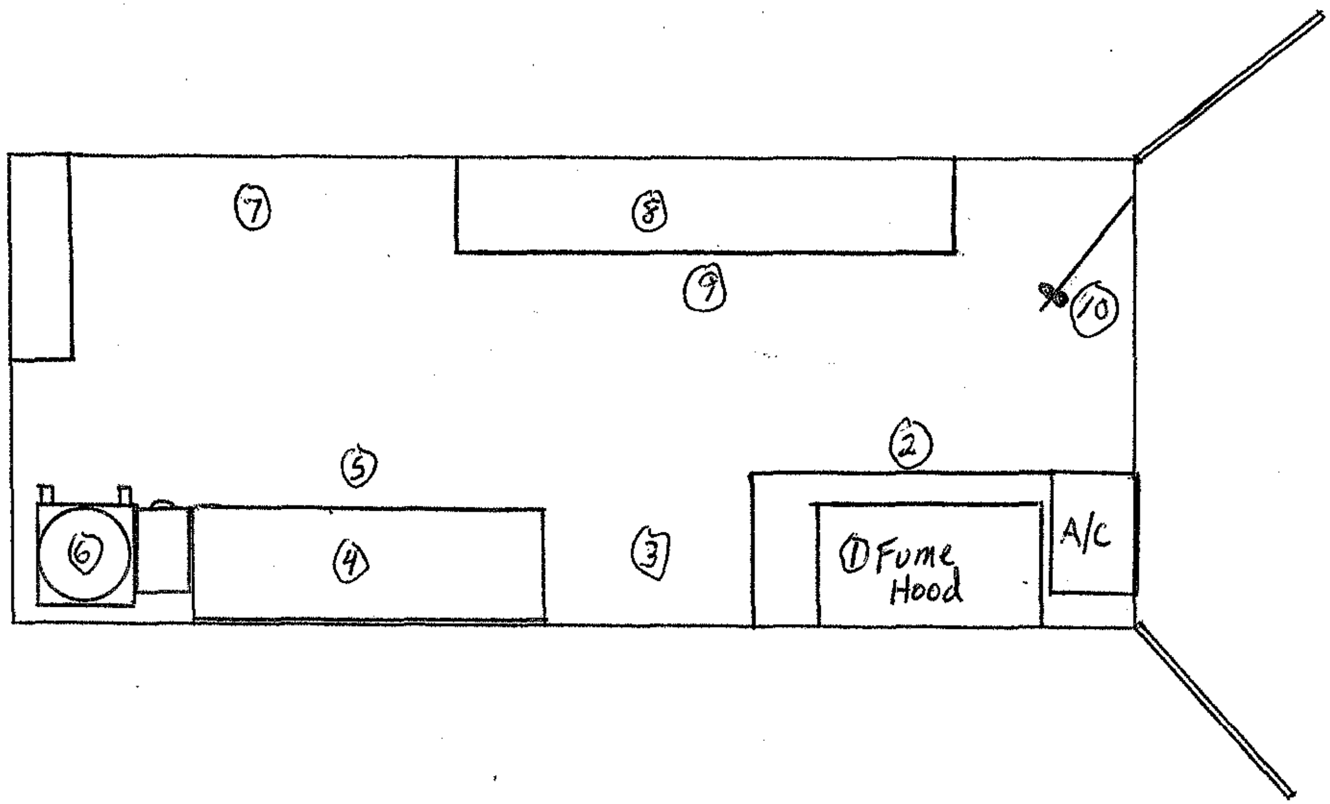
OP-001-02 Radiological Survey Sheet

Location:	RWP#	Survey #	Survey Type:	
Painesville On-Site Lab	04-3200.02-002	PV10	Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		A
14			39		
15			40		
16	N		41		
17			42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
-2929	180830	36%	23%	0	53	1/17/06
-2224-1	162420	15%	11%	6	299	12/30/05

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
•	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

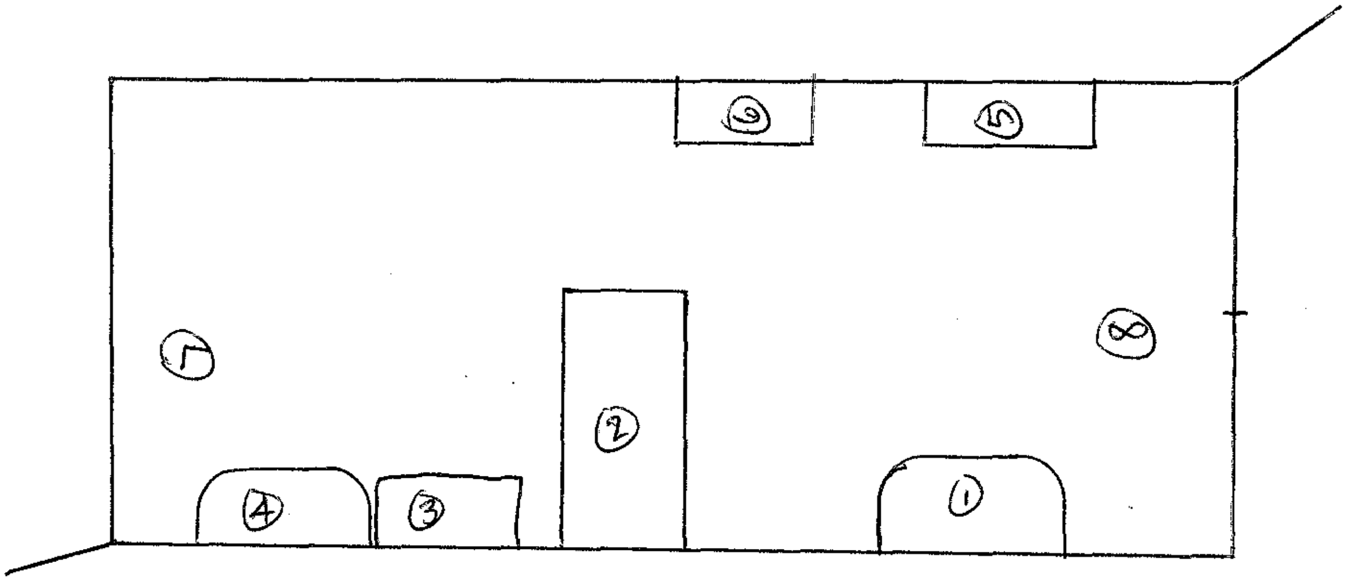
Location: SOIL PREP PAINESVILLE ON-SITE LAB	RWP# 04-3200.02-002	Survey # PV11	Survey Type: ROUTINE	pg. 1 of 1

Smear Results

DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	
14			39		A
15	N		40		
16			41		
17		A	42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]strument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]2929	188830	36%	23%	0	53	1/17/06
[redacted]2224-1	162420	15%	11%	6	299	12/30/05

Key

○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 12	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13	N		38		
14			39		A
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/7/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	49.9	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	275	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/10/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 13	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/7/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	49.9	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	275	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/10/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

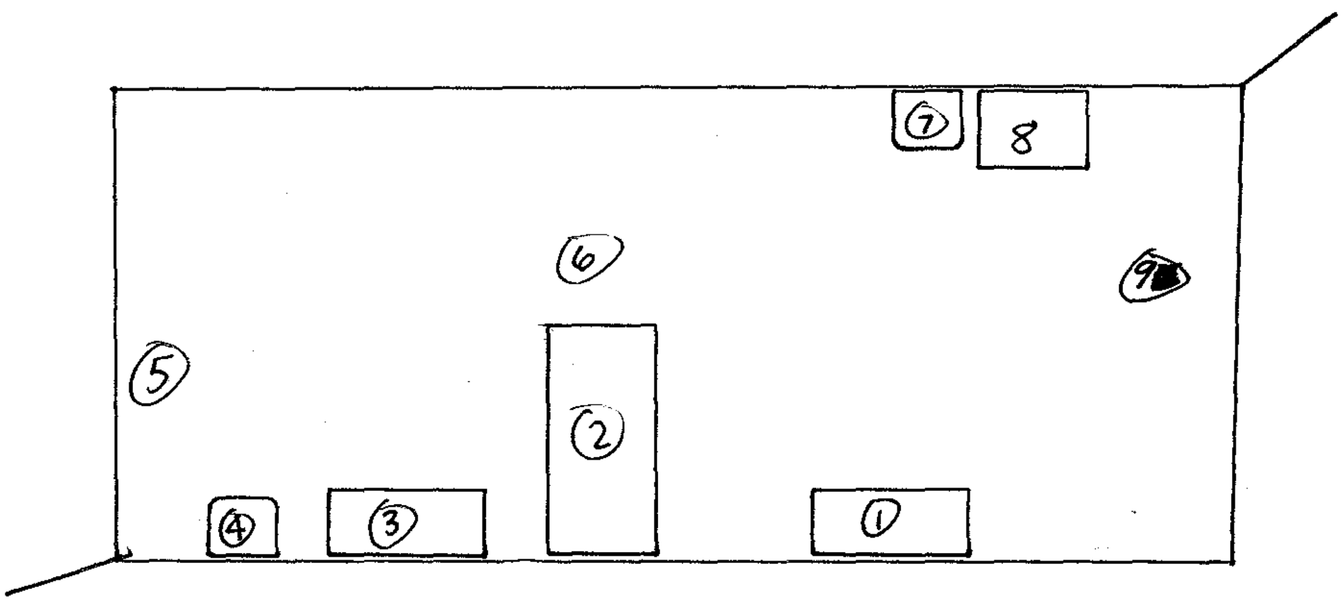
Location: SOIL PREP PAINSVILLE ON-SITE LAB	RWP# 04-3200.02-002	Survey # PV14	Survey Type: ROUTINE	pg. 1 of 1

Smear Results

DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA	<MDA	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N/A	
13			38		
14			39		
15			40		
16	N/A		41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]-2929	180830	36%	23%	0.1	49.9	1/17/06
-2224-1	162420	15%	11%	6	275	12/30/05

Key

○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
•	Direct Reading DPM/100 cm^2		
△	Grab Sample		

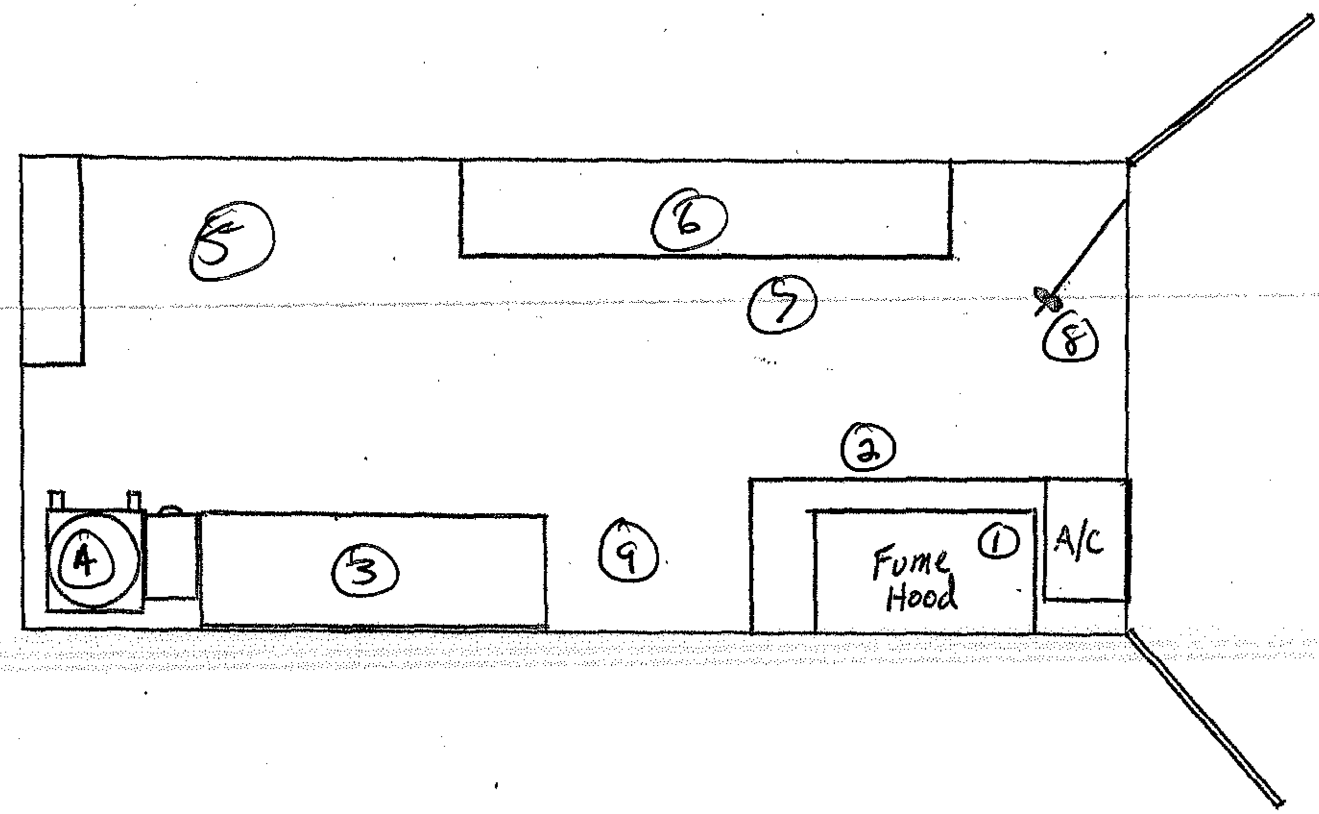
OP-001-02 Radiological Survey Sheet

Location: Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # PV-15	Survey Type: Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	
14			39		
15			40		A
16	N		41		
17			42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L-2929	180830	36%	23%	0.1	49.9	1/17/06
L-2224-1	162420	15%	11%	6	275	12/30/05

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 16	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13	N		38		A
14			39		
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

7 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	8	302	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/14/05							

Key

⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 17	Survey Type: Smear, Direct Scan, Dose

pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

9 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/14/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	52.3	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	2	308	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/18/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 18	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/14/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	52.3	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	2	308	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/18/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

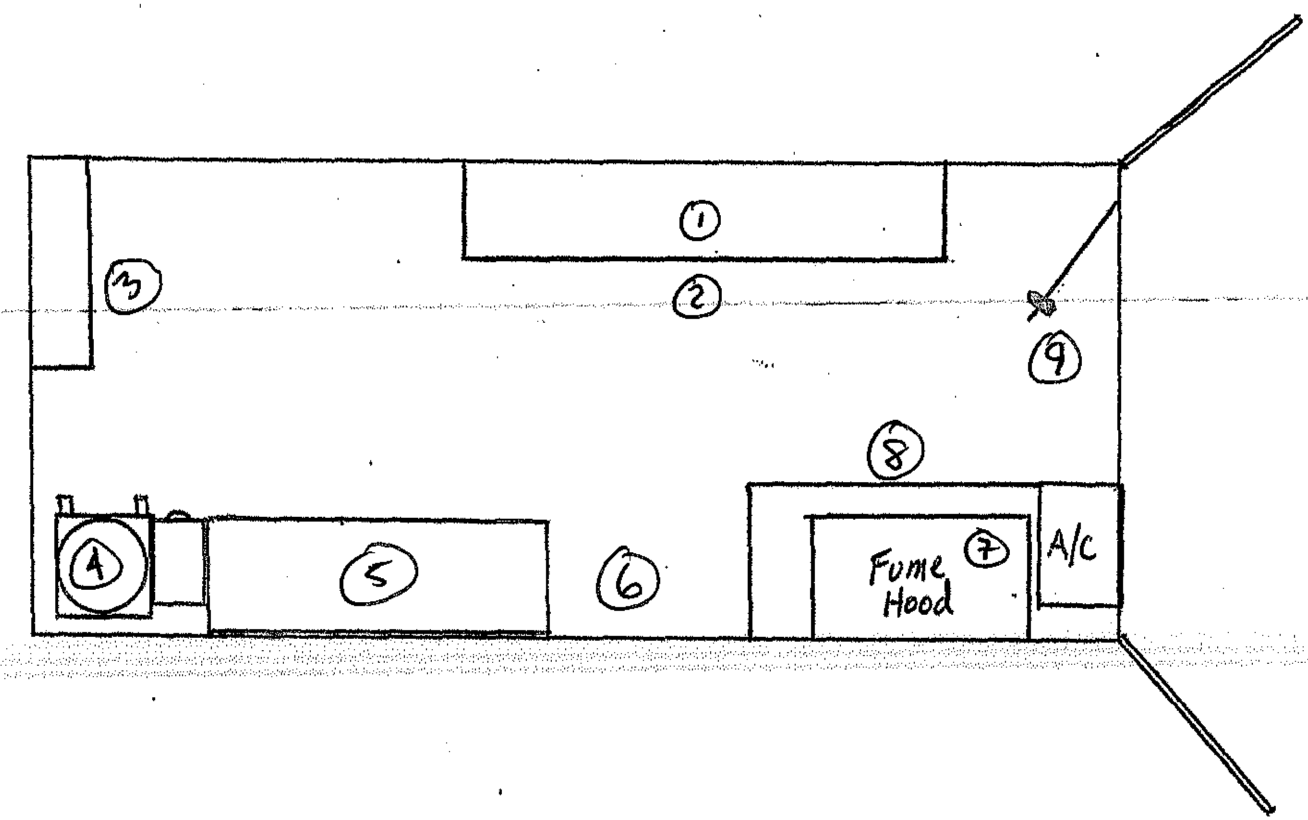
OP-001-02 Radiological Survey Sheet

Location: Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # PV-19	Survey Type: Routine	pg. 1 of 1

Smear Results DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N/A	N/A
13			38		
14			39		
15			40		
16	N/A		41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

[redacted]nstrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]-2929	180830	36%	23%	0.1	52.3	1/17/06
[redacted]-2224-1	162420	15%	11%	2	308	12/30/05

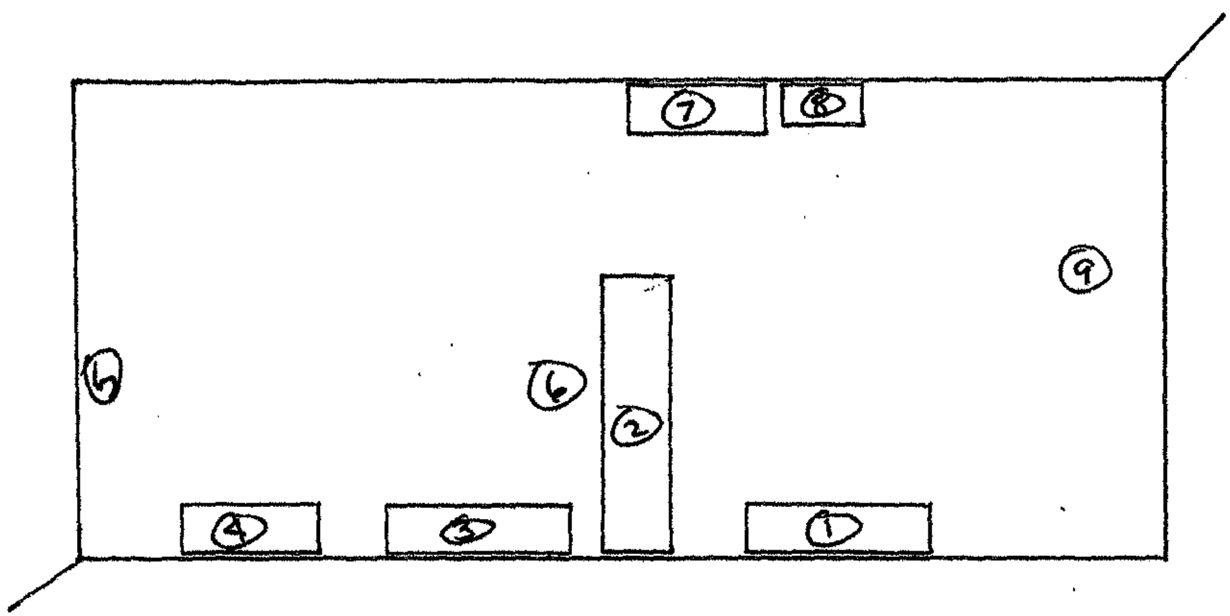
Key			
○	Smear	⁘	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

Location: PAINESVILLE SOIL PREP LAB	RWP# 04-3200.02-002	Survey # PVS-20	Survey Type: ROUTINE	pg. 1 of 1

Smear Results DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		A
14			39		
15			40		
16			41		
17	N		42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		



Comments

[redacted]

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L-2929	180830	36%	23%	0.1	52.3	1/17/06
L-2224-1	162420	15%	11%	2	308	12/30/05

Key			
○	Smear		Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 21	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

7 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]		Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	50	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	289	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 22	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		
14	N		39		A
15			40		
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

7 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/21/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	53.2	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	3	295	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/25/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 23	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36	N	
12	N		37		
13			38		A
14		A	39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

7 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/21/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	53.2	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	3	295	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/25/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

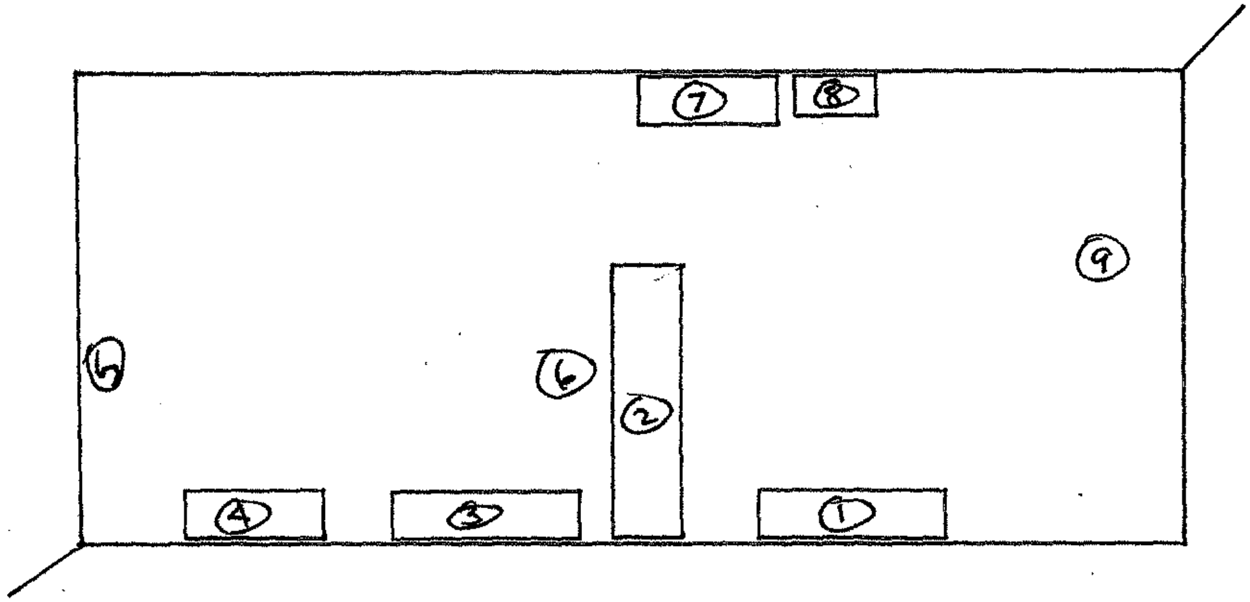
OP-001-02 Radiological Survey Sheet

Location: SOIL PREP PAINESVILLE ON-SITE LAB	RWP# 04-3200.02-002	Survey # PV-24	Survey Type: ROUTINE	pg. 1 of 1

Smear Results DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA	<MDA	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		A
14			39		
15			40		
16			41		
17	N		42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

[redacted]strument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due

Key

○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

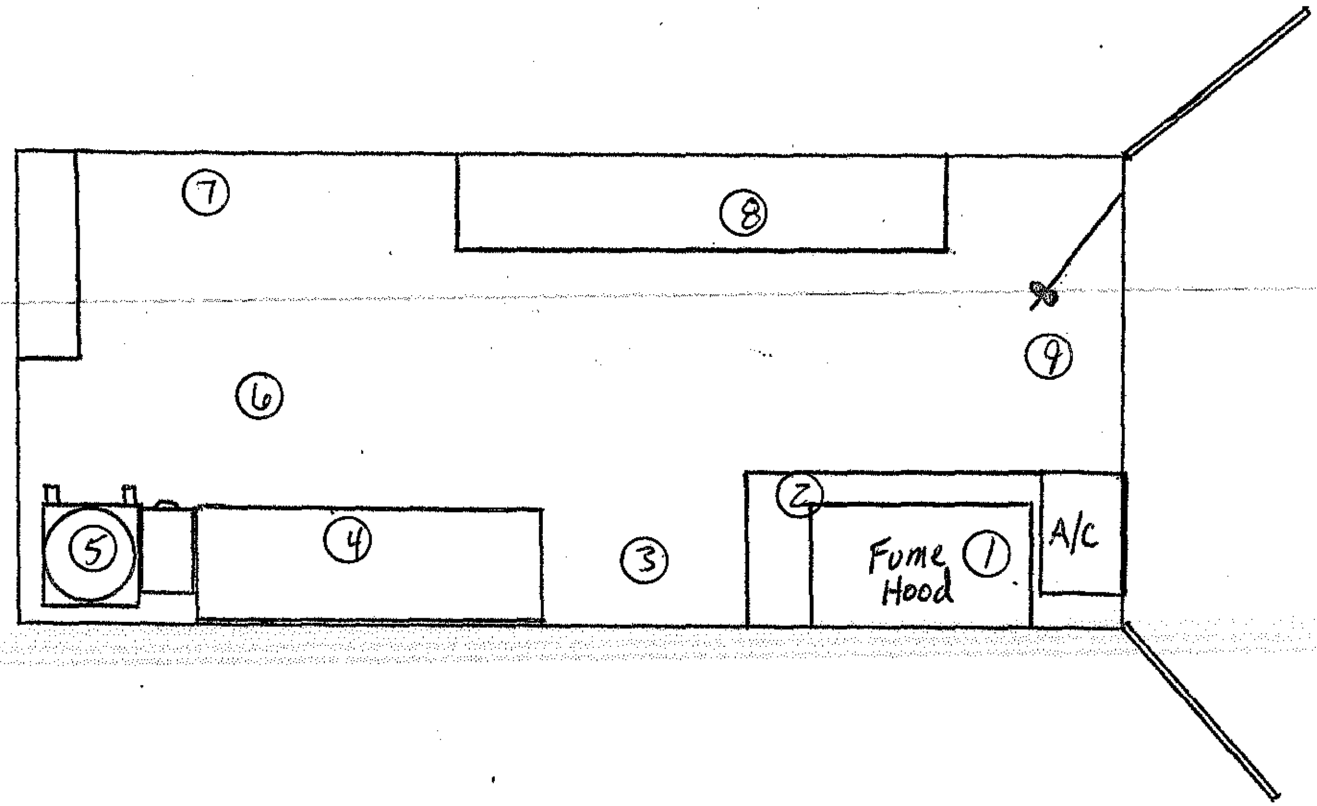
OP-001-02 Radiological Survey Sheet

Location: Soil Prep Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # PV-25	Survey Type: Routine	pg. 1 of 1

Smear Results DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		A
14			39		
15			40		
16	N		41		
17		A	42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]strument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 26	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13		A	38		A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

10 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]		dlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	49.1	1/17/2006
		dlum-2224-1/43-89	162420/PR171381	15%	11%	4	302	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

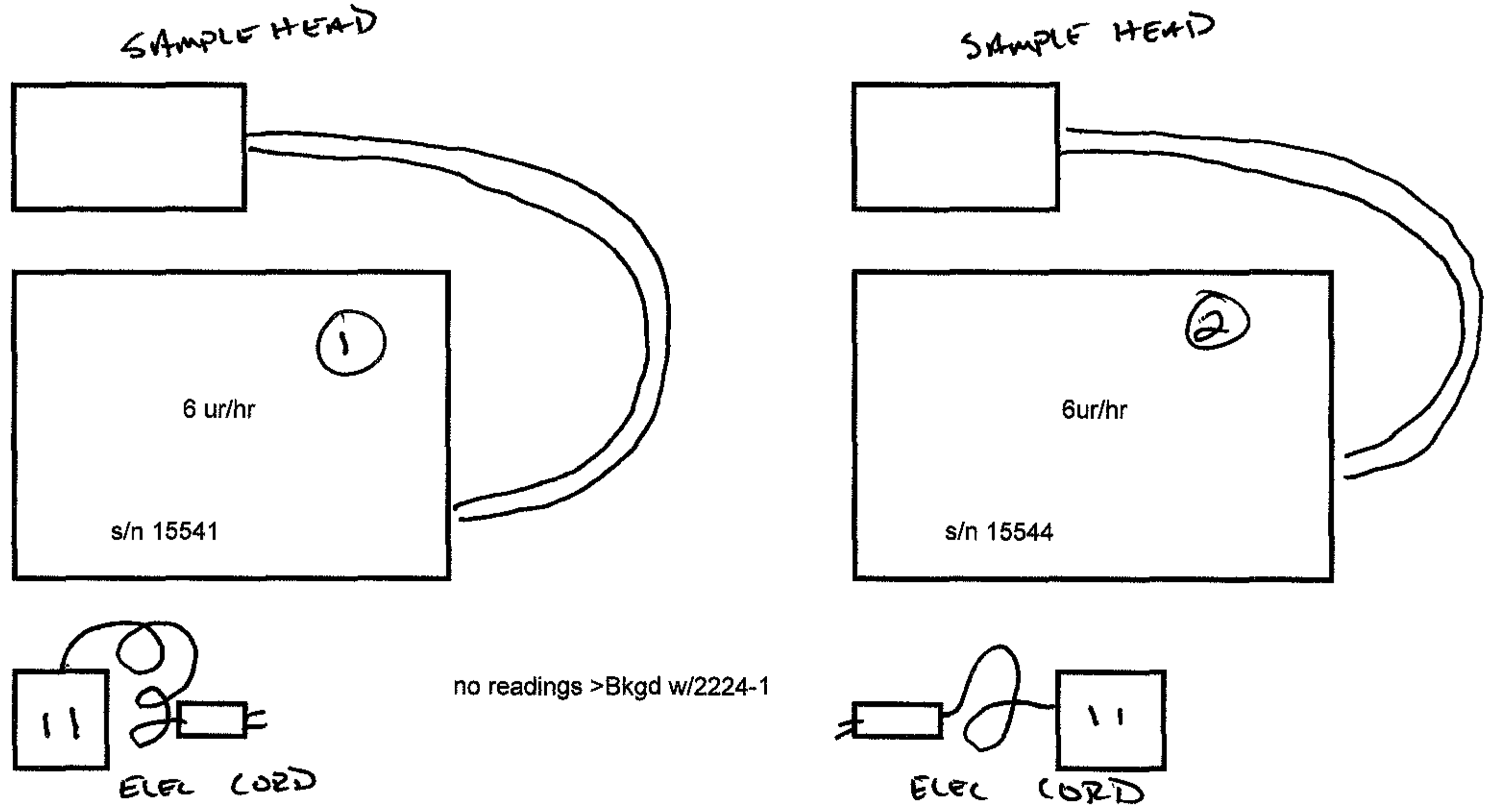
OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: Duratek BZ's Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 27	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2	<MDA		27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N		38	N	
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/24/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0	53.2	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	4	302	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 10/25/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

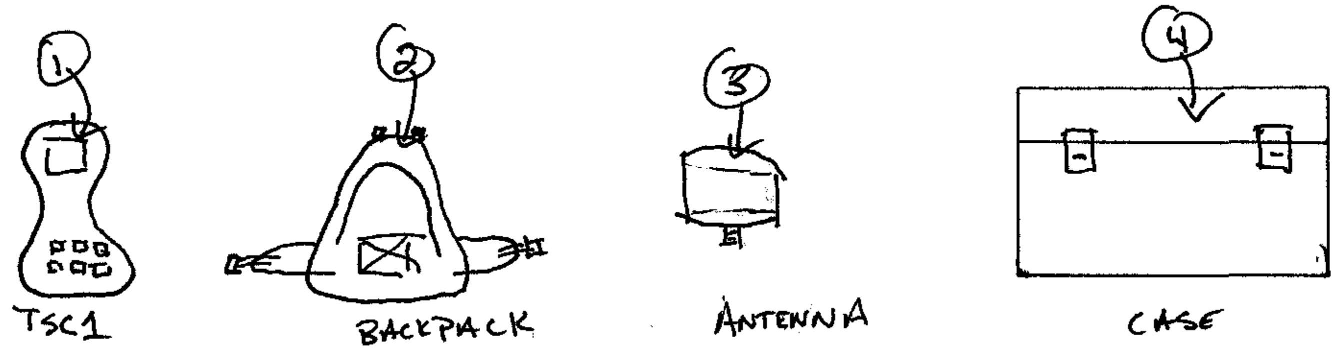
Location: GPS to US Environmental Site: Painesville, Ohio	RWP# 04-3200.02-001	Survey # PV- 28	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3	0	0	28		
4	0	0	29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N		38		A
14			39		
15			40		
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



S/N Ø220289267

8 μr/hr

ALL READINGS WITH 2224-1 < BKGD

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due	Key			
[redacted]	10/25/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0	55.7	1/17/2006				
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	8	288	12/30/2005	○	Smear	*-*	Boundary
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006				
									□	Dose Rate mrem/hr	■	A/S Location
	Date:								*	Direct Reading CPM/100 cm^2		
	11/1/05								△	Grab Sample		

Waltham, MA 02454
Ph: (781) 899-1560
Fax: (781) 899-1561

US Environmental Rental Corporation

Packing List
Trimble Pro XRS GPS System

Enclosed is a comprehensive packing list that you can use to document the receipt and return of your rental equipment.

	Out	Received	Returned
1. Pro XRS Receiver SN# 0224048724	✓		✓
2. TSC1 Datalogger SN# 0220151858	✓		✓
3. Integrated GPS/Beacon/Satellite Antenna SN# 0220289267	✓		✓
4. Antenna Cable	✓		✓
5. Camcorder Batteries (4) (8)	✓		✓
6. NMEA/RTCM Cable			
7. Data/Power Cable	✓		✓
8. Dual Battery Cable	✓		✓
9. Null Modem Cable	✓		✓
10. TSC1 Data Cable	✓		✓
11. Trimble support module (charger+assbly.)	✓		✓
12. Extension Poles (2)	✓		✓
13. Software V.2.9	✓		[redacted]

Notes: [redacted]

RECEWED 4 BATTERYS TO REPLACE DEFECTIVE

Be sure to verify receipt, and return all units and accessories. Missing components will be billed at the manufacturers list price plus freight.

Please call us if there are any missing parts or accessories at (781) 899-1560.

Thank you,

Date: 5/12 Re[redacted]

US Environmental Rental Corporation
Worldwide Rentals, Sales, and Service

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 29	Survey Type: Smear, Direct Scan, Dose	pg.__of__

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

9 ur/hr

no readings >Bkgd w/2224-1

[redacted]

Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
10/28/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.1	52.9	1/17/2006
	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	8	286	12/30/2005
	Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
Date: 11/1/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

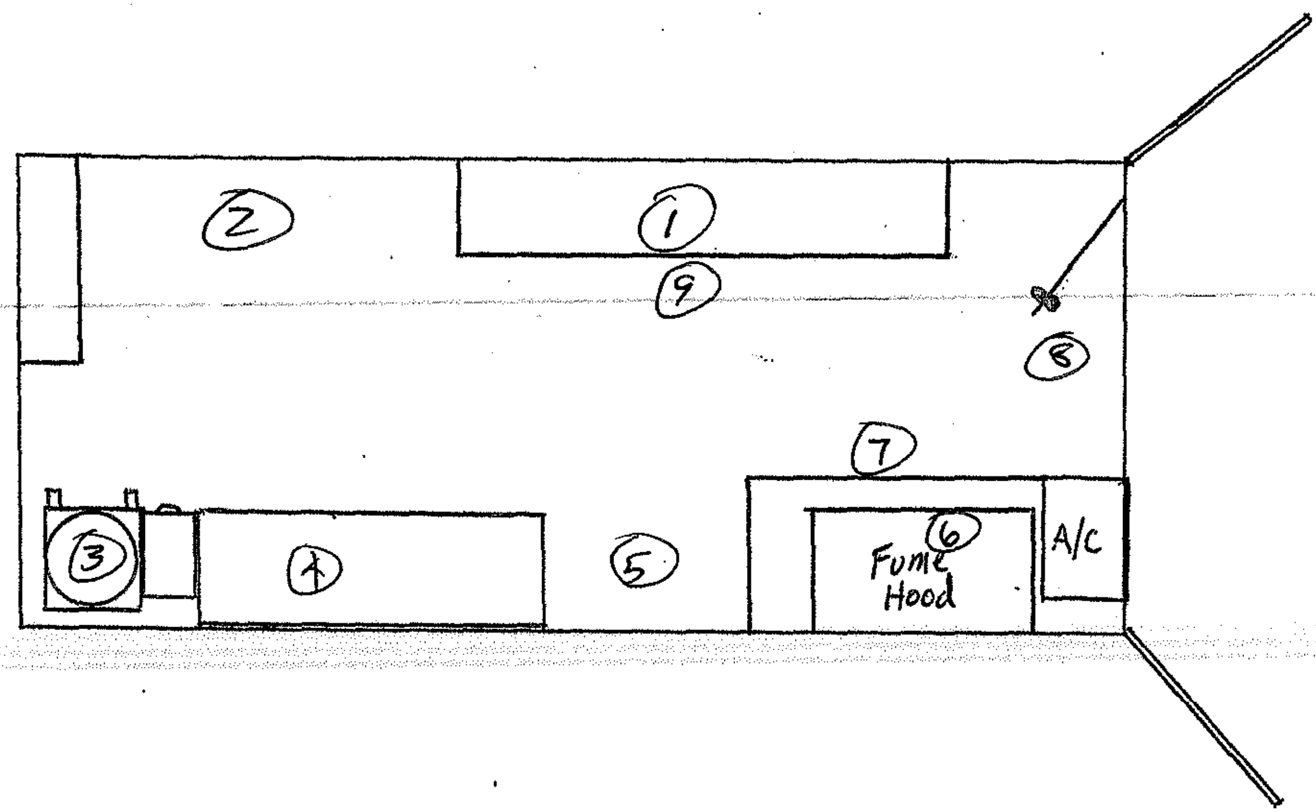
OP-001-02 Radiological Survey Sheet

Location: Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # PV-30	Survey Type: Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4	<MDA		29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	
13			38		
14			39		A
15			40		
16			41		
17	N		42		
18		A	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]e:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
10/29/05	L-2929	180830	36%	23%	0.2	51.5	1/17/06
	L-2224-1	162420	15%	11%	~~8~~ 6	~~301~~ 279 JAV	12/30/05
e: 11/1/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

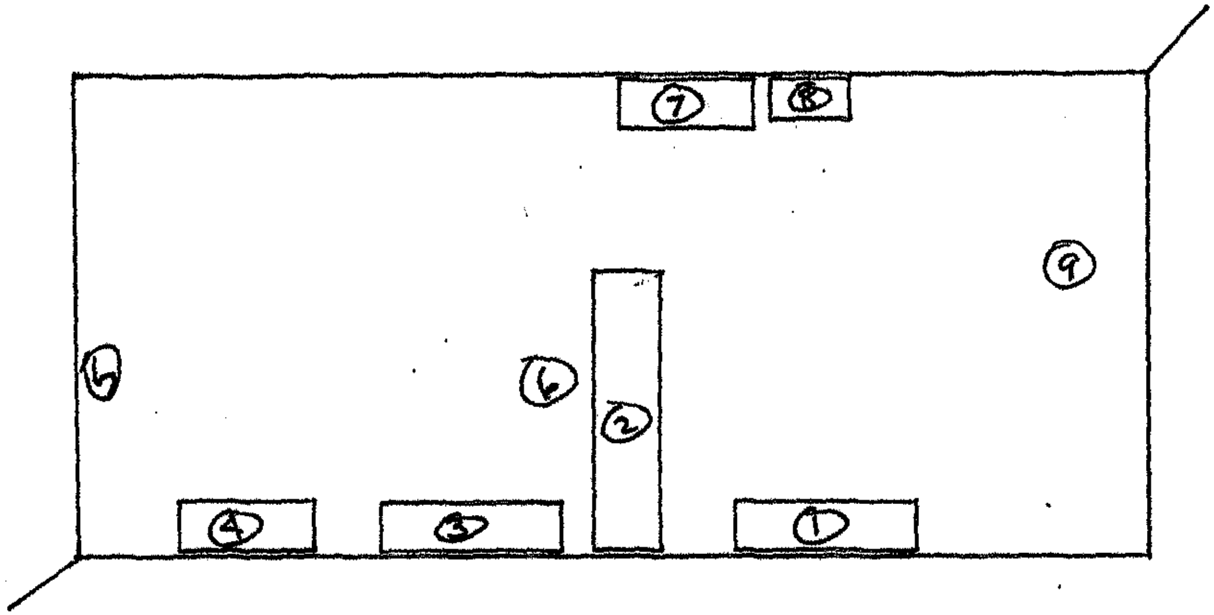
Location:	RWP#	Survey #	Survey Type:	
PAINESVILLE SOIL PREP	04-3200.02-002	PV-31	ROUTINE	pg. 1 of 1

Smear Results

DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37	N	A
13			38		
14			39		
15			40		
16			41		
17	N	A	42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]e: 10/29/05

[redacted]e: 11/1/05

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L-2929	180830	36%	23%	0.2	51.5	1/17/06
L-2224-1	162420	15%	11%	~~8~~	~~301~~	12/30/05
				6	279	JAN

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 32	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

9 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/29/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/1/05							

Key

⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 33	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

10 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/29/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/1/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #3 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 34	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/29/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/1/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #4 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 35	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

[redacted]	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
	10/29/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/1/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #5 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 36	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

8 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	10/29/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.5	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	279	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/1/05							

Key

⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 37	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N	A	38	N	A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

10 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/1/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	52.9	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	7	301	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/4/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 38	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results					
DPM/100 cm^2					
No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N	A	38	N	A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

10 ur/hr

no readings >Bkgd w/2224-1

[redacted]	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
	11/1/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	52.9	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	7	301	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/4/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

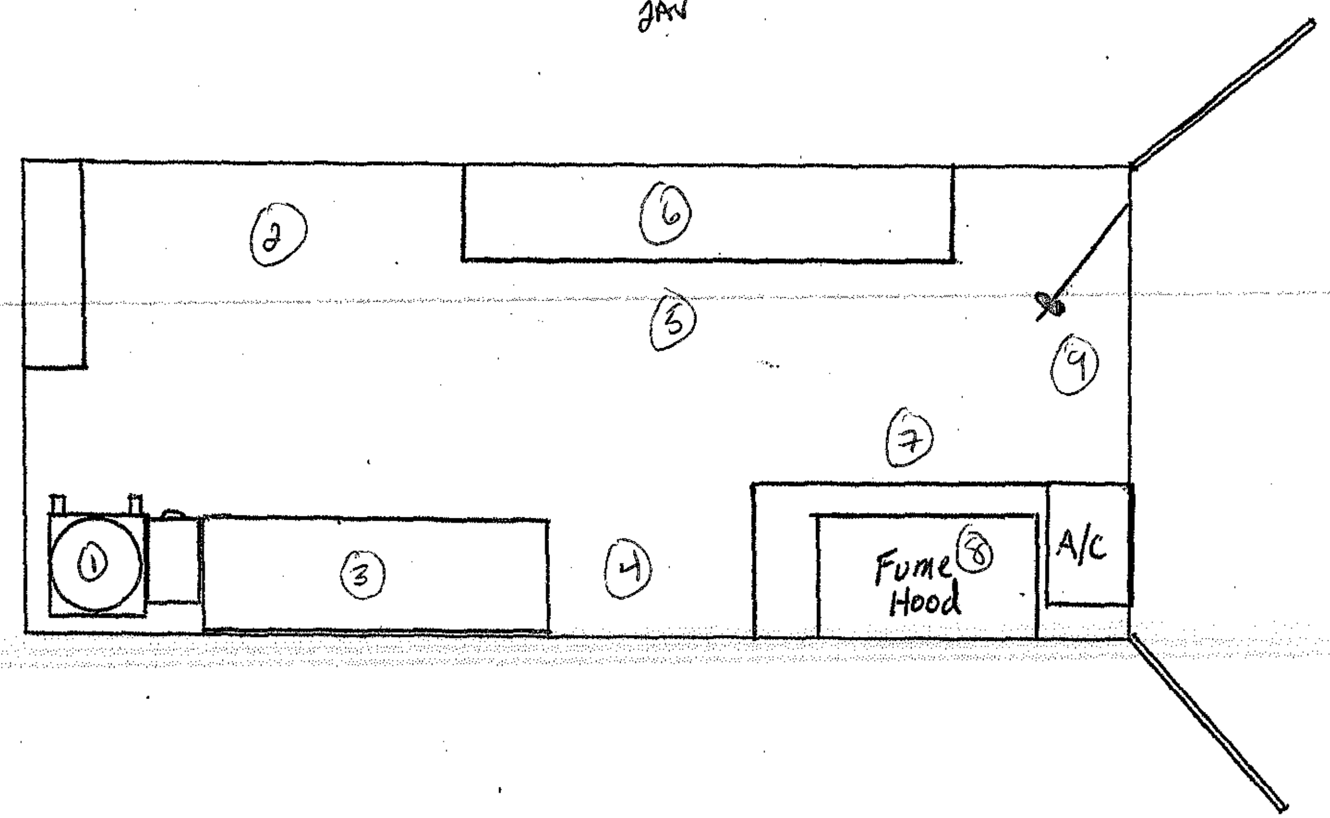
OP-001-02 Radiological Survey Sheet

Location: Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # ~~PV-40~~ PV-39 JAV	Survey Type: Routine	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA	<MDA	26		
2			27		
3			28		
4			29		
5		<MDA	30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	A
14			39		
15			40		
16		A	41		
17	N		42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

Date: 11/4/05

Date: 11/8/05

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L-2929	180830	36%	23%	0.1	48.9	1/17/06
L-2224-1	162420	15%	11%	6	273	12/30/05

Key			
○	Smear		Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

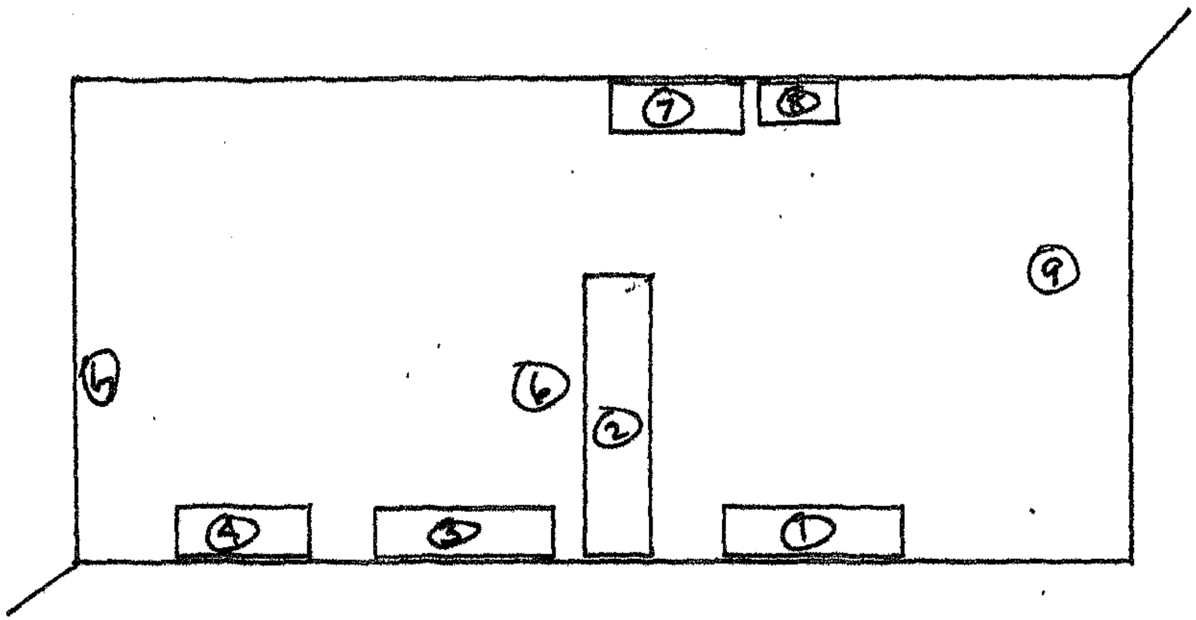
OP-001-02 Radiological Survey Sheet

Location:	RWP#	Survey #	Survey Type:	
PAINESVILLE SOIL PREP	04-3200.02-002	PV-40	ROUTINE	pg. 1 of 1

Smear Results DPM/100cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	
14			39		N
15			40		
16			41		
17	N		42		
18		N	43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted] e: 1/4/05

[redacted] e: /8/05

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L-2929	180830	36%	23%	0.1	48.9	1/17/06
L-2224-1	162420	15%	11%	6	273	12/30/05

Key

○	Smear	*.*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: Source Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 42	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37		
13			38		
14			39		
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/9/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	51.1	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	4	307	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/10/05							

Key

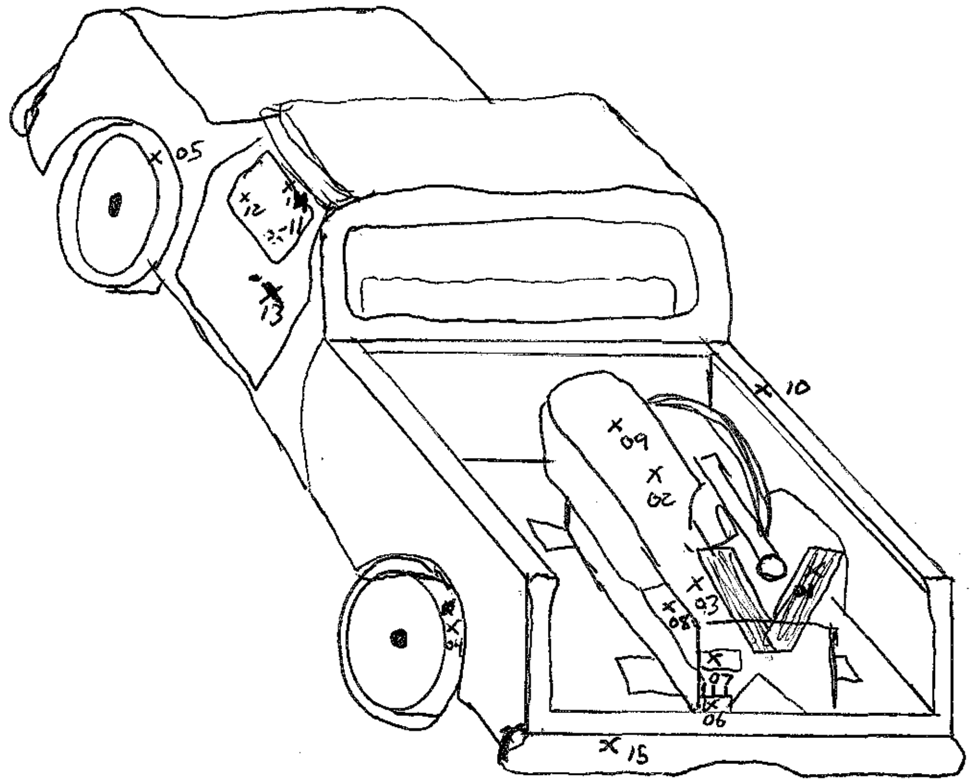
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

Location: PAINESVILLE DRILL RIG	RWP# 04-3200.02-002	Survey # PV-91	Survey Type: FREE RELEASE	pg. 1 of 1

Smear Results
DPM/100cm^2

No.	α	β	No.	α	β
1	4	65	26		
2	2	62	27		
3	3	52	28		
4	0	51	29		
5	0	56	30		
6	1	65	31		
7	0	58	32		
8	1	60	33		
9	0	50	34		
10	0	46	35		
11	0	50	36		
12	1	41	37		
13	0	57	38	N	
14	0	39	39		
15	3	55	40		A
16			41		
17			42		
18			43		
19			44		
20	N		45		
21			46		
22		A	47		
23			48		
24			49		
25			50		



Comments

[redacted] -9-05

[redacted] /11/05

Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
L2929	180830	0.36	0.23	0.2	51.1	1/17/06
L2224	162420	0.15	0.11	4	307	12/30/05
Bicron	1546	—	—	—	—	8/30/06

Key			
○	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 Radiological Survey Sheet

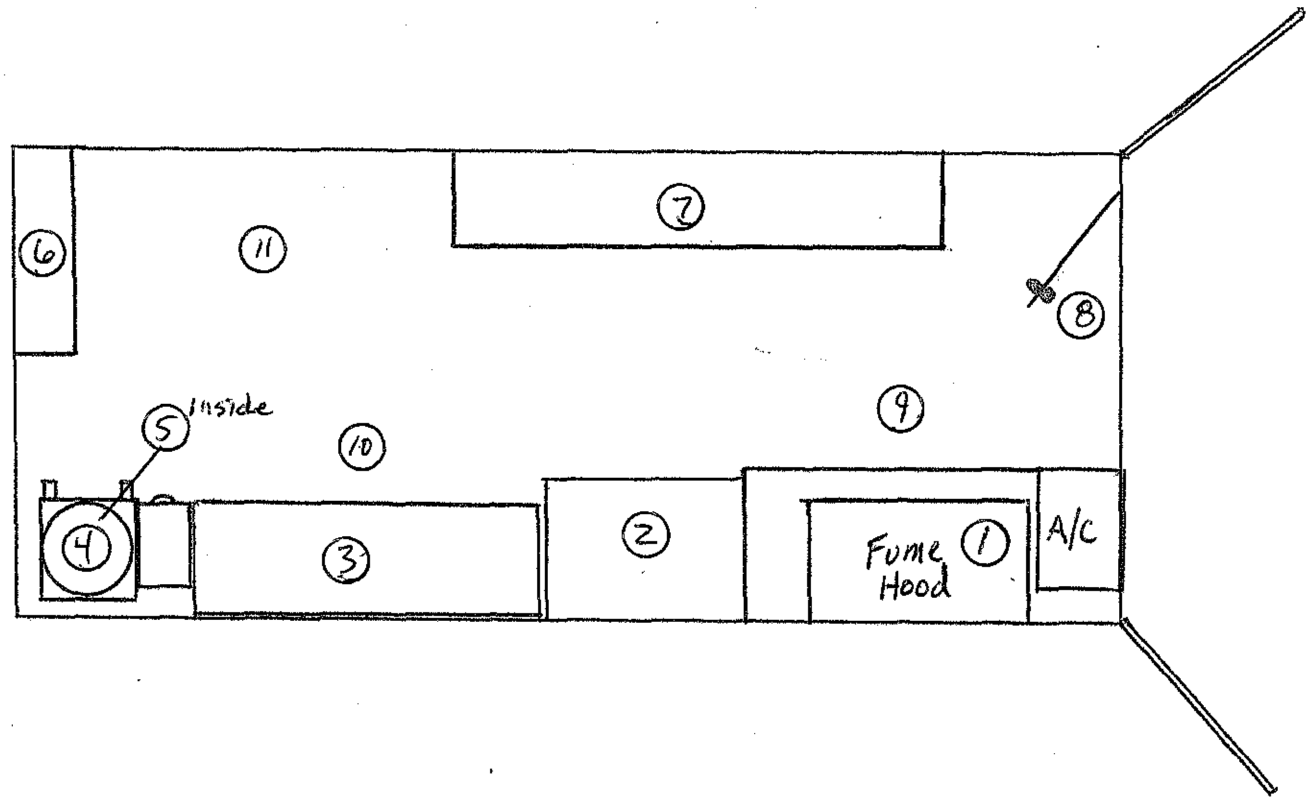
Location: Painesville On-Site Lab	RWP# 04-3200.02-002	Survey # PV-42	Survey Type: ~~Routine~~ CLOSEOUT	pg. 1 of 1

Smear Results

DPM/100cm^2

No.	α	β	No.	α	β
1	0	59	26		
2	0	44	27		
3	5	57	28		
4	0	66	29		
5	1	46	30		
6	0	56	31		
7	2	52	32		
8	0	57	33		
9	0	58	34		
10	0	48	35		
11	3	29	36		
12			37	N	
13			38		A
14			39		
15			40		
16			41		
17			42		
18	N		43		
19		A	44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



[redacted]

Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
11-9-05	L2929	180830	0.36	0.23	0.2	51.1	1/17/06
	L2224	162420	0.15	0.11	4	307	12/30/05
Date: 11/10/05	Bicron	1546	—				8/30/06

Key			
⬭	Smear	*-*	Boundary
□	Dose Rate mr/hr	■	A/S Location
*	Direct Reading DPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: Paragon Cooler Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 43	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10	N		35		
11			36	N	
12			37		
13		A	38		A
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #1 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 44	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36	N	
12			37		
13	N		38		A
14			39		
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

[redacted]

Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006
	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005
	Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
Date: 11/11/05							

Key			
⬭	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #2 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 45	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N/A		37	N/A	
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

[redacted]	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
	11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #3 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 46	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	n/d	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12	N		37	N	
13			38		A
14			39		
15		A	40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GEL Cooler #4 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 47	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N		38	N	
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments

12 ur/hr

no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

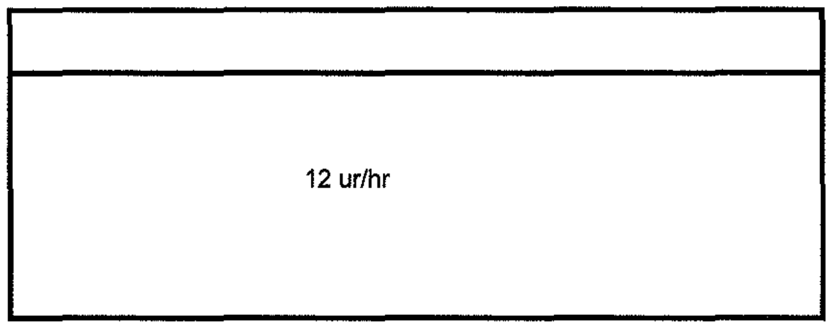
Location: GEL Cooler #5 Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 48	Survey Type: Smear, Direct Scan, Dose	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13	N		38	N	
14		A	39		A
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



no readings >Bkgd w/2224-1

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due	Key	
[redacted]	11/10/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50	1/17/2006		
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	5	314	12/30/2005	⬭ Smear	*-* Boundary
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006		
									□ Dose Rate mrem/hr	■ A/S Location
	Date:								* Direct Reading CPM/100 cm^2	
	11/11/05								△ Grab Sample	

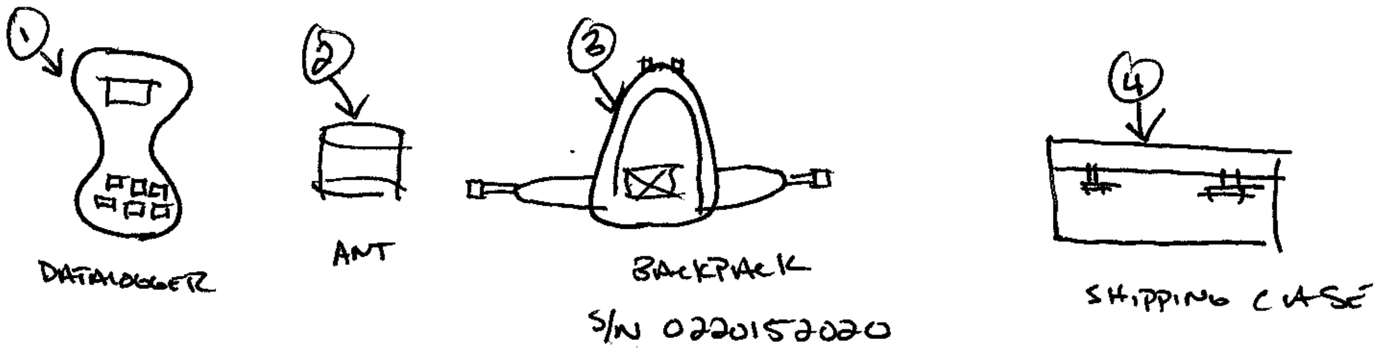
OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: GPS to Us Environmental Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 49	Survey Type: Free Release	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3	0	0	28		
4	0	0	29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36	N	
12			37		
13	N		38		A
14			39		
15			40		
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date:							
	11/11/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

166 Riverview Ave
Waltham, MA 02454
Ph: (781) 899-1560
Fax: (781) 899-1561

US Environmental Rental Corporation

Packing List
Trimble Pro XRS GPS System

Enclosed is a comprehensive packing list that you can use to document the receipt and return of your rental equipment.

	Out	Received	Returned
1. Pro XRS Receiver SN# 0224017316	✓	✓	
2. TSC1 Datalogger SN# 0220151855	✓	✓	
3. Integrated GPS/Beacon/Satellite Antenna SN# 0220152020	✓	✓	
4. Antenna Cable	✓	✓	
5. Camcorder Batteries (4)	✓	✓	
6. NMEA/RTCM Cable	X	✓	
7. Data/Power Cable	✓	✓	
8. Dual Battery Cable	✓	✓	
9. Null Modem Cable	✓	✓	
10. TSC1 Data Cable	✓	✓	
11. Trimble support module (charger+assbly.)	✓	✓	
12. Extension Poles (2)	✓	✓	
13. Software V.2.9	✓	✓	

Notes:

Be sure to verify receipt, and return all units and accessories. Missing components will be billed at the manufacturers list price plus freight.

Please call us if there are any missing parts or accessories at (781) 899-1560.

Thank you,

Date: 11/3 R[redacted]

US Environmental Rental Corporation
Worldwide Rentals, Sales, and Service

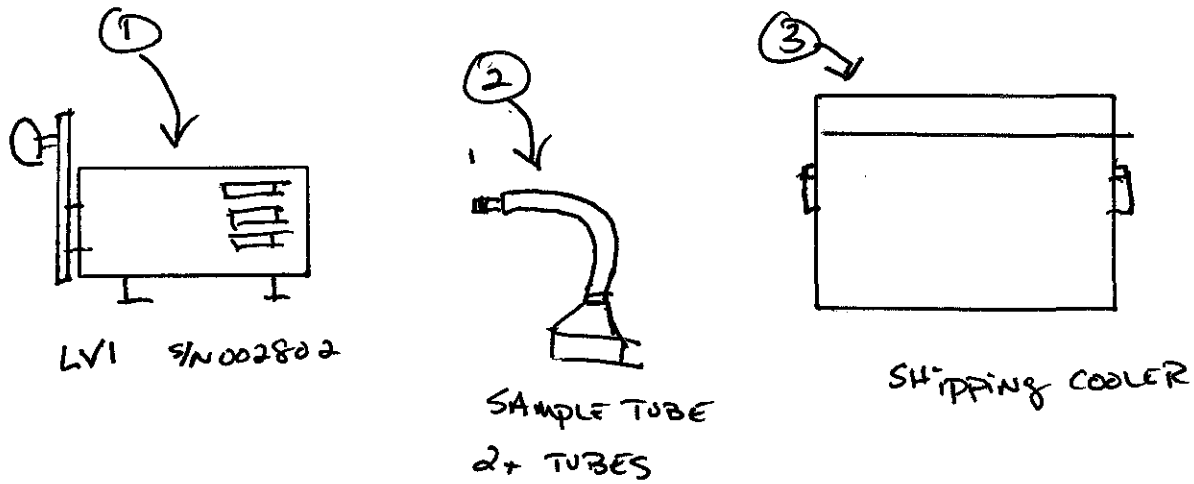
OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: LV1s/n 002802 to Cabrera Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 50	Survey Type: Free Release	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3	0	0	28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36	N	
12			37		
13	N		38		A
14			39		
15			40		
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

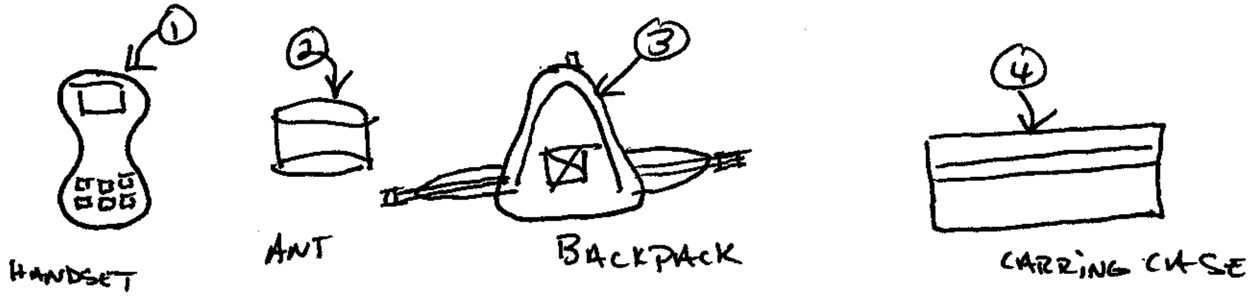
Location: GPS to Cabrera Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 51	Survey Type: Free Release	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	<MDA		26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38	N	
14	N		39		
15			40		A
16		A	41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

⬭	Smear	*-*	Boundary
☐	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

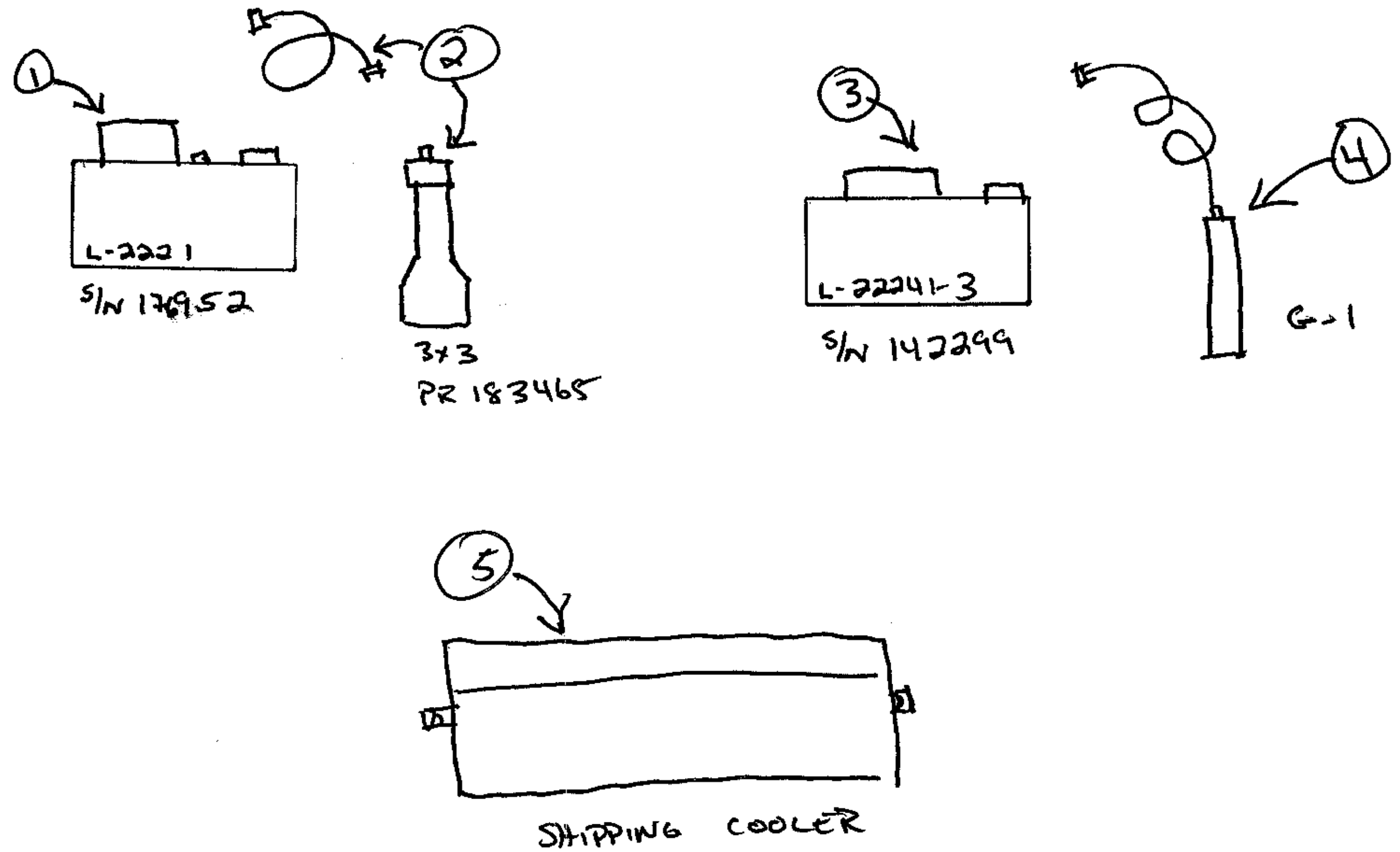
Location: Instruments to Cabrera Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 52	Survey Type: Free Release	pg. 1 of 1

Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3	0	0	28		
4	0	1	29		
5	0	0	30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

N/A N/A

Comments



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

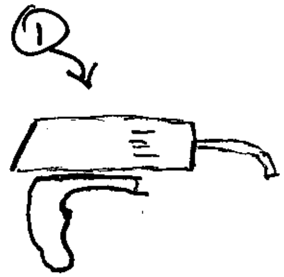
OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

Location: PID to Cabrera Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 53	Survey Type: Free Release	pg. 1 of 1

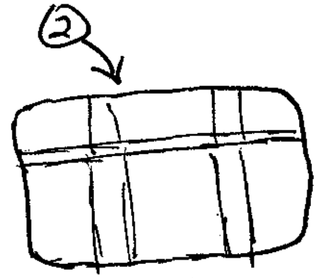
Smear Results
DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



MSA PID



PID CARRYING CASE

Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
		Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

OP-001-02 RADIOLOGICAL SURVEY SHEET (rev 1)

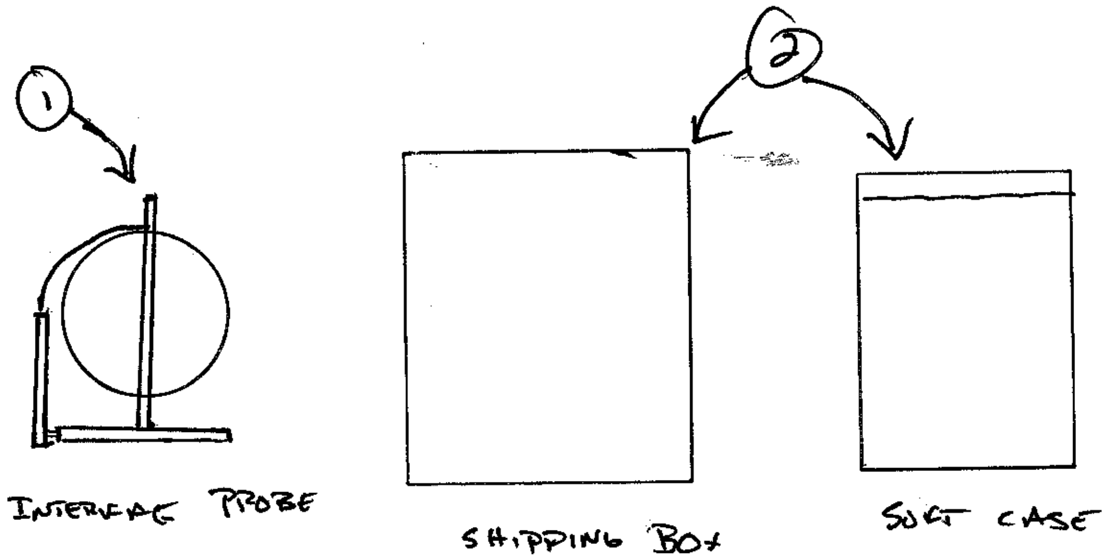
Location: Interface Probe to Cabrera Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # PV- 54	Survey Type: Free Release	pg. 1 of 1

Smear Results

DPM/100 cm^2

No.	α	β	No.	α	β
1	0	0	26		
2	0	0	27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36	N	
12	N		37		A
13			38		
14		A	39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

Comments



Surveyed By:	Date:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
[redacted]	11/11/2005	Ludlum-2929/43-10-1	180830/PR207849	36%	23%	0.2	50.7	1/17/2006
	↓	Ludlum-2224-1/43-89	162420/PR171381	15%	11%	6	318	12/30/2005
		Bicron	1546	N/A	N/A	N/A	N/A	8/30/2006
	Date: 11/11/05							

Key

○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

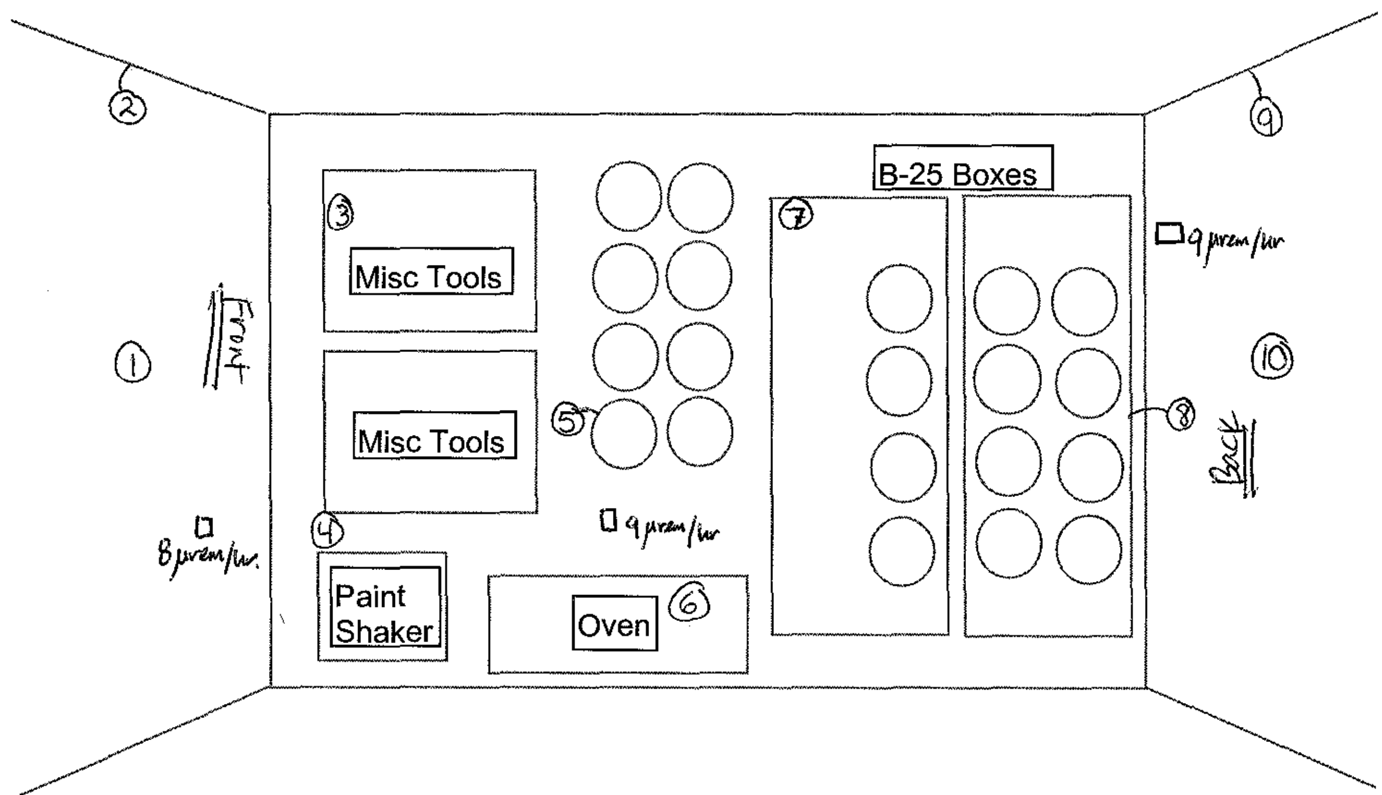
OP-001-02 Radiological Survey Sheet

Location: Connex Box Waste Storage Site: Painesville, Ohio	RWP# 04-3200.02-002	Survey # 56 PV-56	Survey Type: Routine	pg. 1 of 1

Smear Results

CPM/100cm^2

No.	α	β	No.	α	β
1	0	35	26		
2	0	33	27		
3	0	37	28		
4	0	52	29		
5	0	40	30		
6	0	36	31		
7	0	60	32		
8	0	54	33		
9	0	32	34		
10	0	33	35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		



Comments

See attached Smear Worksheet for dpm/100 cm^2 calculations.

- Smear location descriptions are relative to Front & Back labels on map.

[redacted]

ate:	Instrument	Serial #	α Eff.	β Eff.	α Bkg.	β Bkg	Cal. Due
-16-05	L2929	163827	0.3488	0.1395	1 cpm	202 cpm	8 Mar 06
	43-10-1	PR171322					
ate 1/11/06	Bicron	B985Y	n/a	n/a	n/a	n/a	22 Jan 06

Key			
○	Smear	*-*	Boundary
□	Dose Rate mrem/hr	■	A/S Location
*	Direct Reading CPM/100 cm^2		
△	Grab Sample		

CABRERA SMEAR COUNTING WORKSHEET

α eff	β eff
0.3488	0.1395

Sample Count Time (min)	Daily Background Count Time (min)
1.0	5.0

dpm/100 cm^2	
α Flag	β Flag
20	1000

* Morning Daily Count

seq. #	Sample ID# and Description	Date	Background Total Counts*		Sample Total Counts		Background (cpm)		Sample Counts (cpm)		Sample (dpm/100 cm^2)		> α flag	> β flag	Tech. Initial
			α	β	α	β	α	β	α	β	α	β			
1	Ground in front of Connex box	12/16/2005	1	202	0	35	0.2	40.4	0.00	35	-0.6	-39			PR
2	Inside left door of Connex box	12/16/2005	1	202	0	33	0.2	40.4	0.00	33	-0.6	-53			PR
3	Front of misc tools box	12/16/2005	1	202	0	37	0.2	40.4	0.00	37	-0.6	-24			PR
4	Floor b/w shaker and misc tools	12/16/2005	1	202	0	52	0.2	40.4	0.00	52	-0.6	83			PR
5	Side of drum on floor	12/16/2005	1	202	0	40	0.2	40.4	0.00	40	-0.6	-3			PR
6	Top of oven	12/16/2005	1	202	0	36	0.2	40.4	0.00	36	-0.6	-32			PR
7	Top of B-25 box (left side)	12/16/2005	1	202	0	60	0.2	40.4	0.00	60	-0.6	140			PR
8	Top of B-25 box (behind drums)	12/16/2005	1	202	0	54	0.2	40.4	0.00	54	-0.6	97			PR
9	Inside back door of Connex box	12/16/2005	1	202	0	32	0.2	40.4	0.00	32	-0.6	-60			PR
10	Ground in back of Connex box	12/16/2005	1	202	0	33	0.2	40.4	0.00	33	-0.6	-53			PR

CABRERA SMEAR COUNTING WORKSHEET (Rev 5)

α eff	β eff
35.8000	23.3000

Sample Count Time (min)	Daily Background Count Time (min)
1.0	20.0

dpm/100 cm²	
α Flag	β Flag
20	1000

* Morning Daily Count

seq. #	Sample ID# and Description	Date	Background Total Counts*		Sample Total Counts		Background (cpm)		Sample Counts (cpm)		Sample (dpm/100 cm²)		> α flag	> β flag
			α	β	α	β	α	β	α	β	α	β		
1	Survey #1-Office Trailer #1	9/16/2005	2	1000	0	47	0.1	50.0	0.00	47	0.0	0		
2	Survey #1-Office Trailer #2	9/16/2005	2	1000	0	55	0.1	50.0	0.00	55	0.0	0		
3	Survey #1-Office Trailer #3	9/16/2005	2	1000	0	52	0.1	50.0	0.00	52	0.0	0		
4	Survey #1-Office Trailer #4	9/16/2005	2	1000	0	54	0.1	50.0	0.00	54	0.0	0		
5	Survey #1-Office Trailer #5	9/16/2005	2	1000	0	64	0.1	50.0	0.00	64	0.0	1		
6	Survey #1-Office Trailer #6	9/16/2005	2	1000	0	47	0.1	50.0	0.00	47	0.0	0		
7	Survey #1-Office Trailer #7	9/16/2005	2	1000	0	52	0.1	50.0	0.00	52	0.0	0		
8	Survey #2-Lab Routine #1	9/16/2005	2	1000	0	62	0.1	50.0	0.00	62	0.0	1		
9	Survey #2-Lab Routine #2	9/16/2005	2	1000	0	56	0.1	50.0	0.00	56	0.0	0		
10	Survey #2-Lab Routine #3	9/16/2005	2	1000	0	52	0.1	50.0	0.00	52	0.0	0		
11	Survey #2-Lab Routine #4	9/16/2005	2	1000	0	53	0.1	50.0	0.00	53	0.0	0		
12	Survey #2-Lab Routine #5	9/16/2005	2	1000	2	39	0.1	50.0	2.00	39	0.1	0		
13	Survey #2-Lab Routine #6	9/16/2005	2	1000	0	52	0.1	50.0	0.00	52	0.0	0		
14	Survey #2-Lab Routine #7	9/16/2005	2	1000	1	37	0.1	50.0	1.00	37	0.0	-1		
15	Survey #2-Lab Routine #8	9/16/2005	2	1000	0	59	0.1	50.0	0.00	59	0.0	0		
16	Survey #2-Lab Routine #9	9/16/2005	2	1000	0	40	0.1	50.0	0.00	40	0.0	0		
17	Survey #2-Lab Routine #10	9/16/2005	2	1000	0	56	0.1	50.0	0.00	56	0.0	0		
18	Survey #3-Office Trailer #1	9/23/2005	2	1000	0	45	0.1	50.0	0.00	45	0.0	0		
19	Survey #3-Office Trailer #2	9/23/2005	1	1066	0	52	0.1	53.3	0.00	52	0.0	0		
20	Survey #3-Office Trailer #3	9/23/2005	1	1066	0	40	0.1	53.3	0.00	40	0.0	-1		
21	Survey #3-Office Trailer #4	9/23/2005	1	1066	0	41	0.1	53.3	0.00	41	0.0	-1		
22	Survey #3-Office Trailer #5	9/23/2005	1	1066	0	46	0.1	53.3	0.00	46	0.0	0		
23	Survey #3-Office Trailer #6	9/23/2005	1	1066	0	66	0.1	53.3	0.00	66	0.0	1		
24	Survey #4-Lab Routine #1	9/23/2005	1	1066	0	55	0.1	53.3	0.00	55	0.0	0		
25	Survey #4-Lab Routine #2	9/23/2005	1	1066	0	41	0.1	53.3	0.00	41	0.0	-1		
26	Survey #4-Lab Routine #3	9/23/2005	1	1066	0	44	0.1	53.3	0.00	44	0.0	0		
27	Survey #4-Lab Routine #4	9/23/2005	1	1066	0	49	0.1	53.3	0.00	49	0.0	0		
28	Survey #4-Lab Routine #5	9/23/2005	1	1066	0	48	0.1	53.3	0.00	48	0.0	0		
29	Survey #4-Lab Routine #6	9/23/2005	1	1066	0	59	0.1	53.3	0.00	59	0.0	0		
30	Survey #4-Lab Routine #7	9/23/2005	1	1066	0	47	0.1	53.3	0.00	47	0.0	0		
31	Survey #5-GEL cooler #1	9/23/2005	1	1066	1	56	0.1	53.3	1.00	56	0.0	0		
32	Survey #6-GEL cooler #2	9/23/2005	1	1066	0	54	0.1	53.3	0.00	54	0.0	0		
33	Survey #7-GEL cooler #3	9/23/2005	1	1066	1	42	0.1	53.3	1.00	42	0.0	0		
34	Survey #8-GEL cooler #1	9/30/2005	0	1059	3	54	0.0	53.0	3.00	54	0.1	0		
35	Survey #9-GEL cooler #2	9/30/2005	0	1059	2	43	0.0	53.0	2.00	43	0.1	0		
36	Survey #10-Lab Routine #1	9/30/2005	0	1059	0	54	0.0	53.0	0.00	54	0.0	0		
37	Survey #10-Lab Routine #2	9/30/2005	0	1059	1	39	0.0	53.0	1.00	39	0.0	-1		
38	Survey #10-Lab Routine #3	9/30/2005	0	1059	0	47	0.0	53.0	0.00	47	0.0	0		
39	Survey #10-Lab Routine #4	9/30/2005	0	1059	0	53	0.0	53.0	0.00	53	0.0	0		
41	Survey #10-Lab Routine #5	9/30/2005	0	1059	0	57	0.0	53.0	0.00	57	0.0	0		
42	Survey #10-Lab Routine #6	9/30/2005	0	1059	1	55	0.0	53.0	1.00	55	0.0	0		
43	Survey #10-Lab Routine #7	9/30/2005	0	1059	0	50	0.0	53.0	0.00	50	0.0	0		
44	Survey #10-Lab Routine #8	9/30/2005	0	1059	0	54	0.0	53.0	0.00	54	0.0	0		
45	Survey #10-Lab Routine #9	9/30/2005	0	1059	1	43	0.0	53.0	1.00	43	0.0	0		
46	Survey #10-Lab Routine #10	9/30/2005	0	1059	1	51	0.0	53.0	1.00	51	0.0	0		
47	Survey #11-Soil Prep Routine #1	9/30/2005	0	1059	1	51	0.0	53.0	1.00	51	0.0	0		
48	Survey #11-Soil Prep Routine #2	9/30/2005	0	1059	0	43	0.0	53.0	0.00	43	0.0	0		
49	Survey #11-Soil Prep Routine #3	9/30/2005	0	1059	0	45	0.0	53.0	0.00	45	0.0	0		
50	Survey #11-Soil Prep Routine #4	9/30/2005	0	1059	0	58	0.0	53.0	0.00	58	0.0	0		
51	Survey #11-Soil Prep Routine #5	9/30/2005	0	1059	0	50	0.0	53.0	0.00	50	0.0	0		
52	Survey #11-Soil Prep Routine #6	9/30/2005	0	1059	0	37	0.0	53.0	0.00	37	0.0	-1		
53	Survey #11-Soil Prep Routine #7	9/30/2005	0	1059	1	41	0.0	53.0	1.00	41	0.0	-1		
54	Survey #11-Soil Prep Routine #8	9/30/2005	0	1059	0	52	0.0	53.0	0.00	52	0.0	0		
55	Survey #12-GEL cooler #1	10/7/2005	1	998	0	52	0.1	49.9	0.00	52	0.0	0		
56	Survey #13-GEL cooler #2	10/7/2005	1	998	0	48	0.1	49.9	0.00	48	0.0	0		
57	Survey #14-Soil Prep Routine #1	10/7/2005	1	998	0	36	0.1	49.9	0.00	36	0.0	-1		
58	Survey #14-Soil Prep Routine #2	10/7/2005	1	998	0	46	0.1	49.9	0.00	46	0.0	0		
59	Survey #14-Soil Prep Routine #3	10/7/2005	1	998	0	51	0.1	49.9	0.00	51	0.0	0		
60	Survey #14-Soil Prep Routine #4	10/7/2005	1	998	0	39	0.1	49.9	0.00	39	0.0	0		
61	Survey #14-Soil Prep Routine #5	10/7/2005	1	998	1	58	0.1	49.9	1.00	58	0.0	0		
62	Survey #14-Soil Prep Routine #6	10/7/2005	1	998	0	59	0.1	49.9	0.00	59	0.0	0		
63	Survey #14-Soil Prep Routine #7	10/7/2005	1	998	0	52	0.1	49.9	0.00	52	0.0	0		
64	Survey #14-Soil Prep Routine #8	10/7/2005	1	998	0	54	0.1	49.9	0.00	54	0.0	0		
65	Survey #14-Soil Prep Routine #9	10/7/2005	1	998	0	40	0.1	49.9	0.00	40	0.0	0		
66	Survey #15-Lab Routine #1	10/7/2005	1	998	0	51	0.1	49.9	0.00	51	0.0	0		
67	Survey #15-Lab Routine #2	10/7/2005	1	998	0	58	0.1	49.9	0.00	58	0.0	0		
68	Survey #15-Lab Routine #3	10/7/2005	1	998	0	47	0.1	49.9	0.00	47	0.0	0		
69	Survey #15-Lab Routine #4	10/7/2005	1	998	1	50	0.1	49.9	1.00	50	0.0	0		
70	Survey #15-Lab Routine #5	10/7/2005	1	998	1	53	0.1	49.9	1.00	53	0.0	0		
71	Survey #15-Lab Routine #6	10/7/2005	1	998	0	56	0.1	49.9	0.00	56	0.0	0		
72	Survey #15-Lab Routine #7	10/7/2005	1	998	0	52	0.1	49.9	0.00	52	0.0	0		
73	Survey #15-Lab Routine #8	10/7/2005	1	998	1	48	0.1	49.9	1.00	48	0.0	0		
74	Survey #15-Lab Routine #9	10/7/2005	1	998	0	52	0.1	49.9	0.00	52	0.0	0		
75	Survey #16-GEL cooler	10/10/2005	2	1029	2	58	0.1	51.5	2.00	58	0.1	0		
76	Survey #17-GEL cooler #1	10/14/2005	2	1046	0	46	0.1	52.3	0.00	46	0.0	0		
77	Survey #18-GEL cooler #2	10/14/2005	2	1046	0	58	0.1	52.3	0.00	58	0.0	0		
78	Survey #19-Lab Routine #1	10/14/2005	2	1046	1	55	0.1	52.3	1.00	55	0.0	0		
79	Survey #19-Lab Routine #2	10/14/2005	2	1046	2	51	0.1	52.3	2.00	51	0.1	0		
80	Survey #19-Lab Routine #3	10/14/2005	2	1046	0	55	0.1	52.3	0.00	55	0.0	0		

CABRERA SMEAR COUNTING WORKSHEET (Rev 5)

α eff	β eff
35.8000	23.3000

Sample Count Time (min)	Daily Background Count Time (min)
1.0	20.0

dpm/100 cm^2	
α Flag	β Flag
20	1000

* Morning Daily Count

seq. #	Sample ID# and Description	Date	Background Total Counts*		Sample Total Counts		Background (cpm)		Sample Counts (cpm)		Sample (dpm/100 cm^2)		> α flag	> β flag
			α	β	α	β	α	β	α	β	α	β		
81	Survey #19-Lab Routine #4	10/14/2005	2	1046	0	46	0.1	52.3	0.00	46	0.0	0		
82	Survey #19-Lab Routine #5	10/14/2005	2	1046	0	58	0.1	52.3	0.00	58	0.0	0		
83	Survey #19-Lab Routine #6	10/14/2005	2	1046	0	50	0.1	52.3	0.00	50	0.0	0		
84	Survey #19-Lab Routine #7	10/14/2005	2	1046	0	56	0.1	52.3	0.00	56	0.0	0		
85	Survey #19-Lab Routine #8	10/14/2005	2	1046	0	51	0.1	52.3	0.00	51	0.0	0		
86	Survey #19-Lab Routine #9	10/14/2005	2	1046	0	51	0.1	52.3	0.00	51	0.0	0		
87	Survey #20-Soil Prep Routine #1	10/14/2005	2	1046	0	47	0.1	52.3	0.00	47	0.0	0		
88	Survey #20-Soil Prep Routine #2	10/14/2005	2	1046	0	48	0.1	52.3	0.00	48	0.0	0		
89	Survey #20-Soil Prep Routine #3	10/14/2005	2	1046	1	52	0.1	52.3	1.00	52	0.0	0		
90	Survey #20-Soil Prep Routine #4	10/14/2005	2	1046	0	53	0.1	52.3	0.00	53	0.0	0		
91	Survey #20-Soil Prep Routine #5	10/14/2005	2	1046	1	55	0.1	52.3	1.00	55	0.0	0		
92	Survey #20-Soil Prep Routine #6	10/14/2005	2	1046	0	50	0.1	52.3	0.00	50	0.0	0		
93	Survey #20-Soil Prep Routine #7	10/14/2005	2	1046	0	58	0.1	52.3	0.00	58	0.0	0		
94	Survey #20-Soil Prep Routine #8	10/14/2005	2	1046	0	52	0.1	52.3	0.00	52	0.0	0		
95	Survey #20-Soil Prep Routine #9	10/14/2005	2	1046	1	56	0.1	52.3	1.00	56	0.0	0		
96	Survey #21-GEL cooler	10/18/2005	2	999	0	49	0.1	50.0	0.00	49	0.0	0		
97	Survey #22-GEL cooler #1	10/21/2005	4	1063	0	52	0.2	53.2	0.00	52	0.0	0		
98	Survey #23-GEL cooler #2	10/21/2005	4	1063	0	50	0.2	53.2	0.00	50	0.0	0		
99	Survey #24-Soil Prep Routine #1	10/21/2005	4	1063	2	47	0.2	53.2	2.00	47	0.1	0		
100	Survey #24-Soil Prep Routine #2	10/21/2005	4	1063	0	58	0.2	53.2	0.00	58	0.0	0		
101	Survey #24-Soil Prep Routine #3	10/21/2005	4	1063	0	56	0.2	53.2	0.00	56	0.0	0		
102	Survey #24-Soil Prep Routine #4	10/21/2005	4	1063	0	46	0.2	53.2	0.00	46	0.0	0		
103	Survey #24-Soil Prep Routine #5	10/21/2005	4	1063	0	53	0.2	53.2	0.00	53	0.0	0		
104	Survey #24-Soil Prep Routine #6	10/21/2005	4	1063	0	59	0.2	53.2	0.00	59	0.0	0		
105	Survey #24-Soil Prep Routine #7	10/21/2005	4	1063	0	54	0.2	53.2	0.00	54	0.0	0		
106	Survey #24-Soil Prep Routine #8	10/21/2005	4	1063	0	49	0.2	53.2	0.00	49	0.0	0		
107	Survey #24-Soil Prep Routine #9	10/21/2005	4	1063	0	48	0.2	53.2	0.00	48	0.0	0		
108	Survey #25-Lab Routine #1	10/21/2005	4	1063	0	59	0.2	53.2	0.00	59	0.0	0		
109	Survey #25-Lab Routine #2	10/21/2005	4	1063	1	50	0.2	53.2	1.00	50	0.0	0		
110	Survey #25-Lab Routine #3	10/21/2005	4	1063	0	31	0.2	53.2	0.00	31	0.0	-1		
111	Survey #25-Lab Routine #4	10/21/2005	4	1063	0	57	0.2	53.2	0.00	57	0.0	0		
112	Survey #25-Lab Routine #5	10/21/2005	4	1063	0	52	0.2	53.2	0.00	52	0.0	0		
113	Survey #25-Lab Routine #6	10/21/2005	4	1063	0	60	0.2	53.2	0.00	60	0.0	0		
114	Survey #25-Lab Routine #7	10/21/2005	4	1063	1	57	0.2	53.2	1.00	57	0.0	0		
115	Survey #25-Lab Routine #8	10/21/2005	4	1063	0	46	0.2	53.2	0.00	46	0.0	0		
116	Survey #25-Lab Routine #9	10/21/2005	4	1063	0	58	0.2	53.2	0.00	58	0.0	0		
117	Survey #26-GEL cooler	10/22/2005	2	981	3	59	0.1	49.1	3.00	59	0.1	0		
118	Survey #27-BZ to Duratek	10/24/2005	0	1063	0	48	0.0	53.2	0.00	48	0.0	0		
119	Survey # 27-BZ to Duratek	10/24/2005	0	1063	0	58	0.0	53.2	0.00	58	0.0	0		
120	Survey #28-GPS to US Environ.	10/25/2005	0	1114	1	58	0.0	55.7	1.00	58	0.0	0		
121	Survey #28-GPS to US Environ.	10/25/2005	0	1114	0	57	0.0	55.7	0.00	57	0.0	0		
122	Survey #28-GPS to US Environ.	10/25/2005	0	1114	1	46	0.0	55.7	1.00	46	0.0	0		
123	Survey #28-GPS to US Environ.	10/25/2005	0	1114	0	44	0.0	55.7	0.00	44	0.0	-1		
124	Survey 29-Gel Cooler	10/28/2005	1	1058	1	52	0.1	52.9	1.00	52	0.0	0		
125	Survey #30-Lab Routine #1	10/29/2005	4	1030	0	60	0.2	51.5	0.00	60	0.0	0		
126	Survey #30-Lab Routine #2	10/29/2005	4	1030	1	54	0.2	51.5	1.00	54	0.0	0		
127	Survey #30-Lab Routine #3	10/29/2005	4	1030	2	56	0.2	51.5	2.00	56	0.1	0		
128	Survey #30-Lab Routine #4	10/29/2005	4	1030	0	50	0.2	51.5	0.00	50	0.0	0		
129	Survey #30-Lab Routine #5	10/29/2005	4	1030	0	52	0.2	51.5	0.00	52	0.0	0		
130	Survey #30-Lab Routine #6	10/29/2005	4	1030	0	53	0.2	51.5	0.00	53	0.0	0		
131	Survey #30-Lab Routine #7	10/29/2005	4	1030	0	61	0.2	51.5	0.00	61	0.0	0		
132	Survey #30-Lab Routine #8	10/29/2005	4	1030	1	58	0.2	51.5	1.00	58	0.0	0		
133	Survey #30-Lab Routine #9	10/29/2005	4	1030	0	51	0.2	51.5	0.00	51	0.0	0		
134	Survey #31-Soil Prep Routine #1	10/29/2005	4	1030	0	60	0.2	51.5	0.00	60	0.0	0		
135	Survey #31-Soil Prep Routine #2	10/29/2005	4	1030	1	56	0.2	51.5	1.00	56	0.0	0		
136	Survey #31-Soil Prep Routine #3	10/29/2005	4	1030	0	52	0.2	51.5	0.00	52	0.0	0		
137	Survey #31-Soil Prep Routine #4	10/29/2005	4	1030	0	48	0.2	51.5	0.00	48	0.0	0		
138	Survey #31-Soil Prep Routine #5	10/29/2005	4	1030	0	52	0.2	51.5	0.00	52	0.0	0		
139	Survey #31-Soil Prep Routine #6	10/29/2005	4	1030	1	53	0.2	51.5	1.00	53	0.0	0		
140	Survey #31-Soil Prep Routine #7	10/29/2005	4	1030	1	49	0.2	51.5	1.00	49	0.0	0		
141	Survey #31-Soil Prep Routine #8	10/29/2005	4	1030	0	54	0.2	51.5	0.00	54	0.0	0		
142	Survey #31-Soil Prep Routine #9	10/29/2005	4	1030	0	51	0.2	51.5	0.00	51	0.0	0		
143	Survey #32-Gel Cooler #1	10/29/2005	4	1030	1	46	0.2	51.5	1.00	46	0.0	0		
144	Survey #33-Gel Cooler #2	10/29/2005	4	1030	0	51	0.2	51.5	0.00	51	0.0	0		
145	Survey #34-Gel Cooler #3	10/29/2005	4	1030	0	54	0.2	51.5	0.00	54	0.0	0		
146	Survey #35-Gel Cooler #4	10/29/2005	4	1030	0	56	0.2	51.5	0.00	56	0.0	0		
147	Survey #36-Gel Cooler #5	10/29/2005	4	1030	0	53	0.2	51.5	0.00	53	0.0	0		
148	Survey #37-Gel Cooler #1	11/1/2005	3	1057	0	55	0.2	52.9	0.00	55	0.0	0		
149	Survey #38-Gel Cooler #2	11/1/2005	3	1057	1	62	0.2	52.9	1.00	62	0.0	0		
150	Survey #39-Lab Routine #1	11/4/2005	1	978	1	56	0.1	48.9	1.00	56	0.0	0		
151	Survey #39-Lab Routine #2	11/4/2005	1	978	0	52	0.1	48.9	0.00	52	0.0	0		
152	Survey #39-Lab Routine #3	11/4/2005	1	978	1	60	0.1	48.9	1.00	60	0.0	0		
153	Survey #39-Lab Routine #4	11/4/2005	1	978	0	62	0.1	48.9	0.00	62	0.0	1		
154	Survey #39-Lab Routine #5	11/4/2005	1	978	0	46	0.1	48.9	0.00	46	0.0	0		
155	Survey #39-Lab Routine #6	11/4/2005	1	978	1	48	0.1	48.9	1.00	48	0.0	0		
156	Survey #39-Lab Routine #7	11/4/2005	1	978	0	53	0.1	48.9	0.00	53	0.0	0		
157	Survey #39-Lab Routine #8	11/4/2005	1	978	0	59	0.1	48.9	0.00	59	0.0	0		
158	Survey #39-Lab Routine #9	11/4/2005	1	978	0	57	0.1	48.9	0.00	57	0.0	0		
159	Survey #40-Soil Prep Routine #1	11/4/2005	1	978	0	56	0.1	48.9	0.00	56	0.0	0		

CABRERA SMEAR COUNTING WORKSHEET (Rev 5)

α eff	β eff
35.8000	23.3000

Sample Count Time (min)	Daily Background Count Time (min)
1.0	20.0

dpm/100 cm^2	
α Flag	β Flag
20	1000

* Morning Daily Count

seq. #	Sample ID# and Description	Date	Background Total Counts*		Sample Total Counts		Background (cpm)		Sample Counts (cpm)		Sample (dpm/100 cm^2)		> α flag	> β flag
			α	β	α	β	α	β	α	β	α	β		
160	Survey #40-Soil Prep Routine #2	11/4/2005	1	978	1	55	0.1	48.9	1.00	55	0.0	0		
161	Survey #40-Soil Prep Routine #3	11/4/2005	1	978	0	53	0.1	48.9	0.00	53	0.0	0		
162	Survey #40-Soil Prep Routine #4	11/4/2005	1	978	0	56	0.1	48.9	0.00	56	0.0	0		
163	Survey #40-Soil Prep Routine #5	11/4/2005	1	978	0	48	0.1	48.9	0.00	48	0.0	0		
164	Survey #40-Soil Prep Routine #6	11/4/2005	1	978	1	52	0.1	48.9	1.00	52	0.0	0		
165	Survey #40-Soil Prep Routine #7	11/4/2005	1	978	0	54	0.1	48.9	0.00	54	0.0	0		
166	Survey #40-Soil Prep Routine #8	11/4/2005	1	978	1	58	0.1	48.9	1.00	58	0.0	0		
167	Survey #40-Soil Prep Routine #9	11/4/2005	1	978	0	56	0.1	48.9	0.00	56	0.0	0		
168	Survey #41-Drill Rig feet	11/9/2005	3	1021	4	65	0.2	51.1	4.00	65	0.1	1		
169	Survey #41-Drill rig upper guide	11/9/2005	3	1021	2	62	0.2	51.1	2.00	62	0.1	0		
170	Survey #41-Drill rig lower upright	11/9/2005	3	1021	3	52	0.2	51.1	3.00	52	0.1	0		
171	Survey #41-Truck right rear tire	11/9/2005	3	1021	0	51	0.2	51.1	0.00	51	0.0	0		
172	Survey #41-Truck left front tire	11/9/2005	3	1021	0	50	0.2	51.1	0.00	50	0.0	0		
173	Survey #41-Drill rig levers	11/9/2005	3	1021	1	65	0.2	51.1	1.00	65	0.0	1		
174	Survey #41-Drill rig bit tray	11/9/2005	3	1021	0	58	0.2	51.1	0.00	58	0.0	0		
175	Survey #41-Drill rig rod tray	11/9/2005	3	1021	1	60	0.2	51.1	1.00	60	0.0	0		
176	Survey #41-Drill rig lift handle	11/9/2005	3	1021	0	50	0.2	51.1	0.00	50	0.0	0		
177	Survey #41-Truck bed rails	11/9/2005	3	1021	0	46	0.2	51.1	0.00	46	0.0	0		
178	Survey #41-Truck interior shifter	11/9/2005	3	1021	0	39	0.2	51.1	0.00	39	0.0	-1		
179	Survey #41-Truck steering wheel	11/9/2005	3	1021	1	41	0.2	51.1	1.00	41	0.0	0		
180	Survey #41-Truck pedals	11/9/2005	3	1021	0	50	0.2	51.1	0.00	50	0.0	0		
181	Survey #41-Truck Ext. door handel	11/9/2005	3	1021	0	57	0.2	51.1	0.00	57	0.0	0		
182	Survey #41-Truck rear bumpers	11/9/2005	3	1021	3	55	0.2	51.1	3.00	55	0.1	0		
183	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	59	0.2	51.1	0.00	59	0.0	0		
184	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	44	0.2	51.1	0.00	44	0.0	0		
185	Survey#42-Closeout onsite lab	11/9/2005	3	1021	5	57	0.2	51.1	5.00	57	0.1	0		
186	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	66	0.2	51.1	0.00	66	0.0	1		
187	Survey#42-Closeout onsite lab	11/9/2005	3	1021	1	46	0.2	51.1	1.00	46	0.0	0		
188	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	56	0.2	51.1	0.00	56	0.0	0		
189	Survey#42-Closeout onsite lab	11/9/2005	3	1021	2	52	0.2	51.1	2.00	52	0.1	0		
190	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	57	0.2	51.1	0.00	57	0.0	0		
191	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	58	0.2	51.1	0.00	58	0.0	0		
192	Survey#42-Closeout onsite lab	11/9/2005	3	1021	0	48	0.2	51.1	0.00	48	0.0	0		
193	Survey#42-Closeout onsite lab	11/9/2005	3	1021	3	39	0.2	51.1	3.00	39	0.1	-1		
194	Survey #43- Paragon Cooler	11/10/2005	4	999	1	59	0.2	50.0	1.00	59	0.0	0		
195	Survey #44-GEL Cooler #1	11/10/2005	4	999	0	56	0.2	50.0	0.00	56	0.0	0		
196	Survey #45-GEL Cooler#2	11/10/2005	4	999	1	54	0.2	50.0	1.00	54	0.0	0		
197	Survey #46-GEL Cooler #3	11/10/2005	4	999	0	36	0.2	50.0	0.00	36	0.0	-1		
198	Survey #47-GEL Cooler #4	11/10/2005	4	999	3	59	0.2	50.0	3.00	59	0.1	0		
199	Survey #48-Gel Cooler #5	11/10/2005	4	999	1	56	0.2	50.0	1.00	56	0.0	0		
200	Survey #49-GPS to US Environ.	11/11/2005	4	1013	0	59	0.2	50.7	0.00	59	0.0	0		
201	Survey #49-GPS to US Environ.	11/11/2005	4	1013	0	48	0.2	50.7	0.00	48	0.0	0		
202	Survey #49-GPS to US Environ.	11/11/2005	4	1013	0	47	0.2	50.7	0.00	47	0.0	0		
203	Survey #49-GPS to US Environ.	11/11/2005	4	1013	0	60	0.2	50.7	0.00	60	0.0	0		
204	Survey#50- LV1 s/n 002802	11/11/2005	4	1013	0	46	0.2	50.7	0.00	46	0.0	0		
205	Survey #50-LV1 Sample tube	11/11/2005	4	1013	0	56	0.2	50.7	0.00	56	0.0	0		
206	Survey #50-Cooler	11/11/2005	4	1013	2	56	0.2	50.7	2.00	56	0.1	0		
207	Survey #51-GPS to Cabrera	11/11/2005	4	1013	0	48	0.2	50.7	0.00	48	0.0	0		
208	Survey #51-GPS to Cabrera	11/11/2005	4	1013	0	51	0.2	50.7	0.00	51	0.0	0		
209	Survey #51-GPS to Cabrera	11/11/2005	4	1013	0	60	0.2	50.7	0.00	60	0.0	0		
210	Survey #51-GPS to Cabrera	11/11/2005	4	1013	0	41	0.2	50.7	0.00	41	0.0	0		
211	Survey #52-Inst to Cabrera	11/11/2005	4	1013	0	66	0.2	50.7	0.00	66	0.0	1		
212	Survey #52-Inst to Cabrera	11/11/2005	4	1013	1	58	0.2	50.7	1.00	58	0.0	0		
213	Survey #52-Inst to Cabrera	11/11/2005	4	1013	0	53	0.2	50.7	0.00	53	0.0	0		
214	Survey #52-Inst to Cabrera	11/11/2005	4	1013	0	66	0.2	50.7	0.00	66	0.0	1		
215	Survey #53- PID	11/11/2005	4	1013	0	48	0.2	50.7	0.00	48	0.0	0		
216	Survey #53- PID Case	11/11/2005	4	1013	0	59	0.2	50.7	0.00	59	0.0	0		
217	Survey#54-Interface Probe	11/11/2005	4	1013	0	59	0.2	50.7	0.00	59	0.0	0		
218	Survey#54-Interface Probe case	11/11/2005	4	1013	0	51	0.2	50.7	0.00	51	0.0	0		

APPENDIX G

INSTRUMENT QUALITY ASSURANCE/QUALITY CONTROL

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)

Counting Instrument:	Ludlum 2929	Detector:	43-10-1	Calibration Date:	1/17/2005
Serial #:	180830	Serial #:	207849	12 month calibration:	OK
Detector Active Area or Area Covered by Smear (cm^2):			100	NRC 6 Mo Cal. Due Date?	WARNING

	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA (DPM/100cm^2)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm
Alpha	35.8000	Th-230	FD 763	20,340	9/3/1996	7.54E+04	20,338	1000	20	1	0.10	0.04	7269.6	102.39
Beta	23.3000	Tc-99	FS 454	23,100	9/30/1997	2.11E+05	23,099	5000	20	1	52.76	1.64	5344.7	62.84

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta					
9/13/2005	4	1017	7126	5249	0.2	50.9	7125.8	5198.2	QUESTION	PASS	PASS	QUESTION	0.13	1	Yes	Yes	DM
9/14/2005	8	1039	7179	5397	0.4	52.0	7178.6	5345.1	FAIL	PASS	PASS	PASS	0.14	1	Yes	Yes	DM
9/14/2005-R	1	1084	7179	5397	0.1	54.2	7179.0	5342.8	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
9/15/2005	1	1006	7311	5514	0.1	50.3	7311.0	5463.7	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
9/16/2005	2	1000	7239	5608	0.1	50.0	7238.9	5558.0	PASS	PASS	PASS	FAIL	0.11	1	Yes	Yes	DM
9/16/2005-R	2	1000	7239	5406	0.1	50.0	7238.9	5356.0	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
9/19/2005	4	959	7302	5435	0.2	48.0	7301.8	5387.1	QUESTION	QUESTION	PASS	PASS	0.13	1	Yes	Yes	DM
9/20/2005	3	988	7193	5463	0.2	49.4	7192.9	5413.6	PASS	QUESTION	PASS	PASS	0.12	1	Yes	Yes	DM
9/21/2005	2	1000	7233	5561	0.1	50.0	7232.9	5511.0	PASS	PASS	PASS	QUESTION	0.11	1	Yes	Yes	DM
9/22/2005	2	1037	7198	5608	0.1	51.9	7197.9	5556.2	PASS	PASS	PASS	FAIL	0.11	1	Yes	Yes	DM
9/22/2005-R	2	1037	7198	5396	0.1	51.9	7197.9	5344.2	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
9/23/2005	1	1066	7249	5415	0.1	53.3	7249.0	5361.7	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
9/24/2005	1	1101	7156	5495	0.1	55.1	7156.0	5440.0	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
9/26/2005	2	1141	7297	5482	0.1	57.1	7296.9	5425.0	PASS	QUESTION	PASS	PASS	0.11	1	Yes	Yes	DM
9/27/2005	0	1023	7312	5328	0.0	51.2	7312.0	5276.9	QUESTION	PASS	PASS	PASS	0.08	1	Yes	Yes	DM
9/28/2005	2	948	7180	5402	0.1	47.4	7179.9	5354.6	PASS	FAIL	PASS	PASS	0.11	1	Yes	Yes	DM
9/28/2005-R	2	1006	7180	5402	0.1	50.3	7179.9	5351.7	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
9/29/2005	2	1045	7261	5377	0.1	52.3	7260.9	5324.8	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
9/30/2005	0	1059	7288	5519	0.0	53.0	7288.0	5466.1	QUESTION	PASS	PASS	PASS	0.08	1	Yes	Yes	DM
10/3/2005	3	995	7180	5388	0.2	49.8	7179.9	5338.3	PASS	PASS	PASS	PASS	0.12	1	Yes	Yes	DM
10/4/2005	4	1027	7265	5409	0.2	51.4	7264.8	5357.7	QUESTION	PASS	PASS	PASS	0.13	1	Yes	Yes	DM
10/5/2005	2	985	7194	5474	0.1	49.3	7193.9	5424.8	PASS	QUESTION	PASS	PASS	0.11	1	Yes	Yes	DM
10/6/2005	3	1051	7177	5380	0.2	52.6	7176.9	5327.5	PASS	PASS	PASS	PASS	0.12	1	Yes	Yes	DM
10/7/2005	1	998	7126	5544	0.1	49.9	7126.0	5494.1	PASS	PASS	PASS	QUESTION	0.10	1	Yes	Yes	DM
10/10/2005	2	1029	7294	5486	0.1	51.5	7293.9	5434.6	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
10/11/2005	3	1110	6981	5561	0.2	55.5	6980.9	5505.5	PASS	PASS	QUESTION	QUESTION	0.12	1	Yes	Yes	DM
10/12/2005	2	986	6992	5618	0.1	49.3	6991.9	5568.7	PASS	QUESTION	QUESTION	FAIL	0.11	1	Yes	Yes	DM
10/12/2005-R	2	986	6992	5412	0.1	49.3	6991.9	5362.7	PASS	QUESTION	QUESTION	PASS	0.11	1	Yes	Yes	DM
10/13/2005	2	1073	6984	5440	0.1	53.7	6983.9	5386.4	PASS	PASS	QUESTION	PASS	0.11	1	Yes	Yes	DM
10/14/2005	2	1046	7073	5527	0.1	52.3	7072.9	5474.7	PASS	PASS	PASS	QUESTION	0.11	1	Yes	Yes	DM
10/17/2005	1	1030	7084	5500	0.1	51.5	7084.0	5448.5	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
10/18/2005	2	999	7080	5521	0.1	50.0	7079.9	5471.1	PASS	PASS	PASS	QUESTION	0.11	1	Yes	Yes	DM
10/19/2005	3	1105	7268	5528	0.2	55.3	7267.9	5472.8	PASS	PASS	PASS	QUESTION	0.12	1	Yes	Yes	DM
10/20/2005	4	1042	7181	5578	0.2	52.1	7180.8	5525.9	QUESTION	PASS	PASS	QUESTION	0.13	1	Yes	Yes	DM
10/21/2005	4	1063	7144	5498	0.2	53.2	7143.8	5444.9	QUESTION	PASS	PASS	PASS	0.13	1	Yes	Yes	DM
10/22/2005	2	981	6966	5537	0.1	49.1	6965.9	5488.0	PASS	QUESTION	QUESTION	QUESTION	0.11	1	Yes	Yes	DM
10/24/2005	0	1063	7299	5545	0.0	53.2	7299.0	5491.9	QUESTION	PASS	PASS	QUESTION	0.08	1	Yes	Yes	DM
10/25/2005	0	1114	7230	5514	0.0	55.7	7230.0	5458.3	QUESTION	PASS	PASS	PASS	0.08	1	Yes	Yes	DM
10/26/2005	2	1090	7153	5582	0.1	54.5	7152.9	5527.5	PASS	PASS	PASS	QUESTION	0.11	1	Yes	Yes	DM
10/27/2005	2	1015	7150	5467	0.1	50.8	7149.9	5416.3	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
10/28/2005	1	1058	7204	5483	0.1	52.9	7204.0	5430.1	PASS	PASS	PASS	PASS	0.10	1	Yes	Yes	DM
10/29/2005	4	1030	7165	5508	0.2	51.5	7164.8	5456.5	QUESTION	PASS	PASS	PASS	0.13	1	Yes	Yes	DM
10/31/2005	3	1039	7177	5541	0.2	52.0	7176.9	5489.1	PASS	PASS	PASS	QUESTION	0.12	1	Yes	Yes	DM
11/1/2005	3	1057	7180	5496	0.2	52.9	7179.9	5443.2	PASS	PASS	PASS	PASS	0.12	1	Yes	Yes	DM

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)

	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA (DPM/100cm^2)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm
Alpha	35.8000	Th-230	FD 763	20,340	9/3/1996	7.54E+04	20,338	1000	20	1	0.10	0.04	7269.6	102.39
Beta	23.3000	Tc-99	FS 454	23,100	9/30/1997	2.11E+05	23,099	5000	20	1	52.76	1.64	5344.7	62.84

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail						
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician
11/2/2005	0	987	7139	5413	0.0	49.4	7139.0	5363.7	*QUESTION*	*QUESTION*	PASS	PASS	0.08	1	Yes	Yes	DM
11/3/2005	3	1029	6997	5521	0.2	51.5	6996.9	5469.6	PASS	PASS	*QUESTION*	PASS	0.12	1	Yes	Yes	DM
11/4/2005	1	978	7315	5461	0.1	48.9	7315.0	5412.1	PASS	*QUESTION*	PASS	PASS	0.10	1	Yes	Yes	DM
11/5/2005	2	1031	7200	5397	0.1	51.6	7199.9	5345.5	PASS	PASS	PASS	PASS	0.11	1	Yes	Yes	DM
11/7/2005	3	1006	7294	5488	0.2	50.3	7293.9	5437.7	PASS	PASS	PASS	PASS	0.12	1	Yes	Yes	DM
11/8/2005	0	991	7308	5507	0.0	49.6	7308.0	5457.5	*QUESTION*	PASS	PASS	PASS	0.08	1	Yes	Yes	DM
11/9/2005	3	1021	7199	5394	0.2	51.1	7198.9	5343.0	PASS	PASS	PASS	PASS	0.12	1	Yes	Yes	DM
11/10/2005	4	999	7204	5433	0.2	50.0	7203.8	5383.1	*QUESTION*	PASS	PASS	PASS	0.13	1	Yes	Yes	DM
11/11/2005	4	1013	6995	5491	0.2	50.7	6994.8	5440.4	*QUESTION*	PASS	*QUESTION*	PASS	0.13	1	Yes	Yes	DM

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)

Counting Instrument:			Ludlum 2224-1		Detector:	43-89		Calibration Date:		12/30/2004				
Serial #:			162420		Serial #:	171381		12 month calibration:		OK				
Detector Active Area or Area Covered by Smear (cm^2):						100		NRC 6 Mo Cal. Due Date?		WARNING				
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm
Alpha	15.0000	Th-230	FD 763	20,340	9/3/1996	7.54E+04	20,338	1000	1	1	5.50	2.07	3044.5	59.35
Beta	11.0000	Tc-99	FS 454	23,100	9/30/1997	2.11E+05	23,099	5000	1	1	285.60	12.32	2261.6	53.15

Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta					
9/14/2005	6	286	3089	2573	6.0	286.0	3083.0	2287.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM
9/15/2005	7	275	2978	2637	7.0	275.0	2971.0	2362.0	PASS	PASS	PASS	PASS	1.02	7	Yes	Yes	DM
9/16/2005	8	293	2970	2589	8.0	293.0	2962.0	2296.0	PASS	PASS	PASS	PASS	1.08	8	Yes	Yes	DM
9/17/2005																	
9/18/2005																	
9/19/2005	2	291	2982	2628	2.0	291.0	2980.0	2337.0	PASS	PASS	PASS	PASS	0.64	7	Yes	Yes	DM
9/20/2005	4	267	2886	2557	4.0	267.0	2882.0	2290.0	PASS	PASS	QUESTION	PASS	0.82	7	Yes	Yes	DM
9/21/2005	3	280	2654	2554	3.0	280.0	2651.0	2274.0	PASS	PASS	**FAIL**	PASS	0.74	7	Yes	Yes	DM
9/21/2005R	3	280	2981	2554	3.0	280.0	2978.0	2274.0	PASS	PASS	PASS	PASS	0.74	7	Yes	Yes	DM
9/22/2005	6	279	2993	2536	6.0	279.0	2987.0	2257.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM
9/23/2005	7	279	3015	2686	7.0	279.0	3008.0	2407.0	PASS	PASS	PASS	QUESTION	1.02	7	Yes	Yes	DM
9/24/2005	6	291	3122	2711	6.0	291.0	3116.0	2420.0	PASS	PASS	PASS	QUESTION	0.96	7	Yes	Yes	DM
9/26/2005	4	311	2950	2574	4.0	311.0	2946.0	2263.0	PASS	QUESTION	PASS	PASS	0.82	8	Yes	Yes	DM
9/27/2005	4	289	2731	2691	4.0	289.0	2727.0	2402.0	PASS	PASS	**FAIL**	QUESTION	0.82	7	Yes	Yes	DM
9/27/2005-R	6	289	2987	2691	6.0	289.0	2981.0	2402.0	PASS	PASS	PASS	QUESTION	0.96	7	Yes	Yes	DM
9/28/2005	4	268	2883	2674	4.0	268.0	2879.0	2406.0	PASS	PASS	QUESTION	QUESTION	0.82	7	Yes	Yes	DM
9/29/2005	5	284	2985	2566	5.0	284.0	2980.0	2282.0	PASS	PASS	PASS	PASS	0.89	7	Yes	Yes	DM
9/30/2005	6	299	2964	2619	6.0	299.0	2958.0	2320.0	PASS	PASS	PASS	PASS	0.96	8	Yes	Yes	DM
10/3/2005	6	276	3092	2594	6.0	276.0	3086.0	2318.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM
10/4/2005	7	301	2961	2588	7.0	301.0	2954.0	2287.0	PASS	PASS	PASS	PASS	1.02	8	Yes	Yes	DM
10/5/2005	5	281	2971	2610	5.0	281.0	2966.0	2329.0	PASS	PASS	PASS	PASS	0.89	7	Yes	Yes	DM
10/6/2005	6	307	3021	2622	6.0	307.0	3015.0	2315.0	PASS	PASS	PASS	PASS	0.96	8	Yes	Yes	DM
10/7/2005	6	275	3098	2649	6.0	275.0	3092.0	2374.0	PASS	PASS	PASS	QUESTION	0.96	7	Yes	Yes	DM
10/10/2005	8	302	3071	2703	8.0	302.0	3063.0	2401.0	PASS	PASS	PASS	QUESTION	1.08	8	Yes	Yes	DM
10/11/2005	6	281	2890	2602	6.0	281.0	2884.0	2321.0	PASS	PASS	QUESTION	PASS	0.96	7	Yes	Yes	DM
10/12/2005	5	277	3039	2666	5.0	277.0	3034.0	2389.0	PASS	PASS	PASS	QUESTION	0.89	7	Yes	Yes	DM
10/13/2005	7	290	2998	2624	7.0	290.0	2991.0	2334.0	PASS	PASS	PASS	PASS	1.02	7	Yes	Yes	DM
10/14/2005	2	308	3011	2597	2.0	308.0	3009.0	2289.0	PASS	PASS	PASS	PASS	0.64	8	Yes	Yes	DM
10/17/2005	5	304	2989	2679	5.0	304.0	2984.0	2375.0	PASS	PASS	PASS	QUESTION	0.89	8	Yes	Yes	DM
10/18/2005	6	289	2914	2631	6.0	289.0	2908.0	2342.0	PASS	PASS	QUESTION	PASS	0.96	7	Yes	Yes	DM
10/19/2005	5	261	2874	2590	5.0	261.0	2869.0	2329.0	PASS	PASS	QUESTION	PASS	0.89	7	Yes	Yes	DM
10/20/2005	4	273	2967	2624	4.0	273.0	2963.0	2351.0	PASS	PASS	PASS	PASS	0.82	7	Yes	Yes	DM
10/21/2005	7	295	2934	2613	7.0	295.0	2927.0	2318.0	PASS	PASS	PASS	PASS	1.02	8	Yes	Yes	DM
10/22/2005	4	302	2947	2661	4.0	302.0	2943.0	2359.0	PASS	PASS	PASS	PASS	0.82	8	Yes	Yes	DM
10/24/2005	4	291	2964	2641	4.0	291.0	2960.0	2350.0	PASS	PASS	PASS	PASS	0.82	7	Yes	Yes	DM
10/25/2005	8	288	2889	2610	8.0	288.0	2881.0	2322.0	PASS	PASS	QUESTION	PASS	1.08	7	Yes	Yes	DM
10/26/2005	7	300	2921	2583	7.0	300.0	2914.0	2283.0	PASS	PASS	QUESTION	PASS	1.02	8	Yes	Yes	DM
10/27/2005	7	290	2935	2601	7.0	290.0	2928.0	2311.0	PASS	PASS	PASS	PASS	1.02	7	Yes	Yes	DM
10/28/2005	8	286	2917	2566	8.0	286.0	2909.0	2280.0	PASS	PASS	QUESTION	PASS	1.08	7	Yes	Yes	DM
10/29/2005	6	279	2941	2548	6.0	279.0	2935.0	2269.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM
11/1/2005	7	301	2930	2611	7.0	301.0	2923.0	2310.0	PASS	PASS	QUESTION	PASS	1.02	8	Yes	Yes	DM
11/2/2005	4	313	2894	2602	4.0	313.0	2890.0	2289.0	PASS	QUESTION	QUESTION	PASS	0.82	8	Yes	Yes	DM
11/3/2005	5	281	2880	2585	5.0	281.0	2875.0	2304.0	PASS	PASS	QUESTION	PASS	0.89	7	Yes	Yes	DM
11/4/2005	6	273	2950	2611	6.0	273.0	2944.0	2338.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)

	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA (DPM/100cm^2)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm			
Alpha	15.0000	Th-230	FD 763	20,340	9/3/1996	7.54E+04	20,338	1000	1	1	5.50	2.07	3044.5	59.35			
Beta	11.0000	Tc-99	FS 454	23,100	9/30/1997	2.11E+05	23,099	5000	1	1	285.60	12.32	2261.6	53.15			

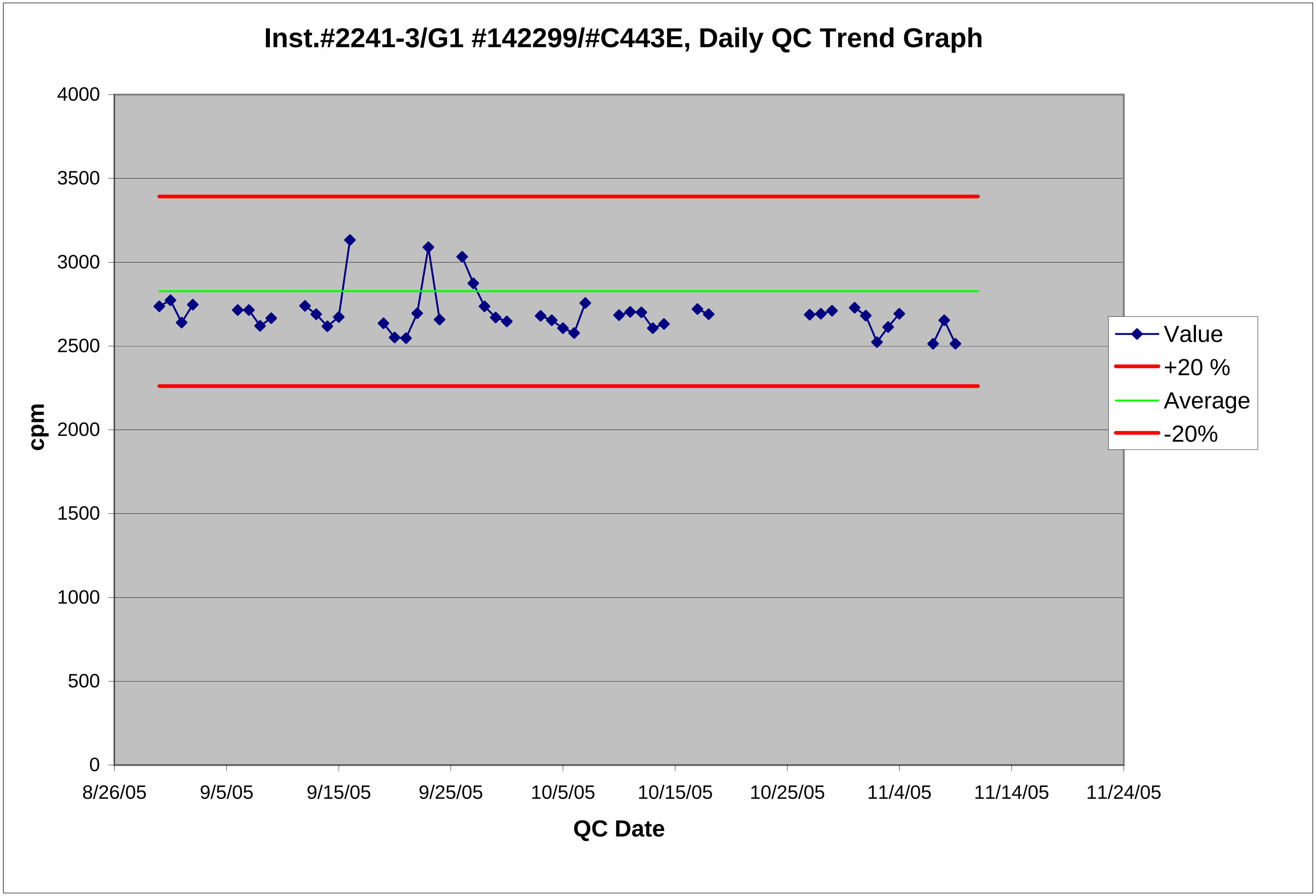
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				α MDA	β MDA	H.P.
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)	OK?	OK?	Technician
11/7/2005	7	268	2891	2608	7.0	268.0	2884.0	2340.0	PASS	PASS	*QUESTION*	PASS	1.02	7	Yes	Yes	DM
11/8/2005	6	294	2964	2574	6.0	294.0	2958.0	2280.0	PASS	PASS	PASS	PASS	0.96	8	Yes	Yes	DM
11/9/2005	4	307	2941	2614	4.0	307.0	2937.0	2307.0	PASS	PASS	PASS	PASS	0.82	8	Yes	Yes	DM
10/31/2005	6	279	2914	2607	6.0	279.0	2908.0	2328.0	PASS	PASS	*QUESTION*	PASS	0.96	7	Yes	Yes	DM
11/1/2005	7	301	2930	2611	7.0	301.0	2923.0	2310.0	PASS	PASS	*QUESTION*	PASS	1.02	8	Yes	Yes	DM
11/2/2005	4	313	2894	2602	4.0	313.0	2890.0	2289.0	PASS	*QUESTION*	*QUESTION*	PASS	0.82	8	Yes	Yes	DM
11/3/2005	5	281	2880	2585	5.0	281.0	2875.0	2304.0	PASS	PASS	*QUESTION*	PASS	0.89	7	Yes	Yes	DM
11/4/2005	6	273	2950	2611	6.0	273.0	2944.0	2338.0	PASS	PASS	PASS	PASS	0.96	7	Yes	Yes	DM
11/7/2005	7	268	2891	2608	7.0	268.0	2884.0	2340.0	PASS	PASS	*QUESTION*	PASS	1.02	7	Yes	Yes	DM
11/8/2005	6	294	2964	2574	6.0	294.0	2958.0	2280.0	PASS	PASS	PASS	PASS	0.96	8	Yes	Yes	DM
11/9/2005	4	307	2941	2614	4.0	307.0	2937.0	2307.0	PASS	PASS	PASS	PASS	0.82	8	Yes	Yes	DM
11/10/2005	5	314	2947	2640	5.0	314.0	2942.0	2326.0	PASS	*QUESTION*	PASS	PASS	0.89	8	Yes	Yes	DM
11/11/2005	6	318	2899	2621	6.0	318.0	2893.0	2303.0	PASS	*QUESTION*	*QUESTION*	PASS	0.96	8	Yes	Yes	DM

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)

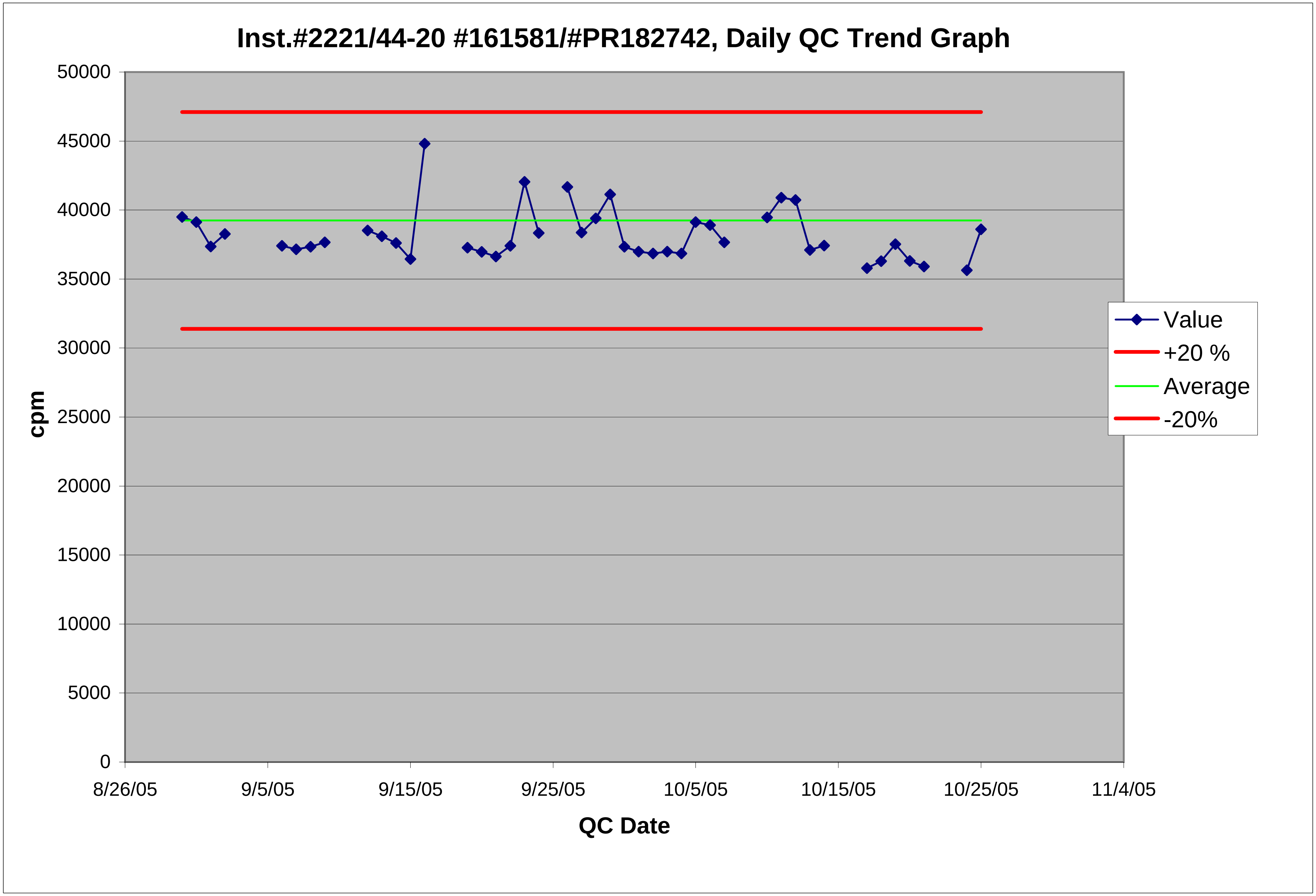
Counting Instrument:	Ludlum 2929	Detector:	43-10-1	Calibration Date:	3/8/2005
Serial #:	163827	Serial #:	PR171322	12 month calibration:	OK
Detector Active Area or Area Covered by Smear (cm^2):	100			NRC 6 Mo Cal. Due Date?	WARNING

	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	$T_{1/2}$ (yr)	Source Decayed Activity	Required MDA ($DPM/100cm^2$)	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source-Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm
Alpha	0.3488	Th-230	DNS11	22,800	6/11/2001	7.54E+04	22,799	1000	5	1	0.06	0.13	7953.1	115.86
Beta	0.1395	Tc-99	DNS12	17,300	6/5/2001	2.11E+05	17,300	5000	5	1	40.28	2.08	2414.0	60.90

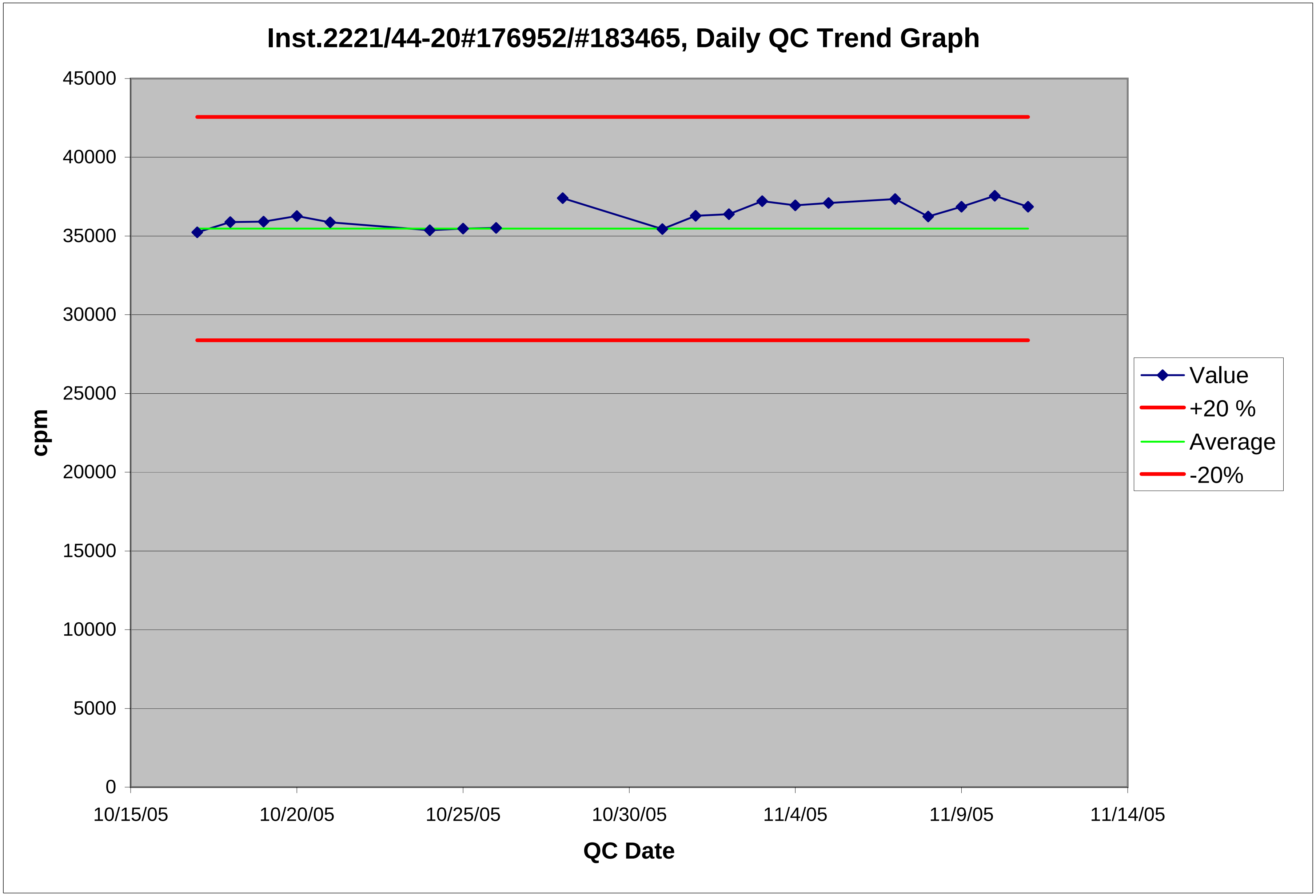
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail						
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician
1/10/2006	1	202	7663	2366	0.2	40.4	7662.8	2325.6	PASS	PASS	*QUESTION*	PASS	13.22	186	Yes	Yes	PR
1/10/06-R	1	202	7963	2424	0.2	40.4	7962.8	2383.6	PASS	PASS	PASS	PASS	13.22	186	Yes	Yes	PR



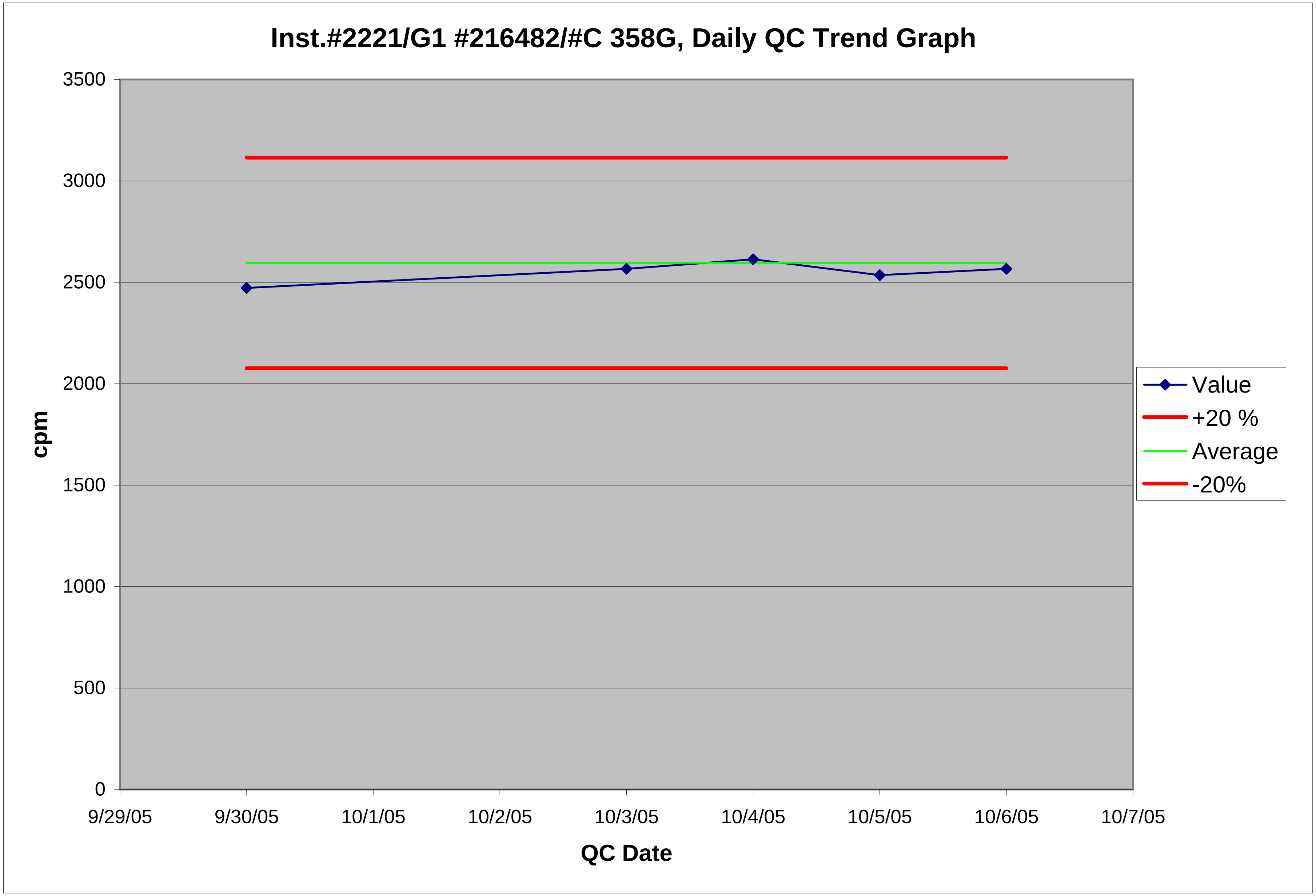
Inst.#2241-3/G1 #142299/#C443E, Daily QC Trend Graph
4000
3500
3000
2500
2000
1500
1000
500
0
cpm
8/26/05
9/5/05
9/15/05
9/25/05
10/5/05
10/15/05
10/25/05
11/4/05
11/14/05
11/24/05
QC Date
Value
+20 %
Average
-20%

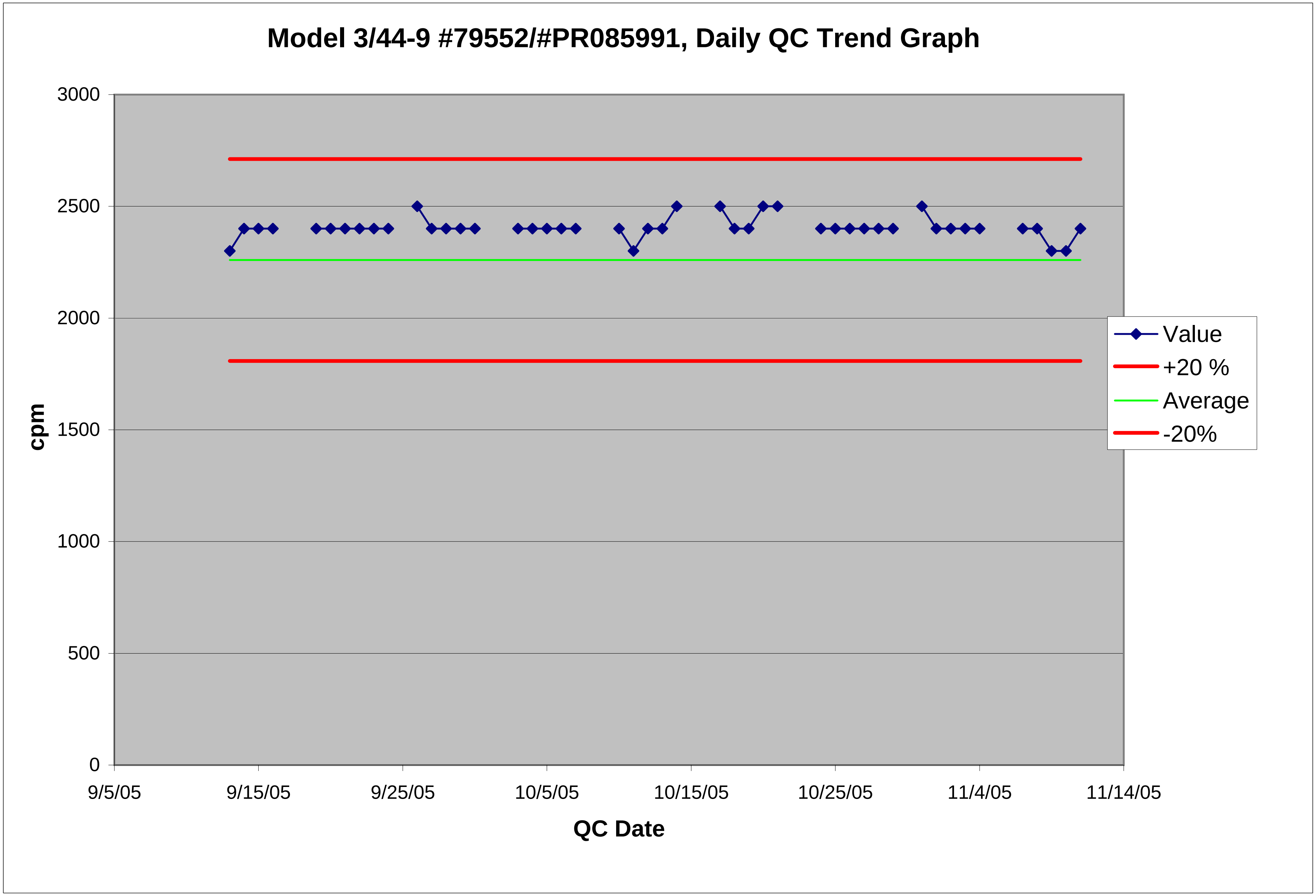


Inst.#2221/44-20 #161581/#PR182742, Daily QC Trend Graph
cpm
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
8/26/05
9/5/05
9/15/05
9/25/05
10/5/05
10/15/05
10/25/05
11/4/05
QC Date
Value
+20 %
Average
-20%

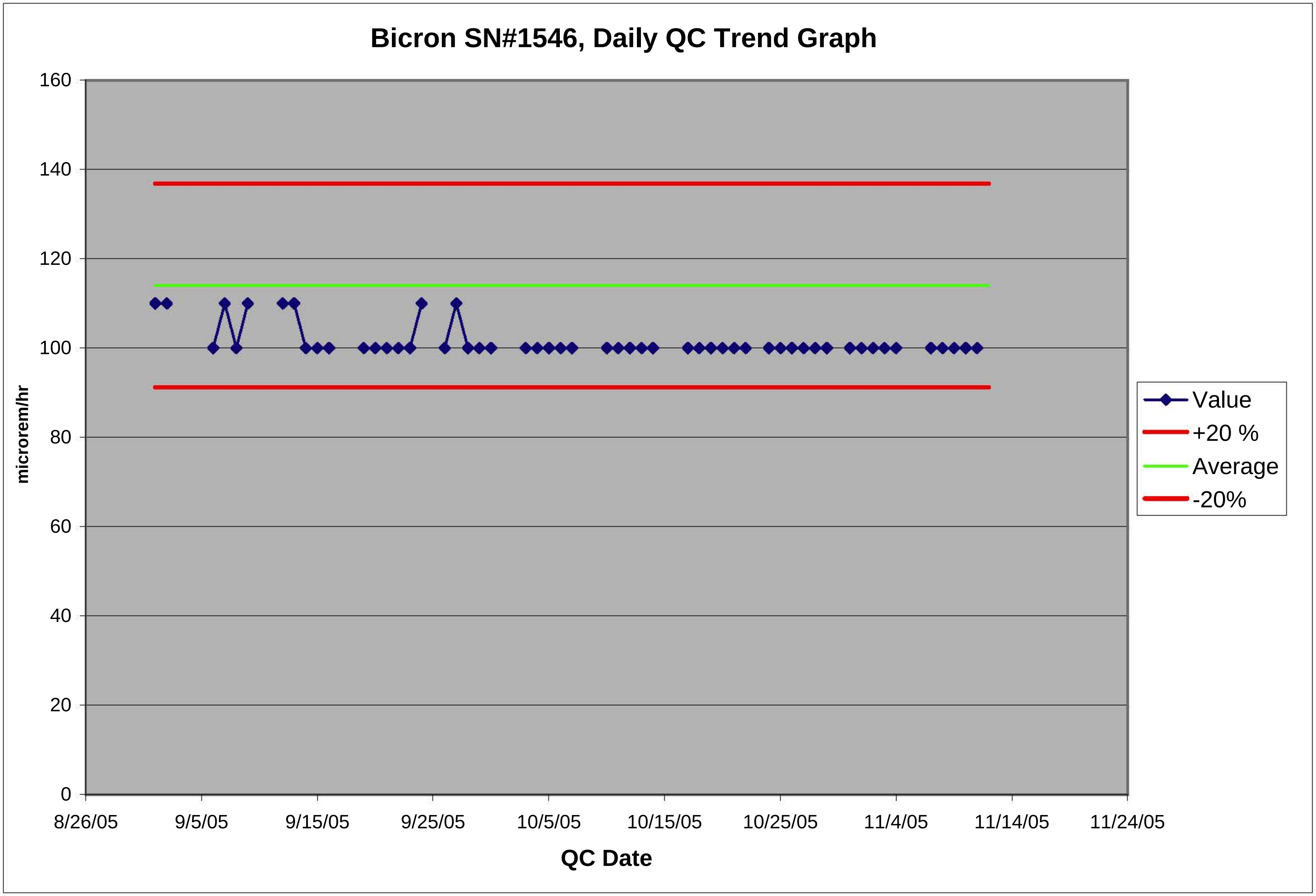


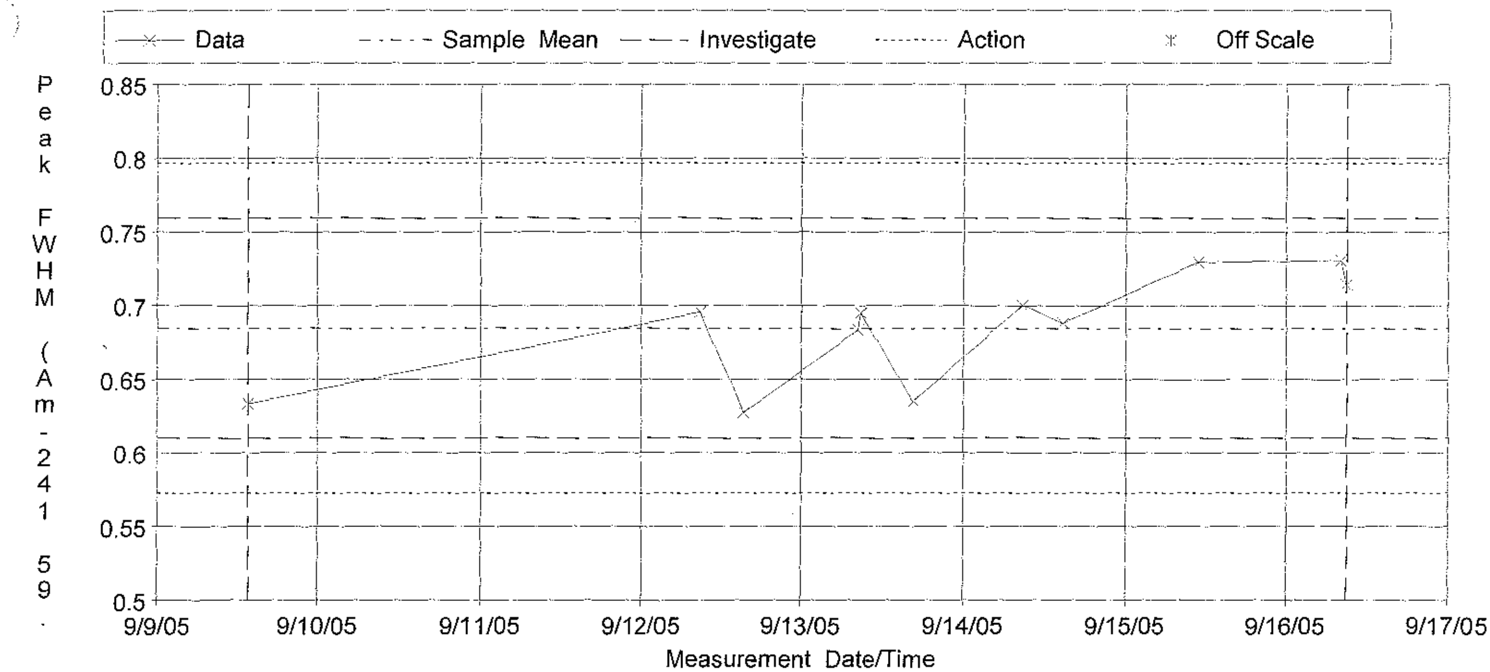
Inst.2221/44-20#176952/#183465, Daily QC Trend Graph
cpm
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
10/15/05
10/20/05
10/25/05
10/30/05
11/4/05
11/9/05
11/14/05
QC Date
Value
+20 %
Average
-20%


Inst.#2221/G1 #216482/#C 358G, Daily QC Trend Graph
cpm
3500
3000
2500
2000
1500
1000
500
0
9/29/05
9/30/05
10/1/05
10/2/05
10/3/05
10/4/05
10/5/05
10/6/05
10/7/05
QC Date
Value
+20 %
Average
-20%



Model 3/44-9 #79552/#PR085991, Daily QC Trend Graph
3000
2500
2000
1500
1000
500
0
cpm
9/5/05
9/15/05
9/25/05
10/5/05
10/15/05
10/25/05
11/4/05
11/14/05
QC Date
Value
+20 %
Average
-20%

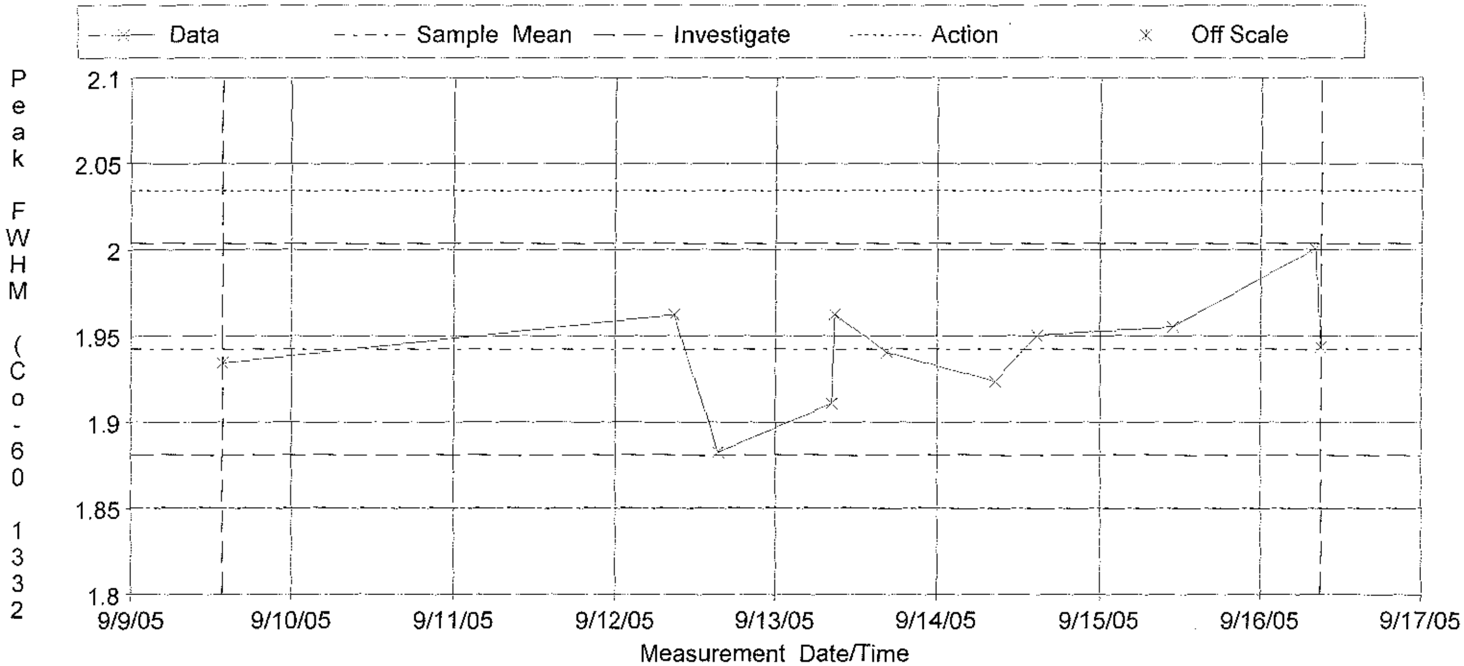

Bicron SN#1546, Daily QC Trend Graph
160
140
120
100
80
60
40
20
0
microrem/hr
8/26/05
9/5/05
9/15/05
9/25/05
10/5/05
10/15/05
10/25/05
11/4/05
11/14/05
11/24/05
QC Date
Value
+20 %
Average
-20%



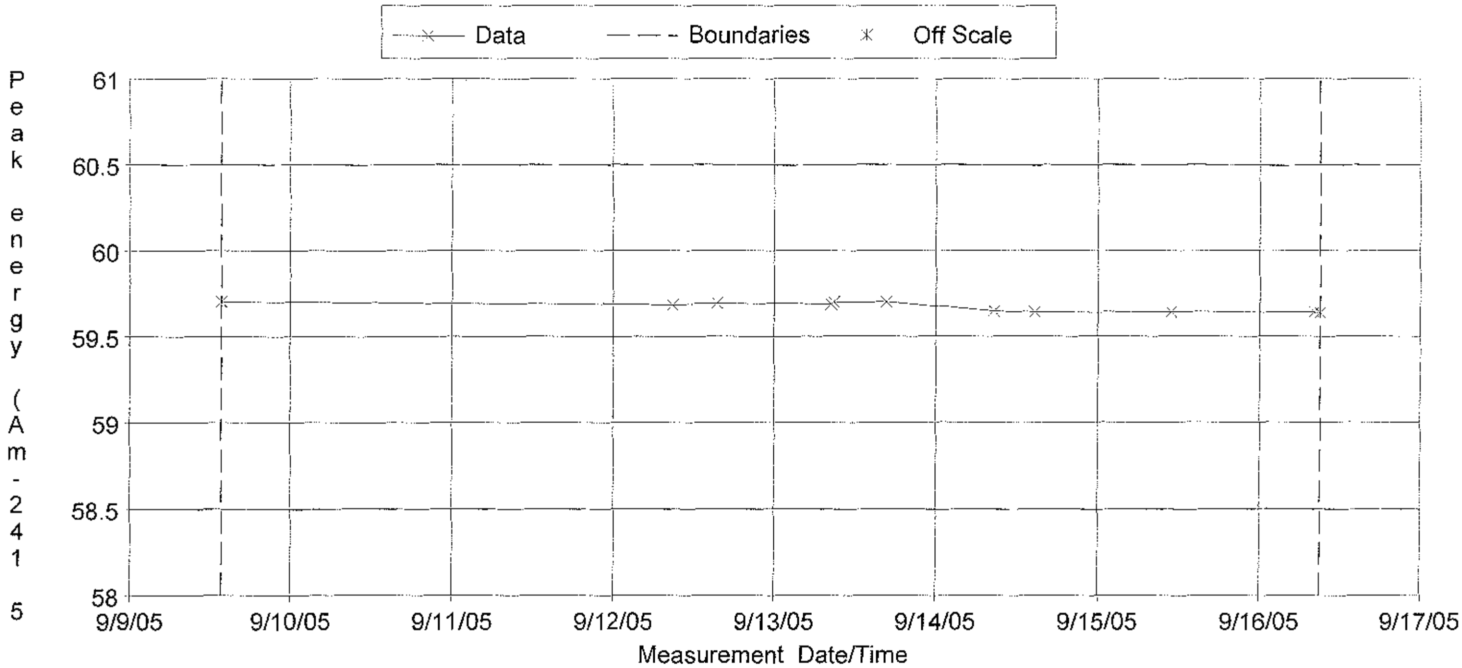
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Sample Mean +/- Std Dev : 0.685 +/- 0.037

[redacted]

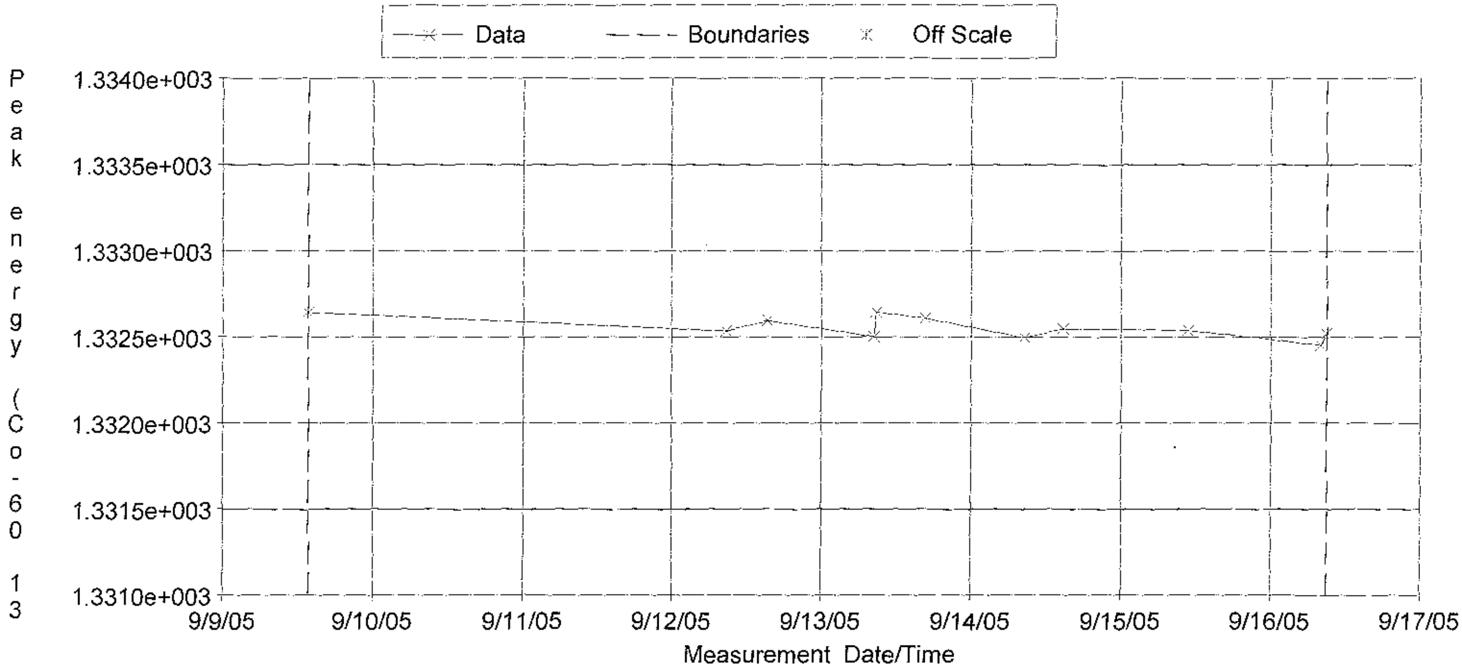
9.16.05



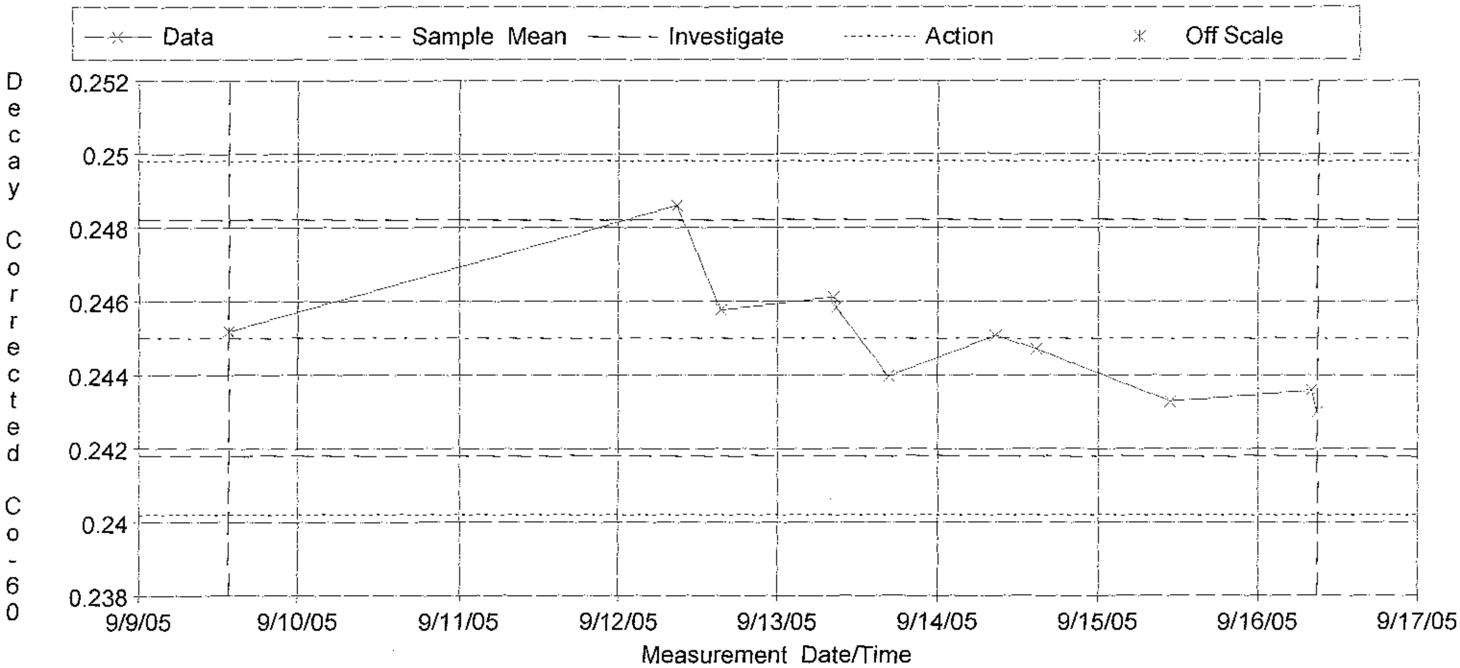
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Sample Mean +/- Std Dev : 1.942 +/- 0.031



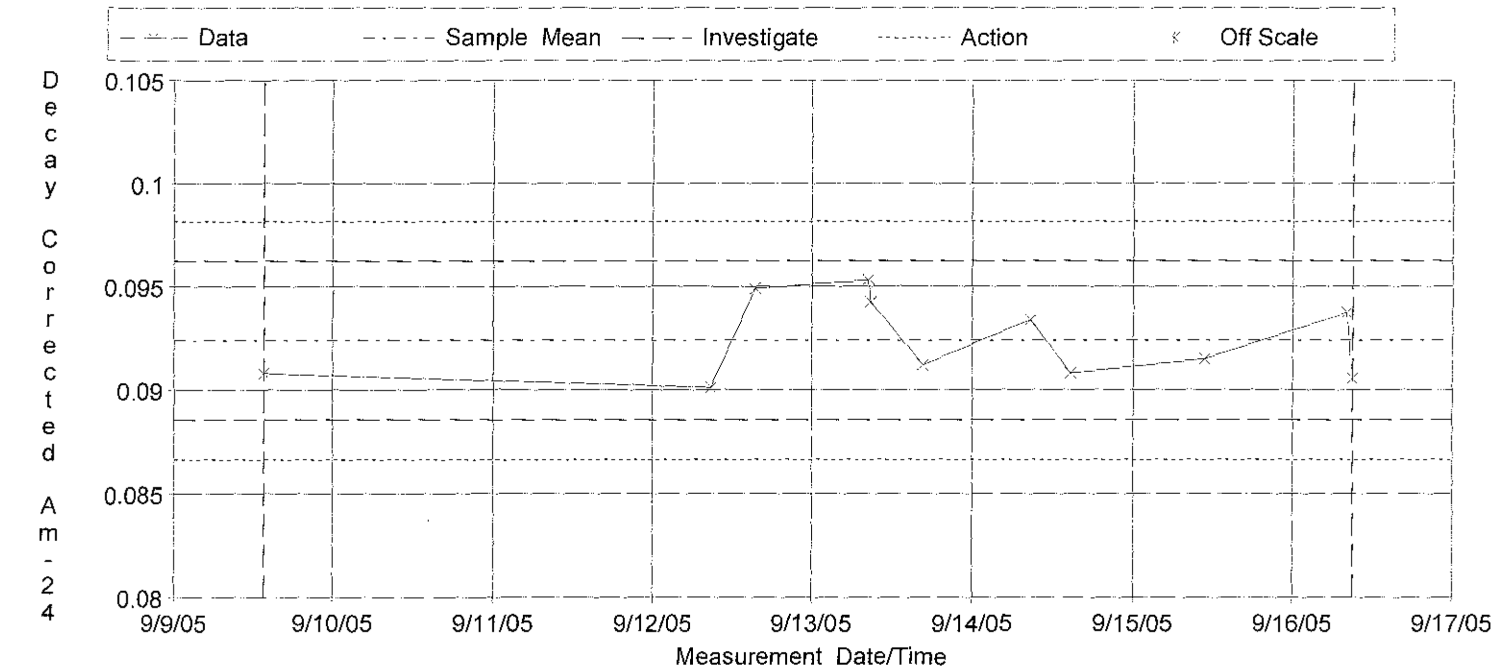
QA Filename	:	C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	:	Peak energy (Am-241 59.5 keV) (keV)
Selection Dates	:	9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Lower/Upper Boundaries	:	58.500 - 60.500



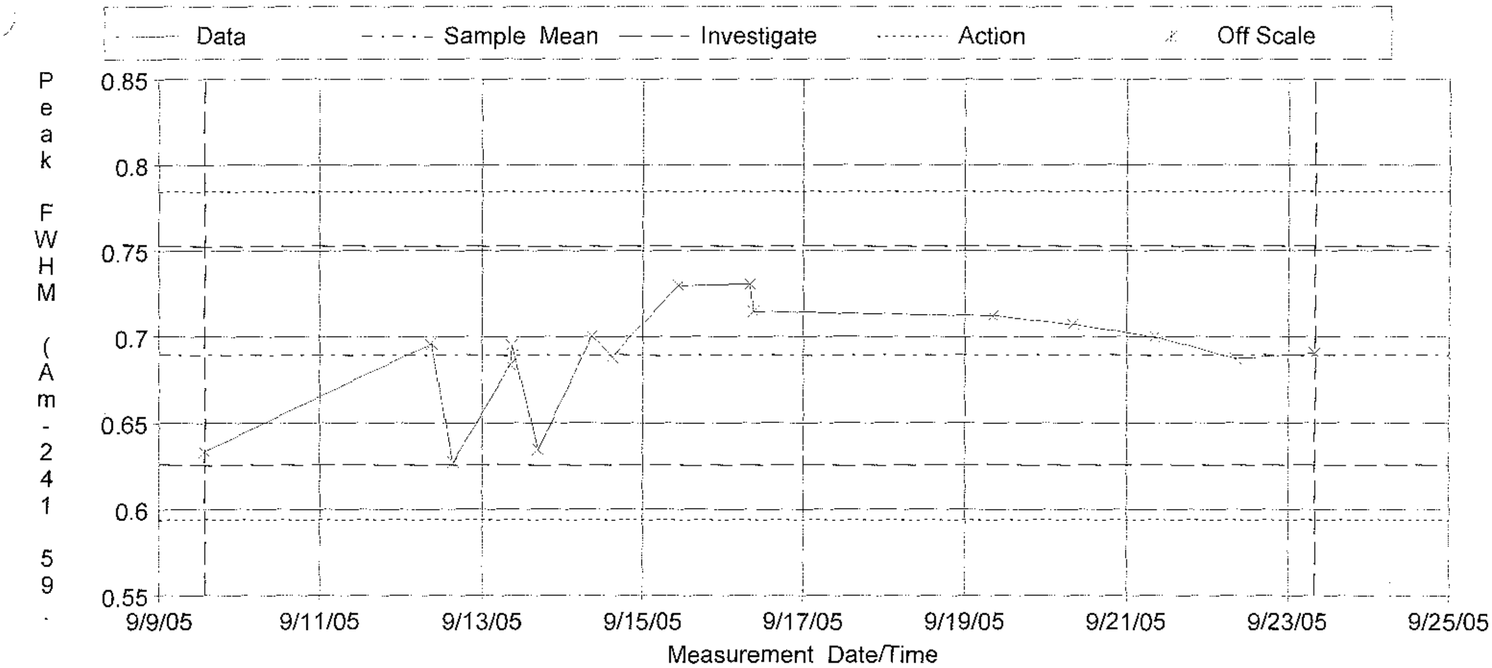
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Sample Mean +/- Std Dev : 0.245 +/- 1.60e-003

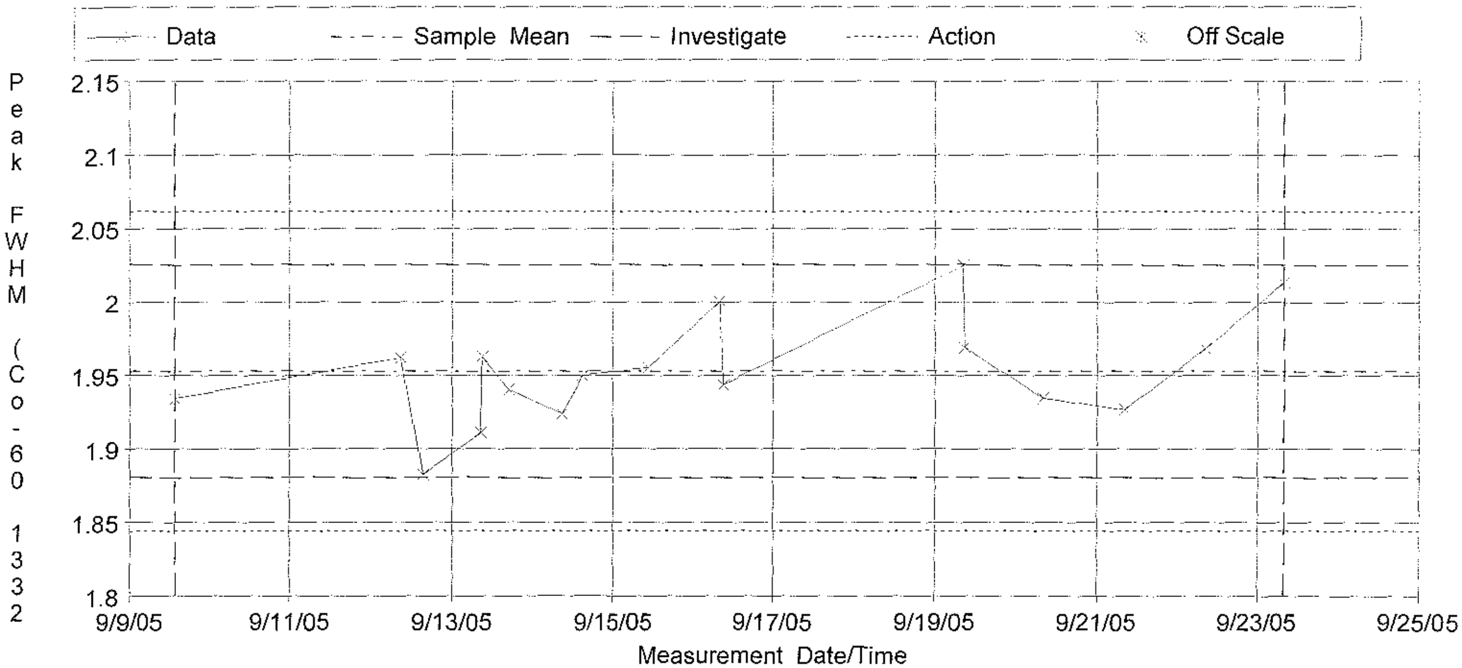


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/16/05 9:00:31 AM
Sample Mean +/- Std Dev : 0.092 +/- 1.92e-003

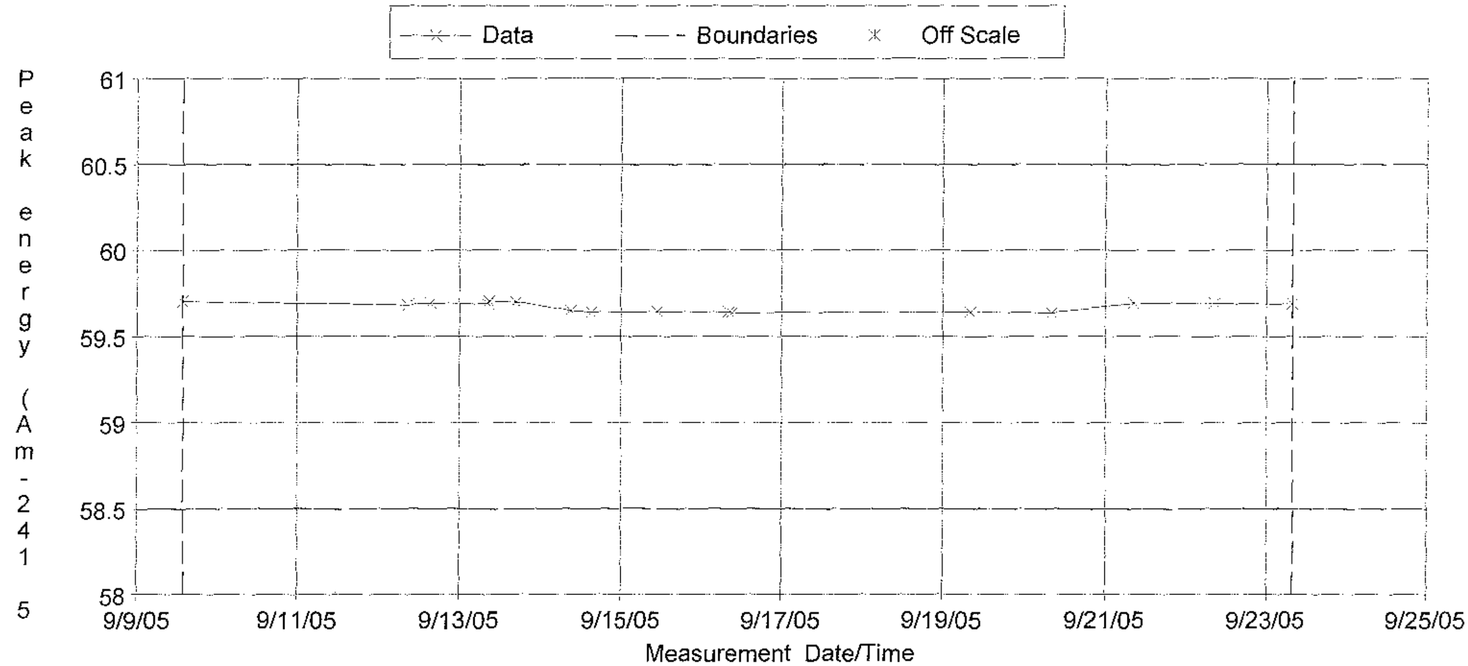


QA Filename	: C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	: Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates	: 9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Sample Mean +/- Std Dev	: 0.689 +/- 0.032

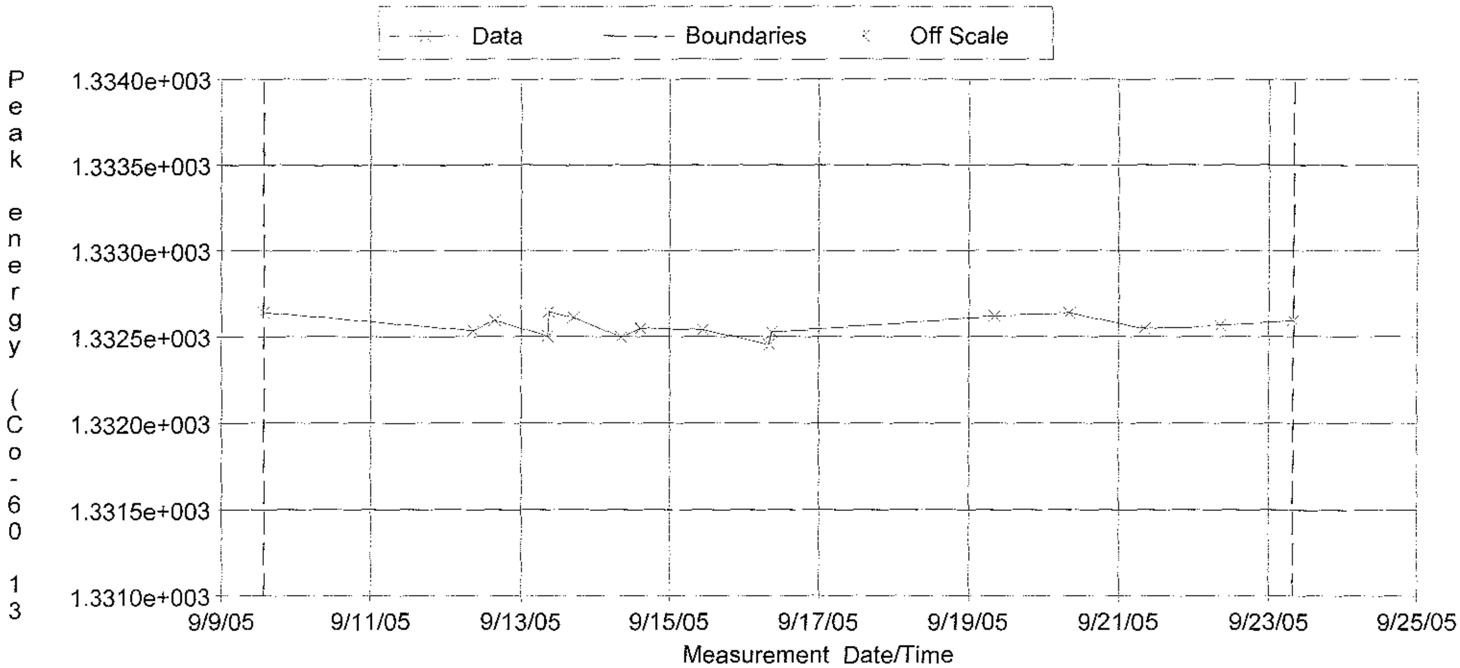
9-23-05 [redacted]



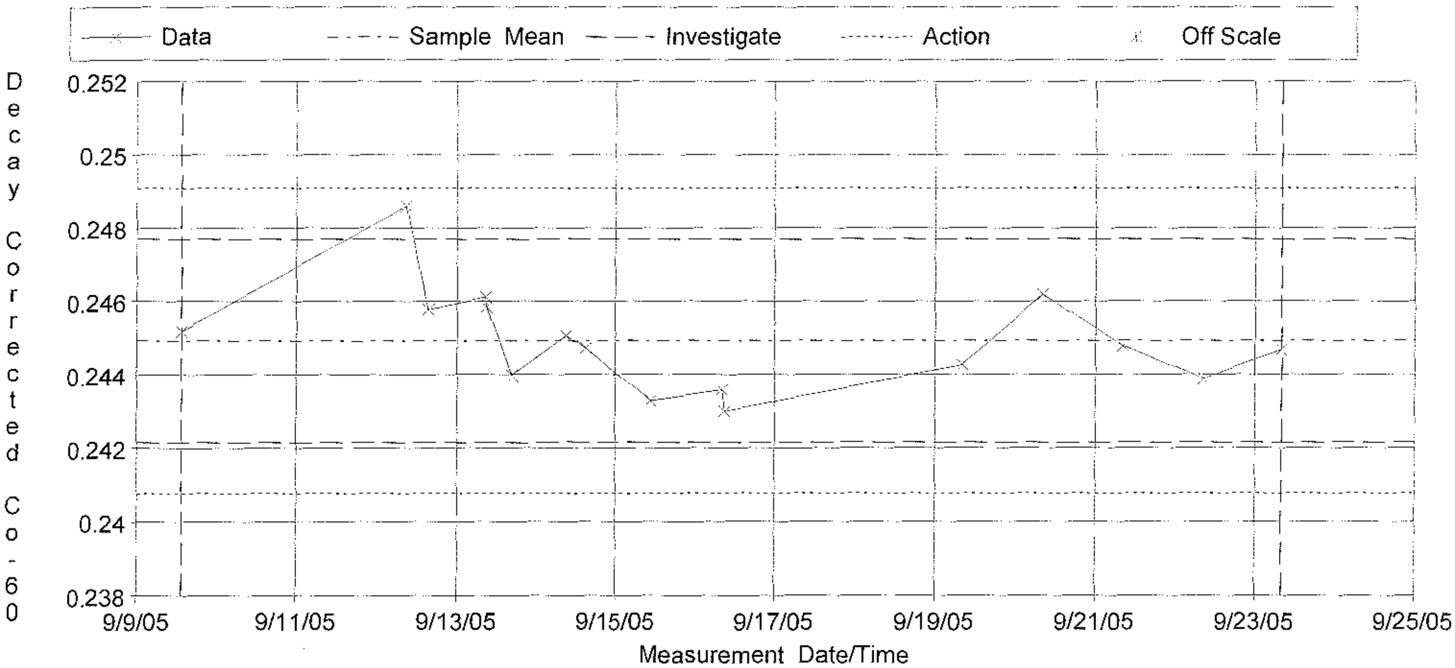
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Sample Mean +/- Std Dev : 1.953 +/- 0.036



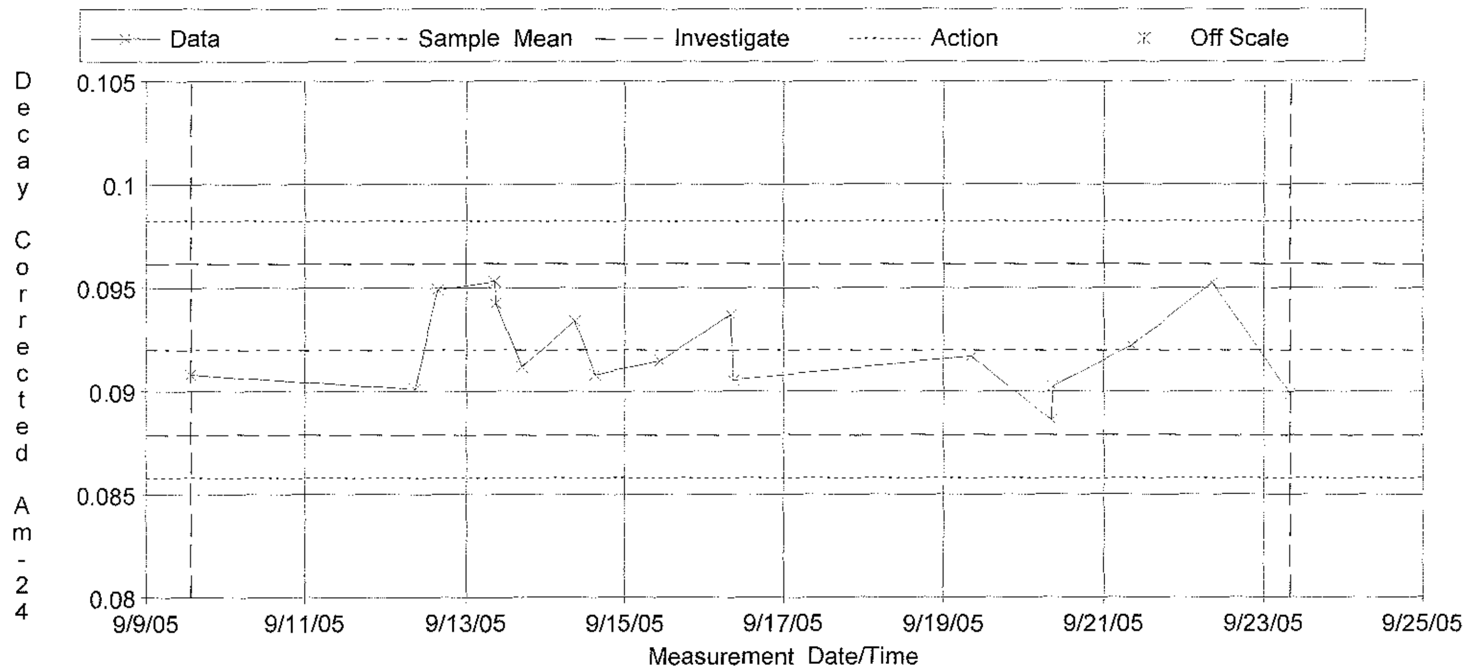
QA Filename	:	C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	:	Peak energy (Am-241 59.5 keV) (keV)
Selection Dates	:	9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Lower/Upper Boundaries	:	58.500 - 60.500



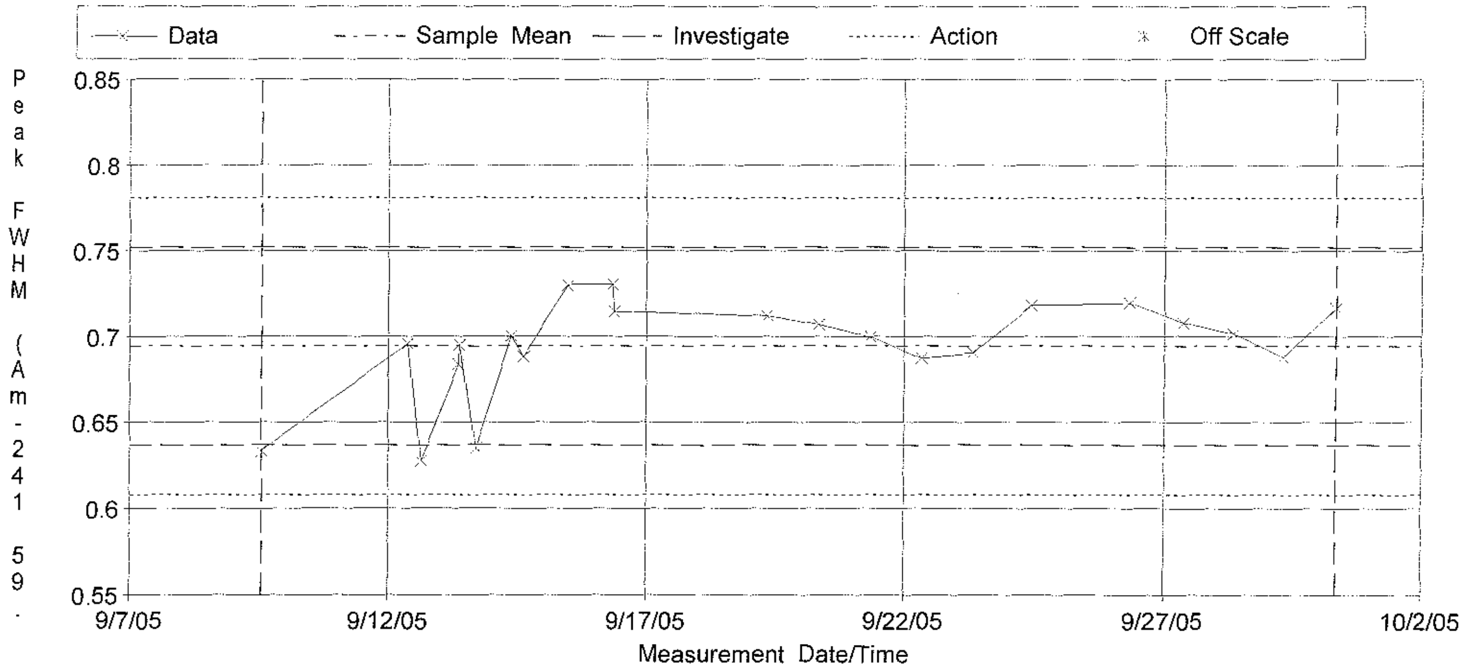
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Sample Mean +/- Std Dev : 0.245 +/- 1.39e-003



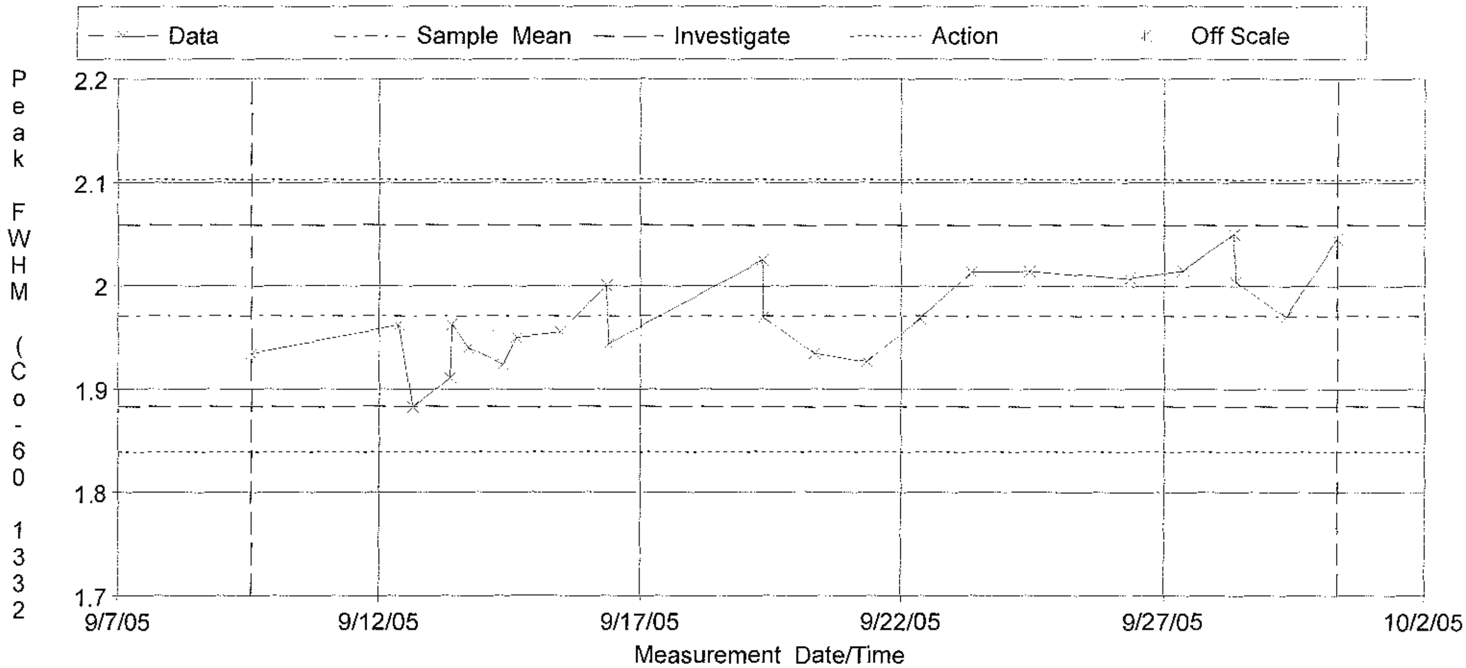
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/23/05 7:48:30 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.07e-003



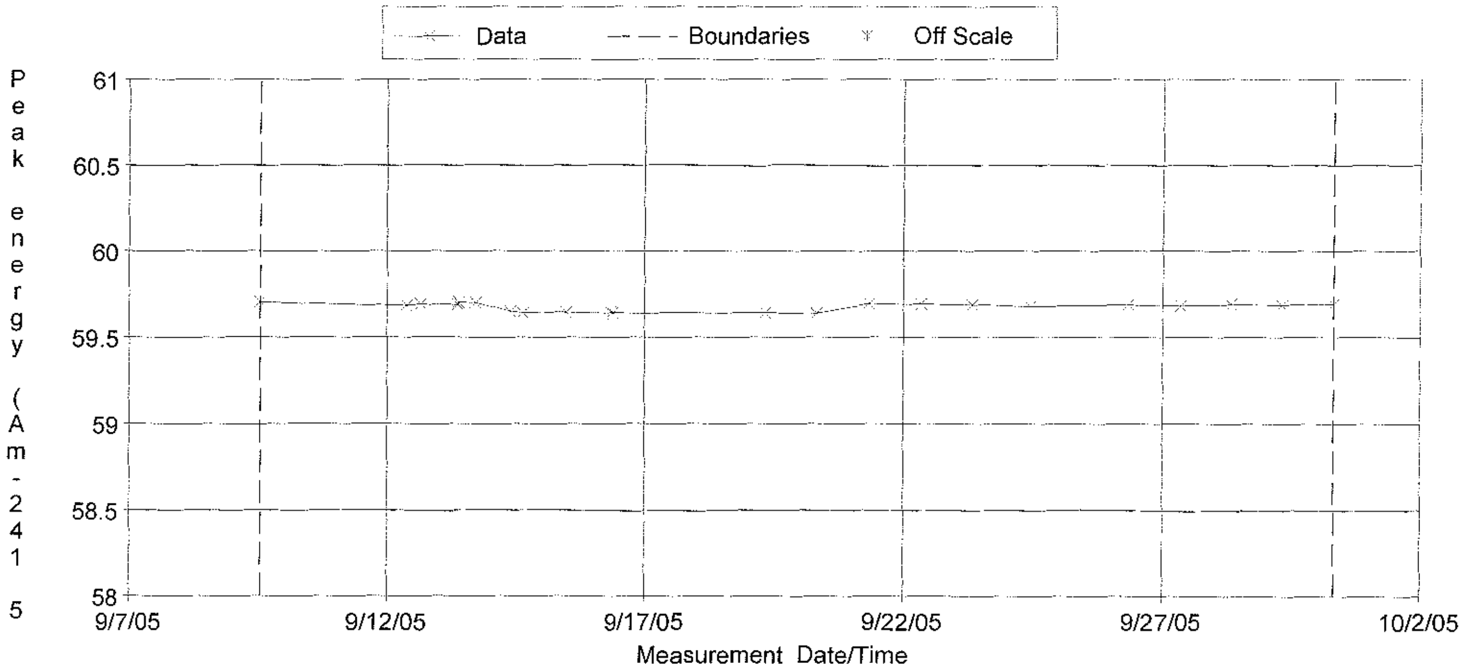
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 7:47:27 AM
Sample Mean +/- Std Dev : 0.694 +/- 0.029

[redacted]

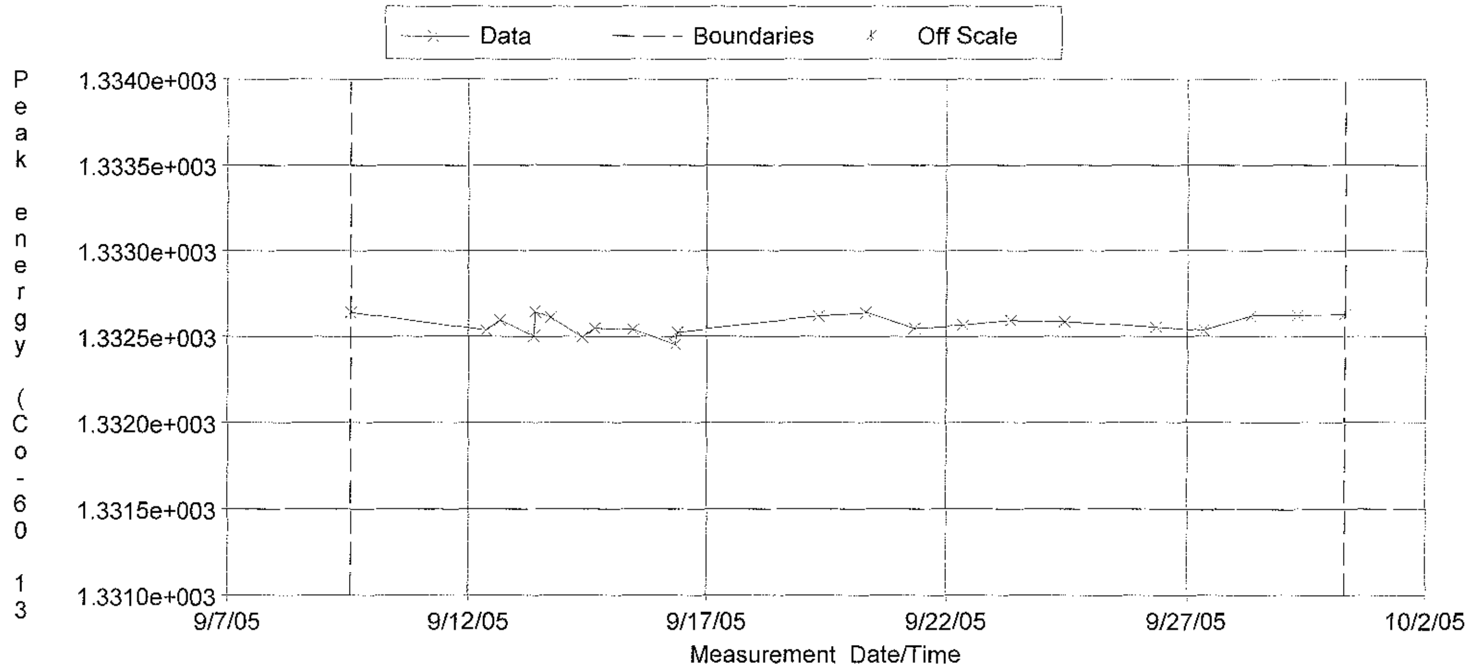
9-30-05



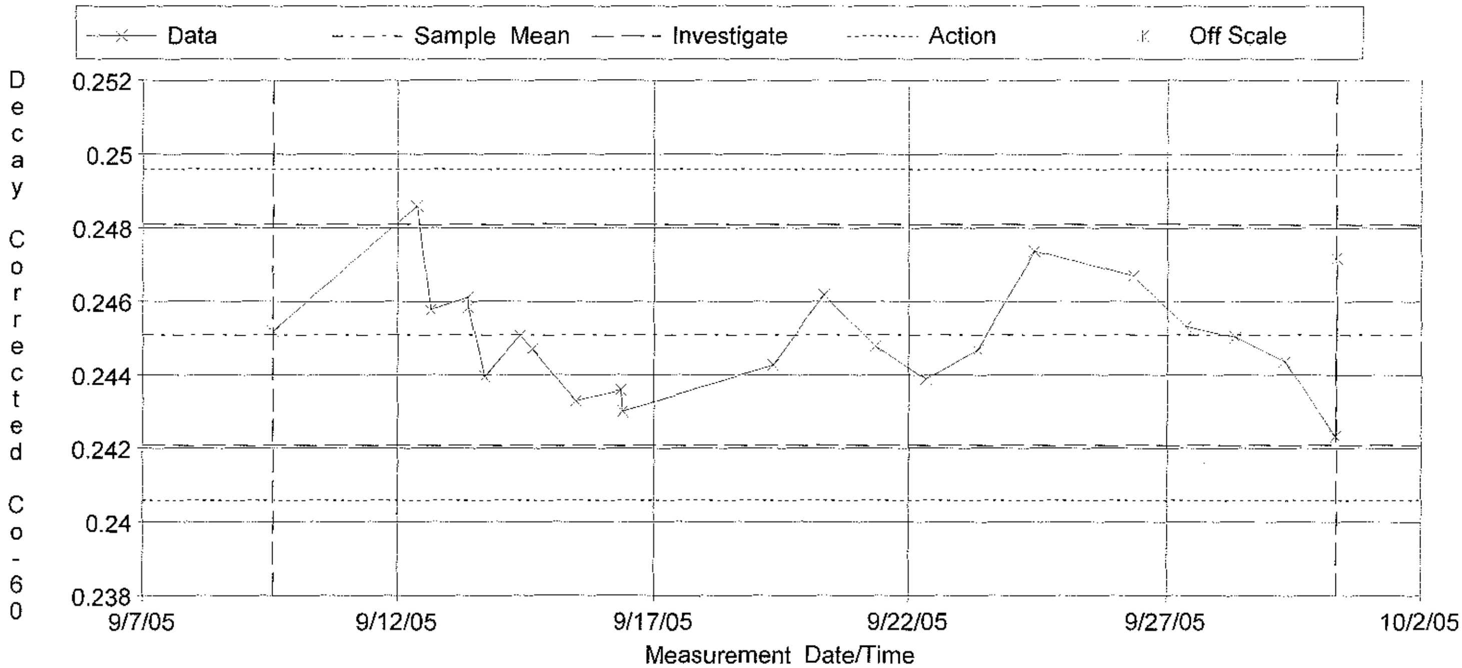
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 7:47:27 AM
Sample Mean +/- Std Dev : 1.971 +/- 0.044



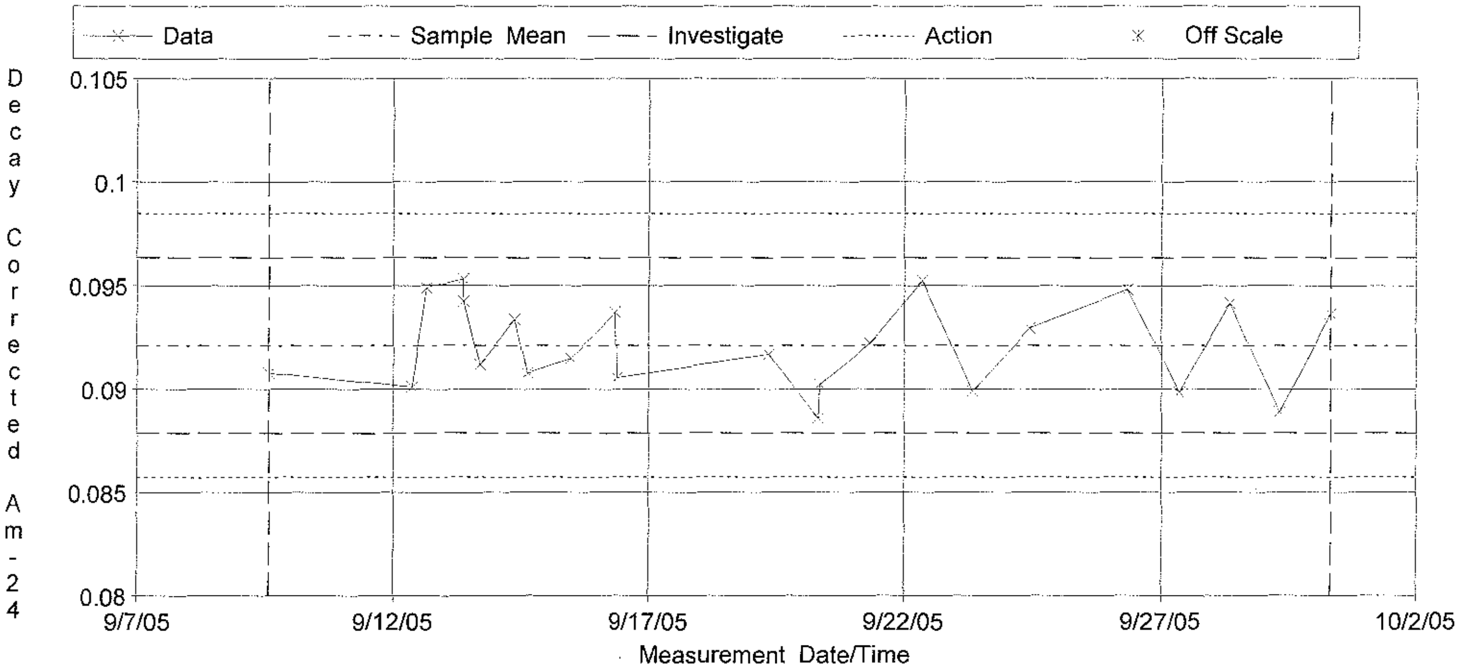
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 7:47:27 AM
Lower/Upper Boundaries : 58.500 - 60.500



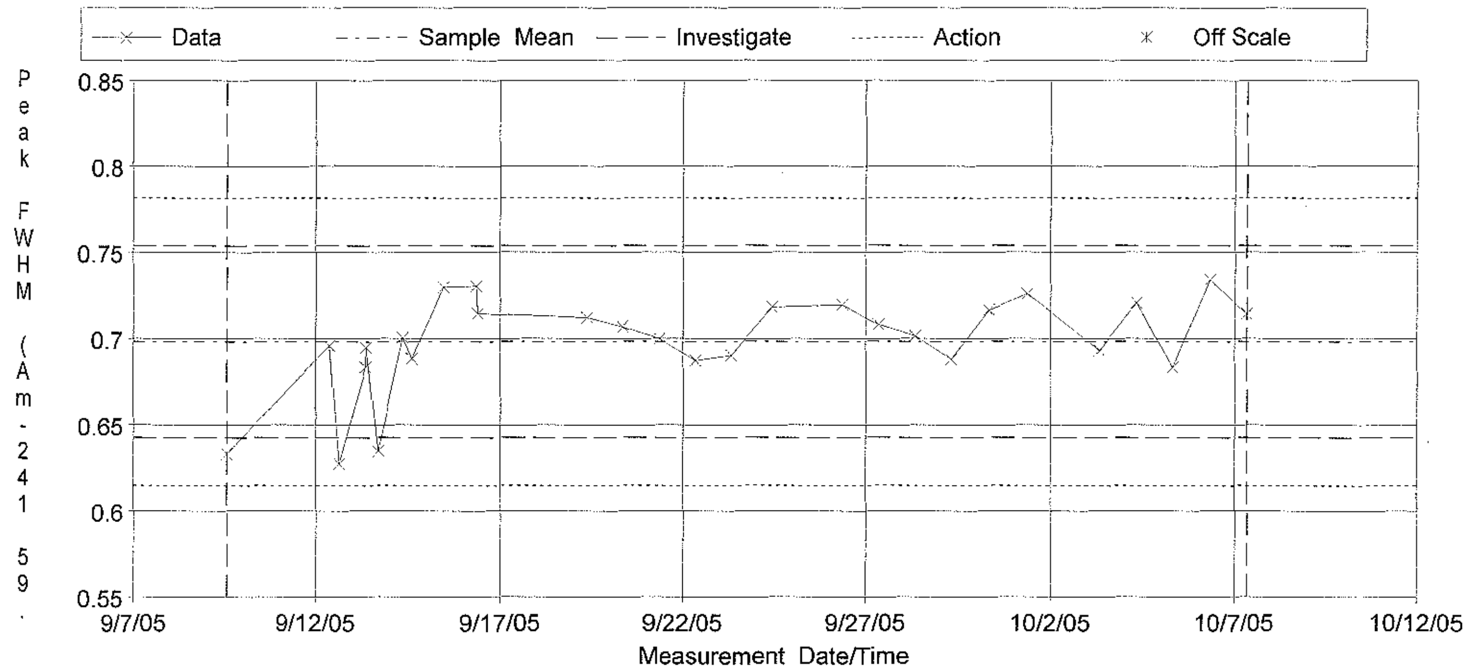
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 7:47:27 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 8:09:50 AM
Sample Mean +/- Std Dev : 0.245 +/- 1.50e-003

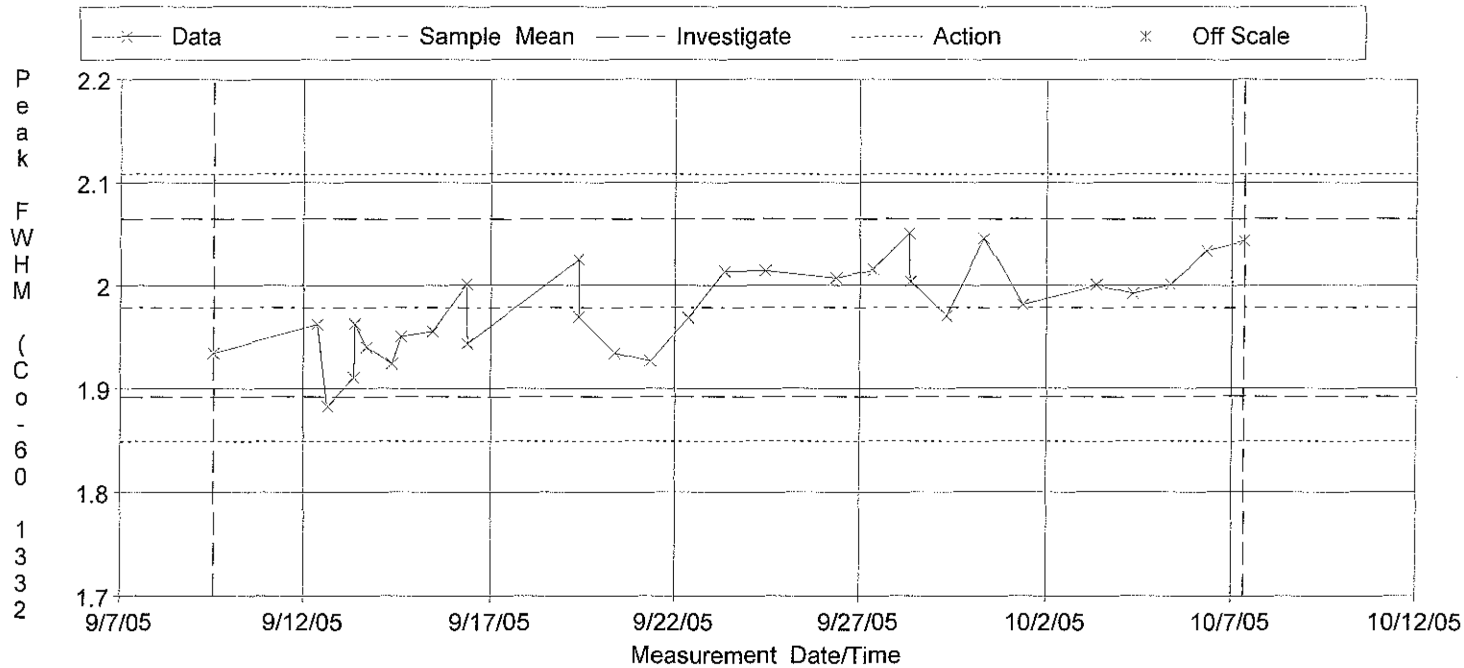


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 9/30/05 7:47:27 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.12e-003

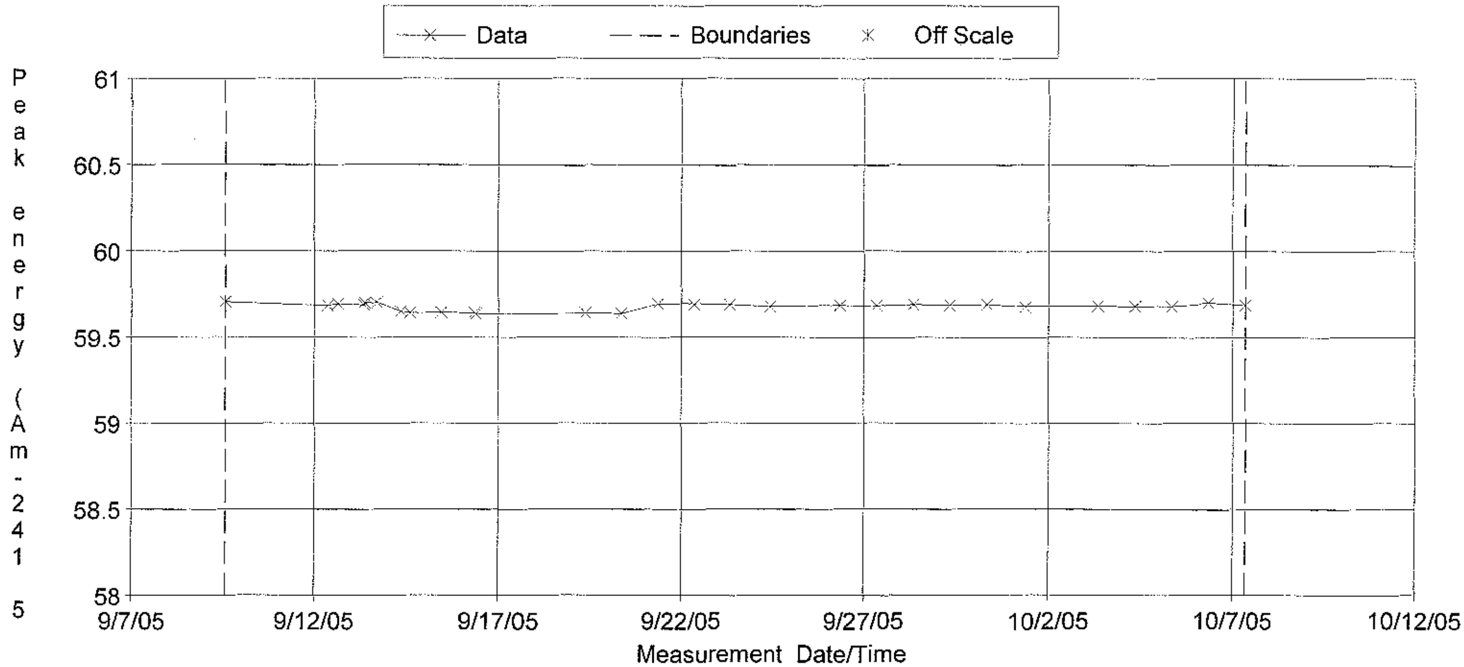


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Sample Mean +/- Std Dev : 0.698 +/- 0.028

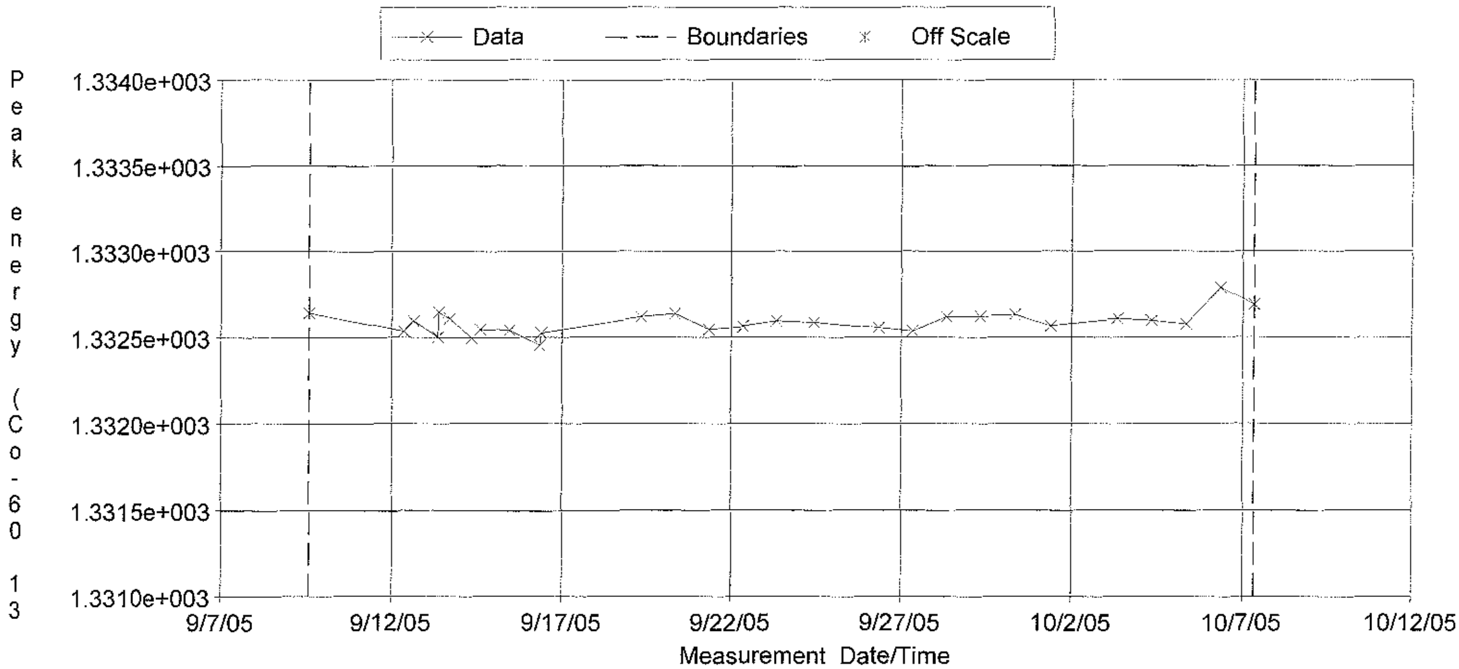
[redacted]
10-7-05



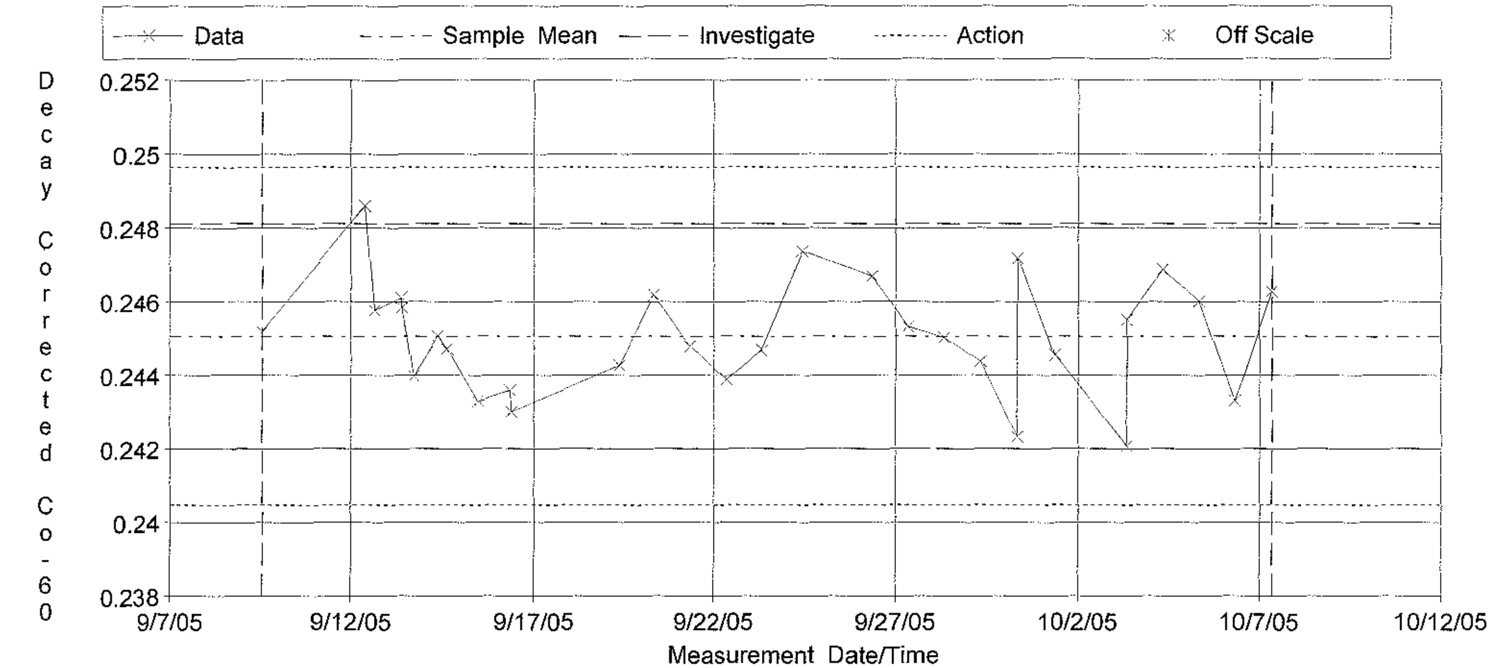
QA Filename	:	C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	:	Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates	:	9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Sample Mean +/- Std Dev	:	1.979 +/- 0.043



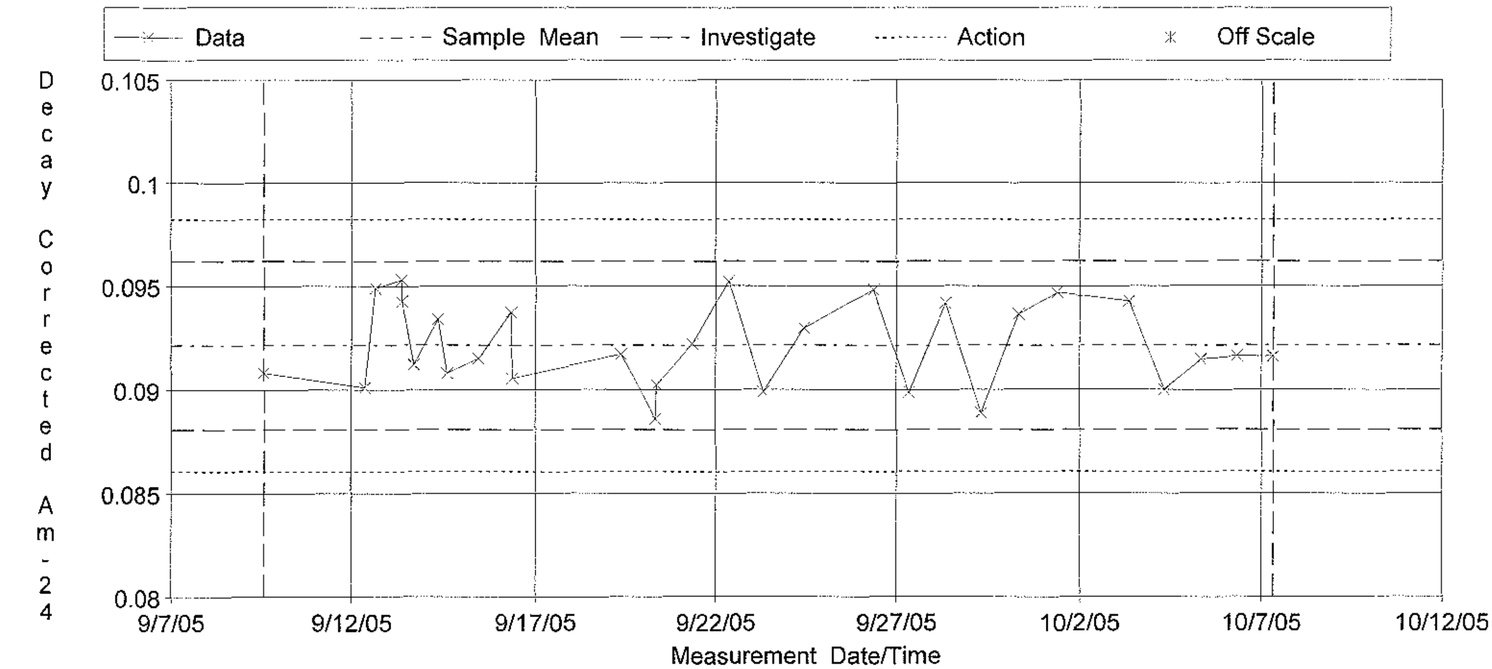
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Lower/Upper Boundaries : 58.500 - 60.500



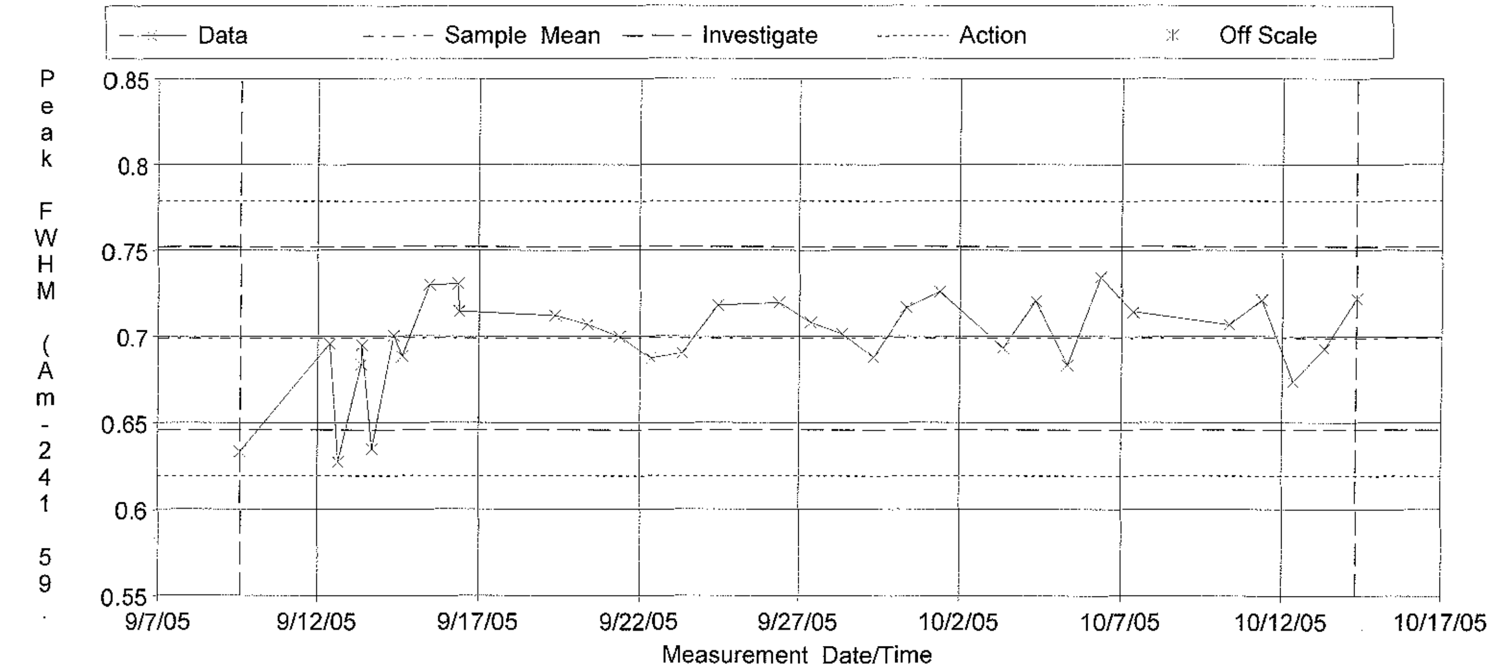
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Sample Mean +/- Std Dev : 0.245 +/- 1.53e-003

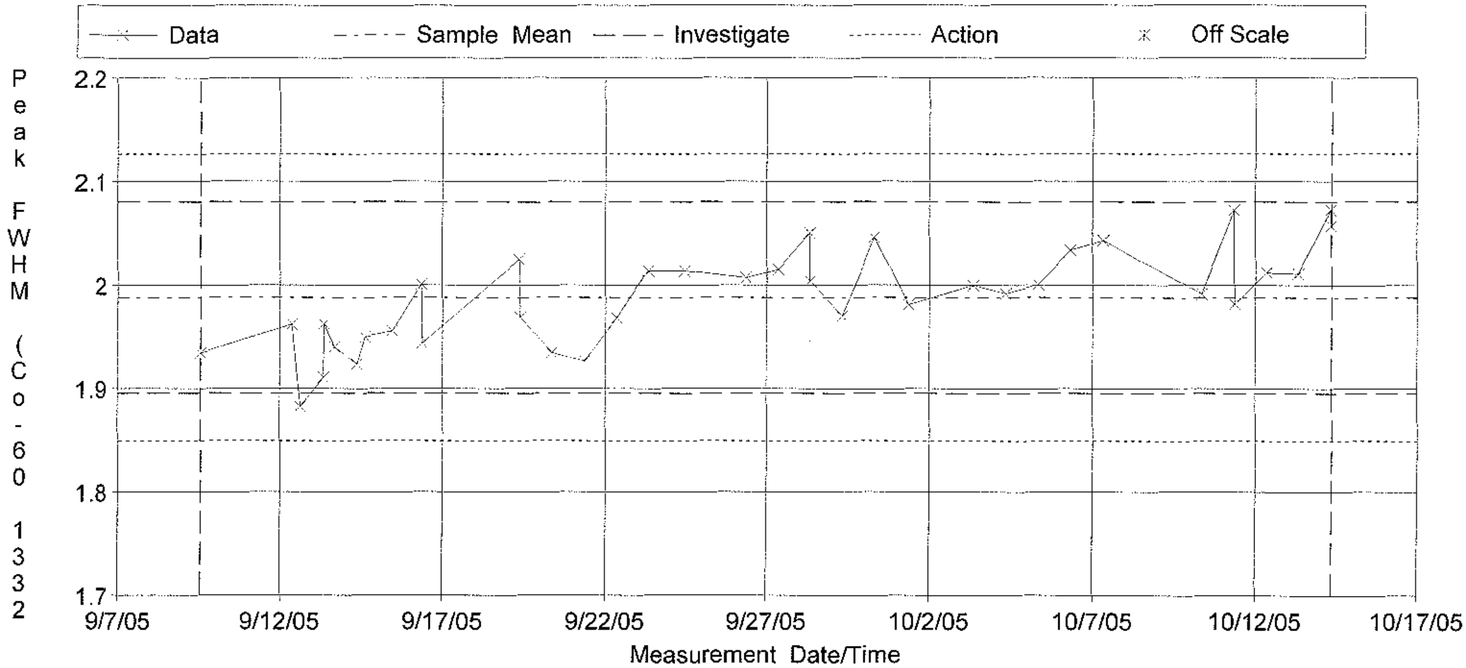


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/07/05 7:58:18 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.03e-003

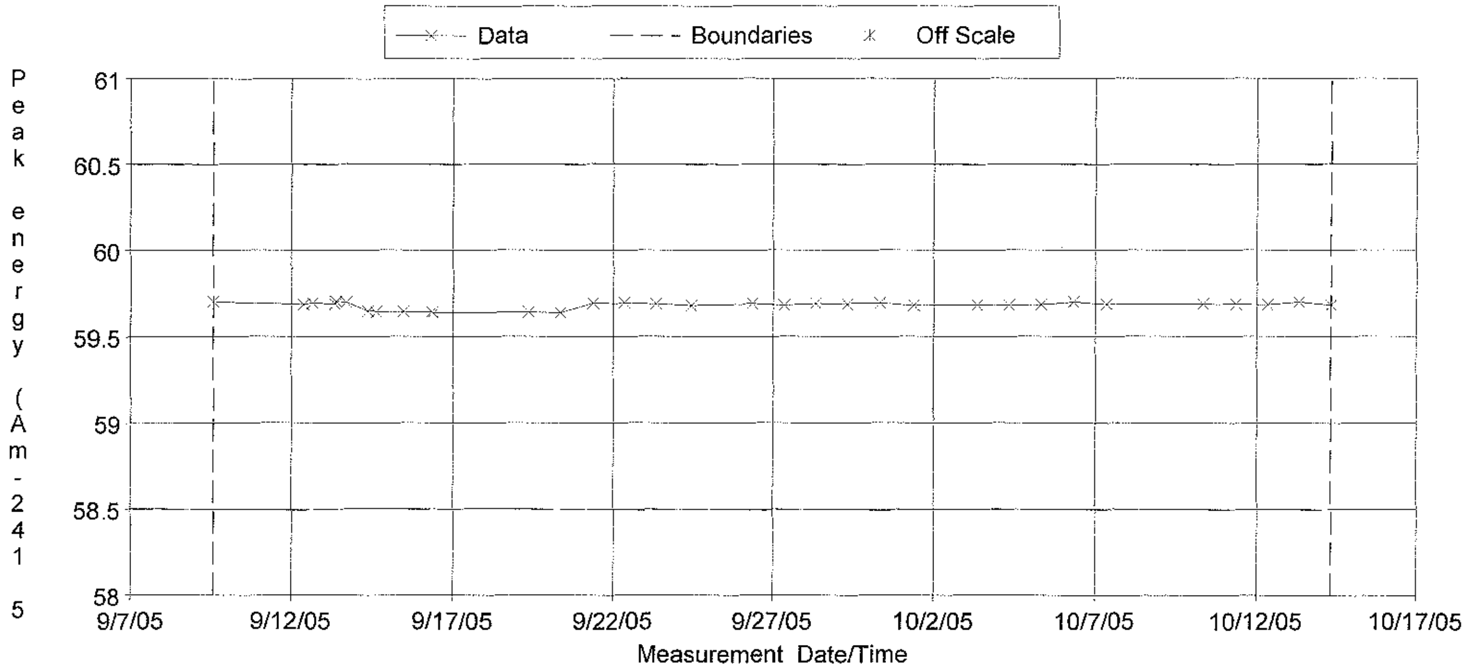


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/14/05 8:03:18 AM
Sample Mean +/- Std Dev : 0.699 +/- 0.027

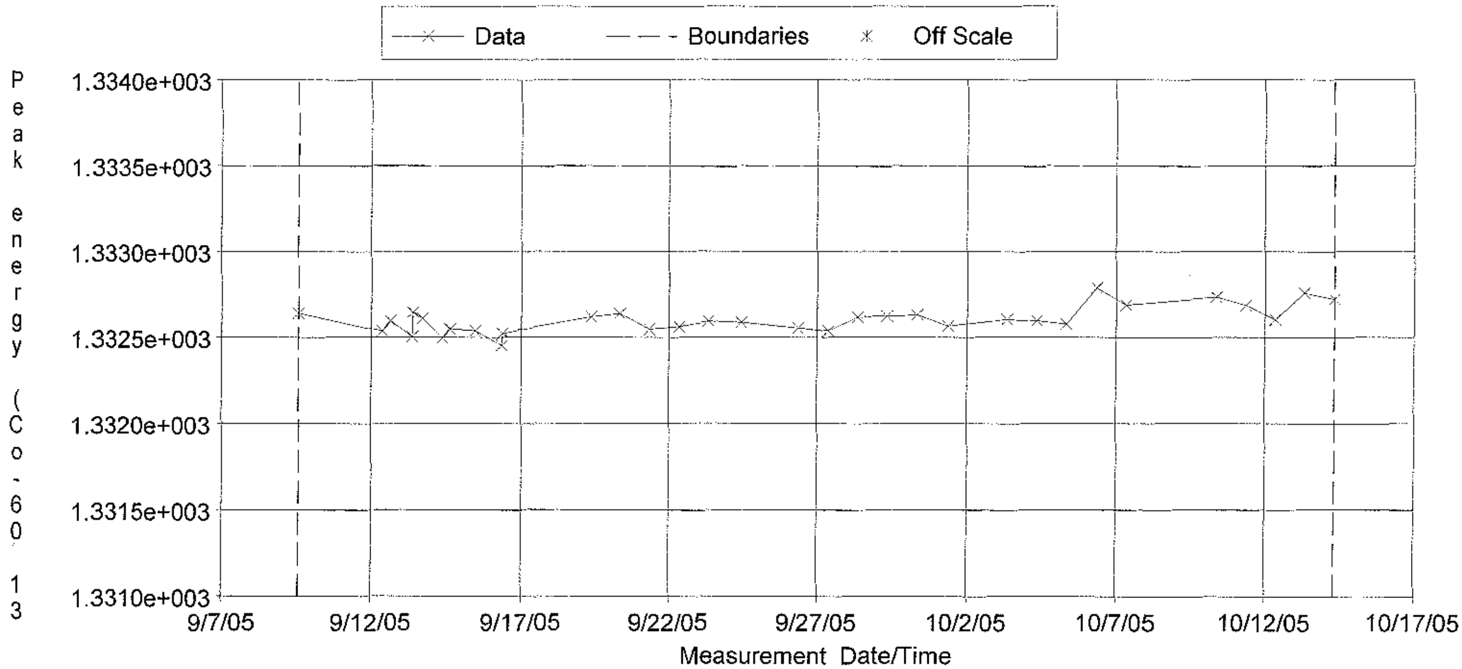
10-14-05 [redacted]



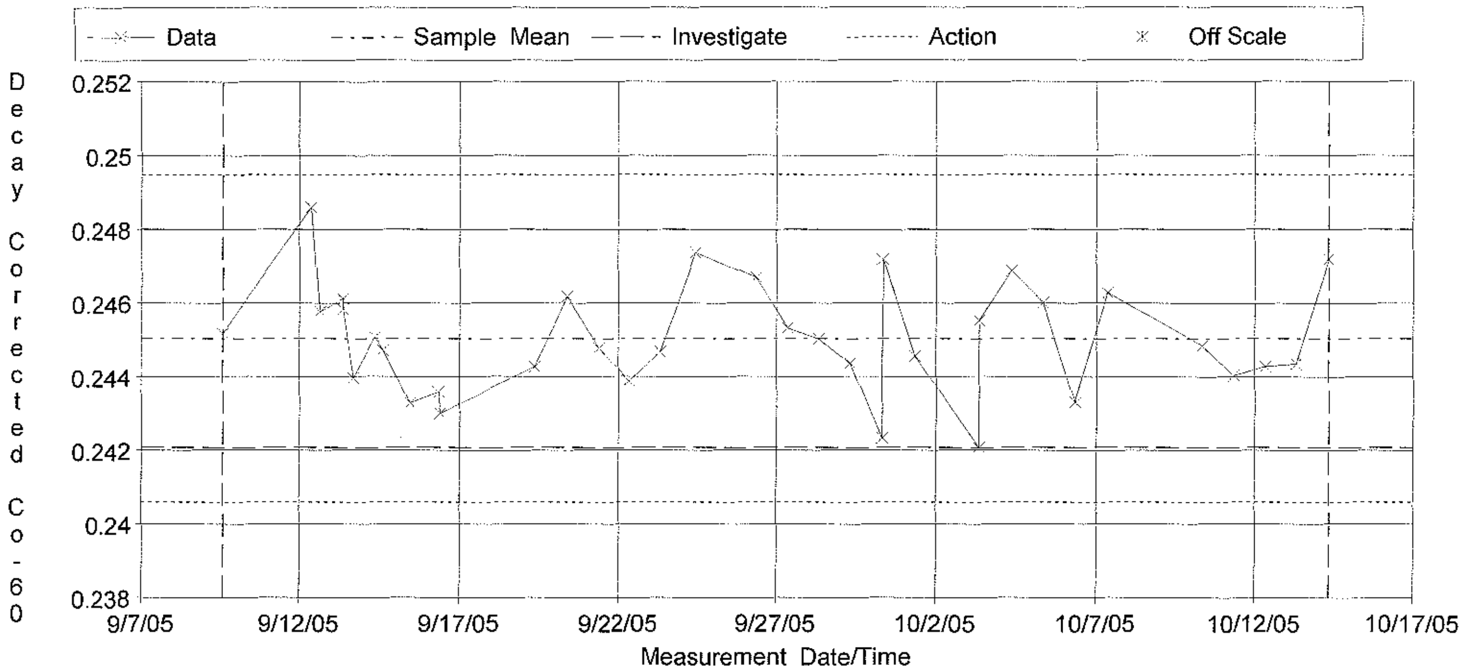
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/14/05 8:31:12 AM
Sample Mean +/- Std Dev : 1.988 +/- 0.046



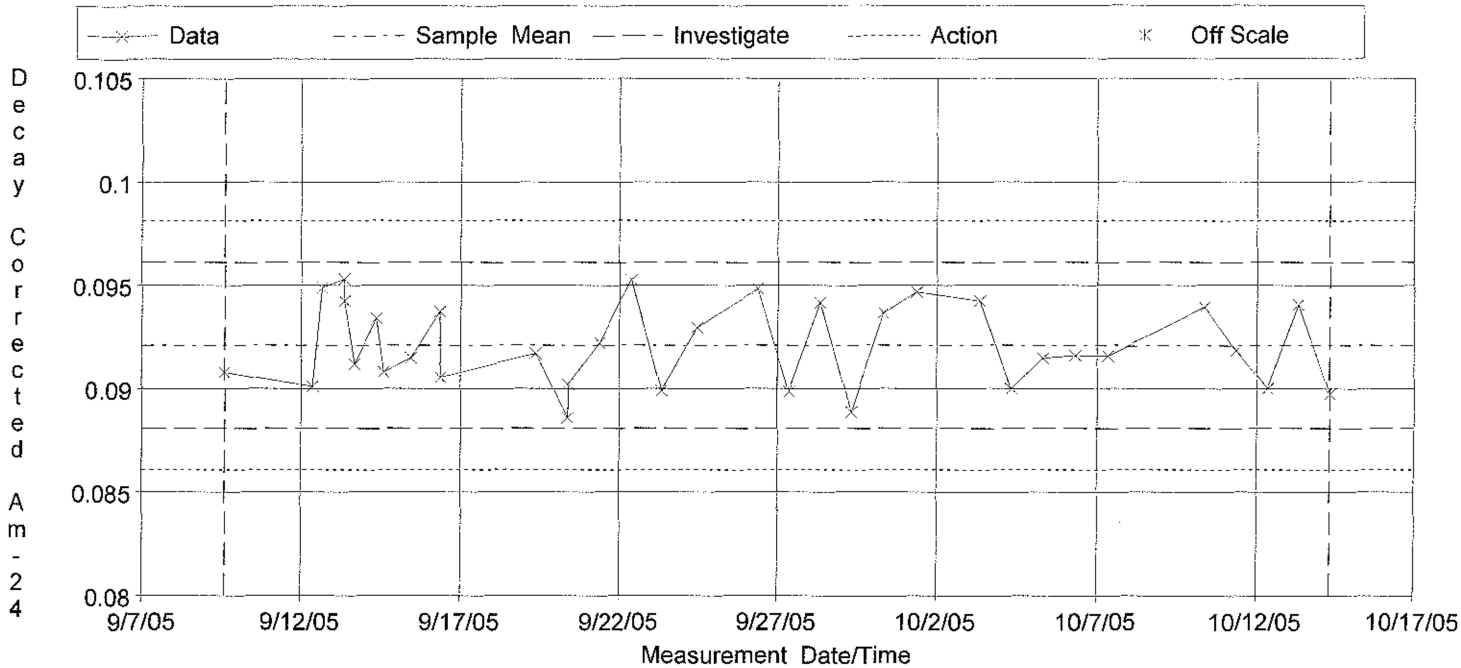
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/14/05 8:03:18 AM
Lower/Upper Boundaries : 58.500 - 60.500



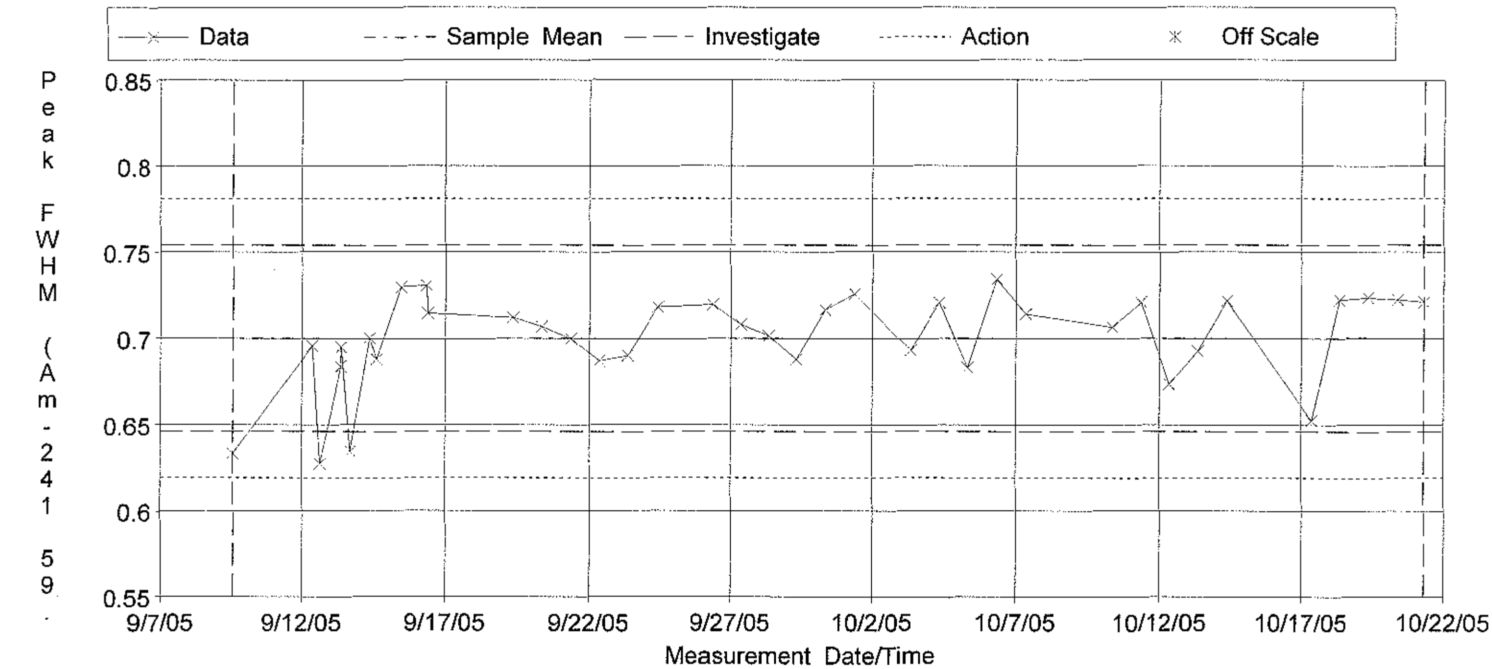
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/14/05 8:03:18 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename	: C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	: Decay Corrected Co-60 Activity (uCi)
Selection Dates	: 9/09/05 1:36:30 PM - 10/14/05 8:03:18 AM
Sample Mean +/- Std Dev	: 0.245 +/- 1.48e-003



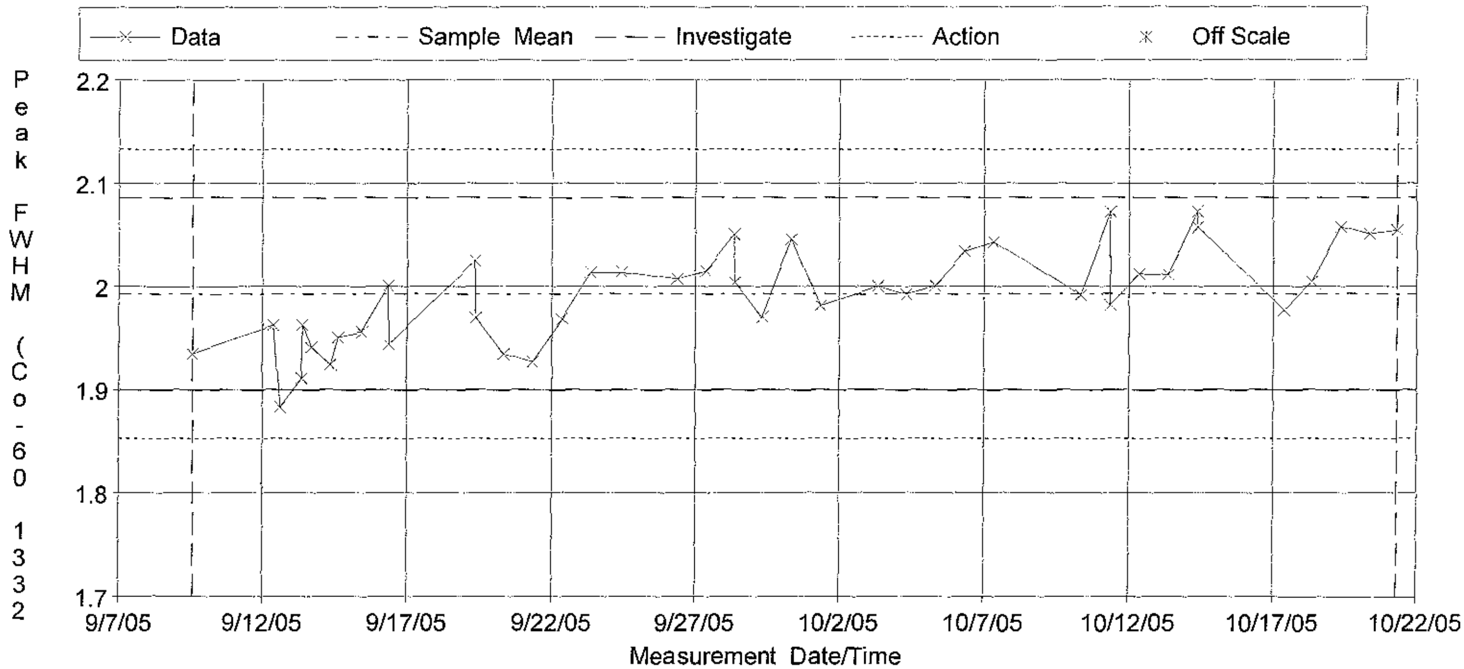
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/14/05 8:03:18 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.01e-003



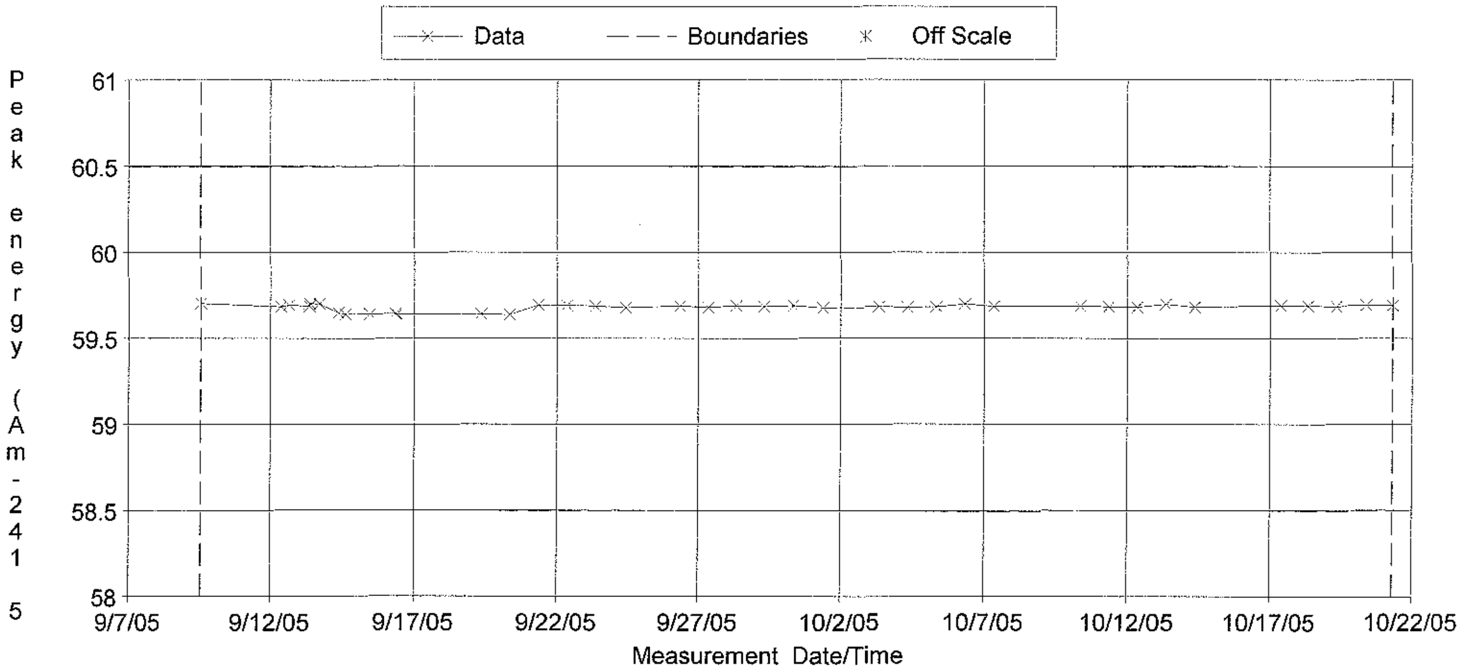
QA Filename	: C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	: Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates	: 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Sample Mean +/- Std Dev	: 0.700 +/- 0.027

[redacted]

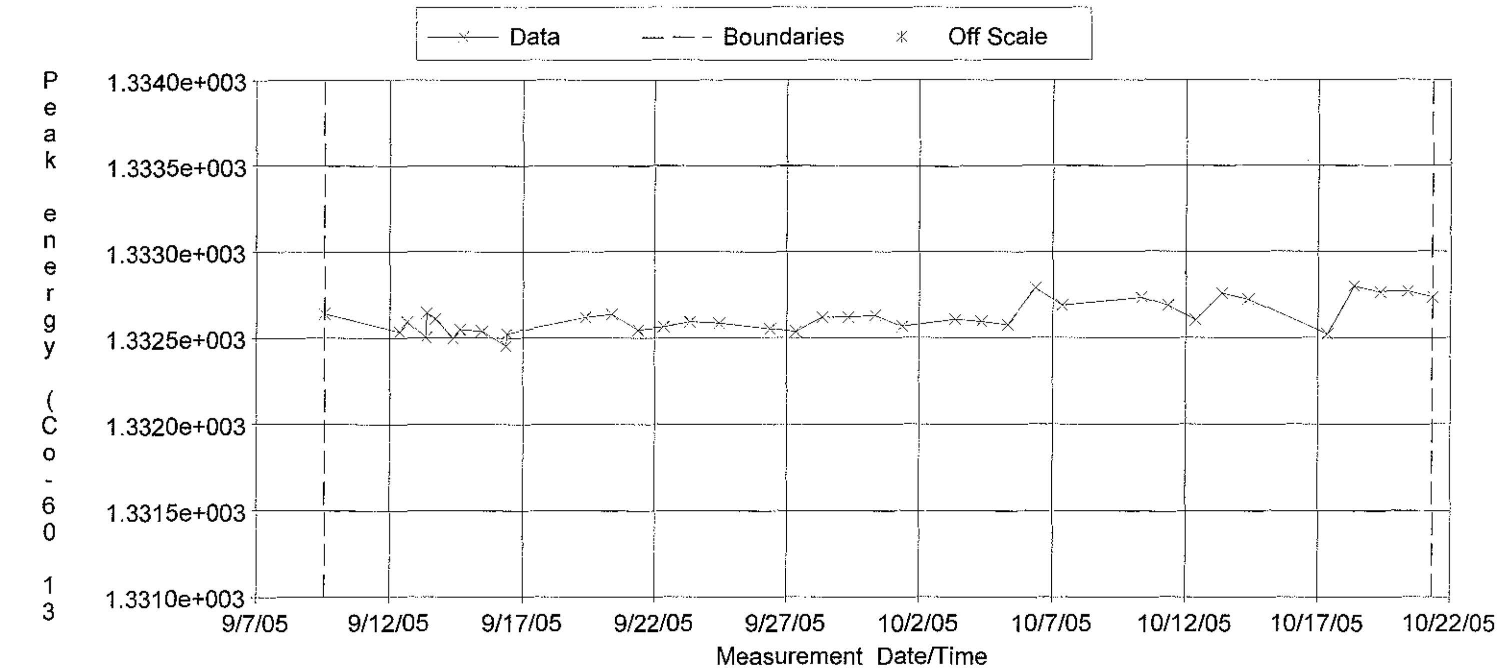
10-21-05



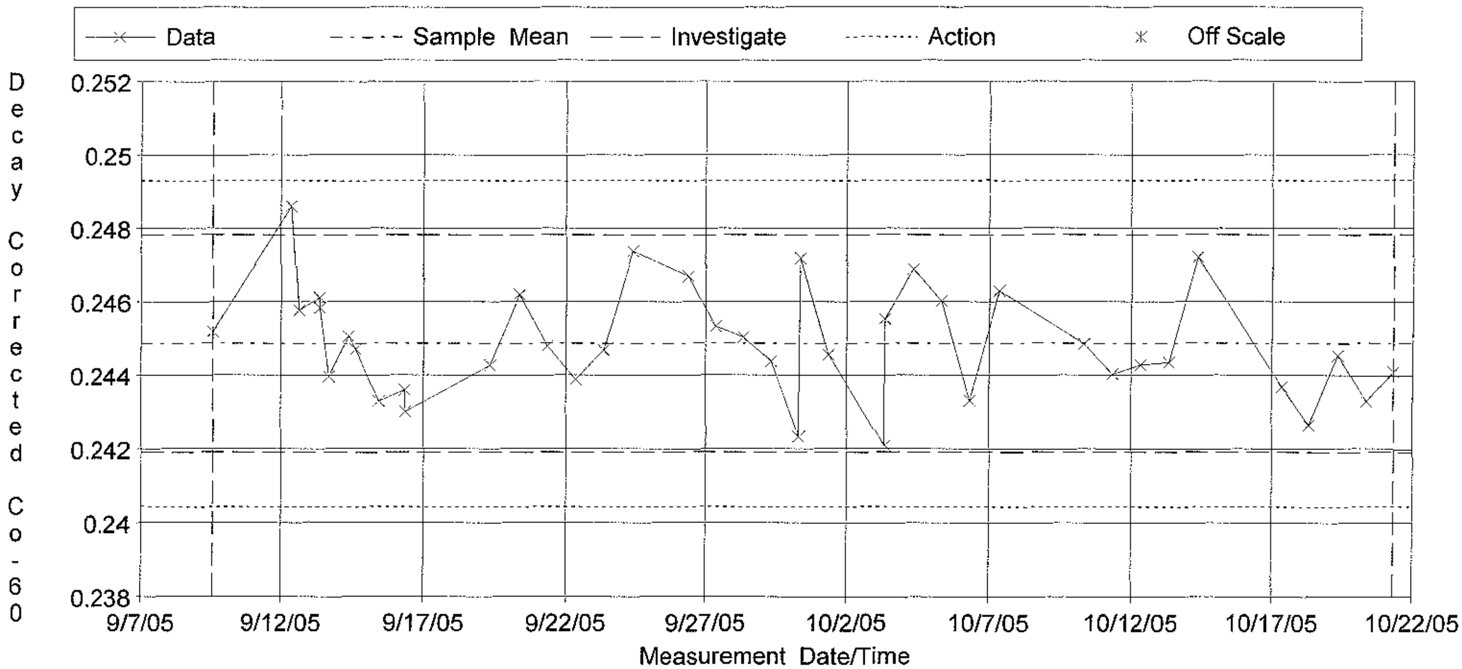
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Sample Mean +/- Std Dev : 1.993 +/- 0.047



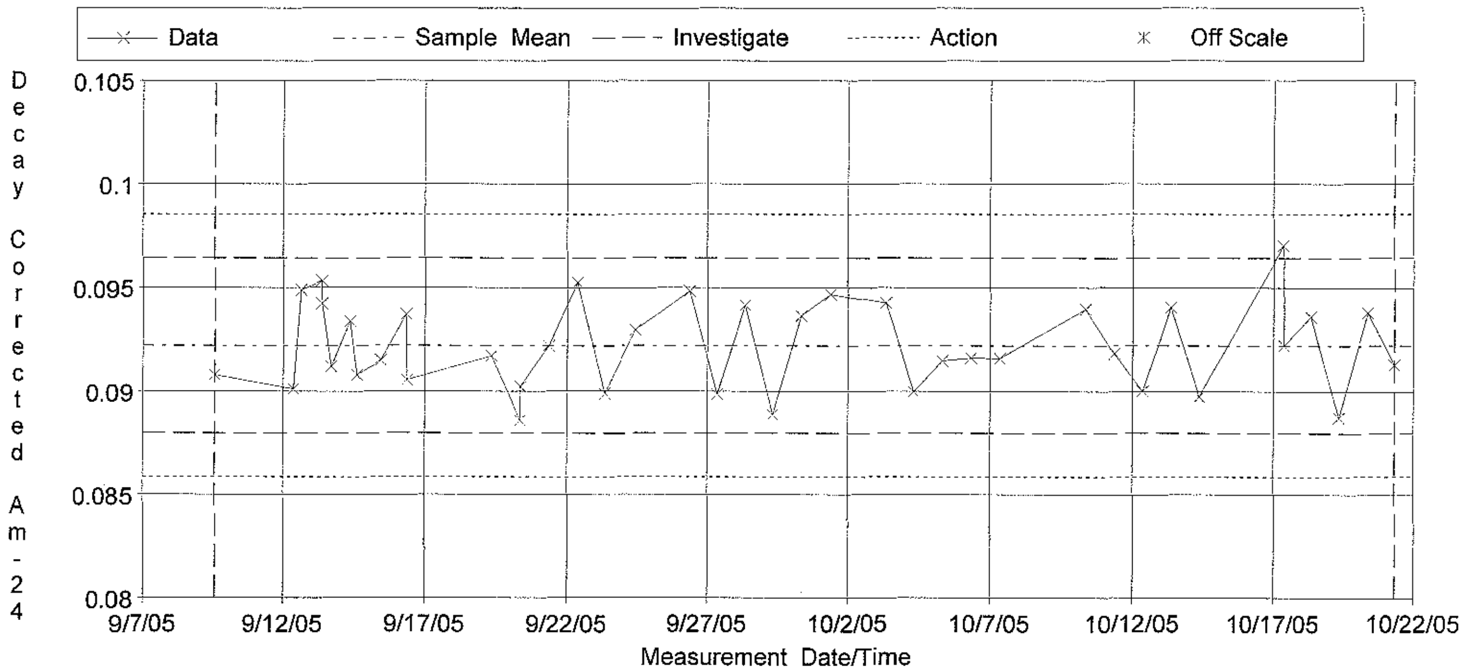
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Lower/Upper Boundaries : 58.500 - 60.500



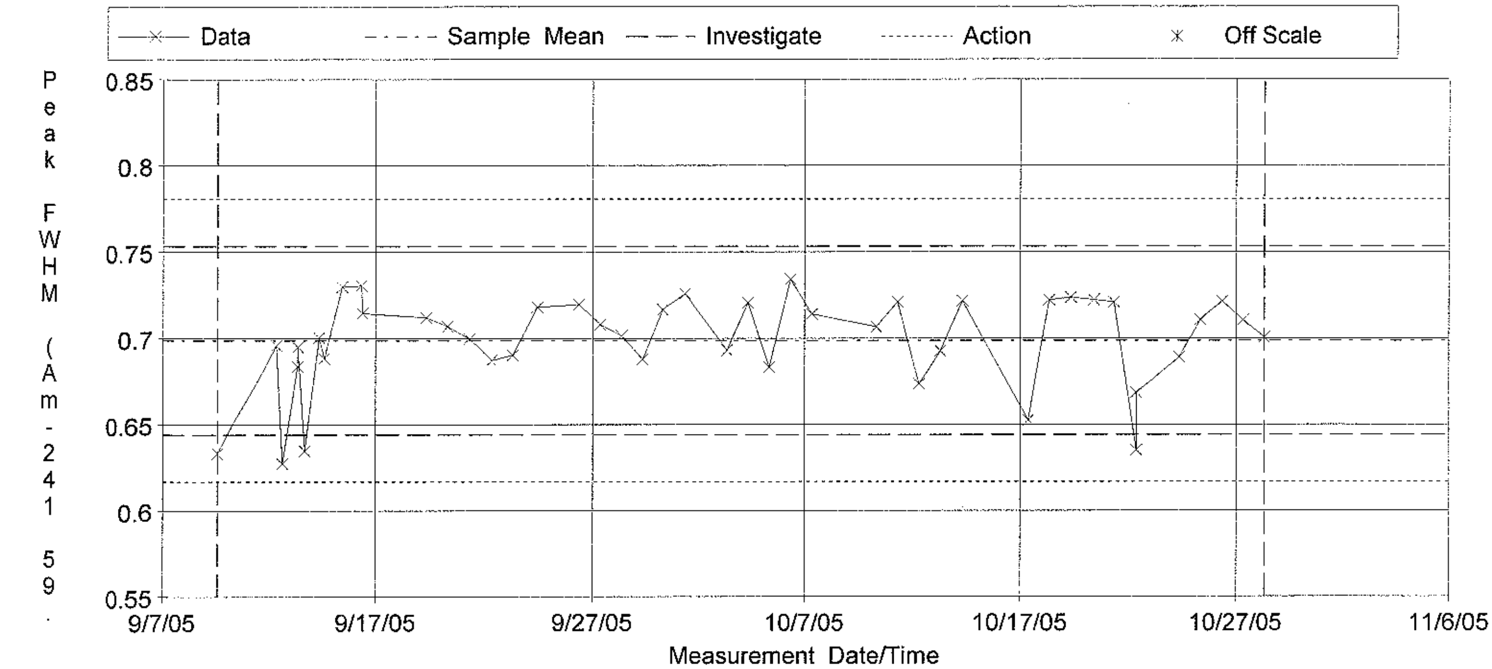
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Sample Mean +/- Std Dev : 0.245 +/- 1.48e-003



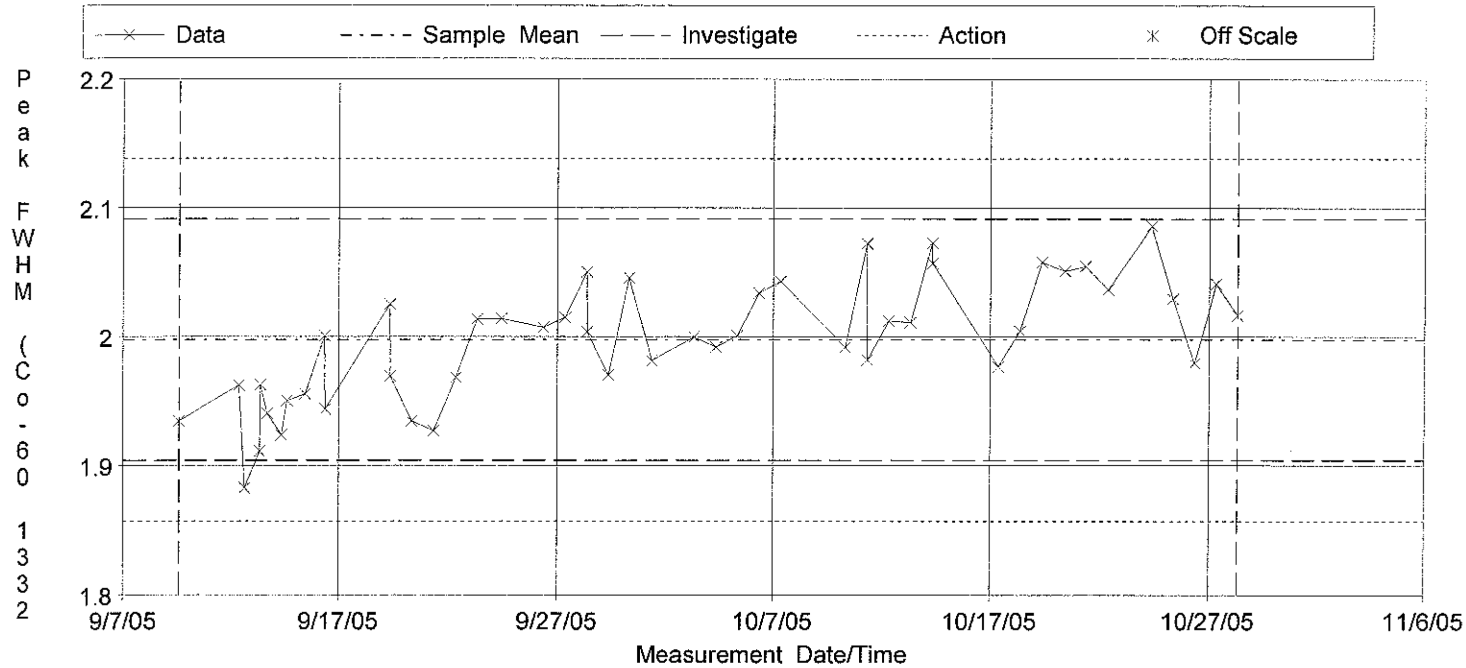
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/21/05 7:33:05 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.11e-003



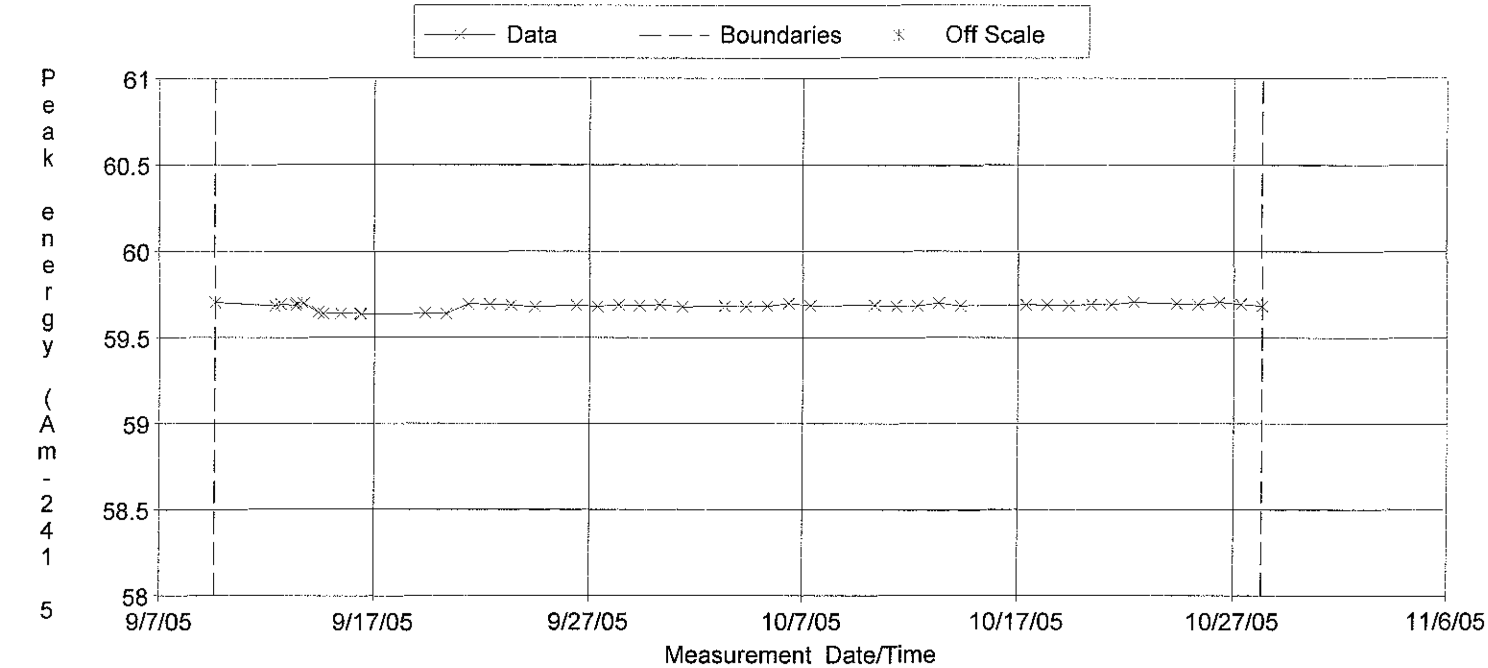
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/28/05 7:51:36 AM
Sample Mean +/- Std Dev : 0.699 +/- 0.027

[redacted]

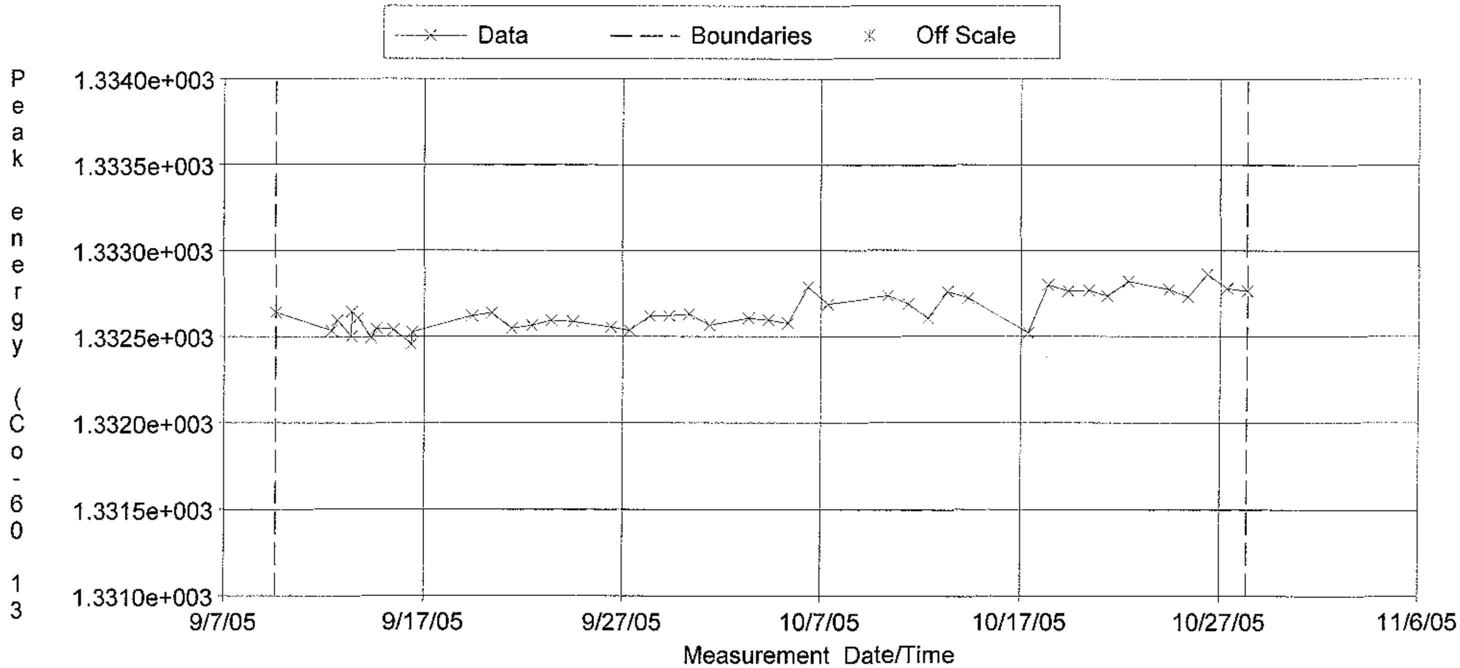
10-28-05



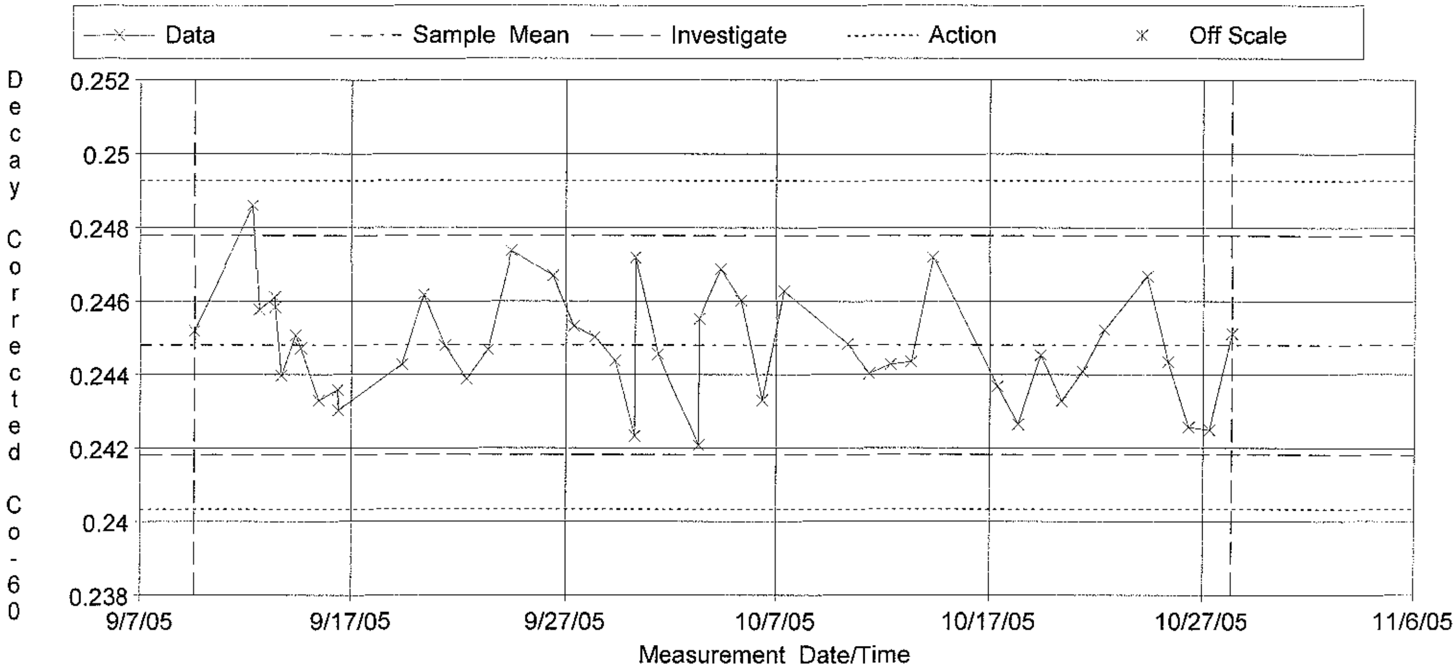
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/28/05 7:51:36 AM
Sample Mean +/- Std Dev : 1.998 +/- 0.047



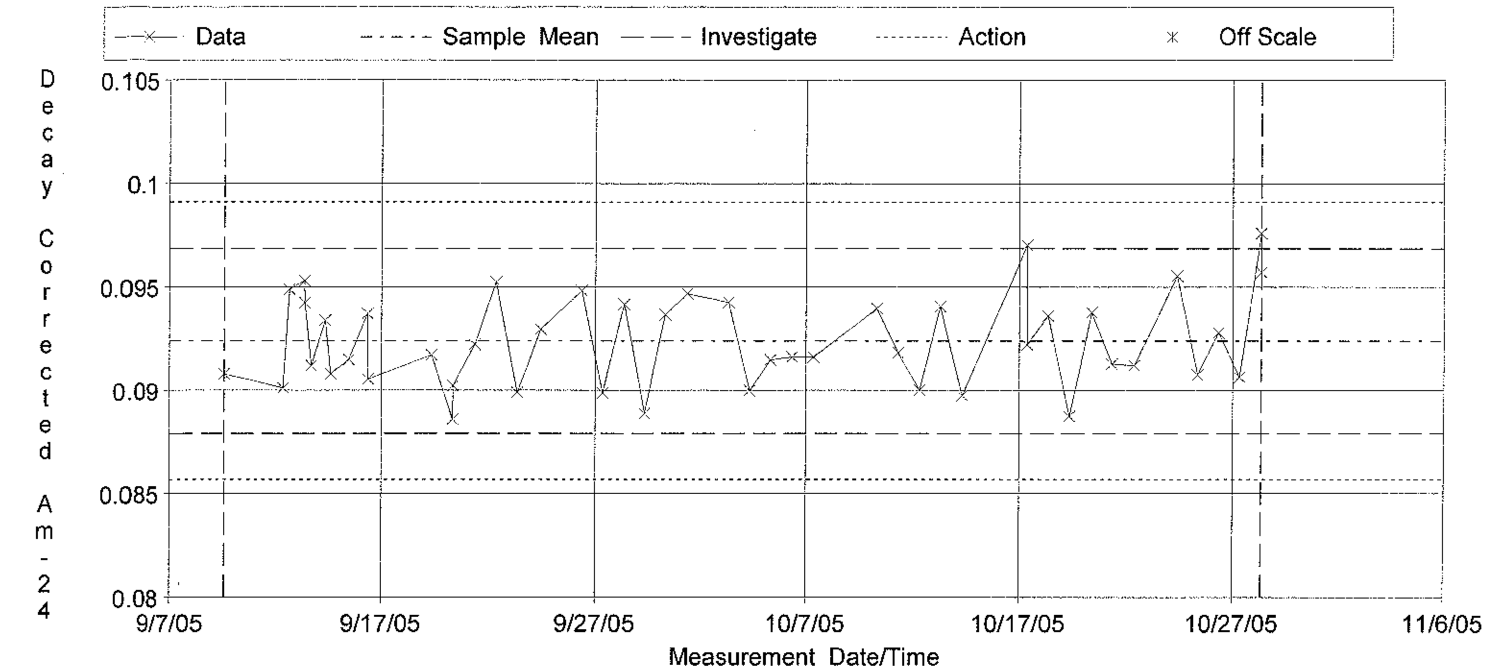
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/28/05 7:51:36 AM
Lower/Upper Boundaries : 58.500 - 60.500



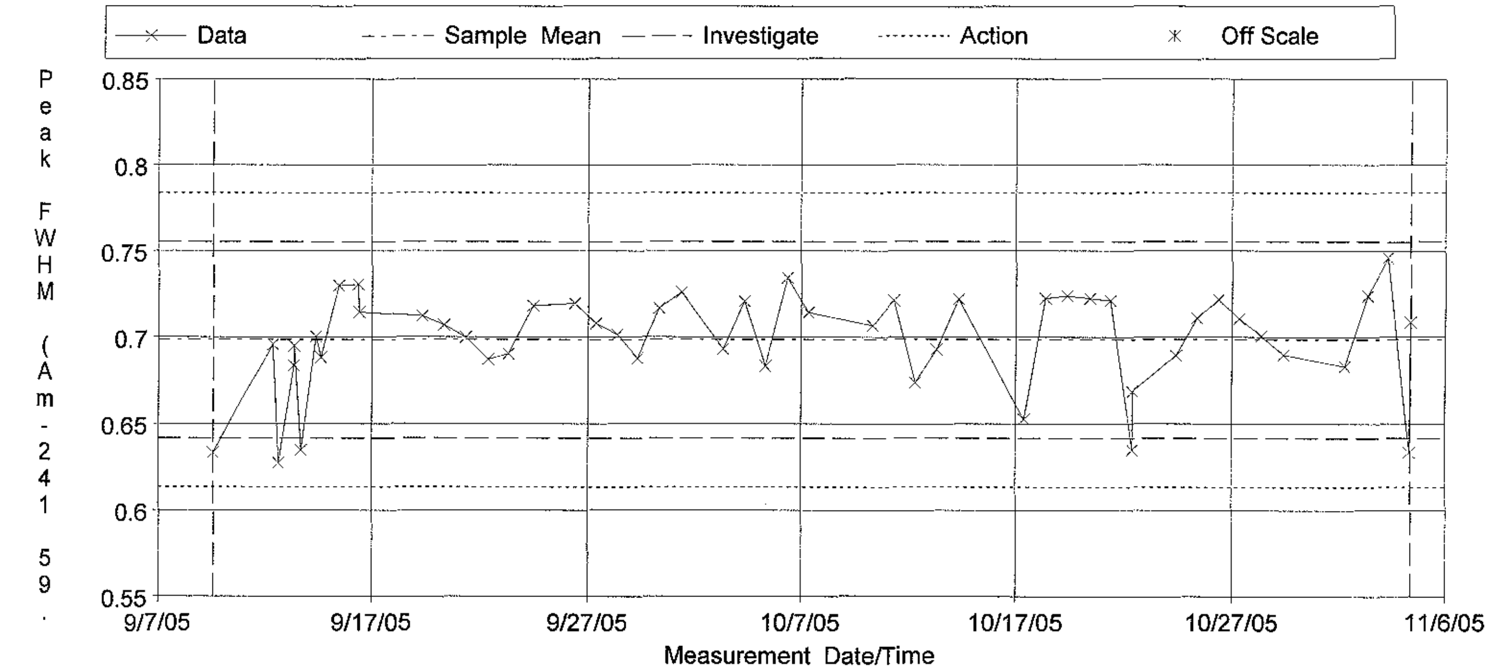
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 10/28/05 7:51:36 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename	:	C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	:	Decay Corrected Co-60 Activity (uCi)
Selection Dates	:	9/09/05 1:36:30 PM - 10/28/05 7:51:36 AM
Sample Mean +/- Std Dev	:	0.245 +/- 1.49e-003

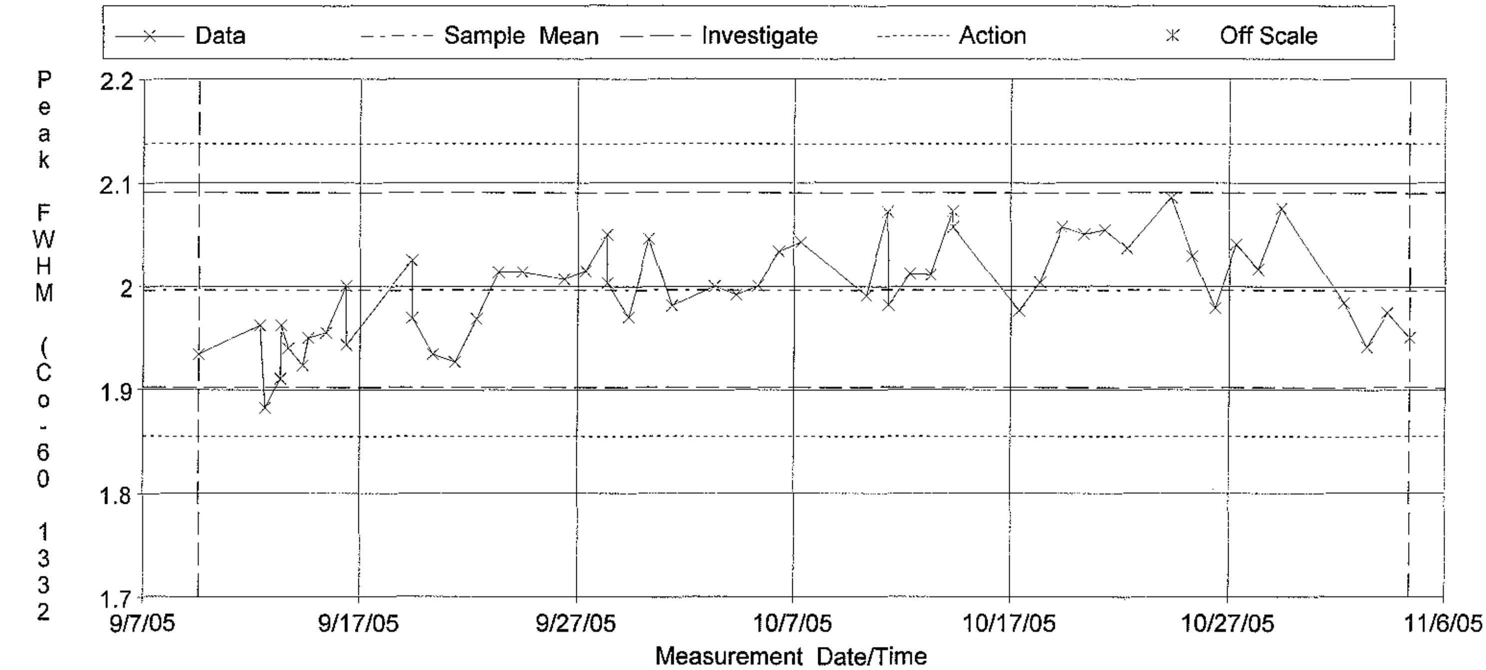


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 10/28/05 8:05:25 AM
Sample Mean +/- Std Dev : 0.092 +/- 2.24e-003

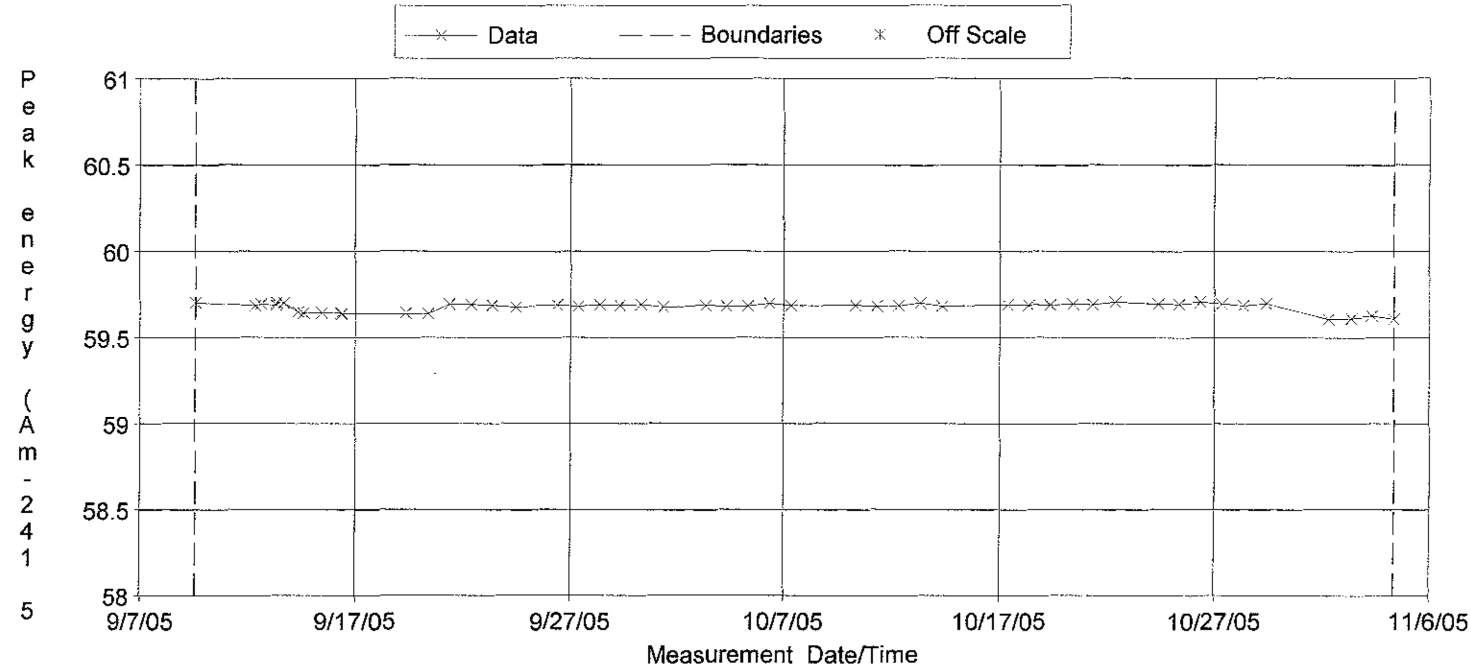


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/04/05 9:08:05 AM
Sample Mean +/- Std Dev : 0.699 +/- 0.028

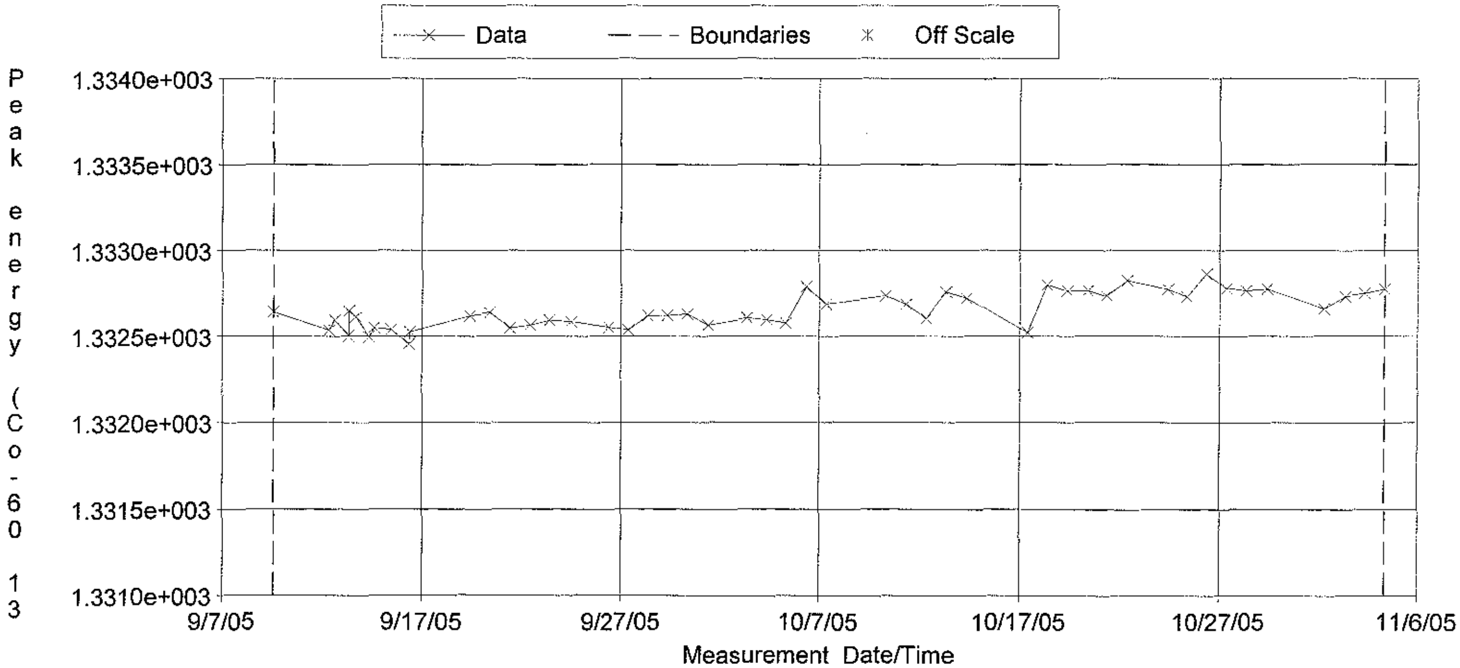
11-4-05



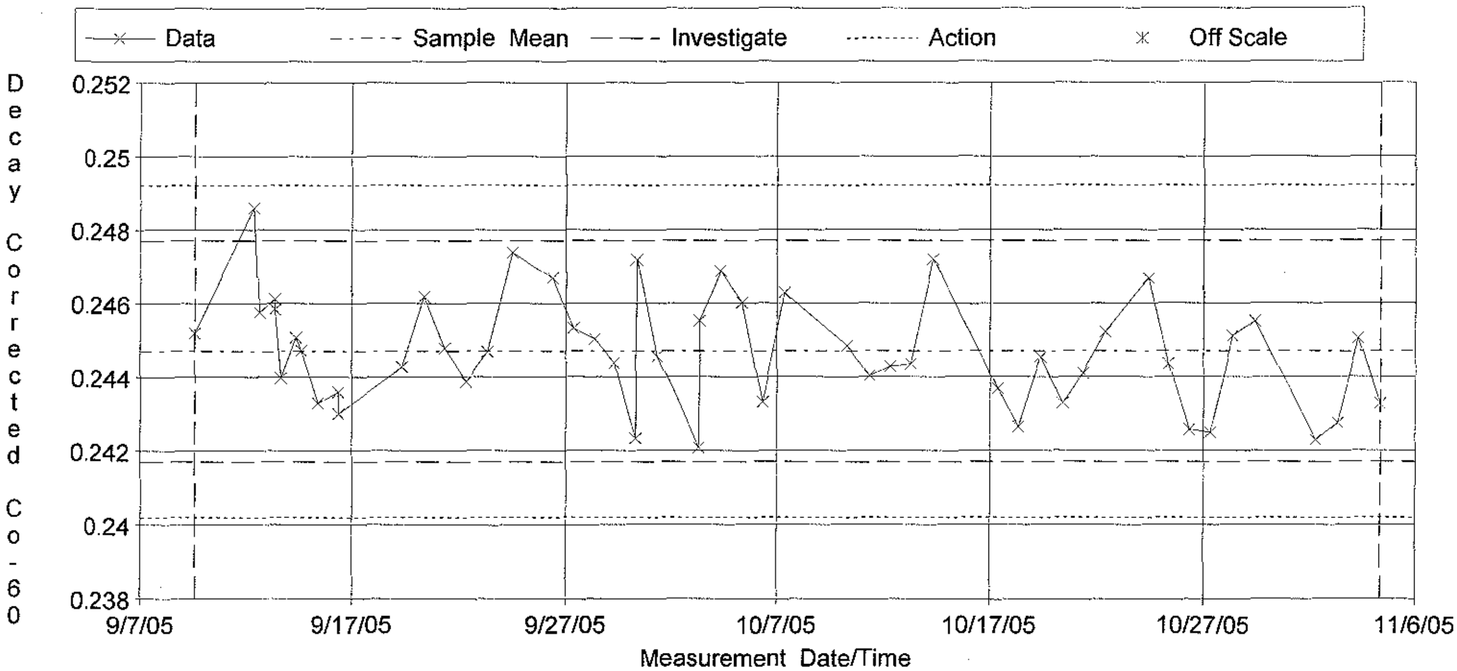
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/04/05 8:17:09 AM
Sample Mean +/- Std Dev : 1.996 +/- 0.047



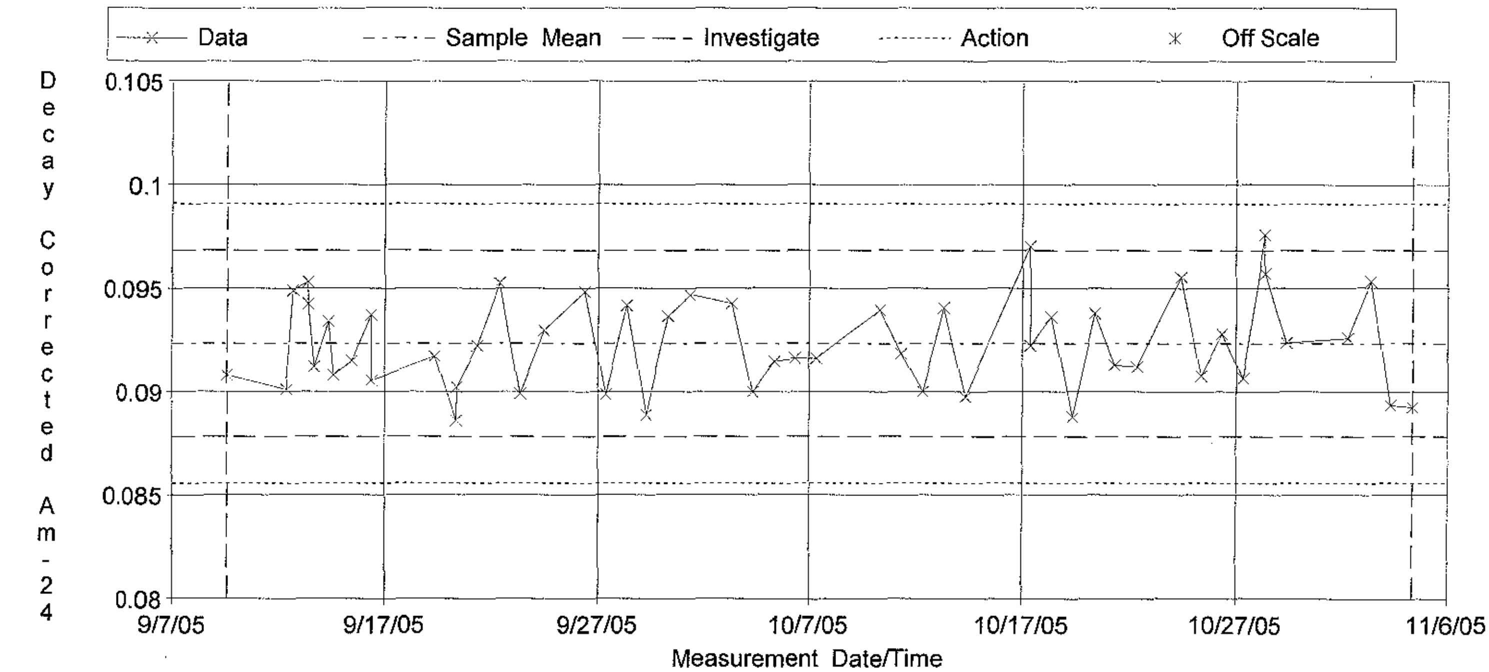
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/04/05 8:17:09 AM
Lower/Upper Boundaries : 58.500 - 60.500



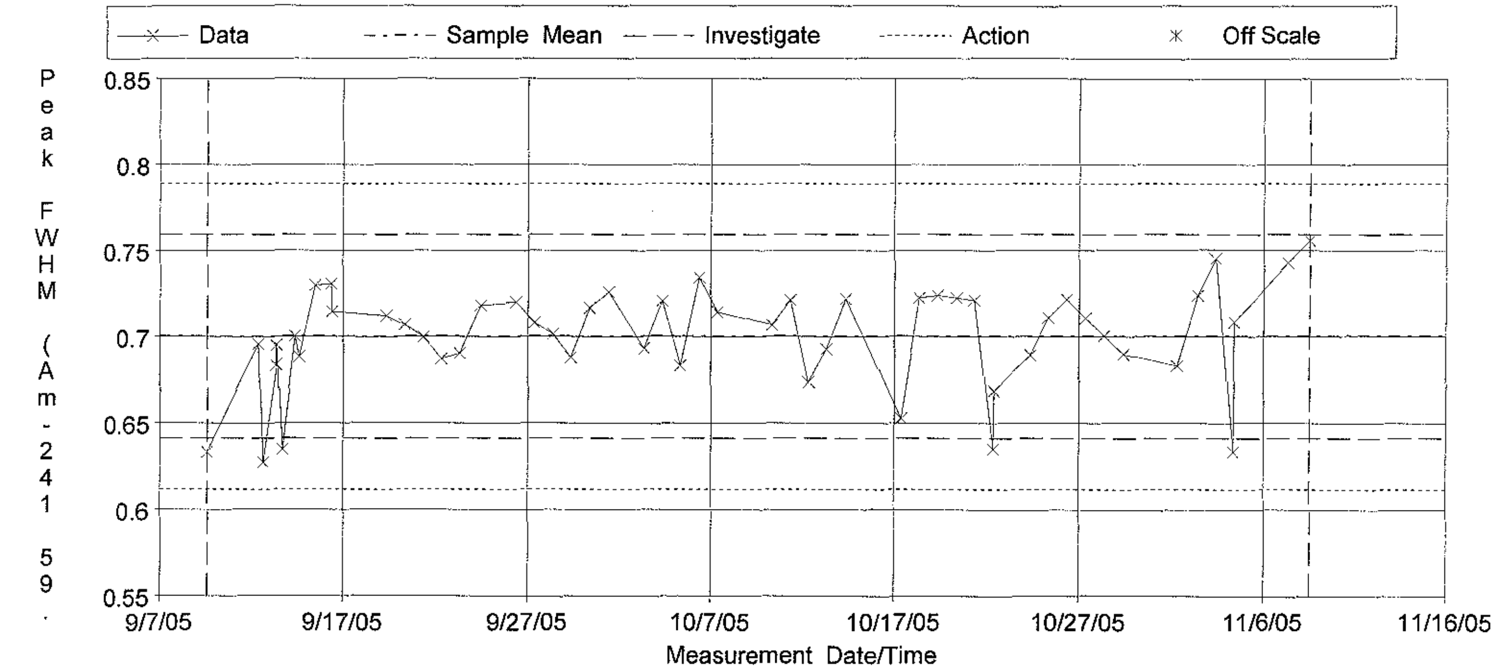
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/04/05 8:17:09 AM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename	: C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	: Decay Corrected Co-60 Activity (uCi)
Selection Dates	: 9/09/05 1:36:30 PM - 11/04/05 8:17:09 AM
Sample Mean +/- Std Dev	: 0.245 +/- 1.50e-003

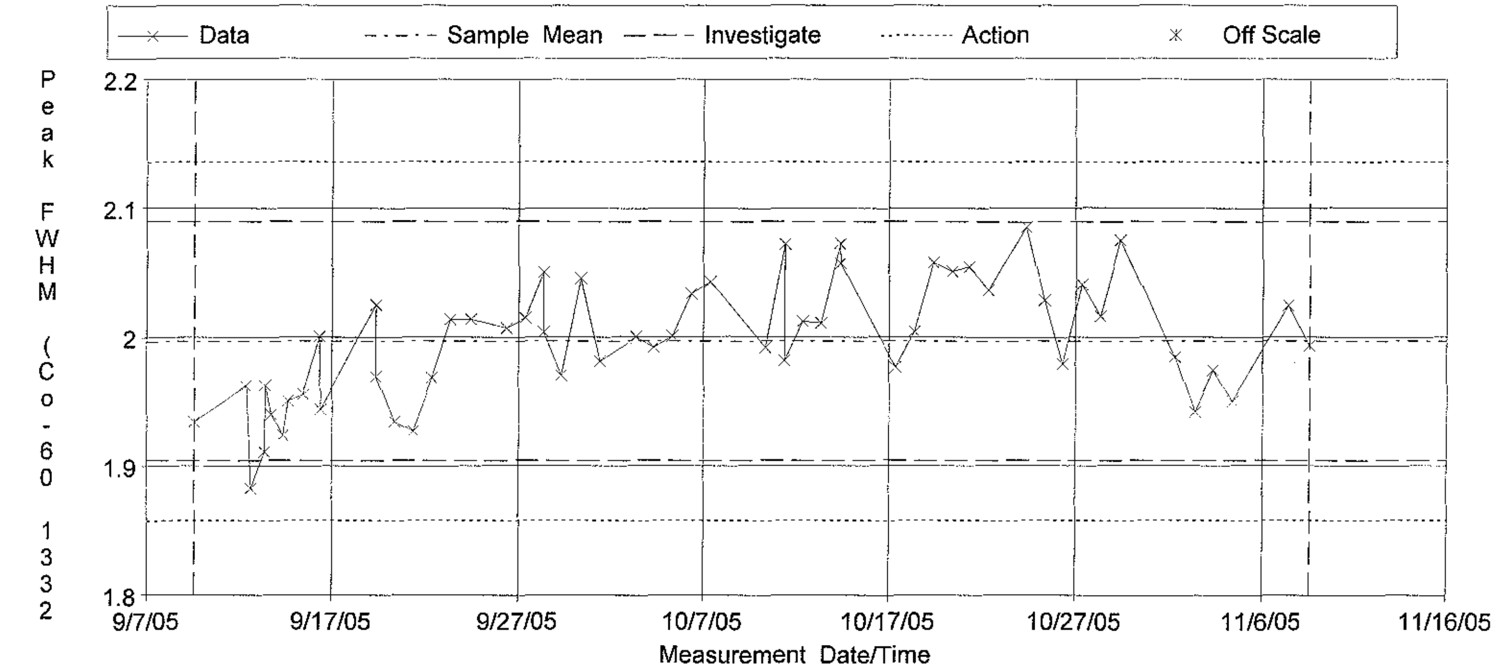


QA Filename	:	C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description	:	Decay Corrected Am-241 Activity (uCi)
Selection Dates	:	9/09/05 1:36:30 PM - 11/04/05 8:17:09 AM
Sample Mean +/- Std Dev	:	0.092 +/- 2.25e-003

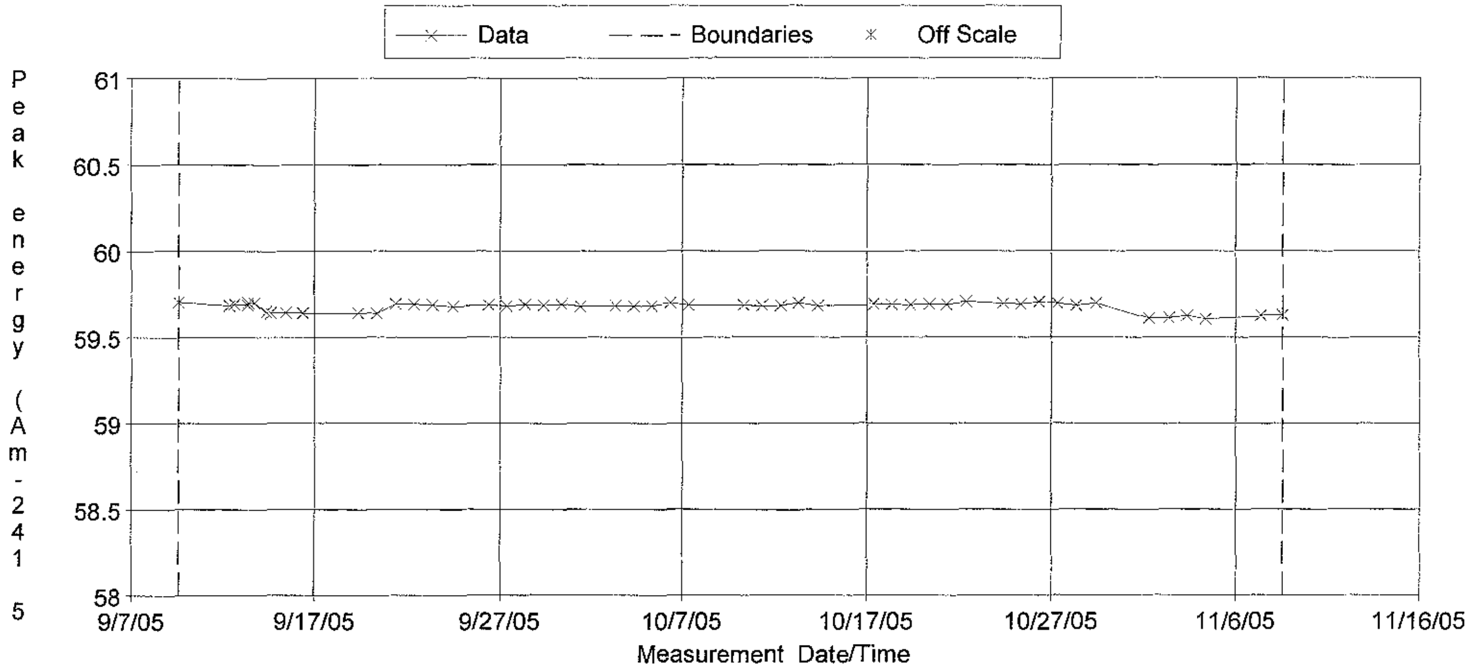


QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Sample Mean +/- Std Dev : 0.700 +/- 0.030

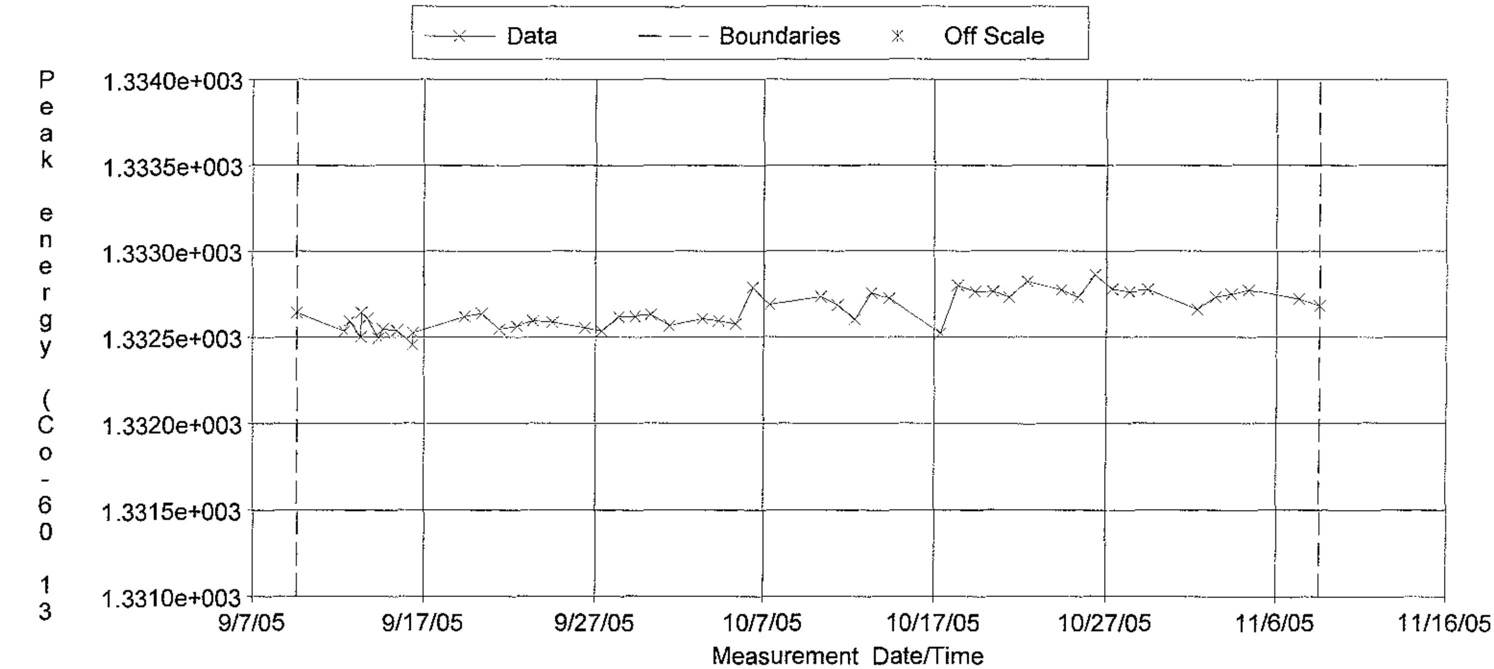
11-8-05 [redacted]



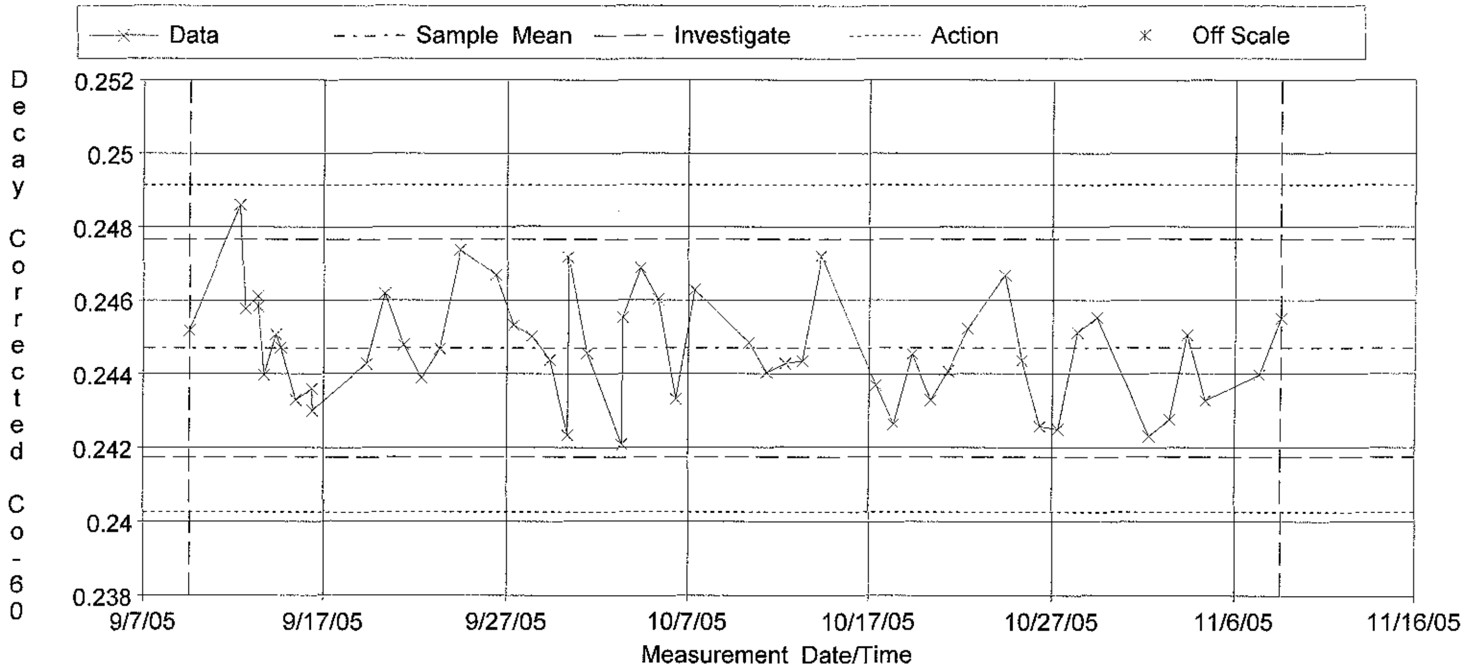
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak FWHM (Co-60 1332 keV)) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Sample Mean +/- Std Dev : 1.997 +/- 0.046



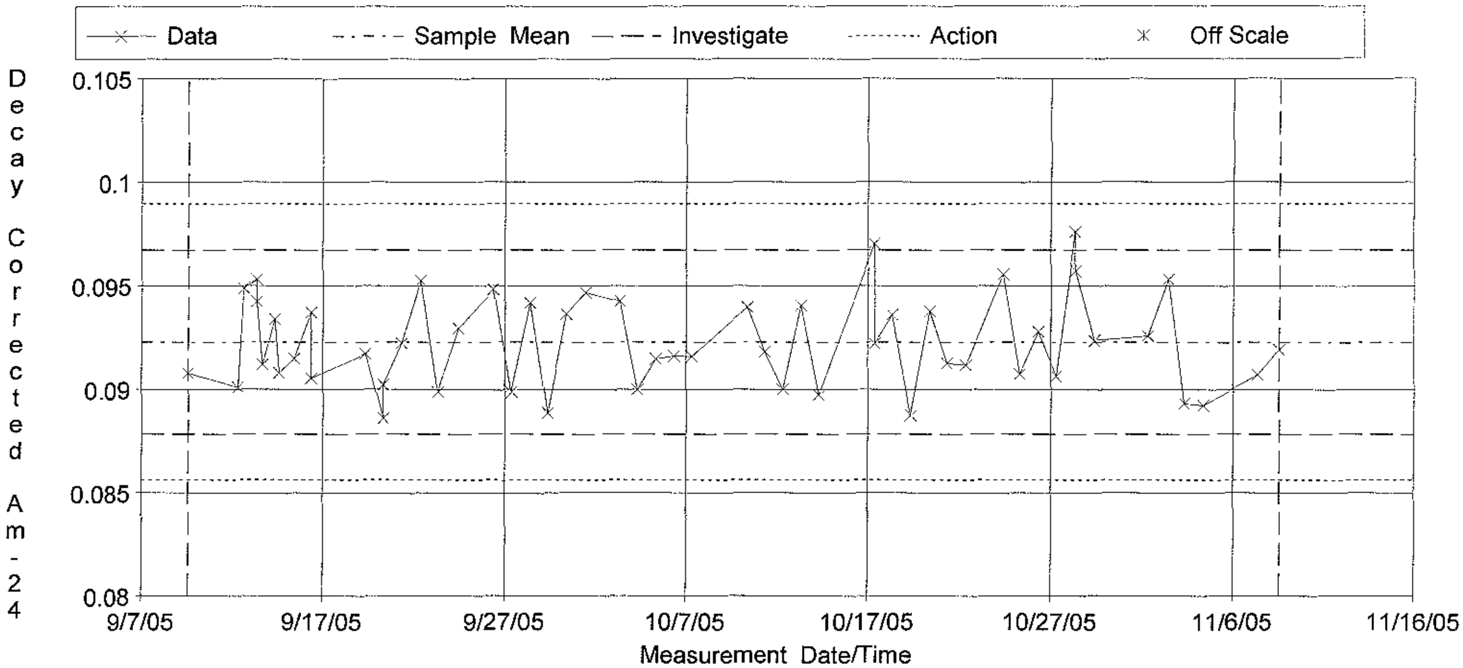
QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Am-241 59.5 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Lower/Upper Boundaries : 58.500 - 60.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Peak energy (Co-60 1332 keV) (keV)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Lower/Upper Boundaries : 1331.500 - 1333.500



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Co-60 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Sample Mean +/- Std Dev : 0.245 +/- 1.48e-003



QA Filename : C:\Painesville Lab 2005\Painesvile 2005 QA.QAF
Parameter Description : Decay Corrected Am-241 Activity (uCi)
Selection Dates : 9/09/05 1:36:30 PM - 11/08/05 12:56:03 PM
Sample Mean +/- Std Dev : 0.092 +/- 2.22e-003

119719

[redacted]
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. 363235

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.	FS 454
Nuclide	Technetium-99

Measurement Data

Activity	385 Bq
Overall Uncertainty*	± 10 %
Beta Surface Emission Rate	190 s^{-1} ± 10 % 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

[redacted]

[redacted]

10 September 1996 Men/wo

0 99605

[redacted]
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. 215395

for a Sealed Radioactive Source

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.	FD 763
Nuclide	Thorium-230

Measurement Data

Activity	339 Bq
Overall Uncertainty*	± 10 %
Alpha Surface Emission Rate	158 s^{-1} ± 5 % in 2 π steradian
Reference Date	3 September 1996
Traceability*	Defined on page 2

Leakage and Contamination Test(s)

Test Method(s)*	I
Test(s) passed on	10 September 1996

Additional Information

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

* see page 2 for explanation

[redacted]

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: Gilian	
Address: 628 Gallaher Rd Kingston, TN 37763		Model: GilAir-5	Serial Number: 15544
Contact Name: [redacted]		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-03172	Calibration Method: Electronic And Source	

INSTRUMENT CALIBRATION INFORMATION

Rotometer Value (LPM)	Tolerance (±10%) (LPM)	Calibrator Response		Comments
		As Found Flow Rate	As Left Flow Rate	
Reading 1		4.161	4.161	D-812: 2816 Cal Due: 04/19/06
Reading 2		4.163	4.163	Humidity: 958670 Cal Due: 03/22/06
Reading 3		4.154	4.154	M-30: M-5643B Cal Due: 08/05/06
Average		4.159	4.159	
				Temperature: 24.0°C
				Humidity: 51%
				Pressure: 744mmHg
				Rotometer indicates ~4LPM Flow @ 4LPM
				Filter Media: FP47

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).

[redacted] 9-12-05

Calibration Date: 9/12/2005	Calibration Due: 9/12/2006

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:** Gilian	
Address: 628 Gallaher Rd [redacted]		**Model:** GilAir-5	**Serial Number:** 15541
[redacted] Thomas F. Scott		**Probe:** N/A	**Serial Number:** N/A
Customer Purchase Order Number: N/A	**Work Order Number:** 2005-03172	**Calibration Method:** Electronic And Source	

INSTRUMENT CALIBRATION INFORMATION

Rotometer Value (LPM)	Tolerance (±10%) (LPM)	Calibrator Response		Comments
		As Found Flow Rate	As Left Flow Rate	
Reading 1		3.916	3.916	D-812: 2816 Cal Due: 04/19/06
Reading 2		3.896	3.896	Humidity: 958670 Cal Due: 03/22/06
Reading 3		3.872	3.872	M-30: M-5643B Cal Due: 08/05/06
Average		3.895	3.895	
				Temperature: 24.0°C
				Humidity: 51%
				Pressure: 744mmHg
				Rotometer indicates ~4LPM Flow @ 4LPM
				Filter Media: FP47

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 [redacted]

9-12-05

Calibration Date: 9/12/2005	Calibration Due: 9/12/2006

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SERVICES ORDER NO. 229160/288238

Mfg. Ludlum Measurements, Inc. Model 2929 Serial No. 180830

Mfg. Ludlum Measurements, Inc. Model 43-10-1 Serial No. PR207849

Cal. Date 17-Jan-05 Cal Due Date 17-Jan-06 Cal. Interval 1 Year Meterface 202-014

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 20 % Alt 689.8 mm Hg

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

☑ Mechanical ck. ☑ Window Operation

☑ Audio ck.

☑ Meter Zeroed Alpha Sensitivity 175 mV Beta Sensitivity 4 mV Beta Window 50 mV

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 650 V = 2.74 on High Voltage dial. High Voltage set with detector connected.

☑ HV Readout (2 points) Ref./Inst. 500 / 509 V Ref./Inst. 2000 / 1990 V

COMMENTS:
4pi efficiencies for
Th230 39.4 %
SrY90 42.4 %
Ni63 3.5 %
Tc99 40.6 %

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

Alpha Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	39740 (0)	39740 (0)
	40K cpm	3974	3974
	4K cpm	397	397
	400 cpm	40	40
	40 cpm	4	4

Beta/Gamma Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	39739 (0)	39739 (0)
	40K cpm	3975	3975
	4K cpm	398	398
	400 cpm	40	40
	40 cpm	4	4

*Uncertainty within ± 10% C.F. within ± 20%

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Th230 E121495 ☑ Beta S/N Ni63 4017; SrY90 4016 Tc99 NI-EV ☐ Other

☑ m 500 S/N 57885 ☐ Oscilloscope S/N ☑ Multimeter S/N 71300353

[redacted] Date 17-Jan-05

Date 17 Jan 05

FORM C25 11/26/2003

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

Project Number__________04-3200.02 / 6 **Painesville FUSRAP EST** 9/8/2005

"X"	Manufacturer	Model No. Other ID	Serial No.	cooler	Remarks	Returned
x	Ludlum	43-89	PR171381	3		
x	Ludlum	2241-3	142299	3	G1 C443E 20 ft c-f cable	
x	Bicron	G1	C443E	3		
x	Ludlum	2224-1	162420	3	43-89 PR171381 5 ft c-c cable	
x	Isotope Products	Cs-137 BC-(1139)	CSI003, #3	3		
x	cal certs			3		
x	qc template CD			3		
x	Ludlum	2929	180830	9/8	Fedex	

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: Bicron	
Contact Name: [redacted]		Model: micro rem	Serial Number: 1546
Address: 628 Gallaher Road, Kingston, TN 37763		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2005-03144	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range	Calibration Standard Value µrem/hr	Instrument Response		Comments	
		Before Calibration	After Calibration	Calibration performed in accordance with OEM Technical Manual.	
		µRem/hr	µRem/hr	DVM: 6565015	Cal Due: 10/19/05
X 0.1	4.0 (Pulsed)	N/A	4.0	D-814: 2551	Cal Due: 10/04/05
X 0.1	16.0 (Pulsed)	N/A	16.0	Pulser: 683	Cal Due: 03/16/06
X 1	40 (Pulsed)	N/A	40	Humidity: 958670	Cal Due: 03/22/06
X 1	100	N/A	100	**X0.1** Range Pulser Calibrated	
X 1	160	N/A	160	BAT: SAT	Mech Zero: SAT
X 10	400	N/A	400	HV ok: SAT	Geotropism: SAT
X 10	1,000	N/A	1,000	Reset: SAT	
X 10	1,600	N/A	1,600	Temp: 23.1°C Humidity: 60%	
X 100	4,000	N/A	4,000	Pressure: 728mmHg	
X 100	10,000	N/A	10,000	No AS FOUNDS taken due to broken detector	
X 100	16,000	N/A	16,000		
X1000	40,000	N/A	40,000	Source: Cs^{137} 049711 Cert Date: 07/22/05 Cs^{137} 019701 Cert Date: 08/11/05	
X1000	100,000	N/A	100,000		
X1000	160,000	N/A	160,000		

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 [redacted]

Date: 8-30-05

Calibration Date: 08/30/2005	Calibration Due: 8/30/2006

Project Number___________04-3200.02 / 6

Painesville FUSRAP EST

8/26/2005

"X"	Manufacturer	Model No. Other ID		Serial No.	cooler	Remarks	Returned
x	Ludlum	43-89		PR171381	3		
x	Ludlum	2241-3		142299	3	G1 C443E 20 ft c-f cable	
x	Bicron	G1		C443E	3		
x	Ludlum	2224-1		162420	3	43-89 PR171381 5 ft c-c cable	
x	Isotope Products	Cs-137	BC-(1139)	CSI003, #3	3		
x	cal certs				3		
x	qc template CD				3		

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-46
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER CABRERA SERVICES ORDER NO. 240709/294328

Mfg. Ludlum Measurements, Inc. Model 2241-3 Serial No. 142299

Mfg. Bicron Model G1 Serial No. C443E

Cal. Date 22-Aug-05 Cal Due Date 22-Aug-06 Cal. Interval 1 Year Meterface

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 71 °F RH 48 % Alt 703.8 mm H

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

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

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

☑ Audio ck. ☑ Alarm Setting ck. ☐ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set Comments V Input Sens. 10 mV Det. Oper. Comments V at 10 mV Threshold Dial Ratio ____ = ____

COMMENTS:

	Det 1	Det 2	Det 3	Det 4
Deadtime:	7usec	7usec	0usec	0usec
Cal Constant:	100-2	10008	100-2	100-2
Alert:	20Kc/m	20uR/hr	20Kc/m	20Kc/m
Alarm:	50Kc/m	50uR/hr	50Kc/m	50Kc/m
High Voltage:	850V	850V	900V	900V
Firmware:	P0605			

New cable -> No Asfounds

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
Digital	20mR/hr	N/A	19.6
Digital	15	↓	14.7
	10	↓	10.0
	4	↓	4.04
	1	↓	1.04
	500 uR/hr	↓	499
	200	↓	200
	100	↓	100

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

Ratemeter Readout REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Scaler Readout REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING
800K cpm	N/A	802Kc/m	800K cpm	N/A	80324(0)
200K cpm	↓	200	200K cpm	↓	20061(0)
80K cpm	↓	80	80K cpm	↓	8026(0)
20K cpm	↓	20	20K cpm	↓	2001(0)
8K cpm	↓	8.0	8K cpm	↓	802(0)
2K cpm	↓	2.0	2K cpm	↓	200(0)
800 cpm	↓	800 c/m	800 cpm	↓	80(0)
200 cpm	↓	201	200 cpm	↓	20(0)

udlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities o ther International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration technique e calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-19

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-3

☐ Alpha S/N ☐ Beta S/N ☑ Other Am-241 ≈0.74uCi

☑ m 500 S/N 57881 ☐ Oscilloscope S/N ☑ Multimeter S/N 80040300

[redacted] Date 22-Aug-05

Date 22Aug05

FORM C22E 11/26/2003

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-46
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector G1 Serial No. C443E

Customer CABRERA SERVICES Order #. 240709/294328

Counter 2241-3 Serial No. 142299 Counter Input Sensitivity 10 mV

Count Time 6sec Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Am-241 Size ≈0.74uCi	Isotope Size	Isotope Size	Isotope Size
600	128	10509			
650	113	12487			
700	204	13285			
750	146	13602			
800	142	13713			
→ 850	136	13552			
900	159	13686			
950	150	13302			
1000	157	13470			
1050	282	15437			

[redacted] Date 22-Aug-05

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER CABRERA SERVICES ORDER NO. 228163 / 287714

Mfg. Ludlum Measurements, Inc. Model 2224-1 Serial No. 162420

Mfg. Ludlum Measurements, Inc. Model 43-89 Serial No. PR171381

Cal. Date 30-Dec-04 Cal Due Date 30-Dec-05 Cal. Interval 1 Year Meterface 202-848

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 38 % Alt 698.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 675 V Input Sens. Comment mV Det. Oper. 675 V at Comment mV Threshold Dial Ratio ___ = ___ mV

☑ HV Readout (2 points) Ref./Inst. 500 / 517 V Ref./Inst. 1000 / 1020 V

COMMENTS:

4 pi "net" efficiencies for Th-230, SrY-90, Tc-99, and Ni-63 are as follows:

Th-230: 17%
SrY-90: 24%
Ni-63: .08%
Tc-99: 13%

Alpha sensitivity: 120 mV
Beta sensitivity: 3.5 mV
Beta window: 30 mV

Overload set to simulate light leak.
Firmware version: 390096

Instrument calibrated with 5 ft.
High voltage set with detector disconnected.

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	800kcpm	800	800
X1000	200kcpm	200	200
X100	80kcpm	800	800
X100	20kcpm	200	200
X10	8kcpm	800	800
X10	2kcpm	200	200
X1	800cpm	800	800
X1	200cpm	200	200

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

Digital Readout REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
800kcpm	801244	801244			
80kcpm	80040	80040			
8kcpm	8004	8004			
800cpm	800	800			
80cpm	80	80			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Th-230 (E121495) ☑ Beta S/N Tc-99(NI-EV),SrY-90(4016),NI ☐ Other

☑ m 500 S/N 189491 ☐ Oscilloscope S/N ☑ Multimeter S/N 82250292

[redacted] Date 30-Dec-04

Date 3 Jan-05

FORM C22A 11/26/2003

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

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-89 Serial No. PR171381 Order #. 228163 / 287714

Customer CABRERA SERVICES

Alpha Input Sensitivity 120 mV

Counter 2224-1 Serial No. 162420

Beta Input Sensitivity 3.5 mV

Count Time 1 Minute

Beta Window 30 mV

Other

Distance Source to Detector surface

High Voltage	Background Alpha	Background Beta	Isotope Th-230 Size ≈19.8 Kdpm Alpha	Isotope Th-230 Size ≈19.8 Kdpm Beta	Isotope Tc-99 Size ≈22.6 Kdpm Alpha	Isotope Tc-99 Size ≈22.6 Kdpm Beta	Isotope Ni-63 Size ≈305 Kdpm Alpha	Isotope Ni-63 Size ≈305 Kdpm Beta
650	3	154	3287	418	6	2350	8	173
675	3	228	3419	580	10	3266	7	470
700	5	349	3467	923	11	4306	4	1046

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signat[redacted]

Date 30.Dec.04

FORM C4B 04/09/2003

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-89 Serial No. PR171381 Order #. 228163 / 287714

Customer CABRERA SERVICES

Counter 2224-1 Serial No. 162420

Count Time 1 Minute

Other

Alpha Input Sensitivity 120 mV

Beta Input Sensitivity 3.5 mV

Beta Window 30 mV

Distance Source to Detector surface

High Voltage	Background Alpha	Background Beta	Isotope Sr/Y-90 Size ≈61,258 dpm Alpha	Isotope Sr/Y-90 Size ≈61,258 dpm Beta	Isotope Size Alpha	Isotope Size Beta	Isotope Size Alpha	Isotope Size Beta
650	3	154	6	12292				
675	3	228	7	14807				
700	5	349	5	16380				

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature [redacted] Date 30-Dec-04

FORM C4B 04/09/2003

Project Number__________04-3200.02 / 6 **Painesville FUSRAP EST** 9/16/2005

"X"	Manufacturer	Model No. Other ID	Serial No.	cooler	Remarks
x	Geotech	Oil and Water Level Meter	3156		fedex 9/16

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A. 239985

:USTOMER CABRERA SERVICES ORDER NO. 239988, 239398

Mfg. Ludlum Measurements, Inc. Model 2221 Serial No. 216482
Mfg. Bicron Model G1 Serial No. C358G
:al. Date 25-Aug-05 Cal Due Date 25-Aug-06 Cal. Interval 1 Year Meterface 202-159
ieck mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 70 °F RH 43 % Alt 700.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☑ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 4.4 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

trument Volt Set 1000 V Input Sens. 35 mV Det. Oper. 1000 V at 35 mV Threshold Dial Ratio 100 = 35 mV

☑ HV Readout (2 points) Ref./Inst. 500 / 499 V Ref./Inst. 2000 / 2004 V

:OMMENTS:
alibrated using 50 ft. cable.
igh voltage was set with G1 connected.
irmware number 261028

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1k	400kcpm		400
x1k	100kcpm		100
x100	40kcpm		400
x100	10kcpm		100
x10	4kcpm		400
x10	1kcpm		100
x1	400cpm		400
x1	100cpm		100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
igital adout	400kcpm		40018 (G)	Log Scale	500kcpm		450K
	40kcpm		4000		50kcpm		47.5K
	4kcpm		400		5kcpm		5K
	400cpm		40		500cpm		510
	40cpm		4		50cpm		52

um Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of r International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

eference Instruments and/or Sources:
-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☑ Other Am241 ≃0.87µCi / Cs137 ≃1 µCi

☑ m 500 S/N 196745 ☐ Oscilloscope S/N ☑ Multimeter S/N 80050663

[redacted] Date 25-AUG-05

Date 25 Aug 05

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

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

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A. 239985

CUSTOMER CABRERA SERVICES ORDER NO. 239988, 29398

Mfg. Ludlum Measurements, Inc. Model 2221 Serial No. 216482

Mfg. Bicron Model G1 Serial No. C358G

Cal. Date 25-Aug-05 Cal Due Date 25-Aug-06 Cal. Interval 1 Year Meterface 202-159

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 70 °F RH 43 % Alt 700.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☑ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 4.4 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1000 V Input Sens. 35 mV Det. Oper. 1000 V at 35 mV Threshold Dial Ratio 100 = 35 mV

☑ HV Readout (2 points) Ref./Inst. 500 / 499 V Ref./Inst. 2000 / 2004 V

COMMENTS:
Calibrated using 50 ft. cable.
High voltage was set with G1 connected.
Firmware number 261028

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1k	400kcpm		400
x1k	100kcpm		100
x100	40kcpm		400
x100	10kcpm		100
x10	4kcpm		400
x10	1kcpm		100
x1	400cpm		400
x1	100cpm		100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400kcpm		40018 (0)	Log Scale	500kcpm		450K
	40kcpm		4000		50kcpm		42.5K
	4kcpm		400		5kcpm		5K
	400cpm		40		500cpm		510
	40cpm		4		50cpm		52

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☑ Other Am241 ≃0.87µCi / Cs137 ≃1 µCi

☑ m 500 S/N 196745 ☐ Oscilloscope S/N ☑ Multimeter S/N 80050663

[redacted] Date 25-AUG-05

Date 25 Aug 05

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

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

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER CABRERA SERVICES ORDER NO. 231853/289675

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 79552

Mfg. Ludlum Measurements, Inc. Model 44-9 Serial No. PR085991

Cal. Date 4-Mar-05 Cal Due Date 4-Mar-06 Cal. Interval 1 Year Meterface 202-002

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 39 % Alt 695.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 900 V Input Sens. 27 mV Det. Oper. 900 V at 27 mV Threshold Dial Ratio ______ = ______ mV

☐ HV Readout (2 points) Ref./Inst. ______ / ______ V Ref./Inst. ______ / ______ V

COMMENTS: Efficiencies are as follows:

Isotope =	Th230	Ni63	Tc99	Sr/Y-90
Serial # =	5020-03	4017	Ni-Ev	4016
Activity (size):	5730 dpm	293,327 dpm	22,600 dpm	60,983 dpm
Source Reading:	800 cpm	1250 cpm	5000 cpm	20,000 cpm
Background:	50 cpm	50 cpm	50 cpm	50 cpm
Efficiencies:	13% (4pi)	0.41% (4pi)	21.9% (4pi)	32.7% (4 pi)

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400 K cpm	3.9	4
X 100	100 K cpm	0.95	1
X 10	40 K cpm	3.9	4
X 10	10 K cpm	0.9	1
X 1	4 K cpm	3.8	4
X 1	1 K cpm	0.95	1
X 0.1	400 cpm	3.9	4
X 0.1	100 cpm	0.95	1

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☑ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☑ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ______ ☐ Beta S/N ______ ☐ Other ______

☑ m 500 S/N 81084 ☐ Oscilloscope S/N ______ ☑ Multimeter S/N 78401030

[redacted] Date 4-Mar-05

Date 7 MAR 05

FORM C22A 11/26/2003

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

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-46
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer CABRERA SERVICES Date 4-Mar-05 Order #. 231853/289675

Model 3 Serial No. 79552 Detector Model 44-9 Serial No. PR085991

Source Cs-137 150 mCi Cs-137 21 mCi High Voltage 900 V

Input Sensitivity 27 mV

Reference Point	"As Found" Readings (CPM): Meter Reading	Range/Scale	After Adjustment Readings (CPM): Meter Reading	Range/Scale
150 mR/hr	1.9	x100	1.95	x100
50 mR/hr	1	"	1	"
15 mR/hr	4.1	x10	4.1	x10
5 mR/hr	1.45	"	1.5	"
1.5 mR/hr	4.2	x1	4.5	x1
1.0 mR/hr	2.8	"	3	"

Signat[redacted] Date 4-Feb-05

FORM C17-1A 04/09/2003

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer CABRERA SERVICES Date 8-Dec-04 Order #. 227376 / 287306

Model 3 Serial No. 166511 Detector Model 44-9 Serial No. PR073107

Source Cs-137 194.6 mCi Cs-137 20 mCi High Voltage 900 V

Input Sensitivity 39 mV

Reference Point	"As Found" Readings (CPM): Meter Reading	Range/Scale	After Adjustment Readings (CPM): Meter Reading	Range/Scale
150 mR/hr	3.7k	X100	3.7k	X100
50 mR/hr	1.5k	X100	1.5k	X100
15 mR/hr	0.5k	X100	0.5k	X100
5 mR/hr	1.8K	X10	1.8k	X10
1.5 mR/hr	4.3k	X1	4.3k	X1
1.0 mR/hr	3.7k	X1	3.7k	X1

Signa[redacted] Date 8 Dec 04

FORM C17-1A 04/09/2003

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

USTOMER CABRERA SERVICES ORDER NO. 227376 / 287306

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 166511

Mfg. Ludlum Measurements, Inc. Model 44-9 Serial No. PR073107

Cal. Date 8-Dec-04 Cal Due Date 8-Dec-05 Cal. Interval 1 Year Meterface 202-002

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 76 °F RH 20 % Alt 694.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 900 V Input Sens. 38 mV Det. Oper. 900 V at 38 mV Threshold Dial Ratio ____ = ____ mV

☐ HV Readout (2 points) Ref./Inst. ____ / ____ V Ref./Inst. ____ / ____ V

COMMENTS:

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400 K cpm	4k	4k
X 100	100 K cpm	1k	1k
X 10	40 K cpm	4k	4k
X 10	10 K cpm	1k	1k
X 1	4 K cpm	4k	4k
X 1	1 K cpm	1k	1k
X 0.1	400 cpm	4k	4k
X 0.1	100 cpm	1k	1k

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

Digital Readout: REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale: REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ____ ☐ Beta S/N ____ ☐ Other ____

☑ m 500 S/N 134709 ☐ Oscilloscope S/N ____ ☑ Multimeter S/N 86250390

[redacted] Date 8 Dec 04

Reviewed B[redacted] Date 13 Dec 04

FORM C22A 11/26/2003

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

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 44-20 Serial No. PR182742

Customer CABRERA SERVICES Order #. 233585/290627

Counter 2221 Serial No. 161581 Counter Input Sensitivity 10 mV

Count Time 6 sec Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Am-241 Size ≈0.74uCi	Isotope Size	Isotope Size	Isotope Size
800	1411	8377			
850	1478	14664			
900	1531	15993			
950	1665	17349			
1000	1633	18228			
→ 1050	1579	18957			
1100	1625	19176			
1150	1623	19224			
1200	1600	19030			

[redacted] Date 6-Apr-05

FORM C4A 04/09/2003

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER CABRERA SERVICES ORDER NO. 233585/290627

Mfg. Ludlum Measurements, Inc. Model 2221 Serial No. 161581
Mfg. Ludlum Measurements, Inc. Model 44-20 Serial No. PR 182742

Cal. Date 6-Apr-05 Cal Due Date 6-Apr-06 Cal. Interval 1 Year Meterface 202-159

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 20 % Alt 698.8 mm Hg

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☑ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 5.0 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set Comments V Input Sens. Comments mV Det. Oper Comments V at Comments mV Threshold Dial Ratio 100 = 10 mV

☑ HV Readout (2 points) Ref./Inst. 500 / 498 V Ref./Inst. 2000 / 1993 V

COMMENTS:

	Peak settings	Gross Counts
High Voltage:	747v	1050V
Threshold dial:	642	100(10mv)
Window dial:	40	n/a
Window Position:	"IN"	"OUT"
Resolution for Cs137:	≈ 9 %	n/a

Calibrated with 5 foot cable.

Model 2221 currently set for Gross Counts
High voltage set with detector connected.

Firmware: 261027

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400 Kcpm	400	400
X 1000	100 Kcpm	100	100
X 100	40 Kcpm	400	400
X 100	10 Kcpm	100	100
X 10	4 Kcpm	400	400
X 10	1 Kcpm	100	100
X 1	400 cpm	400	400
X 1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	401196	401196	Log Scale	500 K cpm	500K	500K
	40 K cpm	40156	40156		50 K cpm	50K	50K
	4 K cpm	4016	4016		5 K cpm	5K	5K
	400 cpm	406	406		500 cpm	500	500
	40 cpm	46	46		50 cpm	55	55

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:
Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304
☐ Alpha S/N ☐ Beta S/N ☑ Other Am-241

[redacted]

☑ Multimeter S/N 80040300
Date 6-Apr-05
Date 7 Apr 05

FORM C22A 11/26/2003

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

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-46
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 44-20 Serial No. PR 183465

Customer CABRERA SERVICES Order #. 231852/289674

Counter 2221 Serial No. 176952 Counter Input Sensitivity 10 mV

Count Time 1 Min Source & BG Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Am 241 Size 0.84 μCi	Isotope Size	Isotope Size	Isotope Size
900	10657	102148			
950	11982	174938			
1000	12581	201265			
1050	12212	217524			
1100	12319	218823			
→ 1150	12566	219183			
1200	12662	221687			
1250	12691	220923			
1300	13027	222265			
1350	13127	221914			
1400	14252	223201			

[redacted]

Date 7-Nov-05

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-46
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER CABRERA SERVICES ORDER NO. 231852/289674

Mfg. Ludlum Measurements, Inc. Model 2221 Serial No. 176952

Mfg. Ludlum Measurements, Inc. Model 44-20 Serial No. PR 183465

Cal. Date 7-Mar-05 Cal Due Date 7-Mar-06 Cal. Interval 1 Year Meterface 202-159

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 70 °F RH 40 % Alt 698.8 mm H

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

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☑ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 4.4 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set Comm V Input Sens. Comm mV Det. Oper Comm V at Comm mV Threshold Dial Ratio Comm = Comm

☑ HV Readout (2 points) Ref./Inst. 500 / 494 V Ref./Inst. 2000 / 1983 V

COMMENTS:

Peak Settings.
Peak Voltage = 848V.
Thshld = 642
Win = 40
Win Pos = "IN"
Resolution for Cs137 is 12%

Gross Settings:
HV: 1150 V.
Thshld = 100 (10mV)
Win. Pos = "Out"
Firmware No. 26 10 27
Calib using 6' C/C Cable.

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

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1k	400kcpm	400	400
x1k	100kcpm	100	100
x100	40kcpm	400	400
x100	10kcpm	100	100
x10	4kcpm	400	400
x10	1kcpm	100	100
x1	400cpm	400	400
x1	100cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

Digital Readout REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING
400kcpm	400181	400181	500kcpm	500 Kcpm	500 Kcpm
40kcpm	40008	40008	50kcpm	50 "	50 "
4kcpm	4002	4002	5kcpm	5 "	5 "
400cpm	400	400	500cpm	500 Cpm	500 Cpm
40cpm	40	40	50cpm	50 "	50 "

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities o other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration technique The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978

State of Texas Calibration License No. LO-19

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ 1879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-3

[redacted] ☑ Other Am 241 @ 0.84 μCi

☑ Multimeter S/N 69101832

Date 7-Mar-05

Date 8 MAR 05

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

CERTIFICATE OF CALIBRATION
(AIR SAMPLER)

Facility: RSA Laboratories, Inc. Customer: **Cabrera Services, Inc.**

Air Sampler Model **F&J LV-1** Air Sampler Serial No. **002802**
Calibrator Model **F&J Venturi D-812** Calibrator Serial No. **2541**

	AIR SAMPLER						CALIBRATOR		
Measurement	Inlet Temp. (°F)	Inlet Press (In-Hg)	Gauge Press (In-Hg)	Indicated Flow (LPM)	Temp/Press Correction Factor	Corrected Flow (LPM)	Indicated Flow (LPM)	Temp/Press Correction Factor	Corrected Flow (LPM)
1	65.1	29.43	1	20	0.979	19.59	20	0.996	19.93
2	65.1	29.43	1	40	0.979	39.17	39	0.996	38.86
3	65.1	29.43	1	50	0.979	48.97	48	0.996	47.83
4	65.1	29.43	1	60	0.979	58.76	58	0.996	57.79
5	65.1	29.43	1	80	0.979	78.35	76	0.996	75.73
6									
7									
8									
9									
10									
11									
12									

Air Sampler Temp/Press Corr Factor $= \sqrt{\frac{530°R}{\text{Inlet temp (°F)} + 460°R} \times \frac{(\text{Inlet Press} - \text{Gauge Press})}{29.92 \text{ in. Hg}}}$

% Deviation $= \frac{\text{Corrected Flow} - \text{Sampler Flow}}{\text{Corrected Flow}} \times 100$

Calibrator Temp/Press Corr Factor $= \sqrt{\frac{530°R}{\text{Inlet temp (°F)} + 460°R} \times \frac{\text{Inlet Press}}{29.92 \text{ in. Hg}}}$

Corrected Flow = (Indicated Flow) x (Temp/Press Corr Factor)

Calibrated by: **Kurt D. Newton**[redacted]**ate: 21 February 2005**

Reviewed by: **Jay R. Dockendo**[redacted]**ate: 21 February 2005**

CERTIFICATE OF CALIBRATION
(AIR SAMPLER)

RSA Laboratories, Inc.
21 Pendleton Drive, P.O. Box 61
Hebron, Connecticut 06248
(860) 228-0721 Fax (860) 228-4402

Customer and Contact: **Cabrera Services, Inc.,** [redacted] **(860) 289-1885**
Customer Address: **809 Main Street, East Hartford, CT 06108**

Inst. Mfr. **F&J Specialty Products** Inst. Model LV-1 Inst. s/n [illegible]
Reference Inst. **F&J Venturi D-812** Inst. s/n **2541**

Cal. Date **21 February 2005** Due Date **21 February 2006** Cal. Interval **1 year**

Barometric Press: Actual **29.82 in. Hg** Corrected to: 29.43 in. Hg
Temperature: Actual **66°F** Corrected to: 65.1°F
Filters Used: ☒Particulate ☐Charcoal/silver zeolite ☐Other:

Measurement	Air Sampler Flow Rate (LPM)	Ref. Inst. Flow Rate (LPM)	Percent Deviation
1	19.59	19.93	1.71
2	39.17	38.86	-0.81
3	48.97	47.83	-2.38
4	58.76	57.79	-1.68
5	78.35	75.73	-3.46
6			
7			
8			
9			
10			
11			
12			

****Average percent deviation across the range = -1.32**

This is to certify that RSA Laboratories, Inc. of Hebron, Connecticut, has on this date certified this air sampler to be within the accuracy specified above. The Reference Flow Device bears Letters of Certification traceable to the National Institute of Science and Technology. RSA Laboratories, Inc. ID# 9579.

[redacted] Date: **21 February 2005**
Date: **21 February 2005**

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER: CABRERA SERVICES — ORDER NO. 231463/289482

Mfg. Ludlum Measurements, Inc. — Model 2929 — Serial No. 163827

Mfg. Ludlum Measurements, Inc. — Model 43-10-1 — Serial No. PR171327

Cal. Date 8-Mar-05 — Cal Due Date 8-Mar-06 — Cal. Interval 1 Year — Meterface 202-014

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 76 °F RH 21 % Alt 695.8 mm Hg

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

☑ Mechanical ck. ☐ Window Operation

☑ Audio ck.

☑ Meter Zeroed Alpha Sensitivity 175 mV Beta Sensitivity 4 mV Beta Window 50 mV

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 875 V = 3.48 on High Voltage dial. High Voltage set with detector connected.

☑ HV Readout (2 points) Ref./Inst. 500 / 509 V Ref./Inst. 2000 / 2023 V

COMMENTS:

See attachment for eff.

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

Alpha Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	39990(0)	39990(0)
	40K cpm	4014(0)	4014(0)
	4K cpm	401(0)	401(0)
	400 cpm	40(0)	40(0)
	40 cpm	4(0)	4(0)

Beta/Gamma Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	40155(0)	40155(0)
	40K cpm	4009(0)	4009(0)
	4K cpm	401(0)	401(0)
	400 cpm	40(0)	40(0)
	40 cpm	4(0)	4(0)

*Uncertainty within ± 10% C.F. within ± 20%

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978.
State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐1162 ☐G112 ☐M565 ☐5105 ☐T1008 ☐T879 ☐E552 ☐E551 ☐720 ☐734 ☐1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N 5020-03 ☑ Beta S/N SrY-90 4016 TC-99 5280-04A U143 4017 ☐ Other

[redacted] ☑ Multimeter S/N 80040300

[redacted] Date 8-Mar-05

Date 14 mar 05

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

FORM C25 11/26/2003

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-10-1 Serial No. PR171322 Order #. 231463/289482

Customer CABRERA SERVICES Alpha Input Sensitivity 175 mV

Counter 2929 Serial No. 163827 Beta Input Sensitivity 4 mV

Count Time 1 Minute Beta Window 50 mV

Other Distance Source to Detector Tray

High Voltage	Background Alpha	Background Beta	Isotope Ni 63, Size 305,000dpm Alpha	Isotope Ni 63, Size 305,000dpm Beta	Isotope Tc-99, Size 93,200dpm Alpha	Isotope Tc-99, Size 93,200dpm Beta	Isotope SrY-90, Size 60,975dpm Alpha	Isotope SrY-90, Size 60,975dpm Beta
600	0	1	0	2	7	434	0	4,495
625	0	4	1	9	17	2199	1	7,383
650	0	10	2	8	15	5341	2	10,030
675	0	11	4	16	39	8983	39	8,983
700	0	34	0	34	52	12,35[illegible]	2	16,496
725	0	26	3	33	53	15,922	2	20,208
750	0	26	0	39	69	18,620	3	22,728
775	1	49	4	154	56	20,85[illegible]	5	24,101
800	0	46	0	518	60	23,29[illegible]	5	24,694
825	2	57	2	1477	75	25,843	1	25,067
850	2	70	4	3377	60	28,170	6	24,679
→875	0	58	1	6075	76	30,6[illegible]	19	24,300
900	1	70	6	9354	60	33,045	52	23,734

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signat[redacted]

Date 8-Mar-05

FORM C48 04/09/2003

• *Serving The Nuclear Industry Since 1962* •

Designer and Manufacturer of Scientific and Industrial Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-10-1 Serial No. PR 171322 Order #. 231463/289482

Customer CABRERA SERVICES Alpha Input Sensitivity 175 mV

Counter 2929 Serial No. 163827 Beta Input Sensitivity 4 mV

Count Time 1 Minute Beta Window 50 mV

Other Distance Source to Detector Tray

High Voltage	Background Alpha	Background Beta	Isotope Th-230, Size 5,730dpm Alpha	Isotope Th-230, Size 5,730dpm Beta	Isotope Size Alpha	Isotope Size Beta	Isotope Size Alpha	Isotope Size Beta
600	0	1	552	190				
625	0	4	1232	156				
650	0	10	1263	140				
675	0	11	1495	129				
700	0	34	1645	128				
725	0	26	1656	137				
750	0	26	1466	134				
775	1	49	1734	138				
800	0	46	1711	165				
825	2	57	1754	204				
850	2	70	1701	242				
→875	0	58	1871	341				
900	1	70	1759	360				

☐ Gas Proportional detector count rate decreased ≤ 10% after 16 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signa[redacted] Date 8-Mar-05

FORM C4B 04/09/2003

LUDLUM MEASUREMENTS, INC.
501 OAK ST. / P.O. BOX 810
SWEETWATER, TEXAS 79556
Phone: 915-235-5494 800-622-0828 (USA)
Fax: 915-235-4672 E-Mail: ludlum@ludlums.com
Website: http://www.ludlums.com

DESIGNER AND MANUFACTURER OF *Scientific and Industrial Instruments*

Attachment 163827

Ni-63: 1.97% (4π) Source count: 6,075 cpm - 58 cpm background ÷ 305,000 dpm source size S/n: 4017

Tc-99: 32.8% (4π) Source count: 30,614 cpm - 58 cpm background ÷ 93,000 dpm Source size S/n: 5280-04A

SrY-90: 39.7 (4π) Source count: 24,300 cpm - 58 cpm background ÷ 60,975 dpm Source size S/N: 4016

Th-230: 32.6% (4π) Source count: 1,759 cpm - 0 cpm background ÷ 5,730 dpm Source size S/n: 5020-03

EBERLINE
SERVICES

CERTIFICATE OF CALIBRATION

Electroplated Beta Standard

S.O.# 3759
P.O.# 01-325

Description of Standard:

Model No. DNS-12 Serial No. 2898-01 Isotope Tc-99

Electroplated on polished SS disc, 0.79 mm thick.

Total diameter of 4.77 cm and an active diameter of 4.45 cm.

The radioactive material is permanently fixed to the disc by heat treatment without any covering over the active surface.

Measurement Method:

The 2pi beta emission rate was measured using an internal gas flow proportional chamber. Absolute counting of beta particles emitted in the hemisphere above the active surface was verified by counting above, below, and at the operative voltage. The calibration is traceable to NIST by reference to an NIST calibrated beta source S/N 2148/90 .

Measurement Result:

The observed beta count rate from the surface of the disc per minute (cpm) on the calibration date was:

10,800 ± 432

The total disintegration rate (dpm) assuming 25 % backscatter of beta particles from the surface of the disc, was:

17,300 ± 692 (0.00780 μCi)

The uncertainty of the measurement is 4 %, which is the sum of random counting error at the 99% confidence level, and the estimated upper limit of systematic error in this measurement.

Calibrated by: [redacted] Reviewed by: [redacted]

Calibration Technicia[redacted] Q.A. Representative: [redacted]

Calibration Date: 6-05-2001 Reviewed Date: 6/11/01

Analytical Services
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 345-3461 Fax (505) 761-5416
Toll Free (866) RAD-LABS (723-5227)
www.eberlineservices.com

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Electroplated Alpha Standard

S.O.# 3759
P.O.# 01-325

Description of Standard:

Model No. DNS-11 Serial No. 2897-01 Isotope Th-230

Electroplated on polished SS disc, 0.79 mm thick.

Total diameter of 4.77 cm and an active diameter of 4.45 cm.

The radioactive material is permanently fixed to the disc by heat treatment without any covering over the active surface.

Measurement Method:

The 2pi alpha emission rate was measured using an internal gas flow proportional chamber. Absolute counting of alpha particles emitted in the hemisphere above the active surface was verified by counting above, below, and at the operative voltage. The calibration is traceable to NIST by reference to an NIST calibrated alpha source S/N 2393/91.

Measurement Result:

The observed alpha particles emitted from the surface of the disc per minute (cpm) on the calibration date was:

11,400 ± 343

The total disintegration rate (dpm) assuming no backscatter of alpha particles from the surface of the disc, was:

22,800 ± 685 (0.0103 μCi)

The uncertainty of the measurement is 3 %, which is the sum of random counting error at the 99% confidence level, and the estimated upper limit of systematic error in this measurement.

[redacted] Reviewed by: [redacted]

Calibration Technician: [redacted] Q.A. Representative: [redacted]

Calibration Date: 6-11-2001 Reviewed Date: 6/11/01

Analytical Services
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 345-3461 Fax (505) 761-5416
Toll Free (866) RAD-LABS (723-5227)
www.eberlineservices.com

APPENDIX H

LABORATORY ANALYTICAL REPORTS

(Provided in PDF file format on accompanying CD)