FINAL

BUILDING 1103A AREA CHARACTERIZATION SURVEY REPORT

U.S. Army Research Laboratory Aberdeen Proving Ground, MD

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ACRONYMS AND ABBREVIATIONS

ACM AJMC ANL APG ARL	Asbestos Containing Material Army Joint Munitions Command Argonne National Laboratory Aberdeen Proving Ground Army Research Laboratory	NaI NIST NRC	Sodium Iodide National Institute of Standards and Technology Nuclear Regulatory Commission
CABRERA CD cm cm ² COC cpm ¹³⁷ Cs	Cabrera Services, Inc. Compact Disc centimeter(s) square centimeter(s) Contaminant of Concern counts per minute Cesium-137	^{234m} Pa PCB pCi/g PM ppm QA	Protactinium-234 Polychlorinated Biphenyl picocurie(s) per gram Project Manager parts per million Quality Assurance
DCB	dechachlorobiphenyl Derived Concentration Guideline	QAPP QC	Quality Assurance Project Plan Quality Control
DCGL DGPS	Level Differential Global Positioning System	RCRA RL	Resource Conservation and Recovery Act Reporting Limit
dpm DU	disintegration(s) per minute Depleted Uranium	ROC	Radionuclide of Concern
EDD	Electronic Data Deliverable	σ sec SSHP	sigma second(s) Site Safety and Health Plan
FSM	Field Site Manager	TMX	tetrachloro-meta-xylene
GM GWS	Geiger Mueller Gamma Walkover Survey	²³² U	Uranium-232
in.	inch(es)	²³⁴ U ²³⁵ U	Uranium-234 Uranium-235
LCS LQAP	Laboratory Control Sample Laboratory Quality Assurance Plan	²³⁸ U	Uranium-238
µR/hr MARSSIM	microRoentgens per hour Multi-Agency Radiation Survey and Site Investigation Manual		
MDC MDL mg/L	Minimum Detectable Concentration Method Detection Limit milligrams per liter		
min mrem/yr MS MSD	minute(s) millirem(s) per year Matrix Spike		

MSD

Matrix Spike Duplicate

1.0 INTRODUCTION

This *Characterization Survey Report* presents the results of characterization survey and sampling activities conducted in the Building 1103A area of the U.S. Army Research Laboratory (ARL) located at Aberdeen Proving Ground (APG) in Aberdeen, Maryland. The scope of the survey includes the evaluation of radiological and other environmental contamination in Buildings 1103A and BRL12, the associated vault, and the surrounding pavement and grounds. Characterization activities, including both fieldwork and document preparation, were performed by Cabrera Services, Inc. (CABRERA) for the U.S. Army Joint Munitions Command (AJMC), under Contract No. W52P1J-04-D-0007, Delivery Order 0006.

Detailed plans for the characterization survey discussed in this report are presented in the *Building 1103A Area Characterization Survey Work Plan* (CABRERA, 2006a), hereafter referred to as the *Work Plan*. Onsite field activities were performed May 16 to June 2, 2006, in accordance with the *Building 1103A Area Characterization Survey Site Safety and Health Plan* (SSHP; CABRERA, 2006b). Data was collected in accordance with the *Building 1103A Area Characterization (QAPP*; CABRERA, 2006c).

The field measurements and analytical data collected during this effort will be used to support the development of a *Decommissioning Plan* for the Building 1103A area, in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements and guidance.

1.1 Background

The Building 1103A area is a former radioactive material processing and storage facility on Spesutie Island at APG. Historical site activities involving depleted uranium (DU) have resulted in radiological contamination of the buildings and grounds. ARL has responsibility for this area and desires to initiate the decommissioning process so that the area can be released from its NRC Nuclear Materials License requirements (see Appendix A) and reused for other purposes.

The general layout of the Building 1103A area is shown in Figure 1-1. Floor plans of the main buildings comprising this area (i.e., Building 1103A, Building BRL12, and the freestanding vault) are depicted in Figures 1-2 through 1-4, respectively. Historical activities involved the unloading of DU contaminated targets in the central asphalt area; storage and staging of the targets in one of the three vaults; cutting and machining of the targets in

Buildings 1103A (and, to a lesser extent, BRL12); and storage and reloading of the resulting steel pieces in preparation for decontamination, disposal, or reuse.

Limited DU activities in the Building 1103A area were temporarily resumed upon completion of the characterization survey. It is expected that work involving DU will permanently cease in 2008, at which time the characterization survey results presented in this report will be verified, and the Army is expected to proceed with decommissioning the site.

1.2 Survey Scope

The scope of the characterization survey includes the interior and exterior surfaces of Buildings 1103A, Building BRL12, and the freestanding vault; the northern and western exterior surfaces of Building 1103B; and the asphalt pavement and grass-covered grounds in the immediate vicinity of the buildings. Based on the nature of historical activities conducted in this area and on the time period during which the structures were built, the characterization survey addresses DU contamination, as well as any hazardous materials suspected of being present in the building materials.

The characterization approach presented in the *Work Plan* included both radiological surveys and volumetric sampling, consistent with guidance presented in the *Multi-Agency Radiation Survey and Site Investigation Manual* (MARSSIM; NRC, 2000). The primary objective of the fieldwork was to collect sufficient data to adequately characterize the Building 1103A area in support of its decommissioning and release from NRC license requirements. Results of the data collection effort have been used to identify the nature and extent of contamination so that future decisions regarding the appropriate disposition of impacted building materials can be made appropriately.

The results presented in this report will provide the basis for the development of a decommissioning plan for the Building 1103A area. The plan will evaluate alternative remediation approaches that may include the removal of contaminated building materials, asphalt, and soil, as well as the decontamination and re-use of non-porous building materials. Decommissioning activities will proceed based on NRC approval of the recommended approach. Following the completion of decommissioning activities, the results of final status surveys of the buildings and grounds will be used to demonstrate that compliance with the NRC dose-based standard has been achieved, and the area can be released for unrestricted use in accordance with 10 CFR 20.1402.

1.3 Previous Investigations

In preparation for the characterization of the Building 1103A area, previous radiation survey results were reviewed, as discussed in the *Work Plan*. These results identified radiological contamination on many interior surfaces of Building 1103A, especially in the main work area. Routine surveys indicated low levels of removable contamination and general area dose rates of approximately 20 microRoentgens per hour (μ R/hr). The highest reported contact reading was 120 μ R/hr, located near the metal shearing machine. It was assumed that the interior surfaces of Building BRL12 were similarly contaminated from past machining operations, and that the vault walls and floors were contaminated from the storage and handling of contaminated targets.

A screening-level gamma walkover survey (GWS) was performed by the Army in 2005 to identify general areas of asphalt and grounds contamination that should be included in the Building 1103A area characterization effort. The results, which are presented in the *Work Plan*, indicated elevated radiation in the middle of the central asphalt pavement area (i.e., east of Building BRL12). This was assumed to be a result of historical activities conducted in this area, such as acetylene torch-cutting of contaminated items. The GWS also indicated elevated radiation measurements on the grounds south of the perimeter fence, which were assumed to be due to the transport and re-deposition of contaminated particles in storm water runoff.

1.4 Contaminants of Concern

Radionuclides of concern (ROCs) known to be present in the Building 1103A area are limited to DU isotopes (i.e., Uranium-234 [²³⁴U], Uranium-235 [²³⁵U], and Uranium-238 [²³⁸U]) and their short-lived decay progeny (thorium-234 [²³⁴Th], protactinium-234m [^{234m}Pa], and thorium-231 [²³¹Th]). The assumed DU composition is based on the isotopic uranium weight ratios routinely used for shipments of DU waste from APG (BARG, 1995). The activity fractions are calculated from the weight ratios and specific activities of each uranium isotope. The resulting composition consists of ²³⁴U, ²³⁵U, and ²³⁸U activity fractions of 0.084, 0.012, and 0.904, respectively. This composition is relatively similar to the 0.190, 0.021, 0.790 average activity fractions measured in three DU soil samples from the Transonic Range of APG, as described in the Argonne National Laboratory (ANL) report *Derived Uranium Guideline for the Depleted Uranium Study Area of the Transonic Range, Aberdeen Proving Ground, Maryland* (ANL, 1999).

Other potential contaminants of concern (COCs) include hazardous substances such as asbestos, polychlorinated biphenyl compounds (PCBs), and *Resource Conservation and Recovery Act (RCRA)* metals, including mercury and lead. These substances may be present as constituents in building materials (e.g., floor tile, ceiling tile, adhesives, paint, flame-retardant materials, light bulbs or ballast, electrical systems, etc.), particularly those manufactured prior to the 1970's.

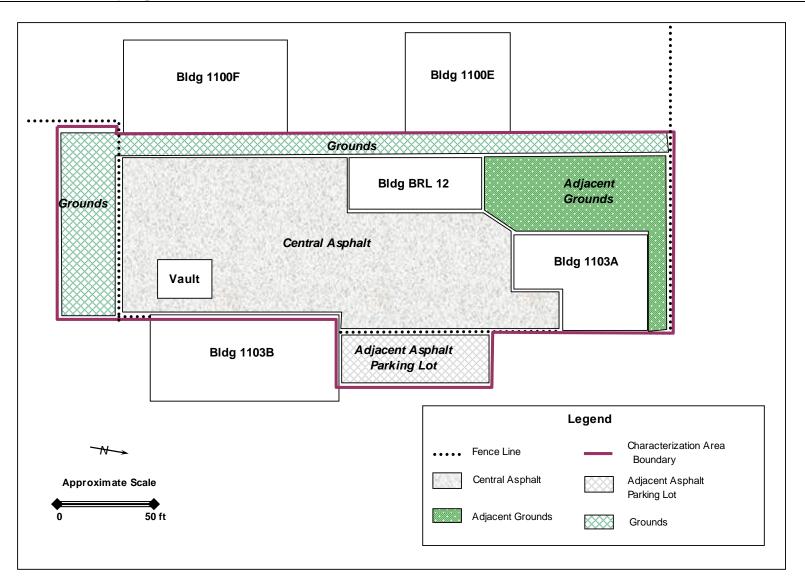


Figure 1-1: Building 1103A Area Layout

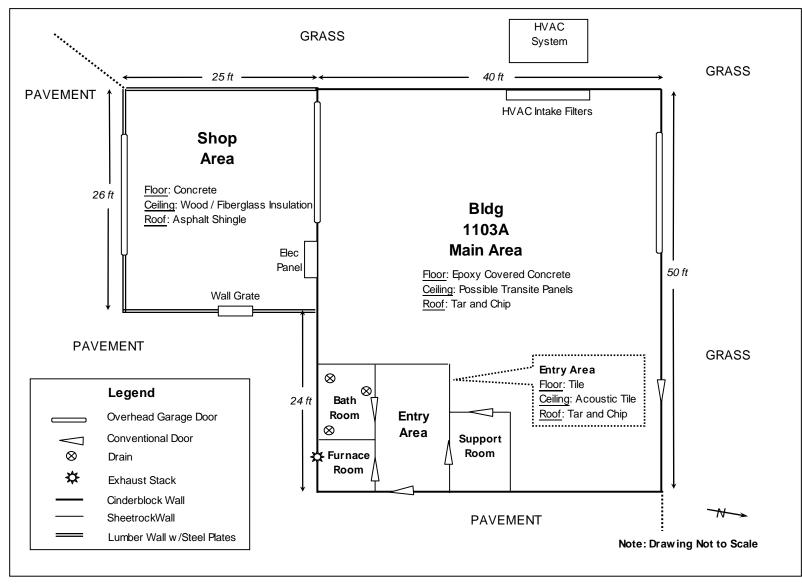


Figure 1-2: Building 1103A Floor Plan

ARL Building 1103A Area Characterization Survey Report

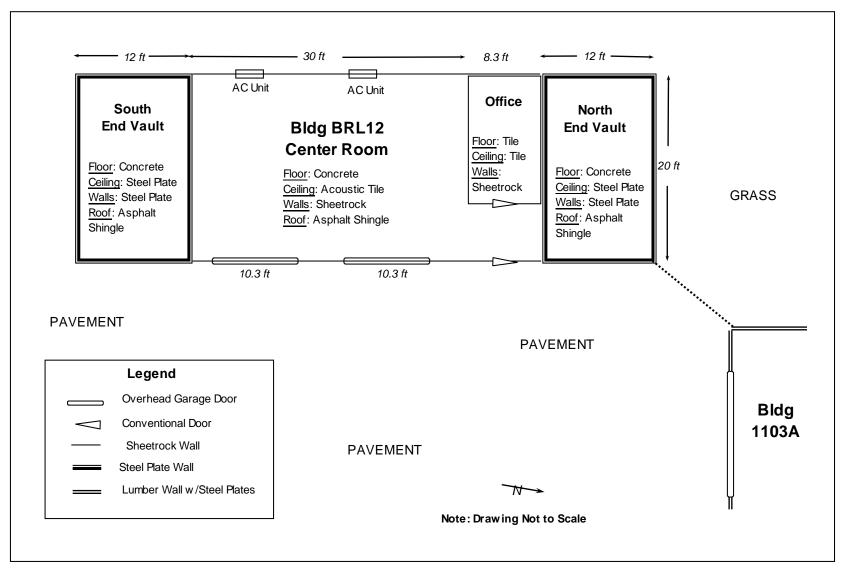


Figure 1-3: Building BRL12 Floor Plan

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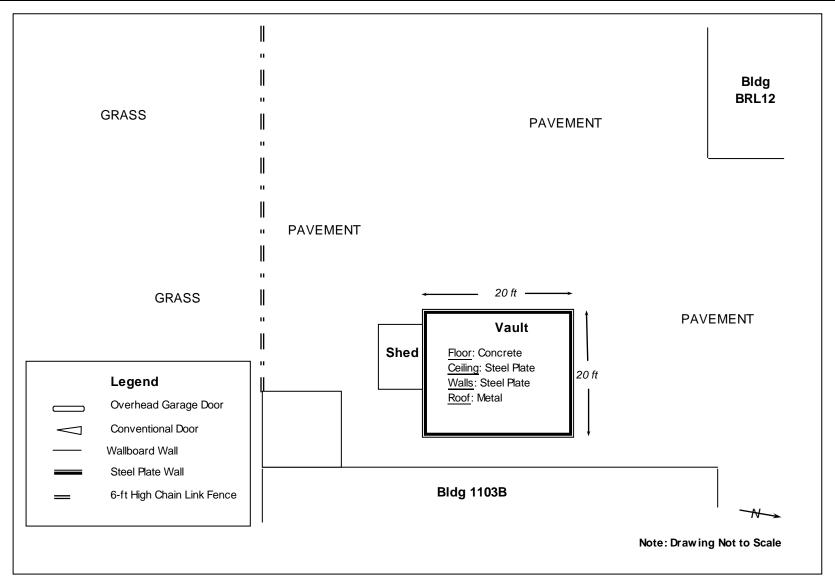


Figure 1-4: Freestanding Vault

2.0 SCREENING LIMITS, INSTRUMENTATION, AND METHODOLOGY

Specific objectives for the Building 1103A area characterization survey were as follows:

- Identify the extent to which residual contamination in Buildings 1103A and BRL12, the associated vault, the adjacent pavement, and nearby grounds exceeds radiation guideline limits; and
- Determine the appropriate disposition for materials exhibiting unacceptable levels of contamination (e.g., decontaminate and reuse, dispose as radiological waste, dispose as mixed radiological/hazardous waste).

To meet the project objectives, the following survey and sampling activities were conducted:

- Gross alpha/beta scan surveys of the building interior and exterior surfaces, including floors, walls, ceilings, and building systems (e.g., pipes, floor drains, ceiling ducts, conduit, etc.);
- Integrated alpha/beta measurements at locations of highest activity observed during the scan surveys;
- GWS of asphalt and ground surfaces;
- Collection and analysis of smear samples of building surfaces in systematic and biased locations; and
- Collection and analysis of volumetric samples of construction materials (e.g., asphalt, paint, concrete, etc.) and soil/sediment.

This section describes the screening limits, instrumentation, and methodology used to perform the characterization survey. In general, field activities were conducted in accordance with the *Work Plan* (CABRERA, 2006a), except as noted in the paragraphs below.

To provide a basis for characterizing the levels of radiological contamination and evaluating the potential presence of hazardous constituents, screening levels were established as described below.

2.1.1 Radioactivity

Radioactivity screening limits for DU activity in the Building 1103A area were developed to represent compliance with the 25-millirem per year (mrem/yr) NRC dose limit specified in 10 CFR 20.1402. The survey screening limits listed in Table 2-1 were developed in accordance with *NUREG 1757: Consolidated NMSS Decommissioning Guidance, Vol. 2* (NRC, 2003). As shown in Table 2-1, transferable surface screening limits are 10% of the building surface screening limits, based on the NRC assumption that removable contamination activity generally comprises 10% of the total contamination activity (NRC, 2003).

The DU building surface and soil screening limits listed in Table 2-1 and described below are considered to be conservative, lower-bounding estimates of potential cleanup criteria and have been used to establish instrument/analysis sensitivity requirements for this survey.

Radionuclide of Concern	Building Surface Screening Limit (dpm/100 cm ²) ^a	Transferable Activity Limit (dpm/100 cm ²) ^b	Soil Screening Limit (pCi/g) ^c	
DU	100	10	102	

Table 2-1: Radioactivity Screening Limits

dpm = disintegrations per minute cm^2 = square centimeters pCi/g = picocuries per gram ^a Building surface screening values were derived in accordance with NUREG 1757 (NRC, 2003) using DandD screening methodology (concentrations listed NUREG/CR-5512, Vol. 3, Table 5.19 for P_{crit} = 0.90 [NRC, 1999]).

^b Transferable activity limit represents 10% of the total building surface screening limit, as recommended in NUREG 1757 (NRC, 2003).

^c Soil screening values were derived based on site-specific DCGLs developed by Argonne National Laboratory for the Transonic Range area of APG (ANL, 1999).

Surface Activity Screening Limit

Using MARSSIM Section 4.3.4 (NRC, 2000), the sum of ratios equation below, and knowing that there is one alpha decay per decay of each DU isotope, the gross DU surface screening limit of 100 alpha dpm / 100 square centimeters (cm²) was derived for building and structure

surfaces (including asphalt pavement). This surface screening limit was calculated using the NRC screening levels presented in Table 5.19 of *NUREG/CR-5512*, *Vol. 3* (NRC, 1999), and the DU activity fractions discussed in Section 1.4. The referenced NRC screening levels are 90.6 dpm/100 cm², 97.6 dpm/100 cm², and 101 dpm/100 cm² for ²³⁴U, ²³⁵U, and ²³⁸U, respectively. The calculated activity fractions are 0.084, 0.012, and 0.904 for ²³⁴U, ²³⁵U, and ²³⁸U, respectively. The surface screening limit of 100 dpm / 100 cm² was calculated as follows:

Gross DU Surface Screening Limit =
$$\frac{1}{\left(\frac{f_1}{SL_1}\right) + \left(\frac{f_2}{SL_2}\right) + \left(\frac{f_3}{SL_3}\right)}$$

Where: $f_{I, 2, 3} =$ Activity fraction of each DU isotope in APG waste $SL_{1, 2, 3} =$ NRC screening level for each DU radionuclide

Soil Screening Limit

The gross DU soil screening limit of 102 pCi/g was derived by applying the sum of ratios rule to the derived concentration guideline levels (DCGLs) for DU in soil developed by ANL for the Transonic Range area of APG (ANL, 1999). The DCGLs reported for three different source term mix ratios were multiplied by the activity fraction of each uranium isotope in the respective mixes; and the minimum radionuclide-specific DCGLs were selected as soil screening values for this characterization survey. The resulting values used to calculate the gross DU soil screening limit were 32 pCi/g, 4.8 pCi/g, and 190 pCi/g for ²³⁴U, ²³⁵U, and ²³⁸U, respectively. The soil screening limit of 102 pCi/g was calculated as follows:

Gross DU Soil Screening Limit =
$$\frac{1}{\left(\frac{f_1}{SL_1}\right) + \left(\frac{f_2}{SL_2}\right) + \left(\frac{f_3}{SL_3}\right)}$$

Where: $f_{I, 2, 3} =$ Activity fraction of each DU isotope in APG waste $SL_{1, 2, 3} =$ ANL screening level for each DU radionuclide

Surface Contamination/Free Release Limit

The surface release limit of 1,000 dpm/100 cm² of DU alpha activity, as specified in Army Regulation 11-9: *The Army Radiation Safety Program* (Army, 1999), was used to guide the unrestricted release of tools and equipment used in the characterization effort. Radiological screening of the equipment and tools was documented on Radiological Survey Sheets to record the free release of items from the radiological controlled area.

2.1.2 Potentially Hazardous Constituents

Although the primary parameters of interest during the Building 1103A area characterization were the isotopes of uranium that comprise DU (²³⁴U, ²³⁵U, and ²³⁸U), additional parameters suspected of being present included asbestos, lead, mercury, and PCBs. The presence of these parameters at certain concentrations could result in the re-classification of radiological waste generated during decommissioning as mixed hazardous/radiological waste.

To evaluate the potentially hazardous nature of contaminated materials identified during the characterization effort, volumetric samples of building materials (e.g., wallboard, ceiling tile, floor tile, etc.) were collected and analyzed for hazardous parameters, as appropriate. Action levels used in the evaluation of these parameters are listed in Table 2-2.

Parameter	Action Level	Reference		
Asbestos	1% by weight	Definition of asbestos-containing material in 40 CFR 763		
Lead	5 mg/L	Toxicity characteristic limits specified in 40		
Mercury	0.2 mg/L	CFR 261.24		
PCBs	50 ppm	Waste disposal restrictions in 40 CFR 761		
-	50 ppm			

Table 2-2:	Action Levels	for Chemicals	of Interest
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mg/L = milligrams per liter

ppm = parts per million

PCBs = polychlorinated biphenyl compounds

2.2 **Direct Radiation Measurements**

Building surfaces were surveyed using direct scan and static measurement techniques to identify areas of above-background radioactivity, as specified in the Work Plan. In accordance with the Work Plan, the proposed data collection design was re-evaluated as new data became available in the field. As a result, a field modification was implemented to include beta, as well as alpha, measurements during the direct surveys. This allowed for optimization of field resources and adherence to the project schedule by decreasing the amount of time required to identify areas of elevated radioactivity during the scan surveys.

2.2.1 Surface Scan Surveys

Surface scanning for alpha and beta activity was performed to identify discrete locations where contaminant concentrations exceeded the DU surface screening limits. Surface scans of building floors and of the adjacent asphalt parking lot were conducted using a Ludlum Model 43-37 gas proportional detector with an active area of 582 cm^2 . Surface scans of the interior and exterior building walls, ceilings, and other building surfaces were conducted using a Ludlum Model 43-89 scintillation detector with an active area of 126 cm².

Scan measurements were obtained by moving the active area of the detector over the surface of interest at or below the scan speeds specified in the Work Plan, as indicated in Table 2-3. At the locations of highest count rates, one-minute integrated counts were performed as described in Section 2.2.2. Scanning was performed with the active area of the detector at a maximum height of approximately 0.5 cm above the surface of interest.

Model No.	Probe Area (cm ²)	Probe Width (cm)	Efficiency (cpm /dpm)	Bkgrd (cpm)	Scan Speed (cm/sec)	Pause Time (sec)	P(n>=1)	Dwell Time (sec)	P(n>=2)
Alpha Measu	Alpha Measurements								
43-37	582	15	0.15	10	6	NA	NA	2.5	0.91
43-89	126	9	0.15	3	1	7.3	0.90	NA	NA
Beta Measur	Beta Measurements								
43-37	582	15	0.17	400	6	NA	NA	NA	NA
43-89	126	9	0.34	265	1	NA	NA	NA	NA
cm ² = square centimeters cpm = counts per minute sec = second						tions per m	inute	<u> </u>	

Table 2-3:	Direct Surface S	can Assumptions
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2.2.2 Integrated Surface Measurements

Integrated direct measurements (i.e., static measurements) of surface alpha and beta radioactivity were performed to compare contaminant concentrations at discrete sampling locations to the release criterion and to facilitate statistical testing. Integrated activity measurements were performed using a Ludlum Model 43-89 handheld alpha scintillation detector. The estimated detector sensitivities and assumptions used for this detector are presented in Table 2-4.

Integrated measurements were intended to be performed using one-minute count periods. However, field observations during the first two days of work indicated that a two-minute count period provided more reliable data with a lower minimum detectable concentration (MDC). Thus, the majority of integrated surface measurements were performed using twominute count periods. Measurements were recorded on field sheets and summarized on a computerized spreadsheet. Net count rates were calculated as the difference between the measurement count rate and the background count rate. After adjusting the net count rates for the surface area of the detector and the instrument efficiency, the results were used to identify specific locations where the surface screening limit of 100 dpm/100 cm² was exceeded.

To confirm the results, approximately 10% of the integrated surface measurements were repeated, and the results were recorded as duplicate measurements.

Model No.	Count Time (min)	Background Count Time (min)	e Area (com /dom) (com) (dpm /		Static MDC (dpm / 100 cm ²)		
Alpha Measurements							
43-89	1	1	126	0.15	3	60	
2929	4	20	Smear	0.39	2 8		
Beta Measurements							
43-89	2	2	126	0.34	400	130	
2929	2	20	Smear	0.21	265	83	
min – minut	min – minutes cm^2 – square centimeters						

 Table 2-4: Detector Integrated Measurement Sensitivities and Assumptions

min = minutes cpm = counts per minute

dpm = dis

2.3 Smear Sample Surveys

Smear surveys were performed as specified in the *Work Plan*. Smear samples were collected at the locations where integrated measurements were performed to quantify transferable surface alpha and beta radioactivity. Smears were analyzed using a Ludlum Model 2929 dual scaler equipped with a Model 43-10-1 scintillation sample counter. Count times were set at either 2 or 4 minutes for surface smear measurements, and approximately half of the smears were recounted for 5 minutes in an attempt to achieve the lowest practical MDCs. Count times were set at 20 minutes for background measurements. The estimated detector sensitivities and assumptions used for this detector are presented in Table 2-4.

 cm^2 = square centimeters dpm = disintegrations per minute

Smear locations and results were recorded on field sheets and summarized on a computerized spreadsheet. Net count rates were calculated as the difference between the measurement count rate and the background count rate. After adjusting the net count rates for the surface area of the smear and the instrument efficiency, the results were used to identify specific locations where the transferable analysis screening limit of 10 dpm/100 cm² was exceeded.

To confirm the smear sample analyses, 10% of the smears were re-counted onsite using the Model 2929 and recorded as duplicate measurements. These smears were also evaluated for gross alpha and beta activity at the off-site analytical laboratory. A conversion factor of 2.2 dpm/100 cm² per pCi¹ was applied to the analytical results to confirm specific locations where the transferable analysis screening limit of 10 dpm/100 cm² was exceeded.

2.4 Gamma Walkover Survey

An outdoor GWS was performed as specified in the *Work Plan*. A Ludlum Model 44-20 three-inch by three-inch (3-in. x 3-in.) sodium iodide (NaI) detector coupled to a Ludlum Model 2221 ratemeter/scaler was used to measure surface gamma activity on the asphalt and grounds. The system was calibrated with cesium-137 (¹³⁷Cs) and enabled with a differential global positioning system (DGPS) so that activity measurements could be spatially referenced.

The GWS was performed following MARSSIM (NRC, 2000) protocol by walking straight parallel lines over each survey unit while moving the detector in a serpentine motion 0.05 to 0.10 m (2 to 4 in.) above the ground surface. Survey passes were approximately one meter apart. Data from the ratemeter was automatically logged into the DGPS unit once per second.

After the survey was completed, the raw data was downloaded from the DGPS and sent to the data processing specialist for export into a geospatial software program. An electronic file with contoured results of the survey was generated and used to identify locations for soil sampling. Approximately half of the designated soil sample locations corresponded to the highest gamma readings recorded during the GWS. The other soil sampling locations were scattered throughout the site in regions that did not contain a biased sampling location. These sampling locations corresponded to the highest relative gamma readings within each localized regions of the surveyed area.

¹ 1 pCi = $1 \times 10E - 12$ Ci * $3.7 \times 10E 10$ dis/sec per Ci = 0.037 dis/sec * 60 sec/min = 2.2 dpm

2.5 Volumetric Sample Collection and Analysis

Volumetric samples of building materials (e.g., ceiling tiles, paint chips, wallboard, floor tiles, and drain sediment) and soil/sediment samples from outside the buildings were collected and shipped to an accredited offsite laboratory for analysis. In general, the samples were collected as biased samples from locations of highest radioactivity within the surveyed areas. Building materials were selected for sampling based on process knowledge and professional judgment regarding the potential for specific types of materials used in construction prior to the 1970's to contain hazardous constituents (e.g., asbestos in floor tiles, mastic, and flame-retardant materials; lead or other metals in paint; PCBs in paint and adhesives; etc.). Samples were collected and handled as specified in the *Work Plan*, and standard chain-of-custody procedures were employed.

Volumetric samples of building materials were collected using a utility knife or other instrument appropriate for the type of material being sampled. A concrete coring machine was used to collect samples of concrete and asphalt, and to access the underlying soil. Soil and sediment samples were collected using a hand auger or stainless steel trowel, as appropriate, and homogenized in a stainless steel bowl prior to containerization. During the homogenization of soil samples, grass, twigs, stones, and other non-soil items were removed from the sample material. Although no field duplicate samples were obtained, the laboratory performed QC analyses appropriate for the individual test methods used. These are discussed in detail in Section 4.2.

Analytical data generated for the volumetric samples of soil and building materials were used to identify specific locations where either the soil screening limit of 102 pCi/g or the chemical action levels for asbestos, PCBs, or lead were exceeded. Alpha spectrometry results were used to calculate the activity concentration of DU in the samples by summing the reported concentrations of the individual uranium isotopes. Gamma spectroscopy results for thorium-234 (²³⁴Th) were used to calculate the amount of DU in the samples by assuming secular equilibrium between ²³⁸U and ²³⁴Th, and adjusting the reported activity concentrations to account for the isotopic composition of DU. As discussed in Section 1.4, the DU in this area is assumed to contain 90.4% ²³⁸U. Thus, the activity concentration of DU in each sample is calculated as follows:

$$DU = \frac{^{234}Th}{0.904}$$

where: DU	=	Activity concentration of depleted uranium (pCi/g)
²³⁴ Th	=	Activity concentration of surrogate ²³⁴ Th (pCi/g)

3.0 SURVEY RESULTS

Characterization activities conducted in the Building 1103A area included radiological surveys (both direct and removable), as well as the collection and analysis of building material, asphalt, sediment, and soil samples, as described in the *Work Plan* (CABRERA, 2006a). This section discusses the results of the survey and sampling activities. Detailed results are presented in Appendix B for the building surveys, Appendix C for the pavement and grounds surveys, Appendix D for the collection and analysis of volumetric samples, and Appendix E for the sampling and analysis of asbestos-containing material (ACM).

3.1 Building 1103A

Building 1103A houses the main machine shop used for the disassembly of firing range targets contaminated with DU. The Main Area of Building 1103A is constructed of cinder block exterior walls, a concrete slab floor, and a flat tar-and-chip roof. The ceiling is covered in some places with fiberboard. Under the same roof is a small Entry Area, which includes the furnace room, bathroom, meeting room, and changing room. The Entry Area has a drop-type acoustic tile ceiling, sheetrock walls, and tile flooring. The walls separating the Entry and Main Areas consist of sheetrock, and are lined with steel plates on the Main Area side.

On the south side of the building is a Shop Area, which is a wood-frame addition to the main building. This area has a concrete slab floor and a pitched shingle roof. Steel plates line the lower portion of the walls in this area, and fiberglass insulation is present between the wood studs and overhead beams.

Building 1103A contains functioning ventilation, electrical, water supply, and sewer systems. The ventilation system has fiber filters on the air intake vents and exposed ductwork attached to the ceiling. The electrical system panel is located in the Shop Area, and electrical conduit runs along the walls and ceiling throughout the building to supply energy to light fixtures and wall outlets. There is a full bathroom in the Entry Area with sink, toilet, and shower facilities. This area was used for personnel and equipment decontamination during building operations involving radioactive material.

Results of the Building 1103A survey are presented in Appendix B-1, along with diagrams of the survey locations. Field data and analytical results from the volumetric sampling conducted in Building 1103A are presented in Appendix D. Below is a summary of the

survey and sampling results, presented separately by functional element (e.g., walls, ceilings, floors, etc.) and by area (e.g., Main Area, Entry Area, and Shop Area).

3.1.1 Interior Walls

Results of the interior wall surveys conducted in Building 1103A are summarized in Table 3-1. The table presents summary statistics for the surveys conducted in the main area, shop area, and entry area. Statistics presented on the table include the average (i.e., arithmetic mean), standard deviation, and maximum integrated measurements obtained during the survey, as measured in disintegrations per minute (dpm) per 100 square centimeters (cm²), as well as the number of measurements obtained in each area.

The survey data indicate large areas of surface contamination on the interior walls of Building 1103A. Both the building surface and transferable activity screening limits (100 and 10 dpm/cm², respectively) were exceeded at numerous interior wall locations in the Main and Shop Areas of Building 1103A. In general, the highest radioactivity was measured on the walls in the vicinity of cutting and shearing equipment. No interior wall locations in the Entry Area exceeded the surface or transferable activity screening limits.

Volumetric samples of wallboard were collected from the location exhibiting the highest concentration of removable activity in the building (i.e., east wall of the Main Area, near the Shop Area) and from the north wall of the changing room in the Entry Area. These samples, designated WL-A09 and WL-A11, respectively, were analyzed at the off-site laboratory for isotopic uranium, PCBs, and RCRA metals. The analytical results presented in Appendix D indicate that neither sample contained constituents at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

Volumetric samples of wallboard and insulation from behind the wallboard in the Entry Area were collected and analyzed for asbestos, as described in the *Report of Asbestos Containing Material Survey* included in Appendix E. These samples were designated S-4 and S-7, respectively. Analytical results indicate that neither wall sample contained detectable asbestos.

The asbestos report also notes that the interior portions of the two fire doors in Building 1103A may potentially contain asbestos. Although no destructive testing was conducted to

confirm this suspicion, common manufacturing practices at the time the building was constructed included the use of ACM in fire doors.

		Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear		
Main Area				
Average	68	28		
Standard Deviation	42	25		
Maximum	172	88		
Number of Data Points	18	18		
Shop Area				
Average	80	16		
Standard Deviation	62	13		
Maximum	276	56		
Number of Data Points	16	16		
Entry Area				
Average	8	2.2		
Standard Deviation	7	1.3		
Maximum	20	4.3		
Number of Data Points	8	8		

Table 3-1: Interior Wall Survey Results for Building 1103A

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.1.2 Ceilings

Results of the ceiling surveys conducted in Building 1103A are summarized in Table 3-2. Both the building surface and transferable activity screening limits were exceeded at numerous ceiling locations within Building 1103A. With few exceptions, ceiling locations that exceeded the screening limits consisted of horizontal surfaces such as ducts, vents, light fixtures, conduits, and the tops of ceiling beams and panels, where airborne radioactive dust has settled. In contrast, the bottom surfaces of ceiling boards in the Main and Shop Areas exhibited no exceedances of the surface screening limit and only two exceedances of the transferable screening limit.

A volumetric sample of filter media was collected from the air vent on the east wall of the Main Area, near the Shop Area. This sample, designated WL-A05, was analyzed at the offsite laboratory for isotopic uranium. The analytical results presented in Appendix D indicate that the sample contained 13.7 pCi/g ²³⁴U, 1.78 pCi/g ²³⁵U, and 99 pCi/g ²³⁸U, which exceeds the volumetric screening limit of 102 pCi/g when all isotopic concentrations are considered. Volumetric samples of ceiling tile were collected from the Entry Area in the bathroom (CL-A13), changing room (CL-A15), and meeting room (CL-A17); and two paint chip samples were collected from the ceiling in the Main Area (CLPT-A01 and CLPT-A02). The samples were analyzed at the off-site laboratory for isotopic uranium, PCBs, and RCRA metals. The analytical results presented in Appendix D indicate that none of these samples contained constituents at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

	Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear	
Main Area			
Average	10	0.4	
Standard Deviation	8	0.7	
Maximum	26	1.3	
Number of Data Points	10	10	
Main Area (Horizontal Surfaces	s)		
Average	1245	284	
Standard Deviation	1045	198	
Maximum	2654	644	
Number of Data Points	12	12	
Shop Area			
Average	33	7.2	
Standard Deviation	15	6.2	
Maximum	52	18	
Number of Data Points	8	8	
Shop Area (Horizontal Surfaces	5)		
Average	711	159	
Standard Deviation	771	145	
Maximum	1562	315	
Number of Data Points	3	3	
Entry Area (Horizontal Surfaces	s)		
Average	375	68	
Standard Deviation	301	69	
Maximum	812	179	
Number of Data Points	5	5	

Table 3-2:	Ceiling Survey	Results for	Building 1103A
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dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

Volumetric samples of ceiling board from the Main Area and air duct materials (i.e., flap and gasket) from the furnace room in the Entry Area were collected and analyzed for asbestos, as described in the *Report of Asbestos Containing Material Survey* included in Appendix E.

These samples were designated S-6, S-8, and S-9, respectively. Analytical results indicate that none of the samples contained detectable asbestos.

3.1.3 Floors

Results of the floor surveys conducted in Building 1103A are summarized in Table 3-3. Both the building surface and transferable activity screening limits were exceeded at numerous floor locations within Building 1103A. All 10 floor survey locations in the Main Area exceeded both screening limits, the two floor survey locations in the Shop Area exceeded the surface screening limit, and a few floor locations in the Entry Area (i.e., the changing room and the bathroom) exceeded either one or both limits.

A volumetric sample of floor tile was collected from the bathroom in the Entry Area. This sample (FL-A19) was analyzed at the off-site laboratory for isotopic uranium, PCBs, and RCRA metals. The analytical results presented in Appendix D indicate that the bathroom tile did not contain any constituents at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

Core borings were conducted at five floor locations in Building 1103A. Samples of the concrete flooring and underlying soil were obtained from each location. A 3 to 6-inch layer of compacted gravel was encountered between the concrete and the soil; however, no samples of this material were collected. At boring location No. 2 (i.e., the expansion joint between the Main Area and the Shop Area), a wood footing frame was encountered directly beneath the concrete slab. A sample of this wood was collected, and the boring was moved a few inches toward the Shop Area in order to obtain an unobstructed core sample. The compacted gravel layer at this boring location was 10 to 12 inches thick.

The concrete samples were processed at the off-site laboratory, where a ¹/₄-inch cross section of each core top and bottom was sliced off and ground to a consistency suitable for analysis. The processed concrete samples (FL-R43-Top through FL-R47-Top and FL-R43-Bottom through FL-R47-Bottom) and the footing frame sample (FL-A21) were analyzed for isotopic uranium. The analytical results for the flooring material presented in Appendix D indicate that the footing frame sample (boring location No. 2) contained 11.1 pCi/g ²³⁴U, 1.24 pCi/g ²³⁵U, and 85 pCi/g ²³⁸U. In addition, the top of one of the concrete samples (from boring location No. 4) contained 17 pCi/g ²³⁴U, 1.71 pCi/g ²³⁵U, and 132 pCi/g ²³⁸U. None of the other concrete samples exceeded the volumetric screening limit of 102 pCi/g specified in Table 2-1.

Samples of the top six inches of underlying soil were collected from each floor boring location (SO-A17, SO-A20, SO-A30, SO-A33, and SO-A36). Deeper soil samples (SS-A-24 and SS-A27) were also collected at boring location No. 2 from 6 to 12 inches and from 12 to 18 inches, respectively, below the gravel/soil interface. All of the underlying soil samples were analyzed at the off-site laboratory by gamma spectroscopy and RCRA metals. The analytical results presented in Appendix D indicate that none of the samples contained any constituents at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

Volumetric samples of floor tile and mastic were collected from the Entry Area and analyzed for asbestos, as described in the *Report of Asbestos Containing Material Survey* included in Appendix E. These samples were designated S-2 and S-3 for the floor tile and associated mastic, and S-5 for the mastic beneath the brown baseboard. Analytical results indicate that the floor tile and associated mastic in the Entry Area contain greater than 1% asbestos and thus, meet the regulatory definition of ACM.

	Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear	
Main Area			
Average	432	60	
Standard Deviation	239	36	
Maximum	864	124	
Number of Data Points	10	10	
Shop Area			
Average	386	7.0	
Standard Deviation	59	1.5	
Maximum	428	8.0	
Number of Data Points	2	2	
Entry Area			
Average	87	7.8	
Standard Deviation	73	7.0	
Maximum	236	20	
Number of Data Points	7	7	

Table 3-3: Floor Survey Results for Building 1103A

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.1.4 Exterior Walls

Results of the exterior wall surveys conducted at Building 1103A are summarized in Table 3-4. Only one exterior wall location (i.e., south wall near the entrance to the Shop Area) exceeded the surface activity screening limit, and no locations exceeded the transferable activity screening limit. No volumetric samples were collected from the exterior walls of Building 1103A.

	Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear	
East			
Average	13	0.1	
Standard Deviation	13	0.5	
Maximum	36	1.0	
Number of Data Points	12	12	
South			
Average	43	1.6	
Standard Deviation	85	3.1	
Maximum	268	9.9	
Number of Data Points	9	9	
West			
Average	12	0.3	
Standard Deviation	6	1.0	
Maximum	20	2.3	
Number of Data Points	8	8	
North			
Average	22	0.2	
Standard Deviation	13	0.6	
Maximum	42	1.0	
Number of Data Points	8	8	

Table 3_4.	Exterior	Wall Survey	Results for	Building 1103A
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dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.1.5 Downspouts and Drains

Two downspouts were surveyed on the exterior of Building 1103A. One was in the center of the west wall, south of the ventilation system, and the other was on the northwest corner of the building. The downspouts and grounds directly beneath them were surveyed with a pancake Geiger-Mueller (GM) detector, and smear samples were collected from the discharge openings. No discrete areas of elevated radioactivity were observed. A surface soil sample was collected from the ground most likely to be impacted by discharge from the downspout

on the northwest corner (SO-G39). The analytical results presented in Appendix D indicate that radioactivity in the soil was within the soil screening limit of 102 pCi/g specified in Table 2-1.

Smear samples were collected from three drains in the Entry Area of Building 1103A to evaluate the potential presence of DU in the drain sediment. Smears were collected from inside the bathroom sink, shower, and washing machine drains, and analyzed at the off-site laboratory for isotopic uranium. The analytical results presented in Appendix D indicate that none of the drains contained DU in concentrations greater than the screening limit.

3.2 Building BRL12

Building BRL12 was built to provide additional space for machining operations associated with the dismantlement of DU-contaminated targets, as well as shielded storage space for staging the contaminated targets prior to disassembly. The main area (i.e., Central Room) of Building BRL12, where machining was performed, has a concrete floor, sheetrock walls (some of which are lined with steel), and acoustic tile ceiling. There are two air conditioning units mounted in the west wall of the building. The only utility system in the building is the electrical system, which is used to power the air conditioners, light fixtures, and wall outlets.

There are steel-lined storage vaults on the north and south ends of Building BRL12. Both vaults have concrete floors and steel-lined walls and ceilings. A single light fixture hangs from the ceiling in each vault. There is also a small office area situated between the main room and the north end vault. The office has sheetrock walls, tiled floor, and acoustic tile ceiling.

Results of the Building BRL12 survey are presented in Appendix B-2, along with diagrams of the survey locations. Analytical results from the volumetric sampling conducted at Building BRL12 are presented in Appendix D. Below is a summary of the survey and sampling results, presented separately by functional element (e.g., walls, ceilings, floors, etc.) and by area (e.g., Central Room, North Vault, South Vault, and Office).

3.2.1 Interior Walls

Results of the interior wall surveys conducted in Building BRL12 are summarized in Table 3-5. The survey data indicate that none of the interior walls in Building BRL12 exceeded the building surface or transferable activity screening limits. The highest radioactivity

measurements were obtained on the south and west walls of the Central Room, in the general vicinity of machining operations.

A volumetric sample of wallboard was collected from the Central Room of Building BRL12 and analyzed for asbestos, as described in the *Report of Asbestos Containing Material Survey* contained in Appendix E. Analytical results for this sample (S-12) indicate no detectable asbestos.

No other volumetric samples were collected from the interior walls of Building BRL12.

		Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear		
Central Room				
Average	9	4.4		
Standard Deviation	12	3.2		
Maximum	40	8.7		
Number of Data Points	12	12		
North Vault				
Average	-1	0.8		
Standard Deviation	7	1.0		
Maximum	10	2.3		
Number of Data Points	6	6		
South Vault				
Average	1	0.3		
Standard Deviation	3	0.7		
Maximum	6	1.3		
Number of Data Points	6	6		

 Table 3-5: Interior Wall Survey Results for Building BRL12

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.2.2 Ceilings

Results of the ceiling surveys conducted in Building BRL12 are summarized in Table 3-6. The survey data indicate that neither the building surface nor transferable activity screening limits were exceeded at any of the ceiling survey locations in Building BRL12. The highest radioactivity was measured at the ceiling location in the approximate center of the main room.

A paint chip sample was collected from the ceiling of the North Vault (CLPT-B03). The sample was analyzed at the off-site laboratory for isotopic uranium, PCBs, and RCRA metals.

The analytical results presented in Appendix D indicate that the sample did not contain any constituents at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

Visual inspection of the Building BRL12 ceilings did not identify any suspect ACM. Thus, no volumetric samples were collected for asbestos analysis, as discussed in the *Report of Asbestos Containing Material Survey* included in Appendix E.

	Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear	
Central Room			
Average	19	0.7	
Standard Deviation	15	0.9	
Maximum	36	1.3	
Number of Data Points	3	3	
North Vault			
Average	0	0.4	
Standard Deviation	0	0.6	
Maximum	0	0.8	
Number of Data Points	2	2	
South Vault			
Average	4	1.4	
Standard Deviation	0	1.5	
Maximum	4	2.4	
Number of Data Points	2	2	

 Table 3-6: Ceiling Survey Results for Building BRL12

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.2.3 Floors

Results of the floor surveys conducted in Building BRL12 are summarized in Table 3-7. Both the building surface and transferable activity screening limits were exceeded at numerous floor survey locations within Building BRL12. Although a few locations in the Central Room exceeded one or both screening limits, the highest radioactivity measurements were obtained in the North Vault, where data for all floor survey locations exceeded the building surface activity screening limit, and all but one exceeded the transferable activity screening limit. In addition, the scan survey results indicated several hot spot locations on the floors in both end vaults where visible DU fragments were observed.

Volumetric samples of floor tile and mastic were collected from the Office and analyzed for asbestos, as described in the *Report of Asbestos Containing Material Survey* included in Appendix E. These samples were designated S-10 and S-11 for the floor tile and associated mastic, respectively. Analytical results indicate that the floor tile contains greater than 1% asbestos and, thus, meets the regulatory definition of ACM.

No other volumetric samples of flooring material were collected from Building BRL12.

	Sample α Count Rate (dpm/100 cm ²)			
Statistical Parameter	Direct Reading	Smear		
Central Room				
Average	76	7.4		
Standard Deviation	55	4.1		
Maximum	186	14		
Number of Data Points	9	9		
Office				
Average	98	7.5		
Standard Deviation	NA	NA		
Maximum	98	7.5		
Number of Data Points	1	1		
North Vault				
Average	4030	274		
Standard Deviation	6132	470		
Maximum	14798	1107		
Number of Data Points	5	5		
South Vault				
Average	43	5.9		
Standard Deviation	23	4.1		
Maximum	68	12		
Number of Data Points	4	4		

 Table 3-7:
 Floor Survey Results for Building BRL12

dpm/100 cm^2 = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.2.4 Exterior Walls

Results of the exterior wall surveys conducted at Building BRL12 are summarized in Table 3-8. Neither the building surface nor transferable activity screening limits were exceeded at any of the exterior wall locations surveyed. No volumetric samples were collected from the exterior walls of Building BRL12.

	Sample α Count Rate (dpm/100 cm ²)		
Statistical Parameter	Direct Reading	Smear	
East			
Average	7	1.0	
Standard Deviation	8	1.6	
Maximum	22	3.6	
Number of Data Points	8	8	
South			
Average	6	0.6	
Standard Deviation	5	1.2	
Maximum	12	2.3	
Number of Data Points	4	4	
West			
Average	4	0.3	
Standard Deviation	7	0.6	
Maximum	12	1.0	
Number of Data Points	8	8	
North			
Average	5	0.9	
Standard Deviation	6	1.1	
Maximum	12	2.3	
Number of Data Points	4	4	

Table 3-8:	Exterior	Wall Survey	Results	for Buildir	ng BRL12
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dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.2.5 *Downspouts*

Three downspouts were surveyed on the exterior of Building BRL12. Downspout locations were on the southwest, northwest, and northeast corners of the building. The downspouts and grounds directly beneath them were surveyed with a pancake GM detector, and smear samples were collected from the discharge openings. No discrete areas of elevated radioactivity were observed. A surface soil sample was collected from the ground most likely to be impacted by discharge from the downspout on the northeast corner (SO-G40). The analytical results presented in Appendix D indicate that radioactivity in the soil was slightly less than the soil screening limit of 102 pCi/g specified in Table 2-1.

3.3 **Freestanding Vault**

There is a Freestanding Vault situated directly southeast of Building BRL12. Like the BRL12 end vaults, this vault was used for the storage of contaminated targets. It has a concrete floor,

and the walls and ceiling are completely lined with steel. A single light fixture hangs from the ceiling. Attached to the southern end of the vault is a wooden tool shed where maintenance equipment such as a tractor and snow plow are stored.

Results of the Freestanding Vault surveys are presented in Appendix B-3, along with diagrams of the survey locations. Analytical results from the volumetric sampling conducted at the vault are presented in Appendix D. A summary of the survey and sampling results is presented below.

3.3.1 Interior Walls

Results of the interior wall surveys conducted in the Freestanding Vault are summarized in Table 3-9. The survey data indicate that one of the wall locations (east wall, 2 meter high) slightly exceeded the building surface and transferable activity screening limits. No other interior wall locations exceeded the screening limits. No volumetric samples were collected from the interior walls of the Freestanding Vault.

	Sample α Count Rate (dpm/100 cm ²)				
Statistical Parameter	Direct Reading Smear				
Vault					
Average	16	3.3			
Standard Deviation	37	4.2			
Maximum	104	12.6			
Number of Data Points	8 8				

Table 3-9: Interior Wall Survey Results for the Freestanding Vault

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.3.2 Ceiling

Results of the ceiling surveys conducted in the Freestanding Vault are summarized in Table 3-10. The survey data indicate that neither the building surface nor transferable activity screening limits were exceeded at any ceiling survey locations.

A paint chip sample was collected from the ceiling of the vault (CLPT-C04) and analyzed offsite for isotopic uranium, PCBs, and RCRA metals. The analytical results presented in Appendix D indicate that the sample material contained 21 mg/L lead, which is above the action level of 5 mg/L. No other constituents were present at concentrations higher than the radiological volumetric screening limit specified in Table 2-1 or the chemical action levels specified in Table 2-2.

	Sample α Count Rate (dpm/100 cm²)			
Statistical Parameter	Direct Reading	Smear		
Vault				
Average	1	0.1		
Standard Deviation	1	0.3		
Maximum	2	0.3		
Number of Data Points	2	2		

Table 3-10: Ceiling Survey Results for Freestanding Vault

dpm/100 cm^2 = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.3.3 Floors

Results of the floor surveys conducted in the Freestanding Vault are summarized in Table 3-11. The survey data indicate that none of the floor survey locations exceeded the building surface or transferable activity screening limits. No volumetric samples were collected from the floor of the Freestanding Vault.

 Table 3-11:
 Floor Survey Results for Freestanding Vault

	Sample α Count Rate (dpm/100 cm ²)				
Statistical Parameter	Direct Reading	Smear			
Vault					
Average	46	3.0			
Standard Deviation	14	2.6			
Maximum	56	4.8			
Number of Data Points	2	2			

dpm/100 cm² = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.3.4 Exterior Walls

Results of the exterior wall surveys conducted at the Freestanding Vault and adjacent Tool Shed are summarized in Table 3-12. The survey data indicate that neither the building surface nor transferable activity screening limits were exceeded at any of the exterior wall survey locations. No volumetric samples were collected from the exterior walls of the Freestanding Vault.

	Sample α C (dpm/10	
Statistical Parameter	Direct Reading	Smear
Vault - East		
Average	9	1.5
Standard Deviation	16	1.1
Maximum	20	2.3
Number of Data Points	2	2
Vault - South		
Average	3	0.1
Standard Deviation	7	0.8
Maximum	10	1.3
Number of Data Points	4	4
Vault - West		
Average	23	0.3
Standard Deviation	10	0.6
Maximum	38	0.8
Number of Data Points	4	4
Vault - North		
Average	12	1.2
Standard Deviation	3	0.7
Maximum	16	2.3
Number of Data Points	4	4
Tool Shed		
Average	5	0.6
Standard Deviation	7	1.1
Maximum	18	2.3
Number of Data Points	8	8

 Table 3-12: Exterior Wall Survey Results for Freestanding Vault/Tool Shed

dpm/100 cm^2 = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.4 Building 1103B

Building 1103B is situated east of the freestanding vault. No DU operations were performed in this building; however, it was included in the characterization survey because it is adjacent to the Building 1103A area pavement. The north and west exterior walls of Building 1103B were surveyed to evaluate possible impacts due to airborne migration of DU-contaminated dust. Results of the surveys conducted at Building 1103B are presented in Appendix B-4,

along with diagrams of the survey locations. A summary of the survey results is presented below.

3.4.1 Exterior Walls

Results of the exterior wall surveys conducted at Building 1103A are summarized in Table 3-13. Neither the building surface nor transferable activity screening limits were exceeded at any of the exterior wall locations surveyed. No volumetric samples were collected from the exterior walls of Building 1103B.

	Sample _α Count Rate (dpm/100 cm ²)				
Statistical Parameter	Direct Reading	Smear			
West					
Average	13	1.0			
Standard Deviation	4	1.8			
Maximum	16	2.3			
Number of Data Points	2	2			
North					
Average	17	0.8			
Standard Deviation	7	1.0			
Maximum	32	2.3			
Number of Data Points	12	12			

Table 3-13: Exterior Wall Survey of Building 1103B

 $dpm/100 cm^2$ = disintegrations per minute per 100 square centimeters

Note: Screening limits are 100 dpm/100 cm² for direct readings and 10 dpm/100 cm² for smear results.

3.4.2 Downspouts

Two downspouts were surveyed on the exterior of Building 1103B. One was on the northwest corner of the building, and the other was in the center of the west wall. A third downspout was present on the southwest corner of the building; however, it was not surveyed because the area was densely covered with thorny shrubs. The accessible downspouts and grounds directly beneath them were surveyed with a pancake GM detector, and smear samples were collected from the discharge openings. No discrete areas of elevated radioactivity were observed.

3.5 Pavement and Grounds

The outdoor area of potential impact includes approximately one-half acre of asphalt pavement between the buildings and vaults (i.e., Central Asphalt), the small parking lot east of the perimeter fence enclosing the Building 1103A area (i.e., Adjacent Asphalt), and approximately one-half acre of grass-covered grounds within or adjacent to the Building 1103A area (i.e., Grounds).

3.5.1 Central Asphalt

The Central Asphalt area, which extends from the south side of Building 1103A to the southern fence, was the site of loading, unloading, and staging of contaminated targets, as well as for the transfer of targets among the disassembly buildings and storage areas. On at least one occasion, contaminated items were dismantled on the asphalt in front of Building BRL12 by using an acetylene torch. The asphalt is cracked in many places, allowing for water seepage, and is prone to slight changes in elevation depending on the moisture content of the underlying soil. Small areas of yellow discoloration and/or DU fragments are present in several locations.

The Central Asphalt was surveyed using the GWS instrumentation discussed in Section 2.4. Results of the GWS are presented in Appendix C, with a graphical depiction of the data presented in Figure C-1. As indicated by the GWS results, count rates of up to 164,039 cpm were recorded during the Central Asphalt survey. Locations exhibiting the highest surface activity generally coincide with areas that were heavily trafficked during target management operations. These include locations along the eastern perimeter fence near the access gate, as well as the area between Building BRL12 and the Freestanding Vault.

Eight locations in the Central Asphalt area were selected for sampling based on the GWS results. Six of these locations were in the most contaminated areas, as indicated by the cpm measurements recorded during the GWS. The other two locations were scattered to expand the sample coverage of the surveyed area. At each of the sampling locations, shallow soil samples were collected from the top 6 inches of soil underlying the asphalt. At two locations, a deeper sample (from 6 to 12 inches below the asphalt/soil interface) was also collected. The soil samples were analyzed at the off-site laboratory by gamma spectroscopy. A sample of asphalt was collected at one of the soil sampling locations and analyzed for isotopic uranium $\binom{234}{235}U$, and $\binom{238}{238}U$).

Analytical results from the Central Asphalt sampling are presented in Appendix D. Of the eight shallow soil samples collected, five (SO-G07, SO-G08, SO-G09, SO-P11, and SO-G12) exhibited ²³⁴Th concentrations that exceeded the soil screening limit of 102 pCi/g. These samples were collected from five of the six sampling locations at which the GWS results exhibited a statistical Z-score of greater than 3.0. At one of the shallow sample locations (SO-G07), the ²³⁴Th concentration in the associated deep soil sample (SS-G14) also exceeded the soil screening limit. Isotopic uranium results for the asphalt sample (AS-P05) were less than the screening limit specified in Table 2-1, although it should be noted that this sample was not collected from one of the six biased locations.

3.5.2 Adjacent Asphalt

The Adjacent Asphalt lies east of Building 1103A and north of Building 1103B. It is presently used as a parking lot for employees working in nearby buildings. This area was included in the survey to evaluate possible impacts due to airborne migration of DU-contaminated dust and/or waterborne migration of DU-contaminated runoff.

The Adjacent Asphalt survey was conducted as a general scanning survey using the gas proportional floor monitor. Results of this survey, which are presented in Appendix C, indicate that beta count rates in this area ranged from background (approximately 150 cpm) to approximately 1,000 cpm. The highest count rates were observed in cracks and depressions in the pavement, as well as along the eastern edge of the parking lot where the pavement and soil meet. Although no integrated alpha measurements were obtained, the scan data suggests that some locations may potentially exceed the screening limits specified in Table 2-1.

3.5.3 Grounds

The Grounds consist of the lawn adjacent to Building 1103A, as well as the grassy areas south and west of the Central Asphalt. Grounds were included in the survey to evaluate possible impacts due to airborne migration of DU-contaminated dust and/or waterborne migration of DU-contaminated runoff.

The Grounds were surveyed using the GWS instrumentation discussed in Section 2.4. Results of this survey are presented in Appendix C, with a graphical depiction of the data presented in Figure C-1. As indicated by the GWS results, count rates of up to 26,043 cpm were recorded during the Grounds survey. All survey locations exhibited statistical Z-scores of less than 1.0.

Four locations in the Grounds areas were selected for soil sampling. Since there were no discrete areas of significantly elevated activity identified during the GWS, the locations were scattered to provide full coverage of the surveyed area. At each location, shallow soil samples were collected from the top 6 inches of soil beneath the grass cover and analyzed at the off-site laboratory by gamma spectroscopy.

Analytical results from the soil sampling conducted on the grounds are presented in Appendix D. None of the samples exhibited ²³⁴Th concentrations that exceeded the soil screening limit of 102 pCi/g specified in Table 2-1.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Survey and sampling activities were performed in accordance with the quality assurance (QA) and quality control (QC) procedures presented in the *Work Plan* (CABRERA, 2006a) and associated *QAPP* (CABRERA, 2006c) to ensure consistent and repeatable results. The personnel performing the activities were trained in the technical, QC, and health and safety aspects of the project, as well as in calibration, maintenance, and operating procedures for their assigned tasks. This section documents the results of QA/QC activities performed during this characterization effort.

Based on the information presented in this section, the survey data were deemed authentic, appropriately documented, and technically defensible. The survey methods used to collect the data were appropriate for the types of media and contaminants being measured; the field and laboratory instrumentation met the required performance and sensitivity requirements; and the data generated were representative of the areas and materials of interest.

4.1 Survey Instrumentation QC

The survey instruments specified in the *Work Plan* were used to collect characterization data for the Building 1103A area. Instrumentation was used in accordance with written procedures, and was subject to daily QC requirements, as specified in the *QAPP*. Instruments used to obtain radiological data, including DGPS equipment, were inspected for physical damage, current calibration, and erroneous readings in accordance with applicable procedures and/or protocols. Results of QC checks were recorded in field logbooks and summarized on a computerized spreadsheet. Instrumentation that did not meet the specified requirements of calibration, or response check was removed from service, and replacement instruments were procured or reasonable substitutions were made, as necessary, to complete the work.

4.1.1 Minimum Detectable Concentrations

To demonstrate the ability to detect radioactivity at the screening limits listed in Table 2-1, MDCs were calculated based on the Strom & Stansbury MDC equation (i.e., Equation 3-11 of *NUREG 1507* [NRC, 1998]). MDCs were calculated for each instrument used in obtaining radiation measurements, as presented in Table 2-4. The calculation of static MDCs indicated that the field instrumentation was able to achieve the required sensitivities for alpha measurements, but not for beta. Thus, while both alpha and beta measurements were recorded during the survey, only the alpha results were used to compare survey data to the respective transferable and direct screening limits specified in Table 2-1.

4.1.2 Instrument Calibration

Instruments used during the characterization survey were inspected prior to use to ensure satisfactory operation and current calibration traceable to the National Institute of Standards and Technology (NIST). Calibration records were shipped with the equipment and maintained onsite for review and inspection. Copies of the calibration certificates are included in Appendix F-1.

4.1.3 Instrument QC Checks

Prior to use, project instrumentation underwent initial QC checks by comparing instrument responses to benchmark values. QC checks of radiation detectors and meters included source checks to ensure consistent responses when exposed to known radiation sources. QC checks of DGPS units included checks for satellite availability and positional accuracy. Records of initial and daily performance checks are included in Appendix F-2.

Initial and daily QC checks of radiation detectors were performed in a dedicated count room, in a building adjacent to the Building 1103A area. QC source checks consisted of a oneminute integrated count performed in the count room with the designated source positioned in a reproducible geometry. This procedure was repeated ten times to establish average instrument response for each detector. The initial averages and control limits calculated for each instrument provided the respective benchmark values for subsequent QC checks.

For quantitative instruments (i.e., those used to report activity concentrations such as dpm per 100 cm^2), an acceptance criterion of +/- 3-sigma (3 σ) was used. For qualitative instruments (i.e., dose rate meters and friskers), an acceptance criterion of +/- 20% of the source check true value was used. If any daily QC check was found to be outside of its acceptance criteria, the QC check was repeated. If the second QC check was also outside the acceptance criteria, the instrument was examined to check for external contamination or damage, and a third QC check was performed. If the third QC check was outside of its acceptance criteria range, the instrument was taken out of service until evaluated and approved by the RSO.

4.2 Sampling and Analysis QC

Analytical test methods and sample volume, preservation, and holding time requirements were met, as presented in the *Work Plan*. Standard methodology was used for sample collection, identification, documentation, handling, packaging, shipping, and chain-of-custody, as described in the *QAPP*.

The analytical test methods used to analyze radionuclides in volumetric samples at the off-site laboratory achieved MDCs that were at or below the soil screening criteria presented in Table 2-1. In addition, the analytical test methods used to analyze chemical constituents at the off-site laboratory achieved method detection limits (MDLs) of at least 20% of the action levels specified in Table 2-2.

To confirm the quality of sampling and analysis techniques used for this characterization effort, precision and accuracy were evaluated for the data generated during the characterization effort as described below.

4.2.1 Precision

Precision is defined as the degree to which two or more measurements are in agreement. Field precision is measured by comparing field duplicate results, and analytical precision is measured by comparing laboratory duplicate results. Field duplicate samples were intended for collection at a rate of 10%. However, due to a field error, no field duplicates of volumetric samples were collected for analysis.

Laboratory duplicates were analyzed as planned, at a rate of one per 20 samples for each analysis performed on each matrix. All laboratory duplicate results were within the laboratory's internal acceptance criteria, as defined in the laboratory quality assurance plan (LQAP), except for the following:

- The isotopic uranium laboratory duplicate analysis performed on ceiling sample CL-A13 was outside the laboratory's precision control limit for ²³⁴U and ²³⁸U. The poor precision was attributed to the heterogeneous nature of sample CL-A13.
- The gamma spectroscopy laboratory duplicate analysis performed on soil sample SO-P13 was outside the laboratory's precision control limit for ^{234m}Pa and ²³⁴Th. However, results for the other eight radionuclides in the same laboratory duplicate analysis were within the laboratory control limit. As a result, the overall laboratory

acceptance criteria of >75% of the results exhibiting acceptable precision was met, and the overall laboratory duplicate analysis performed on soil sample SO-P13 was deemed acceptable by the laboratory.

Based on the evaluation of the laboratory duplicate data, laboratory precision was deemed adequate for the data generated for this characterization effort.

As a qualitative indicator of the agreement between field and laboratory results, duplicate measurements of smear sample activity were collected at 10% of the building surface survey locations. These smears were counted onsite using the Ludlum Model 2929 scalar coupled with the Model 43-10-1 sample counter, and sent to the off-site laboratory for confirmatory alpha/beta activity analysis. For each of the smears evaluated, onsite count rate data compared favorably with the off-site analytical results in identifying locations where the transferable screening limit was exceeded.

4.2.2 Accuracy

Accuracy is defined as the degree to which the reported measurement represents the true value. Analytical accuracy is assessed through the evaluation of laboratory blanks, laboratory control samples (LCSs), tracer recoveries (for isotopic uranium analysis only), surrogate recoveries (for PCB analysis only), and spike recoveries (for metals only). Based on the evaluation of these samples, the overall analytical accuracy was deemed adequate for the data generated for this characterization effort.

<u>Laboratory Method Blanks</u> – Laboratory blanks are analyzed to evaluate the potential contamination of samples due to preparation and analytical procedures. Laboratory method blanks are digested/extracted/analyzed exactly like the field samples, and are designed to represent the matrix of interest as closely as possible. Laboratory method blanks were prepared and analyzed with each digestion/extraction/analysis batch. In addition, initial and continuing calibration blanks were analyzed for the metals analysis at a rate of one per ten samples. Results of the laboratory blank analyses were less than the laboratory MDCs or reporting limits (RLs) except for the following:

• ²³⁴U (0.049 +/- 0.028 pCi/g) and ²³⁵U (0.027 +/- 0.021 pCi/g) were detected slightly above the laboratory MDC in the isotopic uranium method blank associated with samples WL-A05, WL-A09, CL-A13, WL-A11, and FL-A21. However, the ²³⁴U

and ²³⁵U concentrations detected in the method blank were below the requested MDC.

<u>Laboratory Control Samples</u> – The LCS is a laboratory spike sample that originates from a source other than the source of the calibration standards, and serves as a zero-blind check on the laboratory's accuracy. The LCSs were prepared and analyzed along with each digestion/extraction/analysis batch. For this characterization effort, all LCS results were within the laboratory acceptance criteria.

<u>Tracer Recoveries</u> – A tracer is an isotope of the radionuclide of interest that is added to the samples prior to analysis in order to assess potential bias from the chemical separation or other processes employed in the analysis on a sample-by-sample basis. Uranium-232 (²³²U) was added as a tracer to all samples undergoing isotopic uranium analysis for this characterization effort. All tracer recoveries were within the laboratory acceptance criteria except for the following:

• The tracer recoveries for samples FL-R46-Top (17.6%), WL-A05 (21.0%), and FL-A21 (27.6%) were below the laboratory's lower control limit of 30%. However, since the spectral quality was adequate for accurate identification and the tracer recoveries were >15% for these samples, the sample results were deemed usable by the laboratory.

<u>Surrogate Recoveries</u> – Surrogates are compounds that are not commonly found in the natural environment that have similar chemical structures and similar chemical behavior as the compounds of interest. The surrogates dechachlorobiphenyl (DCB) and tetrachloro-meta-xylene (TMX) were added to PCB samples prior to extraction to assess extraction efficiency and analytical bias on a sample-by-sample basis. All surrogate recoveries were within the laboratory's acceptance criteria except for the following:

• The DCB recovery for sample FL-A19 (44%) was below the laboratory's lower control limit of 60%. However, since the TMX recovery in the sample was within the laboratory control limits, the sample results were deemed usable by the laboratory.

<u>Matrix Spike (MS) and Matrix Spike Duplicates (MSD)</u> – MS/MSD analyses are performed by the laboratory to estimate the extent of bias in the analytical measurements of chemical constituents. The analytical laboratory performed MS/MSDs for the metals analyses by adding a known quantity of each analyte to representative media, and analyzing the spiked media. Bias in the results was quantified by determining the percent recovery of the spike amount. Percent recoveries were compared to a performance criterion of $100 \pm 20\%$. Percent recoveries outside this range were investigated for possible discrepancies in measurement bias. For the spiked metals samples analyzed during this characterization effort, percent recoveries of 98 to 100% were achieved.

4.3 Data Management and Documentation

Management of the field and analytical data generated during the characterization effort was conducted in accordance with the general requirements of the *Work Plan* and *QAPP*.

4.3.1 Field Data

Field and QC data was recorded in logbooks and/or field sheets, scanned, and uploaded to the project computer. Data collected each day was summarized on computerized spreadsheets, as appropriate. Electronic copies of the field sheets and data spreadsheets were reviewed by the CABRERA Field Site Manager (FSM) and transmitted to the CABRERA Project Manager (PM) by email on a daily basis. In addition, a backup copy of each electronic file was maintained on compact disc (CD) or memory stick to prevent data loss.

4.3.2 Analytical Data

Samples collected during the characterization effort were identified by a unique number code that accompanied the sample from collection through analysis and data review. Standardized chain of custody procedures were followed from sample collection through sample analysis. The condition of shipping coolers and enclosed sample containers was documented upon receipt at the analytical laboratory. The laboratory transmitted the completed chain of custody form and cooler receipt checklist to the PM to confirm each sample shipment.

Analytical data reports containing results of the requested analyses were transmitted to the CABRERA PM. Each data package contained an electronic data deliverable (EDD) spreadsheet summarizing the analytical results, as well as an electronic file containing the entire case narrative and supporting data. The electronic files were uploaded to the corporate server and backed up on CD. Laboratory data reports are included in Appendix D.

5.0 CONCLUSIONS AND RECOMMENDATIONS

A characterization survey was performed in potentially impacted buildings and grounds in the Building 1103A area of APG. Results of the surveys and sample analyses were used to identify specific areas of DU contamination in the buildings and grounds, as well as any contaminated building materials that might also contain either asbestos, PCBs, and/or hazardous concentrations of metals. To provide a visual reference to the various areas of the site, photographs taken during the initial site walk in December 2005 are included in Appendix G.

This section presents the conclusions of the characterization survey conducted in each location of the Building 1103A area, and provides recommendations on how this information should be incorporated in the remediation approach to be outlined in the *Decommissioning Plan*. Where appropriate, conclusions drawn based on characterization data from a small number of discrete locations within a particular area are assumed to be applicable to that area in its entirety.

5.1 Building 1103A

Inside Building 1103A, direct measurement and smear survey results indicate that radiological screening limits were exceeded at numerous locations. The highest measurements were recorded on horizontal surfaces near the ceilings (i.e., ducts, vents, light fixtures, and conduits) and on the floors in the Main and Shop Areas. There were also exceedances of the screening limits on the walls in the Main and Shop Areas of the building, particularly in the vicinity of cutting and shearing equipment. In addition, some exceedances were recorded in the Entry Area on the floors in the changing room and bathroom, as well as above the ceiling tiles in various locations.

Analytical results for a sample of filter media collected from an air vent in the Main Area indicate uranium isotopes at activity concentrations higher than the screening limit. Samples of floor tile and associated mastic collected from the Entry Area were shown to contain greater than 1% asbestos; thus, the floor tile and mastic in the Entry Area are considered ACM. The interior fire doors are also considered ACM based on assumptions regarding historical manufacturing practices. Analytical results for volumetric samples of ceiling paint, wallboard, and ceiling tile indicate no exceedances of either the radiological screening limit or chemical action levels.

Analytical results for volumetric samples of the concrete floors indicate uranium isotopes at activity concentrations greater than the screening limit at one location in the Main Area. This sample location is in the center of machining operations, approximately equidistant from the shearing table, lathe, and drill press. The screening limit was exceeded in the top ¹/₄-inch layer of concrete sample but not in bottom ¹/₄-inch layer. In addition, a sample of the wood footing frame encountered beneath the concrete expansion joint separating the Main and Shop Area floors exhibited uranium isotopes at activity concentrations greater than the screening limit. However, none of the soil samples underlying the concrete floor contained radioactivity in excess of the soil screening limit of 102 pCi/g.

On the exterior of Building 1103A, direct measurement and smear survey results indicate that radiological screening limits were exceeded in only one area: on the south wall near the entrance to the Shop Area. No other exceedances were observed on the exterior walls or downspouts, or in the soil beneath the downspouts.

Based on the conclusions of the characterization survey for Building 1103A, it is recommended that the following considerations be incorporated in the remediation approach for this building:

- The top ¹/₄-inch layer of the concrete floor throughout the Main and Shop Areas is assumed to be contaminated.
- The floor in the Entry Area (i.e., changing room and bathroom) exhibits limited areas of contamination that should be further delineated to identify discrete areas of contamination.
- Air vent filters throughout the building are assumed to be volumetrically contaminated.
- Ducts, vents, light fixtures, conduits, ceiling tiles, and any other horizontal surfaces where dust may accumulate are assumed to be contaminated.
- The tile floor and associated mastic in the Entry Area, as well as the two interior fire doors are considered ACM and should be managed accordingly.

5.2 Building BRL12

Inside Building BRL12, direct measurement and smear survey results indicate that radiological screening limits were exceeded at numerous floor locations. The highest measurements were recorded on the floor in the North Vault. Several floor locations in the Central Room and one in the South Vault also exceeded one or both screening limits. No wall or ceiling locations in this building exhibited radioactivity greater than the screening limits; however, the survey identified several locations in the Central Room (i.e., in the vicinity of machining operations) where measurements were somewhat elevated.

A sample of floor tile collected from the Office was shown to contain greater than 1% asbestos; thus, the Office floor tiles are considered ACM. Analytical results for a paint chip sample collected from the ceiling of the North Vault indicate no exceedances of either the radiological screening limit or chemical action levels.

On the exterior of Building BRL12, direct measurement and smear survey results for the walls and downspouts indicate no exceedances of the radiological screening limits. However, analytical results for a soil sample collected from the ground beneath the downspout on the northeast corner of the building indicate radioactivity at a concentration slightly less than the soil screening limit of 102 pCi/g.

Based on the conclusions of the characterization survey for Building BRL12, it is recommended that the following considerations be incorporated in the remediation approach for this building:

- The top ¹/₄-inch layer of the concrete floor in the North Vault is assumed to be contaminated.
- The floors in the Central Room and South Vault exhibit limited areas of contamination that should be further delineated to identify discrete areas of contamination.
- Filter media in the air conditioners is assumed to be volumetrically contaminated, similar to the air vent filters evaluated in Building 1103A.
- The tile floor in the Office is considered ACM and should be managed accordingly.

5.3 Freestanding Vault

Inside the Freestanding Vault, direct measurement and smear survey results indicate that radiological screening limits were slightly exceeded at one location (i.e., the east interior wall, 2 meters high). No ceiling, floor, or other interior wall locations exhibited radioactivity greater than the screening limits.

Analytical results for a paint chip sample collected from the ceiling of the Freestanding Vault indicate the presence of lead at a concentration greater than the chemical action level. Thus, the paint on the walls and ceilings of this structure is assumed to be lead-based. No other screening limit or action level exceedances were indicated for this sample.

On the exterior of the Freestanding Vault, direct measurement and smear survey results for the walls and downspouts indicate no exceedances of the radiological screening limits.

Based on the conclusions of the characterization survey for the Freestanding Vault, it is recommended that the following considerations be incorporated in the remediation approach for this building:

- The east interior wall exhibits at least one area of contamination that should be further delineated to identify discrete areas of contamination.
- The paint on the walls and ceiling is assumed to be lead-based, and should be managed as hazardous or mixed waste, as appropriate.

5.4 Building 1103B

On the exterior of Building 1103B, direct measurement and smear survey results for the walls and downspouts indicate no exceedances of the radiological screening limits. Based on these conclusions, Building 1103B does not appear to require remediation.

5.5 Pavement and Grounds

Results of the GWS conducted on the Central Asphalt indicate multiple locations where radioactivity may exceed screening criteria in the asphalt and/or underlying soil. In five locations where surface count rates (as measured using a 3×3 NaI detector) exhibited a statistical Z-score of 3.0 or higher, analytical results for the top 6-inches of underlying soil indicated radioactivity concentrations that were greater than the soil screening limit of 102

pCi/g. In one of these locations, results of the associated deep soil sample also exceeded the screening limit.

Results of the Adjacent Asphalt survey indicated that elevated radioactivity was present in cracks and depressions in the pavement, as well as along the eastern edge of the parking lot where the pavement and soil meet. Although no conclusive measurements were obtained, it is suspected that some of these locations may exceed the screening limit.

Results of the GWS conducted on the Grounds indicate no exceedances of radiological screening criteria. None of the surveyed locations exhibited a statistical Z-score of greater than 3.0, and none of the soil samples exhibited radioactivity concentrations of greater than the soil screening limit of 102 pCi/g.

Based on the conclusions of the characterization survey for the Pavement and Grounds, it is recommended that the following considerations be incorporated in the remediation approach for these areas:

- The Central Asphalt is assumed to be contaminated in areas where GWS results indicate a Z-score of 3.0 or greater. Both the asphalt and the top 6 inches of soil underlying the asphalt are included in this assumption.
- The deeper soil in the contaminated areas of the Central Asphalt should be evaluated further upon removal of the asphalt and top 6 inches of soil to identify any areas of residual soil contamination.
- The Adjacent Asphalt exhibits limited areas of contamination that should be further delineated to identify discrete areas of contamination.

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APPENDIX A

ARL NUCLEAR MATERIALS LICENSE

NRC FORM 374	U.S. NUCLEAR REGULAT	ORY COMMISSION	PAGE <u>1</u> OF <u>2</u> PAGES Amendment No. 27
	MATERIALS	LICENSE	
Pursuant to the Atomic Energy Act of 1954, a of Federal Regulations, Chapter I, Parts 30 heretofore made by the licensee, a license is source, and special nuclear material designa deliver or transfer such material to persons au shall be deemed to contain the conditions s applicable rules, regulations, and orders of th below.	as amended, the Energy R , 31, 32, 33, 34, 35, 36, 3 , hereby issued authorizing ated below; to use such m uthorized to receive it in ac specified in Section 183 of	Reorganization Act of 1974 39, 40, and 70, and in relia g the licensee to receive, a naterial for the purpose(s) a cordance with the regulation f the Atomic Energy Act of	ance on statements and representations cquire, possess, and transfer byproduct, and at the place(s) designated below; to ons of the applicable Part(s). This license 1954, as amended, and is subject to all
Licensee		In accordance with t	the letter dated
		January 13, 2005,	
1. Department of the Army		3. License number SM	B-141 is amended in
U. S. Army Research, Developme Engineering Command Army Research Laboratory	ent and EAR R	its entirety to read a	s follows:
2. Aberdeen Proving Ground, Maryla	and 21005-5066	4. Expiration date June	e 30, 2011
P		5. Docket No. 040-06	394
TES S		Reference No.	1
 Byproduct, source, and/or special nuclear material 	7. Chemical and/or	1 1 1 = 3	. Maximum amount that licensee may possess at any one time under this license
A. Natural Uranium	A. Metal and me	tal oxide	. 100 kilograms
B. Depleted Uranium	B. Metal and me	tal oxide E	3. 200,000 kilograms
C. Thorium	C. Metal and me	tal oxide	2. 100 kilograms
D. Transuranics and technetium-99 contaminants in depleted uranium	D. Contaminants depleted uran metal oxide	contained in ium metal and	 Not to exceed 100 picocuries per gram (pCi/g) per transuranic radionuclide and 500 pCi/g total transuranics; not to exceed 500 pCi/g technetium-99
9. Authorized use:			
A. through D. (1) Research and de testing of componen (4) calibration of the	ts, parts and/or devic licensee's instrumen	es; (3) laboratory ana	lysis and measurement studies; ng; and (6) processing of waste
	CONDI	TIONS	
10. Licensed material may be used and at temporary job sites of th			

1 374A	U.S. NUCLEAR REG	ULATORY COMMISSION		PAGE	2	of	2	PAGES
			License Number SMB-141					
			Docket or Reference Number 040-06394 Amendment No. 27					
writing, by the F designated as L The Radiation S licensee shall ne cific condition of licensee shall ne rwise by specific licensee is auth CFR Part 71, "Pa ept as specificall ordance with the enclosures, listensistements, repr e restrictive than Application date	adiation Safety Co sers for 3 years for Safety Officer for the ot use licensed matchis license. This license. Sot use licensed matchis license and condition of this licensed matching orized to transport ickaging and Transport ickaging and Transport ickaging and Transport istatements, repre- d below. The U.S esentations, and p the regulations.	ommittee. The licer ollowing the last use his license is Richard aterial in or on huma aterial in field applica icense. licensed material in sportation of Radioa ise in this license, the sentations, and pro- brocedures in the lice 011140434]	asee shall maintain of licensed materia d A. Markland. In beings except as ations where it is rel accordance with th active Material." The licensee shall con cedures contained i y Commission's reg	records I by the provide eased e ne provis nduct its n the do julations	of indivindivindivindivindivindivindivindi	dividu idual erwis t as of gram ents, I gov	in inclu inclu	ided uding unless
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	MATE SUPPL	MATERIALS LICENSE SUPPLEMENTARY SHEE	MATERIALS LICENSE SUPPLEMENTARY SHEET Licensed material shall only be used by, or under the writing, by the Radiation Safety Committee. The licer designated as users for 3 years following the last use The Radiation Safety Officer for this license is Richard licensee shall not use licensed material in or on huma ific condition of this license. Licensee is authorized to transport licensed material in FR Part 71, "Packaging and Transportation of Radioa apt as specifically provided otherwise in this license, the redace with the statements, representations, and pro- enclosures, listed below. The U.S. Nuclear Regulator statements, representations, and procedures in the lice a restrictive than the regulations. Application dated April 13, 2001 [011140434] Letter dated July 30, 2001 [ML012200458] For the U.S. December 19, 2005 By Eliz Cord Diversed	MATERIALS LICENSE SUPPLEMENTARY SHEET License Number SMB-14.1 Docket or Reference Num Queet or Reference Num Point Commerciel and R&D Division of Nuclear Ma Region I King Qf Prussia, Penns	MATERIALS LICENSE SUPPLEMENTARY SHEET Idense Number SMB-141 December 19, 2005 By Licensed material shall only be used by, or under the supervision of, individuals of writing, by the Radiation Safety Committee. The licensee shall maintain records designated as users for 3 years following the last use of licensed material by the The Radiation Safety Officer for this license is Richard A. Markland. licenses shall not use licensed material in or on human beings except as provided ific condition of this license. licensee shall not use licensed material in field applications where it is released envise by specific condition of this license. licensee is authorized to transport licensed material in accordance with the provise FR Part 71, "Packaging and Transportation of Radioactive Material." upt as specifically provided otherwise in this license. licensee shall not use license is and procedures in the licensee shall conduct its red as systed below. The U.S. Nuclear Regulatory Commission's regulations is the ments, representations, and procedures in the licensee's application and corr e restrictive than the regulations. Application dated April 13, 2001 [011140434] Letter dated July 30, 2001 [ML012200458] For the U.S. Nuclear Regulatory Commission of Nuclear Materials S Region 1 King of Prussia, Pennsylvaria	MATERIALS LICENSE SUPPLEMENTARY SHEET License Number SMB-141 Docket or Reference Number 040-06394 Amendment No. 27 Licensed material shall only be used by, or under the supervision of, individuals desig writing, by the Radiation Safety Committee. The licensee shall maintain records of in designated as users for 3 years following the last use of licensed material by the indiv The Radiation Safety Officer for this license is Richard A. Markland. Licensee shall not use licensed material in or on human beings except as provided oth affic condition of this license. Licensee shall not use licensed material in field applications where it is released excep rwise by specific condition of this license. Licensee is authorized to transport licensed material in accordance with the provisions FR Part 71, "Packaging and Transportation of Radioactive Material." Lept as specifically provided otherwise in this license, the licensee shall conduct its proc redance with the stalements, representations, and procedures contained in the docume enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shal tatements, representations, and procedures in the licensee's application and correspond e restrictive than the regulations. Application dated April 13, 2001 [011140434] Letter dated July 30, 2001 [ML012200458] For the U.S. Nuclear Regulatory Commission Flizapeth Ultrich Commercial and R&D Branch Division of Nuclear Materials Safety Region I King of Prussia, Pennsylvania 1940	MATERIALS LICENSE SUPPLEMENTARY SHEET Decket or Reference Number Q40-06394 Amendment No. 27 Licensed material shall only be used by, or under the supervision of, individuals designate writing, by the Radiation Safety Committee. The licensee shall maintain records of individual designated as users for 3 years following the last use of licensed material by the individual The Radiation Safety Officer for this license is Richard A. Markland. Licensee shall not use licensed material in or on human beings except as provided otherwis dific condition of this license. Licensee shall not use licensed material in field applications where it is released except as rwise by specific condition of this license. 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NUCLEAR REGULATORY COMMISSION DOCKET NO. 040-06394 December 7, 2005

Environmental Assessment Related to Issuance of a License Amendment of U.S. Nuclear Regulatory Commission Materials License No. SMB-141, Department of the Army in Aberdeen, Maryland

Introduction

The U.S. Nuclear Regulatory Commission (NRC) has prepared this environmental assessment (EA) of the amendment of the Department of the Army's Materials License Number SMB-141. and the release of its Transonic Range, located at Aberdeen Proving Grounds, Aberdeen, Maryland, for unrestricted use. The Transonic Range is operated by the Department of the Army in Aberdeen Proving Grounds, Aberdeen, Maryland. The Department of the Army was authorized by NRC since April 12, 1961, to use radioactive materials for munitions testing and research and development purposes at the site. Actual use of licensed material at the Transonic Range began in 1973. In 2005, the Department of the Army ceased operations with licensed materials at the Transonic Range site and requested that NRC release the site for unrestricted use. The Department of the Army has conducted surveys of the Transonic Range and determined that the site meets the license termination criteria in Subpart E of 10 CFR Part 20. The NRC staff has evaluated the Department of the Army's request and the results of the surveys, and has developed an EA in accordance with the requirements of 10 CFR Part 51. Based on the staff evaluation, the conclusion of the EA is a Finding of No Significant Impact (FONSI) on human health and the environment for the proposed licensing action. The Department of the Army requested release for unrestricted use of the land mass and buildings located at Aberdeen Proving Grounds, Aberdeen, Maryland, as authorized by the NRC License No. SMB-141. The land mass contained within the Transonic Range is approximately 53,000 square meters and the two remaining structures have a total footprint of 80 square meters. This tract of land is located within an active U.S. Army testing and research facility.

License No. SMB-141 was issued in 1961 and amended periodically since that time. NRClicensed activities performed at the Transonic Range site were limited to research and development and munitions testing using projectiles containing depleted uranium. Activities involving depleted uranium testing at the Transonic Range were conducted from 1973 to 1979. Outdoor areas were affected by the use of licensed materials.

The Proposed Action

The proposed action is to amend Materials License No. SMB-141 and release the Transonic Range, Aberdeen Proving Grounds, Aberdeen, Maryland, for unrestricted use. By letter dated January 13, 2005, the Department of the Army stated that no further actions are required to remediate the Transonic Range and requested release of the range for unrestricted use. The Department of the Army stated that licensed activities ceased completely in January 2005. Based on the licensee's historical knowledge of the site and the conditions of the facility, the licensee determined that only routine decontamination activities, in accordance with licensee radiation safety procedures, were required. A decommissioning plan was not required to be

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Department of the Army Environmental Assessment

submitted to the NRC. The licensee surveyed the Transonic Range, decontaminated or remediated areas as needed, and provided documentation that the Range meets the license termination criteria specified in Subpart E of 10 CFR Part 20, and does not require additional decommissioning activities to be performed. The licensee demonstrated this using the screening criteria described in 65 FR 37186.

Need for the Proposed Action

The purpose of the proposed action is to amend NRC Materials License No. SMB-141, to allow for the release of the Transonic Range for unrestricted use. The licensee needs this license change because it no longer plans to conduct licensed activities at the Transonic Range. NRC is fulfilling its responsibilities under the Atomic Energy Act to make a timely decision on a proposed license amendment for release of facilities for unrestricted use that ensures protection of public health and safety and the environment. The licensee has requested the action to reduce their regulatory burden since they no longer intend to conduct licensed activities at this location.

Environmental Impacts of the Proposed Action

The affected environment was described in the Introduction. The licensee has completed all remediation at the site. The NRC staff has reviewed the surveys performed by the Department of the Army to demonstrate compliance with the 10 CFR 20.1402 license termination criteria. Based on its review, the staff has determined that the affected environment and environmental impacts associated with the release for unrestricted use of the Transonic Range are bounded by the impacts evaluated by the "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities" (NUREG-1496). The staff also finds that the proposed release for unrestricted use of the Transonic Range is in compliance with Title 10, Code of Federal Regulations, Part 20.1402, "Radiological Criteria for Unrestricted Use." The NRC has found no other activities in the area that could result in cumulative impacts.

Environmental Impacts of the Alternatives to the Proposed Action

Since the Transonic Range has already been surveyed and found acceptable for release for unrestricted use, the only alternative to the proposed action of amendment of the license and release of the Transonic Range for unrestricted use is denial of the proposed action (i.e. no action). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Agencies and Persons Consulted

The NRC staff has determined that the proposed action will not affect listed species or critical habitat. Therefore, no further consultation is required under Section 7 of the Endangered Species Act. Likewise, the NRC staff have determined that the proposed action is not the type of activity that has the potential to cause effects on historic properties. Therefore, no further consultation is required under Section 106 of the National Historic Preservation Act.

Department of the Army Environmental Assessment

NRC provided a draft of its Environmental Assessment to the Maryland Department of the Environment for review. On September 29, 2005, the Maryland Department of the Environment responded by telephone and agreed with the conclusions of the EA.

Conclusions

Based on its review, the NRC staff has concluded that the completed action complies with 10 CFR Part 20. The NRC staff have prepared this EA in support of the proposed action to amend License No. SMB-141. On the basis of the EA, NRC has concluded that there are no significant environmental impacts and the license amendment does not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

List of Preparers

James Schmidt, Health Physicist, Division of Nuclear Materials Safety, Region I Betsy Ullrich, Senior Health Physicist, Division of Nuclear Materials Safety, Region I

List of References

- 1. NRC License No. SMB-141 inspection and licensing records.
- 2. "Remediation and Final Status Survey, Transonic Range Depleted Uranium Study Area -Structures", Cabrera Services, dated December 28, 2004 [ADAMS Accession Nos. ML050280349 and ML050280354].
- 3. "Radiological Final Status survey, Transonic Range Land Areas, Depleted Uranium Study Area", Cabrera Services, dated November 2004 [ADAMS Accession No. ML050280341].
- 4. Federal Register Notice, Volume 65, No. 114, page 37186, dated Tuesday, June 13, 2000, "Use of Screening Values to Demonstrate Compliance With The Federal Rule on Radiological Criteria for License Termination."
- 5. Title 10 Code of Federal Regulations, Part 20, Subpart E, "Radiological Criteria for License Termination."
- 6. Title 10, Code of Federal Regulations, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."
- 7. NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities."

The application for the license amendment and supporting documentation are available for inspection at NRC's Public Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html. Any questions with respect to this action should be

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referred to Betsy Ullrich, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I, 475 Allendale Road, King of Prussia, Pennsylvania 19406, telephone (610) 337-5040, fax (610) 337-5269.

Dated at King of Prussia, Pennsylvania this 7th day of December 2005

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James P. Dwyer, Chief Commercial and R&D Branch Division of Nuclear Materials Safety Region I

APPENDIX B

BUILDING SURVEY RESULTS

B1: Building 1103A B2: Building BRL12 B3: Freestanding Vault/Tool Shed B4: Building 1103B

APPENDIX B-1

BUILDING 1103A SURVEY RESULTS

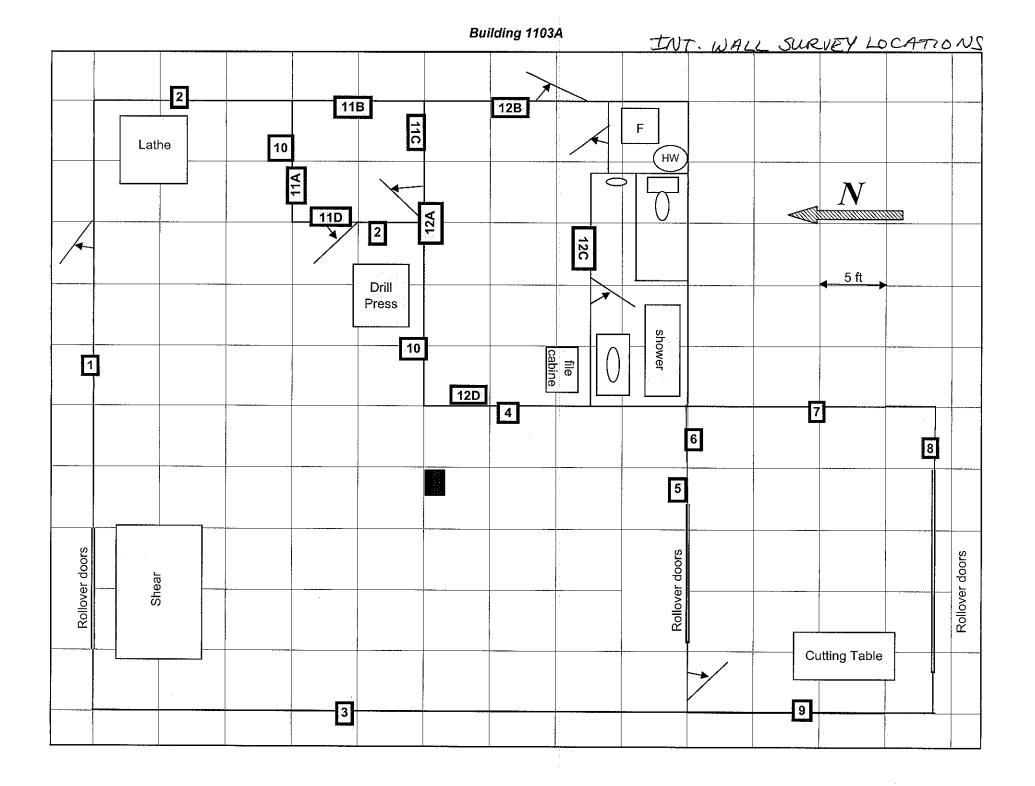
	Direct Measu	rements			Smear Measurements			
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)	
		-	INTERIC	RWALLS				
			Main Area - No	orth Interior Wall				
WL1-1103A-132	52.0		469 (2min)	WL-1103A-101	4.5		2929 (2min)	
WL1-1103A-133	74.0		469 (2min)	WL-1103A-102	10.1	ves	2929 (5min)	
WL1-1103A-134	40.0		469 (2min)	WL-1103A-103	9.9		2929 (2min)	
WL1-1103A-135	66.0		469 (2min)	WL-1103A-104	9.9		2929 (2min)	
WL1-1103A-136	36.0		469 (2min)	WL-1103A-105	0.9		2929 (5min)	
WL1-1103A-137	16.0		469 (2min)	WL-1103A-106	1.4		2929 (5min)	
		Mai	in Area - East Interior W	all (near lathe and drill pre	ss)			
WL2-1103A-138	26.0		469 (2min)	WL-1103A-107	7.4		2929 (2min)	
WL2-1103A-139	32.0		469 (2min)	WL-1103A-108	10.9	yes	2929 (5min)	
			Main Area - W	est Interior Wall				
WL3-1103A-126	52.0		469 (2min)	WL-1103A-95	15.0	yes	2929 (2min)	
WL3-1103A-127	50.0		469 (2min)	WL-1103A-96	41.7	yes	2929 (2min)	
WL3-1103A-128	100.0	yes	469 (2min)	WL-1103A-97	51.9	yes	2929 (2min)	
WL3-1103A-129	34.0		469 (2min)	WL-1103A-98	5.9		2929 (5min)	
WL3-1103A-130	92.0		469 (2min)	WL-1103A-99	41.7	yes	2929 (2min)	
WL3-1103A-131	130.0	yes	469 (2min)	WL-1103A-100	57.0	yes	2929 (2min)	
			Main Area - East Interi	or Wall (near Shop Area)				
WL4-1103A-148	44.0		469 (2min)	WL-1103A-117	40.5	yes	2929 (2min)	
WL4-1103A-149	172.0	yes	469 (2min)	WL-1103A-118	87.5	yes	2929 (2min)	
		Ма	in Area - South Interior	Wall (adjacent to Shop Are	ea)			
WL5-1103A-150	126.0	yes	469 (2min)	WL-1103A-119	49.4	yes	2929 (2min)	
WL5-1103A-151	90.0		469 (2min)	WL-1103A-120	53.2	yes	2929 (2min)	
				orth Interior Wall				
WL6-1103A-152	44.0		469 (2min)	WL-1103A-121	4.8		2929 (2min)	
WL6-1103A-153	92.0		469 (2min)	WL-1103A-122	8.9		2929 (5min)	
WL6-1103A-166	70.0		469 (2min)	WL-1103A-135	6.1		2929 (2min)	
WL6-1103A-167	58.0		469 (2min)	WL-1103A-136	13.7	yes	2929 (2min)	
				ast Interior Wall		1 1		
WL7-1103A-154	114.0	yes	469 (2min)	WL-1103A-123	31.6	yes	2929 (2min)	
WL7-1103A-155	80.0		469 (2min)	WL-1103A-124	22.6	yes	2929 (2min)	
WL7-1103A-156	116.0	yes	469 (2min)	WL-1103A-125	7.4		2929 (2min)	
WL7-1103A-157	276.0	yes	469 (2min)	WL-1103A-126	20.1	yes	2929 (2min)	
14/1 0 44061 170	70.0			outh Interior Wall	10.0	· · · · · ·	0000 (0.1.)	
WL8-1103A-158	76.0		469 (2min)	WL-1103A-127	18.8	yes	2929 (2min)	
WL8-1103A-159	102.0	yes	469 (2min)	WL-1103A-128	18.8	yes	2929 (2min)	

	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			Shop Area - W	est Interior Wall			
WL9-1103A-160	8.0		469 (2min)	WL-1103A-129	-0.3		2929 (2min)
WL9-1103A-161	8.0		469 (2min)	WL-1103A-130	4.3		2929 (5min)
WL9-1103A-162	82.0		469 (2min)	WL-1103A-131	18.8	yes	2929 (2min)
WL9-1103A-163	42.0		469 (2min)	WL-1103A-132	15.0	yes	2929 (2min)
WL9-1103A-164	32.0		469 (2min)	WL-1103A-133	12.0	yes	2929 (5min)
WL9-1103A-165	84.0		469 (2min)	WL-1103A-134	55.7	yes	2929 (2min)
		Ē	Entry Area - North Interio	or Wall in Changing Room			
WL11A-1103A-140	20.0		469 (2min)	WL-1103A-109	4.3		2929 (5min)
WL11A-1103A-141	0.0		469 (2min)	WL-1103A-110	3.6		2929 (2min)
			Entry Area - North Inter	or Wall in Meeting Room			
WL12A-1103A-142	4.0		469 (2min)	WL-1103A-111	1.0		2929 (2min)
WL12A-1103A-143	8.0		469 (2min)	WL-1103A-112	1.3		2929 (5min)
•		•	Entry Area - South Inter	or Wall in Meeting Room			
WL12C-1103A-144	-2.0		469 (2min)	WL-1103A-113	2.3		2929 (5min)
WL12C-1103A-145	12.0		469 (2min)	WL-1103A-114	1.0		2929 (2min)
			Entry Area - North	Wall of Bathroom			
WL12C-1103A-146	12.0		469 (2min)	WL-1103A-115	3.3		2929 (5min)
WL12C-1103A-147	12.0		469 (2min)	WL-1103A-116	1.0		2929 (2min)
			CEIL	INGS			
			Main Are	a - Ceiling			
CL-1103A-168	6.0		469 (2min)	CL-1103A-137	1.3		2929 (5min)
CL-1103A-169	4.0		469 (2min)	CL-1103A-138	1.0		2929 (2min)
CL-1103A-170	-2.0		469 (2min)	CL-1103A-139	-0.3		2929 (2min)
CL-1103A-171	14.0		469 (2min)	CL-1103A-140	1.0		2929 (2min)
CL-1103A-172	16.0		469 (2min)	CL-1103A-141	0.8		2929 (5min)
CL-1103A-173	26.0		469 (2min)	CL-1103A-142	-0.3		2929 (2min)
CL-1103A-174	8.0		469 (2min)	CL-1103A-143	-0.3		2929 (2min)
CL-1103A-175	10.0		469 (2min)	CL-1103A-144	1.0		2929 (2min)
CL-1103A-176	0.0		469 (2min)	CL-1103A-145	0.3		2929 (5min)
CL-1103A-177	16.0		469 (2min)	CL-1103A-146	-0.3		2929 (2min)
		Mair	Area - Ceiling Ducts, V	ents, Light Fixtures, Cond	uits	•	
CL-1103A-187	464.0	yes	199350 (2min)	CL-1103A-156	160.2	yes	2929 (2min)
CL-1103A-188	2654.0	yes	199350 (2min)	CL-1103A-157	483.3	yes	2929 (2min)
CL-1103A-189	2438.0	yes	199350 (2min)	CL-1103A-158	394.3	yes	2929 (2min)
CL-1103A-190	2622.0	yes	199350 (2min)	CL-1103A-159	363.7	yes	2929 (2min)
CL-1103A-191	140.0	yes	199350 (2min)	CL-1103A-160	10.1	yes	2929 (2min)
CL-1103A-192	96.0		199350 (2min)	CL-1103A-161	5.9		2929 (5min)
CL-1103A-193	768.0	yes	199350 (2min)	CL-1103A-162	272.1	ves	2929 (2min)

	Direct Measu	rements			Smear Measurements			
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)	
CL-1103A-194	1060.0	yes	199350 (2min)	CL-1103A-163	375.2	yes	2929 (2min)	
CL-1103A-195	2456.0	yes	199350 (2min)	CL-1103A-164	643.6	yes	2929 (2min)	
CL-1103A-200	1588.0	yes	199350 (2min)	CL-1103A-169	331.9	yes	2929 (2min)	
CL-1103A-201	238.0	yes	199350 (2min)	CL-1103A-170	333.2	yes	2929 (2min)	
CL-1103A-202	414.0	yes	199350 (2min)	CL-1103A-171	33.0	yes	2929 (2min)	
		, ,	Shop Area - Ceili	ng and High Walls		, , ,	· · · · ·	
CL-1103A-178	44.0		469 (2min)	CL-1103A-147	8.7		2929 (2min)	
CL-1103A-179	28.0		469 (2min)	CL-1103A-148			2929 (2min)	
CL-1103A-180	32.0		469 (2min)	CL-1103A-149	15.0	ves	2929 (2min)	
CL-1103A-181	50.0		469 (2min)	CL-1103A-150			2929 (5min)	
CL-1103A-182	20.0		469 (2min)	CL-1103A-151	4.8		2929 (2min)	
CL-1103A-183	52.0		469 (2min)	CL-1103A-152	17.6	ves	2929 (2min)	
CL-1103A-184	10.0		469 (2min)	CL-1103A-153		<i>j</i>	2929 (2min)	
CL-1103A-185	30.0		469 (2min)	CL-1103A-154	5.9		2929 (5min)	
02 1100/1100	0010		Shop Area - Ceiling Du				2020 (0)	
CL-1103A-203	58.0		199350 (2min)	CL-1103A-172		yes	2929 (2min)	
CL-1103A-204	1562.0	ves	199350 (2min)	CL-1103A-173	-	ves	2929 (2min)	
CL-1103A-205	512.0	ves	199350 (2min)	CL-1103A-174		ves	2929 (2min)	
02 1100/1200	0.2.0		y Area - Ceiling in Chang			,	()	
CL-1103A-186	812.0	ves	199350 (2min)	CL-1103A-155		ves	2929 (2min)	
02 1100/1100	012.0	,00	Entry Area - Above Ce			J 00	2020 (21111)	
CL-1103A-196	156.0	ves	199350 (2min)	CL-1103A-165		ves	2929 (2min)	
02 1100/1100	100.0	,00	Entry Area - Above Co			J 00	2020 (21111)	
CL-1103A-197	36.0		199350 (2min)	CL-1103A-166			2929 (5min)	
02 1100/1101	00.0			Ceiling in Bathroom	2:0		2020 (01111)	
CL-1103A-198	452.0	ves	199350 (2min)	CL-1103A-167	64.8	ves	2929 (2min)	
02 1100/1100	402.0	yco	Entry Area - Above Ceili		÷	yco	2020 (21111)	
CL-1103A-199	418.0	ves	199350 (2min)	CL-1103A-168		ves	2929 (2min)	
02 1100/1100	110.0	,00	()		11.0	,00	2020 (21111)	
				ORS				
EL 4400A 0	000.0			ea - Floor	10.0		0000 (4	
FL-1103A-3	208.0	yes	469 (1min)	FL-1103A-3	18.8	yes	2929 (4min)	
FL-1103A-4	428.0	yes	469 (1min)	FL-1103A-4	17.6	yes	2929 (4min)	
FL-1103A-5	692.0	yes	469 (1min)	FL-1103A-5	81.2	yes	2929 (4min)	
FL-1103A-6	864.0	yes	469 (1min)	FL-1103A-6	123.8	yes	2929 (4min)	
FL-1103A-7	496.0	yes	469 (1min)	FL-1103A-7	84.4	yes	2929 (4min)	
FL-1103A-8	232.0	yes	469 (1min)	FL-1103A-8	36.0	yes	2929 (4min)	
FL-1103A-9	300.0	yes	469 (1min)	FL-1103A-9	88.8	yes	2929 (4min)	
FL-1103A-10	252.0	yes	469 (1min)	FL-1103A-10	77.4	yes	2929 (4min)	
FL-1103A-11	184.0	yes	469 (1min)	FL-1103A-11	36.0	yes	2929 (4min)	
FL-1103A-12	664.0	yes	469 (1min)	FL-1103A-12	35.4	yes	2929 (4min)	

	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			Shop Are	ea - Floor		• • • • •	
FL-1103A-1	428.0	yes	469 (1min)	FL-1103A-1	8.0		2929 (4min)
FL-1103A-2	344.0	yes	469 (1min)	FL-1103A-2	5.9		2929 (5min)
			Entry Area - Floor	in Changing Room			
FL-1103A-13	60.0		469 (1min)	FL-1103A-13	15.5	yes	2929 (5min)
FL-1103A-14	236.0	yes	469 (1min)	FL-1103A-14	19.5	yes	2929 (4min)
	•	· · · · · · · · · · · · · · · · · · ·	Entry Area - Floor	in Meeting Room		••••••	
FL-1103A-15	36.0		469 (1min)	FL-1103A-15	6.9		2929 (5min)
FL-1103A-16	32.0		469 (1min)	FL-1103A-16	1.8		2929 (5min)
FL-1103A-17	76.0		469 (1min)	FL-1103A-17	5.5		2929 (4min)
	•		Entry Area - Flo	oor in Bathroom		••	
FL-1103A-18	124.0	yes	469 (1min)	FL-1103A-18	3.6		2929 (4min)
			Entry Area - Floor	in Furnace Room			
FL-1103A-19	48.0		469 (1min)	FL-1103A-19	1.7		2929 (4min)
			EXTERIO	RWALLS			
				rthern portion			
WL-1103A-306	36.0		469 (2min)	WL-1103A-287	1.0		2929 (2min)
WL-1103A-307	-8.0		469 (2min)	WL-1103A-288	0.3		2929 (5min)
WL-1103A-308	26.0		469 (2min)	WL-1103A-289	-0.3		2929 (2min)
WL-1103A-309	18.0		469 (2min)	WL-1103A-290	-0.3		2929 (2min)
WL-1103A-310	18.0		469 (2min)	WL-1103A-291	-0.3		2929 (2min)
WL-1103A-311	14.0		469 (2min)	WL-1103A-292	-0.3		2929 (5min)
WL-1103A-312	16.0		469 (2min)	WL-1103A-293	0.3		2929 (5min)
WL-1103A-313	24.0		469 (2min)	WL-1103A-294	-0.3		2929 (2min)
WE HOOK STO	24.0			uthern portion	0.0		2020 (21111)
WL-1103A-281	4.0		199350 (2min)	WL-1103A-262	0.8		2929 (5min)
WL-1103A-282	6.0		199350 (2min)	WL-1103A-263	0.3		2929 (5min)
WL-1103A-283	8.0		199350 (2min)	WL-1103A-264	-0.3		2929 (5min)
WL-1103A-284	-6.0		199350 (2min)	WL-1103A-265	0.8		2929 (5min)
WE 1105A 204	0.0			astern portion	0.0		2020 (01111)
WL-1103A-277	18.0	<u> </u>	199350 (2min)	WL-1103A-258	0.3		2929 (5min)
WL-1103A-278	12.0	<u> </u>	199350 (2min)	WL-1103A-259	0.3		2929 (5min)
WL-1103A-279	16.0	<u> </u>	199350 (2min)	WL-1103A-260	-0.3		2929 (5min)
WL-1103A-280	18.0		199350 (2min)	WL-1103A-261	0.8		2929 (5min)
VVL-1100A-200	10.0		South Wall - w		0.0		2323 (51111)
WL-1103A-285	-2.0		469 (2min)	WL-1103A-266	0.8		2929 (5min)
WL-1103A-286	16.0		469 (2min)	WL-1103A-267	0.8		2929 (5min)
WL-1103A-287	268.0	yes	469 (2min) 469 (2min)	WL-1103A-268	9.9		2929 (31111) 2929 (2min)
WL-1103A-288	32.0	yes	469 (2min) 469 (2min)	WL-1103A-269	1.3		2929 (21111) 2929 (5min)
WL-1103A-289	6.0		469 (2min)	WL-1103A-209 WL-1103A-270	1.0		2929 (31111) 2929 (2min)

	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm ²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			West Wall - n	orthern portion			
WL-1103A-298	20.0		469 (2min)	WL-1103A-279	0.3		2929 (5min)
WL-1103A-299	10.0		469 (2min)	WL-1103A-280	-0.3		2929 (2min)
			West Wall - so	outhern portion			· · ·
WL-1103A-300	4.0		469 (2min)	WL-1103A-281	1.3		2929 (5min)
WL-1103A-301	8.0		469 (2min)	WL-1103A-282	-0.3		2929 (2min)
WL-1103A-302	4.0		469 (2min)	WL-1103A-283	-0.3		2929 (2min)
WL-1103A-303	10.0		469 (2min)	WL-1103A-284	-0.3		2929 (5min)
WL-1103A-304	16.0		469 (2min)	WL-1103A-285	2.3		2929 (5min)
WL-1103A-305	20.0		469 (2min)	WL-1103A-286	-0.3		2929 (2min)
	*		Nort	h Wall			
WL-1103A-290	26.0		469 (2min)	WL-1103A-271	0.8		2929 (5min)
WL-1103A-291	-2.0		469 (2min)	WL-1103A-272	-0.3		2929 (2min)
WL-1103A-292	42.0		469 (2min)	WL-1103A-273	-0.3		2929 (5min)
WL-1103A-293	24.0		469 (2min)	WL-1103A-274	0.3		2929 (5min)
WL-1103A-294	22.0		469 (2min)	WL-1103A-275	0.8		2929 (5min)
WL-1103A-295	14.0		469 (2min)	WL-1103A-276	-0.3		2929 (5min)
WL-1103A-296	16.0		469 (2min)	WL-1103A-277	1.0		2929 (2min)
WL-1103A-297	30.0		469 (2min)	WL-1103A-278	-0.3		2929 (2min)



Building 1103A 2 MINUTE COUNTS

(.**X**)

5.23.06

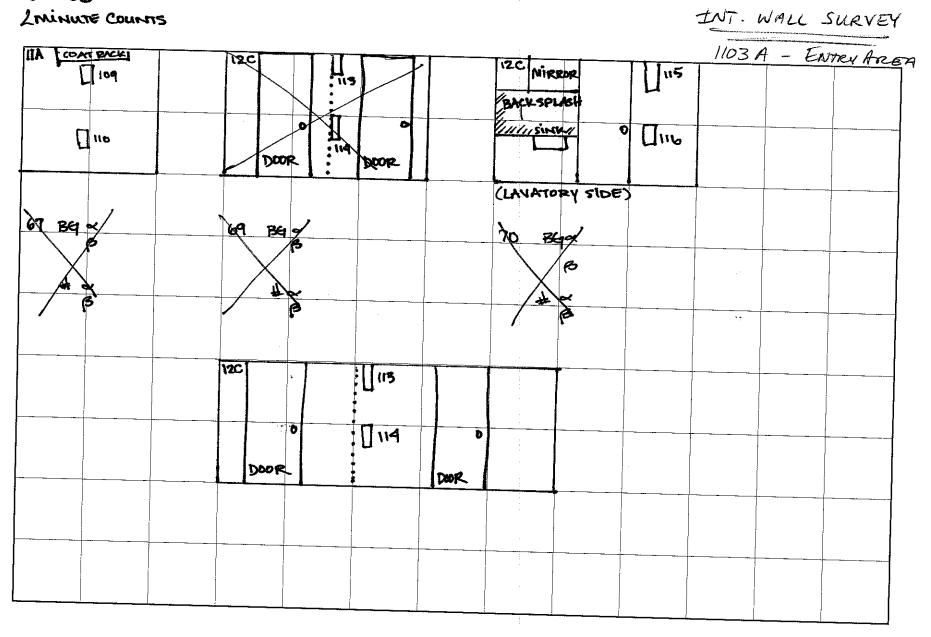
INT. WALL SURVEY

1 101 1969	104 03	[106	1103A - M	AINAREA
102 🕱	105 []+209"	Doute []1	D ⁵	
	DOOR	4.11 Ka	E PANEL	
3 95	[197	[[99		
[96	[98	001		
5 119		12A		12
120 ROLL- DOOR -				12 111 EVT AR

Conservation

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BUILDING 1103A 5.23.06 LMINUTE COUNTS



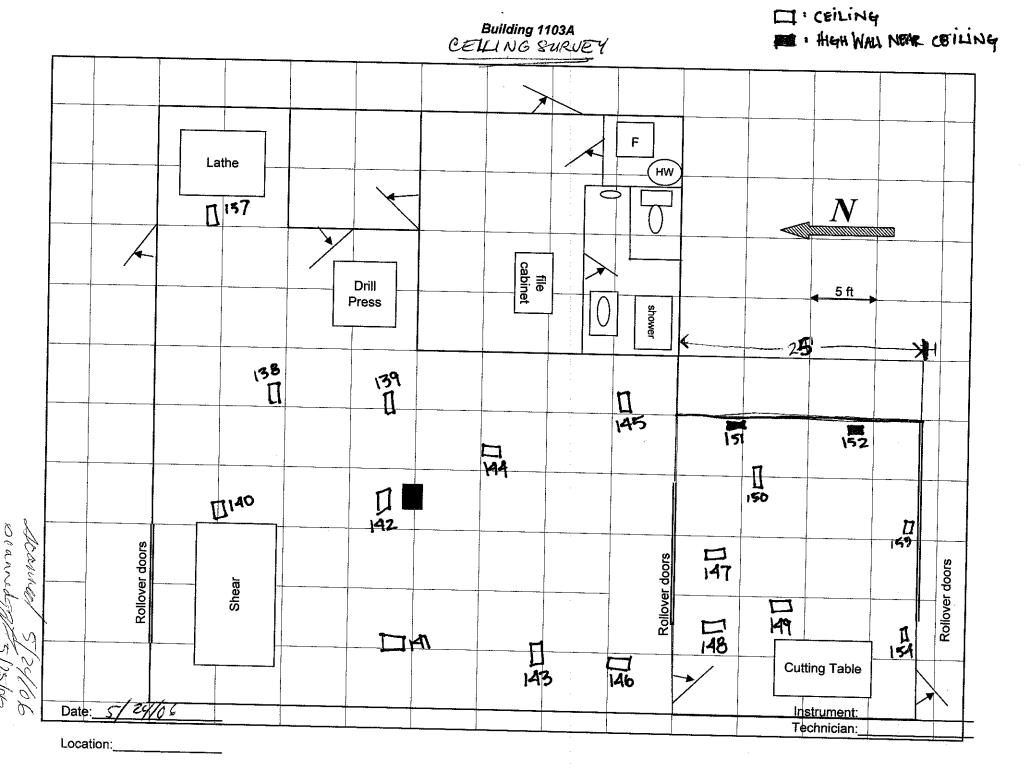
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Building	1103A	ENTRY	
2 Minute () 5.23.06		:	

INT. WALL SURVEY

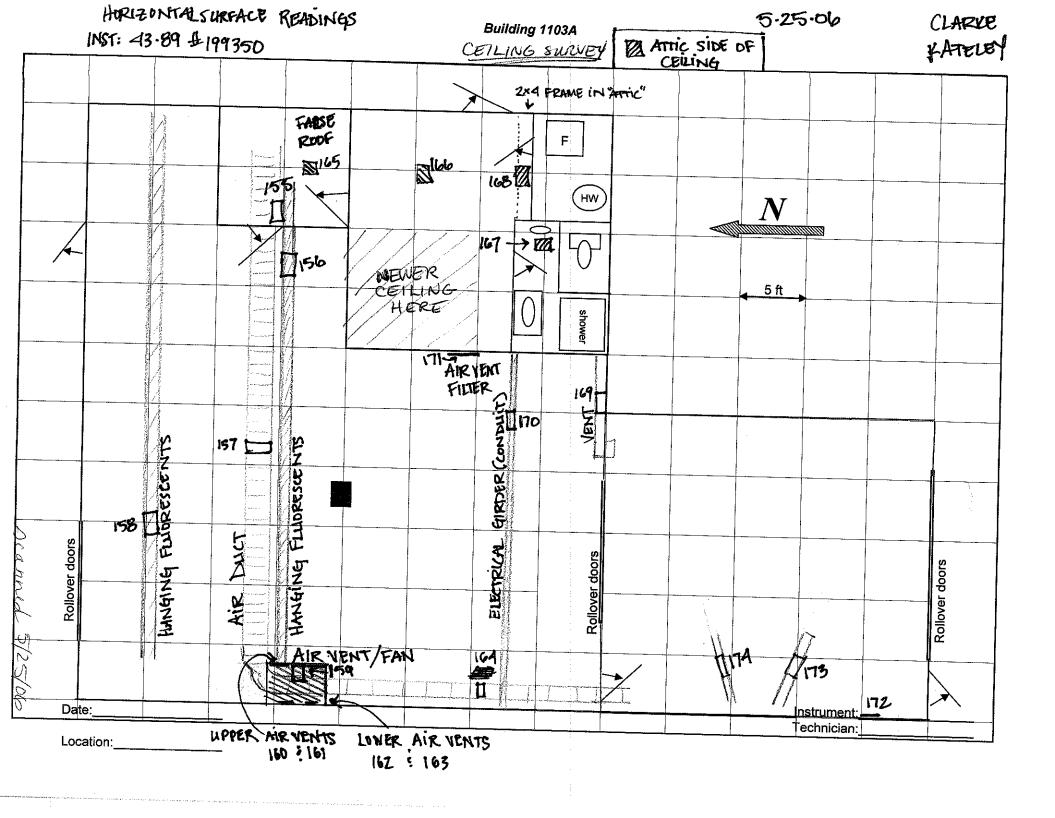
-3-2-3-						:			1103A	- E	AREA
WL6				121	ELEC. BOX					125	HICEA
	Doce 136	ROLL OVE	DOOR	122	Prov		<i>¶]]]],</i>	123			
WL8	[['27		17.1			WL7	€		DANIEL	A	
	[[128		(30						1///	126	-
							[] ICI			133	
						WL9	132[] STEEL	PANELS		134]]	
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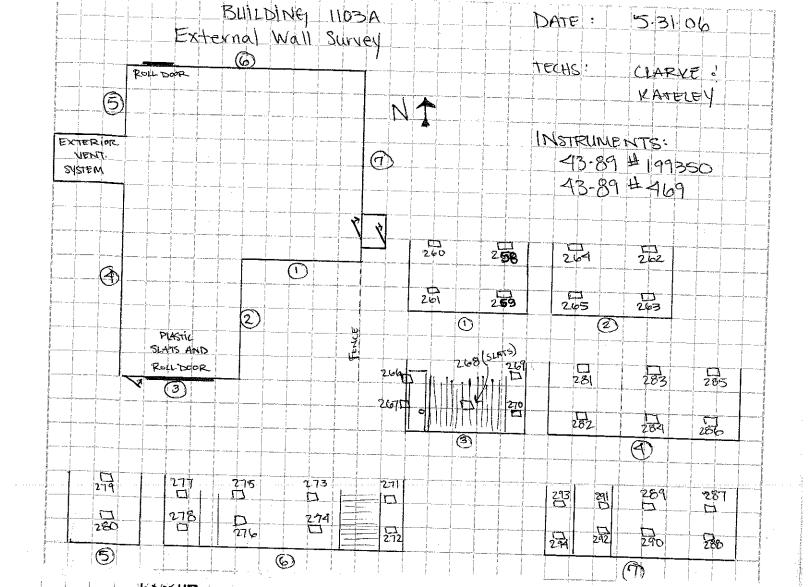
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• 646-14 (Josephaness)

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APPENDIX B-2

BUILDING BRL12 SURVEY RESULTS

Radiological Survey Results Building BRL12

	Direct Measu	irements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
				R WALLS	-		
			Central Room - wa	lls at 1 meter height			
WL4-BRL12-106	-2		469 (2min)	WL-BRL12-86	1.3		2929 (5min)
WL5-BRL12-107	6		469 (2min)	WL-BRL12-87	2.3		2929 (5min)
WL5-BRL12-107b	0		469 (2min)	WL-BRL12-88	7.4		2929 (2min)
WL6-BRL12-108	4		469 (2min)	WL-BRL12-89	8.7		2929 (2min)
WL7-BRL12-109	20		469 (2min)	WL-BRL12-90	3.8		2929 (5min)
WL8-BRL12-110	6		469 (2min)	WL-BRL12-91	6.1		2929 (2min)
			Central Room - wa	lls at 2 meter height			
WL4-BRL12-117	8		469 (2min)	WL-BRL12-82	-0.3		2929 (2min)
WL5-BRL12-118	0		469 (2min)	WL-BRL12-74	2.3		2929 (2min)
WL6-BRL12-119	2		469 (2min)	WL-BRL12-75	4.5		2929 (5min)
WL6-BRL12-120	40		469 (2min)	WL-BRL12-76	0.4		2929 (5min)
WL7-BRL12-121	14		469 (2min)	WL-BRL12-77	8.7		2929 (2min)
WL8-BRL12-122	8		469 (2min)	WL-BRL12-78	7.4		2929 (2min)
•		• •	North Vault - wall	s at 1 meter height	*	* *	
WL1-BRL12-103	2		469 (2min)	WL-BRL12-83	1.0		2929 (2min)
WL2-BRL12-104	10		469 (2min)	WL-BRL12-84	-0.3		2929 (5min)
WL3-BRL12-105	0		469 (2min)	WL-BRL12-85	2.3		2929 (2min)
		• •	North Vault - wall	s at 2 meter height		• •	· · · · ·
WL1-BRL12-114	-12		469 (2min)	WL-BRL12-71	0.9		2929 (5min)
WL2-BRL12-115	-4		469 (2min)	WL-BRL12-72	-0.3		2929 (2min)
WL3-BRL12-116	0		469 (2min)	WL-BRL12-73	1.4		2929 (5min)
	-			s at 1 meter height	l.	1	
WL9-BRL12-111	6		469 (2min)	WL-BRL12-92	0.3		2929 (5min)
WL10-BRL12-112	-6		469 (2min)	WL-BRL12-93	-0.3		2929 (2min)
WL11-BRL12-113	0		469 (2min)	WL-BRL12-94	0.8		2929 (5min)
	-		()	Is at 2 meter height		1	(- /
WL9-BRL12-123	0		469 (2min)	WL-BRL12-79	-0.3		2929 (2min)
WL10-BRL12-124	2		469 (2min)	WL-BRL12-80	1.3	1	2929 (5min)
WL11-BRL12-125	2		469 (2min)	WL-BRL12-81	-0.3	1	2929 (2min)
	_			INGS		1	()
				om - ceiling			
CL-BRL12-216	12	<u> </u>	199350 (2min)	CL-1103A-185	1.1	1	2929 (2min)
CL-BRL12-216 CL-BRL12-217	8	+	199350 (2min) 199350 (2min)	CL-1103A-185 CL-1103A-186	-0.3	+	2929 (2min) 2929 (5min)
CL-BRL12-217 CL-BRL12-218	36	+	199350 (2min) 199350 (2min)	CL-1103A-186 CL-1103A-187	-0.3	+	2929 (5min) 2929 (5min)
OL-DKL12-210	30			ult - ceiling	1.3		zaza (amin)
CL-BRL12-219	0	<u>т</u> т			0.8	1	2020 (Emin)
CL-BRL12-219 CL-BRL12-220	0		199350 (2min) 199350 (2min)	CL-1103A-188 CL-1103A-189	-0.1		2929 (5min) 2929 (2min)
UL-DKL12-220	0		199320 (Zmin)	GE-1103A-189	-0.1	I	zaza (zmin)

Radiological Survey Results Building BRL12

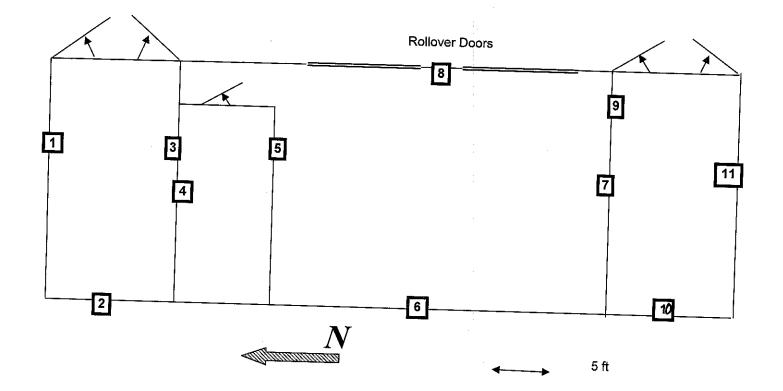
	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			South Vau	ılt - ceiling		•	
FL-BRL12-223	4		199350 (2min)	FL-1103A-192	0.3		2929 (5min)
FL-BRL12-224	4		199350 (2min)	FL-1103A-193	2.4		2929 (2min)
	•		FLO	ORS	•	•	
			Central Ro	oom - floor			
FL-BRL12-206	64		199350 (2min)	FL-1103A-175	13.9	ves	2929 (2min)
FL-BRL12-207	110	ves	199350 (2min)	FL-1103A-176	10.1	ves	2929 (2min)
FL-BRL12-208	126	yes	199350 (2min)	FL-1103A-177	8.8		2929 (2min)
FL-BRL12-209	76	,	199350 (2min)	FL-1103A-178	6.9		2929 (5min)
FL-BRL12-210	186	yes	199350 (2min)	FL-1103A-179	11.3	yes	2929 (2min)
FL-BRL12-211	32		199350 (2min)	FL-1103A-180	1.1		2929 (2min)
FL-BRL12-212	34		199350 (2min)	FL-1103A-181	3.7		2929 (2min)
FL-BRL12-213	10		199350 (2min)	FL-1103A-182	3.3		2929 (5min)
FL-BRL12-214	50		199350 (2min)	FL-1103A-183	7.5		2929 (2min)
		• •	Office	- floor		• •	· · · ·
FL-BRL12-215	98		199350 (2min)	FL-1103A-184	7.5		2929 (2min)
		•	North Va	ult - floor			. ,
FL-BRL12-221	14798	yes	199350 (2min)	FL-1103A-190	1106.7	yes	2929 (2min)
FL-BRL12-222	2514	yes	199350 (2min)	FL-1103A-191	86.4	yes	2929 (2min)
FL-BRL12-20	132	yes	469 (1min)	FL-BRL12-20	4.8		2929 (5min)
FL-BRL12-21	208	yes	469 (1min)	FL-BRL12-21	11.8	yes	2929 (4min)
FL-BRL12-22	2500	yes	469 (1min)	FL-BRL12-22	161.3	yes	2929 (4min)
	•		South Va	ult - floor	•		
FL-BRL12-227	16		199350 (2min)	FL-1103A-196	3.8		2929 (5min)
FL-BRL12-228	54		199350 (2min)	FL-1103A-197	5.0		2929 (2min)
FL-BRL12-23	68		469 (1min)	FL-BRL12-23	2.8		2929 (5min)
FL-BRL12-24	32		469 (1min)	FL-BRL12-24	11.8	yes	2929 (4min)
			EXTERIO	RWALLS			
			East	Wall			
WL-BRL12-255	6		199350 (2min)	WL-BRL12-236	-0.3		2929 (2min)
WL-BRL12-256	-6		199350 (2min)	WL-BRL12-237	-0.3		2929 (5min)
WL-BRL12-257	6		199350 (2min)	WL-BRL12-238	0.3		2929 (5min)
WL-BRL12-258	8		199350 (2min)	WL-BRL12-239	-0.3		2929 (2min)
WL-BRL12-259	6		199350 (2min)	WL-BRL12-240	3.6		2929 (2min)
WL-BRL12-260	22		199350 (2min)	WL-BRL12-241	2.8		2929 (5min)
WL-BRL12-261	2		199350 (2min)	WL-BRL12-242	0.3		2929 (5min)
WL-BRL12-262	14		199350 (2min)	WL-BRL12-243	2.3		2929 (2min)

Radiological Survey Results Building BRL12

	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			Sout	h Wall			
WL-BRL12-239	12		199350 (2min)	WL-BRL12-220	0.8		2929 (5min)
WL-BRL12-240	0		199350 (2min)	WL-BRL12-221	2.3		2929 (2min)
WL-BRL12-241	4		199350 (2min)	WL-BRL12-222	-0.3		2929 (2min)
WL-BRL12-242	8		199350 (2min)	WL-BRL12-223	-0.3		2929 (5min)
			Wes	t Wall			
WL-BRL12-243	10		199350 (2min)	WL-BRL12-224	0.3		2929 (5min)
WL-BRL12-244	-10		199350 (2min)	WL-BRL12-225	-0.3		2929 (2min)
WL-BRL12-245	2		199350 (2min)	WL-BRL12-226	1.0		2929 (2min)
WL-BRL12-246	10		199350 (2min)	WL-BRL12-227	-0.3		2929 (2min)
WL-BRL12-247	-2		199350 (2min)	WL-BRL12-228	1.0		2929 (2min)
WL-BRL12-248	6		199350 (2min)	WL-BRL12-229	0.3		2929 (5min)
WL-BRL12-249	4		199350 (2min)	WL-BRL12-230	0.8		2929 (5min)
WL-BRL12-250	12		199350 (2min)	WL-BRL12-231	-0.3		2929 (2min)
			Nort	n Wall			
WL-BRL12-251	-2		199350 (2min)	WL-BRL12-232	0.8		2929 (5min)
WL-BRL12-252	2		199350 (2min)	WL-BRL12-233	-0.3		2929 (2min)
WL-BRL12-253	12		199350 (2min)	WL-BRL12-234	2.3		2929 (2min)
WL-BRL12-254	6		199350 (2min)	WL-BRL12-235	0.8		2929 (5min)

Building BRL12 (Vault) -

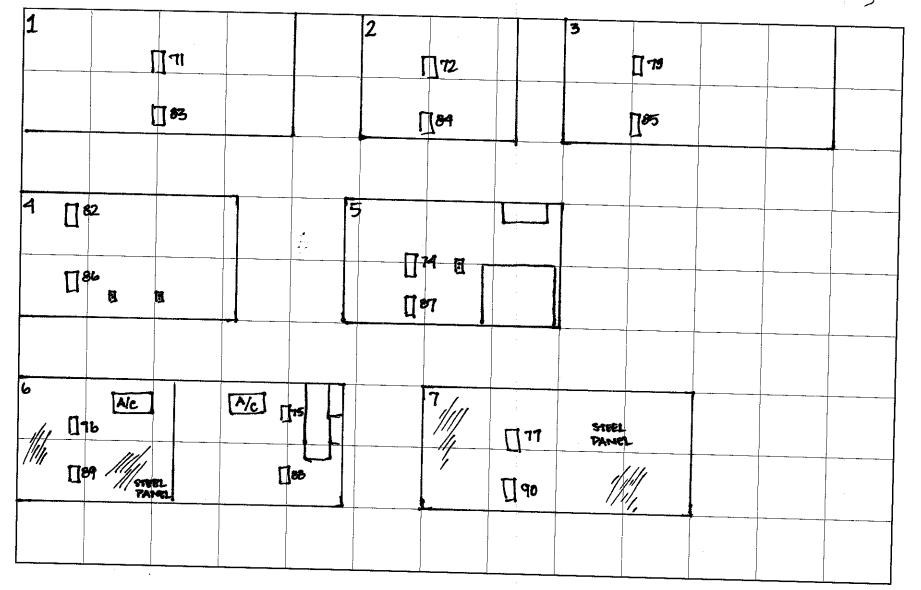
INTERIOR WALL SURVEY LOCATIONS



BRL12 WALL ART page 1 g 2

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SURVEY LOCATIONS 5/22/06 (INTERIOR WALLS)



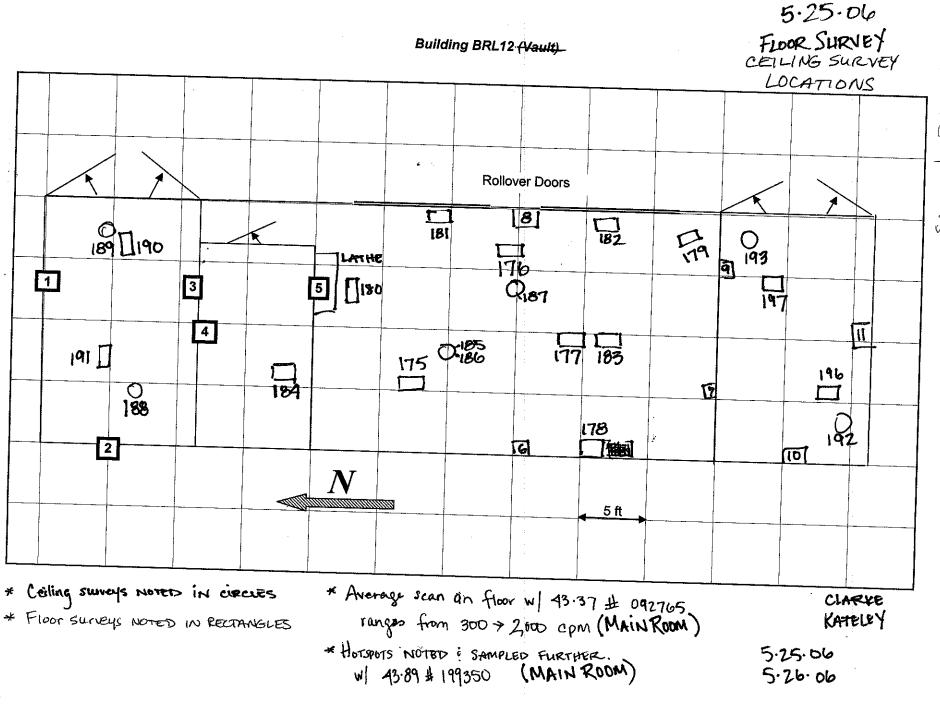
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SURVEY LOCATIONS 5/22/06 (INTERIOR WALLS)

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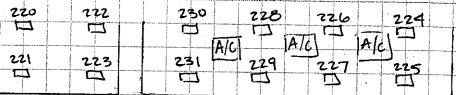
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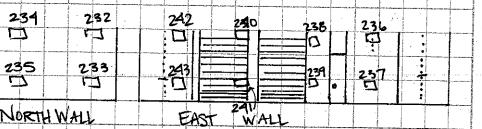
EXTERNAL WALL SURVEY

BRLIZ



SOUTH WALL

WEST WALL



APPENDIX B-3

FREESTANDING VAULT / TOOL SHED SURVEY RESULTS

Radiological Survey Results Freestanding Vault/Shed

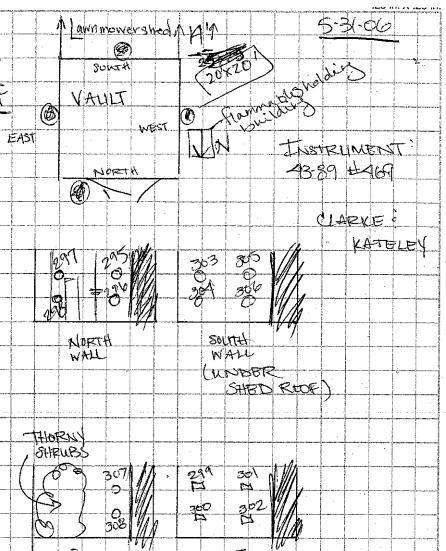
	Direct Measu	rements			Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm ²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)	Sample ID#	Sample α (dpm/100 cm ²)	α > 10 dpm / 100 cm² ?	Instrument (count time)
				R WALLS	-		
WL-VAULT-231	10		199350 (2min)	WL-VAULT-200	0.3		2929 (5min)
WL-VAULT-232	-2		199350 (2min)	WL-VAULT-201	5.0		2929 (2min)
WL-VAULT-233	-18		199350 (2min)	WL-VAULT-202	-0.1		2929 (2min)
WL-VAULT-234	0		199350 (2min)	WL-VAULT-203	2.3		2929 (5min)
WL-VAULT-235	20		199350 (2min)	WL-VAULT-204	3.8		2929 (5min)
WL-VAULT-236	104	yes	199350 (2min)	WL-VAULT-205	12.6	yes	2929 (2min)
WL-VAULT-237	8		199350 (2min)	WL-VAULT-206	-0.1		2929 (2min)
WL-VAULT-238	6		199350 (2min)	WL-VAULT-207	2.3		2929 (5min)
			-	LING			
CL-VAULT-225	2		199350 (2min)	FL-VAULT-194	-0.1		2929 (2min)
CL-VAULT-226	0		199350 (2min)	FL-VAULT-195	0.3		2929 (5min)
		11		DOR		11	
FL-VAULT-229	56		199350 (2min)	FL-VAULT-198	4.8		2929 (5min)
FL-VAULT-230	36		199350 (2min)	FL-VAULT-199	1.1		2929 (2min)
			-	RWALLS			
	00	г		Wall		г	
WL-VAULT-326	20		469 (2min)	WL-VAULT-307	2.3		2929 (2min)
WL-VAULT-327	-2		469 (2min)	WL-VAULT-308	0.8		2929 (5min)
WL-VAULT-322	0			h Wall WL-VAULT-303	0.0		0000 (0min)
	8		469 (2min)		-0.3		2929 (2min)
WL-VAULT-323	-6		469 (2min)	WL-VAULT-304	-0.3		2929 (5min)
WL-VAULT-324 WL-VAULT-325	10		469 (2min)	WL-VAULT-305 WL-VAULT-306	1.3		2929 (5min)
WL-VAULT-325	0		469 (2min)	t Wall	-0.3		2929 (2min)
WL-VAULT-318	16		469 (2min)	WL-VAULT-299	0.8		2929 (5min)
WL-VAULT-319	22		469 (2min) 469 (2min)	WL-VAULT-300	-0.3		2929 (31111) 2929 (2min)
WL-VAULT-319 WL-VAULT-320	38			WL-VAULT-300 WL-VAULT-301	-0.3		2929 (2min) 2929 (2min)
WL-VAULT-320 WL-VAULT-321			469 (2min) 469 (2min)	WL-VAULT-301 WL-VAULT-302	-0.3		2929 (2000) 2929 (5min)
VVL-VAULT-321	10			n Wall	0.0		2929 (311111)
WL-VAULT-314	10	г	469 (2min)	WL-VAULT-295	2.3	г	2929 (2min)
WL-VAULT-314 WL-VAULT-315	16	<u> </u>	469 (2min) 469 (2min)	WL-VAULT-295 WL-VAULT-296	0.8	<u> </u>	2929 (21111) 2929 (5min)
WL-VAULT-316	10	<u>}</u>	469 (2min) 469 (2min)	WL-VAULT-296	0.8	<u>}</u>	2929 (5min)
WL-VAULT-316 WL-VAULT-317	12	<u>}</u>	469 (2min) 469 (2min)	WL-VAULT-297 WL-VAULT-298	1.0	<u>}</u>	2929 (Smin) 2929 (2min)
VIL-VAULT-ST/	10			Shed	1.0		2929 (211111)
WL-SHED-328	2		469 (2min)	WL-SHED-309	2.3		2929 (2min)
WL-SHED-329	2		469 (2min)	WL-SHED-310	0.8		2929 (21111) 2929 (5min)
WL-SHED-330	4		469 (2min)	WL-SHED-311	-0.3		2929 (5min)
WL-SHED-331	-2		469 (2min)	WL-SHED-312	-0.3		2929 (3min) 2929 (2min)
WL-SHED-332	18		469 (2min)	WL-SHED-313	-0.3		2929 (2min) 2929 (2min)
WL-SHED-333	-2		469 (2min)	WL-SHED-314	-0.3		2929 (21111) 2929 (5min)
WL-SHED-333 WL-SHED-334	-28		469 (2min) 469 (2min)	WL-SHED-314 WL-SHED-315	-0.3		2929 (5min) 2929 (5min)
WL-SHED-335	8	+ +	469 (2min)	WL-SHED-316	2.3	+ +	2929 (3min) 2929 (2min)

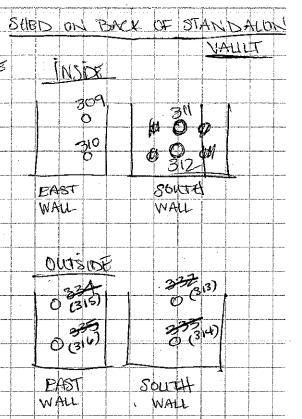
INTERIOR SURVEY LOCATIONS Building 1103 Vault (Large Stand Alone) Techs: CLARKE / KATELEY Date: 5.26.06 Instrument: 43.89 # 199350 206 0195 0194 N199 204 21 200 205 198 203 202 4 Ft Map Drawn: 5-26-06 BClarke

smear #'s 200⇒207 marked on walls @ 1:2 meter heights * circles are ceiling tocations * rectangles are floor locations

scanned 5.26.06

FREESTANDIGG VAULT





APPENDIX B-4

BUILDING 1103B SURVEY RESULTS

Radiological Survey Results Building 1103B Exterior Walls

	Direct Measu	rements				Smear Measu	rements	
Sample ID#	Sample α (dpm/100 cm²)	α > 100 dpm / 100 cm ² ?	Instrument (count time)		Sample ID#	Sample α (dpm/100 cm²)	α > 10 dpm / 100 cm ² ?	Instrument (count time)
			EXTERI	OR	WALLS			
			Nor	th V	Vall			
WL-1103B-263	32		199350 (2min)		WL-1103B-244	0.3		2929 (5min)
WL-1103B-264	12		199350 (2min)		WL-1103B-245	0.8		2929 (5min)
WL-1103B-265	22		199350 (2min)		WL-1103B-246	-0.3		2929 (5min)
WL-1103B-266	20		199350 (2min)		WL-1103B-247	1.8		2929 (5min)
WL-1103B-267	12		199350 (2min)		WL-1103B-248	-0.3		2929 (5min)
WL-1103B-268	22		199350 (2min)		WL-1103B-249	2.3		2929 (5min)
WL-1103B-269	22		199350 (2min)		WL-1103B-250	1.8		2929 (5min)
WL-1103B-270	22		199350 (2min)		WL-1103B-251	0.3		2929 (5min)
WL-1103B-271	16		199350 (2min)		WL-1103B-252	0.3		2929 (5min)
WL-1103B-272	8		199350 (2min)		WL-1103B-253	2.3		2929 (5min)
WL-1103B-273	8		199350 (2min)		WL-1103B-254	-0.3		2929 (5min)
WL-1103B-274	12		199350 (2min)		WL-1103B-255	0.3		2929 (5min)
	•		We	st W	/all			
WL-1103B-275	10		199350 (2min)		WL-1103B-256	2.3		2929 (5min)
WL-1103B-276	16		199350 (2min)		WL-1103B-257	-0.3		2929 (5min)

					<u></u>						<u>(</u>		
	6	Bц	ILDING	1103	38				15	·30	06	<u>}</u>	
			EXTERI	4 1		SUF	EVEY						
								-		5'	<u>}</u>		
Diverty	<u> </u> ~	ß								SCAL	E		
263	19	451									11-2-5		
2643	15	329					a very service and the service of th			TEC	d Charles	स्तद्धाः	
264		430					Volume and a second sec			CLA	RKE	5 c	
265	K	417	1							KAT	ELE	¥	
246	13	385											ļ
Zlabd	13	392									1	3NT :	
267	9	-438							<	13-89	14	19935	30
268	14	418											
269	14	528											
270	4	529											
271	<u> </u>	535	· · · · · · · · · · · · · · · · · · ·								-	-	
272	1	519											
273	1	-499											
274	9	471	-		4								
275	8	507				256							
276	12	407					NORT	ц		• •	ļ.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
276d	17	-554			Fence Fence	257	WALL		 				
2768		418			<u> </u>				ļ				
7													
					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						*		
	2	44	246	248		50	252	254					
			·	9			<u> </u>	<u>a</u>	$\square$			torn	{
	2	45	247	249		251	253	255	<u> </u>		SI	TRUBS	5
							<u> </u>	Ц	2				
		re-unit - rear and a second		WEST	WALL		!						
Conception and the second		remain a sub-											
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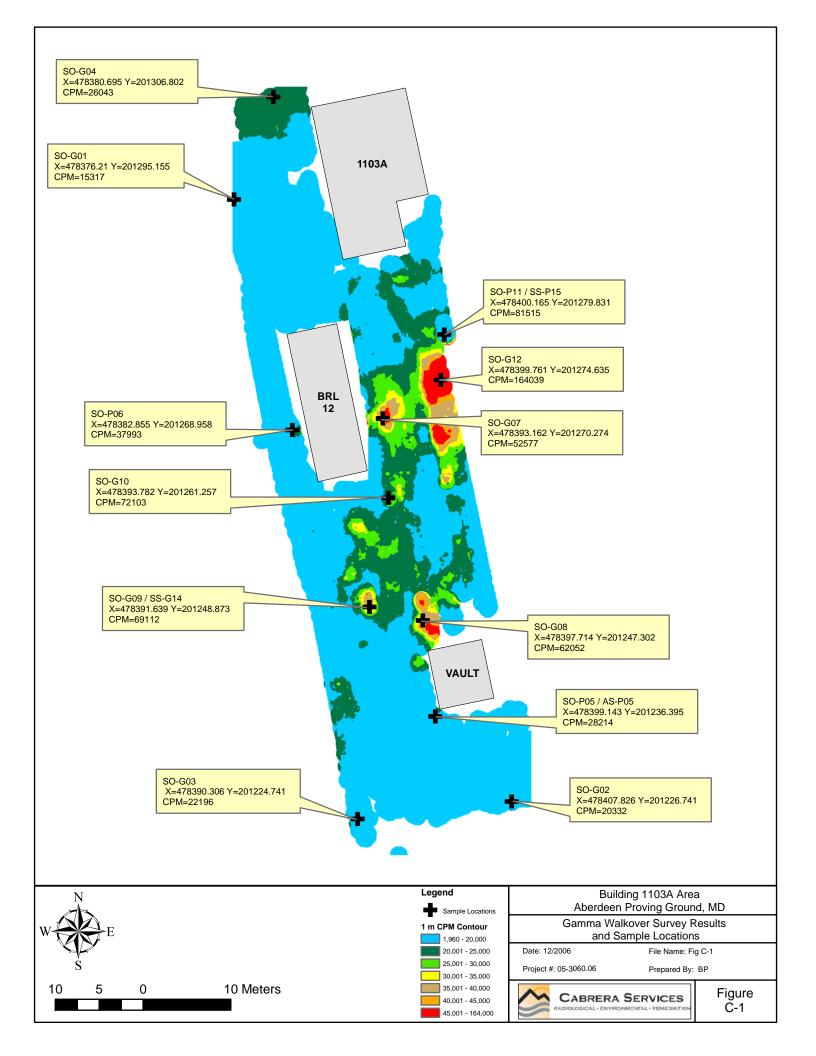
## **APPENDIX C**

### PAVEMENT AND GROUNDS SURVEY RESULTS

C1: Central Asphalt Area Pavement and Grounds - Figure
C2: Central Asphalt Area Pavement and Grounds - Data
C3: Adjacent Asphalt Parking Lot

#### **APPENDIX C-1**

### CENTRAL ASPHALT PAVEMENT AND GROUNDS SURVEY RESULTS – FIGURE



### **APPENDIX C-2**

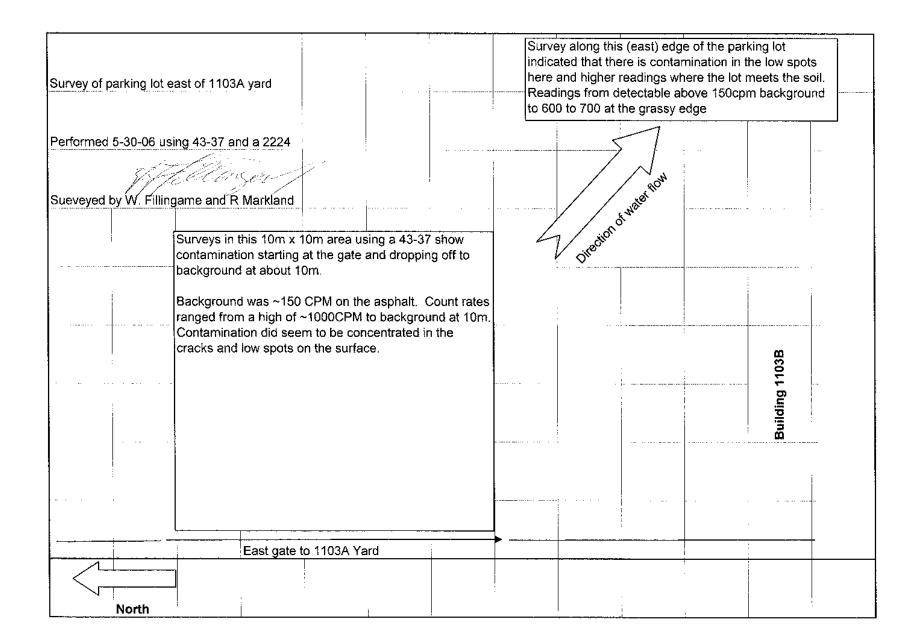
### CENTRAL ASPHALT PAVEMENT AND GROUNDS SURVEY RESULTS – DATA (ON CD)

#### Building 1103A Area Characterization Survey Gamma Walkover Survey Results

-					Surface	Subsurface		
_	СРМ	Northing	Easting	ZSCORE	Sample ID	Sample ID	CPM VALUE ST	ATISTICS
-	164039	201274.635	478399.761	17.21	SO-G12			
	106438	201273.908	478400.096	10.43			Mean	17834.69
	100800	201275.31	478399.797	9.77			Standard Error	147.66
	94821	201274.434	478399.74	9.06			Median	16185
	93084	201275.15	478399.541	8.86			Mode	21298
	81515	201279.831	478400.165	7.50	SO-P11	SS-P15	Standard Deviation	8494.20
	78082	201279.964	478400.42	7.09			Sample Variance	72151503.47
	77182	201274.097	478398.15	6.99			Kurtosis	43.71
	72103	201261.257	478393.782	6.39	SO-G10		Skewness	4.54
	71520	201275.996	478399.414	6.32			Range	162129
	70500	201268.368	478399.24	6.20			Minimum	1910
	69112	201248.873	478391.639	6.04	SO-G09	SS-G14	Maximum	164039
	68423	201250.38	478391.371	5.96			Sum	59015003
	67985	201273.737	478399.718	5.90			Count	3309
	66605	201274.796	478398.23	5.74				
	62052	201247.302	478397.714	5.21	SO-G08			
	60502	201279.957	478400.035	5.02				
	57953	201268.906	478400.808	4.72				
	56360	201279.966	478400.422	4.54				
	56296	201273.474	478399.849	4.53				
	54975	201268.978	478399.376	4.37				
	54592	201272.585	478398.437	4.33				
	54313	201246.919	478397.493	4.30				
	52684	201249.501	478397.501	4.10				
	52590	201276.756	478399.391	4.09				
	52577	201270.274	478393.162	4.09	SO-G07			
	52528	201273.271	478398.546	4.08				
	52495	201246.883	478397.494	4.08				
	52440	201267.678	478399.671	4.07				
	52349	201263.203	478400.367	4.06				
	51905	201249.883	478391.394	4.01				
	51785	201246.001	478398.642	4.00				
	51768	201246.993	478397.526	4.00				
	51576	201249.679	478397.649	3.97				
	51382	201249.564	478397.597	3.95				
	51275	201248.91	478397.279	3.94				
	51017	201249.457	478397.435	3.91				
	50851	201249.517	478397.578	3.89				
	50709	201249.335	478397.47	3.87				
	49974	201249.689	478397.631	3.78				
	49793	201271.142	478394.719	3.76				
	49753	201270.938	478392.806	3.76		More 3,250	additional data points avail	able on CD.
	49438	201268.28	478400.684	3.72		-	·	
	49415	201249.589	478397.635	3.72				

## **APPENDIX C-3**

#### ADJACENT ASPHALT PARKING LOT SURVEY RESULTS



#### **APPENDIX D**

### VOLUMETRIC SAMPLE COLLECTION AND ANALYSIS RESULTS

D1: Sample Collection Field Sheets
D2: Chemical Analysis Results
D3: Isotopic Uranium Results
D4: Gamma Spectroscopy Results
D5: Smear Sample Results
D6: Analytical Laboratory Data Packages (on CD)

# **APPENDIX D-1**

# SAMPLE COLLECTION FIELD SHEETS

#### SAMPLE IDENTIFICATION KEY

Samples collected during the characterization effort were identified by a unique number code that accompanied the sample from collection through analysis and data review. The general format of the numbering scheme was as follows:

#### $\mathbf{X}\mathbf{X} - \mathbf{Y}\mathbf{N}\mathbf{N}$

Where:	XX (Sample Matrix Code)	=	SO for Surface Soil,
			SS for Subsurface Soil
			PT for Paint
			CL for Ceiling Material
			WL for Wall Material
			FL for Floor Material
			SM for Smear Sample
	Y (Location Code)	=	A for Building 1103A
			B for Building BRL12
			C for the Vault
			D for Building 1103B
			G for Grounds
			P for Pavement
			R for Concrete
	NN (Sample Number)	=	01, 02, 03, etc.

Field data records documenting the collection of each volumetric sample are attached.

PROJECT ARL Building 1103A Characteriza	ation	JOB NUMBER 05-3060.06, Task 3	DATE <u>6-1-06</u>
LOCATION ID ASPHALT Area		1000 END 1455	
FIELD SAMPLE ID AS-PO5	······	QC SAMPLES COLLECTE	d nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BGS)	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: XDISCRETE		HAND CORER / AUGER	DI WATER N2 PURGE
COMPOSITE	SAND	S.S. SPOON	
	GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES	CLAY	S.S. SPATULA	XOTHER DI WALLY
LOCATION COORDINATES de 11467		GEOPROBE	
478399.143/201236.395	asphalt		RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMP	LE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	DETECTOR	METER
28,214 cpm	cpm	туре: 44-20	Type: 2221
***************		Serial No.: PR215468	
			Senariu. AISOM
SAMPLE OBSERVATIONS (e.g., location, text 1) Black/grey church	k of asphal	t,~3"×5"×0.5"	(plastic bag)
SAMPLE OBSERVATIONS (e.g., location, text 1) Black/grey church 2)~6"×2" asphal- in it Lurappe -See SO-POS for loc	k of asphal t core, black a separatel	, w/white & grea y).	(plastic bag) y stones embedde
1) Black/greij chun 2)~6"×2" asphal- in it Lwrappe	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/	(plastic bag) y stones embedde
1) Black/grey chun 2)~6"×2" asphal- in it Lwrappe -see so-pos for loc	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion.	(plastic bag) y stones embedde sample collected
1) Black/grey chun 2)~6"×2" asphal- in it Lwrappe -See SO-POS for loc SAMPLE ANALYSES PARAMETER	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
1) Black/grey chun 2)~6"×2" asphal- in it Lwrappe -Sce SO-POS for IOC SAMPLE ANALYSES PARAMETER	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	sample
<ul> <li>I) Black/grey chung</li> <li>a) ~ 6" × 2" asphaling</li> <li>in it Lwrappe</li> <li>SCE SO-POS for IOC</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>DEPLETED URANIUM (GAMMA SPEC)</li> </ul>	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
<ul> <li>I) Black/grey chung</li> <li>a) ~ 6" × 2" asphaling</li> <li>in it Lwrappe</li> <li>SCE SO-POS for IOC</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>DEPLETED URANIUM (GAMMA SPEC)</li> </ul>	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
<ul> <li>I) Black/grey chung</li> <li>a) ~ 6" x 2" asphalting</li> <li>in it Lwrappe</li> <li>SCL SO-POS for IOC</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>DEPLETED URANIUM (GAMMA SPEC)</li> </ul>	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
<ul> <li>I) Black/grey chung</li> <li>a) ~ 6" × 2" asphaling</li> <li>in it Lwrappe</li> <li>SCE SO-POS for IOC</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>DEPLETED URANIUM (GAMMA SPEC)</li> </ul>	k of asphal t core, black a separatel ation descrip	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
1) Black/grey chun 2) ~ 6" × 2" asphal- in it Lwrappe - See SO-POS for loc SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) D	k of asphal t core, black a separatel ation descrip METHOD PRE EPA BOILIM	, w/white & grea y), tion. BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE <u>COLLECTED</u> X (2)

	A Characterization	JOB NUMBER 05-3060.06, Task 3 DATE 6/1/0	6
LOCATION ID 1103		START 0730 END 0830 CONTAINER TIME	
FIELD SAMPLE ID	-A13	QC SAMPLES COLLECTED <u>nia</u>	
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION	
		(WL) EQUIPMENT USED: DECON FLUIDS USED:	
TYPE OF SAMPLE: 🕅 DISC	CRETE CEILING TILE (	CL) HAND CORER / AUGER DI WATER N2 PURGE	
	IPOSITE FLOOR TILE (F	L) S.S. SPOON POTABLE WATER	
	PAINT CHIP (P	T) S.S. SHOVEL / TROWEL UQUINOX SOLUTION	
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	_
bathroom		GEOPROBE	
		OTHER <u>MAZOY</u> RINSATE BLANK ID	
RADIOLOGICAL MEASUREME	NTS AT SAMPLE LOCATION		
BEFORE SAMPLE COLLECTIO	N AFTER SAMPLE COLL	ECTION DETECTOR METER	
cpm	cpn	п Туре: Туре:	
		Serial No.: Serial No.:	
SAMPLE OBSERVATIONS (e.g ~3"x3"x0.5"	. location, texture, color, odor, etc.) Chunk Of Shu r chumhling '	track ceiling tile, relatively into	LCI CI
SAMPLE OBSERVATIONS (e.g ~3"X3"X0.5" WOUL COMM	., location, texture, color, odor, etc.) ' Chunk Of Shee r Chumbling ;	trock ceiling tile, relatively inta tan exterior and white/grey inter	içi ic
SAMPLE OBSERVATIONS (e.g ~3"よ3"よ0.5" WIONL COMU	., location, texture, color, odor, etc.) Church Of Shee r Church Dung;	trock ceiling tile, relatively inta tan exterior and white/grey inter	içi Tic
SAMPLE OBSERVATIONS (e.g ~3"よ3"よ0.5" UONL COMU	church of shee r crumbling;	trock ceiling tile, relatively inta tan exterior and white/grey inter	içi ic
~3"x3"x0.5" Wore come	., location, texture, color, odor, etc.) Church of Shee r Crumbling; METHOD NUMBER	trock ceiling tile, relatively inta tan exterior and white/grey inter	10
~3"x3"x0.5" WOUL COTTLE SAMPLE ANALYSES	Church of she r crumbling; METHOD NUMBER	trock ceiling tile, relatively inta tan exterior and white/grey inter BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE	
N3"X3"X0.5" WOUL COTTLE SAMPLE ANALYSES PARAMETER	Church of she r crumbling; METHOD NUMBER PHA SPEC) ASTM 3972-90M	trock ceiling tile, relatively inta tan exterior and white/grey inter BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED	
NS"X3"X0.5" WOUL COMMA SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALL	Church of she r crumbling; METHOD NUMBER PHA SPEC) ASTM 3972-90M	BOTTLE TYPE/ PRESERVATION REQUIRED COLLECTED None 1@4 oz. plastic	iça Tic
~3"×3"×0.5" WOUL COTTLE SAMPLE ANALYSES PARAMETER SC ISOTOPIC URANIUM (ALL GROSS ALPHA / BETA (S	METHOD NUMBER PHA SPEC) ASTM 3972-90M SMEARS) EPA 900.0	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED None 1@4 oz. plastic X None 1 plastic bag	iça ic
×3"×3"×0.5" WOU COMMA SAMPLE ANALYSES PARAMETER SISOTOPIC URANNUM (ALL GROSS ALPHA / BETA (S X RCRA METALS (TCLP)	METHOD NUMBER PHA SPEC) ASTM 3972-90M SMEARS) EPA 900.0 EPA 1311/6010/7470	BOTTLE TYPE/ PRESERVATION COLUME SAMPLE METHOD REQUIRED COLLECTED None 1@4 oz. plastic ISA None 1 plastic bag ICOL4°C 1@ B oz. glass ISA	10
~3"x3"x0.5"         WIONL COMMUNICATION         SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALL         GROSS ALPHA / BETA (S         ISOTOPIC URANIUM (ALL         GROSS ALPHA / BETA (S         X       RCRA METALS (TCLP)         PCBS         ASBESTOS	METHOD NUMBER PHA SPEC; ASTM 3972-90M SMEARS) EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ PRESERVATION COLLUME SAMPLE METHOD REQUIRED COLLECTED None 1@4 oz. plastic X None 1 plastic bag Cool 4°C 1@8 oz. glass X Cool 4°C 1@4 oz. glass C	

	RADIOLOGICAL · ENVIRONM	ENTAL · REMEDIATION	VOLUMETRI	
ROJECT			JOB NUMBER 05-3060.06, Task 3	DATE 61106
OCATION	NID _1103A		RT 0730 END 0830	
IELD SAN	MPLEID CL-A15	(2)	QC SAMPLES COLLECTED	nia
SAMPLE	E DATA	MATERIAL:	EQUIPMENT INFORMATION	
			EQUIPMENT USED:	DECON FLUIDS USED:
TYPE O	F SAMPLE: X DISCRETE	CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
			S.S. SPOON	
		PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	
	ON COORDINATES	SMEAR (SM)	S.S. SPATULA	XOTHER DI Water
	ner office	OTHER	GEOPROBE	
			COTHER <u>MAZOR</u> R	INSATE BLANK ID
RADIOL	OGICAL MEASUREMENTS AT S	AMPLE LOCATION		
BEFORE	E SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	DN DETECTOR	METER
	com	cpm	Туре:	Туре:
sample ~3' SUU	E OBSERVATIONS (e.g., location, "X 4" X 0.5" pl rface w/ insu	texture, color, odor, etc.) Ice of drop-( ation on in	ceiling tile; harde	vr, pebbly outer
sample ~3' SUU	EOBSERVATIONS (e.g., location, "X4" X0.5" pl rface winsu	texture, color, odor, etc.) LCU of drop-( ULLON ON UN	eiling tile; harde terior side; any.	
sample ~3' SUU	EOBSERVATIONS (e.g., location, "X4" X0.5" pl rface winsu	texture, color, odor, etc.) ICU OF DIOP-C UTUM ON UN	······	
~3' SU	E OBSERVATIONS (e.g., location, "X 4" X 0.5" pl rface winsu	ece of drop-c ation on in	eiling tile; harde terior side; dry.	ur, pebbly outer
~3' SUU SAMPLE	"x 4" x 0.5" pi rface w/insul	ece of drop-c ation on in	ceiling tile; harde terior side; dry.	
~3' SUU SAMPLE	"x 4" x 0.5" pl rface w/ insul	METHOD F	eiling tile; harde terior side; ary. BOTTLE TYPE/ VOLUME	sample
~3' SUU SAMPLE E Z K	"x 4" x 0.5" pü rface wi insue sanalyses <u>Parameter</u> sotopic uranium (alpha spec sross alpha / beta (smears)	METHOD F	PRESERVATION METHOD None 1@4 oz. plastic None 1 plastic bag	SAMPLE COLLECTED
~3' SUU SAMPLE E Z K Z K	" & 4" & 0.5" pt rface wi insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC SROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP)	METHOD METHOD NUMBER ASTM 3972-90M EPA 800.0 EPA 1311/6010/7470	BOTTLE TYPE/ FRESERVATION VOLUME METHOD REQUIRED Nane 1@4 oz. plastic None 1 plastic bag Caol 4°C 1@ 8 oz. glass	sample
~3' SUU SAMPLE Z K Z K Z F	"X 4" X.O.5" pl rface w/ insue Parameter Sotopic Uranium (Alpha Spec Sross Alpha / Beta (Smears) RCRA METALS (TCLP) PCBS	METHOD ALLION ON UN NUMBER ASTM 3972-80M EPA 800.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ FRESERVATION VOLUME METHOD REQUIRED None 1@4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED
~3' SUU SAMPLE Z K C G X F C F	" & 4" & 0.5" pt rface wi insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC SROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP)	METHOD METHOD NUMBER ASTM 3972-90M EPA 800.0 EPA 1311/6010/7470	BOTTLE TYPE/ FRESERVATION VOLUME METHOD REQUIRED Nane 1@4 oz. plastic None 1 plastic bag Caol 4°C 1@ 8 oz. glass	SAMPLE COLLECTED
~3' SUU SAMPLE E X K X F C F A	" x 4" x 0.5" pü rface wi insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC BROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	EOTTLE TYPE/ VICUME RESERVATION METHOD None None Cool 4°C Cool 4°C None Cool 4°C None Cool 4°C None Cool 4°C None Cool 4°C Cool 4	SAMPLE COLLECTED
~3' SUU SAMPLE E X K X F C F A	" & 4" & 0.5" pl rface w/ insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC BROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ FRESERVATION VOLUME METHOD REQUIRED None 1@4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED
~3' SUU SAMPLE E X & X F C F C A	" & 4" & 0.5" pl rface w/ insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC BROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ VOLUME METHOD REQUIRED Nane 1@4 oz. plastic None 1 plastic bag Cool 4°C 1@8 oz. glass Cool 4°C 1@4 oz. glass Cool 4°C 1@4 oz. glass None 1@4 oz. plastic Mone 1@4 oz. plastic	SAMPLE COLLECTED SAMPLE COLLECTED SM D D D D D D D D D D D D D D D D D D
~3' SUU SAMPLE E X K X F C F C A	" & 4" & 0.5" pl rface w/ insue E ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC BROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ VOLUME METHOD REQUIRED Nane 1@4 oz. plastic None 1 plastic bag Cool 4°C 1@8 oz. glass Cool 4°C 1@4 oz. glass Cool 4°C 1@4 oz. glass None 1@4 oz. plastic Mone 1@4 oz. plastic	SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE COLLECTED SAMPLE SAMPLE COLLECTED SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SA

RADIOLOGICAL · ENVIRONME	ERVICES		D DATA RECORD	
ROJECT ARL Building 1103A Characte	**************************************			6/1106
OCATION ID 1103A - Office		TART 0730 END 0830	CONTAINER TIME	
IELD SAMPLE ID <u>CL-A17</u>	(2)	QC SAMPLES COLL	ected n/a	· · · · · · · · · · · · · · · · · · ·
SAMPLE DATA	MATERIAL		ON	
	WALLBOARD (W		DECON FLUIDS USE	D:
TYPE OF SAMPLE: KIDISCRETE	CEILING TILE (CL	.) HAND CORER / AUGEI	R DI WATER N2 PU	RGE
COMPOSITE	FLOOR TILE (FL)	S.S. SPOON		Ŕ
	PAINT CHIP (PT)	S.S. SHOVEL / TROWN	•	
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	DIHER DI (	Dater
outer office	OTHER	GEOPROBE		
		COTHER CAZON	RINSATE BLANK ID _	
RADIOLOGICAL MEASUREMENTS AT SA	MPLE LOCATION			
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLEC	CTION DETECTOR	METER	
cpm	cpm	Туре:	Туре:	<u>.</u>
		Serial No.:	Serial No.:	
SAMPLE OBSERVATIONS (e.g., location, ~4"x7"x0,5" pic SURFACE W/INSUU	texture, color, odor, etc.) CU Of drop- ation on i	ceiling tile; ha interior side; d	urder, pebbly ny.	outer
SAMPLE OBSERVATIONS (e.g., location, ~4"X7"X0.5" pil SURFACE WINSUU	texture, color, odor, etc.) CL Of drOp AtLON ON C	ceiling tile; ha interior side; d	urder, pebbly nj.	outer
SAMPLE OBSERVATIONS (e.g., location, ~4"x7"x0.5" pie Surface Winsul	texture, color, odor, etc.) CU Of drop Ation on i	BOTTLET	TYPE/	outer
~4"x7" x 0.5" pie surface wiinsul	texture, color, odor, etc.) CC Of drop atton on C METHOD NUMBER		TYPE/ /E SAMPLE	outer
~ 4" x 7" x 0.5" pie surface winsul sample analyses <u>PARAMETER</u>	ec of drop ation on i METHOD NUMBER	BOTTLE T PRESERVATION VOLUN	TYPE/ ME SAMPLE <u>SED COLLECTED</u>	outer
~ 4" x 7" x 0.5" pie surface winsul sample analyses <u>PARAMETER</u>	ec of drop ation on i METHOD NUMBER	BOTTLE 1 PRESERVATION VOLUA <u>METHOD REQUIR</u>	TYPE/ /E SAMPLE RED <u>COLLECTED</u> plastic <b>IX</b>	outer
~ 4" x 7" x 0.5" pú SURFACE WIINSUU SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC)	METHOD NUMBER ) ASTM 3972-90M	BOTTLE 1 PRESERVATION VOLUA <u>METHOD REQUIF</u> None 1@4 oz.;	PYPE/ /E SAMPLE <u>ED COLLECTED</u> plastic <b>X</b> bag	outer
<ul> <li>~ 4" x '4" x 0.5" pie surface winsul</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> <li>PCBS</li> </ul>	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE T PRESERVATION VOLUM <u>METHOD RECUIR</u> None 1 @ 4 oz. ; None 1 plastic Cool 4°C 1 @ 8 oz. Cool 4°C 1 @ 4 oz.	TYPE/ ME SAMPLE ED <u>COLLECTED</u> plastic <b>IX</b> glass <b>IX</b> glass <b>IX</b>	outer
<ul> <li>~ 4" x 4" x 0.5" pie surface winsul</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> </ul>	<u>метнор</u> <u>NUMBER</u> ) ASTM 3972-90M ЕРА 900.0 ЕРА 1311/8010/7470	BOTTLE T PRESERVATION VOLUN <u>METHOD RECUIR</u> None 1 @ 4 oz. ; None 1 plastic Cool 4°C 1 @ 8 oz.	TYPE/ ME SAMPLE ED <u>COLLECTED</u> plastic <b>IX</b> glass <b>IX</b> glass <b>IX</b>	outer
<ul> <li>~ 4" x 4" x 0.5" pic surface winsul</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> <li>PCBS</li> <li>ASBESTOS</li> <li>NOTES</li> </ul>	METHOD NUMBER ) ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082 NIOSH 7400	BOTTLE T PRESERVATION VOLUM <u>METHOD RECUIR</u> None 1 @ 4 oz. ; None 1 plastic Cool 4°C 1 @ 8 oz. Cool 4°C 1 @ 4 oz.	PYPE/ AE SAMPLE SED <u>COLLECTED</u> plastic <b>X</b> bag glass <b>X</b> glass <b>D</b> plastic <b>D</b>	outer
~ 4" x 4" x 0.5" pit surface winsul SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) X RCRA METALS (TCLP) PCBS ASBESTOS NOTES	METHOD NUMBER ) ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082 NIOSH 7400	BOTTLET PRESERVATION VOLUM <u>METHOD</u> RECUIR None 1@4 oz. ; None 1 plastic Cool 4°C 1@8 oz. Cool 4°C 1@4 oz. ; None 1@4 oz. ; None 1@4 oz. ; ted from this 100	TYPE/ ME SAMPLE RED <u>COLLECTED</u> plastic <b>X</b> glass <b>X</b> glass <b>X</b> plastic <b>1</b> cution .	
<ul> <li>~ 4" x 4" x 0.5" pit surface winsul</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> <li>PCBS</li> <li>ASBESTOS</li> <li>NOTES</li> </ul>	METHOD NUMBER ) ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082 NIOSH 7400	BOTTLE T PRESERVATION VOLUM <u>METHOD</u> REQUIF None 1 @ 4 oz. ; None 1 plastic Cool 4°C 1 @ 8 oz. Cool 4°C 1 @ 4 oz. ; None 1 @ 4 oz. ; None 1 @ 4 oz. ; <b>ted from His 100</b> SAMPLED BY:	PYPE/ AE SAMPLE SED <u>COLLECTED</u> plastic <b>X</b> bag glass <b>X</b> glass <b>D</b> plastic <b>D</b>	

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PROJECT ARL B	uilding 1103A Characteriz	ation	OB NUMBER 05-3060.06, Task 3	DATE5-24-06
LOCATION ID	1103A	ACTIVITY TIME START	0415 END 1210	
FIELD SAMPLE ID	CLPT-AOI		QC SAMPLES COLLECTED	nia
SAMPLE DATA		MATERIAL:	EQUIPMENT INFORMATION	
		WALLBOARD (WL)	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE:		CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
	COMPOSITE	FLOOR TILE (FL)	S.S. SPOON	POTABLE WATER
		PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORE		SMEAR (SM)	S.S. SPATULA	XOTHER DI WAter
Smear #	142		GEOPROBE	
				NINSATE BLANK ID
RADIOLOGICAL M	EASUREMENTS AT SAMP	PLE LOCATION		
BEFORE SAMPLE (	COLLECTION	AFTER SAMPLE COLLECTION	DETECTOR	METER
9 x /275B	cpm	cpm	туре: <u>43-89</u>	Type: 2224
<b>i</b> '			Serial No.: 469	Serial No.:
	ATIONS (e.g., location, tex paint chil		f of ceiling.	
			f of ceiling.	
			f of ceiling.	
	paint chip	os, peeting of	of cuiling. BOTTLE TYPE/ VOLUME	SAMPLE
Brey	paint chip	PS, peeting of	BOTTLE TYPE/	SAMPLE COLLECTED
Grey SAMPLE ANALYSE PARAMETED	paint chip	PS, peeting of	BOTTLE TYPE/ SERVATION VOLUME	
Grey SAMPLE ANALYSE PARAMETEI SOTOPIC U GROSS ALF	paint chij s R RANIUM (ALPHA SPEC) PHA / BETA (SMEARS)	METHOD PRES NUMBER M ASTM 3972-90M EPA 900.0	BOTTLE TYPE/ SERVATION VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag	
SAMPLE ANALYSE PARAMETER SOTOPIC U GROSS ALF	paint chij s R RANIUM (ALPHA SPEC) PHA / BETA (SMEARS)	DS         peeting         of           METHOD         PRES         M           NUMBER         M         M           ASTM 3972-90M         EPA 900.0         EPA 1311/6010/7470         C	BOTTLE TYPE/ SERVATION VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag tooi 4°C 1 @ 6 oz. glass	
SAMPLE ANALYSE PARAMETEI SI ISOTOPIC U GROSS ALF SI RCRA META SI PCBS	paint chij s R RANIUM (ALPHA SPEC) PHA / BETA (SMEARS)	DS         peeting         of           METHOD         PRES           NUMBER         M           ASTM 3972-90M         EPA 900.0           EPA 1311/6010/7470         C           EPA 8082         C	BOTTLE TYPE/ SERVATION VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag tooi 4°C 1 @ 6 oz. glass tool 4°C 1 @ 4 oz. glass	
SAMPLE ANALYSE PARAMETER SOTOPIC U GROSS ALF	paint chij s R RANIUM (ALPHA SPEC) PHA / BETA (SMEARS)	DS         peeting         of           METHOD         PRES         M           NUMBER         M         M           ASTM 3972-90M         EPA 900.0         EPA 1311/6010/7470         C	BOTTLE TYPE/ SERVATION VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag tooi 4°C 1 @ 6 oz. glass	
SAMPLE ANALYSE PARAMETER SOTOPIC U GROSS ALF C RCRA META PCBS ASBESTOS NOTES	paint chip s RANIUM (ALPHA SPEC) HA / BETA (SMEARS) ALS (TCLP) E	METHOD         PRES           NUMBER         M           ASTM 3972-90M         EPA 900.0           EPA 1311/8010/7470         C           EPA 8082         C           NIOSH 7400         C	BOTTLE TYPE/ VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag tool 4°C 1 @ 6 oz. glass tool 4°C 1 @ 4 oz. glass None 1 @ 4 oz. plastic	
SAMPLE ANALYSE PARAMETER SOTOPIC U GROSS ALF C RCRA META PCBS ASBESTOS NOTES	paint chip s RANIUM (ALPHA SPEC) HA / BETA (SMEARS) ALS (TCLP) E	METHOD         PRES           NUMBER         M           ASTM 3972-90M         EPA 900.0           EPA 1311/8010/7470         C           EPA 8082         C           NIOSH 7400         C	BOTTLE TYPE/ SERVATION VOLUME ETHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag tooi 4°C 1 @ 6 oz. glass tool 4°C 1 @ 4 oz. glass	
SAMPLE ANALYSE PARAMETER SOTOPIC U GROSS ALF C RCRA META PCBS ASBESTOS NOTES	paint chip s RANIUM (ALPHA SPEC) HA / BETA (SMEARS) ALS (TCLP) E	METHOD         PRES           NUMBER         M           ASTM 3972-90M         EPA 900.0           EPA 1311/8010/7470         C           EPA 8082         C           NIOSH 7400         C	BOTTLE TYPE/ VOLUME ETHOD REQUIRED None 1@4 oz. plastic None 1 plastic bag tool 4°C 1@6 oz. glass tool 4°C 1@4 oz. glass None 1@4 oz. plastic <b>r of maun Work</b>	

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,	1103A Characteria		-	05-3060.06, Task 3	DATE	5-8
	03A		ART 0915 END	D 1210	CONTAINER TIME	
FIELD SAMPLE ID	CLPT-A	02	QC SA		nla	
SAMPLE DATA		MATERIAL:	EQUIPMEN	T INFORMATION		
		WALLBOARD (WL)	EQUIPMENT	USED:	DECON FLUIDS USE	D;
TYPE OF SAMPLE:		CEILING TILE (CL)	HAND C	ORER / AUGER	DI WATER N2 PU	RGE
	COMPOSITE	FLOOR TILE (FL)	S.S. SP	OON	POTABLE WATER	र
		PAINT CHIP (PT)	K S.S. SH	OVEL/TROWEL	LIQUINOX SOLUT	ION
LOCATION COORDINATE	ES	SMEAR (SM)	S.S. SP/	ATULA	THER DI U	Vat
Snear #			GEOPR	OBE		
					RINSATE BLANK ID	
RADIOLOGICAL MEASU	REMENTS AT SAM	PLE LOCATION		, <u>,</u> ,		
BEFORE SAMPLE COLLI					METER	
4 <u>A / 315B</u> cpm	ECTION	AFTER SAMPLE COLLECTI		43-89	метек Туре: <b>2.23</b>	14
τ <u>~/2/35</u> cpm		cpm		469	Serial No.:	
SAMPLE OBSERVATION		xture, color, odor, etc.) ups , peting	g from ce	iuing.		
			g from ce	illing.		
			g from ce	illing.		
Grey f			g from ce			
Grey F		иря, ресини	PRESERVATION	BOTTLE TYPE/ VOLUME	SAMPLE	
Grey F SAMPLE ANALYSES PARAMETER	baint ch	METHOD	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	COLLECTED	
Grey F SAMPLE ANALYSES PARAMETER SOTOPIC URANI	UM (ALPHA SPEC)	METHOD NUMBER ASTM 3972-90M	PRESERVATION <u>METHOD</u> None	BOTTLE TYPE/ VOLUME <u>RECUIRED</u> 1 @ 4 oz. plastic		
Grey F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIE GROSS ALPHA / E	UM (ALPHA SPEC) JETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0	PRESERVATION <u>METHOD</u> None None	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag		
GROSS ALPHA / E C RCRA METALS (T	UM (ALPHA SPEC) JETA (SMEARS)	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	PRESERVATION <u>METHOD</u> None None Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass		
SAMPLE ANALYSES PARAMETER SISOTOPIC URANIE GROSS ALPHA / E SI RCRA METALS (T SI PCBS	UM (ALPHA SPEC) JETA (SMEARS)	<u>МЕТНОР</u> <u>NUMBER</u> ASTM 3972-80M ЕРА 900.0 ЕРА 1311/6010/7470 ЕРА 8062	PRESERVATION <u>METHOD</u> None None Cool 4°C Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass 1 @ 4 oz. glass		
GROSS ALPHA / E C RCRA METALS (T	UM (ALPHA SPEC) JETA (SMEARS)	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	PRESERVATION <u>METHOD</u> None None Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass		
GREY F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANN GROSS ALPHA / E SI RCRA METALS (T SI PCBS ASBESTOS	UM (ALPHA SPEC) JETA (SMEARS) TCLP)	<u>МЕТНОД</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	PRESERVATION <u>METHOD</u> None None Cool 4°C Cool 4°C None	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. plastic		
GREY F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANN GROSS ALPHA / E SI RCRA METALS (T SI PCBS ASBESTOS	UM (ALPHA SPEC) JETA (SMEARS) TCLP)	<u>МЕТНОД</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	PRESERVATION <u>METHOD</u> None None Cool 4°C Cool 4°C None	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. plastic		n, a
GREY F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANN GROSS ALPHA / E SI RCRA METALS (T SI PCBS ASBESTOS	UM (ALPHA SPEC) JETA (SMEARS) TCLP)	<u>МЕТНОД</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	PRESERVATION <u>METHOD</u> None Cool 4°C Cool 4°C Cool 4°C None	BOTTLE TYPE/ VOLUME REQUIRED 1@4 oz. plastic 1 plastic bag 1@6 oz. glass 1@4 oz. glass 1@4 oz. plastic	COLLECTED X X X Work roor	n, c
Grey F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANII GROSS ALPHA / E SI RCRA METALS (T SI PCBS ASBESTOS	UM (ALPHA SPEC) JETA (SMEARS) TCLP)	<u>МЕТНОР</u> <u>NUMBER</u> ASTM 3972-80M ЕРА 900.0 ЕРА 1311/6010/7470 ЕРА 8062	PRESERVATION <u>METHOD</u> None Cool 4°C Cool 4°C Cool 4°C None	BOTTLE TYPE/ VOLUME REQUIRED 1@4 oz. plastic 1 plastic bag 1@6 oz. glass 1@4 oz. glass 1@4 oz. plastic	COLLECTED X X X Work roor	n, a
Grey F SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIE GROSS ALPHA / E SI RCRA METALS (T SI RCRA METALS (T SI PCBS ASBESTOS	UM (ALPHA SPEC) JETA (SMEARS) TCLP)	<u>МЕТНОД</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	PRESERVATION <u>METHOD</u> None Cool 4°C Cool 4°C Cool 4°C None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1@4 oz. plastic 1 plastic bag 1@6 oz. glass 1@4 oz. glass 1@4 oz. plastic		n, a

PROJECT ARL Building 1103A Characterize	ation	JOB NUMBER 05-3060.06, Task 3 DATE 5-26
LOCATION ID BRL12	ACTIVITY TIME STA	RT 0430 END 1200 CONTAINER TIME
FIELD SAMPLE ID CLPT-BO3	3	QC SAMPLES COLLECTED NIA
SAMPLE DATA	MATERIAL	
	WALLBOARD (WL)	EQUIPMENT USED: DECON FLUIDS USED:
TYPE OF SAMPLE: XDISCRETE	CEILING TILE (CL)	HAND CORER / AUGER
COMPOSITE	FLOOR TILE (FL)	S.S. SPOON POTABLE WATER
	PAINT CHIP (PT)	S.S. SHOVEL / TROWEL
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA DI WATE
Smear #188	OTHER	GEOPROBE
		OTHER RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAME	PLE LOCATION	
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	DN DETECTOR METER
1 x /171 B cpm	cpm	туре: 43-89 туре: 2224
····		Serial No.: 199350 Serial No.:
SAMPLE OBSERVATIONS (e.g., location, te)		
Toplance	lucal nation	Kabing maling Ann pailing
Tan/cream co	lored paint	t chips, peeling from ceiling.
Tan/cream co	lored paint	chips, peeling from ceiling.
Tan/cream co	lored paint	chips, peeling from ceiling.
Tan/cream co	lored paint	chips, peeling from ceiling.
Tan/cream co	lored paint	enips, peeling from ceiling.
SAMPLE ANALYSES		BOTTLE TYPE/
SAMPLE ANALYSES	METHOD 1	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE
SAMPLE ANALYSES PARAMETER	METHOD S NUMBER	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
SAMPLE ANALYSES  PARAMETER  SI ISOTOPIC URANIUM (ALPHA SPEC)  GROSS ALPHA / BETA (SMEARS)  K RCRA METALS (TCLP)	METHOD S NUMBER ASTM 3972-90M	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE <u>METHOD REQUIRED COLLECTED</u> None 1 @ 4 oz. plastic X
SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD 9 NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE <u>METHOD REQUIRED COLLECTED</u> None 1 @ 4 oz. plastic X
SAMPLE ANALYSES  PARAMETER  SIGTOPIC URANIUM (ALPHA SPEC)  GROSS ALPHA / BETA (SMEARS)  KRCRA METALS (TCLP)	METHOD 9 NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED None 1 @ 4 oz. plastic X None 1 plastic bag Cool 4°C 1 @ 8 oz. glass X
SAMPLE ANALYSES PARAMETER SAMPLE ANALYSES GROSS ALPHA / BETA (SMEARS) SAMETALS (TCLP) SAMETALS	METHOD 9 NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE <u>METHOD REQUIRED COLLECTED</u> None 1 @ 4 oz. plastic X None 1 plastic bag Cool 4°C 1 @ 8 oz. glass X Cool 4°C 1 @ 4 oz. glass X None 1 @ 4 oz. plastic None 1 @ 4 oz. plastic
SAMPLE ANALYSES PARAMETER SIGOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) SAMETALS (TCLP) SAMETALS	METHOD 9 NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE <u>METHOD REQUIRED COLLECTED</u> None 1 @ 4 oz. plastic X None 1 plastic bag Cool 4°C 1 @ 8 oz. glass X Cool 4°C 1 @ 4 oz. glass X None 1 @ 4 oz. plastic None 1 @ 4 oz. plastic
SAMPLE ANALYSES  PARAMETER  SI ISOTOPIC URANIUM (ALPHA SPEC)  GROSS ALPHA / BETA (SMEARS)  RCRA METALS (TCLP)  SI PCBS ASBESTOS  NOTES	METHOD 9 NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400	BOTTLE TYPE/ PRESERVATION VOLUME SAMPLE <u>METHOD REQUIRED COLLECTED</u> None 1 @ 4 oz. plastic X None 1 plastic bag Cool 4°C 1 @ 8 oz. glass X Cool 4°C 1 @ 4 oz. glass X None 1 @ 4 oz. plastic None 1 @ 4 oz. plastic

PROJECT ARL Building 1103A Characte	rization	JOB NUMBER	05-3060.06, Task 3	DATE <u>5</u>	-26-0
LOCATION ID Vault		TART 0730 EI	ND 1200	CONTAINER TIME	
FIELD SAMPLE ID	04		AMPLES COLLECTER	nla	
SAMPLE DATA	MATERIAL	EQUIPME	INT INFORMATION	<u> </u>	
TYPE OF SAMPLE: XDISCRETE	WALLBOARD (WL CEILING TILE (CL) FLOOR TILE (FL) PAINT CHIP (PT)	HAND	CORER / AUGER	DECON FLUIDS USED:	N
LOCATION COORDINATES SMULLY # 195	SMEAR (SM)		PATULA ROBE R	Image: State	later
RADIOLOGICAL MEASUREMENTS AT SA	MPLE LOCATION	I			
BEFORE SAMPLE COLLECTION		Type: Serial I	<u>43-89</u> No: <u>199350</u>	METER Type: <u>222</u> Serial No.:	
1 <u>\$1648</u> cpm	cpm texture, color, odor, etc.)	Type: Serial I	<u>43-89</u> No: <u>199350</u>	Type: Serial No.:	
<u>メーロークス</u> cpm SAMPLE OBSERVATIONS (e.g., location,	cpm texture, color, odor, etc.)	Type: Serial I	<u>43-89</u> No: <u>199350</u>	Type: Serial No.:	
<u>メーロークス</u> cpm SAMPLE OBSERVATIONS (e.g., location,	cpm texture, color, odor, etc.)	Type: Serial I	<u>43-89</u> No: <u>199350</u>	Type: Serial No.:	
SAMPLE OBSERVATIONS (e.g., location, RUST-COLOT PAU SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC GROSS ALPHA / BETA (SMEARS) K RCRA METALS (TCLP)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	Type: Serial PRESERVATION METHOD None None Cool 4°C	43-89 No: <u>199350</u> Om CeiUA DM CeiUA BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1@4 oz. plastic 1 plastic bag 1@8 oz. glass	Type: Serial No.: 79 - 79 - SAMPLE <u>COLLECTED</u> X X 	
I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I	METHOD NUMBER ASTM 3972-90M EPA 900.0	Type: Serial Deceing for Deceing for Decei	<u>43-89</u> No: <u>199350</u> DM CLUU DM CLUME REQUIRED 1@4 oz. plastic 1 plastic bag	Type: Serial No.: 79 - 79 - SAMPLE <u>COLLECTED</u> X	
SAMPLE OBSERVATIONS (e.g., location, CUST-COIOT POUR SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) CBS	срт texture, color, odor, etc.) <i>Df ChipS</i> ; <i>P</i> <u>METHOD</u> <u>NUMBER</u> ) ASTM 3972-90M ЕРА 900.0 ЕРА 1311/6010/7470 ЕРА 8082	Type: Serial PRESERVATION METHOD None None Cool 4°C Caol 4°C	43-89 No: 199350 OM CEIUI BOTTLE TYPE/ VOLUME REQUIRED 1@4 oz. plastic 1 plastic bag 1@6 oz. glass 1@4 oz. glass 1@4 oz. glass	Type: Serial No.: 79 - 79 - SAMPLE <u>COLLECTED</u> X X 	

PROJECT ARL Building 1103A Character	ization	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-06
LOCATION ID 1103A		ART 1210 END 1400	
FIELD SAMPLE ID FL-A19		QC SAMPLES COLLECTED	nla
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION	
		) EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE		HAND CORER / AUGER	DI WATER N2 PURGE
COMPOSITE	FLOOR TILE (FL)	S.S. SPOON	
		S.S. SHOVEL / TROWEL	
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	XOTHER DI WALLY
			RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SA		. <u> </u>	
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLEC	TION DETECTOR	METER
¢pm	cpm	Туре:	Туре:
		Serial No.:	Serial No.:
SAMPLE OBSERVATIONS (e.g., location, t	exture, color, odor, etc.}		
SAMPLE OBSERVATIONS (e.g., location, t	exture, color, odor, etc.)		
SAMPLE OBSERVATIONS (e.g., location, t	exture, color, odor, etc.)		
SAMPLE ANALYSES	METHOD	BOTTLE TYPE/ PRESERVATION VOLUME	SAMPLE
SAMPLE ANALYSES PARAMETER	METHOD NUMBER	PRESERVATION VOLUME METHOD REQUIRED	COLLECTED
SAMPLE ANALYSES PARAMETER [X] ISOTOPIC URANIUM (ALPHA SPEC)	METHOD NUMBER ASTM 3972-80M	PRESERVATION VOLUME <u>METHOD</u> REQUIRED None 1@4 oz. plastic	
SAMPLE ANALYSES PARAMETER	METHOD NUMBER	PRESERVATION VOLUME <u>METHOD</u> REQUIRED None 1@4 oz. plastic	COLLECTED
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0	PRESERVATION METHOD         VOLUME REQUIRED           None         1 @ 4 oz. plastic           None         1 plastic bag	
SAMPLE ANALYSES         PARAMETER         X       ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         X       RCRA METALS (TCLP)	METHOD NUMBER ASTM 3972-80M EPA 900.0 EPA 1311/6010/7470	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass	
SAMPLE ANALYSES         PARAMETER         X       ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         X       RCRA METALS (TCLP)         X       PCBS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass	
SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         X         RCRA METALS (TCLP)         X         PCBS         ASBESTOS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass       None     1 @ 4 oz. plastic	
SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         X         RCRA METALS (TCLP)         X         PCBS         ASBESTOS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass       None     1 @ 4 oz. plastic	

PROJECT ARL B	uilding 1103A Characteri:	zation	OB NUMBER 05-3060.06, Task 3	DATE	5-24-06
LOCATION ID	1103A	ACTIVITY TIME START	END	CONTAINER TIME	
FIELD SAMPLE ID	FL-AZ	.1	QC SAMPLES COLLECTER	nla	
SAMPLE DATA		MATERIAL:	EQUIPMENT INFORMATION		
			EQUIPMENT USED:	DECON FLUIDS USED	):
TYPE OF SAMPLE		CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PUR	RGE
	COMPOSITE	FLOOR TILE (FL)	S.S. SPOON	POTABLE WATER	
		PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	Πμαυινόχ solutio	ON
LOCATION COOR		SMEAR (SM)	S.S. SPATULA	XOTHER DI U	Jater
Core	#2	TOTHER	GEOPROBE		
		footing material		RINSATE BLANK ID	
	IEASUREMENTS AT SAM		DETECTOR	METER	
BEFORE SAMPLE		AFTER SAMPLE COLLECTION	Type: Serial No.;		
SAMPLE OBSERV	cpm /ATIONS (e.g., location, te	cpm	Type:	Serial No.:	
SAMPLE OBSERV BIACA SAMPLE ANALYSI PARAMETE ISOTOPIC	CPM ATIONS (e.g., location, to PUCC OF 7	exture, color, odor, etc.) POOLING MATERIA METHOD PRE	Type: Serial No.;	Serial No.:	
SAMPLE OBSERV BIOCO SAMPLE ANALYSI PARAMETE SAMPLE ANALYSI GROSS AL	COM (ATIONS (e.g., location, to C PUCC OF 1 ES ES ER URANIUM (ALPHA SPEC) PHA/BETA (SMEARS) ALS (TCLP)	cpm exture, color, odor, etc.) footing materia footing materia METHOD PRE <u>NUMBER M</u> ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 (	Type:	Serial No.:	

	ng 1103A Characteri	zation	JOB NUMBER 05-3060.06, Task 3	DATE <u>5-24-06</u>
OCATION ID	1103A		ART 1210 END 1400	
FIELD SAMPLE ID	FL-R43		QC SAMPLES COLLECTE	o nla
SAMPLE DATA	<u></u> ,	MATERIAL	EQUIPMENT INFORMATION	
		WALLBOARD (WL)	) EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE:		CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
[		FLOOR TILE (FL)	S.S. SPOON	POTABLE WATER
		PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINA	TES	SMEAR (SM)	S.S. SPATULA	XOTHER DI Water
_ Core#1		OTHER	GEOPROBE	
		concrete core	OTHER	RINSATE BLANK ID
RADIOLOGICAL MEAS	SUREMENTS AT SAM	IPLE LOCATION		
BEFORE SAMPLE COL	LECTION	AFTER SAMPLE COLLECT	TON DETECTOR	METER
cpm	ı	cpm	Туре:	Туре:
			Serial No.:	Serial No.:
		epth.		
SAMPLE ANALYSES		метнор	BOTTLE TYPE/ PRESERVATION VOLUME	SAMPLE
		· ·		COLLECTED
SAMPLE ANALYSES PARAMETER SOTOPIC URA	NIUM (ALPHA SPEC)	METHOD NUMBER ASTM 3972-90M	PRESERVATION VOLUME <u>METHOD</u> VOLUME None 1@4 oz. plastic	
SAMPLE ANALYSES PARAMETER SI ISOTOPIC URAN GROSS ALPHA	NIUM (ALPHA SPEC) / BETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0	PRESERVATION         VOLUME           METHOD         REQUIRED           None         1 @ 4 oz. plastic           None         1 plastic bag	COLLECTED
SAMPLE ANALYSES PARAMETER SAMPLE ANALYSES PARAMETER GROSS ALPHA CRCRA METALS	NIUM (ALPHA SPEC) / BETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	PRESERVATION <u>METHOD</u> VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 6 oz. glass	COLLECTED
SAMPLE ANALYSES PARAMETER SALISOTOPIC URAN GROSS ALPHA RCRA METALS PCBS	NIUM (ALPHA SPEC) / BETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass	COLLECTED
SAMPLE ANALYSES PARAMETER SAMPLE ANALYSES PARAMETER GROSS ALPHA RCRA METALS	NIUM (ALPHA SPEC) / BETA (SMEARS) (TCLP)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	PRESERVATION <u>METHOD</u> VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 6 oz. glass	COLLECTED
SAMPLE ANALYSES PARAMETER SAMPLE ANALYSES PARAMETER ISOTOPIC URAN GROSS ALPHA GROSS ALPHA RCRA METALS PCBS ASBESTOS	NIUM (ALPHA SPEC) / BETA (SMEARS) (TCLP)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	PRESERVATION METHOD     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass	COLLECTED

i i	uilding 1103A Character		JOB NUMBER 05-3060.06, Task 3	DATE <u>5-25-06</u>
	1103A		RT 0830 END 0430	
FIELD SAMPLE ID	FL-R44	<u>+</u>	QC SAMPLES COLLECT	ed n/A
SAMPLE DATA		MATERIAL:	EQUIPMENT INFORMATION	
		WALLBOARD (WL)	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE:		CEIUNG TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
		FLOOR TILE (FL)	S.S. SPOON	
		PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORE		SMEAR (SM)	S.S. SPATULA	DI WALLY
_ Core #	2	THER	GEOPROBE	
		concrete core		RINSATE BLANK ID
RADIOLOGICAL M	EASUREMENTS AT SAN	MPLE LOCATION		
BEFORE SAMPLE	COLLECTION	AFTER SAMPLE COLLECTIO	DN DETECTOR	METER
	срт	cpm	Туре:	Туре:
	ATIONS (e.g., location, t With 6.5	exture, color, odor, etc.) '' UPHL.	Serial No.:	Serial No.:
			Serial No.:	Serial No.:
			Serial No.:	Serial No.:
	with 6.5	" depth.	BOTTLE TYPE/	, 
6" Core	s with 6.5	" depth.		
6" Core sample analyse <u>paramete</u>	s with 6.5	" depth. метнод г <u>NUMBER</u>	BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE COLLECTED
	S RE JRANIUM (ALPHA SPEC) PHA/BETA (SMEARS)	" <i>depth.</i> метнод f <u>NUMBER</u> ASTM 3972-90M EPA 900.0	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 4 oz. plastic None 1 plastic bag	
6" COTO SAMPLE ANALYSE PARAMETE SAMPLE ANALYSE PARAMETE GROSS ALI GROSS ALI	S RE JRANIUM (ALPHA SPEC) PHA/BETA (SMEARS)	" Дерна. Метнор р <u>NUMBER</u> АSTM 3972-90M ЕРА 900.0 ЕРА 1311/6010/7470	BOTTLE TYPE/ RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass	SAMPLE COLLECTED
6" CORE SAMPLE ANALYSE PARAMETE SAMPLE ANALYSE PARAMETE GROSS ALF GROSS ALF CRAMETE PCBS	S R IRANIUM (ALPHA SPEC) PHA/BETA (SMEARS) ALS (TCLP)	" Серна. METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED
6" COPE SAMPLE ANALYSE PARAMETE SCI ISOTOPIC I GROSS ALE RCRA MET	S R IRANIUM (ALPHA SPEC) PHA/BETA (SMEARS) ALS (TCLP)	" Дерна. Метнор р <u>NUMBER</u> АSTM 3972-90M ЕРА 900.0 ЕРА 1311/6010/7470	BOTTLE TYPE/ RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass	SAMPLE COLLECTED
6" COPE SAMPLE ANALYSE PARAMETE SAMPLE ANALYSE PARAMETE GROSS ALF GROSS ALF CRAMETE PCBS	S R IRANIUM (ALPHA SPEC) PHA/BETA (SMEARS) ALS (TCLP)	" Серна. METHOD F NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED

ROJECT ARL Building 1103A Character	ization	JOB NUMBER 05-3060.06, Task 3	date <u>5-24-06</u>	
OCATION ID 1103A	ACTIVITY TIME STAR	T 1210 END 1400		
IELD SAMPLE ID FL-R4	5	QC SAMPLES COLLECTER	nia	
SAMPLE DATA	MATERIAL			
TYPE OF SAMPLE: DISCRETE	WALLBOARD (WL) CEILING TILE (CL) FLOOR TILE (FL) PAINT CHIP (PT)	EQUIPMENT USED:	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION XOTHER DI WATEY	- 
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA		
RADIOLOGICAL MEASUREMENTS AT SA	MPLE LOCATION			
BEFORE SAMPLE COLLECTION			METER Type:	
SAMPLE OBSERVATIONS (e.g., location, 6" COTE With 4	texture, color, odor, etc.)	Serial No.:	Serial No.:	
SAMPLE OBSERVATIONS (e.g., location,	texture, color, odor, etc.)		Serial No.:	
SAMPLE OBSERVATIONS (e.g., location,	texture, color, odor, etc.) " depth.		SAMPLE COLLECTED	
SAMPLE OBSERVATIONS (e.g., location, 6" COPE WITH 4 SAMPLE ANALYSES	iexture, color, odor, etc.) " depth. METHOD PR NUMBER	Serial No.: BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE	
SAMPLE OBSERVATIONS (e.g., location, 6" COTE With 4 SAMPLE ANALYSES PARAMETER SISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082	Serial No.:	SAMPLE	

· · · - - - - - -

ICCATION ID 1103A			DATE <u>5-24-06</u>
FIELD SAMPLE ID FL-P.46		1210 END 1400	
		QC SAMPLES COLLECTED	nla
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION	
Ĺ	WALLBOARD (WL)	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: X DISCRETE	CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
COMPOSITE	FLOOR TILE (FL)	S.S. SPOON	POTABLE WATER
Γ	PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	
	SMEAR (SM)	S.S. SPATULA	XOTHER DI WATER
		GEOPROBE	
C	core		INSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMPLE L	OCATION		
BEFORE SAMPLE COLLECTION AFTE	ER SAMPLE COLLECTION	DETECTOR	METER
cpm	cpm	Туре:	Туре:
		Serial No.:	Serial No.:
SAMPLE ANALYSES		BOTTLE TYPE/ ESERVATION VOLUME	SAMPLE
		METHOD REQUIRED	COLLECTED
ISOTOPIC URANIUM (ALPHA SPEC) AST	TM 3972-90M	None 1 @ 4 oz. plastic	
GROSS ALPHA / BETA (SMEARS)	EPA 900.0	None 1 plastic bag	
		Cool 4°C 1 @ 8 oz. glass	
		Cool 4°C 1@4 oz. glass	
		N A C A un ula da	
	EPA 8092 IOSH 7400	None 1 @ 4 oz. plastic	
		None 1 @ 4 oz. plastic	

PROJECT ARL Building 1103A Character	ization	JOB NUMBER 05-3060.06, Task 3	DATE <u>5-24-06</u>	_
LOCATION ID 1103A		T 1210 END 1400		
FIELD SAMPLE ID FL-R4-	7	OC SAMPLES COLLECTED	nia	
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION	<u> </u>	
	WALLBOARD (WL) CEILING TILE (CL) FLOOR TILE (FL)	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER	
LOCATION COORDINATES	SMEAR (SM) Nother CONCRETE	S.S. SPATULA		
	core			
RADIOLOGICAL MEASUREMENTS AT SA	NPLE LOCATION			
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	Туре:	METER Type:	
		Serial No.:	Serial No.:	1
SAMPLE OBSERVATIONS (e.g., location, 1 6" COVE With 5"				
	depth	BOTTLE TYPE/		
6" Core with 5"	depth	BOTTLE TYPE/ RESERVATION VOLUME METHOD REQUIRED	SAMPLE <u>COLLECTED</u>	
6" CORE WITH 5" SAMPLE ANALYSES PARAMETER S ISOTOPIC URANIUM (ALPHA SPEC)	METHOD PR NUMBER ASTM 3972-90M	RESERVATION VOLUME METHOD REQUIRED None 1@4 oz. plastic		
6" CORE WITH 5" SAMPLE ANALYSES PARAMETER	METHOD PT	RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic	COLLECTED	
6" CORE WITH 5" SAMPLE ANALYSES PARAMETER SAMPLE ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD PR NUMBER ASTM 3972-90M EPA 900.0	RESERVATION VOLUME <u>METHOD</u> REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag	COLLECTED	
6" CORE WITH 5" SAMPLE ANALYSES PARAMETER S ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082	RESERVATION     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass	COLLECTED	
6 ["] CORE WITH 5" SAMPLE ANALYSES PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/8010/7470 EPA 8082	RESERVATION     VOLUME REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass       Cool 4°C     1 @ 4 oz. glass	COLLECTED	

CABRERA SEI			TA RECORD	
ROJECT ARL Building 1103A Characteriza	tion	JOB NUMBER 05-3060.06, Task 3	DATE	611106
	ACTIVITY TIME STAR	T 0700 END 0720	CONTAINER TIME	· <b></b>
ELD SAMPLE ID SM- AOL		QC SAMPLES COLLECTED	nla	
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION		
TYPE OF SAMPLE: DISCRETE	WALLBOARD (WL) CEILING TILE (CL) FLOOR TILE (FL) PAINT CHIP (PT)	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL	DECON FLUIDS USED	RGE
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	TOTHER DI	<u>Oater</u>
bathroom sink drain	OTHER	GEOPROBE	RINSATE BLANK ID	
RADIOLOGICAL MEASUREMENTS AT SAMP	LE LOCATION	· · · · · · · · · · · · · · · · · · ·		
	AFTER SAMPLE COLLECTIO	N DETECTOR Type: <u>Bluron</u>	METER	
cpm	<u>3 µrem</u> /kr.	Type: Serial No.: C853F	Туре:	
SAMPLE OBSERVATIONS (e.g., location, tex Paper towel is	ture, color, odor, etc.) WET, DATK.	brown jtan color,	serial No.:	
SAMPLE OBSERVATIONS (e.g., location, tex Paper towel is	ture, color, odor, otc.) Wet, Dark I			
Paper towel is	ture, color, odor, etc.) WET, DATK 3	brown jtan color,		
SAMPLE OBSERVATIONS (e.g., location, tex Paper towel is sample analyses parameter	wet, dark <del>1</del>			
Paper towel is	Wet, dark ?	BOTTLE TYPE/ RESERVATION	moldy odd	
Paper towel is sample analyses <u>parameter</u>	Wet, dark ? METHOD P NUMBER	BOTTLE TYPE/ VOLUME METHOD	moldy odd	
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	BOTTLE TYPE/ RESERVATION METHOD None None None Cool 4°C 1 @ 8 oz. glass	Moldy odd SAMPLE COLLECTED	
PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         RCRA METALS (TCLP)         PCBS	WETHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ VOLUME METHOD None None Cool 4°C Cool 4°C 1 @ 4 oz. glass Cool 4°C 1 @ 4 oz. glass	Moldy odd SAMPLE COLLECTED	
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) E	METHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	BOTTLE TYPE/ RESERVATION METHOD None None None Cool 4°C 1 @ 8 oz. glass	Moldy odd SAMPLE COLLECTED	
PAPER TOWEL is         SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         SGROSS ALPHA / BETA (SMEARS)         RCRA METALS (TCLP)         PCBS	WETHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ VOLUME METHOD None None Cool 4°C Cool 4°C 1 @ 4 oz. glass Cool 4°C 1 @ 4 oz. glass	Moldy odd SAMPLE COLLECTED	
PAPER TOWEL IS         SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         RCRA METALS (TCLP)         PCBS         ASBESTOS	WETHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ VOLUME METHOD None None Cool 4°C Cool 4°C 1 @ 4 oz. glass Cool 4°C 1 @ 4 oz. glass	Moldy odd SAMPLE COLLECTED	
SAMPLE ANALYSES PARAMETER SGTOPIC URANIUM (ALPHA SPEC) SGROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	WETHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ RESERVATION METHOD None 1@4 oz. plastic None 1@4 oz. glass Cool 4*C 1@4 oz. glass Cool 4*C 1@4 oz. glass None 1@4 oz. plastic	SAMPLE COLLECTED	or.
PAPER TOWEL IS         SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         RCRA METALS (TCLP)         PCBS         ASBESTOS	WETHOD P NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOTTLE TYPE/ RESERVATION METHOD None 1@4 oz. plastic None 1@4 oz. glass Cool 4*C 1@4 oz. glass Cool 4*C 1@4 oz. glass None 1@4 oz. plastic	Moldy ode SAMPLE COLLECTED CLATKE / D.	or.

			FIELD DAT	A RECORD C SAMPLING	
PROJECT ARL Building 1103A Characteri		JOB NUMBER 05-30		DATE _	6/1/06
LOCATION ID BLAG 1103A	ACTIVITY TIME START	0700 END 0	720	CONTAINER TIME	<b>م</b> ین.
FIELD SAMPLE ID SM - AOT			S COLLECTED	nla	
SAMPLE DATA	MATERIAL	EQUIPMENT INF	ORMATION		
	WALLBOARD (WL) CEILING TILE (CL) FLOOR TILE (FL)	EQUIPMENT USE	RIAUGER	DECON FLUIDS USE	JRGE R
LOCATION COORDINATES Shower drain	SMEAR (SM)	S.S. SPATULA		INSATE BLANK ID	water
RADIOLOGICAL MEASUREMENTS AT SAI	MPLE LOCATION				
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	Type:	•	METER Type: Serial No.:	
SAMPLE OBSERVATIONS (e.g., location, Paper towel is	texture, color, odor, etc.) WRT, DArk Orar	nge color,	moldy o	odor.	
SAMPLE ANALYSES         PARAMETER         ISOTOPIC URANIUM (ALPHA SPEC         ISOTOPIC URANIUM (ALPHA SPEC	NUMBER	RESERVATION METHOD None None Cool 4°C Cool 4°C	BOTTLE TYPE/ VOLUME REOURED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. plastic	SAMPLE COLLECTED	
NOTES					
		SAM	IPLED BY:	Clarke / D.	Kateley
				Driscoll	

				C SAMPLING	
ROJECT ARL Building 1103A Characteriz	ation	JOB NUMBER	05-3060.06, Task 3	DATE	6/1106
CATION ID 1103A		START <b>0700</b> EN	D 0720	CONTAINER TIME	
ELD SAMPLE ID SM-AO	8	QC SA	MPLES COLLECTED	nla	
SAMPLE DATA	MATERIAL	EQUIPME			
	WALLBOARD (V	VL) EQUIPMEN	T USED:	DECON FLUIDS USE	:D:
	CEILING TILE (C	L) HAND	ORER / AUGER	DI WATER N2 PL	IRGE
	FLOOR TILE (FL	_)	CON	POTABLE WATE	R
	PAINT CHIP (PT)	) S.S. Sł	IOVEL / TROWEL	LIQUINOX SOLU	
LOCATION COORDINATES	SMEAR (SM)	S.S. SF	ATULA	TOTHER DI	water
washing machine	OTHER	GEOP	ROBE		
drain				RINSATE BLANK ID	
RADIOLOGICAL MEASUREMENTS AT SAM	PLE LOCATION				
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLE	CTION DETEC	TOR	METER	
	4 premta		Bicron	Туре:	
			10.: C853F	Serial No.:	
SAMPLE OBSERVATIONS (e.g., location, te Paper tow.el is du	exture, color, odor, etc.) Y With E				
SAMPLE OBSERVATIONS (e.g., location, te	exture, color, odor, etc.) Y WÌth K				
SAMPLE OBSERVATIONS (e.g., location, te	y With K				
SAMPLE OBSERVATIONS (e.g., location, te Paper towel is d	ry with E	rown smi	LAGES, NO		
SAMPLE OBSERVATIONS (e.g., location, te Paper towel is d	wethod NUMBER		ldges, no	odor.	
SAMPLE OBSERVATIONS (e.g., location, te PAPER TOWEL IS OF	ry with k	PRESERVATION	Ldges, no Bottle Typer VOLUME	odor.	
SAMPLE OBSERVATIONS (e.g., location, te Paper towiel is description of the second statement of the second statement of the second seco	METHOD NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME REQUIRED	odor.	
SAMPLE OBSERVATIONS (e.g., location, te Paper towled is descent SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC)	METHOD NUMBER ASTM 3972-90M	PRESERVATION METHOD None	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic	SAMPLE COLLECTED	
SAMPLE OBSERVATIONS (e.g., location, te Paper towed is defined SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD NUMBER ASTM 3972-90M EPA 900.0	PRESERVATION METHOD None None	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag	SAMPLE COLLECTED	
SAMPLE OBSERVATIONS (e.g., location, te PAPER TOWEL IS CO SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP)	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	PRESERVATION METHOD Nane Nane Caol 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass	SAMPLE COLLECTED	
SAMPLE OBSERVATIONS (e.g., location, te PUPUE TOWEL IS CO SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8092	PRESERVATION METHOD Nane Nane Cool 4°C Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. glass	SAMPLE COLLECTED	
SAMPLE OBSERVATIONS (e.g., location, te Paper towel is defined SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8092	PRESERVATION METHOD Nane Nane Caol 4°C Caol 4°C Nane	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 plastic bag 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. plastic	SAMPLE COLLECTED	· · · · · · ·
SAMPLE OBSERVATIONS (e.g., location, te Paper towel is defined SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS	METHOD NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8092	PRESERVATION METHOD Nane Nane Caol 4°C Caol 4°C Nane	BOTTLE TYPE/ VOLUME REQUIRED 1 @ 4 oz. plastic 1 @ 8 oz. glass 1 @ 4 oz. glass 1 @ 4 oz. glass	SAMPLE COLLECTED	

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ROJECT ARL Building 1103A Characteriz	ation	JOB NUMBER 05-3060.06, Task 3	DATE 5-24-06
	ACTIVITY TIME START	1210 END 1400	
IELD SAMPLE IDSO-A17		QC SAMPLES COLLECTER	n na
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE <u>0-0.5 FT (BGS)</u> TYPE OF SAMPLE: DISCRETE COMPOSITE	TYPE OF SOIL:	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION OTHER DI WATER
	200		RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAM	PLE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	E DETECTOR Type: Serial No.:	1
SAMPLE OBSERVATIONS (e.g., location, te Midum brown S	xture, color, odor, etc.) Úty CLAY WI	th medium pia	sticity, slightly
SAMPLE OBSERVATIONS (e.g., location, te Midium brown S MOLST. SAMPLE ANALYSES PARAMETER DEPLETED URANUM (GAMMA SPEC RCRA MILTALS (TCLP)	METHOD PR NUMBER PEA 901.1M	COOL 4°C I @ SOZ GLO	SAMPLE COLLECTED

PROJECT ARL Building 1103A Characterization	JOB NUMBER	05-3060.06, Task 3	DATE 5-25
OCATION ID 1103A ACTIV	TYTIME START 0830 EN	<u>0430</u> co	
FIELD SAMPLE ID <u>SO-A20</u>	QC SA		10
SAMPLE DATA	EQUIPME	IT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BGS) TY	E OF SOIL: EQUIPMEN	T USED: DE	CON FLUIDS USED:
			DI WATER N2 PURGE
	SAND SAND	POON	POTABLE WATER
X	GRAVEL S.S. SH		LIQUINOX SOLUTION
	CLAY S.S. SF	ATULA 🔀	OTHER DI WALL
Anne Haa		ROBE	-
		RINSA	TÉ BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCAT	ON		
BEFORE SAMPLE COLLECTION AFTER SA	IPLE COLLECTION DETEC	TOR	METER
cpm	срт Туре:		Туре:
		lo.:	Serial No.:
SAMPLE OBSERVATIONS (e.g., location, texture, color MULTION BROWN SOFF CU	odor, etc.) Y With Some f	rnes, 30% gr	avel, sligh
SAMPLE OBSERVATIONS (e.g., location, texture, color MUUUM BIDUM SOFF CU MOLSF.	odor, etc.) Y With Some f	rnes, 3096 gr	avel,sligh
Medium brown soft cl	y with some f	BOTTLE TYPE/ VOLUME	avel, sligh sample
Medium brown soft clu moîst. sample analyses	uy with some f	BOTTLE TYPE/ VOLUME	SAMPLE COLLECTED
Medium brown soft clu MOIST. SAMPLE ANALYSES PARAMETER METH NUME DEPLETED URANIUM (GAMMA SPEC) EPA 90	DD PRESERVATION ER <u>METHOD</u> .1M None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic	SAMPLE COLLECTED
Medium brown soft clu MOIST. SAMPLE ANALYSES PARAMETER METH NUME DEPLETED URANIUM (GAMMA SPEC) EPA 90	by with some f PRESERVATION ER METHOD	BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER METH MIME METH MIME METH MIME METH MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MI	DD PRESERVATION ER <u>METHOD</u> .1M None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic	SAMPLE COLLECTED
Medium brown soft clamoist.         sample analyses         PARAMETER         Meth         NUME         DEPLETED URANIUM (GAMMA SPEC)         EPA 90	DD PRESERVATION ER <u>METHOD</u> .1M None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER METH MIME METH MIME METH MIME METH MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MIME MI	DD PRESERVATION ER <u>METHOD</u> .1M None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic	SAMPLE COLLECTED
Medium brown soft clu Moîst. SAMPLE ANALYSES PARAMETER METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME N	DD PRESERVATION ER <u>METHOD</u> .1M None 900.0 Cool 4°C	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic 1 @ 807 GIASS	SAMPLE <u>COLLECTED</u> (1) (2) (3) (3)
Medium brown soft clu moîst. sample analyses PARAMETER METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME METH NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUME NUM	DD PRESERVATION ER <u>METHOD</u> .1M None 900.0 Cool 4°C	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic 1 @ 807 GIASS	SAMPLE <u>COLLECTED</u> (1) (2) (3) (3)
Medium brown soft clu moîst. sample analyses <u>PARAMETER</u> METH <u>NUME</u> METH NUME METH NUME METH NUME EPA 90 EPA 90	DD PRESERVATION ER <u>METHOD</u> .1M None 900.0 Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1@18 oz. plastic 1@80z.glass i@80z.glass	sample <u>collected</u> (1) (2) (2) (2) ples were unterior
Medium brown soft cla moist. sample analyses PARAMETER DEPLETED URANIUM (GAMMA SPEC) EPA 90 K RCRA Metals (TCLP) EPA 90 EPA 90 C	DD PRESERVATION ER <u>METHOD</u> .1M None 900.0 Cool 4°C	BOTTLE TYPE/ VOLUME REQUIRED 1@18 oz. plastic 1@80z.glass i@80z.glass	sample <u>collected</u> (1) (2) (2) (2) ples were unterior
Medium brown soft clar         moist.         sample analyses         PARAMETER         METH         NUME         METH         NUME         RCRA Metals (TCLP)         EPA         I         I	DD PRESERVATION R PRESERVATION METHOD MOD.O COOL 4°C This location Fore boring, 100 1103A.	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 oz. plastic 1 @ 807 GIASS	sample <u>collected</u> (1) (2) (3) D ples were totenor ingance JM-1

ROJECT ARL BU	ilding 1103A Characterizati	on	OB NUMBER 05-3060.06, Task 3	DATE	5-24-06
OCATION ID	1103A	ACTIVITY TIME START	1210 END 1400	CONTAINER TIM	IE
IELD SAMPLE ID	SO-A30		QC SAMPLES COLLECTED	nla	
SAMPLE DATA			EQUIPMENT INFORMATION		
DEPTH OF SAMPLE	0-0.5 FT (BGS)	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS U	SED:
TYPE OF SAMPLE:		ORGANIC	HAND CORER / AUGER	DI WATER N2	PURGE
		SAND	S.S. SPOON		TER
		GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOL	UTION
LOCATION COORE	DINATES	CLAY	S.S. SPATULA	XOTHER DI	Water
Core	#3		GEOPROBE		
		- sút	OTHER	RINSATE BLANK ID	]
RADIOLOGICAL M	EASUREMENTS AT SAMPL	ELOCATION	······································	·······	
BEFORE SAMPLE	COLLECTION A	FTER SAMPLE COLLECTION	DETECTOR	METER	
	cpm	cpm	Тура:	Туре:	
			Serial No.:	Serial No.:	
SAMPLE OBSERV	ATIONS (e.g., location, text	ure, color, odor, etc.) AYEY SULt , 10	w plasticity .		
SAMPLE OBSERV	ATIONS (e.g., location, text	ure, color, odor, etc.) AYEY SULt , 10	w plasticity .		
Mediun	n brown Cl	ure, color, odor, etc.) AYUY SULt , 10	w plasticity .		
Medium SAMPLE ANALYSE	n brown Cl	METHOD PRE	BOTTLE TYPE/ ESERVATION VOLUME	SAMPLE	
Medium SAMPLE ANALYSE	n brown Cl	METHOD PRE	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED	COLLECTED	
Medium SAMPLE ANALYSE PARAMETE	n brown CL	METHOD PRE NUMBER EPA 801.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic		
SAMPLE ANALYSE PARAMETE COEPLETED C RCKA A	n brown Cl	METHOD PRE NUMBER EPA 801.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED		
Medium SAMPLE ANALYSE PARAMETE	n brown CL	METHOD PRE NUMBER EPA 801.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic		
SAMPLE ANALYSE PARAMETE COEPLETED C RCKA A	n brown CL	METHOD PRE NUMBER EPA 801.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic		
SAMPLE ANALYSE PARAMETE COEPLETED C RCKA A	n brown CL	METHOD PRE NUMBER EPA 801.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic		
Medium SAMPLE ANALYSE PARAMETE DEPLETED C RCRA A	N BROWN CLA ES ER O URANIUM (GAMMA SPEC) LETALS (TCLP)	METHOD PRE NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic COOI 4°C I @ 802 gl 0		)
Medium SAMPLE ANALYSE PARAMETE DEPLETED C RCRA A	N BROWN CLA ES ER O URANIUM (GAMMA SPEC) LETALS (TCLP)	METHOD PRE NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED None 1 @ 16 oz. plastic		)
Medium SAMPLE ANALYSE PARAMETE DEPLETED C RCRA A	N BROWN CLA ES ER O URANIUM (GAMMA SPEC) LETALS (TCLP)	METHOD PRE NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1@16 oz. plastic COOI 4°C I@802 gla from the core n of 1103A.	boring, li	) Deated in
Medium SAMPLE ANALYSE PARAMETE DEPLETED C RCRA A	N BROWN CLA ES ER O URANIUM (GAMMA SPEC) LETALS (TCLP)	METHOD PRE NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1@16 oz. plastic COOI 4°C I@802 gla from the core n of 1103A.	boring, li	)

. . . . . . . .

	on	JOB NUMBER 05-3060.06, Task 3	DATE 5-24-06
LOCATION ID 1103A		1210 END 1400	
FIELD SAMPLE ID SO-A33		QC SAMPLES COLLECTED	nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE <u>0-0.5 FT (BGS)</u> TYPE OF SAMPLE: DISCRETE COMPOSITE LOCATION COORDINATES <u>CORE #4</u>	TYPE OF SOIL: ORGANIC SAND GRAVEL CLAY OTHER SULC	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION OTHER DI WATER
RADIOLOGICAL MEASUREMENTS AT SAMPL	EL OCATION		
cpm	cpm	Туре:	
SAMPLE OBSERVATIONS (e.g., location, text Light brown s'uty ( growels.	ure, color, odor, etc.) UAY, SOFF CO	serial No.:	
Light brown silty	METHOD PR NUMBER EPA 801.1M		fine to medium sample <u>collecter</u> IXI (1)

CABRERA SERVICES	FIELD DA SURFACE / SUBSUR	FACE SOIL SAMPLING
ROJECT ARL Building 1103A Characterization	JOB NUMBER 05-3060.06, Task 3	DATE 5-24-06
	1210 END 1400	CONTAINER TIME
ELD SAMPLE IDSO-A36	QC SAMPLES COLLECTED	nla
SAMPLE DATA	EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BGS) TYPE OF SOIL	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: DISCRETE ORGANIC	HAND CORER / AUGER	DI WATER N2 PURGE
	S.S. SPOON	
GRAVEL	S.S. SHOVEL / TROWEL	
LOCATION COORDINATES	S.S. SPATULA	XOTHER DI WAter
Core # 5 [Xother sut	GEOPROBE	
ALL		RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION		
BEFORE SAMPLE COLLECTION AFTER SAMPLE COLLECTION	N DETECTOR	METER
cpmcpm	Туре:	Туре:
	Serial No.:	Serial No.:
SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.) Light to medium brown sitty	clay, medium	placticity.
SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.) Light to medium brown silty	clay, medium	plasticity.
sample analyses	CLAY, MLOUM BOTTLE TYPE/ RESERVATION METHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES	BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) EPA 901.1M SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) EPA 901.1M SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) EPA 901.1M SAMPLE ANALYSES	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> None 1@16 oz. plastic COOI 4°C. I@802 GIA	$SAMPLE \\ COLLECTED \\ SS (1) \\ (2) \\ (2) \\ (2) \\ (2) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) $
SAMPLE ANALYSES PARAMETER MUMBER MUMBER MUMBER MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF PF MUMBER PF PF PF PF PF PF PF PF PF PF	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1@16 oz. plastic COOI 4°C i@802 gla	sample collected ss X (1) Ca) Ca) Ca) Ca) Ca) Ca) Ca) Ca) Ca) Ca
SAMPLE ANALYSES PARAMETER MUMBER MUMBER MUMBER MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF MUMBER PF PF MUMBER PF PF PF PF PF PF PF PF PF PF	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1@16 oz. plastic COOI 4°C i@802 gla from the core b SAMPLED BY: W. 1	$SAMPLE \\ COLLECTED \\ SS (1) \\ (2) \\ (2) \\ (2) \\ (2) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) \\ (3) $

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PROJECT ARL Building 1103A Characterization	JOB NUMBER 05-3060.06, Task 3 DATE 6-1-06
OCATION ID Ady. Grounds ACTIVITY TIM	ME START 1000 END 1455 CONTAINER TIME
FIELD SAMPLE ID SO-GOI	QC SAMPLES COLLECTED <u>NIA</u>
SAMPLE DATA	EQUIPMENT INFORMATION
DEPTH OF SAMPLE 0-0.5 FT (BGS) TYPE OF S TYPE OF SAMPLE: DISCRETE ORGAN	NIC HAND CORER / AUGER DI WATER N2 PURGE S.S. SPOON POTABLE WATER EL S.S. SHOVEL / TROWEL DIQUINOX SOLUTION
LOCATION COORDINATES CLAY -195090.1/591364.2014 478376.21/201295.155	SUL S.S. SPATULA SOTHER DI WALLY
RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION	
BEFORE SAMPLE COLLECTION AFTER SAMPLE C	COLLECTION         DETECTOR         METER           _cpm         Type: <u>44-20</u> Type: <u>2221</u> _serial No.: <u>PR215468</u> Serial No.: <u>218559</u>
SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, Light grey sandy silt wi Sample was collected at grassy area west of build	th small to medium gravel (40%). the north end of the site, in the ling 1103A.
Light grey sandy silt wi sample was collected at grassy area west of Build sample analyses	ith small to medium gravel (407°). the north end of the site, in the ling 1103A. BOTTLE TYPE/ PRESERVATION BOTTLE TYPE/ VOLUME SAMPLE
Light grey sandy silt wi Sample was collected at grassy area west of Build	ith small to medium gravel (40%). the north end of the site, in the ling 1103A. BOTTLE TYPE/
Light grey sandy silt wi Sample was collected at grassy area west of Build SAMPLE ANALYSES PARAMETER METHOD NUMBER	He north end of the site, in the ling 1103A. PRESERVATION PRESERVATION PRESERVATION COLUME SAMPLE METHOD REQUIRED COLLECTED
Light grey sandy silt wi sample was collected at grassy area. west of Build SAMPLE ANALYSES PARAMETER PARAMETER DEPLETED URANIUM (GAMMA SPEC) EPA 801.1M D D D D D D D D D D D D D D D D D D D	He north end of the site, in the ling 1103A. PRESERVATION PRESERVATION PRESERVATION COLUME SAMPLE METHOD REQUIRED COLLECTED

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ROJECT ARL Building 1103A Characterizati	on Jo	DB NUMBER 05-3060.06, Task 3	DATE <u>6-1-06</u>
OCATION ID Buffer Zorie Ground:	ACTIVITY TIME START	1000 END 1455	
TELD SAMPLE ID SO-GO2		QC SAMPLES COLLECTED	nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BGS)	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: 🕅 DISCRETE		HAND CORER / AUGER	DI WATER N2 PURGE
COMPOSITE	SAND	S.S. SPOON	
	GRAVEL	S.S. SHOVEL / TROWEL	
		S.S. SPATULA	XOTHER DI WALLY
-145062.4/541243.8	SUL	GEOPROBE	`
478407,826/201226.741			RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMPL	E LOCATION		
BEFORE SAMPLE COLLECTION A	FTER SAMPLE COLLECTION	DETECTOR	METER
<u>20,332</u> cpm	cpm	тура: <u>44-20</u>	Type: 2221
	·	Serial No.: PR215468	
SAMPLE OBSERVATIONS (e.g., location, text Light gray sandy	silt with	togo small to r	nedium gravel.
SAMPLE OBSERVATIONS (e.g., location, text Light grey sandy Sample was collect of the stand-alone	silt with the value .	t0% small to r SE corner of th	nedium gravel. he site, south
SAMPLE OBSERVATIONS (e.g., location, text Light grey sandy Sample was collect of the stand-alone	ire, color, odor, etc.) Silt with 4 sted in the Vault.	t0% small to r SE corner of th	nedium gravel. he site, south
SAMPLE OBSERVATIONS (e.g., location, text Light grey sandy Sample was colled of the stand-alone SAMPLE ANALYSES	METHOD PRE:	BOTTLE TYPE/ SERVATION VOLUME	SAMPLE
SAMPLE ANALYSES	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES	METHOD PRE:	BOTTLE TYPE/ SERVATION VOLUME	SAMPLE
SAMPLE ANALYSES	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES  PARAMETER  DEPLETED URANIUM (GAMMA SPEC)	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES  PARAMETER  DEPLETED URANIUM (GAMMA SPEC)	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES  PARAMETER  DEPLETED URANIUM (GAMMA SPEC)	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES  PARAMETER  DEPLETED URANIUM (GAMMA SPEC)	METHOD PRE: <u>NUMBER M</u>	BOTTLE TYPE/ SERVATION VOLUME IETHOD REQUIRED None 1 @ 16 cz. plastic	SAMPLE <u>COLLECTED</u>

	DGICAL • ENVIRONMENTAL	• REMEDIATION			
ROJECT ARL BU	ilding 1103A Characterizatio	DR	JOB NUMBER 05-3060.06, Task 3	DATE	6-1-06
DCATION ID BUH	erzone Ground	SACTIVITY TIME STAL	RT 1000 END 14-55	CONTAINER TIME	
ELD SAMPLE ID	<u>S0-G03</u>		QC SAMPLES COLLECTED_	nla	
SAMPLE DATA			EQUIPMENT INFORMATION		
DEPTH OF SAMPLE	0-0.5 FT (BGS)	TYPE OF SOIL	EQUIPMENT USED:	DECON FLUIDS USED	:
TYPE OF SAMPLE:	DISCRETE		HAND CORER / AUGER	DI WATER N2 PUR	GE
		SAND	S.S. SPOON		
		GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTIO	
LOCATION COORE	11/16/04	CLAY	S.S. SPATULA	XOTHER DI W	ater
	5 1541292.4	NOTHER SUL	GEOPROBE		
478340.306	/201224.741	3000		RINSATE BLANK ID	
RADIOLOGICAL M	EASUREMENTS AT SAMPLI				
BEFORE SAMPLE (		TER SAMPLE COLLECTION	ON DETECTOR	METER	
22,196			Type: 44-20	Type:	f
aa,170	сра	cpm			
			Serial No.: <u>PR.215468</u>	Serial No.: <u>318</u>	
	ATIONS (e.g., location, textu brown Sanc Le Was COIL stand-alor	re, color, odor, etc.) LY SUL, SO eCted in 7 re VAULt.	nu clay. The sw corner of		
SAMPLE OBSERV, Light Sampl Of the SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor s	ly s'ut, so ected in 7 re vault. METHOD NUMBER	Me Clay. He SW Corner of BOTTLE TYPE/ VOLUME METHOD BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE	
SAMPLE OBSERV, Light Sampl Of the SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor	ly s'ut, so ected in a re vault.	Me Clay. The SW Corner of BOTTLE TYPE/ PRESERVATION VOLUME	the site	
SAMPLE OBSERV Light Sampl of the SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor s	ly s'ut, so ected in 7 re vault. METHOD NUMBER	Me Clay. He SW Corner of BOTTLE TYPE/ VOLUME METHOD BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE	
SAMPLE OBSERV Light Sampl of Hu SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor s	ly s'ut, so ected in 7 re vault. METHOD NUMBER	Me Clay. He SW Corner of BOTTLE TYPE/ VOLUME METHOD BOTTLE TYPE/ VOLUME REQUIRED	SAMPLE	
SAMPLE OBSERV Light Sampl of the SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor s	ly s'ut, so ected in 7 re vault. METHOD NUMBER	Me clay. He SW corner of PRESERVATION METHOD None 1@16 oz. plastic	SAMPLE COLLECTED	., <i>sw</i>
SAMPLE OBSERV Light Sampl of the SAMPLE ANALYSE PARAMETE	brown sand e was coll stand-alor s	ly s'ut, so ected in 7 re vault. METHOD NUMBER	The clay. The SW corner of BOTTLE TYPE/ VOLUME REQUIRED None 1@16 oz. plastic SAMPLED BY: <u>B</u> .	SAMPLE	., <i>sw</i>

PROJECT	ARL Building 1103A Characteriza	ation	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-06
LOCATIO	NID Adj. Grounds		TART 1000 END 1455	CONTAINER TIME
FIELD SA		4	QC SAMPLES COLLECTED	o nla
SAMPI	E DATA		EQUIPMENT INFORMATION	·····
TYPE (	TOF SAMPLE $0.0.5$ FT (BGS) DF SAMPLE: DISCRETE COMPOSITE TON COORDINATES $\frac{1}{1000}$	TYPE OF SOIL ORGANIC SAND GRAVEL CLAY THER	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION OTHER DI WALLY
478	380.695/201306.802	sut		RINSATE BLANK ID
RADIÓ	LOGICAL MEASUREMENTS AT SAMI	PLE LOCATION		
	RE SAMPLE COLLECTION	AFTER SAMPLE COLLEC	туре: <u>44-20</u>	METER Type: <b>3331</b>
SAMPI	E OBSERVATIONS (e.g., location, te:	xture, color, odor, etc.)	Serial No.: <u>PR215468</u>	
sampi Li jus	E OBSERVATIONS (e.g., location, te ght brown sand sample was co t NW of Build	xture, color, odor, etc.) Ly SUL, dri Hected at Ling 1103A	Serial No.: <u>PR215468</u> Y t the far north e	
Li JUS SAMPI	ght brown sand sample was co t NW of Build LE ANALYSES PARAMETER	METHOD NUMBER	y t the far north e PRESERVATION BOTTLE TYPE/ VOLUME REQUIRED	end of the site, SAMPLE <u>COLLECTED</u>
Li jus	ght brown sand sample was co t NW of Build reanalyses	METHOD NUMBER	y t the far north e BOTTLE TYPE/ VOLUME	end of the site,

PROJECT ARL Building 1103A Character	ization	JOB NUMBER 05-3060.06, Task 3	DATE <u>6-1-06</u>
LOCATION ID ASPHALT Area		T 1000 END 1455	
FIELD SAMPLE ID SO-GO	7	QC SAMPLES COLLECTED	<u></u>
SAMPLE DATA			
DEPTH OF SAMPLE <u>0-0.5 FT (BG</u> TYPE OF SAMPLE: XDISCRETE COMPOSITE	ORGANIC SAND GRAVEL CLAY	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER UQUINOX SOLUTION
478343.162/201270.274	- silt		NSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAI	MPLE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTIO	N DETECTOR Type: <u>44-20</u> Serial No.: <u>PR215468</u>	
SAMPLE OBSERVATIONS (e.g., location, 1	exture, color, odor, etc.)	159 And to pled	illon arallala
Medium grey silt Sample was coll adjacent to the ea	exture, color, odor, etc.) Y SANA With Icted in the St WAU Of S		ium gravels. ite area,
Medium grey silt Sample was coll adjacent to the ea	y sand with icted in the st wall of wall	BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE
Medium grey silt Sample was coll adjacent to the ea	y sand with icted in the st wall of METHOD PO NUMBER PO	BOTTLE TYPE/	
Medium grey sitt Sample was coll adjacent to the ea sample analyses <u>PARAMETER</u> DEPLETED URANIUM (GAMMA SPE	y sand with icted in the st wall of s METHOD Pr NUMBER C) EPA 901.1M	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED

PROJECT	ARL Building 1103A Characteriza	tion	JOB NUMBER 05-3060.06, Task 3	DATE
LOCATIO	NID Asphalt area		T 1000 END 1455	
FIELD SA	1 40 400		QC SAMPLES COLLECTED	nia
SAMPL	E DATA		EQUIPMENT INFORMATION	
DEPTH	OF SAMPLE 0-0.5 FT (BGS)	TYPE OF SOIL	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE (	DF SAMPLE: XDISCRETE	ORGANIC	HAND CORER / AUGER	DI WATER N2 PURGE
ŕ	COMPOSITE	SAND	S.S. SPOON	POTABLE WATER
		GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCAT		CLAY	S.S. SPATULA	COTHER DI WALLY
-195	1011-9-1591315-116187		GEOPROBE	
		silt		RINSATE BLANK ID
_le	<u>2,052</u> cpm	cpm	Type: <u>44-20</u> Serial No.: <u>PR215468</u>	Type: _ <b>2221</b> Serial No.: _ <b>218559</b>
SAMPL Med gro ad	LE OBSERVATIONS (e.g., location, tex Wels, IOW plast Sample was col Jacent to the n	ture, color, odor, etc.) rown suty, i Cûty. i Lected in H orth wall o	sandy Clay, nud the south half i of the stand-al	ium to coarse of the site area one vault.
Med gro ad	LE OBSERVATIONS (e.g., location, tex Wels, low plast Sample was col Jacent to the n	rown silty, i cûtij. i lected in t orth wall o	sandy Clay, ned the south half c of the stand-al RESERVATION RESERVATION REQUIRED	ium to coarse of the site area one vault.
Med gro ad	lium to dark bi Wels, Iow plast Sample was col jacent to the n	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE <u>COLLECTED</u>
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sancple was col jacent to the n Leanalyses PARAMETER	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sancple was col jacent to the n Leanalyses PARAMETER	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sancple was col jacent to the n Leanalyses PARAMETER	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sancple was col jacent to the n Leanalyses PARAMETER	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sanple was col Jacent to the n Le ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro ad SAMPL	Lium to dark bi Wels, Iow plast Sanple was col Jacent to the n Le ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE COLLECTED
Med gro adj sampl	Lium to dark bi Wels, Iow plast Sanple was col Jacent to the n Le ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD P	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD</u> <u>REQUIRED</u> None 1 @ 16 oz. plastic ⁻	SAMPLE COLLECTED

	1103A Characterizatio	<u>n</u>	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-06
LOCATION ID ASP	halt Area		T 1000 END 1455	
FIELD SAMPLE ID	<u> 50-609</u>		_ QC SAMPLES COLLECTER	nla
SAMPLE DATA				·····
	<b>-0.5</b> FT (BGS) DISCRETE ]COMPOSITE	TYPE OF SOIL: ORGANIC SAND GRAVEL	EQUIPMENT USED: Chand Corer / Auger S.S. Spoon S.S. Shovel / TROWEL	DECON FLUIDS USED; DI WATER N2 PURGE POTABLE WATER
LOCATION COORDINATE - <u>-1450777.9.75</u> 418391.6391	41317	CLAY	S.S. SPATULA GEOPROBE OTHER	RINSATE BLANK ID
RADIOLOGICAL MEASU	REMENTS AT SAMPLE	LOCATION		
BEFORE SAMPLE COLLE	Ection Af	TER SAMPLE COLLECTIO	N DETECTOR Type: <u>44-20</u> Serial No.: <u>PR215468</u>	
SAMPLE OBSERVATION	IS (e.g., location, textu	re, color, odor, etc.)		
SAMPLE OBSERVATION Meditim G Sample u NW of Hu	IS (e.g., location, rextun grey sand Jas collec L stand-a	re, color, odor, etc.) Y Silt, COar Hed in Hu Uone Vau	rse to fine gravel south dealf of lt.	(50%). The site area,
Medicien a Sample a NW of the SAMPLE ANALYSES PARAMETER	IS (e.g., location, textur grey Sand Jas Collec L stand - a	y silt, coa ted in the clone value	rse to fine gravel south dealf of Lt. RESERVATION METHOD None 1@16 oz. plastic	(50%). The site area, SAMPLE <u>COLLECTED</u>
Medicien a Sample a NW of the SAMPLE ANALYSES <u>PARAMETER</u>	grey sand Jas collec L stand-a	y silt, coan ted in the clone value METHOD PR	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE <u>COLLECTED</u>

LOCATION ID <u>ASPNALLA ARTAR</u> ACTIVITY TIME <u>START 1000 END 1455</u> CONTAINER TIME	PROJECT ARL Buil	ding 1103A Characterizat	ion	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-
SAMPLE DATA       EQUIPMENT INFORMATION         DEFTH OF SAMPLE       O.O.S. FT (BOS)       TYPE OF SOUL       EQUIPMENT INFORMATION         DEFTH OF SAMPLE       DISCRETE       ORGANC       MAND CORER / AUGER       DISCORTRA         COMPOSITE       SAND       SS.SPON       POTABLE WATER       DISCORTRA         COMPOSITE       SAND       SS.SPON       POTABLE WATER         LOCATION COORDINATES       GO UNO SOLUTION       SS.SPON       DOTABLE WATER         LOCATION COORDINATES       GO UNO SOLUTION       SS.SPON       DOTHER       DI UNATER N2 PURGE         LOCATION COORDINATES       GO UNO SOLUTION       SS.SPON       DOTHER       DI UNATER N2 PURGE         LOCATION COORDINATES       GO UNO SOLUTION       SS.SPON       DOTHER       DI UNA         HEGOTH TO SOLUTION       GEOPROBE       TYPE 23.2.1       MOTHER       DI UNA         HEGOTHE SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR       METER         123,103_copm       collection       DETECTOR       METER       32.2.1         Serial No:       DETECTOR       METER       23.2.1       Serial No:       21.8.5 S         SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.)       DATILE TYPE/       32.3.1       Serial No:       21.	LOCATION ID AS	phalt Area	ACTIVITY TIME STAR	T 1000 END 1455	
DEPTH OF SAMPLE     0-0.5. FT (BOS)     TYPE OF SOL:     DECONFLUIDS USED:       TYPE OF SAMPLE     DISCRETE     ORGANC       COMPOSITE     SAND       SAMPLE     DISCRETE       COMPOSITE     SAND       Sand     Ss. SPOON       DECONFORTES     DISANC       Sand     Ss. SPON       LOCATION COORDINATES     DILUDA' <u>1450714.41/5613241.2.</u> CLAY       Station Coordinates     CLAY <u>1450714.41/5613241.2.</u> CLAY       Station Coordinates     Station Coordinates       BEFORE SAMPLE COLLECTION     AFTER SAMPLE COLLECTION     DETECTOR       BEFORE SAMPLE COLLECTION     AFTER SAMPLE COLLECTION     DETECTOR       Sample OBSERVATIONS (e.g., location, texture, color, odor, etc.)     DArk Grey Igreen Sandy Silt with 25% COArse gravells .       Sample Was collected in the middle of the site area       AJACENT TO the SE corn	FIELD SAMPLE ID	SO-G1(	)	QC SAMPLES COLLECTER	nla
TYPE OF SAMPLE:       DISCRETE       DORGANIC       MAND CORERT / AUGER       DI WATER N2 PURGE         COMPOSITE       SAND       SS SPOON       POTABLE WATER         ICCATION COORDINATES       CLAY       SS SPOON       RECOVER SAMPLE COLLECTION       RESERVATIONS (AGUINT SATE BLANK D         BEFORE SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR       METER       Type:       23.2.1         SAMPLE OBSERVATIONS (AGUINT TO AFTER SAMPLE COLLECTION       DETECTOR       METER       Serial No:       21855         SAMPLE OBSERVATIONS (AGUINT REVEURE, COLLECTION       AFTER SAMPLY WITH, COLOR, OLD AGUINT, OLD AGUINT, SATE BLANK D       Serial NO:<	SAMPLE DATA		<u>,</u>	EQUIPMENT INFORMATION	
COMPOSITE       SAND       SS SPON       POTABLE WATER         ICCATION COORDINATES       CLAY       SS SHOVEL/TROWEL       ICUMOX SOLUTION         ICCATION COORDINATES       CLAY       SS SPATULA       ICUMOX SOLUTION         ICCATION COORDINATES       CLAY       SS SPATULA       ICUMOX SOLUTION         ICCATION COORDINATES       CLAY       SS SPATULA       ICUMOX SOLUTION         ICCATON COORDINATES       CLAY       SS SPATULA       ICUMOX SOLUTION         ICCATON COORDINATES       CLAY       SS SPATULA       ICUMOX SOLUTION         ICCATON COORDINATES       CLAY       ICLAY       ICLAY       ICLAY         ICCATON COORDINATES       CLAY       ICLAY       ICLAY       ICLAY       ICLAY         ICCATON       ICLAY       ICLAY       ICLAY       ICLAY       ICLAY       ICLAY         ICCATON       ICLAY       ICLAY <td>DEPTH OF SAMPLE</td> <td>0-0.5 FT (BGS)</td> <td>TYPE OF SOL</td> <td>EQUIPMENT USED:</td> <td>DECON FLUIDS USED:</td>	DEPTH OF SAMPLE	0-0.5 FT (BGS)	TYPE OF SOL	EQUIPMENT USED:	DECON FLUIDS USED:
Incortion COORDINATES       Incortion	TYPE OF SAMPLE:	DISCRETE		HAND CORER / AUGER	DI WATER N2 PURGE
LOCATION COORDINATES       Image: Construct of the second of			SAND	S.S. SPOON	
LOCATION COORDINATES       Image: Construction of the state of the st				S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
-145074.4/541384.3. 478393.782/201201.257       Image: Site interminiation interminininterminiation interminiation interminiation i					
\$\frac{478393.782/a01201.257}{a01201.257}     SUL     OTHER     RINSATE BLANK ID       RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION     BEFORE SAMPLE COLLECTION     DETECTOR     METER       \$\frac{122,103}{12,103}_{cpm}     AFTER SAMPLE COLLECTION     DETECTOR     METER       \$\frac{124,103}{12,103}_{cpm}	_ACATU-S	11-a-201	, <u> </u>		
RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION       BEFORE SAMPLE COLLECTION     AFTER SAMPLE COLLECTION     DETECTOR     METER       12,103_cpm			site		
BEFORE SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR       METER         12,103_cpm      cpm       Type:444-2CSerial No: PR215468       Type:2221Serial No:21855         SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.)       Dark grey/green sandy sut with 25% COarse gravels.       Serial No:2782Serial No:21855         Dark grey/green sandy sut with 25% COarse gravels.       Sample was collected in the middle of the site area adjacent to the SE corner of Building BRL12.         Sample ANALYSES       METHOD       PRESERVATION       BOTTLE TYPE/ YOLUME       SAMPLE         BARAMETER       METHOD       PRESERVATION       BOTTLE TYPE/ YOLUME       SAMPLE	·····	•			
Dark grey/green sandy sut with 25% coarse gravels. Sample was collected in the middle of the site area adjacent to the SE corner of Building BRL12. SAMPLE ANALYSES PARAMETER METHOD PRESERVATION BOTTLE TYPE/ VOLUME SAMPLE COLLECTED				туре:44-20	Type: 2221
METHOD PRESERVATION VOLUME SAMPLE PARAMETER NUMBER METHOD REQUIRED COLLECTED	sample observa Dark gru Sample	TIONS (e.g., location, text Ylgrilln Sal L WAS COIL	ure, color, odor, etc.) NdY SUL W LCTED in H		
PARAMETER NUMBER METHOD REQUIRED COLLECTED	sample observa Dark gred Sampla adjacent	TIONS (e.g., location, text Y/GTLEN SAI & WAS COIL & TD HLE St	ure, color, odor, etc.) NdY SUL W ECTED in H E CORNER OF		
DEPLETED URANIUM (GAMMA SPEC)       EPA 901.1M       None       1 @ 16 oz. plastic       Image: Comparison of the second sec	Dark grei Sample adjacent	ylgreen sai was colu to the si	ndy sut w ected in H E corner of	oith 25% COArse g he middle of th Building BRL 12 Boulding BRL 12	ravels. Le site area, L.
	Dark gred Sample adjacent	ylgreen sai was colle to the se	ndy sut w ected in H E corner of METHOD PI	bith 25% COArse g he middle of Ha Building BRL 12 Building BRL 12 BOTTLE TYPE/ VOLUME	ravels. Le site area, L.
NOTES GRAVELLY surface @ sample location.	Dark gred Sample adjacent sample Analyses PARAMETER	ylgreen sai was colu to the si	ndy sut w ected in H E corner of Method Pi <u>NUMBER</u>	bith 25% COArse of the middle of the Building BRL 12 Building BRL 12 RESERVATION BOTTLE TYPE/ VOLUME METHOD REQUIRED	sample collected

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PROJECT ARL Building 1103A Characterization	JO	BNUMBER 05-3060.06, Task 3	DATE	1-06
OCATION ID ASPHALT Area	ACTIVITY TIME START	000 END 1455	CONTAINER TIME	
IELD SAMPLE ID SO-G12		QC SAMPLES COLLECTED	nla	
SAMPLE DATA		EQUIPMENT INFORMATION		
DEPTH OF SAMPLE <u>0-0.5 FT (BGS)</u> TYPE OF SAMPLE: XDISCRETE	TYPE OF SOIL:	EQUIPMENT USED: MAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION	
LOCATION COORDINATES 00110000 -195067-9/591342-2- 478399-761/201274-635	CLAY	S.S. SPATULA	RINSATE BLANK ID	
RADIOLOGICAL MEASUREMENTS AT SAMPLE	LOCATION			
BEFORE SAMPLE COLLECTION AFT	ER SAMPLE COLLECTION	DETECTOR Type: <u>44-20</u> Serial No.: <u>PR215468</u>	METER Type: <u>2221</u> Serial No.: <u>21855</u>	54
SAMPLE OBSERVATIONS (e.g., location, texture Light grey sandy	sut with 3	1070 SMALL to L	trge gravel.	site
SAMPLE OBSERVATIONS (e.g., location, texture Light grey Sandy Sample was col area, directly east	sut with 3 Lected from of Builder	1070 SMALL to La the eastern e 19 BRL12.	trge gravel. Edge of the	site
Light grey sandy Sample was col area, directly east sample analyses	Silt with 3 lected from of Building	BOTTLE TYPE/ ERVATION VOLUME	SAMPLE	site
Light grey sandy Sample was col area, directly east sample analyses PARAMETER	Silt with 3 lected form of Building METHOD PRES NUMBER M	BOTTLE TYPE/		site
Light grey sandy Sample was col area, directly east sample analyses <u>PARAMETER</u> DEPLETED URANIUM (GAMMA SPEC)	Silt with 3 lected form of Building METHOD PRES NUMBER M	BOTTLE TYPE/ ERVATION VOLUME ETHOD REQUIRED	SAMPLE COLLECTED	site

PROJECT ARL Building 1103A Character	ization	JOB NUMBER 05-3060.06, Task 3	DATE 10-1-06
LOCATION ID 1103A		1000 END 1455	
FIELD SAMPLE ID SO-639		QC SAMPLES COLLECTED	nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BG	S) TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: 🔀 DISCRETE		HAND CORER / AUGER	DI WATER N2 PURGE
	SAND	S.S. SPOON	
	GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES	CLAY	S.S. SPATULA	DI Water
1103A downsport	_ SUL	GEOPROBE	
	sut	OTHER	RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SA	MPLE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	I DETECTOR	METER
cpm	cpm	Туре:	Туре:
SAMPLE OBSERVATIONS (e.g., location, Light brown si		plasticity, 196 g	
	ty clay, low	plasticity, 196 g	jravel.
light brown sil	ty clay, low	plasticity, 196 g	
Light brown sill SAMPLE ANALYSES	METHOD PR	Plasticity, 196 g	jravel.
Light brown sill sample analyses <u>parameter</u>	METHOD PR	Plasticity, 196 g BOTTLE TYPE/ VOLUME METHOD RESERVATION RESERVATION	SAMPLE COLLECTED
Light brown sill sample analyses <u>parameter</u>	METHOD PR	Plasticity, 196 g BOTTLE TYPE/ VOLUME METHOD RESERVATION RESERVATION	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER CONTRACTOR CONTRAC	METHOD PR	Plasticity, 196 g BOTTLE TYPE/ VOLUME METHOD RESERVATION RESERVATION	SAMPLE COLLECTED
Light brown sill SAMPLE ANALYSES PARAMETER	METHOD PR	Plasticity, 196 g BOTTLE TYPE/ VOLUME METHOD RESERVATION RESERVATION	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER CONTRACTOR DEPLETED URANIUM (GAMMA SPE	METHOD PR	Plasticity, 196 g BOTTLE TYPE/ VOLUME METHOD RESERVATION RESERVATION	SAMPLE COLLECTED

PROJECT ARL Building 1103A C	Characterization	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-06
LOCATION ID BRL12		ART 1000 END 1455	
FIELD SAMPLE ID	G40	QC SAMPLES COLLECTER	o nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 TYPE OF SAMPLE: DISCRE COMPO LOCATION COORDINATES BRU2 DOWNSP RADIOLOGICAL MEASUREMENT	ETE ORGANIC DSITE SAND SORAVEL SCLAY	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE OTHER	DECON FLUIDS USED:
BEFORE SAMPLE COLLECTION cpm SAMPLE OBSERVATIONS (e.g., IC DUTK GREY C (1096), 10W	AFTER SAMPLE COLLECT 	Type: Serial No.:	
cpm	ocation, texture, color, odor, etc.) Layey, sandy si plasticity.	Type: Serial No.:	Type: Serial No.:

DJECT ARL Building 1103A Characterization	n	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-
ATIONID Valut Area	ACTIVITY TIME START	1000 END 1455	
d sample id <u>SO-G42</u>		QC SAMPLES COLLECTED	nla
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT (BGS)	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: XDISCRETE	ORGANIC	HAND CORER / AUGER	DI WATER N2 PURGE
	SAND	S.S. SPOON	POTABLE WATER
	GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES		S.S. SPATULA	
Grassy area south of		GEOPROBE	
Vallt	silt		RINSATE BLANK ID
cpm	cpm	Туре: Serial No.:	
	re color odor atc.)	Serial No.:	Serial No.:
SAMPLE OBSERVATIONS (e.g., location, textur MULTUM BROWN SA	re, color, odor, etc.) NdY SULT, fl METHOD PRI	Serial No.:	Serial No.:

. . . . . . .

	<u>on</u>	OB NUMBER 05-3060.06 Task 3	DATE 6-1-06
OCATIONID Asphalt Area	ACTIVITY TIME START	1000 END 1455	CONTAINER TIME
TIELD SAMPLE ID SO-POS		QC SAMPLES COLLECTED	nia
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE TYPE OF SAMPLE: COMPOSITE	TYPE OF SOIL:	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL	DECON FLUIDS USED; DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION
LOCATION COORDINATES 40 14107 -145075/541304 478399.143/201236.39		S.S. SPATULA GEOPROBE OTHER	RINSATE BLANKID
RADIOLOGICAL MEASUREMENTS AT SAMPL	ELOCATION		
BEFORE SAMPLE COLLECTION A	FTER SAMPLE COLLECTION	DETECTOR Type: <u>44-20</u> Serial No.: <u>PR 21546</u> 2	METER Type: <b>2221</b> Serial No.: <u>218554</u>
	awan araw	I with fines. S	andy soil.
SAMPLE ANALYSES	METHOD PRE NUMBER	BOTTLE TYPE/ SERVATION VOLUME METHOD REQUIRED	andy soil. of the site area, one valut. SAMPLE COLLECTED
SAMPLE ANALYSES	METHOD PRE <u>NUMBER</u> EPA 901.1M	BOTTLE TYPE/ SERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE COLLECTED

LOCATION ID <u>Buffer 2010</u> , <u>activity time</u> <u>START 1000</u> END 1455 <u>GROUNDS</u> FIELD SAMPLE ID <u>SO-POU</u> SAMPLE DATA DEPTH OF SAMPLE <u>O-0.5'</u> FT (BGS) TYPE OF SAMPLE <u>O-0.5'</u> FT (BGS) LOCATION COORDINATES <u>I-0.00000000000000000000000000000000000</u>	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER UQUINOX SOLUTION XOTHER DI WACCY RINSATE BLANK ID METER Type: 2221 Serial No: 218559
FIELD SAMPLE ID       SO-POL       OC SAMPLES COLLECTED         SAMPLE DATA       EQUIPMENT INFORMATION         DEPTH OF SAMPLE       ODSCRETE       ORGANIC         TYPE OF SAMPLE       ODSCRETE       ORGANIC         COMPOSITE       SAND       SS. SPOON         CONTON COORDINATES       IMMON       GRAVEL         LOCATION COORDINATES       IMMON       SS. SPOON         4195085.3/541:3371.5       IMMON       GEOPROBE         419382.855/2012468.958       SUL       OTHER         RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION       DETECTOR         BEFORE SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR         31,493_cpm	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER UQUINOX SOLUTION XOTHER DI WACCY RINSATE BLANK ID METER Type: 2221 Serial No: 218559
DEPTH OF SAMPLE       Q-0, 5' FT (BS)       TYPE OF SOIL:       EQUIPMENT USED:         TYPE OF SAMPLE       QDISCRETE       QORGANIC       SAMD       SS.SPOON         COMPOSITE       QSAND       QS.S.SPOON       QS.S.SPOON         LOCATION COORDINATES       QLIMAR       QCLAY       QS.S.SPOON         -145085.2/541251.10       QCLAY       QS.S.SPOON         -1478382.855/2012/08.458       QOTHER       QCLAY         -1478382.855/2012/08.458       QOTHER       QCLAY         -1478382.855/2012/08.458       QOTHER       QCLAY         ATTER SAMPLE COLLECTION       QCLAY       QCLAY         -1478382.855/2012/08.458       QOTHER       QCLAY         SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR         37,443_cpm	DI WATER N2 PURGE POTABLE WATER ULQUINOX SOLUTION SOTHER DI WALLY RINSATE BLANK ID METER Type: 2221 Serial No.: 218559
TYPE OF SAMPLE:       DISCRETE       ORGANIC       SHAND CORER / AUGER         COMPOSITE       DISAND       S.S. SPOON         LOCATION COORDINATES       DIMMAR       DISC. S. SPATULA         -195035.2/541337:       DIAL       S.S. SPATULA         -195035.2/541337:       DIAL       DIAL         -195036.2/541337:       DIAL       DIAL         -195035.2/541337:       DIAL       DIAL         -195037:       DIAL       DIAL         -195037:       DIAL       DIAL         -195037:       DIAL       DIAL         -195037:       DIAL       DIAL         RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION       DETECTOR         BEFORE SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR         31,943_cpm	DI WATER N2 PURGE POTABLE WATER ULQUINOX SOLUTION SOTHER DI WALLY RINSATE BLANK ID METER Type: 2221 Serial No.: 218559
COMPOSITE       SAND       S.S. SPOON         COMPOSITE       GRAVEL       S.S. SPOON         CATION COORDINATES       MINING       S.C.LAY       S.S. SPATULA         CLOSSS 2/541357.0       SOTHER       GEOPROBE         419382.855/201268.958       SUL       OTHER       GEOPROBE         419382.855/201268.958       SUL       OTHER       GEOPROBE         419382.855/201268.958       SUL       OTHER       GEOPROBE         AFTER SAMPLE COLLECTION       AFTER SAMPLE COLLECTION       DETECTOR         31,993_cpm      Cpm       Type: <u>44-20</u> Serial No:       PR215468         SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.)       Nuclium greenish-grey with reddish - orange partial No:         Mudium greenish-grey with reddish - orange partial No:       Sandy, slut, LOW plasticity with 590 gravel         Sample was collected in the middle of the djacent to the West wall of Building BRUM       Sandy BRUM         SAMPLE ANALYSES       METHOD       PRESERVATION         PARAMETER       METHOD       PRESERVATION	POTABLE WATER UQUINOX SOLUTION XOTHER DI WATEY RINSATE BLANK ID
Image: Sample Collection       Image: Sample C	LIQUINOX SOLUTION XOTHER <u>DI WACUT</u> RINSATE BLANK ID METER Type: <u>2221</u> Serial No.: <u>218559</u>
LOCATION COORDINATES <u>-195085.2/54135716</u> <u>478382.855/201268.958</u> RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION BEFORE SAMPLE COLLECTION AFTER SAMPLE COLLECTION DETECTOR <u>37,443_cpm</u> 	XOTHER <u>DI WALLY</u> RINSATE BLANK ID METER Type: <u>2221</u> Serial No.: <u>218559</u>
-LQ5085.2/54133714       Image: Comparison of the state	RINSATE BLANK ID METER Type: 2221 Serial No.: 218559
#18382.855/201268.458     SUE     OTHER     OTHER       RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION       BEFORE SAMPLE COLLECTION       DETECTOR       31,443_cpm	METER Type: <u>2221</u> Serial No.: <u>218559</u>
RADIOLOGICAL MEASUREMENTS AT SAMPLE LOCATION         BEFORE SAMPLE COLLECTION         DETECTOR         31,993_cpm         Comments at sample LOCATION         DETECTOR         31,993_cpm         Comments at sample LOCATION         DETECTOR         31,993_cpm         Comments at sample Collection         DETECTOR         Type:44-20         Serial No: PRESERVATIONS (e.g., location, texture, color, odor, etc.)         Medium greenish-grey with reddish - orange paravel         Sample OBSERVATIONS (e.g., location, texture, color, odor, etc.)         Medium greenish-grey with reddish - orange paravel         Sandy , sut , LOW plasticity with 59% gravel         Sample was collected in the middle of the         Adjacent to the west wall of Building BRLL         SAMPLE ANALYSES         PRESERVATION         PRESERVATION         PRESERVATION	METER Type: <u>2221</u> Serial No.: <u>218559</u>
BEFORE SAMPLE COLLECTION     AFTER SAMPLE COLLECTION     DETECTOR       37,993_cpm    cpm     Type:44-20       Sample OBSERVATIONS (e.g., location, texture, color, odor, etc.)     Serial No: PR215468       SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.)     Medium greenish-grey with reddish - orange pravel       Sandy, sut, low plasticity with 590 gravel     Sanple was collected in the middle of the adjacent to the west wall of Building BRLIN       SAMPLE ANALYSES     METHOD     PRESERVATION	Type: <u>2221</u> Serial No.: <u>218559</u>
<u>37,993_cpm</u> cpm Type: <u>44-20</u> Serial No.: <u>PR215468</u> SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.) Medium greenish-grey with reddish-orange j sandy, sett, LOW plasticity with 590 gravel Sample was collected in the middle of the adjacent to the west wall of Building Brill SAMPLE ANALYSES <u>PARAMETER</u> METHOD PRESERVATION BOTTLE TYPE/ VOLUME REQUIRED	Type: <u>2221</u> Serial No.: <u>218559</u>
SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.) Nedium greenish-grey with reddish-orange j sandy, sut, LOW plasticity with 590 gravel Sample was collected in the middle of th adjacent to the west wall of Building Brite SAMPLE ANALYSES PARAMETER METHOD PRESERVATION BOTTLE TYPE/ VOLUME REQUIRED	Serial No.: <u>218559</u>
SAMPLE OBSERVATIONS (e.g., location, texture, color, odor, etc.) Medium greenish-grey with reddish-orange j sandy, sut, LOW plasticity with 5% gravel Sample was collected in the middle of the adjacent to the West wall of Building BRI. SAMPLE ANALYSES PARAMETER METHOD PRESERVATION BOTTLE TYPE/ VOLUME REQUIRED	
SAMPLE ANALYSES     BOTTLE TYPE/       METHOD     PRESERVATION     VOLUME       PARAMETER     NUMBER     METHOD     REQUIRED	sieces; clayey,
SAMPLE ANALYSES     BOTTLE TYPE/       METHOD     PRESERVATION     VOLUME       PARAMETER     NUMBER     METHOD     REQUIRED	ie site area, 2.
METHOD PRESERVATION VOLUME PARAMETER NUMBER METHOD REQUIRED	
PARAMETER NUMBER METHOD REQUIRED	SAMPLE
DEPLETED URANUM (GAMMA SPEC) EPA 901.1M None 1 @ 16 oz. plastic	
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NOTES	
NOTES	

PROJECT ARL Building 1103A Chara		JOB NUMBER 05-3060.06, Task 3	DATE 6-1-04
LOCATION ID BUFFER ZOILE ASP	DALL' ACTIVITY TIME START	1000 END 1455	CONTAINER TIME
FIELD SAMPLE ID	)- P[]		nia
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE 0-0.5 FT	(BGS) TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: XDISCRETE	ORGANIC	HAND CORER / AUGER	DI WATER N2 PURGE
		S.S. SPOON	
	GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES to 114	for CLAY	S.S. SPATULA	COTHER DI WATER
		GEOPROBE	
478400.165/201279.	831 SUL		RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT	T SAMPLE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	DETECTOR	METER
<u><b>bi,000</b></u> cpm		туре: 4-4-20	Type: 2221
<u>anooc</u> op		Serial No.: PR215468	Serial No.: 218559
SAMPLE OBSERVATIONS (e.g., locat Dark brown so Sample Was C	ion, texture, color, odor, etc.) andy s'ut, slight collected at th	ly moist. e eastern edge o	f the site area,
SAMPLE OBSERVATIONS (e.g., locat Dark brown sc Sample was c last of Buildi	ion, texture, color, odor, etc.) andy sult, slight collected at the 19 BRL12 and r	cly moist. e eastern edge o horth of so-GIZ.	f the site area,
SAMPLE OBSERVATIONS (e.g., location Dark brown so Sample was c east of Buildy SAMPLE ANALYSES	andy silt, slight collected at th ng BRL12 and r	BOTTLE TYPE/	
Dark brown so Sample was c east of Buildie	andy silt, slight collected at th ng BRL12 and r		f the site area, sample collected
Dark brown so Sample was c east of Buildie sample analyses	andy silt, slight collected at th ng BRL12 and r METHOD PR NUMBER	BOTTLE TYPE/ ESERVATION VOLUME	SAMPLE
Dark brown so Sample was c east of Buildie sample analyses <u>PARAMETER</u>	andy silt, slight collected at th ng BRL12 and r METHOD PR NUMBER	BOTTLE TYPE/ ESERVATION VOLUME METHOD <u>REQUIRED</u>	SAMPLE
Dark brown so Sample was c east of Buildie sample analyses <u>PARAMETER</u> DEPLETED URANIUM (GAMMA	andy silt, slight collected at th ng BRL12 and r METHOD PR NUMBER	BOTTLE TYPE/ ESERVATION VOLUME METHOD <u>REQUIRED</u>	SAMPLE
Dark brown so Sample was c east of Buildie sample analyses <u>PARAMETER</u> DEPLETED URANIUM (GAMMA	andy silt, slight collected at th ng BRL12 and r METHOD PR NUMBER	BOTTLE TYPE/ ESERVATION VOLUME METHOD <u>REQUIRED</u>	SAMPLE
Dark brown so Sample was c east of Buildie sample analyses <u>Parameter</u> Depleted URANIUM (GAMMA	andy silt, slight collected at th ng BRL12 and r METHOD PR NUMBER	BOTTLE TYPE/ ESERVATION VOLUME METHOD <u>REQUIRED</u>	SAMPLE
Dark brown so Sample was c east of Buildie sample analyses <u>parameter</u> Depleted uranium (gamma	METHOD PR SPEC) EPA 901.1M	BOTTLE TYPE/ ESERVATION VOLUME METHOD <u>REQUIRED</u>	SAMPLE COLLECTED
Dark brown so Sample was c east of Buildie sample analyses <u>parameter</u> Depleted URANIUM (GAMMA	METHOD PR SPEC) EPA 901.1M	BOTTLE TYPE/ ESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE COLLECTED
Dark brown so Sample was c east of Buildie sample analyses <u>parameter</u> Depleted uranium (gamma	METHOD PR SPEC) EPA 901.1M	BOTTLE TYPE/ ESERVATION VOLUME <u>METHOD REQUIRED</u> None 1@16 oz. plastic	SAMPLE COLLECTED

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ROJECT ARL Buildin	ng 1103A Characterizatio	ָ חֹר	JOB NUMBER 05-3060.06, Task 3	DATE 6-1-06
	erzone Asphalt	ACTIVITY TIME START	1000 END 1455	
IELD SAMPLE ID	•		QC SAMPLES COLLECTED	
SAMPLE DATA			EQUIPMENT INFORMATION	
TYPE OF SAMPLE:		TYPE OF SOIL CORGANIC SAND GRAVEL CLAY SUL	EQUIPMENT USED: HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL S.S. SPATULA GEOPROBE	DECON FLUIDS USED; DI WATER N2 PURGE POTABLE WATER UQUINOX SOLUTION
	· · · · · · · · · · · · · · · · · · ·	silt		RINSATE BLANK ID
RADIOLOGICAL MEAS	SUREMENTS AT SAMPL	E LOCATION		
BEFORE SAMPLE CO	LECTION A	FTER SAMPLE COLLECTION		METER
	ONS (e.g., location, textu		Type:	Serial No.:
sample observati 1) Sturfacu With 0	ONS (e.g., location, textu L SEAUNLLN VAUNLCS .	ure, color, odor, etc.) Lt ON ASPHA		un s'uty sand
sample observati 1) Sturfacu With 0	ONS (e.g., location, textu L SEAUNLLN VAUNLCS .	ure, color, odor, etc.) Lt on aspha halt; light METHOD PF	Serial No.: Lt; nudium bron brown sandy si BOTTLE TYPE/ VOLUME	
SAMPLE OBSERVATH 1) Sturfd.Cu With 0 3) SOil ( SAMPLE ANALYSES PARAMETER	ONS (e.g., location, textu L SEAUNLLN VAUNLCS .	ure, color, odor, etc.) Lt On aspha halt; light	serial No.: Ut; needium bron brown sandy si	Serial No.:

	ilding 1103A Characterizati	on	JOB NUMBER 05-3060.06, Task 3	DATE	5-25-06
	1103A	ACTIVITY TIME STAR	T 0830 END 0430	CONTAINER TIME	
FIELD SAMPLE ID	SS-A24	ł		nía	
SAMPLE DATA			EQUIPMENT INFORMATION		
DEPTH OF SAMPLE	0.5-1 FT (BGS)	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:	¢
TYPE OF SAMPLE:		ORGANIC	HAND CORER / AUGER	DI WATER N2 PUR	GE
	COMPOSITE	SAND	S.S. SPOON		
		GRAVEL	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTIO	
LOCATION COORD		CLAY	S.S. SPATULA	COTHER DI W	ater
<u> </u>	# <u>26</u>		GEOPROBE		
-				RINSATE BLANK ID	
RADIOLOGICAL MI	EASUREMENTS AT SAMPL	E LOCATION			
BEFORE SAMPLE (	COLLECTION AI	FTER SAMPLE COLLECTION	N DETECTOR	METER	
C	cpm	cpm	Туре:	Туре:	
			Serial No.:	Serial No.:	
sample observa Mlduum Moist.	NTIONS (e.g., location, textu ) brown SOF1	ire, color, odor, etc.) FCLAYWITF	some fines, 590	gravel, sli	ghtiy
Medium	NTIONS (e.g., location, textu	ire, color, odor, etc.) F CLAY With	some fines, 590,	gravel, sti	ghtiy
Medium	n brown sofi	t clay with	BOTTLE TYPE/		ghtiy
Meduum moist.	n brown sofi	t clay with		gravel, sú	ghtiy
MLOUUM MOISt. SAMPLE ANALYSES PARAMETER	n brown sofi	H CLAY With	BOTTLE TYPE/ RESERVATION VOLUME	SAMPLE COLLECTED	ghtiy
MIDUUM MOIST. SAMPLE ANALYSES PARAMETER DEPLETED C RCRAN	n brown sofi s z uranium (gamma spec) letals (TCLP)	METHOD PF NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE COLLECTED S (1) S (2) C	mples
MIDUUM MOIST. SAMPLE ANALYSE PARAMETER DEPLETED DEPLETED	n brown sofi s z uranium (gamma spec)	METHOD PF	BOTTLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE COLLECTED	ghtiy

ROJECT ARL Building 1103A Characteriza	ACTIVITY TIME ST.	JOB NUMBER 05-3060.06, Task 3 0830 0430 ART <del>1210</del> END 1400	DATE <u>5-25-06</u>
IELD SAMPLE ID SS-A27		QC SAMPLES COLLECTED	nia
SAMPLE DATA		EQUIPMENT INFORMATION	
DEPTH OF SAMPLE	TYPE OF SOIL:	EQUIPMENT USED:	DECON FLUIDS USED:
		HAND CORER / AUGER	
	GRAVEL	S.S. SHOVEL / TROWEL	
		S.S. SPATULA	XOTHER DI WALLY
LOCATION COORDINATES			MOTHER DI MOLOCOT
COLE AC	SULL		
-			RINSATE BLANK ID
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECT	ION DETECTOR Type: Serial No.:	метек Туре: Serial No.:
SAMPLE OBSERVATIONS (e.g., location, tex ULAUUM brown SU		nedium plasticity	•
Medium brown sid	lty clay, r	BOTTLE TYPE/ PRESERVATION VOLUME	SAMPLE
Medium brown sil	ity clay, r	BOTTLE TYPE/	
SAMPLE ANALYSES PARAMETER	METHOD NUMBER EPA 901.1M	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE <u>Collected</u> [X] (1)
SAMPLE ANALYSES PARAMETER	METHOD NUMBER	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u>	SAMPLE <u>Collected</u> [X] (1)
SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD NUMBER EPA 901.1M	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE <u>Collected</u> [X] (1)
SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD NUMBER EPA 901.1M	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE <u>Collected</u> [X] (1)
SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC)	METHOD NUMBER EPA 901.1M	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE <u>Collected</u> [X] (1)
SAMPLE ANALYSES PARAMETER	METHOD NUMBER EPA 901.1M	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 16 oz. plastic	SAMPLE <u>Collected</u> [X] (1)
Multium brown sites	METHOD NUMBER EPA 901.1M EPA 900.0	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD</u> REQUIRED None 1@16 oz. plastic COOI 4°C I@802 glass	$\frac{SAMPLE}{COLLECTED}$ $\boxed{X} (1)$ $\boxed{X} (2)$ $\boxed{\Box}$ $\boxed{\Box} \boxed{\Box} [\Box] [\Box]$
NOTES         NOTES	METHOD NUMBER EPA 901.1M EPA 900.0	PRESERVATION METHOD None Cool 4°C None Cool 4°C None Cool 4°C None Cool 4°C None None None None None None None None	sample collected X (1) X (2) C , three samples n the unterior
MULIUM BROWN SU SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) CONCES AND SULPANIUM (GAMMA SPEC)	METHOD NUMBER EPA 901.1M EPA 900.0	PRESERVATION METHOD None Cool 4°C None Cool 4°C None Cool 4°C None Cool 4°C None None None None None None None None	sample collected X (1) X (2) C , three samples n the unterior
Multium brown Sul SAMPLE ANALYSES PARAMETER DEPLETED URANIUM (GAMMA SPEC) DEPLETED URANIUM (GAMMA SPEC) C RCRA MULTULS (TCLP)	METHOD NUMBER EPA 901.1M EPA 900.0	PRESERVATION METHOD None Cool 4°C None Cool 4°C None Cool 4°C None Cool 4°C None None None None None None None None	SAMPLE COLLECTED IX (1) S X (2) , three samples n the unterior S 11 D 15 M. Driscol

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$\frac{1000 \text{ end } 1455}{\text{ or samples collected } nla}$
QC SAMPLES COLLECTED (1)
EQUIPMENT INFORMATION
EQUIPMENT USED: DECON FLUIDS USED:
S.S. SHOVEL / TROWEL UQUINOX SOLUTION
ON DETECTOR METER
Type: <u>4420</u> Type: <u>2221</u> Serial No.: <u>PR215468</u> Serial No.: <u>218559</u>
BOTTLE TYPE/
PRESERVATION VOLUME SAMPLE
PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
PRESERVATION VOLUME SAMPLE
PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
PRESERVATION VOLUME SAMPLE <u>METHOD</u> <u>REQUIRED</u> <u>COLLECTED</u> None 1 @ 16 oz. plastic
PRESERVATION VOLUME SAMPLE METHOD REQUIRED COLLECTED
PRESERVATION VOLUME SAMPLE <u>METHOD</u> <u>REQUIRED</u> <u>COLLECTED</u> None 1 @ 16 oz. plastic

PROJECT	ARL Building 1103A Characteriz	ation	JOB NUMBER	05-3060.06, Task 3	DATE	6-1.
LOCATION	Buffer Zone Aspha		START 1000 E	ND 1455	CONTAINER TIME	شدی <u>م</u>
	LEID <u>SS-PIS</u>	_		AMPLES COLLECTER	nla	
SAMPLE	DATA		EQUIPME			
DEPTH OF	SAMPLE 0.5-1 FT (BGS)	) TYPE OF SOIL:	EQUIPME	NT USED:	DECON FLUIDS USE	D:
TYPE OF 5	SAMPLE: XDISCRETE			CORER / AUGER	DI WATER N2 PU	IRGE
	COMPOSITE	SAND		POON		R
		GRAVEL	<b>X</b> S.S. S	HOVEL / TROWEL	Ι.ΙΟ.ΙΝΟΧ SOLUT	TION
LOCATION	COORDINATES	CLAY		PATULA		wate
	71.2-1541347.4		GEOF	ROBE		
4784	t00,165/201279.83	3/		R	RINSATE BLANK ID	
RADIOLO	BICAL MEASUREMENTS AT SAM	PLE LOCATION	•			
BEFORE S	SAMPLE COLLECTION	AFTER SAMPLE COLLE	CTION DETE	CTOR	METER	
61.0	00 cpm	87,515 cpm	Type:	44-20	Туре: АДА	1
				No: PR215468		
sample o DAT SC	DESERVATIONS (e.g., location, te the grey sulty s the so-pil for i	xture, color, odor, etc.) Sand with	15% grave	els,slightl	y moist.	
SAMPLE C DUI SU	DESERVATIONS (e.g., location, te The GPEY SULTY S E SO-PII FOR I	xture, color, odor, etc.) sand with location d	15% grave 2scription	els,slightl	y moist.	
SAMPLE C DAT SC	DESERVATIONS (e.g., location, te The GREY SULTY S E SO-PII FOR I	xture, color, odor, etc.) Sand With Location d	15% grave 2scription	els,slightl	y moist.	
SAMPLE C DU SU SAMPLE A	k grey silty s e so-PII for 1	sand with location d		BOTTLE TYPE/		
Dar Sed Sample a	k grey silty s e so-PII for 1	xture, color, odor, etc.) Sand with location du METHOD <u>NUMBER</u>	15% grave 25cription PRESERVATION METHOD		y moist. SAMPLE <u>COLLECTED</u>	
Day Sec SAMPLE A PAI	the grey silty of a so-PII for 1	sand with location du NUMBER	PRESERVATION	BOTTLE TYPE/ VOLUME	SAMPLE	
Dar Sec Sample a PA	K grey silty s c SO-PII for I NALYSES RAMETER	sand with location du NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME <u>REQUIRED</u>	SAMPLE COLLECTED	
Dar Sec Sample a Pai	K grey silty s c SO-PII for I NALYSES RAMETER	sand with location du NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME <u>REQUIRED</u>	SAMPLE COLLECTED	
Dar Sec Sample a Pai	K grey silty s c SO-PII for I NALYSES RAMETER	sand with location du NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME <u>REQUIRED</u>	SAMPLE COLLECTED	
Dar Sec Sample a Pai	K grey silty s c SO-PII for I NALYSES RAMETER	sand with location du NUMBER	PRESERVATION METHOD	BOTTLE TYPE/ VOLUME <u>REQUIRED</u>	SAMPLE COLLECTED	
SAMPLE A PAI	The grey silty of a SO-PII for I NALYSES RAMETER PLETED URANIUM (GAMMA SPEC)	METHOD NUMBER EPA 801.1M	PRESERVATION METHOD None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 cz. plastic	SAMPLE COLLECTED	
Dar Sec Sample a Pai	K grey silty s c SO-PII for I NALYSES RAMETER	METHOD NUMBER EPA 801.1M	PRESERVATION METHOD None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 16 cz. plastic	SAMPLE COLLECTED	
SAMPLE A PAI	The grey silty of a SO-PII for I NALYSES RAMETER PLETED URANIUM (GAMMA SPEC)	METHOD NUMBER EPA 801.1M	PRESERVATION METHOD None	BOTTLE TYPE/ VOLUME <u>REQUIRED</u> 1 @ 18 oz. plastic	SAMPLE COLLECTED	K'0+1

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PROJECT ARL Building 1103A Characteri	zation	JOB NUMBER 05-3060.06, Task 3	DATE5/251
	ACTIVITY TIME	T 1000 END 1100	
FIELD SAMPLE ID WL-A05		QC SAMPLES COLLECTE	nla
SAMPLE DATA	MATERIAL:		
	WALLBOARD (WL.)	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: 🔣 DISCRETE	CEILING TILE (CL)		DI WATER N2 PURGE
	FLOOR TILE (FL)	S.S. SPOON	POTABLE WATER
	PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	X OTHER DI WALLY
smear #171		GEOPROBE	
	filtermat.	DOTHER <u>razor</u> Knife	RINSATE BLANKID
RADIOLOGICAL MEASUREMENTS AT SAM	IPLE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION	N DETECTOR	METER
cpm	cpm	Туре:	Туре:
		Serial No.:	Serial No.:
SAMPLE OBSERVATIONS (e.g., location, to White Igrey filter fuzzy material a	xture, color, odor, etc.) - netting w/	a dark brown / Li succes of paper-Li	ght brown soft, ke material
SAMPLE OBSERVATIONS (e.g., location, to White Igrey filter fuzzy material a	xture, color, odor, etc.) - netting wl und small p	a dark brown 1 li succes of paper-li	ght brown soft, ke material.
SAMPLE OBSERVATIONS (e.g., location, to White Igrey filter fuzzy material a	xture, color, odor, etc.) - netting wl und small p	a dark brown / Li pueces of paper-Li	ght brown soft, ke material.
white Igrey filter fuzzy material a	xture, color, odor, etc.) - netting Wl ind small p		ght brown soft, ke material.
SAMPLE OBSERVATIONS (e.g., location, te White Igrey filter fuzzy material a SAMPLE ANALYSES PARAMETER	METHOD PR	BOITLE TYPE/ ESERVATION VOLUME	SAMPLE
white Igrey filter fuzzy material a sample analyses <u>PARAMETER</u>	METHOD PR	BOITLE TYPE/ ESERVATION VOLUME METHOD REQUIRED	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER ISOTOPIC URANIUM (ALPHA SPEC)	METHOD PR NUMBER ASTM 3972-90M	BOITLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> Nane 1@4 oz. plastic	SAMPLE
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD PR NUMBER ASTM 3972-90M EPA 900.0	BOITLE TYPE/ RESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 4 oz. plastic None 1 plastic bag	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS)	METHOD PR NUMBER ASTM 3972-90M	BOITLE TYPE/       RESERVATION     VOLUME       METHOD     REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass	SAMPLE <u>COLLECTED</u>
SAMPLE ANALYSES PARAMETER SCHOOL OF CONTRACT SAMPLE ANALYSES GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP)	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470	BOITLE TYPE/       RESERVATION     VOLUME       METHOD     REQUIRED       None     1 @ 4 oz. plastic       None     1 plastic bag       Cool 4°C     1 @ 8 oz. glass	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082	BOITLE TYPE/ RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER Sample analyses PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS NOTES Filter WAS Collec	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400 ted from Wa	BOITLE TYPE/ VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass None 1 @ 4 oz. plastic	SAMPLE COLLECTED
SAMPLE ANALYSES PARAMETER SOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) CRCRA METALS (TCLP) PCBS ASBESTOS NOTES	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400 ted from Wa	BOITLE TYPE/ VOLUME <u>METHOD</u> None 1 @ 4 oz. plastic None 1 @ 4 oz. plastic Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass None 1 @ 4 oz. plastic EST WALL BETWEET	SAMPLE COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED COLLECTED
SAMPLE ANALYSES PARAMETER Sample analyses PARAMETER SI ISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS ASBESTOS NOTES Filter WAS Collec	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 EPA 1311/6010/7470 EPA 8082 NIOSH 7400 ted from Wa	BOITLE TYPE/ VOLUME <u>REQUIRED</u> None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass None 1 @ 4 oz. plastic <b>EST WALL DETWEN</b>	SAMPLE COLLECTED

ROJECT ARL Building 1103A Characterizat	tion	JOB NUMBER 05-3060.06, Task 3	DATE 6/1/06
		RT 0730 END 0830	
ELD SAMPLE ID WL ~ A09		QC SAMPLES COLLECTE	d nla
SAMPLE DATA	MATERIAL:	EQUIPMENT INFORMATION	
	WALLBOARD (WL)	EQUIPMENT USED:	DECON FLUIDS USED:
TYPE OF SAMPLE: XDISCRETE	CEILING TILE (CL)	HAND CORER / AUGER	DI WATER N2 PURGE
COMPOSITE	FLOOR TILE (FL)	S.S. SPOON	
	PAINT CHIP (PT)	S.S. SHOVEL / TROWEL	LIQUINOX SOLUTION
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	XOTHER DI Water
Wall 11a, snear #109	OTHER	GEOPROBE	
·		X OTHER <u>razor</u> knife	RINSATE BLANK ID
cpm	cpm	Type:	
	•	ock, relatively in r w/white s grey	tact (not much 1 interior.
2" X 3" X 0.5" Chun Crumbling), dark SAMPLE ANALYSES PARAMETER	k of sheetr tan exterio	BOTTLE TYPE/ PRESERVATION VOLUME METHOD REQUIRED None 1@4 oz. plastic None 1 plastic bag	sample Sample
SAMPLE ANALYSES PARAMETER SISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) CRCRA METALS (TCLP) EF	K of Sheetr tan exterio METHOD NUMBER ASTM 3972-90M	PRESERVATION METHOD None Cool 4°C 1 @ 8 oz. glass	SAMPLE <u>COLLECTED</u>
A" X 3" X 0.5" Chur Crumbling), dark AMPLE ANALYSES PARAMETER Sotopic URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) PCBS	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M ЕРА 900.0 РА 1311/6010/7470 ЕРА 8082	BOTTLE TYPE/ PRESERVATION VOLUME <u>METHOD REQUIRED</u> None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE <u>COLLECTED</u>
A" X 3" X 0.5" Chur Crumbling), dark AMPLE ANALYSES PARAMETER SISOTOPIC URANIUM (ALPHA SPEC) GROSS ALPHA / BETA (SMEARS) RCRA METALS (TCLP) EF	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M EPA 900.0 ЭА 1311/6010/7470	PRESERVATION METHOD None Cool 4°C 1 @ 8 oz. glass	SAMPLE <u>COLLECTED</u>
A " X 3" X 0.5 " Churn Crumbling), dark a SAMPLE ANALYSES PARAMETER Sample ANALYSES PARAMETER GROSS ALPHA/BETA (SMEARS) RCRA METALS (TCLP) EF PCBS ASBESTOS	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M ЕРА 900.0 РА 1311/6010/7470 ЕРА 8082 NIOSH 7400	PRESERVATION METHOD None None Cool 4°C None Cool 4°C None Cool 4°C Dig 8 oz. glass Cool 4°C Dig 4 oz. glass None 1 @ 4 oz. glastic	SAMPLE COLLECTED
ISOTOPIC URANIUM (ALPHA SPEC)         GROSS ALPHA / BETA (SMEARS)         RCRA METALS (TCLP)         PCBS         ASBESTOS	<u>метнор</u> <u>NUMBER</u> ASTM 3972-90M ЕРА 900.0 РА 1311/6010/7470 ЕРА 8082 NIOSH 7400	PRESERVATION METHOD None None Cool 4°C None Cool 4°C None Cool 4°C Dig 8 oz. glass Cool 4°C Dig 4 oz. glass None 1 @ 4 oz. glastic	SAMPLE COLLECTED

The inclusion	· · · · · · · · · · · · · · · · · · ·		
ROJECT ARL Building 1103A Characteriza	tion	JOB NUMBER 05-3060.06, Task	3 DATE 6/1/06
CATION ID 1103A	ACTIVITY TIME STAR	T 0730 END 0830	
ELD SAMPLE ID WL-AII	(2)	OC SAMPLES COLLECT	red nla
SAMPLE DATA	MATERIAL	EQUIPMENT INFORMATION	
TYPE OF SAMPLE: XDISCRETE	WALLBOARD (WL)	EQUIPMENT USED; HAND CORER / AUGER S.S. SPOON S.S. SHOVEL / TROWEL	DECON FLUIDS USED: DI WATER N2 PURGE POTABLE WATER LIQUINOX SOLUTION
LOCATION COORDINATES	SMEAR (SM)	S.S. SPATULA	COTHER DI WALLY
uaii 4, smear #118	OTHER	GEOPROBE	RINSATE BLANK ID
RADIOLOGICAL MEASUREMENTS AT SAMPI	LE LOCATION		
BEFORE SAMPLE COLLECTION	AFTER SAMPLE COLLECTION		METER
cpm	cpm	Туре:	Туре:
		Serial No.:	
SAMPLE OBSERVATIONS (e.g., location, text $\sim 2" \times 2" \times 0.5"$ Church	ure, color, odor, etc.) NK OF Sheetr	ock, white lgrey	1, dry and crumble
SAMPLE OBSERVATIONS (e.g., location, text ~	ure, color, odor, etc.) NK OF Sheetr	ock, white lgrey	, dry and crumble
~2" X 2" x 0.5" Chu	ure, color, odor, etc.) NK OF SHEET		
~ 2" X 2" X 0.5" Chu SAMPLE ANALYSES	METHOD PR	BOTTLE TYPE/ ESERVATION VOLUME	, SAMPLE
∼ 2 " X 2" X 0.5 " Chu SAMPLE ANALYSES PARAMETER	nk of sheetr	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED	SAMPLE <u>COLLECTED</u>
~み"メタ"ょの.5″ Chuu SAMPLE ANALYSES PARAMETER	NK OF Sheetr	BOTTLE TYPE/ ESERVATION VOLUME METHOD REQUIRED	SAMPLE <u>COLLECTED</u>
<ul> <li>~ A " X A" × 0.5 " Chuu</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>X ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> </ul>	METHOD PR NUMBER ASTM 3972-80M	BOTTLE TYPE ESERVATION VOLUME <u>METHOD REQUIRED</u> None 1@4 oz. plastic	SAMPLE COLLECTED
<ul> <li>~ 𝔅 "𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>XI ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>XI RCRA METALS (TCLP)</li> <li>EF</li> <li>PCBS</li> </ul>	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 PA 1311/6010/7470 EPA 8082	BOTTLE TYPE RESERVATION VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass	SAMPLE COLLECTED
<ul> <li>~ 2 " × 2" × 0.5 " Chull</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>✓ ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>✓ RCRA METALS (TCLP)</li> </ul>	<u>метнор</u> <u>NUMBER</u> ASTM 3972-80M ЕРА 900.0 РА 1311/6010/7470	BOTTLE TYPE/ ESERVATION VOLUME <u>METHOD REQUIRED</u> None 1@4 oz. plastic None 1 plastic bag Cool 4°C 1@8 oz. glass	SAMPLE COLLECTED
<ul> <li>~ A " X A" X O.5" Chur</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>X ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> <li>EF</li> <li>PCBS</li> </ul>	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 PA 1311/6010/7470 EPA 8062 NIOSH 7400	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1 @ 4 oz. plastic None 1 plastic bag Cool 4°C 1 @ 8 oz. glass Cool 4°C 1 @ 4 oz. glass None 1 @ 4 oz. plastic	SAMPLE COLLECTED
<ul> <li>~ 2 " × 2" × 0.5 " Chuck</li> <li>SAMPLE ANALYSES</li> <li>PARAMETER</li> <li>X ISOTOPIC URANIUM (ALPHA SPEC)</li> <li>GROSS ALPHA / BETA (SMEARS)</li> <li>X RCRA METALS (TCLP)</li> <li>PCBS</li> <li>ASBESTOS</li> <li>NOTES</li> </ul>	METHOD PR NUMBER ASTM 3972-90M EPA 900.0 PA 1311/6010/7470 EPA 8062 NIOSH 7400	BOTTLE TYPE/ VOLUME METHOD REQUIRED None 1@4 oz. plastic None 1 plastic bag Cool 4°C 1@8 oz. glass Cool 4°C 1@4 oz. glass None 1@4 oz. plastic LA from this Iot	SAMPLE COLLECTED

# **APPENDIX D-2**

## CHEMICAL ANALYSIS RESULTS

							Analytical		
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number
CL-A13	AROCLOR-1016	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1221	1400	UG/KG	1400	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1232	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1242	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1248	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1254	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	AROCLOR-1260	710	UG/KG	710	U	PEST/PCB	SW8082	SOLID	606029
CL-A13	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A13	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
CL-A13	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CL-A13	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A13	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
CL-A13	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
CL-A13	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CL-A13	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A15	AROCLOR-1016	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1221	2000	UG/KG	2000	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1232	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1242	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1248	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1254	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	AROCLOR-1260	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A15	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A15	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
CL-A15	CADMIUM	0.17	MG/L	0.05		METALS	SW6010	LEACHATE	606029
CL-A15	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A15	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
CL-A15	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
CL-A15	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CL-A15	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A17	AROCLOR-1016	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1221	2000	UG/KG	2000	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1232	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1242	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1248	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1254	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	AROCLOR-1260	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CL-A17	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029

							Analytical		
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number
CL-A17	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
CL-A17	CADMIUM	0.17	MG/L	0.05		METALS	SW6010	LEACHATE	606029
CL-A17	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CL-A17	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
CL-A17	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
CL-A17	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CL-A17	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	AROCLOR-1016	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1221	2000	UG/KG	2000	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1232	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1242	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1248	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1254	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	AROCLOR-1260	980	UG/KG	980	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A01	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	CADMIUM	0.072	MG/L	0.05		METALS	SW6010	LEACHATE	606029
CLPT-A01	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	MERCURY	0.027	MG/L	0.002		METALS	SW7470	LEACHATE	606029
CLPT-A01	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CLPT-A01	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	AROCLOR-1016	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1221	1900	UG/KG	1900	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1232	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1242	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1248	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1254	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	AROCLOR-1260	950	UG/KG	950	U	PEST/PCB	SW8082	SOLID	606029
CLPT-A02	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	MERCURY	0.032	MG/L	0.002		METALS	SW7470	LEACHATE	606029
CLPT-A02	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
CLPT-A02	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
CLPT-B03	AROCLOR-1016	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029

			Analytical										
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number				
CLPT-B03	AROCLOR-1221	1900	UG/KG	1900	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	AROCLOR-1232	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	AROCLOR-1242	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	AROCLOR-1248	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	AROCLOR-1254	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	AROCLOR-1260	960	UG/KG	960	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-B03	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029				
CLPT-B03	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029				
CLPT-B03	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	AROCLOR-1016	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1221	2000	UG/KG	2000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1232	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1242	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1248	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1254	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	AROCLOR-1260	1000	UG/KG	1000	U	PEST/PCB	SW8082	SOLID	606029				
CLPT-C04	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	LEAD	21	MG/L	0.03		METALS	SW6010	LEACHATE	606029				
CLPT-C04	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029				
CLPT-C04	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029				
CLPT-C04	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
FL-A19	AROCLOR-1016	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1221	1400	UG/KG	1400	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1232	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1242	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1248	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1254	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	AROCLOR-1260	680	UG/KG	680	U	PEST/PCB	SW8082	SOLID	606029				
FL-A19	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029				
FL-A19	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029				

							Analytical		
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number
FL-A19	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
FL-A19	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
FL-A19	LEAD	0.094	MG/L	0.03		METALS	SW6010	LEACHATE	606029
FL-A19	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
FL-A19	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
FL-A19	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A17	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A17	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SO-A17	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A17	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A17	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SO-A17	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SO-A17	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A17	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A21	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A21	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SO-A21	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A21	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A21	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SO-A21	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SO-A21	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A21	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A30	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A30	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SO-A30	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A30	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A30	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SO-A30	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SO-A30	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A30	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A33	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A33	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SO-A33	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A33	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A33	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SO-A33	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SO-A33	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A33	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029

							Analytical		
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number
SO-A36	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A36	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SO-A36	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A36	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SO-A36	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SO-A36	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SO-A36	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SO-A36	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A24	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A24	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SS-A24	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SS-A24	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A24	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SS-A24	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SS-A24	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SS-A24	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A27	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A27	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
SS-A27	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SS-A27	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
SS-A27	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
SS-A27	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
SS-A27	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
SS-A27	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A09	AROCLOR-1016	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1221	1500	UG/KG	1500	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1232	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1242	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1248	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1254	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	AROCLOR-1260	760	UG/KG	760	U	PEST/PCB	SW8082	SOLID	606029
WL-A09	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A09	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
WL-A09	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
WL-A09	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A09	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
WL-A09	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
WL-A09	SELENIUM	0.051	MG/L	0.05		METALS	SW6010	LEACHATE	606029

							Analytical		
Field ID	Parameter	Result	Units	PRL	Flag	Suite	Method	Matrix	Order Number
WL-A09	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A11	AROCLOR-1016	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1221	1200	UG/KG	1200	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1232	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1242	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1248	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1254	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	AROCLOR-1260	580	UG/KG	580	U	PEST/PCB	SW8082	SOLID	606029
WL-A11	ARSENIC	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A11	BARIUM	1	MG/L	1	U	METALS	SW6010	LEACHATE	606029
WL-A11	CADMIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
WL-A11	CHROMIUM	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
WL-A11	LEAD	0.03	MG/L	0.03	U	METALS	SW6010	LEACHATE	606029
WL-A11	MERCURY	0.002	MG/L	0.002	U	METALS	SW7470	LEACHATE	606029
WL-A11	SELENIUM	0.05	MG/L	0.05	U	METALS	SW6010	LEACHATE	606029
WL-A11	SILVER	0.1	MG/L	0.1	U	METALS	SW6010	LEACHATE	606029
NOTES:									
Bold text and y	ellow highlighting indicate	that the sampl	e exceeded the	40 CFR 26	1.25 toxic	ity characteristic for	or the respective	constituent.	
U = The compo	ound was analyzed for but	not detected.							

### **APPENDIX D-3**

## **ISOTOPIC URANIUM RESULTS**

### Building 1103A Area Characterization Isotopic Uranium Results

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
AS-P05- Bottom	U-234	1.8	+/-	0.35	pCi/g	0.04		714R9	SOLID	606044
AS-P05- Bottom	U-235	0.221	+/-	0.082	pCi/g	0.038		714R9	SOLID	606044
AS-P05- Bottom	U-238	10.3	+/-	1.7	pCi/g	0		714R9	SOLID	606044
AS-P05- Top	U-234	0.39	+/-	0.12	pCi/g	0.04		714R9	SOLID	606044
AS-P05- Top	U-235	0.034	+/-	0.033	pCi/g	0.038	U	714R9	SOLID	606044
AS-P05- Top	U-238	2.07	+/-	0.41	pCi/g	0.04		714R9	SOLID	606044
CL-A13	U-234	0.42	+/-	0.12	pCi/g	0.04		714R9	SOLID	606044
CL-A13	U-235	0.033	+/-	0.032	pCi/g	0.037	U	714R9	SOLID	606044
CL-A13	U-238	2.37	+/-	0.45	pCi/g	0.02		714R9	SOLID	606044
CL-A15	U-234	0.67	+/-	0.17	pCi/g	0.04		714R9	SOLID	606044
CL-A15	U-235	0.1	+/-	0.058	pCi/g	0.021		714R9	SOLID	606044
CL-A15	U-238	4.33	+/-	0.79	pCi/g	0.04		714R9	SOLID	606044
CL-A17	U-234	2.19	+/-	0.42	pCi/g	0.03		714R9	SOLID	606044
CL-A17	U-235	0.246	+/-	0.089	pCi/g	0.018		714R9	SOLID	606044
CL-A17	U-238	16.9	+/-	2.8	pCi/g	0		714R9	SOLID	606044
CLPT-A01	U-234	0.94	+/-	0.21	pCi/g	0.06		714R9	SOLID	606029
CLPT-A01	U-235	0.15	+/-	0.07	pCi/g	0.062		714R9	SOLID	606029
CLPT-A01	U-238	4.72	+/-	0.83	pCi/g	0.05		714R9	SOLID	606029
CLPT-A02	U-234	1.77	+/-	0.35	pCi/g	0.04		714R9	SOLID	606029
CLPT-A02	U-235	0.16	+/-	0.069	pCi/g	0.04		714R9	SOLID	606029
CLPT-A02	U-238	10.3	+/-	1.7	pCi/g	0		714R9	SOLID	606029
CLPT-B03	U-234	0.73	+/-	0.18	pCi/g	0.04		714R9	SOLID	606029
CLPT-B03	U-235	0.216	+/-	0.085	pCi/g	0.019		714R9	SOLID	606029
CLPT-B03	U-238	4.24	+/-	0.76	pCi/g	0.04		714R9	SOLID	606029
CLPT-C04	U-234	0.104	+/-	0.055	pCi/g	0.059		714R9	SOLID	606029
CLPT-C04	U-235	0.005	+/-	0.024	pCi/g	0.052	U	714R9	SOLID	606029
CLPT-C04	U-238	0.12	+/-	0.058	pCi/g	0.051		714R9	SOLID	606029
FL-A19	U-234	1.41	+/-	0.27	pCi/g	0.03		714R9	SOLID	606029
FL-A19	U-235	0.144	+/-	0.053	pCi/g	0.02		714R9	SOLID	606029
FL-A19	U-238	5.52	+/-	0.94	pCi/g	0.04		714R9	SOLID	606029
FL-A21	U-234	11.1	+/-	2	pCi/g	0.1	Y2	714R9	SOLID	606044
FL-A21	U-235	1.24	+/-	0.32	pCi/g	0.08	Y2	714R9	SOLID	606044
FL-A21	U-238	85	+/-	15	pCi/g	0	Y2	714R9	SOLID	606044
FL-R43- Bottom	U-234	0.069	+/-	0.053	pCi/g	0.081	U	714R9	SOLID	606044
FL-R43- Bottom	U-235	0.011	+/-	0.031	pCi/g	0.069	U	714R9	SOLID	606044
FL-R43- Bottom	U-238	0.089	+/-	0.054	pCi/g	0.064	LT	714R9	SOLID	606044
FL-R43- Top	U-234	2.21	+/-	0.43	pCi/g	0.04		714R9	SOLID	606044

### Building 1103A Area Characterization Isotopic Uranium Results

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
FL-R43- Top	U-235	0.35	+/-	0.12	pCi/g	0.02		714R9	SOLID	606044
FL-R43- Top	U-238	15.5	+/-	2.6	pCi/g	0		714R9	SOLID	606044
FL-R44- Bottom	U-234	0.303	+/-	0.099	pCi/g	0.032		714R9	SOLID	606044
FL-R44- Bottom	U-235	0.07	+/-	0.047	pCi/g	0.038	LT	714R9	SOLID	606044
FL-R44- Bottom	U-238	1.65	+/-	0.34	pCi/g	0.04		714R9	SOLID	606044
FL-R44- Top	U-234	1.07	+/-	0.23	pCi/g	0.03		714R9	SOLID	606044
FL-R44- Top	U-235	0.096	+/-	0.053	pCi/g	0.034	LT	714R9	SOLID	606044
FL-R44- Top	U-238	7.5	+/-	1.3	pCi/g	0		714R9	SOLID	606044
FL-R45- Bottom	U-234	0.114	+/-	0.055	pCi/g	0.04		714R9	SOLID	606044
FL-R45- Bottom	U-235	-0.004	+/-	0.024	pCi/g	0.042	U	714R9	SOLID	606044
FL-R45- Bottom	U-238	0.208	+/-	0.078	pCi/g	0.044		714R9	SOLID	606044
FL-R45- Top	U-234	6.4	+/-	1.1	pCi/g	0.1		714R9	SOLID	606044
FL-R45- Top	U-235	1.17	+/-	0.26	pCi/g	0.06		714R9	SOLID	606044
FL-R45- Top	U-238	47.7	+/-	7.8	pCi/g	0		714R9	SOLID	606044
FL-R46- Bottom	U-234	0.122	+/-	0.054	pCi/g	0.045	Y1	714R9	SOLID	606044
FL-R46- Bottom	U-235	0.009	+/-	0.02	pCi/g	0.029	Y1,U	714R9	SOLID	606044
FL-R46- Bottom	U-238	0.121	+/-	0.054	pCi/g	0.047	Y1	714R9	SOLID	606044
FL-R46- Top	U-234	17	+/-	3	pCi/g	0.2	Y2,M3	714R9	SOLID	606044
FL-R46- Top	U-235	1.71	+/-	0.4	pCi/g	0.13	Y2,M3	714R9	SOLID	606044
FL-R46- Top	U-238	132	+/-	23	pCi/g	0	Y2,M3	714R9	SOLID	606044
FL-R47- Bottom	U-234	0.109	+/-	0.056	pCi/g	0.054		714R9	SOLID	606044
FL-R47- Bottom	U-235	0.001	+/-	0.024	pCi/g	0.048	U	714R9	SOLID	606044
FL-R47- Bottom	U-238	0.143	+/-	0.063	pCi/g	0.045		714R9	SOLID	606044
FL-R47- Top	U-234	0.128	+/-	0.058	pCi/g	0.03		714R9	SOLID	606044
FL-R47- Top	U-235	0.018	+/-	0.024	pCi/g	0.035	U	714R9	SOLID	606044
FL-R47- Top	U-238	0.243	+/-	0.085	pCi/g	0.04		714R9	SOLID	606044
SM-A06	U-234	1.08	+/-	0.26	pCi/g	0.06		714R9	SOLID	606044
SM-A06	U-235	0.065	+/-	0.052	pCi/g	0.056	LT	714R9	SOLID	606044
SM-A06	U-238	8.3	+/-	1.5	pCi/g	0.1		714R9	SOLID	606044
SM-A07	U-234	0.57	+/-	0.15	pCi/g	0.07		714R9	SOLID	606044
SM-A07	U-235	0.125	+/-	0.062	pCi/g	0.049		714R9	SOLID	606044
SM-A07	U-238	3.96	+/-	0.71	pCi/g	0.05		714R9	SOLID	606044
SM-A08	U-234	1.17	+/-	0.25	pCi/g	0.07		714R9	SOLID	606044
SM-A08	U-235	0.237	+/-	0.091	pCi/g	0.053		714R9	SOLID	606044
SM-A08	U-238	9.2	+/-	1.6	pCi/g	0		714R9	SOLID	606044
WL-A05	U-234	13.7	+/-	2.6	pCi/g	0.1	Y2,M3	714R9	SOLID	606044
WL-A05	U-235	1.78	+/-	0.44	pCi/g	0.12	Y2,M3	714R9	SOLID	606044

### Building 1103A Area Characterization Isotopic Uranium Results

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
WL-A05	U-238	99	+/-	18	pCi/g	0	Y2	714R9	SOLID	606044
WL-A09	U-234	0.215	+/-	0.08	pCi/g	0.041		714R9	SOLID	606044
WL-A09	U-235	0.034	+/-	0.031	pCi/g	0.018	LT	714R9	SOLID	606044
WL-A09	U-238	0.207		0.078	pCi/g	0.045		714R9	SOLID	606044
WL-A11	U-234	0.57	+/-	0.16	pCi/g	0.09		714R9	SOLID	606044
WL-A11	U-235	0.084	+/-	0.057	pCi/g	0.067	LT	714R9	SOLID	606044
WL-A11	U-238	2.49		0.48	pCi/g	0.05		714R9	SOLID	606044
NOTES:										
Sample entries in bold	text and yellow high	lighting indica	ate tha	t DU conce	entrations are high	gher than o	r close to	the soil sample s	creening limit	of 102 pCi/g.
MDC = Minimum Detect	ctable Concentration	n								
TPU = Total Propagate	ed Uncertainty									
U = Result is less than	the sample-specific	MDC.								
LT = Result is less than	n the requested MD	C but greater	than th	ne sample-	specific MDC.					
Y1 = Chemical yield is	in control at 100-11	0%. Quantitat	ive yie	ld is assun	ned.					
Y2 = Chemical yield is	outside default limit	S.								
M3 = The requested M	DC was not met, bu	t the reported	l activit	y is greate	r than the report	ted MDC.				

### **APPENDIX D-4**

## GAMMA SPECTROSCOPY RESULTS

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-A17	Ac-228	1	+/-	0.27	pCi/g	0.35	G	713R9	SOIL	606043
SO-A17	Bi-212	1.3	+/-	1	pCi/g	1.6	U,G	713R9	SOIL	606043
SO-A17	Bi-214	0.92	+/-	0.25	pCi/g	0.25	G,J	713R9	SOIL	606043
SO-A17	Cs-137	0.091	+/-	0.075	pCi/g	0.113	U,G	713R9	SOIL	606043
SO-A17	K-40	8.8	+/-	2	pCi/g	1.4	G	713R9	SOIL	606043
SO-A17	Pa-234m	-2.2	+/-	7.8	pCi/g	15.1	U,G	713R9	SOIL	606043
SO-A17	Pb-212	1.16	+/-	0.22	pCi/g	0.17	G	713R9	SOIL	606043
SO-A17	Pb-214	1.2	+/-	0.23	pCi/g	0.22	G,J	713R9	SOIL	606043
SO-A17	Th-234	0.1	+/-	3.1	pCi/g	5.6	U,G	713R9	SOIL	606043
SO-A17	U-235	-0.01	+/-	0.35	pCi/g	0.62	U,G	713R9	SOIL	606043
SO-A20	Ac-228	1.08	+/-	0.33	pCi/g	0.49	G	713R9	SOIL	606043
SO-A20	Bi-212	1.1	+/-	1.1	pCi/g	1.7	U,G	713R9	SOIL	606043
SO-A20	Bi-214	0.84	+/-	0.24	pCi/g	0.26	G,J	713R9	SOIL	606043
SO-A20	Cs-137	0.064	+/-	0.086	pCi/g	0.141	U,G	713R9	SOIL	606043
SO-A20	K-40	9.7	+/-	2.4	pCi/g	2.3	G	713R9	SOIL	606043
SO-A20	Pa-234m	1.6	+/-	8.1	pCi/g	14.8	U,G	713R9	SOIL	606043
SO-A20	Pb-212	1.25	+/-	0.26	pCi/g	0.27	G	713R9	SOIL	606043
SO-A20	Pb-214	1.16	+/-	0.23	pCi/g	0.23	G,J	713R9	SOIL	606043
SO-A20	Th-234	2.7	+/-	2.6	pCi/g	4.2	U,G	713R9	SOIL	606043
SO-A20	U-235	0.19	+/-	0.35	pCi/g	0.59	U,G	713R9	SOIL	606043
SO-A30	Ac-228	1.26	+/-	0.31	pCi/g	0.54	G	713R9	SOIL	606043
SO-A30	Bi-212	2.2	+/-	1.3	pCi/g	1.9	G	713R9	SOIL	606043
SO-A30	Bi-214	1.14	+/-	0.24	pCi/g	0.25	G,J	713R9	SOIL	606043
SO-A30	Cs-137	-0.008	+/-	0.073	pCi/g	0.132	U,G	713R9	SOIL	606043
SO-A30	K-40	11.2	+/-	2.2	pCi/g	1.6	G	713R9	SOIL	606043
SO-A30	Pa-234m	-1.6	+/-	7.8	pCi/g	14.7	U,G	713R9	SOIL	606043
SO-A30	Pb-212	1.59	+/-	0.26	pCi/g	0.17	G	713R9	SOIL	606043
SO-A30	Pb-214	1.35	+/-	0.24	pCi/g	0.25	G,J	713R9	SOIL	606043
SO-A30	Th-234	-2.8	+/-	4.3	pCi/g	7.6	U,G	713R9	SOIL	606043
SO-A30	U-235	-0.16	+/-	0.47	pCi/g	0.81	U,G	713R9	SOIL	606043
SO-A33	Ac-228	1.21	+/-	0.39	pCi/g	0.5	G	713R9	SOIL	606043
SO-A33	Bi-212	2.5	+/-	1.5	pCi/g	2.1	G	713R9	SOIL	606043
SO-A33	Bi-214	0.94	+/-	0.3	pCi/g	0.34	G,J	713R9	SOIL	606043
SO-A33	Cs-137	0.057	+/-	0.094	pCi/g	0.157	U,G	713R9	SOIL	606043
SO-A33	K-40	11.2	+/-	2.6	pCi/g	1.4	G	713R9	SOIL	606043
SO-A33	Pa-234m	7	+/-	11	pCi/g	18	U,G	713R9	SOIL	606043
SO-A33	Pb-212	1.24	+/-	0.27	pCi/g	0.27	G	713R9	SOIL	606043
SO-A33	Pb-214	1.21	+/-	0.25	pCi/g	0.25	G,J	713R9	SOIL	606043
SO-A33	Th-234	3.5	+/-	4	pCi/g	6.5	U,G	713R9	SOIL	606043
SO-A33	U-235	0.18	+/-	0.43	pCi/g	0.73	U,G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-A36	Ac-228	1.28	+/-	0.32	pCi/g	0.55	G	713R9	SOIL	606043
SO-A36	Bi-212	1.1	+/-	1.1	pCi/g	1.7	U,G	713R9	SOIL	606043
SO-A36	Bi-214	0.91	+/-	0.23	pCi/g	0.24	G,J	713R9	SOIL	606043
SO-A36	Cs-137	0.005	+/-	0.074	pCi/g	0.133	U,G	713R9	SOIL	606043
SO-A36	K-40	8.7	+/-	2	pCi/g	1.2	G	713R9	SOIL	606043
SO-A36	Pa-234m	8	+/-	8.1	pCi/g	12.7	U,G	713R9	SOIL	606043
SO-A36	Pb-212	1.53	+/-	0.27	pCi/g	0.18	G	713R9	SOIL	606043
SO-A36	Pb-214	1.14	+/-	0.22	pCi/g	0.2	G,J	713R9	SOIL	606043
SO-A36	Th-234	3.1	+/-	3	pCi/g	4.8	U,G	713R9	SOIL	606043
SO-A36	U-235	0.15	+/-	0.39	pCi/g	0.66	U,G	713R9	SOIL	606043
SO-G01	Ac-228	0.73	+/-	0.26	pCi/g	0.35		713R9	SOIL	606043
SO-G01	Bi-212	0.82	+/-	0.88	pCi/g	1.4	U	713R9	SOIL	606043
SO-G01	Bi-214	0.42	+/-	0.17	pCi/g	0.2	J	713R9	SOIL	606043
SO-G01	Cs-137	-0.043	+/-	0.066	pCi/g	0.132	U	713R9	SOIL	606043
SO-G01	K-40	4.5	+/-	1.3	pCi/g	1.1		713R9	SOIL	606043
SO-G01	Pa-234m	-1.3	+/-	6.7	pCi/g	13.2	U	713R9	SOIL	606043
SO-G01	Pb-212	0.62	+/-	0.15	pCi/g	0.15		713R9	SOIL	606043
SO-G01	Pb-214	0.48	+/-	0.14	pCi/g	0.19	J	713R9	SOIL	606043
SO-G01	Th-234	0.1	+/-	3.2	pCi/g	5.6	U	713R9	SOIL	606043
SO-G01	U-235	0.09	+/-	0.36	pCi/g	0.63	U	713R9	SOIL	606043
SO-G02	Ac-228	0.53	+/-	0.32	pCi/g	0.36	G,TI	713R9	SOIL	606043
SO-G02	Bi-212	-0.3	+/-	1.1	pCi/g	2.1	U,G	713R9	SOIL	606043
SO-G02	Bi-214	0.03	+/-	0.16	pCi/g	0.29	U,G,J	713R9	SOIL	606043
SO-G02	Cs-137	-0.042	+/-	0.074	pCi/g	0.152	U,G	713R9	SOIL	606043
SO-G02	K-40	1.8	+/-	1.3	pCi/g	1.9	U,G	713R9	SOIL	606043
SO-G02	Pa-234m	26	+/-	12	pCi/g	12	G	713R9	SOIL	606043
SO-G02	Pb-212	0.26	+/-	0.13	pCi/g	0.17	G	713R9	SOIL	606043
SO-G02	Pb-214	0.3	+/-	0.16	pCi/g	0.22	G,J	713R9	SOIL	606043
SO-G02	Th-234	19.3	+/-	8.8	pCi/g	12.2	M3,G	713R9	SOIL	606043
SO-G02	U-235	-0.12	+/-	0.36	pCi/g	0.67	U,G	713R9	SOIL	606043
SO-G03	Ac-228	1.59	+/-	0.37	pCi/g	0.61	G	713R9	SOIL	606043
SO-G03	Bi-212	1.16	+/-	0.92	pCi/g	1.38	U,G	713R9	SOIL	606043
SO-G03	Bi-214	1.27	+/-	0.26	pCi/g	0.27	G,J	713R9	SOIL	606043
SO-G03	Cs-137	0.021	+/-	0.084	pCi/g	0.147	U,G	713R9	SOIL	606043
SO-G03	K-40	11.2	+/-	2.3	pCi/g	1.7	G	713R9	SOIL	606043
SO-G03	Pa-234m	4.5	+/-	8.9	pCi/g	15.2	U,G	713R9	SOIL	606043
SO-G03	Pb-212	1.61	+/-	0.27	pCi/g	0.19	G	713R9	SOIL	606043
SO-G03	Pb-214	1.29	+/-	0.23	pCi/g	0.24	G,J	713R9	SOIL	606043
SO-G03	Th-234	1.5	+/-	3.3	pCi/g	5.5	U,G	713R9	SOIL	606043
SO-G03	U-235	-0.25	+/-	0.47	pCi/g	0.82	U,G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-G04	Ac-228	1.41	+/-	0.4	pCi/g	0.64	G	713R9	SOIL	606043
SO-G04	Bi-212	1.8	+/-	1.1	pCi/g	1.5	G	713R9	SOIL	606043
SO-G04	Bi-214	1.06	+/-	0.29	pCi/g	0.3	G,J	713R9	SOIL	606043
SO-G04	Cs-137	0.064	+/-	0.098	pCi/g	0.164	U,G	713R9	SOIL	606043
SO-G04	K-40	9.2	+/-	2.4	pCi/g	1.5	G	713R9	SOIL	606043
SO-G04	Pa-234m	3	+/-	10	pCi/g	18.7	U,G	713R9	SOIL	606043
SO-G04	Pb-212	1.32	+/-	0.28	pCi/g	0.26	G	713R9	SOIL	606043
SO-G04	Pb-214	0.95	+/-	0.23	pCi/g	0.29	G,J	713R9	SOIL	606043
SO-G04	Th-234	3.2	+/-	1.5	pCi/g	2.1	LT,G	713R9	SOIL	606043
SO-G04	U-235	0.26	+/-	0.41	pCi/g	0.69	U,G	713R9	SOIL	606043
SO-G07	Ac-228	0.46	+/-	0.35	pCi/g	0.51	U,G	713R9	SOIL	606043
SO-G07	Bi-212	-0.9	+/-	1.1	pCi/g	2.2	U,G	713R9	SOIL	606043
SO-G07	Bi-214	0.12	+/-	0.17	pCi/g	0.28	U,G,J	713R9	SOIL	606043
SO-G07	Cs-137	0.001	+/-	0.086	pCi/g	0.156	U,G	713R9	SOIL	606043
SO-G07	K-40	1.3	+/-	1.2	pCi/g	1.9	U,G	713R9	SOIL	606043
SO-G07	Pa-234m	230	+/-	39	pCi/g	16	G	713R9	SOIL	606043
SO-G07	Pb-212	0.23	+/-	0.19	pCi/g	0.3	U,G	713R9	SOIL	606043
SO-G07	Pb-214	0.22	+/-	0.16	pCi/g	0.25	U,G,J	713R9	SOIL	606043
SO-G07	Th-234	156	+/-	22	pCi/g	14	M3,G	713R9	SOIL	606043
SO-G07	U-235	2.47	+/-	0.65	pCi/g	1.07	LT,G	713R9	SOIL	606043
SO-G08	Ac-228	0.26	+/-	0.49	pCi/g	0.84	U,G	713R9	SOIL	606043
SO-G08	Bi-212	0.5	+/-	1.9	pCi/g	3.4	U,G	713R9	SOIL	606043
SO-G08	Bi-214	0.39	+/-	0.29	pCi/g	0.45	U,G,J	713R9	SOIL	606043
SO-G08	Cs-137	-0.08	+/-	0.12	pCi/g	0.24	U,G	713R9	SOIL	606043
SO-G08	K-40	3.1	+/-	1.5	pCi/g	1.8	G	713R9	SOIL	606043
SO-G08	Pa-234m	597	+/-	86	pCi/g	20	G	713R9	SOIL	606043
SO-G08	Pb-212	0.51	+/-	0.25	pCi/g	0.37	G	713R9	SOIL	606043
SO-G08	Pb-214	0.26	+/-	0.23	pCi/g	0.36	U,G,J	713R9	SOIL	606043
SO-G08	Th-234	405	+/-	48	pCi/g	7	G	713R9	SOIL	606043
SO-G08	U-235	6.5	+/-	1.2	pCi/g	1.4	LT,G	713R9	SOIL	606043
SO-G09	Ac-228	0.12	+/-	0.34	pCi/g	0.59	U,G	713R9	SOIL	606043
SO-G09	Bi-212	0.5	+/-	1.4	pCi/g	2.4	U,G	713R9	SOIL	606043
SO-G09	Bi-214	0.06	+/-	0.21	pCi/g	0.36	U,G,J	713R9	SOIL	606043
SO-G09	Cs-137	0.03	+/-	0.1	pCi/g	0.17	U,G	713R9	SOIL	606043
SO-G09	K-40	0.73	+/-	0.84	pCi/g	1.37	U,G	713R9	SOIL	606043
SO-G09	Pa-234m	313	+/-	48	pCi/g	16	G	713R9	SOIL	606043
SO-G09	Pb-212	0.24	+/-	0.22	pCi/g	0.36	U,G	713R9	SOIL	606043
SO-G09	Pb-214	0	+/-	0.2	pCi/g	0.35	U,G,J	713R9	SOIL	606043
SO-G09	Th-234	226	+/-	30	pCi/g	16	M3,G	713R9	SOIL	606043
SO-G09	U-235	3.7	+/-	0.79	pCi/g	1.13	LT,G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-G10	Ac-228	0.36	+/-	0.24	pCi/g	0.29	G,TI	713R9	SOIL	606043
SO-G10	Bi-212	-0.17	+/-	0.71	pCi/g	1.4	U,G	713R9	SOIL	606043
SO-G10	Bi-214	0.12	+/-	0.13	pCi/g	0.21	U,G,J	713R9	SOIL	606043
SO-G10	Cs-137	-0.038	+/-	0.056	pCi/g	0.116	U,G	713R9	SOIL	606043
SO-G10	K-40	1.33	+/-	0.75	pCi/g	0.85	G	713R9	SOIL	606043
SO-G10	Pa-234m	36	+/-	12	pCi/g	12	G	713R9	SOIL	606043
SO-G10	Pb-212	0.098	+/-	0.097	pCi/g	0.156	U,G	713R9	SOIL	606043
SO-G10	Pb-214	0.08	+/-	0.1	pCi/g	0.17	U,G,J	713R9	SOIL	606043
SO-G10	Th-234	26.3	+/-	5.7	pCi/g	6	G	713R9	SOIL	606043
SO-G10	U-235	0.32	+/-	0.32	pCi/g	0.52	U,G	713R9	SOIL	606043
SO-G12	Ac-228	0.1	+/-	0.43	pCi/g	0.75	Ŭ	713R9	SOIL	606043
SO-G12	Bi-212	1.3	+/-	2.4	pCi/g	4	U	713R9	SOIL	606043
SO-G12	Bi-214	0.16	+/-	0.3	pCi/g	0.51	U,J	713R9	SOIL	606043
SO-G12	Cs-137	-0.11	+/-	0.17	pCi/g	0.3	U	713R9	SOIL	606043
SO-G12	K-40	1.5	+/-	1.1	pCi/g	1.6	U	713R9	SOIL	606043
SO-G12	Pa-234m	1780	+/-	220	pCi/g	20		713R9	SOIL	606043
SO-G12	Pb-212	0.02	+/-	0.3	pCi/g	0.51	U	713R9	SOIL	606043
SO-G12	Pb-214	0.25	+/-	0.27	pCi/g	0.59	U,J	713R9	SOIL	606043
SO-G12	Th-234	654	+/-	77	pCi/g	8	- ,-	713R9	SOIL	606043
SO-G12	U-235	17.4	+/-	2.4	pCi/g	2.3		713R9	SOIL	606043
SO-G39	Ac-228	1.51	+/-	0.36	pCi/g	0.46	G	713R9	SOIL	606043
SO-G39	Bi-212	1.4	+/-	1.1	pCi/g	1.7	U,G	713R9	SOIL	606043
SO-G39	Bi-214	1.11	+/-	0.25	pCi/g	0.25	G,J	713R9	SOIL	606043
SO-G39	Cs-137	0.157	+/-	0.074	pCi/g	0.098	G	713R9	SOIL	606043
SO-G39	K-40	12.5	+/-	2.4	pCi/g	1.6	G	713R9	SOIL	606043
SO-G39	Pa-234m	6.7	+/-	8.5	pCi/g	13.8	U,G	713R9	SOIL	606043
SO-G39	Pb-212	1.75	+/-	0.28	pCi/g	0.19	G	713R9	SOIL	606043
SO-G39	Pb-214	1.22	+/-	0.21	pCi/g	0.22	G,J	713R9	SOIL	606043
SO-G39	Th-234	6.4	+/-	3.8	pCi/g	5.9	LT,G	713R9	SOIL	606043
SO-G39	U-235	0.23	+/-	0.25	pCi/g	0.4	U,G	713R9	SOIL	606043
SO-G40	Ac-228	0.12	+/-	0.23	pCi/g	0.39	U,G	713R9	SOIL	606043
SO-G40	Bi-212	0.56	+/-	0.85	pCi/g	1.41	U,G	713R9	SOIL	606043
SO-G40	Bi-214	0.16	+/-	0.14	pCi/g	0.21	U,G,J	713R9	SOIL	606043
SO-G40	Cs-137	0.003	+/-	0.06	pCi/g	0.106	U,G	713R9	SOIL	606043
SO-G40	K-40	1.7	+/-	0.98	pCi/g	1.4	G	713R9	SOIL	606043
SO-G40	Pa-234m	106	+/-	19	pCi/g	10	G	713R9	SOIL	606043
SO-G40	Pb-212	0.23	+/-	0.12	pCi/g	0.18	G	713R9	SOIL	606043
SO-G40	Pb-214	0.16	+/-	0.12	pCi/g	0.21	U,G,J	713R9	SOIL	606043
SO-G40	Th-234	84	+/-	12	pCi/g	9	M3,G	713R9	SOIL	606043
SO-G40	U-235	1.36	+/-	0.4	pCi/g	0.69	LT,G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-G42	Ac-228	0.92	+/-	0.46	pCi/g	0.67	G	713R9	SOIL	606043
SO-G42	Bi-212	1.8	+/-	1.6	pCi/g	2.3	U,G	713R9	SOIL	606043
SO-G42	Bi-214	0.72	+/-	0.3	pCi/g	0.35	G,J	713R9	SOIL	606043
SO-G42	Cs-137	0.12	+/-	0.11	pCi/g	0.16	U,G	713R9	SOIL	606043
SO-G42	K-40	8.1	+/-	2.5	pCi/g	2	G	713R9	SOIL	606043
SO-G42	Pa-234m	29	+/-	16	pCi/g	20	G	713R9	SOIL	606043
SO-G42	Pb-212	0.97	+/-	0.27	pCi/g	0.29	G	713R9	SOIL	606043
SO-G42	Pb-214	0.64	+/-	0.24	pCi/g	0.41	G,J	713R9	SOIL	606043
SO-G42	Th-234	20.6	+/-	3.7	pCi/g	2.9	G	713R9	SOIL	606043
SO-G42	U-235	-0.05	+/-	0.51	pCi/g	0.92	U,G	713R9	SOIL	606043
SO-P05	Ac-228	0.1	+/-	0.29	pCi/g	0.51	U,G	713R9	SOIL	606043
SO-P05	Bi-212	0.34	+/-	0.63	pCi/g	1.09	U,G	713R9	SOIL	606043
SO-P05	Bi-214	0.04	+/-	0.13	pCi/g	0.22	U,G,J	713R9	SOIL	606043
SO-P05	Cs-137	-0.013	+/-	0.06	pCi/g	0.117	U,G	713R9	SOIL	606043
SO-P05	K-40	1.25	+/-	0.91	pCi/g	1.26	U,G	713R9	SOIL	606043
SO-P05	Pa-234m	-4.1	+/-	6.3	pCi/g	13.9	U,G	713R9	SOIL	606043
SO-P05	Pb-212	0.17	+/-	0.1	pCi/g	0.15	G	713R9	SOIL	606043
SO-P05	Pb-214	-0.01	+/-	0.11	pCi/g	0.2	U,G,J	713R9	SOIL	606043
SO-P05	Th-234	0.6	+/-	2.1	pCi/g	3.6	U,G	713R9	SOIL	606043
SO-P05	U-235	0.04	+/-	0.21	pCi/g	0.37	U,G	713R9	SOIL	606043
SO-P06	Ac-228	0.39	+/-	0.23	pCi/g	0.32	G,TI	713R9	SOIL	606043
SO-P06	Bi-212	0.65	+/-	0.61	pCi/g	0.95	U,G	713R9	SOIL	606043
SO-P06	Bi-214	0.17	+/-	0.12	pCi/g	0.17	U,G,J	713R9	SOIL	606043
SO-P06	Cs-137	0.027	+/-	0.037	pCi/g	0.06	U,G	713R9	SOIL	606043
SO-P06	K-40	2.23	+/-	0.93	pCi/g	1.12	Ġ	713R9	SOIL	606043
SO-P06	Pa-234m	12	+/-	6.1	pCi/g	7.2	G	713R9	SOIL	606043
SO-P06	Pb-212	0.16	+/-	0.075	pCi/g	0.104	G	713R9	SOIL	606043
SO-P06	Pb-214	0.142	+/-	0.085	pCi/g	0.164	U,G,J	713R9	SOIL	606043
SO-P06	Th-234	10.8	+/-	4.8	pCi/g	6.7	G	713R9	SOIL	606043
SO-P06	U-235	0.27	+/-	0.23	pCi/g	0.36	U,G	713R9	SOIL	606043
SO-P11	Ac-228	0.27	+/-	0.87	pCi/g	1.52	U,G	713R9	SOIL	606043
SO-P11	Bi-212	-0.6	+/-	4.1	pCi/g	7.2	U,G	713R9	SOIL	606043
SO-P11	Bi-214	-0.01	+/-	0.57	pCi/g	0.98	U,G,J	713R9	SOIL	606043
SO-P11	Cs-137	0.32	+/-	0.28	pCi/g	0.44	U,G	713R9	SOIL	606043
SO-P11	K-40	4	+/-	2.2	pCi/g	2.9	G	713R9	SOIL	606043
SO-P11	Pa-234m	2440	+/-	310	pCi/g	40	G	713R9	SOIL	606043
SO-P11	Pb-212	0.37	+/-	0.45	pCi/g	0.73	U,G	713R9	SOIL	606043
SO-P11	Pb-214	0.6	+/-	0.41	pCi/g	0.77	U,G,J	713R9	SOIL	606043
SO-P11	Th-234	1740	+/-	220	pCi/g	80	M3,G	713R9	SOIL	606043
SO-P11	U-235	28.3	+/-	4	pCi/g	3.8	G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SO-P13	Ac-228	1.21	+/-	0.34	pCi/g	0.48	G	713R9	SOIL	606043
SO-P13	Bi-212	1.24	+/-	0.99	pCi/g	1.53	U,G	713R9	SOIL	606043
SO-P13	Bi-214	0.7	+/-	0.19	pCi/g	0.24	G,J	713R9	SOIL	606043
SO-P13	Cs-137	0.136	+/-	0.077	pCi/g	0.11	G	713R9	SOIL	606043
SO-P13	K-40	8.6	+/-	1.9	pCi/g	1.5	G	713R9	SOIL	606043
SO-P13	Pa-234m	11.9	+/-	7.9	pCi/g	11.3	G,TI	713R9	SOIL	606043
SO-P13	Pb-212	0.96	+/-	0.19	pCi/g	0.17	G	713R9	SOIL	606043
SO-P13	Pb-214	0.86	+/-	0.18	pCi/g	0.21	G,J	713R9	SOIL	606043
SO-P13	Th-234	4.9	+/-	3.7	pCi/g	5.8	U,G	713R9	SOIL	606043
SO-P13	U-235	0.29	+/-	0.45	pCi/g	0.75	U,G	713R9	SOIL	606043
SS-A24	Ac-228	1.38	+/-	0.26	pCi/g	0.27	G	713R9	SOIL	606043
SS-A24	Bi-212	1.67	+/-	0.85	pCi/g	1.16	G	713R9	SOIL	606043
SS-A24	Bi-214	1.11	+/-	0.21	pCi/g	0.18	G,J	713R9	SOIL	606043
SS-A24	Cs-137	0.054	+/-	0.043	pCi/g	0.065	U,G	713R9	SOIL	606043
SS-A24	K-40	9.1	+/-	1.8	pCi/g	1.1	G	713R9	SOIL	606043
SS-A24	Pa-234m	2.5	+/-	6.7	pCi/g	11.6	U,G	713R9	SOIL	606043
SS-A24	Pb-212	1.28	+/-	0.2	pCi/g	0.13	G	713R9	SOIL	606043
SS-A24	Pb-214	1.31	+/-	0.21	pCi/g	0.2	G,J	713R9	SOIL	606043
SS-A24	Th-234	0.2	+/-	4.6	pCi/g	7.9	U,G	713R9	SOIL	606043
SS-A24	U-235	0.12	+/-	0.28	pCi/g	0.47	U,G	713R9	SOIL	606043
SS-A27	Ac-228	1.09	+/-	0.29	pCi/g	0.4	G	713R9	SOLID	606043
SS-A27	Bi-212	1.51	+/-	0.98	pCi/g	1.36	G	713R9	SOLID	606043
SS-A27	Bi-214	0.86	+/-	0.24	pCi/g	0.23	G,J	713R9	SOLID	606043
SS-A27	Cs-137	0.021	+/-	0.067	pCi/g	0.118	U,G	713R9	SOLID	606043
SS-A27	K-40	9.2	+/-	2.2	pCi/g	1.4	G	713R9	SOLID	606043
SS-A27	Pa-234m	8.2	+/-	8.1	pCi/g	12.5	U,G	713R9	SOLID	606043
SS-A27	Pb-212	1.3	+/-	0.24	pCi/g	0.19	G	713R9	SOLID	606043
SS-A27	Pb-214	1.15	+/-	0.22	pCi/g	0.22	G,J	713R9	SOLID	606043
SS-A27	Th-234	1.3	+/-	1.1	pCi/g	1.8	U,G	713R9	SOLID	606043
SS-A27	U-235	-0.18	+/-	0.34	pCi/g	0.62	U,G	713R9	SOLID	606043
SS-G14	Ac-228	0.36	+/-	0.3	pCi/g	0.45	U,G	713R9	SOIL	606043
SS-G14	Bi-212	0	+/-	1.6	pCi/g	2.8	U,G	713R9	SOIL	606043
SS-G14	Bi-214	0.15	+/-	0.21	pCi/g	0.35	U,G,J	713R9	SOIL	606043
SS-G14	Cs-137	-0.07	+/-	0.11	pCi/g	0.21	U,G	713R9	SOIL	606043
SS-G14	K-40	1.7	+/-	1.1	pCi/g	1.4	G	713R9	SOIL	606043
SS-G14	Pa-234m	628	+/-	86	pCi/g	15	G	713R9	SOIL	606043
SS-G14	Pb-212	0.18	+/-	0.22	pCi/g	0.35	U,G	713R9	SOIL	606043
SS-G14	Pb-214	0.15	+/-	0.22	pCi/g	0.36	U,G,J	713R9	SOIL	606043
SS-G14	Th-234	427	+/-	57	pCi/g	30	M3,G	713R9	SOIL	606043
SS-G14	U-235	7.3	+/-	1.3	pCi/g	1.6	LT,G	713R9	SOIL	606043

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SS-P15	Ac-228	0.17	+/-	0.21	pCi/g	0.33	U	713R9	SOIL	606043
SS-P15	Bi-212	0.41	+/-	0.79	pCi/g	1.36	U	713R9	SOIL	606043
SS-P15	Bi-214	0.1	+/-	0.1	pCi/g	0.16	U,J	713R9	SOIL	606043
SS-P15	Cs-137	0.062	+/-	0.063	pCi/g	0.099	U	713R9	SOIL	606043
SS-P15	K-40	0.23	+/-	0.71	pCi/g	1.27	U	713R9	SOIL	606043
SS-P15	Pa-234m	34	+/-	11	pCi/g	8		713R9	SOIL	606043
SS-P15	Pb-212	-0.024	+/-	0.069	pCi/g	0.129	U	713R9	SOIL	606043
SS-P15	Pb-214	0.04	+/-	0.1	pCi/g	0.17	U,J	713R9	SOIL	606043
SS-P15	Th-234	29.6	+/-	4.1	pCi/g	2		713R9	SOIL	606043
SS-P15	U-235	0.51	+/-	0.32	pCi/g	0.48	LT,TI	713R9	SOIL	606043
NOTES:										
	bold text and yellow hig									
	equivalent to 1.1 pCi/g E									
	assigned incorrect ID n									et:
	een corrected to SO-A3				to SO-A33, and	SS-A36 ha	s been corr	ected to SO-A36	•	
G = Sample densit	ty differs by more than 1	5% of LCS de	ensity.							
	timated value detected									
LT = Result is less	than requested MDC, b	out greater that	an sam	ple-specific	c MDC.					
M3 = The requeste	ed MDC was not met, bu	ut the reported	d activi	ty is greate	r than the report	ed MDC.				
MDC = Minimum E	Detectable Concentratio	n								
TI = Nuclide identit	fication is tentative.									
TPU = Total Propa										
U = Result is less t	than the sample-specific	c MDC or less	than t	he associa	ted TPU.					

# **APPENDIX D-5**

### **SMEAR SAMPLE RESULTS**

### Building 1103A Area Characterization Smear Sample Results

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SM-A05	Gross Alpha	31.4	+/-	5.7	pCi/sample	0.7		724R8	WIPE	606045
SM-A05	Gross Beta	92	+/-	15	pCi/sample	2		724R8	WIPE	606045
SM-A105	Gross Alpha	1.2	+/-	0.58	pCi/sample	0.54	LT	724R8	WIPE	606045
SM-A105	Gross Beta	4	+/-	1.2	pCi/sample	1.4		724R8	WIPE	606045
SM-A115	Gross Alpha	1.67	+/-	0.7	pCi/sample	0.58	LT	724R8	WIPE	606045
SM-A115	Gross Beta	6.4	+/-	1.6	pCi/sample	1.5		724R8	WIPE	606045
SM-A125	Gross Alpha	6.8	+/-	1.7	pCi/sample	0.8		724R8	WIPE	606045
SM-A125	Gross Beta	32.6	+/-	5.7	pCi/sample	1.6		724R8	WIPE	606045
SM-A135	Gross Alpha	4.5	+/-	1.3	pCi/sample	0.6		724R8	WIPE	606045
SM-A135	Gross Beta	12.2	+/-	2.5	pCi/sample	1.5		724R8	WIPE	606045
SM-A145	Gross Alpha	0.18	+/-	0.25	pCi/sample	0.48	U	724R8	WIPE	606045
SM-A145	Gross Beta	0.31	+/-	0.57	pCi/sample	1.29	U	724R8	WIPE	606045
SM-A15	Gross Alpha	2.55	+/-	0.88	pCi/sample	0.61	LT	724R8	WIPE	606045
SM-A15	Gross Beta	5.4	+/-	1.4	pCi/sample	1.5		724R8	WIPE	606045
SM-A155	Gross Alpha	89	+/-	15	pCi/sample	1		724R8	WIPE	606045
SM-A155	Gross Beta	327	+/-	53	pCi/sample	4		724R8	WIPE	606045
SM-A165	Gross Alpha	12.1	+/-	2.5	pCi/sample	0.6		724R8	WIPE	606045
SM-A165	Gross Beta	29.1	+/-	5.2	pCi/sample	1.8		724R8	WIPE	606045
SM-A25	Gross Alpha	5.8	+/-	1.5	pCi/sample	0.7		724R8	WIPE	606045
SM-A25	Gross Beta	12.9	+/-	2.6	pCi/sample	1.6		724R8	WIPE	606045
SM-A265	Gross Alpha	0.11	+/-	0.22	pCi/sample	0.5	U	724R8	WIPE	606045
SM-A265	Gross Beta	0.29	+/-	0.59	pCi/sample	1.34	U	724R8	WIPE	606045
SM-A275	Gross Alpha	0.07	+/-	0.23	pCi/sample	0.57	U	724R8	WIPE	606045
SM-A275	Gross Beta	0.49	+/-	0.6	pCi/sample	1.3	U	724R8	WIPE	606045
SM-A285	Gross Alpha	0.18	+/-	0.27	pCi/sample	0.55	U	724R8	WIPE	606045
SM-A285	Gross Beta	0.99	+/-	0.71	pCi/sample	1.41	U	724R8	WIPE	606045
SM-A35	Gross Alpha	44.5	+/-	7.7	pCi/sample	0.8		724R8	WIPE	606045
SM-A35	Gross Beta	141	+/-	23	pCi/sample	2		724R8	WIPE	606045
SM-A45	Gross Alpha	0.65	+/-	0.42	pCi/sample	0.51	LT	724R8	WIPE	606045
SM-A45	Gross Beta	1.97	+/-	0.84	pCi/sample	1.37	LT	724R8	WIPE	606045
SM-A55	Gross Alpha	0.68	+/-	0.44	pCi/sample	0.57	LT	724R8	WIPE	606045
SM-A55	Gross Beta	1.58	+/-	0.77	pCi/sample	1.33	LT	724R8	WIPE	606045

### Building 1103A Area Characterization Smear Sample Results

								Analytical		
Field ID	Parameter	Result		TPU	Units	MDC	Flag	Method	Matrix	Order Number
SM-A65	Gross Alpha	2.77	+/-	0.91	pCi/sample	0.56	LT	724R8	WIPE	606045
SM-A65	Gross Beta	6.2	+/-	1.5	pCi/sample	1.5		724R8	WIPE	606045
SM-A95	Gross Alpha	6	+/-	1.5	pCi/sample	0.6		724R8	WIPE	606045
SM-A95	Gross Beta	20.4	+/-	3.8	pCi/sample	1.6		724R8	WIPE	606045
SM-B175	Gross Alpha	12	+/-	2.5	pCi/sample	0.7		724R8	WIPE	606045
SM-B175	Gross Beta	115	+/-	19	pCi/sample	2		724R8	WIPE	606045
SM-B185	Gross Alpha	0.16	+/-	0.25	pCi/sample	0.5	U	724R8	WIPE	606045
SM-B185	Gross Beta	0.86	+/-	0.67	pCi/sample	1.34	U	724R8	WIPE	606045
SM-B225	Gross Alpha	-0.09	+/-	0.19	pCi/sample	0.48	U	724R8	WIPE	606045
SM-B225	Gross Beta	0.64	+/-	0.61	pCi/sample	1.28	U	724R8	WIPE	606045
SM-B235	Gross Alpha	0.21	+/-	0.28	pCi/sample	0.52	U	724R8	WIPE	606045
SM-B235	Gross Beta	0.39	+/-	0.61	pCi/sample	1.37	U	724R8	WIPE	606045
SM-B325	Gross Alpha	-0.11	+/-	0.19	pCi/sample	0.59	U	724R8	WIPE	606045
SM-B325	Gross Beta	0.11	+/-	0.58	pCi/sample	1.39	U	724R8	WIPE	606045
SM-B75	Gross Alpha	1.8	+/-	0.71	pCi/sample	0.51	LT	724R8	WIPE	606045
SM-B75	Gross Beta	7.9	+/-	1.8	pCi/sample	1.4		724R8	WIPE	606045
SM-B85	Gross Alpha	0.38	+/-	0.34	pCi/sample	0.53	U	724R8	WIPE	606045
SM-B85	Gross Beta	1.45	+/-	0.77	pCi/sample	1.38	LT	724R8	WIPE	606045
SM-C195	Gross Alpha	0.13	+/-	0.25	pCi/sample	0.57	U	724R8	WIPE	606045
SM-C195	Gross Beta	0.3	+/-	0.57	pCi/sample	1.3	U	724R8	WIPE	606045
SM-C205	Gross Alpha	8.3	+/-	1.9	pCi/sample	0.7		724R8	WIPE	606045
SM-C205	Gross Beta	21.1	+/-	3.9	pCi/sample	1.7		724R8	WIPE	606045
SM-C295	Gross Alpha	-0.01	+/-	0.19	pCi/sample	0.52	U	724R8	WIPE	606045
SM-C295	Gross Beta	0.1	+/-	0.57	pCi/sample	1.38	U	724R8	WIPE	606045
SM-C305	Gross Alpha	-0.01	+/-	0.19	pCi/sample	0.53	U	724R8	WIPE	606045
SM-C305	Gross Beta	0.09	+/-	0.6	pCi/sample	1.44	U	724R8	WIPE	606045
SM-C315	Gross Alpha	0.02	+/-	0.2	pCi/sample	0.55	U	724R8	WIPE	606045
SM-C315	Gross Beta	0.16	+/-	0.6	pCi/sample	1.42	U	724R8	WIPE	606045
SM-D245	Gross Alpha	0.43	+/-	0.35	pCi/sample	0.52	U	724R8	WIPE	606045
SM-D245	Gross Beta	0.19	+/-	0.59	pCi/sample	1.37	U	724R8	WIPE	606045
SM-D255	Gross Alpha	0.17	+/-	0.24	pCi/sample	0.48	U	724R8	WIPE	606045
SM-D255	Gross Beta	-0.23	+/-	0.51	pCi/sample	1.33	U	724R8	WIPE	606045
NOTES:										
Sample entries in	bold text and yellow high	hlighting indi	cate th	at gross ad	ctivity is higher th	an or close	e to the sc	reening limit of 10	0 dpm / 100 d	
	quivalent to 2.2 dpm/10									
· · ·	than the sample-specifi		<u> </u>	v					~	
	s than requested MDC,		sample	-specific N	IEC.					

## **APPENDIX D-6**

## ANALYTICAL LABORATORY DATA PACKAGES (ON CD)

### **APPENDIX E**

### **ASBESTOS INSPECTION REPORT**



1319 Woodbridge Station Way, Suite 200. Edgewood, Maryland 21040 Telephone: 410-538-8202 Fax: 410-538-8207 www.eaest.com

### 5 June 2006

Ms. Barbara Duletsky Cabrera Services, Inc. 5091 Mt. Ellen Court St. Charles, MO 63304

RE: Report of Asbestos Containing Material Survey Buildings 1103A, BRL 12 and Associated Vault – Aberdeen Proving Ground, Maryland

Dear Ms. Duletsky:

EA Engineering, Science, and Technology, Inc. has completed an Asbestos Containing Materials (ACM) Survey at Buildings 1103A, BRL 12 and an associated vault located on Spesutie Island, in the Aberdeen Area of Aberdeen Proving Ground, Maryland. Sampling activities included the collection of 12 bulk samples of suspect ACM from the three buildings.

Current Federal and State environmental statutes require that certain potentially hazardous materials that may be affected by building renovation activities be identified and removed prior to conducting these activities. In the case of asbestos, Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and State of Maryland regulatory requirements contained in 40 CFR 61, 29 CFR 1926.1101, and COMAR 26.11.22, respectively, require that asbestos-containing materials (ACM) be identified, and that friable ACM be removed prior to conducting renovation activities that may disturb these materials. This requirement also applies to non-friable ACM that may become friable as a result of renovation activities.

#### SAMPLING PROCEDURES

On 24 May 2006, an EA inspector conducted a walk-through visual inspection and sampling of suspect ACM within the interior areas of Buildings 1103A, BRL 12 and an associated vault, located on Spesutie Island, on APG. The ACM inspection procedures were conducted in accordance with Asbestos Hazard Emergency Response Act (AHERA) guidelines and included identifying homogeneous areas of suspect ACM, determining suspect ACM friability, and assessing the homogeneous areas of suspect ACM to determine overall condition. Suspect ACM was sampled in accordance with AHERA guidelines. The inspection was conducted by U.S. Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) accredited and Maryland licensed asbestos building inspector. Non-destructive asbestos sampling procedures were employed for the asbestos inspection and were limited to readily accessible areas of the site buildings.

According to the client, Building 1103A was constructed in the early 1950's and Building BRL 12 and the associated vault were constructed around 1990. Suspect materials were grouped into homogeneous areas (uniform in color and texture and appearing identical in every other respect)



Cabrera Services, Inc. Report of Asbestos Containing Material Buildings 1103A, BRL 12 and Associated Vault Aberdeen Proving Ground, Maryland

and were sampled in a manner consistent with the U.S. Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulations.

Samples were submitted to AMA Analytical Services in Lanham, Maryland. AMA is an independent laboratory accredited by the National Institute of Science and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) and the American Industrial Hygiene Association. Analyses were performed by polarized light microscopy (PLM) in accordance with EPA Method EPA/600/R-93/116.

Asbestos inspection forms are provided in Attachment I. Asbestos sampling location diagrams are provided in Attachment II. Asbestos laboratory analytical results as well as chain-of-custody forms are included in Attachment III, and Inspector certifications are included in Attachment IV.

#### **FINDINGS**

Table 1 details the description and estimated quantities of laboratory confirmed ACM. ACM are defined by EPA standards as materials determined to contain greater than one- percent asbestos. Based on the analytical results, the following is a summary of ACM in each of the three surveyed buildings:

### Building 1103A:

• All 12"x 12" floor tile and associated mastic observed within the entry area, shower room and support room.

It should also be noted that ACM are commonly observed within fire doors in buildings constructed prior to 1980. Two fire doors were observed within Building 1103A. Because the survey did not include destructive sampling, the interior portions of the fire doors were not sampled; therefore, it is recommended that all fire doors should be assumed and handled as ACM.

#### Building BRL 12:

• All 12"x 12" floor tile observed in the office area.

#### Associated Vault:

The associated vault building was of steel plate construction, concrete floors and a metal roof. According to visual observations, no suspect ACM was noted in the building; therefore, no samples were collected from this location.

**TABLE 1: LABORATORY CONFIRMED ACM** 

					ה
Friable (yes/no)	No	No		No	
Estimated Quantity (ft ² )	~ 300	~ 300		~ 225	
% Asbestos	2% Chrysotile	2% Chrysotile		2% Chrysotile	
Description	Cream with streak pattern	Black		Cream with streak pattern	
Material	12"x 12" F.T.	Mastic		12"x 12" F.T.	
Sample Number	S-2	S-3		S-10	
Location	Building	1103A	Building	<b>BRL</b> 12	F.T. = Floor Tile



Cabrera Services, Inc. Report of Asbestos Containing Material Buildings 1103A, BRL 12 and Associated Vault Aberdeen Proving Ground, Maryland

### DISCUSSION AND RECOMMENDATIONS

The identified ACBM (presented on Table 1) were observed to be in fair condition. Based on the renovation scope of work, the following remedial actions are recommended for ACM identified in the affected areas of Buildings 1103A and BRL 12:

- Remove any friable and/or non-friable ACM that may be rendered friable, during demolition or renovation activities; and
- Removal of friable ACM and/or non-friable ACM that may be rendered friable during demolition or renovation activities must be conducted by accredited asbestos abatement workers employed by an appropriately Maryland licensed contractor.

#### DISCLAIMER

EA does not warrant that there is no asbestos or hazardous materials in areas of the facility not inspected as part of this scope of work, nor does EA accept any liability if such is found at some future time, or could have been found if additional analyses or studies were conducted. EA does not assume responsibility for other environmental issues that may be associated with the subject facility.

In view of the rapidly changing status of environmental laws, regulations, and guidelines, EA cannot be responsible for changes in laws, regulations, or guidelines that occur after the study has been completed and which may affect the facility. This report was prepared for the Cabrera Services, Inc., by EA Engineering, Science, and Technology, Inc. Any transfer of information contained in this report can be conducted only if written consent is provided by Cabrera Services, Inc.

#### CLOSING

Thank you for the opportunity to provide environmental services to Cabrera Services, Inc. Should you have any questions or comments regarding this report; please do not hesitate to call me directly at (410) 538-8202 extension 112.

Respectfully yours, EA Engineering, Science and Technology

Gordon Porter

Gordy Porter Project Manager

CC: A. Marcum

### ATTACHMENT I:

### ASBESTOS INSPECTION FORMS

Location: Building 1103A/ Building BRL 12/ Vault – Spesutie Island, Aberdeen Area, APG Date: 24 May 2006

*

Inspector: Anna-Lisa Marcum

<u></u>	Sample Number	Location	Type of Material Desc (Col	Description (Color/Size)	Friable (Yes/No)
	1-5	Support Rocm	Mash C Liack Mash C Liack	Black (~ 60 L.F.)	No
Contractory and	5.2	Entry Arce	Floor Tile	12"× 12" - Creamul	°2
b	5-3		Mastic - beneeth	Black	ŝ
1 2 0	5-4		Sheet Rock	Gray (rainted)	Ĵ
11 -	5-5	Entry Arco	Mastic - lerver	Bown (~10 L.F)	20
frit.	56	Main Arce	Ceiling fands	Cream (~ 2000 5 0)	No
שייןמ	5-7	Eatry Area	Insulation (wall)	Behiver sheethork	<i>Х</i> .
<u> </u>	5-8	France Room	Duct	12"×12" Flap on duct unit	50
	59	7	Duct gas tet	Painted Silver	N. e. Y.
11	5-10	office Area	Floor Tile	12"×12" - Creamwi Speck	No.
~					

No samples collected in separate vault bldg, constructed of Concrete and Steel. Also no samples collected from vaults attached to 10/03 BRL 12 Jalso constructed out of concrete and Steel. * Not

Location: Building 1103A/ Building BRL 12/ Vault – Spesutie Island, Aberdeen Area, APG Date: 24 May 2006 Inspector: Anna-Lisa Marcum

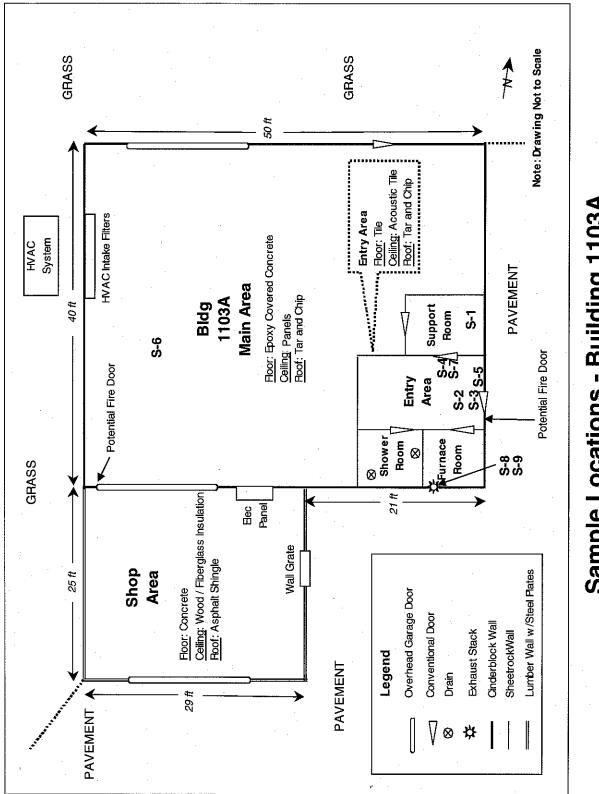
**ASBESTOS INSPECTION SAMPLING FORM** 

Samila Mimhar	Tompton	Tyme of Material		Richle
5	TAVALIOII	TIMENTAL IN ADA	(Color/Size)	(Yes/No)
	Small Office Area	Mashi - Beneath	Brown (~ 360 5+ A)	02
	Center Room	sheet wet	Gray (painted with)	ک
-	4			

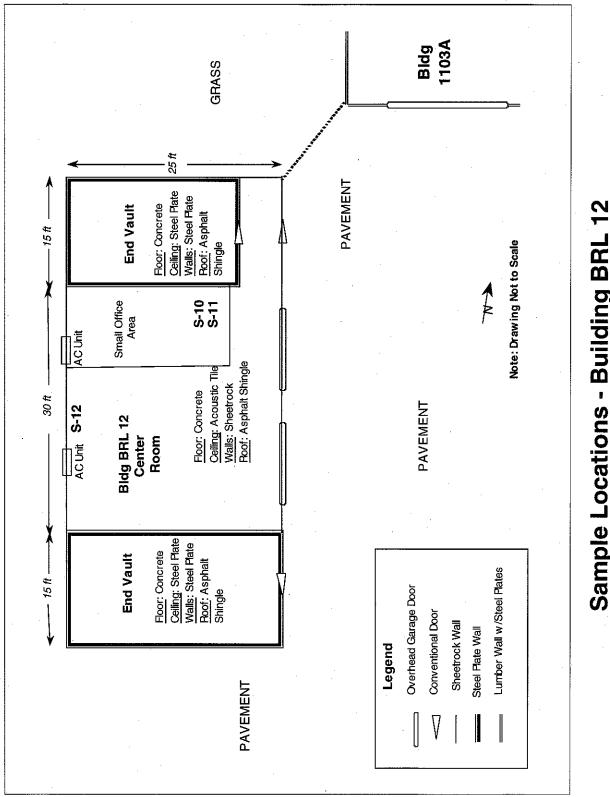
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### ATTACHEMNT II:

### SAMPLING LOCATION DIAGRAMS



Sample Locations - Building 1103A Spesutie Island, APG, Maryland



Sample Locations - Building BRL 12 Spesutie Island, APG, Maryland

#### ATTACHMENT III:

#### LABORATORY ANALYTICAL RESULTS

Chean         Ex tragmenting Science & Technology         Joh Name:         Spearing Endinol 3Hig         Chain OC	A Spt	ccialized E		A Specialized Environmental Laboratory	·												N × EL	3
I 5 Loretion Circle       Job Location:       Job Location:       Job Location:       Job Number:       Not Provided         Sparks: Maryland       21153       Job Number:       Not Provided       Not Provided         Anme-Lisa Matcum       P.O. Number:       Not Provided       Not Provided       Not Provided         Anme-Lisa Matcum       Total       Chrysonth       Annester       Not Provided       Not Provided         Sample 4       Total       Chrysonth       Annester       Concidedite       Other       Mitteral       Flexent       Percent	Client:	EAL	ngineering S	Science & Tec	hnology	Jol	Name:		Spesutre Isla	nd-Bldg 11	03A-APG			Chain Of	Custody:	153140	AHIN	
Sparks. Maryland 11152         Jub Number:         Not Provided           Arma-Lisa Marcum         F.O. Number:         Not Provided           Arma-Lisa Marcum         From         Not Provided           Arma-Lisa Marcum         Anna-Lisa Marcum         From           Arma-Lisa Marcum         Anna-Lisa Marcum         Not Provided           Arma-Lisa Marcum         Anna-Lisa Marcum         Not Provided           Sumple 4         Abbelow         Percent	Address:	15 Lc	weton Circle	ຍ		Job	Location:		Aberdeen, N	1D -				Date Ana	iyzed:	5/31/2006	100470	
Anne-Lisa Matcunt         F.O. Namber:         Not Provided           Anne-Lisa Matcunt         Sample 4         Total         Chrystoph         Amotic         Summary of Polarized Light Microscopy           Sample 4         Ashestos         Percent         Encent         Fercent         Percent         Percent <th< th=""><th></th><th>Spark</th><th>cs. Mæryland</th><th>1 21152</th><th></th><th>Jol.</th><th>Number:</th><th></th><th>Not Provided</th><th>IJ</th><th></th><th></th><th></th><th>Person Su</th><th>ıbmitting:</th><th>Arma-Lisa Marcum</th><th>farcum</th><th>•</th></th<>		Spark	cs. Mæryland	1 21152		Jol.	Number:		Not Provided	IJ				Person Su	ıbmitting:	Arma-Lisa Marcum	farcum	•
AtmacLise Marcun         Summary of Polarized Light Microscopy           Citent         Total         Chryseile         Amosic         Conciolity         Mineral         Rhergas         Organic         Synthetic Other         Parcent           Sample #         Absens         Percent						P.C	). Number:		Not Provide	Đ								
Client         Total         Chrysonik         Answite         Chrysonik         Answite         Control freent         Nittenal         Freent         Percent	Attention:	Anns	a-Lisa Marci	an			-								-	•	Puge 1 of 2	
Client         Total         Chrysonth         Amosite         Crocidolite         Mineral         Fiberglass         Organic         Synthetic         Other         Particulate           Sample#         Ashestos         Percent			·			Sur	nmary	v of Po	Marized	l Light	t Micro	oscopy	X			·		
S-1       NAD        -       -       -       -       -       -       100       Black       -         S-2       2       2       -       -       -       -       -       -       -       0       Black         S-3       2       2       2       -       -       -       -       -       0       Black         S-4       NAD       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	A Sample Aumber	Client Sample #	Total Asbestos	Chrysatile Percent	Amosite Percent			Mineral Woel Pércent	Fiberglass Percent	Organic Percent	Synthetic Percent		articulate Percent		Honogeneity	Analyst ID	Comments	
S-1         NAD             100         Back           S-2         2         2         -         -         -         -         -         -         -         -         -         -         -         -         98         Back           S-3         2         2         2         -         -         -         -         -         98         Back           S-4         NAD         -         -         -         -         -         -         -         -         -         98         Back           S-4         NAD         -         -         -         -         -         -         -         90         Multi           S-5         NAD         -         -         -         -         -         -         90         Multi           S-1         NAD         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -		•	•	•			:	:		:		÷						
S-2       2       2       2       -       -       -       -       -       98       Beige       38         S-3       2       2       2       -       -       -       -       -       98       Black         S-4       NAD       -       -       -       -       -       -       98       Black         S-5       NAD       -       -       -       -       -       -       90       Multi         S-5       NAD       -       -       -       -       -       -       -       90       Multi         S-7       NAD       -       -       -       -       -       -       -       90       Multi         S-7       NAD       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	51573	S-1	UAD	l	1		1	;	1	I	:		001.	Black	Homogeneous	LB		
S3       2       2       2       1       1       1       98       Black         S4       NAD       -       -       -       -       -       -       1       98       Black         S55       NAD       -       -       -       -       -       -       90       Multi         S55       NAD       -       -       -       -       -       -       90       Multi         S56       NAD       -       -       -       -       -       -       90       Multi         S56       NAD       -       -       -       -       -       -       -       -       90       Multi         S54       NAD       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	51574	S-2	2	7	Ì	Ļ	1	ł	ł	1	I	I	86	Beige	Homogeneous	LB		
S-4       NAD        -       -       -       -       -       90       Multi         S-5       NAD       -       -       -       -       -       -       90       Multi         S-5       NAD       -       -       -       -       -       -       90       Multi         S-6       NAD       -       -       -       -       -       -       2       98       Black         S-7       NAD       -       -       -       -       -       -       -       35       Multi         S-1       NAD       -       -       -       -       -       -       -       35       Multi         S-10       -       -       -       -       -       -       -       -       5       Yellow         S-10       2       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       <	51575	S-3	5	73	;	ł	· 1	1	ł	I	ł	TR	98	Black	Homogeneous	LB.		
S-5       NAD        -       -       -       -       2       98       Black         S-6       NAD       -       -       -       -       -       -       2       98       Black         S-6       NAD       -       -       -       -       -       -       -       85       Wult         S-7       NAD       -       -       -       93       -       -       -       5       Yellow         S-9       NAD       -       -       -       95       -       -       5       Yellow         S-9       NAD       -       -       -       95       -       -       5       Yellow         S-9       NAD       -       -       -       -       95       -       -       90       Multi         S-10       2       2       -       -       -       90       Multi         S-11       NAD       -       -       -       -       -       90       Multi         S-11       NAD       -       -       -       -       -       -       -       90       Multi	51576	S-4	NAD	ł	ł	I	ş	I	. J	10	ł	ł	06	Multi .	Layered	18		
5-6       NAD           5       Multi         5-7       NAD        -        15         5       Yellow         5-8       NAD        -       95         95         5       Yellow         5-9       NAD        -       10        10        5       Yellow         5-9       NAD        -       10         95         5       Yellow         5-10       2       -         10         5       Yellow         5-11       NAD         10        10       93       Beige         5-11       NAD          10       100       Off       Beige         5-11       NAD          10       100       Off       Beige         5-11       NAD           10       100       Off       Beige	\$1577	S-5	NAD	ł		I	ł	ľ	Ę	1	ł	2	86	Black	Homogeneous	LB		
S-7       NAD       -       -       95       -       -       5       Yellow         S-8       NAD       -       -       -       95       -       -       5       Yellow         S-9       NAD       -       -       10       95       -       -       5       White         S-10       2       2       -       -       10       -       90       Multi         S-11       NAD       -       -       -       95       -       -       90       Multi         S-10       2       2       -       -       -       -       90       Multi         S-11       NAD       -       -       -       -       90       Multi         S-11       NAD       -       -       -       -       90       Multi         S-11       NAD       -       -       -       -       -       -       90       Multi         S-12       NAD       -       -       -       -       -       -       -       90       Multi         S-12       NAD       -       -       -       -       -       - <td>51578</td> <td>S-6</td> <td>NAD</td> <td>1</td> <td>:</td> <td>. 4</td> <td>;</td> <td>:</td> <td>1</td> <td>15</td> <td>ł</td> <td>ł</td> <td>85</td> <td>Multi</td> <td>Layered</td> <td>LB</td> <td></td> <td></td>	51578	S-6	NAD	1	:	. 4	;	:	1	15	ł	ł	85	Multi	Layered	LB		
5-8       NAD          55       White         S-9       NAD        -       -       95       -       -       -       5       White         S-10       2       2       -       -       10       -       -       90       Multi         S-11       NAD       -       -       -       91       -       -       90       Multi         S-11       NAD       -       -       -       -       91       -       -       90       Multi         S-11       NAD       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	51579	S-7	NAD	I	ł	1	ł	95	ł	ł	 		· v	Yellow	Homogeneous	ΓB		
S-9       NAD         90       Multi         S-10       2       2         98       Bcige         S-11       NAD          98       Bcige         S-11       NAD          98       Bcige         S-11       NAD          98       Bcige         S-11       NAD          98       Bcige         S-12       NAD           98       Bcige         S-12       NAD            98       Bcige         S-12       NAD             98       Bcige         S-12       NAD               98       Bcige         S-12       NAD	51580	S-8	UAD	***	1	f	}	ł	95	ł	ł	ł	5	White	Homogeneous	LB		
S-10       2       2            98       Berge         S-11       NAD        -       -       -       -       -       98       Berge         S-11       NAD        -       -       -       -       100       Black         S-12       NAD       -       -       -       -       -       100       Off-White	51581	S-9	QVN	- 1	1 ·	ļ	i i	4	01	ł	ł	} .	90	Multi	Layered	LΒ	•	
S-11 NAD S-12 NAD S-12 NAD S-12 NAD S-12 NAD S-12 NAD S-13 NAD S-14 N-1 S-15 NAD S-15 NAD S-17 N-1 S-16 Black	51582	S-10	2	2	5	I	ł	1	ł	ł	I	ł	98	Bcige	Homogeneous	: LB		
S-12 NAD	51583	S-11	NAD	1	ł	I	ł	ł	ł	ł	ł	ł	100	Black	Homogeneous	LB		
	51584	S-12	NAD	;	ł	1	1	ł	1	}	ŧ	ł		Off-White	Homogencous	LB.		
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An AIHA (#863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory 4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

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Client: EA Engineering Science & Technology Address: 15 Loveton Circle Sparks, Maryland 21152 Attention: Anna-Lisa Marcutti	chnology Job Name: Job Location:	с <b>о</b>	Spesutre Island-Bldg 1103A-APG					Z L E
	Job Locatio			-APG	v	Chain Of Custody:	153140	
		•	Aberdeen, MD		T	Date Analyzed:	5/31/2006	
	Job Number:		Not Provided		<b>.</b>	Person Submitting:	Anna-Lisa Marcum	arcum
	P.O. Number:		Not Provided				:	
•	Summar	of Pol	Summary of Palarized I jaht Microsconv	(licroscon		- 		Page 2 of 2
AMA Sample Client Tolal Chrysofile Number Sample# Asbestos Percent	Amosite Crocid Percent Perc	Mineral F Mineral F S Wool	Fiberglass Organic Syn Percent Percent Pe	Synthetic Other   Percent Percent	rrticulate Percent	Sample Homogeneity Color	Analyst ID	Comments
		5		•				
TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.	e, due to resolution limitations with significant quantity of asbestos. It	t optical micro is recommend	with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative s. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits	rom matrix comp dical technique o	onents of this f TEM be use	s sample, results which an of to check for asbestos fil	e reported via I bers below the	LM as negative resolution limits
2 MATRIX REDUCTION RECOMMENDATION - Please note, due to in contain a significant quantity of asbestos which is obscured from view. obscuring effects of matrix components, followed by reanalysis by PLM	ATION - Please note, due to interfe which is obscured from view. It is i ollowed by regnalysis by PLM and/	terference from the tile is recommended and/or TEM.	terference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the and/or TEM.	sample, results v tion technique of	which are rept gravimetric n	orted via PLM as negative eduction be performed on	c or trace (<1%) 1 this sample to	) for asbestos may minimize the
Analysis Method - EPA/600/R-93/116 dated July 1993	ted July 1993							
NAD = "No Asbestos Detected"	TR = "Trace equals less than $1\% \sigma$	1% of this component"	ent"			Luis Bustillos		
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153140 153140 39 - APC 410 - 335 - 824 - 109 157 - 410	(QTY) (TY) (TY) (QTY) (QTY) (QTY) (QTY) (QTY) Q Balk (QTY) (QTY) Q Other (Specify ) (QTY)	CLIENT CONTACT (LABORATORY STAFF OMLY) Combact: By: Contact: By:	Contract: By:	
Provence       Junice	Lead Analysis D Paint Chip(QTY) C Drast Wipe (wipe type(QTY) C Air(QTY) C Air(QTY) C NCI P(QTY) C NCI P(QTY) C Drinking Water(QTY) C Waske Water(QTY) C Drinking Water(QTY) C Drinking Water(QTY) C Drinking Water(QTY) C Drinking Water(QTY) C Stefaser Swab(QTY) C Stefaser Tape(QTY) C Stefaser Tape(QTY) C Stefaser Tape(QTY) C Stefaser Stefaser Tape(QTY) C Stefa	Date/Time:	Date/Time	
DF CUSTODY Submittal Information: Submittal Information: Submittal Information: Submittal Information: 1. Job Name: Spel Survice 75 lear 2. Job & Contact Persons: Anna-LiSa Macrolecch, 3. Job & Contact Persons: Anna-LiSa Macrolecch, 5. Submitted by Anna -LiSa Macrolecch, 5. Submitted by Anna - Lista Macrolecch, 5. Submitted by Anna -				
	atfield TBM VacuumDus Keturn D5/55 Mattion D5/55 Mattion D5/50-99 A 100.2(Q) A 100.2(Q) A 100.2(Q) A 100.2(Q) A 100.2(Q) A 100.2(Q)	SISATIVAL X		
<ul> <li>A MA Raciptical Services, Inc. AIEA (#100470) NVLAP (#101143-0) NV FLAP (10920) 4475 Frobes Blvi - Lanham, MD 20706 (301) 459-2640 - (800) 346 0961 - Fax (301) 459-2643 www.annalab.com</li> <li>Mailing/Billing Information: I. Client Name: EA E-Ag/M-E-M-AS</li> <li>Address 1: [319] Love of B-N-USA, E-Harbon (1994), Suck. Zero Address 2: Edg.(2000) 0.000 - 10.0 2 (04 0)</li> <li>Address 2: Edg.(2000) 2.004 0)</li> <li>Address 2: Edg.(2000) 2.007 0)</li> <li>Address 2: Edg.(2000) 0)</li> <li>Address 2: Edg.(2</li></ul>		SAMPLE INFORMATION SAMPLE INCOMPONE VOLUME WIPE DRANING ATTON VOLUME WIPE DRANING ATTON DATE ATTER DRANING ATTON	But Sk 12 Black	120000000 STATE ONLY (COSTODY) 1. Directional york 2. Disor Trace for Liver 2. Disor Trace for Liver 2. Disor Trace for Liver 3. Results Reported The
<ul> <li>AMB Analytical Services, Inc. AIIIA (#100470) NVLAP (#101143-0) NY BLAP (10920) 4475 Forbes Blvd. • Lamham, MD 20706 (301) 459-2640 • (800) 346-0061 • Fax (301) 459-2643 www.amalab.com</li> <li>Mailing/Billing Information: Left Evolves 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> <li>Address 1: 1317 Love of brielse, Exp. Jun. (A)</li> </ul>	Ashestos Analysis RCMAăr - Please Indicate Filter Type: PC MCB Pocsity in a 25mm 37mm O NIOSET 7400 (QTY) O Fiberglass (QTY) D Fiberglass (QTY) D ALERA (QTY) D ALERA (QTY) D ANOSH 7402 (QTY) D ANOSH 7402 (QTY) D ANOSH 7402 (QTY) D Other (specify ) D Other (specify ) D Other (specify ) D Other (streether 14 AP 198.1		5-3 5-10 BUR 12 MIL	ATONY STATE ONLY (COSTO) 1. Direction (CVI) 2. Date The Statistical 3. Reading Reported To
AMB Rholyt AIHA (#100470) 4475 Forbes Blvd (301) 459-2640 • www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com wwwww.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.amalab.com www.	Ashestos Analysis PCMAăr - Please Indicate Filter Type: PC MCE Porosityia a 251 Q NIOSH 7400(QTY D Fiberglass(QTY D AHER Porosity(QTY) C MCB Porosity0 a 251 C AHER Porosity0 a 251 C AHER Porosity0 a 251 C AHER Porosity0 251 C AHER Porosity0 251 C AHER Provid Estimate0 C 0 NIOSH 74020 21 C 0 NIOSH 74020	CLIENTID NUMBER 5-2 5-4 5-4 5-4		7. YEM

#### ATTACHMENT IV:

#### INSPECTOR CERTIFICATION

Paris Trunan E. Rash Barret **AEROSOL MONITORING & ANALYSIS, INC.** F: 410-684-3724 has met the attendance requirements and successfully completed 4-HI EPA AHERA INSPECTOR REFESSION ANNA-LISA MARCUM P: 410-684-3327 Principal Instructor **Course Director** E. RUSH BARNETT For Accreditation Under TSCA Title II. DAVID TRUNAN This is to certify that the course entitled www.amatraining.com Hanover, MD 21076 Expiration Date Virginia Certification No. 2/10/2007 P.O. Box 646 Exam Date VA082347 2/10/2006 1331 Ashton Road Certification No. Course Date 2/10/2006 082347

## **APPENDIX F**

## INSTRUMENT CALIBRATION AND QUALITY CONTROL DATA

F1: Calibration Certificates F2: Control Chart Data

## **APPENDIX F-1**

## **CALIBRATION CERTIFICATES**



CALIBRATION CERTIFICATE

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

	This	Certificate wi	ll be accom	panied by Cal	libration Charts or Read	ings where applicable	
		STOMER I			ala ang ang ang ang ang ang ang ang ang an	No navel in the second s	INFORMATION
Customer Name: Dur	atek Instru	ument Servic	es				udlum
Address: 628 Gallahe	r Road, Ki	ngston, TN 3	7763			Detector Model: 4	3-37
Contact Name: Thom	as F. Scott		<u></u>	· · · · · · · · · · · · · · · · · · ·		Serial Number: 0	92765
Customer Purchase: Order Number: N/A			Work Or Number:	der 2006-03726		Evaluation Method: Source	<u> </u>
		. DI	为此"加拿大"的"	and the second	TION INFORMAT	A Share and a state of the stat	
Source Nuclide		Serial I	Number		Activity (dpm)	Net Response	Efficiency (%)
Th-230		119	709		2,442	338	13.8%
Тс-99		119	713		2,616	535	20.5%
S(	CALER IN	FORMATIO	N.		DE	TECTOR INFORMAT	NUMBER OF A DESCRIPTION OF
Model	Serial	Number	Due	Date	Background	Operating Voltage	Threshold
2224	12:	5560	5/11/	/2007	4	1650V	Alpha (120mV)
2224	12:	5560	5/11/	/2007	490	1650V	Beta (3.5-30mV)
				АТТАСН	MENTS		
Voltage Plateau:	√ <b>Y</b>	ES NO	)		MDA/Cross Talk	Evaluation:	YES NO
COMMENTS			Sales space	LINEAR	ATY TEST performed	The Prove Street Stre	
		Count 1 (Le	eft Toe)	1063	Count 1 (Right '		991
Calibrated with 6ft cab	le	Count 2 (I	eft Mid)	1027	Count 2 (Right I		1028
Calibrated in accordan	ce with	Count 3 (L	eft Heel)	959	Count 3 (Right F		1028
riginal equipment tech nanual.	nical				Average		1034
					Pass/Fail	BASS ()	
			STATEN	LENT OF C	ERTIFICATION	1 1 455 (17)	'-10% Tolerance)
e Certify that the detector pecifications. We further ce mage incurred during ship	listed above rtify that our ment or use	was evaluated f Calibration Me	or proper ope	extension des la fate	AND THE PARTY AND	the Manufacturers publishe mdards and Technology. (W	ed operating /e are not responsible for
etector	7		•	$\overline{\mathcal{O}}$	XA-		
/.							
ertified By:	they	1	Reviewed B	y:	15.500	Date: S/	1106

			Detec	tor 43-37 #0	92765 Raw [	Data (Count	s)				т		
ļ	Backg			230	Tc-			I/A	N	I/Ä	-		
Voltage	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	-		
1600		000		423						Deta	-		
1625				517	1	923					1		
1650				598		1021			-	· · · · · · · · · · · · · · · · · · ·	1		
1675			341	718		1050		1			1		
1700				696	5	1056		1					
1725				692		940							
1750	18	528	407	590	30	817							
									1				
L													
				Sc	urce Info		·						
		Nuclide			Tc-99		N/A		N/A				
		ID	119709		119713								
		Initial DPM	2442		2616								
		cation Date			10/14/1997								
		oday s Date			5/11/2006		5/11/2006		5/11/2006				
		Age (Years)	8.57		8.57		106.36		106.36				
		Life (Years)	7.70E+04		2.13E+05								
	Correc	ted Activity	2442		2616		#DIV/0!		#DIV/0!				
	M	A/Cross-Tall	· · · · · · · · · · · · · · · · · · ·		Net CPN								
Voltage					Alpha Eff.	Th-230		Tc-99		N/A		N/A	
1600	524.2	Alpha MDA 67.1		(%)	(%)	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
1625	506.8	59.9	0.0%	17.24%	11.0%	268	68	1	451	-1	-355	-1	-355
1650	568.1	<u> </u>	0.1%	19.30%	12.3%	300	99	0	505	-1	-418	-1	-418
1675	680.3	66.9	0.5%	19.15%	13.5%	330	78	3	501	-2	-520	-2	-520
1700	642.0	57.1	0.2%	17.16%	13.9%	339	117	0	449	-2	-601	-2	-601
1725	852.3	68.4	0.5%	17.97%	16.3%	397	110	3	470	-2	-586	-2	-586
1750	992.3	140.9	0.5%	13.53%	17.6%	429	106	1	354	-4	-586	-4	-586
1775	#DIV/0!	#DIV/0!	3.5%	11.05%	15.9%	389	62	12	289	-18	-528	-18	-528
1800	#DIV/0!	#DIV/0!	#DIV/0! #DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
		#010/01	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0

Performed By: na 0 Reveiwed By:

Date: <u>5/11/06</u> Date: <u>5/11/06</u>



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

Customer Na	me: Duratek Instrum	ent Services	Mai	ufacturer: Ludlur	n		
Address: 628	Gallaher Road, King	ston, TN 37763	Mod	lel: 2224	Serial Number:	125560	
Contact Name		<u> </u>	Pro	be: N/A	Serial Number:	N/A	<u> </u>
Customer Pur Number: N		Order Der: 2006-03726	Cali	bration Method: Electronic			 
	ollege and aller ease is	INSTRU	MENT CALIB	RATION INFORM	IATION		
Instrument Range	Calibration Standard Value		meter oonse	Calibration	Tolerances		aler oonse
	Stanuard value	As Found	As Left	Standard Value	(cpm) ± 2%	As Found	As Left
X 1	100	100	100	40	40	40	40
X 1	250	250	250	400	392-408	401	401
X 1	400	400	400	4,000	3,920-4,080	4,003	4,003
X 10	1,000	1,000	1,000	40,000	39.2K-40.8K	40,037	40,037
X 10	2,500	2,500	2,500	400,000	392K-408K	400,378	400,378
X 10	4,000	4,000	4,000	<u></u>	<u>_</u>		
X 100	10,000	10,000	10,000			· · · · · · · · · · · · · · · · · · ·	
X 100	25,000	25,000	25,000		······		
X 100	40,000	40,000	40,000		76		
X 1000	100,000	100,000	100,000				
X 1000	250,000	250,000	250,000			<u> </u>	<u>.</u>
X 1000	400,000	400,000	400,000		<u></u>		
	r gala de segueradario. Conta de segueradario	ST.		CERTIFICATION	andre of the state		
e Certify that the further certify t curred during shi	instrument listed above hat our Calibration Meas pment or use of this instru	was calibrated and ins	nec (Maria Sales ag	and the second second second	all the Manufacturers	s published operating are not responsible for	specifications.
istrument				NA	/		
alibrated By:	Char ly	Б	Reviewed By:	Al A ha	-	Date: 57	Inter
alibration Date	e: 5/11/2006		Calibration Du	e: 5/11/2007			1100

Model:	2224
--------	------

Serial Number: <u>125560</u>

等地位。10月2日		M&TE				and the second				
N-14 34		An		·波动使合限。		ing signal. And signal a	Environme	ntal Condition		
Volt Meter	ID#	6565015	Cal Due:	10/19/06	Barom	eter	ID#	2551	Cal Du	e: 10/13/06
Pulser	ID#	92851	Cal Due:	9/23/06	Thermon	neter	ID#	2551	Cal Du	e: 10/13/06
Humidity	ID#	958670	Cal Due:	03/29/07	Temp:	23.8°C	Pressure:	732mHg	Humidi	ty: 62%
				Sp	ecial Test				1	
Geotr	opism		Sat (√) U	Jnsat ( )		As Foun	d		As Left	
Audio	Check		Sat (√) U	Jnsat ( )	Alpha S	ensitivity	= 120mv	Alpha Sei	1sitivity=	120mv
Mechani	cal Zero		Sat (√) U	Insat ( )	Beta Se	nsitivity=	= 3.5mv	Beta Sens		3.5mv
Re	set		Sat (√) U	Insat ( )	Beta W	/indow=	30mv	Beta Wir		30mv
HV Analo	g Display		Sat (√) U	nsat ( )	S	ee detecto	or sheet for p	roper High Vol		
Batt. Ck. (Min.	Volt 2.2VDC	;)	Sat (√) U	nsat ( )		erload No	· · · · ·		load Not S	
	High Vo	ltage Calibi	ration			H.V.	Set With Det	ector Not Coni		
Voltage	Tolerance	As	Found	As Left			<u> </u>			<u></u>
500	450-550		503	503						• ••• •••
1000	900-1100	1	,004	1,004						
1500	1350-1650	1	,528	1,528				, <u>, , , , , , , , , , , , , , , , , , </u>		<u> </u>
Net a travelor		10 - 240 - 340				াগ্ৰন্থ প্ৰ				Nices or Aber and
		ia gra bio nai gra		СОМ	MENTS					
gren en 21 - et 1 i tribite, 1 i gant 10 i 10 i 10	and American American		Calibr	ated in accord	ance with OEN	A Techni	cal Manual			
							1			
nstrument	<u> </u>	<u> </u>				$ \rightarrow $	1	- <u></u>		
Calibrated By:	And.	_			$\leq$	24)			/	/
Calibration Date:	Elillonor		1_1		iewed By:	UN	See	Date:	5/11/0	6
and ation Date:	5/11/2006			<u> </u>	bration Due:-	5/11/209	4		/	
						$\overline{\mathcal{V}}$	······································			



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

		NFORMATION	Calibration Charts or Read		NFORMATION			
Customer Name: Dur	atek Instrument Servic							
······································	Rd. Kingston, TN 37763		·		dlum			
Contact Name: Tom S				Detector Model: 43	-89			
Customer Purchase O		Work Order		Serial Number: 19 Evaluation Method:	9350			
Number: N/A		Number: 2005-033(		Source				
	$\mathbf{D}$	TECTOR EVALU	JATION INFORMAT	ION				
Source Nuclide	Serial	Number	Activity (dpm)	Net Response	Efficiency (%)			
Th-230	119	709	2,442	404	16.5%			
Tc-99	119	713	2,616	343	13.1%			
S	ALER INFORMATIC	N	DI	TECTOR INFORMAT	ION			
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold			
2224	118241	10/31/06	2	575V	Alpha (120mV)			
2224	118241	10/31/06	235	575V	Beta (3.5-30mV			
		ATTA	CHMENTS					
Voltage Plateau:	√YES NO	)	Statistic	cal Evaluation:	YES √NO			
	COMMENTS			LINEARITY TEST				
			Count 1 (Toe)	41	1			
recision test performe	d with Th-230#119709		Count 2 (Mid)	43	4			
Calibrated in accordant nanual. Calibrated with	ce with original equipm	ent technical	Count 3 (Heel)	37.	3			
			Average	40	<u>б</u>			
			Pass/Fail	PASS (+/-10%	Tolerance)			
		STATEMENT OI	CERTIFICATION					
e Certify that the detector ecifications. We further ce mage incurred during ship	listed above was evaluated f rtify that our Calibration Me ment or use of this detector)	or proper operation prior	to shipment and that it met al to the National Institute of St	the Manufacturers published andards and Technology. (We	operating are not responsible for			
etector	<u> </u>		r 1					
ertified By: Mit		Reviewed By:	mas 6. Aut	Date: //5-	31-05			
ertification Date: 10/3	81/05		Certification Due: 10/31/06					

ORIGINAL

#### CALIBRATION CERTIFICATE

			Deteo	otor 43-89 #	199359 Raw [	Data (Count	s)				7		
Vallana	Backg	T	Th-	230	Tc-			I/A	N	/A	4		
Voltage	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	1		
500	0					291				Deta			
525	0					386			+		4		
550	1	185				481					-		
575	1				0	646	·····			1	4		
600	2	,=		572	1	682			1		-		
625	3	and the second s		857	1	775							
650	2	523	390	2092	2	1027							
								······································					
						<u> </u>			<u> </u>				
				Sc	ource Info			I	<u> </u>		[		
		Nuclide	Th-230		Tc-99		N/A		N/A				
		ID	119739		119713				IN/A				
		Initial DPM	2442		2616								
		cation Date			10/14/1997					•			
	Т	oday's Date	10/31/2005		10/31/2005		#########		#########				
	Source /	Age (Years)	8.05		8.05		105.83		105.83				
		Life (Years)	7.70E+04		2.13E+05		100.00		105.83				
	Correc	ted Activity	2442		2616		#DIV/0!		#DIV/0!				
					Net CPM	1			#DIV/0!				
		A/Cross-Tall		Beta Eff.	Alpha Eff.	Th-230		Tc-99	<b>1</b>	NI/A 1			
Voltage	Beta MDA	Alpha MDA	Beta-Alpha	(%)	. (%)	Alpha	Beta	Alpha	Beta	N/A		N/A	
500	460.2	27.1	0.3%	8.68%	10.0%	244	96	<u>1</u>	227	Alpha	Beta	Alpha	Beta
525	696.9	20.7	0.8%	8.75%	13.1%	319	62	3		0	-64	0	-64
550	583.2	47.2	0.2%	11.32%	15.6%	381	120	3		0	-157	0	-157
575	512.9	47.7	0.0%	14.99%	15.4%	377	159	-1	296	-1	-185		-185
600	509.0	58.0	0.1%	15.63%	16.0%	391	299		392	-1	-254		254
625	544.3	67.6	0.1%	16.40%	15.9%	389	511	<u>-1</u> -2	409	-2	-273	-2	-273
650	566.3	58.5	0.2%	19.27%	15.9%	388	1569		429	-3	-346	-3	-346
675	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	000	0	0	504	-2	-523	-2	-523
700	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
				····•		VI_	<u> </u>	0	0	0	0	0	0

Performed By:

Nike tami

Date: 10/31/05

Reveiwed By: anos

Date: 10-31-05

ORIGINAL



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

CUS	TOMER INF	ORMATION		INSTR	UMENT INFOR	MATION	
Customer Na	me: Duratek In	strument Services	Manufacturer:	Ludlum			
Address: 628	Gallaher Road,	Kingston, TN 37763	Model: 2224	Serial Numb	er: 118241		<u> </u>
	e: Thomas F. Sc	ott	Probe: N/A	Serial Numb	er: N/A		
Customer Pur Order Numbe		Work Order Number: 2005-03302	Calibration Mer El	thod: ectronic			
		INSTRU	MENT CALIBR,	No. of Concession, Name	JATION		
Instrument Range	Calibration Standard V	n Res	emeter ponse	Calibration	Tolerances		aler Jonse
	Standard Va	As Found	As Left	Standard Value	(cpm) ± 2%	As Found	As Left
X 1	100	100	100	40	40	40	40
X 1	250	250	250	400	392-408	399	399
X 1	400	390	400	4,000	3920-4080	3,987	3,987
X 10	1,000	1,000	1,000	40,000	39.2K-40.8K	39,434	39,434
X 10	2,500	2,400	2,500	400,000	392K-408K	395,158	395,158
X 10	4,000	3,800	4,000				
X 100	10,000	10,000	10,000		······································		
X 100	25,000	24,000	25,000				
X 100	40,000	38,000	40,000				
X 1000	100,000	100,000	100,000				
X 1000	250,000	240,000	250,000				<u> </u>
X 1000	400,000	380,000	400,000				<u> </u>
			ATEMENT OF CI	RTIFICATION			
curred during shi	instrument listed a that our Calibration pment or use of thi	above was calibrated and in Measurements are traceable	montal 1		all the Manufacturers and Technology. (We	published operating are not responsible for	specifications. or damage
strument alibrated By:	M. Pauli	Reviewed By	mos I	Dould	Date: 16	1-31-65	
alibration Date	e: 10/31/05		Calibration Due:	10/31/06		0.00	

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		М&ТЕ			na l						
And Miles and a start of the line								Environme	utal Conditions		
Volt Meter	ID# T	W12663	Cal Due:	03/30/0	6	Baro	meter	ID#	2816	Cal Due	: 04/19/06
Pulser	ID#	101500	Cal Due:	09/28/0	06	Therm	ometer	ID#	2816	Cal Due	: 04/19/06
Humidity	ID#	958670	Cal Due:	03/22/(	)6	Temp:	22.8°C	Pressure:	749mmHg	Humidit	y: 28%
					Speci,	al Test					
Geotr	opism		Sat (√) Uı	nsat ( )			As Four	ıd		As Left	
Audio	Check		Sat (√) Ui	1sat ( )		Alpha	Sensitivity	= 117mv	Alpha Sen	· · · · · · · · · · · · ·	117mv
Mechani	cal Zero		Sat (√) Ui	isat ( )		Beta S	ensitivity =	= 3.5mv	Beta Sens	·	3.5my
Re	set		Sat (√) Ur	isat ( )		Beta V	Window =	30mv	Beta Win		30mv
HV Analo	g Display		Sat (√) Un	isat ( )		0	verload No	ot Set	Over	load Not S	
Batt. Ck. (Min.	Volt 2.2VDC)		Sat (√) Un	sat ( )		<u> </u>	See detect	or calibration	certificate for	HV setting	
	High Volt	age Calibi	ation						ector Not Conr		·
Voltage	Tolerance	As	Found	As Left	10.000000000000000000000000000000000000						
500	450-550		497	497							
1000	900-1100	1	,004	1,004							
1500	1350-1650	1,	510	1,510							
				- C(	)MM	ENTS					
*Calibrated with	5ft Cable*										
						Cali	brated in a	ccordance wi	th OEM Techn	ical Manus	l
Instrument		<b>.</b> .					$\frown$	/	$\overline{\mathcal{D}}$		
Calibrated By:	NI.ta	heli'		F	Review	ved By:	Vlen	as (H	Date:	10-31-0	25
Calibration Date:	10/31/05			0	Calibr	ation Due	: 10/31/06	<b>-</b>			

## ORIGINAL



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

	A CALL ST COMPANY AND A CALL OF CALL OF CALL	INFORMATION		DETECTOR	NFORMATION		
Customer Name: Du	ratek Instrument Serv	ices		Manufacturer: Lu	dlum		
Address: 628 Gallahe	r Road, Kingston, TN	37763		Detector Model: 43-89			
Contact Name: Thom	as F. Scott			Serial Number: 469			
Customer Purchase: Order Number: N/A		Work Order Number: 2006-034	86	Evaluation Method: Source			
	<u>. 1997 - 19</u>	DETECTOR EVALU	ATION INFORMAT	ION			
Source Nuclide	Seria	l Number	Activity (dpm)	Net Response	Efficiency (%)		
Th-230	1	19709	2,442	376	15.4%		
Тс-99	1.	19713	2,616	336	12.8%		
ene d'alera So	CALER INFORMATI	ION	DE	TECTOR INFORMAT			
Model	Serial Number	Due Date	Background	Operating Voltage	Threshold		
2224	163737	01/17/07	2	850V	Alpha (120mV)		
2224	163737	01/17/07	267	850V	Beta (3.5-30mV)		
		ATIA	HMENTS				
Voltage Plateau:	√YES N	10	MDA/Cross Talk	Evaluation: $$	YES NO		
	COMMENTS	9월 - 11월 - 14일 - 21일 - 21일 11일 - 14일 - 21일 - 21일 - 21일 - 21일		LINEARITY TEST			
			Count 1 (Toe)	37	6		
Calibrated with 5ft cab			Count 2 (Mid)	36	2		
Precision test performe			Count 3 (Heel)	34			
Calibrated in accordant manual.	ce with original equip	ment technical	Average	360	·		
			Pass/Fail	PASS (+/-10%	·		
		STATEMENT OF	CERTIFICATION		A STATE MANY AND ADDRESS INC.		
amage incurred during ship	listed above was evaluated rtify that our Calibration M ment or use of this detector	I for proper operation prior	<b>这些资源的</b> 。 网络海滨地 网络海洋海洋海洋海洋海洋海洋海洋海洋	the Manufacturers published andards and Technology. (We	operating are not responsible for		
Detector	211	A	N-/				
Certified By:	lys	Reviewed By:	A hope	Date: 5//	0/16		
Certification Date: 5/10	/2006		Certification Due: 5/10,	42007			
				······································			

			De	tector 43-89	#469 Raw Da	ata (Counts)	)		-····	······	7		
N / - 1/ -		round	Th	-230		-99		v/A		J/A	-		
Voltage	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	4		
800					2					Dela	-		
825										<u> </u>	4		
850						591	1				-		
875		389	396	6 474	0				·		-		
900		<u></u>							1		4		
									<u> </u>				
									1		1		
				<b></b>							4		
	L				urce Info								
		Nuclide	Th-230	30	Tc-99						-		
		ID			119713		N/A		N/A				
		Initial DPM			2616								
	Certif	ication Date	10/14/1997		10/14/1997								
	т	oday's Date	5/10/2006		5/10/2006		5/10/2006						
		Age (Years)			8.57		106.36		5/10/2006				
		Life (Years)			2.13E+05		100.50		106.36				
	Correc	ted Activity	2442		2616		#DIV/0!		#00.000				
······································					Net CPM	1	#01070:		#DIV/0!				
Mallana		A/Cross-Tal		Beta Eff.	Alpha Eff.	Th-230		Tc-99		N/A			
Voltage	Beta MDA	Alpha MDA		(%)	(%)	Alpha	Beta	Alpha	Beta		Dete	N/A	
800	618.9	75.3	0.6%	8.64%	14.3%	349	28	-1	226	Alpha -3	Beta	Alpha	Beta
825 850	680.0	59.9	0.7%	9.98%	15.5%	379	7	1	261			-3	-119
875	599.6 664.4	59.7	0.0%	12.84%	15.6%	380	71	-2	336	-2	-196 -255	-2	-196
900	#DIV/0!	66.9		14.22%	16.1%	393	85	-3	372	-2	-255	-2	-255
	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0		-309	-3	-389
	#DIV/0!	#DIV/0! #DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0		0
	#DIV/0!	#DIV/0! #DIV/0!	#DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0! #DIV/0!	0.00%	0.0%	0	0	0	0	0	0	0	0
		$\pi D(V/Q)$	#UIV/U!	0.00%	0.0%	To	0	0	0	0	0		0

Performed By: Reveiwed By:

10/06___ Date:

Date:



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

Service Res. Services		This Certificate will be a	ccompanied by Cal	ibration Charts or	Readings where an	oplicable	
CUS		ORMATION			UMENT INFOR	CONTRACTOR AND A REPORT OF	
Customer Na	me: Duratek I	nstrument Services	Manufacturer:	Ludlum			
Address: 628	Gallaher Road	l, Kingston, TN 37763	Model: 2224	Serial Numbe	er: 163737		
Contact Name	: Thomas F. S	cott	Probe: 43-89	Serial Numbe	er; 469		<u> </u>
Customer Pur Order Numbe		Work Order 34 77 Number: 2005-03486					<u> </u>
			UMENT CALIBR	HER PRESSENT FARMAGET TRANSPORT	IATION		
Instrument	Calibratio	on Ra	temeter sponse	Calibration	Tolerances		ıler
Range	Standard V	alue As Found	As Left	Standard Value	(cpm) ± 2%	As Found	onse As Left
X 1	100	100	100	40	40	40	40
X 1	250	250	250	400	392-408	401	401
X 1	400	400	400	4,000	3920-4080	3,984	3,984
X 10	1,000	1,000	1,000	40,000	39.2K-40.8K	39,807	39,807
X 10	2,500	2,500	2,500	400,000	392K-408K	400,022	400,022
X 10	4,000	4,000	4,000			l	
X 100	10,000	10,000	10,000				
X 100	25,000	25,000	25,000				
X 100	40,000	40,000	40,000				
X 1000	100,000	100,000	100,000				<u></u>
X 1000	250,000	250,000	250,000		<u>_</u>		<u> </u>
X 1000	400,000	400,000	400,000			······	
e Certify that the fe further certify t curred during ship strument	instrument listed hat our Calibration pment or use of t	above was calibrated and it	TATEMENT OF C inspected prior to ship ble to the National In	BACK REAL OF THE CASE	all the Manufacturer and Technology. (We	s published operating are not responsible fo	specifications. or damage
alibrated By:	M. Pauli	Reviewed By:	Tanco Gz	Acuto	Date: / -	7-06	
alibration Date	e: 01/17/06		Calibration Due:	01/17/07			······································

Model: <u>2224</u>

.

Serial Number: <u>163737</u>

. .

	Mé	٤TE	2010 00000 - 20 2010 0000 - 20	- Annes and and	4 NG	Environme	ntal Conditions		(1) (Alternation data
Volt Meter	ID# TW1	2663 Cal Due	»: 03/30/06	Baro	meter		2816	<u>San San</u>	: 04/19/06
Pulser	ID# 101	500 Cal Due	: 09/28/06	Therm	ometer		2816	l	04/19/06
Humidity	ID# 958	670 Cal Due	: 03/22/06	Temp:	24.3°C	Pressure:	731mmHg	Humidit	<del></del>
			Spec	vial Test					J: +270
Geotro	opism	Sat (√)	Unsat ( )		As Foun	d		As Left	
Audio	Check	Sat (√)	Unsat ( )	Alpha	Sensitivity	= 130mv	Alpha Sen	sitivity =	120mv
Mechanie	cal Zero	Sat (√)	Unsat ( )	Beta S	ensitivity =	- 3.5mv	Beta Sens		3.5mv
Res	et	Sat (√)	Unsat ( )	Beta	Window =	32mv	Beta Win	·,	
HV Analog	g Display	Sat ( √ )	Unsat ( )	C	overload No	ot Set	Over	load Not Se	et
Batt. Ck. (Min.	Volt 2.2VDC)	Sat ( √ )	Unsat ( )		See detect	or calibration	ı certificate for	HV setting	·
	High Voltage	Calibration	Antonia de la composición de la composi Composición de la composición de la comp		····		ector Not Conn		
Voltage	Tolerance	As Found	As Left				<u> </u>		
500	450-550	506	506				·····		
1000	900-1100	1,001	1,001						
1500	1350-1650	1,496	1,496						
energia de la composición de la composi La composición de la c					MB Cove	ing the S	n - Manusares - Sa		e chuir e
				MENTS					
*Calibrated with §	5ft. Cable*			Cali	brated in a	ccordance wi	th OEM Techn	ical Manua	
									1
nstrument									
Calibrated By:	M.Paul	Ĺ	Revi	ewed By:	a.	- Fale	MA DU	1.10	*
Calibration Date:	01/17/06	·		oration Due		· · · · · · · · · · · · · · · · · · ·	Date:	1-17-	06



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

		This Certific	ate will be accom	panied by Ca	alibration Charts o	r Readings where applicab	le		
	STREET, STREET	ustomer Inform	ation			Instrument Infor	Even were and a second s		
Customer Nam	e: Durat	tek Instrument S	ervices		Manufacturer:	Ludlum			
	Address: 628 Gallaher Road, Kingston, TN 37763					Serial Number: 1155	63		
Contact Name:		F. Scott			Probe: 43-10-1	Serial Number: 127216			
Customer Purch Order Number:		···	Work Order		Calibration Me	thod:			
order Humper.			Number: 200	THE MARKAGE STREET, ST	Electronic An				
M&TE			umber	A CONTRACTOR OF A DESCRIPTION OF A DESCRIPANTE A DESCRIPANTE A DESCRIPANTE A DESCRIPTION OF A DESCRIPTION OF	oration Informati	1			
Thermome					tion Due Date	1	ental Conditions		
Baromete					4/19/06	Temperature	22.1°C		
Hygromet		<u> </u>	16		4/19/06	Pressure	740mmHg		
Pulse Gener		<u> </u>	670		3/22/06	Humidity	60%		
DVM			935		4/26/06	Calibrated in accordance	e with CP-IN-WI-235 Rev.		
Service and the service of the servi		6565	And the second second second second	A CALL STREET,	0/19/05	in accordance			
Isotope Th ²³⁰	a of the other	Source ID		Original 2	Activity (dpm) –	Source Cert, Date	Decayed Activity (dpm)		
Pu ²³⁹		119		1	8,720	10/20/97	18,720		
		0194			3,613	06/01/92	13,613		
Tc ⁹⁹		119			0,520	10/01/92	20,520		
SrY ⁹⁰	tern of Adaptic spec	1290	576	15		05/12/03	15,058		
an a thu thur	i de Colain T	6260600		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Calibration				
Desired (cpm)	Tole	rances (cpm)	Alpha As Fo (cpm)	ound	Alpha As Left (cpm)	Beta As Found	2000 110 10010		
40		40	40		<u>40</u>	(cpm) 	(cpm) 40		
400	(	392-408)	401		401	401	40		
4,000	(3,	920-4,080)	4,005		4,005	4,007			
40,000	(39.	2K-40.8K)	40,052	— <u> </u>	40,052	40,073	4,007		
400,000	(39	2K-408K)	400,536		400,536	400,257	40,073		
Backgroun	d Detern	ination	Alpha As Fo	und	Alpha As Left	Beta As Found	400,257		
							Beta As Left		
	unts, C _b		<u>6</u>				1010		
Co	unts, C _b T _b	(min)	<u> </u>		6	1375	1213		
Co Time,	Ть	(min)	20		<u>6</u> 20	<u>1375</u> 20	<u> </u>		
Co Time,	Ть	,	20 0.3	21emont of	6 20 0.3	1375	1213		
Con Time, Rate, ⁷ e Certify that the pecifications. We fisponsible for dam	T _b R _b instrume: further ce	(min) (cpm) nt listed above we rtify that our Cali	20 0.3 St as calibrated and in bration Measurem	inspected pri-	6 20 0.3 Certification	<u> </u>	<u> </u>		
Con Time, Rate,	T _b R _b instrume: further ce lage incur	(min) (cpm) nt listed above wa rtify that our Cali red during shipm	20 0.3 St as calibrated and in bration Measurem	inspected pri-	6 20 0.3 Certification	1375       20       68.75   That it met all the Manufacture of Standards and Institute of Standards	1213 20 60.65		

### CROSS TALK SHEET & EFFICIENCY SHEET

Instrument ID: <u>115563</u>

	ound Alpha Threshold						WW HEAT IS OF A AND AND A	trument ID: <u>115563</u>
	175	a (my)			As	Left Alpha	Fhreshold	(mv)
	1/5					17	75	
Paramter and Toleral	and Alasha A. T			med using Pu ²³⁹	#019442			
Source Count, Cs		——	·	na As Left	-	Beta As For	ind	Beta As Left
Time, $T_s$ (min)	27,770			27,770		852		852
Rate, R _s (cpm)	5		<u> </u>	5		5		5
EFF (% c/d) (>25%	$\mathbf{R}_{\mathbf{s}[\alpha]} = 55$	54	Rsi	_{x]} = 5554	<u> </u>	$R_{s[\beta]} = 170.$	.4	$R_{s[\beta]} = 170.4$
EFF (% 0/u) (>25%	b) 40.8%			10.8%		N/A		N/A
%Crosstalk [α to β] (< 10%)		·	1	$\frac{R_{s[\beta]} - R_{b[\beta]}}{R_{s[\alpha]} - R_{b[\alpha]}} =$	170.4 - 5554 -	=	2%	
As Found Beta Low	Threshold As Lat	t Beta Low T	45.524					
4.0mv		4.0mv	nte211010	As Found Be	Constant and the second second second	hreshold	As Left	Beta High Threshold
		CALCULATION AND AN ANY AND			50mv			50mv
Paramter and Toleran	ce   Alpha As Fo	î	100 100 100 100 100 100 100 100 100 100	ned using Tc ⁹⁹ #	T			
Source Count, Cs	2		Alph	a As Left	B	eta As Fou	1d	Beta As Left
Time, T _s (min)	5			2		21,322		21,322
Rate, R _s (cpm)				5		5		5
EFF (% c/d) (>10%)	$\frac{R_{s[\alpha]} = 0.4}{N/4}$	·		u] ⁼⁼ 0.4	I	$R_{s[\beta]} = 4264.$	4	$R_{s[\beta]} = 4264.4$
211 (10 44) (210 /0)	N/A			N/A		20.5%		20.5%
%Crosstalk [β to α] (< 1%)			· · · · ·	$- \mathbf{R}_{\mathbf{b}[\alpha]}$		- 0.3 - 60.65	=	0.00024%
			High Vol	age Power	en en son de service An de service de service			
Desired Voltage	Tolerance	DVM As		DVM As L	eft 2	929 Meter	As Found	2929 Meter As Left
600	540 - 660	60	3	603		600	Contraction State	600
800	720 - 880	80	5	805		800		800
1,000	900 - 1,100	1,0	19	1,019		1.00		1,000
1,200	1,080 - 1,320	1,22	26	1,226		1,20		1,200
1,300	1,170 - 1,430	1,31	19	1,3119		1,30		1,300
High Vo	ltage	As Fo	und	Vern Dial Rea	Iding	As Le	Country XMA STORY TODAY MARKS	Vern Dial Reading
		1060	)V	4.27	a waa ahaa ka ahaa ah	1060	646340893 SP38236	4.27
		St	atement of	Certification	1000	196 (S. 1967)	an a	
e Certify that the instru- ecifications. We further sponsible for damage in strument					id that it m onal Institu	et all the Ma ute of Standa	nufacturers ards and Te	s published operating chnology. (We are not
alibrated By:	Hy	Reviewed 1	By:	unos la	Acu	Da	.te: 10	6-05
alibration Date: 10/6/2	005			0.10	tion Due:			

#### **EFFICIENCY SHEET**

#### Instrument ID: 115563

As Found	Alpha Threshold (mv)			As Lef	t Alpha	Thresho	d(my)
	175				AND DESCRIPTION OF A DESCRIPTION	75	
		Alpha Source	2: Th ²³⁰ #11973	7			
Paramter and Tolerance	Alpha As Found	Alph	a As Left	Bet	a As Fo	und	Beta As Left
Source Count, Cs	32,028	32	2,028		N/A	<u></u>	N/A
Time, T _s (min)	5		5	1	N/A	<u> </u>	N/A
Rate, R _s (cpm)	$\mathbf{R}_{\mathrm{s[\alpha]}}=6405.6$	R _{s[a]} :	= 6405.6	R	$s_{[\beta]} = N/A$	4	$R_{s[\beta]} = N/A$
EFF (% c/d) (>25%)	34.2%	34	4.2%		N/A	<u></u>	N/A
%Crosstalk [α to β] (< 10%)			$\frac{\mathbf{R}_{s[\beta]} - \mathbf{R}_{b[\beta]}}{\mathbf{R}_{s[\alpha]} - \mathbf{R}_{b[\alpha]}} =$	N/A N/A	=	N/A	<u></u>
As Found Beta Low Thresh	old As Left Beta Low	Threshold	As Found B	eta High Thro	shold	As L	eft Beta High Threshold
4.0mv	4.0mv			50mv	00.000- <u>17</u> 9009-00009-0	and the second second second	50mv
		Beta Source:	SrY ⁹⁶ #129676		8-3 G.		a an
aramter and Tolerance	Alpha As Found	Alpha	As Left	Beta	As Fou	nd	Beta As Left
Source Count, Cs	N/A	N	I/A		28,168		28,168
Time, T _s (min)	N/A	N	I/A	5			5
Rate, R _s (cpm)	$\mathbf{R}_{\mathbf{s}[\alpha]} = \mathbf{N}/\mathbf{A}$	$R_{s[\alpha]}$	= N/A	R _{s[β}	₁ = 5633.	.6	$R_{s[\beta]} = 5633.6$
EFF (% c/d) (>10%)	N/A	N	/A		40.0%		40.0%
%Crosstalk [β to α] (< 1%)			$\frac{R_{s[\alpha]} - R_{b[\alpha]}}{R_{s[\beta]} - R_{b[\beta]}} =$	N/A 		N/A	
		Statement of	Certification	ad <u>y hara</u> di	Tel State		
e Certify that the instrument l ecifications. We further certif sponsible for damage incurred strument	isted above was calibrated and v that our Calibration Measure	d inspected pri	for to shipment a	and that it met tional Institute	all the N e of Stand	Ianufactu dards and	rers published operating Technology. (We are not
alibrated By:	Reviewee	d By: 72	unot,	See		The second second	0-6-05
alibration Date: 10/6/2005			Calibi	ration Due: 1	0/6/2006	;	······································

Designer and Mo of Scientific and Instrume	ndustrial CE	RTIFICATE OF C	ALIBRATIC	DN 5	UDLUM MEASUR OST OFFICE BOX 810 01 OAK STREET WEETWATER, TEXAS 79	PH. 325-235-5494 FAX NO. 325-235-46
CUSTOMER CABRERA SI	RVICES	· ·			ORDER NO.	
Mfg. Ludium Measu	rements, Inc. N	lodel	2221			
Mfg. Ludium Measu						
Cal. Date10-A	pr-06 Cal Di	ie Date	10-4pr-07			<u> </u>
Check mark 🗹 applies to ap	plicable instrand (or					
					RH23 %	Alt <u>701.8</u> mm H
New Instrument Instru						
<ul> <li>✓ Mechanical ck.</li> <li>✓ F/S Resp. ck</li> <li>✓ Audio ck.</li> </ul>	Meter Zeroe Reset ck.		Window O	id Subtract peration 1in. Volt)4	🗹 Geotro	
Calibrated in accordance			-		with LMI SOP 14.9 rev (	02/07/97
nstrument Volt Set <u>Commer</u>		. –				
🖌 HV Readout (2 point					2000/_	
COMMENTS:						
	-	Gross Counts	Firmware:	26 10 27		
High Voltage:	840V	1150V		· · ·	· · ·	
Threshold Setting: Window Setting:	642 40	100(10mV) N/A		checked but		
Window Position:	"IN"	"OUT"		detector co d using 6' (		•
		001	Caribiace	a asing o	c-cabie.	
Resolution for Cs137	≈ 9.21%			÷		
	ι.	•	•			
		• • •		· .		· · ·
Jamma Calibration: GM detectors positioned	perpendicular to source except fo	r M 44-9 in which the front of pro	be faces source.	· · ·		· .
	REF	ERENCE		UMENT REC'E	D INSTRUME	NT
RANGE/MULTIF	LIER CA	L. POINT		OUND READI		
<u>x1K</u>			-	400		00
<u>x1K</u>		pm		00		00
<u>x100</u>		pm		400	4	00
<u></u> x100		pm	· · · ·	100		00
<u>x10</u>		pm	···	400	<u> </u>	00
<u>x10</u>	1KC	pm	<u></u>	100		00
 x1	<u>400c</u>			400		00
				100		00
*Uncertainty within ± 10	% C.F. within ± 20%				ALL Range(s) Cali	brated Electronically
REFERENCE	INSTRUMENT	INSTRUMENT	PE	FERENCE	INSTRUMENT	INSTRUMENT
CAL. POINT	RECEIVED	METER READING*		L. POINT	RECEIVED	METER READING
)igital leadout <u>400kcpm</u>	39981(0)	39981(0)	Log Scale			•
<u>40kcpm</u>	3998	39981	Scale	500kcpm	<u>450K</u>	<u>450K</u>
<u>4kcpm</u>	400	400	·	50kcpm	<u> </u>	<u> </u>
400cpm	40	40	<b> </b> →	<u>5kcpm</u> 500cpm	500	····
<u>40cpm</u>	<u> </u>	45	-	50cpm	55	<u> </u>
udium Measurements, Inc., certifies that t	he above instrument has bee	en calibrated by standards i	raceable to the N	ational institute of Fig	and and a set Tester is to set a set	
ther International Standards Organization he calibration system conforms to the re	u mémbers, or ngye beél) de	sived from accepted volue	s of natural physic	al constants or have	been derived by the ratio typ State of Texas Calibra	e of calibration technique
Reference Instruments and						IIOR LICENSE NO, LO-17
Cs-137 Gamma S/N 1162		5 🔲 T1008 🛄 T879 🗌	E552 E55		4 1616 Net	utron Am-241 Be S/N T-3
Alpha S/N						1≈0.83 µCl
✓ m 500 S/N 810			-			
		Oscilloscope S/N			Multimeter S/N	78401030
Calibrated By: Sebast	1 1 11			Date/D	· Apr - 06	
Reviewed By: Much	of Jh	omar_	• •	Date	Apr-de	
This certificate shall not be reproduced	except in full, without the wri	tten approval of Ludium Me	asurements, Inc.	AC Inst.	Passed Dielectric (Hi-Po	ot) and Continuity Test



Other

Designer and Manufacturer of Scientific and Industrial Instruments

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# 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 R-183465		
Customer CABRERA SERVICES	Order #253450 / 301183	
Counter Serial No 176952	Counter Input Sensitivity 10 n	πV
Count Time <u>6 Sec</u> .	Distance Source to Detector	

	High	Reckaround	Isotope Am241	lsotope	lsotope	lsotope
	Voltage	Background	Size ~0.83	Size	Size	Size
_	900V	1,237	16,074		· · · · · · · · · · · · · · · · · · ·	
_	950	1,285	16,977	·		
_	1000	1,296	20,184			
	1050	1,365	20,652			
_	1100	1,300	21,086			
*	1150	1,355	21,059			
	12.00	1,383	21,015			
	1250	1,441	21,049			
	1300	1,491	21,406			
	135 0	1,477	21,203			· · ·
_	1400	1,814	21,759			
					· · · · · · · · · · · · · · · · · · ·	
					· · ·	-
_						· · ·
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signature Sebash Cusally

Date 10- Apr-06

M	of Scientific and Indus Instruments	itrial C	ERTIFICATE OF C	ALIBRATION	/ 501 OA	FFICE BOX 810 Ik street Vater, texas 79	FAX NO. 32	5494 25-235-4672 239985
:USTOM	IER CABRERA SERVI	CES				ORDER NO.	2399	88, 2935 22
4fg:	Ludium Measurem	ients, Inc.	Model	4 · · · · · ·		INO, Z	18559	······
4fg	Ludium Measurem	ients, inc.	Model			NO. TR	215488	
Cal. Dat	te 25-Aug-	0 <u>5</u> Cal E	ue Date 2			<u>1 Year</u> Met		202-159
eck mo	ark 🗹 applies to applic	able instr. and/a	r detector IAW mfa. sp	ec. ĭ.			Alt700	
			] Within Toler. +-10% [				111 700	
	nanicai ck.	Meter Zero	ped r	Background	Subtract			
	Resp. ck	🗹 Reset ck.				✓ Input sector	əns. Linearity ıolsm	
7 Audi		Alarm Setf			. Volt) <u>4.4</u> VC			
	rated in accordance w		·		accordance with Li			. /
irument	Volt Set <u>Comments</u>	V Input Sens. <u>C</u>	omment mV Det. Op	er. <u>Comments</u>	V at Comment	mV Dial Ratio	100 ==	
N H	IV Readout (2 points)	Ref./Inst	_ 500 / 4	<u>99</u>	/ Ref./Inst	2000 /	2002	v
OMME	INTS:	,		ويستريك والشروب المتقا فالمتشر وبالي والماري	187			
	Þ	ak settings	Gross Counts	s Moo	del 2221 curre	ntlv set		
	High Voltage: (	6700.	1000V,	. for	r "Peak settin	gs".		
.1.	hreshold dial: Window dial:	642	100 (10mv)		gh voltage set	with detect	or	
Wi		40 '1N"	n/a "OUT"	COL	nnected.			
	ion for Cs137:		n/a	t'i.	rmware: 26/	NIR		
	ted using 39" cal		11/ 4	r 1 1	Lillware: 26/	020		
<u>una Calibrat</u>	ion: GM detectors positioned perpetectors positioned perpetectors positioned perpetectors and the second se	R C/ <u>400k</u> <u>100k</u> <u>40k</u> <u>40k</u> <u>10k</u> <u>4k</u> <u>1k</u> <u>400</u>	FERENCE AL. POINT	INSTRU	MENT REC'D UND READING"	INSTRUME METER RE 402 702 10 10 10 10 10 10 10 10	ADING*	
	· · · · · · · · · · · · · · · · · · ·	100	~piii			/(	0	
				<u></u>				
	Uncertainty within ± 10% ( REFERENCE II	ومتراولية والفرج والمستحير والفتي والمتعاد والمتعاد والمتعار		1	AL			and the second
		NSTRUMENT RECEIVED	INSTRUMENT METER READING*	1		STRUMENT	INSTRUM	
lital			200000		POINT RE	CEIVED	METER RE	ADING*
adout .					500kcpm		450	<u>K</u>
	40kcpm 4kcpm		3998		50kcpm	·····	<u>Sok</u>	·
-	400cpm	······	400	·	5kcpm	<del></del>	<u> </u>	<u></u>
	40cpm		- <del>40</del>		500cpm 50cpm		<u></u> So	<u>,                                     </u>
lum Measure	ements, inc. certifies that the a	oove instrument has be	sen calibrated by standardsitra	reable to the Natio		and Tophonicau as to	·····	
	nol Standards Organization me system conforms to the require				considinis of nave been de	rived by the ratio type ite of Texas Calibra	of calibration ter	chniques.
	Instruments and/or			ويرزي ودرائل اعتدار بسراد ورائل ورواني			MON LICENSE NO	D. EU-1903
	ma S/N 🗌 1162 🗌 G11		05 🗍 T1008 🗌 1879 🗍	E552 E551	720 734		Jtron Am-241 B	@ \$/NIT-304
	a \$/N						$\sim$	-
	0 S/N 196745		1				<u>1 ~ 0.87 µCl /</u>	
	О л		Oscillosgope S/N	· · · · · · · · · · · · · · · · · · ·	Multim	neter S/N	80050663	
alibrated	By:	4 1'La	White	-	Date 2	ン・州UG	05	
?eviewed	By: DOV	ia M	open		Date 2	5 1110	05	
his certificate	shall not be reproduced exce	ot in full, without the w	ritten conroval of tructum Man	urononia lan				······································
ORM C22A	11/26/2003	er igt som mensadet ing W	mon opprovar or EUCIUM MOOS	wrethents, InC.	AC Inst. Pass Only Falle	ed Dielectric (Hi-Po d:	ot) and Continu	uity Test

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		Bench	Test Data F	or Detector	231985
Detector	44-20	Serial No. JR 2	15488		293882
Customer CA				Order #	239988
Counter	<u>2221</u> s	erial No. <u>218</u> 5	59	Counter Input Sensitivit	4 <u>10</u> mV
		hSEC.		Distance Source to Detector	r2cm.
Other					
High Voltage	Background	Isotope A M24 Size F0.87	/ Isotope	lsotope Size	lsotope Size
750	1203	12:250			
800	1218	13936			
850	1297	14834			
900	1319	15721			
150	1230	15639			
- 1000	12/3	15878			
1050	1218	15983		· · · · · · · · · · · · · · · · · · ·	
1100	13)7	15770			
1200	19.5%	16064		·····	
1200	1481	1600/			
1300	1013	16976		·····	
_1_00	1012				
					·····
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		······			
		***			
- <del></del>					
Signature	Plia	Chanf		Date	25.Ang-0
C4A 04/09/2003		<ul> <li>Serving The</li> </ul>	ə Nudlear Indi	istry Since 1962 🏾 🛛	

CUSTOMER CABRERA SERVICES	CERTIFICATE	OF CALIBRATION	POST OFFICE BOX 501 OAK STREET SWEETWATER, TEXA	FAX NO. 325-235-46 S 79556, U.S.A.
			ORDER NO	254788 / 301922
Mfg. <u>Ludium Measurements, Ir</u>	nc Model	3	Serial No	5696
Mfg. Ludium Measurements, in				
Cal. Date <u>3-May-06</u>	Cal Due Date	3-May-07	Cal. interval 1 Year	Meterface 202-002
Check mark 🗹 applies to applicable ir	nstr. and/or detector IAW	mfg. spec. T.	74 °F RH <u>39</u>	% Alt698.8_mm H
Mechanical ck. F/S Resp. ck	eived []] Within Toler. + Meter Zeroed Reset ck. Alarm Setting ck.	Background Su		Other-See comments Out Sens. Linearity eotropism
Calibrated in accordance with LM	I SOP 14.8 rev 12/05/89.	Calibrated in a	cordance with LMI SOP 149	rev 02/07/97
Instrument Volt Set <u>900</u> V Inp	ut Sens, 34 my [	Det. Oper. 9///	Vat 34 mV Dial	nold
HV Readout (2 points) Ref./in	///////////////////////////////////////	V	Ref./Inst	/ <u></u> V
COMMENTS:				
				·
Gemma Calibration: GM detectors positioned perpendicular to	· · · · · · · · · · · · · · · · · · ·			
RANGE/MULTIPLIER	REFERENCE CAL. POINT			ument R reading*
X 100	400kcpm	4	KERDING MEIE	4 K
<u> </u>	100kcpm		hr	Ir
<u>X 10</u> X 10	40kcpm 10kcpm		<u><u><u></u></u><u><u><u></u><u></u><u><u></u><u></u><u></u><u><u></u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u></u></u>	<u> 4 /r</u>
<u> </u>	4kcpm		<u>//</u>	4/
<u> </u>	lkcpm		<u> </u>	IR
<u> </u>	400cpm 100cpm	<u> </u>	<u>K</u>	<u>44</u>
			<b></b>	/n
				· · · · · · · · · · · · · · · · · · ·
*Uncertainty within ± 10% C.F. with	in ± 20%	· · · · · · · · · · · · · · · · · · ·	ALL Range(s)	Callbrated Electronically
REFERENCE INSTRUM	AENT INSTRUMEN	NT REFERE	and the second	INSTRUMENT
CAL POINT RECEIVE	ED METER REA			METER READING
Digital Readout	· · · · · · · · · · · · · · · · · · ·	Log Scale	· · · · · · · ·	
				<u> </u>
				·····
Ludium Measurements, Inc. certifies that the above inst other International Standards Organization members of	rument has been calibrated by st	andards traceable to the Nation	al Institute of Standards and Technoloc	av, or to the calibration facilities o
other International Standards Organization members, o The calibration system conforms to the requirements of			instants of have been derived by the ra	to type of calibration technique alibration License No. LO-19
Reference Instruments and/or Sourc	es:		· · · · ·	
Cs-137 Gamma S/N 1162 G112 M				Neutron Am-241 Be S/N T-3
📋 Alpha S/N	Beta S/N		Other	
7 m 500 S/N 189509		\$ /N		
Calibrated By: weight	flum	·	Date 3- MAY.06	
Reviewed By: <u>Which J b</u>	homas		Date 3-May-00	2
This certificate shall not be teproduced except in tull,	without the written approval of Lu	udium Measurements, Inc.	AC Inst. 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. 325-235-46

 SWEETWATER, TEXAS
 79556, U.S.A.

#### CONVERSION CHART

Custome	r <u>CABRERA SERVICES</u>		Date	3-May-06	Order #.	254788 / 301922
Model	<u> </u>	135696	Detector Model	44-9	Serial No	PR145224
Source (	<u>(5/37,1162,</u>	E552	<u> </u>		High Voltage	900 V
				In	put Sensitivity	<u> </u>
	Reference Point	"As Found" F Meter Reading	Readings (CPM): Range/Scale		ter Adjustment eter Reading	Readings (CPM): Range/Scale
	150 mR/hr	4.2 M	× 100	(	4.2/1	x 100
	50 mR/hr	2/1	X100		2/1	X 100
	15 mR/hr	0.7 K	X100		0.7 K	X 100
	5 mR/hr	2.1K	XIO		2.1 K	210
	1.5 mR/hr	0.55K	×10		0.55K	X10
	1.0 mR/hr	34	x1	<u> </u>	3/	XI
	····			· · ·		
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			-			<u> </u>
Signature	windel 4	illinin		Date 3-	MAYO	6

	Scientific an Instrum	of Id Industrial nents	CERTIFICATE	OF CALIBR	ATION	POST OFFICE BC 501 OAK STREET	ASUREMENTS 2X 810 PH. 325- FAX NO EXAS 79556, U.S.A	235-5494 . 325-235-46
	AER <u>CABRERA</u>					ORDER		
			Model			Serial No		
Mig	1		Model			Serial No	······································	······································
Cal. Da	te <u>22</u>	-Dec-05	Cal Due Date	22-Dec-0	<u>)6</u> Cal. I	nterval <u>1 Yea</u>	Meterface	0-200µrem
Check mo	ark 🗹 applies to a	applicable instr. c	nd/or detector IAW	mfg. spec.	Г. <u>73</u> °F	RH2	<u>3_</u> % Alt	<u>705.8 </u> mm H
Mec F/S F Aud	chanical ck. Resp. ck io ck. rated in accorda	Mete Meset Alarm Ince with LMI SOP	ck. Setting ck. 14.8 rev 12/05/89.	Backg Windo Batt. c	round Subtract w Operation k. (Min. Volt) ted in accordan	VDC ce with LMI SOP 1	Input Sens. Lineo Geotropism 4.9 rev 02/07/97.	arity .
nstrument	Volt Set	V Input Ser	nsmV i	Det. Oper	V at	mV Dic	esnola al Ratio	=
. 🗆 Н	IV Readout (2 poi	ints) Ref./Inst	· · · · · · · · · · · · · · · · · · ·	/	V Ref./ins	t.	1	v
COMMI	-NTS-			:				
	25-11 20 - 1 20 -	•						·
			·					
	-							
				· .				
Samma Calibrat	tion: GM detectors position	ed perpendicular to source	except for M 44-9 in which the					
	RANGE/MULT		REFERENCE		ISTRUMENT RE		TRUMENT	
	x1000	-	CAL. POINT 50 mR/hr		AS FOUND REA	DING" ME		¢
	X1000		50 mR/hr		570	<u> </u>	<u> 50</u> 51	·
	x100		15 mR/hr		/55	······································	150	
	<u>x100</u>		5 mR/hr		50		50	
	<u></u>		500 µR/hr	· · · · · · · · · · · · · · · · · · ·		·	150	
	<u></u>		500 µR/hr 50 µR/hr					
	x1		00 µR/hr		<u> </u>	· · · · ·	<u> </u>	
	x0.1		15 uR/hr			· · · · · · · · · · · · · · · · · · ·	150	
	x0.1	······						
*	Uncertainty within ± 1	10% C.F. within ± 20	%	·		Range	(s) Calibrated Ele	ectronically
	REFERENCE	INSTRUMENT	INSTRUMEN	T	REFERENCE	INSTRUMEN		UMENT
	CAL. POINT	RECEIVED	METER REA		CAL POINT	RECEIVED		READING
Digital Readout				Log Scale				
				JUU				
	· · · · · · · · · · · · · · · · · · ·			3cule	·····	- <u></u>	<u> </u>	
· · ·				3cuie				
				3Cule				<u> </u>
.udium Measur	ements. Inc. certifies the							<u></u>
			has been calibrated by st been derived from accept	andards traceable to	the National Institute of physical constants or h	ave been derived by th	e ratio type of calibrat	on technique
he calibration	system conforms to the	requirements of ANSI/N	has been calibrated by st been derived from accep ICSL 2540-1-1994 and ANSI	andards traceable to	the National Institute of physical constants or h	ave been derived by th	ology, or to the calibrate e ratio type of calibrates s Calibration Licens	on technique
he calibration	system conforms to the e Instruments an	requirements of ANSI/N ad/or Sources:	ICSI, 2540-1-1994 and ANSI	andards traceable to ted values of natural N323-1978	physical constants of h	ave been derived by th State of Texa	e ratio type of calibrat s Calibration Licens	on technique e No. LO-19
ne calibration Reference Cs-137 Gam	system conforms to the <b>Instruments an</b> ma S/N 1162	id/or Sources:	CSL 2540-1-1994 and ANSI	andards traceable to ted values of natural N323-1978	E551720	State of Texa	e ratio type of calibrat	on technique e No. LO-19
Reference Cs-137 Gam	system conforms to the e Instruments an ma S/N 1162 and a S/N	id/or Sources:	5105     Beta S/N	andards traceable to ted values of natural N323-1978	E551     720	Transmission     State of Texa       1734     1616       Other	e ratio type of calibrat s Calibration Licens	on technique e No. LO-19
Reference Cs-137 Gam	system conforms to the <b>Instruments an</b> ma S/N 1162	id/or Sources:		andards traceable to ted values of natural N323-1978	E551     720	State of Texa	e ratio type of calibrat s Calibration Licens	on technique e No. LO-19
Reference Cs-137 Gam	system conforms to the e Instruments an ma S/N 1162 a S/N	id/or Sources:	5105     Beta S/N	andards traceable to ted values of natural N323-1978	E551 720	ave been derived by the State of Texa       734     1616       Other        Multimeter S/N	e ratio type of calibrat s Calibration Licens	on technique e No. LO-19

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AC Inst. Passed Dielectric (Hi-Pot) and Continuity Test



CALIBRATION CERTIFICATE

Duratek Instrument Services 628 Gallaher Road Kingston, TN 37763 Phone: (865) 376-8337 Fax: (865) 376-8331

CUSTOMER INFORMATION         INSTRUMENT INFORMATION           Customer Name: Duratek Instrument Services         Manufacturer:         F&J Specialty Inc.           Contract Name: Thomas F. Scott         Model:         LV-1           Address: 628 Gallaber Road, Kingston, TN 37763         Sorial Number: 2432         Sorial Number: 2432           Contract/Task         Work Order         Collibration Method:         Air Flow           Number: NA         Work Order         Collibration Method:         Air Flow           Therment Range (LPM)         Standard Value (210%)         As Found         As Left         Comments           10 - 100         60         54-66         58         60         Barometer: 2816         Cal Duc: 04/19/06           10 - 100         60         54-66         58         60         Barometer: 2816         Cal Duc: 04/19/06           10 - 100         60         54-66         58         60         Barometer: 2816         Cal Duc: 03/22/06           10 - 100         60         54-66         58         60         Barometer: 2816         Cal Duc: 03/22/06           10 - 100         60         54-66         58         60         Barometer: 2816         Cal Duc: 03/22/06           10 - 100         60         54-66         58		This Certific	ate will be accom	panied by Calibr	ation Charts or R	Readings where applicable	
Customer Name: Duratek Instrument Services       Manufacturer:       F&J Specialty Inc.         Contact Name: Thomas F. Scott       Model: LV-1         Address: 628 Gallaher Road, Kingston, TN 37763       Serial Number: 2432         Contract Task       Work Order         Number: NA       Work Order         Standard Value       Claibration Method:       Air Flow         Instrument Range       Standard Value       Claibration Method:       Air Flow         10 - 100       60       54-66       58       60       Barometer: 2816       Cal Due: 04/19/06         Instrument Range       Standard Value       Cleines:       Cleines: 2816       Cal Due: 04/19/06         I0 - 100       60       54-66       58       60       Barometer: 2816       Cal Due: 04/19/06         Interview       Cal Due: 04/19/06       Homidity: 958670       Cal Due: 03/22/06       Due: 03/22/06         Interview       Interview       Interview: 74.6 mmltg       Due: 03/22/06       Due: 03/22/06         Interview       Interview: 74.6 mmltg       Interview: 74.6 mmltg       Due: 03/22/06         Interview       Interview: 74.6 mmltg       Interview: 74.6 mmltg       Due: 03/22/06         Interview:       Interview: 74.6 mmltg       Interview: 74.6 mmltg       Due: 03/22/06<	CUSTOMER INFORMATION						
Model: LV-1         Address: 628 Gallaber Road, Kingston, TN 3763       Serial Number: 2432         Contract Task       Callbration Method: Air Flow         Number: 2065-03169       Callbration Method: Air Flow         INSTRUCTION INFORMATION INFORMATION         Instrument Range (LPM)       Callbration Method: Air Flow         INSTRUCTION INFORMATION INFORMATION         INSTRUCTION INFORMATION INFORMATION INFORMATION         INSTRUCTION INFORMATION INFORMA	Contact Name: Thomas F. Scott         Address: 628 Gallaher Road, Kingston, TN 37763         Contract/Task         Work Order			Manufacturer:       F&J Specialty Inc.         Model:       LV-1         Serial Number:       2432			
ContractTask Number: N/A Calibration Method: Air Flow Calibration Method: Air Flow Calibration Method: Air Flow Calibration Method: Air Flow Number: N/A Calibration Method: Air Flow Calibration Method: Air Flow Number: N/A Calibration Method: Air Flow Calibration Method: Air Flow Number: N/A Calibration Method: Air Flow Calibration Method: Air Flow Number: N/A Calibration Method: Air Flow Calibrati							
ContractTask Number: NA Number: 2005-03169 Calibration Method: Air Flow USSTRUMENT CALIBRATION INFORM QTION Instrument Range (LPM) Standard Value (LPM) Galo Standard Value (L							
Instrument Range (LPM)       Standard Value (LPM)       Tolerance (±10%)       As Found       As Left       Comments         10 - 100       60       54.66       58       69       Burometer: 281.6       Cal Due: 04/19/06         10 - 100       60       54.66       58       69       Burometer: 281.6       Cal Due: 04/19/06         10 - 100       60       54.66       58       69       Burometer: 281.6       Cal Due: 04/19/06         10 - 100       60       54.66       58       69       Burometer: 281.6       Cal Due: 04/19/06         10 - 100       10       10       10       10       10       10       10         10 - 100       10       10       10       10       10       10       10       10         10 - 100       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10       10							
(LPM)       (L10%)       As Found       As Left       Comments         10-100       60       54-66       58       60       Barometer: 2816       Cal Due: 04/19/06         10-100       60       54-66       58       60       Barometer: 2816       Cal Due: 04/19/06         10-100       60       54-66       58       60       Barometer: 2816       Cal Due: 03/22/06         10-100       10       10       10       10       10       10       10         10-100       60       54-66       58       60       Barometer: 2816       Cal Due: 03/22/06         10       10       10       10       10       10       10       10         10       10       10       10       10       10       10       10         10       10       10       10       10       10       10       10         10       10       10       10       10       10       10       10         10       10       10       10       10       10       10       10         10       10       10       10       10       10       10       10       10 <td< td=""><td></td><td></td><td>INSTRUMEN</td><td>T CALIBRA'</td><td>ION INFORM</td><td>MATION</td><td></td></td<>			INSTRUMEN	T CALIBRA'	ION INFORM	MATION	
Image: Strate       Image: Strate <thimage: strate<="" th=""> <thimage: strate<="" t<="" td=""><td></td><td>1 2</td><td></td><td>As Found</td><td>As Left</td><td>Com</td><td>ments</td></thimage:></thimage:>		1 2		As Found	As Left	Com	ments
Image: State of the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufactures published operating specifications. We hipment or use of this instrument).       STATEMENT OF CERTIFICATION	10 - 100	60	54-66	58	60	Barometer: 2816	Cal Due: 04/19/06
Image: Second						Thermometer: 2816	Cal Due: 04/19/06
Image: State of the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We utiler certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We utiler certify that the instrument is retraceable to the National Institute of Standards and Technology. (We are not responsible for diamage incurred during instrument)         Network       Reviewed By:       Mass Mass Mass Mass Mass Mass Mass Mass						Humidity: 958670	Cal Due: 03/22/06
Image: Statistic dispersion of the section of the sectin of the section of the section of the section of the s						Fixed Flow Calibration:	60 LPM
Humidity:       60%         Humidity:       60%         Previous Media:       FP-47M         Current Media:       FP-47M         Current Media:       FP-47M         Limited Use:       Flow Set to 60 LPM and indicated by an arrow.         Limited Use:       Flow set to 60 LPM with FP-47M         filter media.       Rotometer marked to indicate         60LPM.       STAILMENT OF CERTIFICATION         We Certify that the instrument listed above was calibrated and inspected prior to shipment and that i met all the Manufacturers published operating specifications. We write certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during instrument).         Instrument       Reviewed By:       Currea         Alibrated By:       Reviewed By:       Currea						Temperature: 21.6 °C	
Image: State of the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We hipment or use of this instrument).       State of Standards and Technology. (We are not responsible for damage incurred during instrument).         nstrument       Reviewed By:       Amage Market M				······································		Pressure: 746 mmF	lg
Current Media: FP-47M  Current Media: FP-47M  Flow Set to 60 LPM and indicated by an arrow.  Flow Set to 60 LPM with FP-47M  filter media. Rotometer marked to indicate  filter media. Rotometer marked to indicate  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  hipment or use of this instrument).  Reviewed By:  Reviewed By:  Mana Market General Content of the Conte						Humidity: 60%	
Image: StateMent of the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We hipment or use of this instrument)       StateMent of Standards and Technology. (We are not responsible for damage incurred during instrument)         Net Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We hipment or use of this instruments are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during instrument)         Naturent       Reviewed By:       Marca       Marca       Date:       9-7405						Previous Media: FP-47M	[
Limited Use: Flow set to 60LPM with FP-47M filter media. Rotometer marked to indicate 60LPM.         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 urther certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during hipment or use of this instrument).         nstrument         Calibrated By:       Reviewed By:         Calibrated By:       Reviewed By:         Calibrated By:       Date:       9-7-055						Current Media: FP-47M	
Filter media. Rotometer marked to indicate         60LPM.         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 urther certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during higher or use of this instrument).         Instrument       Reviewed By:       March Ma						Flow Set to 60 LPM and	indicated by an arrow.
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 urther certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during instrument).						filter media. Rotometer marked to indicate	
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 urther certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during instrument).							
nstrument Calibrated By: Hand Reviewed By: Clance For Date: 9-7-05			brated and inspactor	Invior to chines and	- 1.7 . 1	and the second	rating specifications. We for damage incurred during
Datting to Data in the Data in	Instrument	Tingh		1.	Fleit		
	Calibration Date: 09/0	7/05					



## CERTIFICATE OF CALIBRATION

Electroplated Beta Standard

		a peca pranu	aru	
			· · · ·	S.O.# <u>6396</u>
Description of Standard:	-			P.O.# <u>06-456</u>
Model No. <u>DNS-12</u>	Serial No	5649-06	Isot	ope <u>Tc-99</u>
Electroplated on polished	SS	disc,	0.79	mm thick.
Total diameter o <u>f 4.77</u>	cm an	nd an active	diameter d	<u>f 4,45</u> cm.
The radioactive material is any covering over the active	permanently fix			
Measurement Method:				
The 2pi beta emission rate wa Absolute counting of beta par was verified by counting about is traceable to NIST by refer	ve. below. and :	in the nemi	sphere abo	ve the active surface
Measurement Result:			* .	
The observed beta count rate on the calibration date was:	from the surfac	ce of the di	sc per minu	ate (cpm)
9,270	±	278	. ``	
			-	
The total disintegration rate from the surface of the disc,	e (dpm) assuming was:	J <u>25</u> % ]	packscatter	of beta particles
14,800	<u>+</u>	444	·	0.00668 $\mu$ Ci)
				$-0.00888$ $\mu$ C1)
The uncertainty of the measur error at the 99% confidence 1 in this measurement.	ement is <u>3</u> evel, and the e	_%, which is estimated upp	s the sum c per limit o	f random counting f systematic error
Calibrated by: ART REUST	Re	viewed by:	then be	nh
		4	/ <u></u>	
Calibration Technician: 🥼	themt	Q.A. Re <u>r</u>	resentativ	e: Anthony W. Joth
Calibration Date: 2-28-2	006	Reviewed	Date:	28-06
				Analytical Service
			· :	7021 Pan American Freeway N Albuquerque, New Mexico 87109-423 (505) 345-3461 Fax (505) 761-541

Toll Free (866) RAD-LABS (723-5227) www.eberlineservices.com



## CERTIFICATE OF CALIBRATION

Electroplated Alpha Standard

#### Description of Standard:

Model No. DNS-11	Serial	No	5648-06	Isotope	<u>Th-230</u>
Electroplated on polished	SS	disc,	0.79		thick.

Total diameter of <u>4.77</u> _ cm and an active diameter of <u>4.45</u> 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_: 4001-02

#### Measurement Result:

The observed alpha particles emitted from the surface of the disc per minute (cpm) on the calibration date was:

> 8,780 263 _ ± _

The total disintegration rate (dpm) assuming 1.5% backscatter of alpha particles from the surface of the disc, was:

> 17,300 . ± _ 518 0.00779

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.

Calibrated by: <u>ART REUST</u> Re	eviewed by: the fort
	Q.A. Representative: <u>Authomy W. Joth</u>
Calibration Date: 2-28-2006	Reviewed Date. 2~28-AL

2-28-06 Reviewed Date:

> **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

 $\mu Ci)$ 

S.O.#

6396

P.O.# <u>06-456</u>



## CERTIFICATE OF CALIBRATION

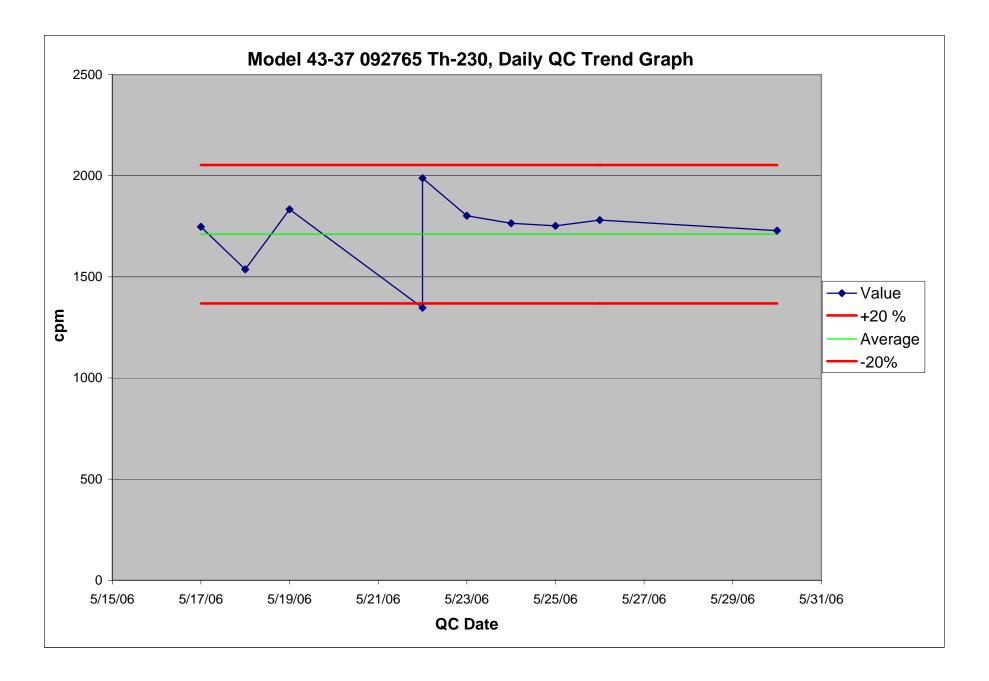
Electroplated Beta Standard

	arectroprate	u beca stand	aru	
				S.O.# 6058 P.O.# 04-386
Description of Standard:				L.O.#
Model No. DNS-2	Serial No	8343	Isotope_	SrY-90
Electroplated on polished	Ni	disc,	0.79	mm thick.
Total diameter of 3.18	cm a	nd an active	diameter of	2.54 cm.
The radioactive material is covering over the active su	s permanently firface.	xed to the c	lisc by heat tr	eatment without any
Measurement Method:	,	· · .		
The 2pi beta emission rate Absolute counting of beta pa verified by counting above traceable to NIST by refere	, below, and at	in the hemis t the operat	sphere above the	active surface was
Measurement Result:	· · · · ·			
The observed beta count r calibration date was: 3,150	ate from the s		he disc per mi	nute (cpm) on the
		~ .		
The total disintegration rat the surface of the disc, wa	ce (dpm) assumino s:	g <u>40</u> %}	backscatter of I	oeta particles from
4,500	······ + ·····	180	_ (0.00203	β μCi)
The uncertainty of the measu at the 99% confidence leve measurement.	r, and the estim	nated upper	limit of system	atic error in this
Calibrated by: <u>ART REUS</u>	<u>r</u>	Reviewed by	- skordh	X Dance
Calibration Technician: Qu	Them &	Q.A. Re	presentative:	Illa
Calibration Date: 5	-12-2004	Reviewe	d Date: 051	204
				Analytical Service 7021 Pan American Freeway N
				querque, New Mexico 87109-423 )5) 345-3461 Fax (505) 761-541

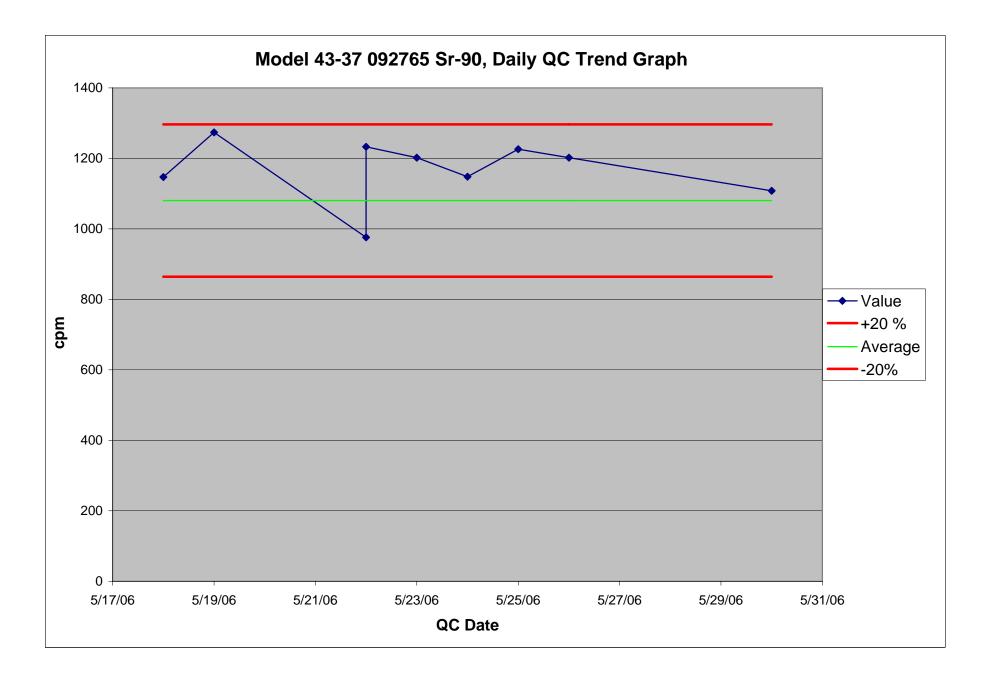
Toll Free (865) RAD-LABS (723-5227) www.eberlineservices.com

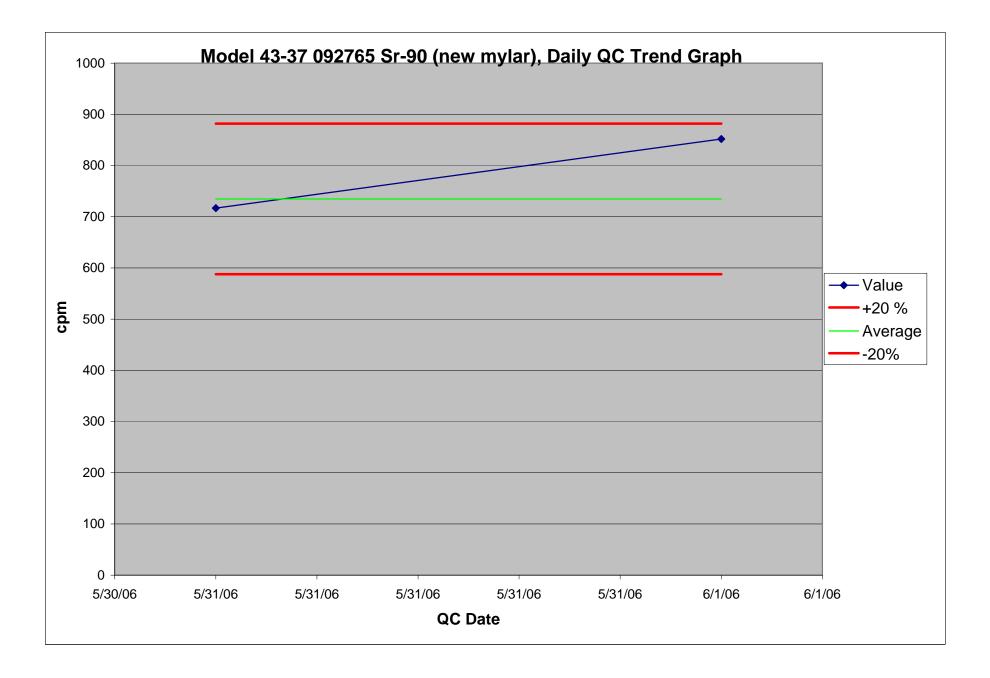
#### **APPENDIX F-2**

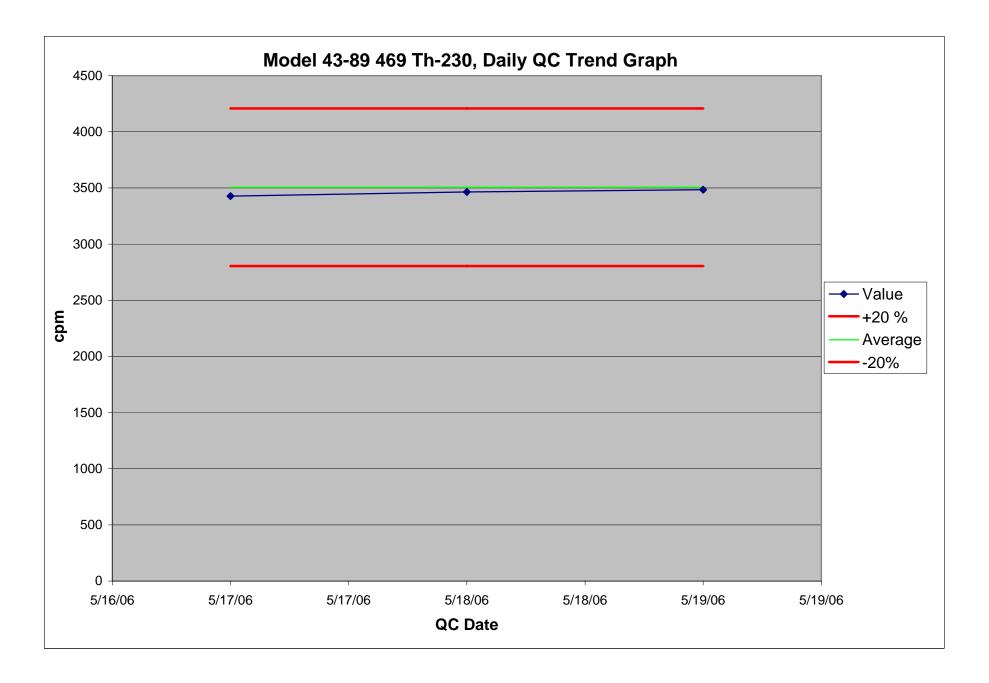
### **CONTROL CHART DATA**

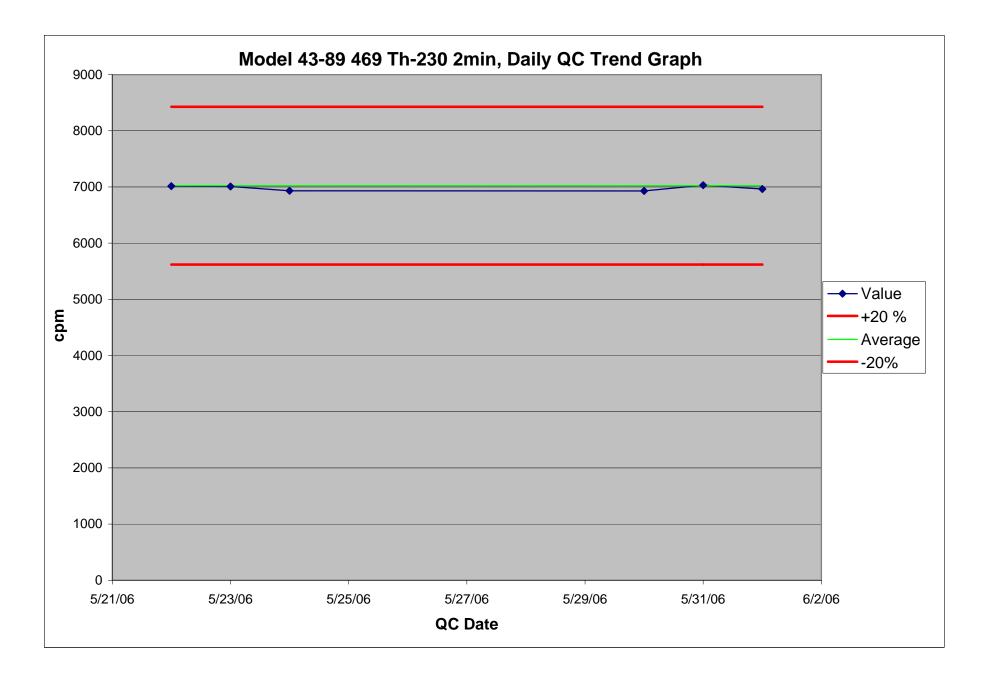


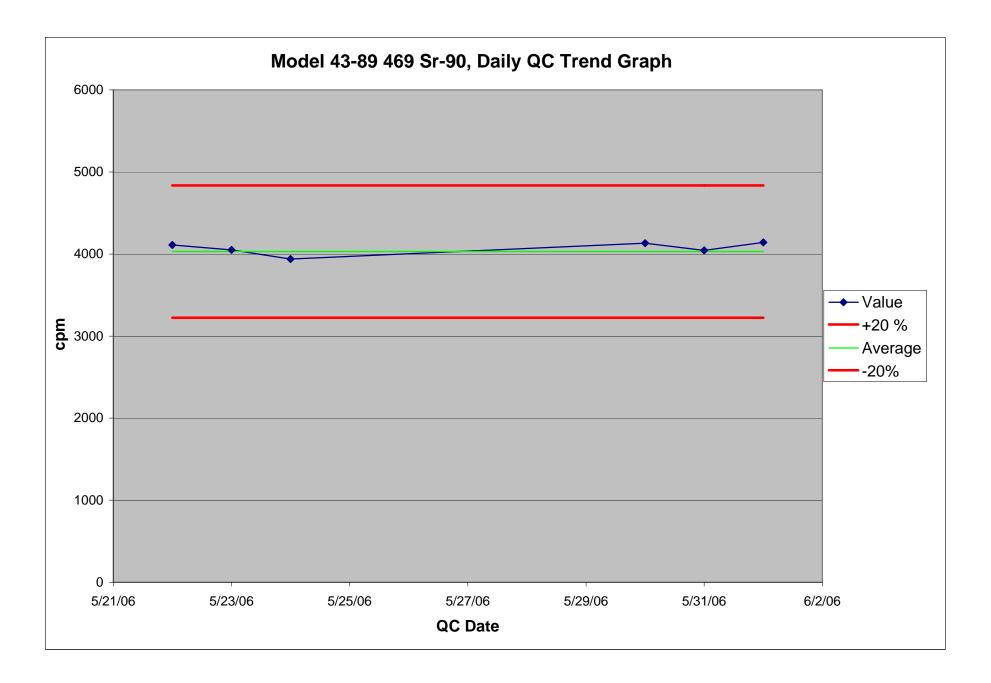


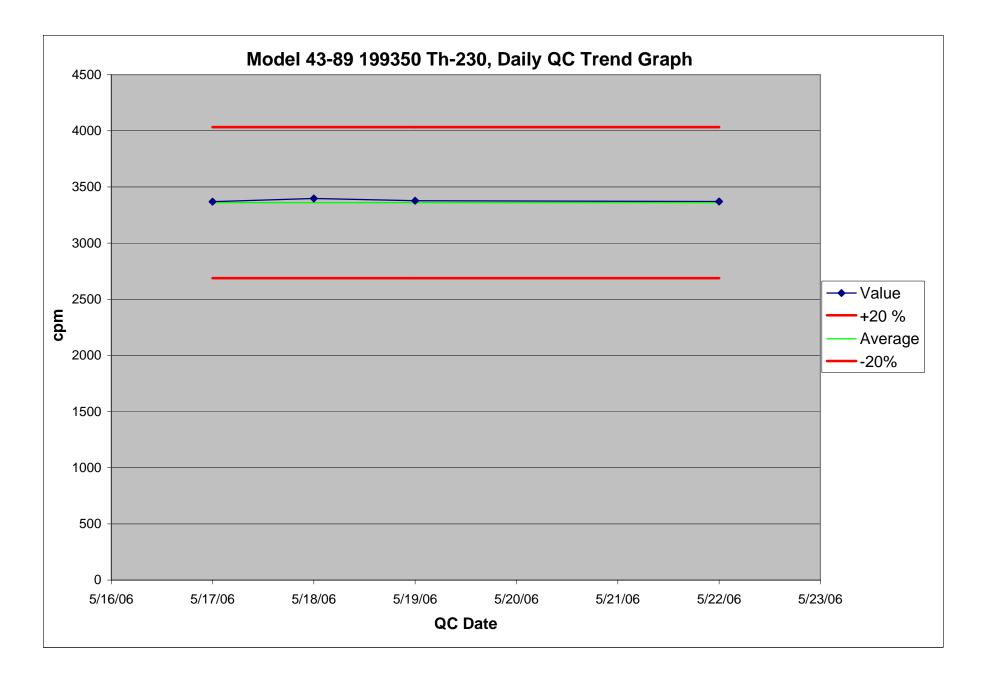


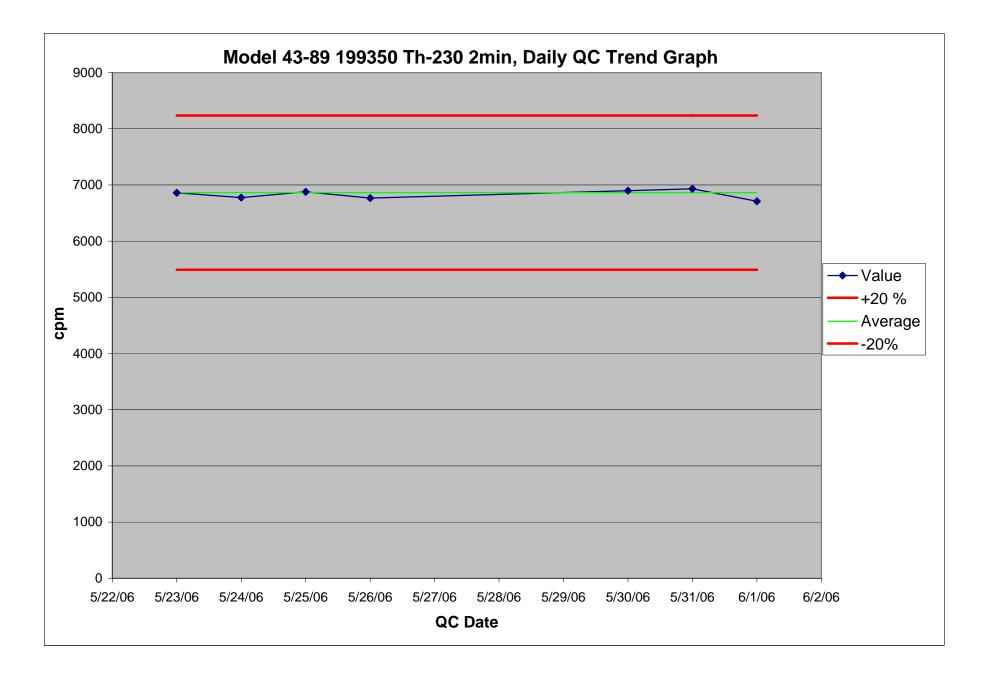


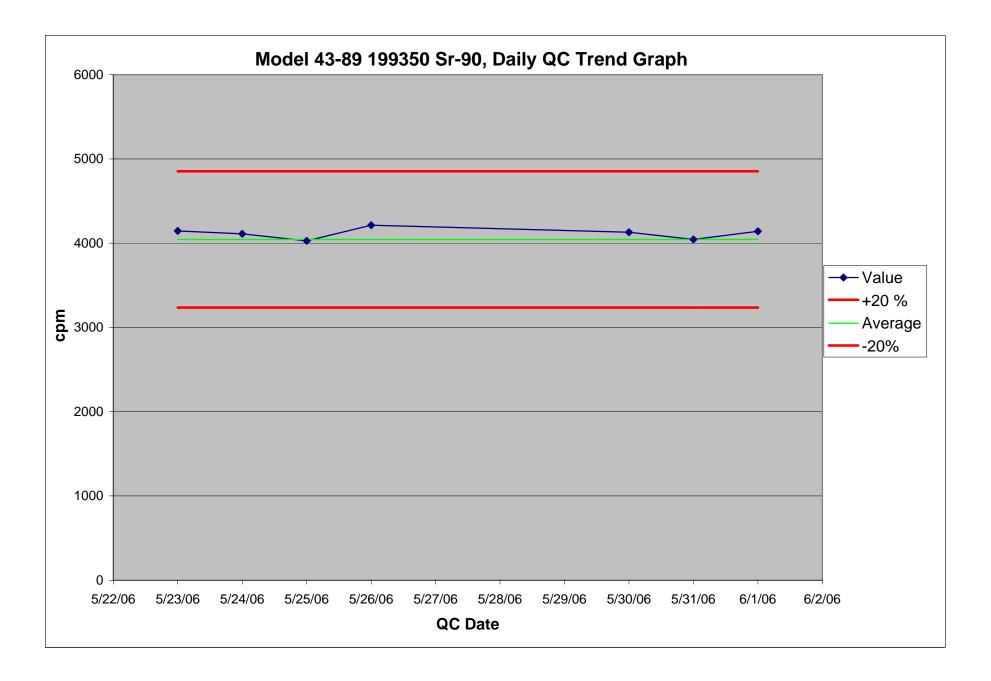


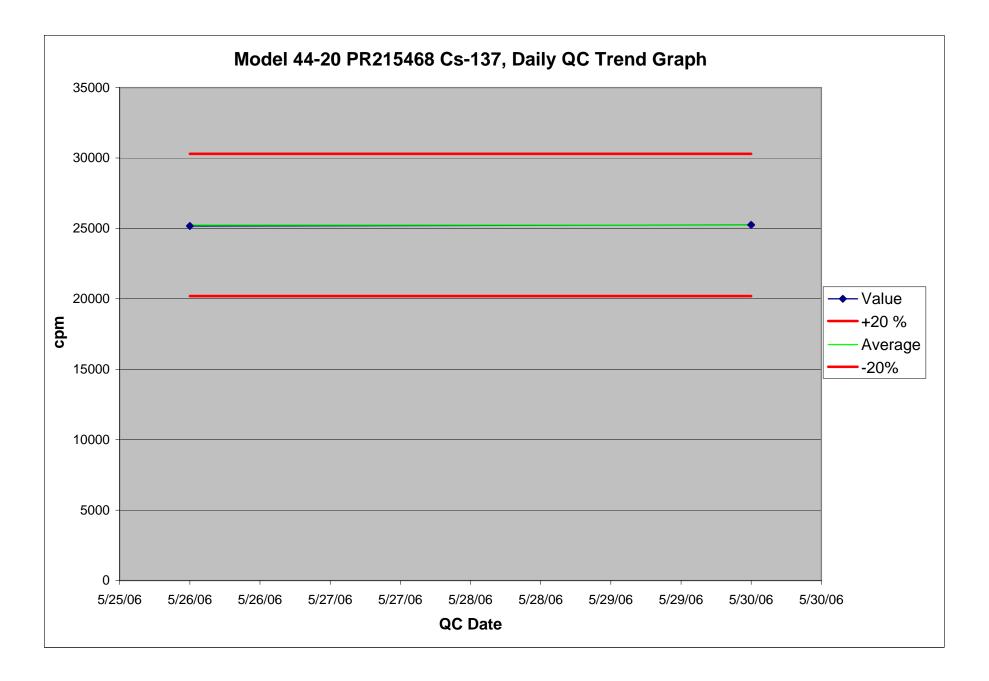


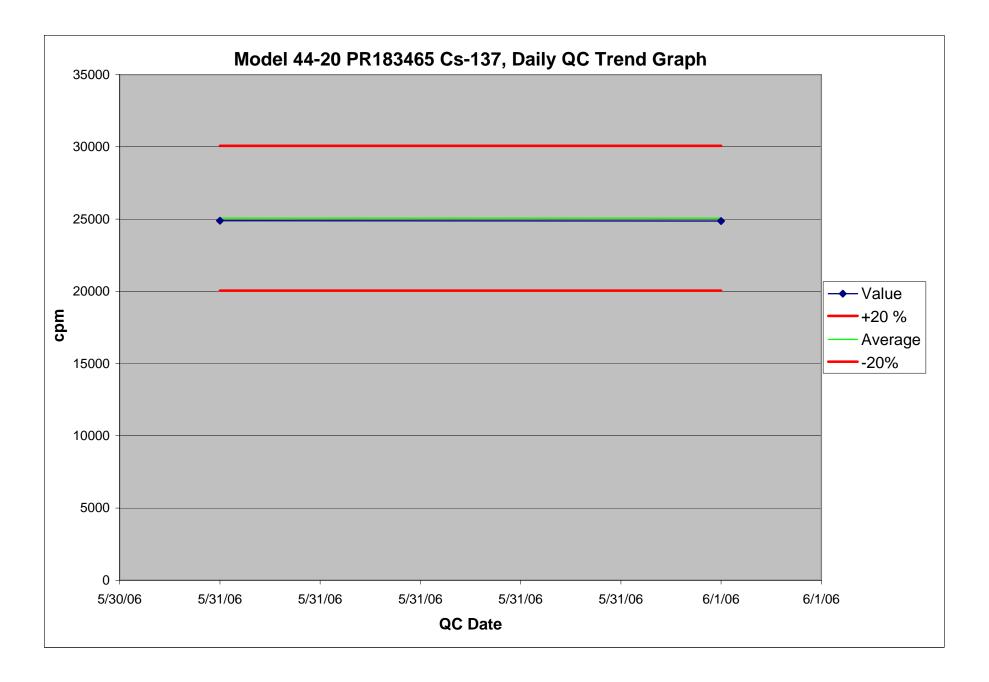


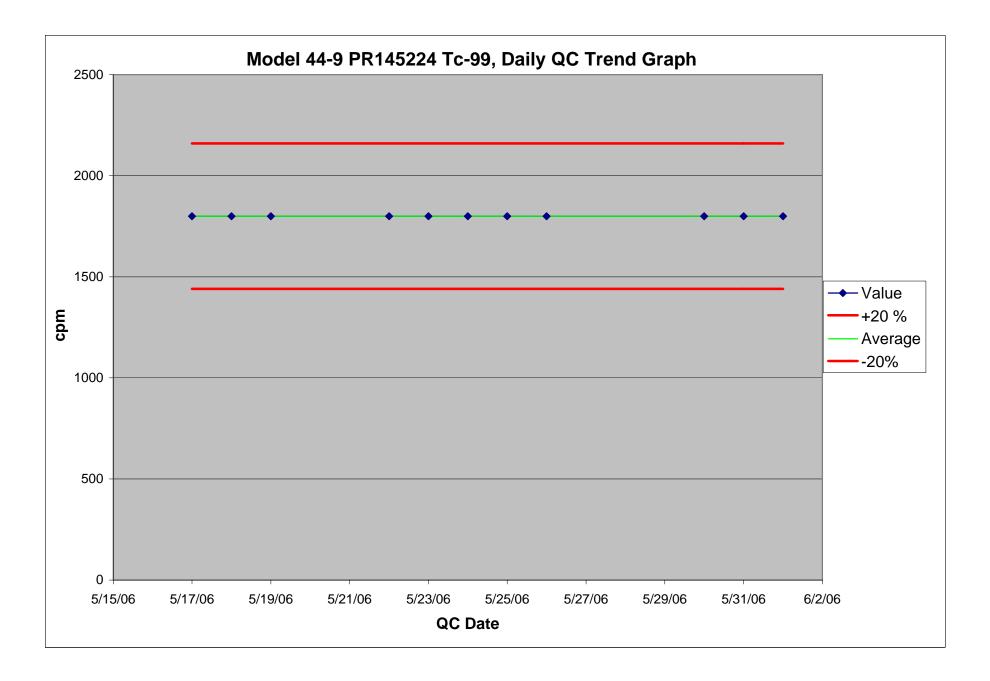


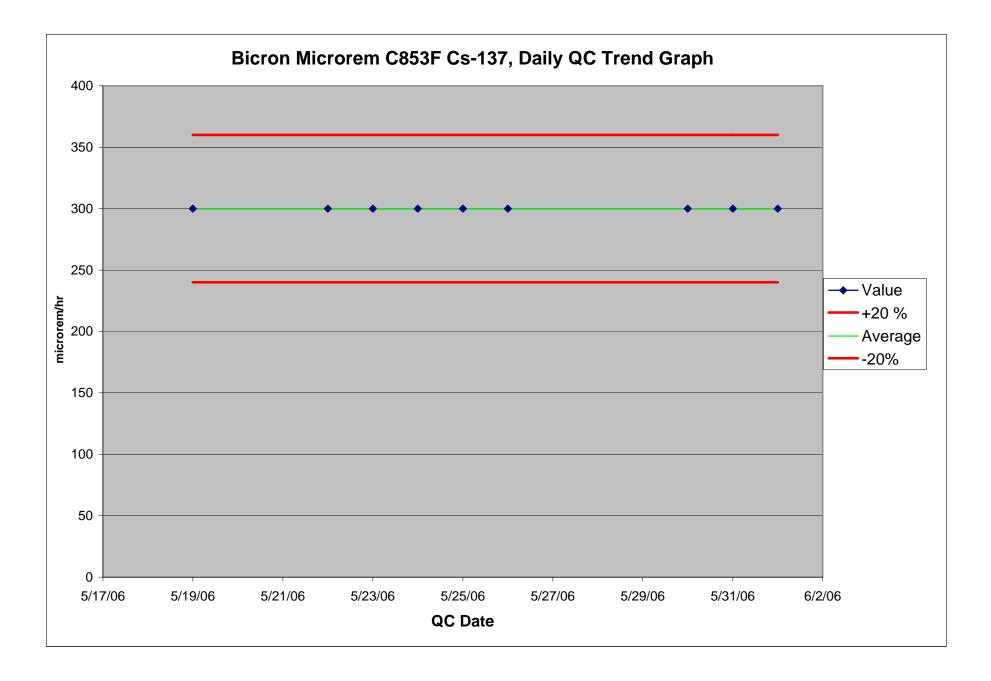












## **CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)**

Co	Counting Instrument: 2929		Detector:	43-1	0-1	Calil	pration Date:	10/6/2005	]							
	Serial #: 1115563			Serial #:	127216		12 month of	alibration:	OK							
	Detec	tor Active	e Area or A	rea Covered b	y Smear (cm ² ):	100		NRC 6 Mo Ca	al. 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	0.3930	Th-230	1328	17,300	2/28/2006	7.70E+04	17,300	10	20	2	0.06	0.04	6831.2	40.85		
Beta	0.2100	Sr-90	1144	4,500	5/12/2004	2.88E+01	4,286	100	20	2	42.14	2.05	1865.8	39.25		
Date	Daily Bkg	Bkg Counts Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail				$\alpha$ MDA	β MDA	
Dale	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA $\alpha$ (dpm)	MDA $\beta$ (dpm)	OK?	OK?
5/22/2006	2	853	13666	3736	0.1	42.7	6832.9	1825.4	PASS	PASS	PASS	PASS	5.78	83	Yes	Yes
5/23/2006	2	871	13839	3877	0.1	43.6	6919.4	1895.0	PASS	PASS	QUESTION	PASS	5.78	84	Yes	Yes
5/24/2006	2	870	13577	3785	0.1	43.5	6788.4	1849.0	PASS	PASS	PASS	PASS	5.78	84	Yes	Yes
5/25/2006	1	903	13507	3704	0.1	45.2	6753.5	1806.9	PASS	PASS	PASS	PASS	5.21	85	Yes	Yes
5/26/2006	1	909	13535	3795	0.1	45.5	6767.5	1852.1	PASS	PASS	PASS	PASS	5.21	85	Yes	Yes
5/30/2006	2	887	13575	3796	0.1	44.4	6787.4	1853.7	PASS	PASS	PASS	PASS	5.78	85	Yes	Yes
5/31/2006	2	878	13422	3869	0.1	43.9	6710.9	1890.6	PASS	PASS	QUESTION	PASS	5.78	84	Yes	Yes
6/1/2006	2	834	13418	3781	0.1	41.7	6708.9	1848.8	PASS	PASS	QUESTION	PASS	5.78	82	Yes	Yes
6/2/2006	2	848	13574	3722	0.1	42.4	6786.9	1818.6	PASS	PASS	PASS	PASS	5.78	83	Yes	Yes

# **CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)**

Co	Counting Instrument: 2929		Detector:	43-1	0-1	Calibration Date:		10/6/2005								
	Serial #: 1115563			Serial #:	127216		12 month calibration:		OK							
Detector Active Area or Area Covered by					y Smear (cm ² ):	100		NRC 6 Mo Ca	al. 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	0.3930	Th-230	1328	17,300	2/28/2006	7.70E+04	17,300	10	20	5	0.06	0.04	#DIV/0!	#VALUE!		
Beta	0.2100	Sr-90	1144	4,500	5/12/2004	2.88E+01	4,285	100	20	5	42.14	2.05	1859.7	20.29		
Date	Daily Bkg	Counts	ounts Daily Check Source Counts		Daily Bkg Ra	te (cpm)	Net Daily So	ource Rate (cpm)	Bkg QC I	Pass/Fail	Source QC	Pass/Fail			α MDA	β MDA
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA $\alpha$ (dpm)	MDA $\beta$ (dpm)	OK?	OK?
5/26/2006	1	909		9626	0.1	45.5		1879.8	PASS	PASS		PASS		56		Yes
5/30/2006	2	887	33726	9553	0.1	44.4	6745.1	1866.3	PASS	PASS	#DIV/0!	PASS	2.85	55	Yes	Yes
5/31/2006	2	878	34002	9439	0.1	43.9	6800.3	1843.9	PASS	PASS	#DIV/0!	PASS	2.85	55	Yes	Yes
6/1/2006	2	834	34047	9505	0.1	41.7	6809.3	1859.3	PASS	PASS	#DIV/0!	PASS	2.85	53	Yes	Yes

# **CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 5)**

Co	Counting Instrument: 2929		Detector:	43-1	0-1	Cali	oration Date:	10/6/2005								
	Serial #: 1115563			Serial #:	: 127216		12 month calibration:		OK							
Detector Active Area or Area Covered b					y Smear (cm ² ):	100		NRC 6 Mo Ca	al. 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	0.3930	Th-230	1328	17,300	2/28/2006	7.70E+04	17,300	10	20	4	0.06	0.04	6799.8	40.59		
Beta	0.1910	Tc-99	1327	14,800	2/28/2006	2.13E+07	14,800	100	20	4	42.14	2.05	2822.0	26.29		
Dete	Daily Bkg	Counts	Daily Check	Cource Counts	Daily Bkg Ra	te (cpm)	Net Daily So	ource Rate (cpm)	Bkg QC I	Pass/Fail	Source QC	Pass/Fail			α MDA	βMDA
Date	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	MDA $\alpha$ (dpm)	MDA $\beta$ (dpm)	OK?	OK?
5/17/2006	2	823	27230	11529	0.1	41.2	6807.4	2841.1	PASS	PASS	PASS	PASS	3.36	64	Yes	Yes
5/18/2005	2	830	27303	11339	0.1	41.5	6825.7	2793.3	PASS	PASS	PASS	PASS	3.36	65	Yes	Yes
5/19/2006	6	852	27246	11310	0.3	42.6	6811.2	2784.9	FAIL	PASS	PASS	PASS	4.42	66	Yes	Yes
5/19/2006	3	845	27246	11310	0.2	42.3	6811.4	2785.3	QUESTION	PASS	PASS	PASS	3.68	65	Yes	Yes

#### **APPENDIX G**

#### SITE PHOTOGRAPHS (ON CD) (December 2005)