



# BUSH RIVER STUDY AREA

**Removal Action Report for  
Non-Time Critical Removal Action  
Radioactive Waste Management Facility  
Final  
January 2007**

**U.S. Army Garrison  
Aberdeen Proving Ground, Maryland**

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**FINAL  
REMOVAL ACTION REPORT**

**BUSH RIVER STUDY AREA  
RADIOACTIVE WASTE MANAGEMENT FACILITY  
NON-TIME-CRITICAL REMOVAL ACTION**

Edgewood Area, Aberdeen Proving Ground, MD  
Contract Nos. DAAD05-97-D-7004, DO 0218 and  
W91ZLK04-D-0014, DO 0005

**January 2007**



Prepared for  
**DIRECTORATE OF SAFETY, HEALTH AND ENVIRONMENT**  
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**BUSH RIVER STUDY AREA RADIOACTIVE WASTE MANAGEMENT  
FACILITY NON-TIME-CRITICAL REMOVAL ACTION**

**FINAL REMOVAL ACTION REPORT**


**APPROVALS**

By their specific signature, the undersigned certify that this Report is approved.

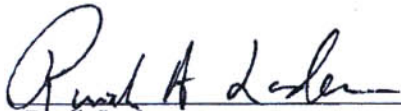
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## ABBREVIATIONS AND ACRONYMS

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μR/h	microroentgen per hour
μrem/h	microrem per hour
1T	one ton containers
ACM	asbestos-containing materials
APG	Aberdeen Proving Ground
BC	building confirmation
BEST	Base Environmental Support Team
Bi <sup>214</sup>	bismuth-214
BRSA	Bush River Study Area
BTAG	Biological Technical Assistance Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
cm <sup>2</sup>	square centimeter
Co <sup>60</sup>	cobalt-60
COC	chain of custody
cpm	counts per minute
Cs <sup>137</sup>	cesium-137
CWM	chemical warfare material
d'	detectability
DCGLs	derived concentration guideline levels
DOT	Department of Transportation
dpm	disintegrations per minute
DSHE	Directorate of Safety, Health and Environment
EC	excavation confirmation
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
F	floor sample
FP	floor penetration
FS	former sump
FSSP	Final Status Survey Plan



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## ABBREVIATIONS AND ACRONYMS (CONTINUED)

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GP	General Physics Corporation
GPS	global positioning system
H <sup>3</sup>	tritium
HDPE	high density polyethylene
HHRRA	Human Health Radiological Risk Assessment
IDs	Identifications
IDW	investigative derived waste
K <sup>40</sup>	potassium-40
KeV	kiloelectron-volt
L/min	liters per minute
MDA	minimum detectable activity
m <sup>2</sup>	square meter
m/s	meters per second
MARSSIM	Multi Agency Radiation Survey and Site Investigation Manual
MD	Maryland
MDC	minimum detectable concentration
MDCR	minimum detectable count rate
MDE	Maryland Department of the Environment
MDL	minimum detection level
MeV	megaelectron-volt
mg/kg	milligrams per kilogram
MS/MSD	matrix spike/matrix spike duplicate
NaI	sodium iodide
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
Pb <sup>214</sup>	lead-214
PCB	polychlorinated biphenyl
pCi/g	picocuries/gram
pCi/L	picocuries/liter
pdf	Adobe Acrobat format



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## ABBREVIATIONS AND ACRONYMS (CONTINUED)

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PID	photoionization detector
PPE	personal protective equipment
Ra <sup>226</sup>	radium-226
RDECOM	Research Development and Engineering Command
ROD	Record of Decision
SBCCOM	Soldier and Biological Chemical Command
SOP	standard operating procedure
SOW	scope of work
Sr <sup>90</sup>	strontium-90
SS	supplemental sample
SSSHP	Site-Specific Safety and Health Plan
SSWP	Site-Specific Work Plan
Tc <sup>99</sup>	technetium-99
Th <sup>230</sup>	thorium-230
TGY	Toxic Gas Yard
TPH	total petroleum hydrocarbons
U.S.	United States
µg/L	micrograms per liter
µR/h	microrem per Hour
U <sup>238</sup>	uranium-238
UST	underground storage tank
UXO	unexploded ordnance
VOCs	volatile organic compounds
W	wall sample
WESTON	Weston Solutions, Inc.
yd <sup>3</sup>	cubic yard



# 1. INTRODUCTION

Weston Solutions, Inc. (WESTON®) was contracted to perform a Non-Time Critical Removal Action at the Radioactive Waste Management Facility (hereafter referred to as the 'Rad Yard') in the Edgewood Area of Aberdeen Proving Ground (APG), Maryland (MD). This work was conducted under the Base Environmental Support Team (BEST) and BEST II Contracts (DAAD-97-D-7004 and W91ZLK-04-D-0014), Delivery Orders 0218 and 0005, respectively, for the Directorate of Safety, Health and Environment (DSHE).

The scope of this project includes the following: removal of arsenic and radiologically contaminated soil, demolition of seven on-site buildings and structures, packaging and transportation of the building debris and contaminated soil for off-site disposal, removal of an on-site wastewater system, and site restoration.

Field activities were conducted in four phases or time periods based on the availability of government funding. Phase I occurred from October 2004 to May 2005, during which time buildings were demolished, sumps were emptied of water, debris was removed from basements, wastewater lines were removed, and the majority of soil was excavated. At the end of Phase I, a stockpile of contaminated debris and soil remained on a contaminated area within the Rad Yard, and filled containers of contaminated soil were staged on a clean area. During Phase II, which occurred in March 2006, all of the packaged soil and a portion of the stockpiled soil and debris remaining from Phase I were shipped for disposal. Funding to dispose of the remainder of stockpiled debris and residual contaminated soil was not available. During Phase III, which was executed in August 2006, all remaining stockpiled debris and residual contaminated soil were packaged and staged for shipment. During Phase IV, which occurred in November 2006, the remaining packaged soil and debris were shipped for disposal at Energy Solutions in Utah.

Section 1.1 of the Site-Specific Work Plan (SSWP) (WESTON, 2004a) states in part, "This non-time critical removal action is considered an interim remedy to facilitate future remediation at the Bush River Study Area (BRSA) under the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA). This task is not a Nuclear Regulatory Commission (NRC) project, although the NRC license termination process may be executed/warranted after



the removal action.” Therefore, the purpose of this report is to document a removal action, and it is not a Final Status Survey Report. A Final Status Survey Report may be developed later to document the final conditions at the site.

## **1.1 SITE DESCRIPTION AND BACKGROUND**

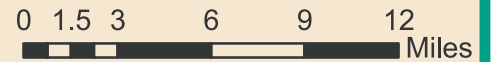
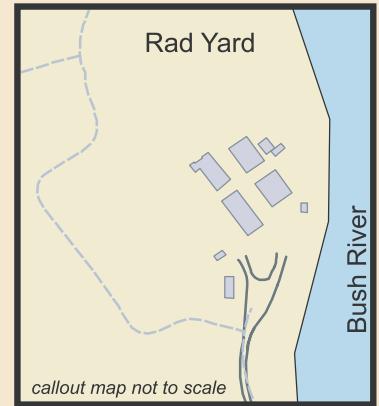
The Rad Yard, which covers approximately 5 acres, is located in the Bush River Study Area BRSA at the Edgewood Area of APG in Harford County, MD (see Figure 1-1). The Rad Yard includes an open storage yard, four buildings (E2354, E2360, E2362, and E2364), three structures (E2356, E2363, and E2371), and two buildings that make up the Ton Container Steam-Out Facility (E2366 and E2368). Buildings E2354 and E2371 are still occupied and are not included in this scope of work (SOW).

The Rad Yard, originally called the Toxic Gas Yard (TGY), was used for the consolidation, repackaging, and shipment of waste from the 1930s until 2002 (General Physics Corporation [GP], 2003). The site was built in 1931 as a storage facility for chemical warfare agents and ordnance. The Ton Container Steam-Out Facility was used from the late 1930s to the 1950s or early 1960s for the decontamination of one-ton containers used for storing chemical agents such as mustard, chloropicrin, and Lewisite. The facility was used for the management of military radioactive waste from the early 1960s until October 2002. Before 1985, wastes were received from military installations along the eastern United States (U.S.) for processing. After 1985, only small quantities of radioactive waste produced at APG were stored at the site. Since October 2002, no wastes have been stored at the Rad Yard and the site is currently not in use.

## **1.2 PREVIOUS REMOVALS**

In 1996, the U.S. Army Corps of Engineers investigated the sand, soil, concrete, and water in the former Adamsite Storage Vaults (Building E2370), which was located within the boundaries of the Rad Yard. All of the contaminated materials and surface debris were removed, and the subsurface vaults were filled with concrete (GP, 2003).





**FIGURE 1-1 BUSH RIVER RAD YARD GENERAL LOCATION MAP**



### **1.3 ENGINEERING EVALUATION/COST ANALYSIS**

Two alternatives, “no action” and “excavation and disposal,” were evaluated during the Engineering Evaluation/Cost Analysis (EE/CA) process. The “excavation and disposal” option was selected as the preferred alternative because it was determined to be protective of human health and the environment, met the risk-based remediation goals, met long-term and short-term goals, and reduced the quantity of radioactive wastes on site (GP, 2003). Through this process, it was determined that this option could be readily implemented using available equipment and materials and would not require ongoing land use controls and/or maintenance.

#### **1.3.1 Extent of Contamination**

Contamination was characterized in three categories of material at the site: in the surface and near surface soils, on the surfaces of buildings and man-made structures, and in subsurface soils around buried wastewater system components. Each is described in the following sections.

##### **1.3.1.1 Surface and Near-Surface Soils**

The estimated areas of soil contaminated with radioactive materials at the Rad Yard are shown in Figure 3 of the EE/CA (GP, 2003). The contaminated areas were delineated using results from field radiation survey or laboratory analyses of soil samples collected from the site. The maximum activities of cesium-137 ( $\text{Cs}^{137}$ ) and cobalt-60 ( $\text{Co}^{60}$ ) detected in soil samples were 4,620 picoCuries/gram (pCi/g) and 4.47 pCi/g, respectively. GP indicated that the soil contaminated with  $\text{Cs}^{137}$  and  $\text{Co}^{60}$  extended to a depth of approximately 12 to 18 in. and the total area of radioactive contamination was approximately 1.6 acres. Assuming an average depth of contamination of 1.5 ft, the estimated volume of radionuclide-contaminated soil ( $\text{Cs}^{137}$  greater than 5 pCi/g or  $\text{Co}^{60}$  greater than 0.5 pCi/g above background) was 3,823 cubic yards ( $\text{yd}^3$ ), not including contaminated soil that may have been present near the wastewater lines (GP, 2003). WESTON was contracted to remove this soil contaminated with radioactive materials from 10 discrete areas (shown in Figure 3 of the EE/CA).

The initial cleanup goal for arsenic, as established in the Human Health Radiological Risk Assessment (HHRRA), (GP, 2004) was 10 milligrams per kilogram (mg/kg). This goal, according to the EE/CA, is



“...approximately equal to the generic preliminary remediation goal developed by the DOE..., not substantially higher than the reference background level in coastal plain soils in the vicinity of APG..., and substantially lower than the U.S. Environmental Protection Agency (EPA) Region III Biological Technical Assistance Group (BTAG) arsenic soil screening level of 328 mg/kg for flora ...”

The range of arsenic concentrations in samples collected from surface soil (less than 6 in.) was 2.5 to 230 mg/kg. The range of concentrations collected from depths greater than 6 in. (three samples) was 1.7 to 8.0 mg/kg, all of which are below the cleanup level.

The estimated area of soil contaminated with arsenic at concentrations above 10 mg/kg is shown in Figure 4 of the EE/CA (GP, 2003). Since then and just prior to the commencement of site remediation activities, DSHE and Maryland Department of the Environment (MDE) agreed to a modified cleanup level for arsenic of 20 mg/kg when radionuclides are at or below cleanup levels. The average depth of arsenic exceeding the recommended remedial level of 20 mg/kg is approximately 18 in. Most of the arsenic hot spots are co-mingled with the Cs<sup>137</sup> hot spots; thus, much of the arsenic contamination was contracted to be removed by WESTON during excavation of the radiation-contaminated soils. WESTON was contracted to remove these arsenic hot spots that are not co-mingled with the radiation-contaminated soils to a 2-ft depth of below grade and a 10-ft diameter.

According to the EE/CA (GP, 2003, page 16), with the exception of radionuclides and arsenic in the soil, there are no other contaminants in the soil at levels that require remediation.

#### **1.3.1.2 Buildings and Man-Made Structures**

The building surveys conducted by GP (2003) indicated maximum dose equivalent rates less than 50 microrem per hour (µrem/h). The highest fixed contamination levels were 200,000 disintegrations per minute (dpm) per 100 square centimeters (cm<sup>2</sup>) in Building E2362. These results indicated that most of the aboveground building materials had only low levels of contamination. Areas with higher contamination levels were likely caused by spillage of liquid radioactive waste onto the floor with seepage into the concrete. The total volume of solid waste, excluding the superstructure for each of the three buildings and the two 1-ton container steam-out buildings to be demolished, is presented below (Table 2 of the EE/CA):



<b>Building</b>	<b>Volume (yd<sup>3</sup>)</b>
E2356	NA*
E2360	144
E2362	232
E2363	NA*
E2364	467
E2366	NA*
E2368	NA*

\* Estimate of volume not available for these structures

The volume of wastewater, sludge, and sand/soil to be disposed from the pits, sumps, and holding tanks inside Building E2364 is listed below:

<b>Media</b>	<b>Volume (yd<sup>3</sup>)</b>
Wastewater and Sludge	175
Sand/soil	419
Wastewater	334

Table 2 in the EE/CA lists the breakdown of these volumes by area (e.g., slabs, ramps).

### **1.3.1.3 Wastewater System**

Wastewater sampled from the concrete pit tanks in the northwest end of Building E2364 contained Cs<sup>137</sup> at an activity level of 2,100 picocuries/liter (pCi/L) (GP, 2003), and water in the valve pit adjacent to the building contained Cs<sup>137</sup> at an activity level of 480 pCi/L. Strontium-90 (Sr<sup>90</sup>) and technetium-99 (Tc<sup>99</sup>) were also detected in the wastewater at Building E2364, but the conclusions of the HHRRA and EE/CA removed these isotopes as contaminants of concern. Cs<sup>137</sup> was detected in samples at 168 and 2,880 pCi/g from the concrete tanks. Co<sup>60</sup> was detected in sludge from these tanks at activities of 11.6 pCi/g. Sludge in the marsh sump (just north of the Rad Yard), which received drainage from the valve pit, contained Cs<sup>137</sup> and Co<sup>60</sup> at activities of 35.3 and 1.06 pCi/g, respectively.

Soil along the wastewater system at the Rad Yard may have been contaminated by leakage from sewer lines, sumps, and concrete floor tanks (GP, 2003). The extent of the potential contamination was unknown. The E2364 concrete pit tanks were full of water, and the concrete



pit tanks and drum pit were filled with wastewater and some sludge. The sump had an open base to allow for seepage. The total length of sewer lines was approximately 730 ft.

The total volume of sewer line material to be disposed was approximately 13 yd<sup>3</sup>. Estimated volumes for water and soil stored in the system were 914 gallons and 303 yd<sup>3</sup>, respectively (GP, 2003).

## **1.4 OBJECTIVE**

The primary objective of the Rad Yard Non-Time Critical Removal Action was to demolish contaminated buildings and other man-made structures, and excavate and arrange disposal of radioactive (Co<sup>60</sup> and Cs<sup>137</sup>) and hazardous (arsenic) contaminated soils and other associated materials. This work was conducted in accordance with the Rad Yard EE/CA (GP, 2003). This Removal Action was considered an interim remedy to facilitate future remediation at the BRSA under the CERCLA. This task was not an NRC decommissioning project, although the NRC license termination process may be executed/warranted after the Removal Action.

The work elements of this project included:

- An unexploded ordnance (UXO) surface sweep across the site
- Stakeout and marking of the areas of excavation
- Demolition and material load-out of Buildings E2356, E2360, E2362, E2363, E2364, E2366, and E2368 and their contents
- Monitoring for radiation and segregation of demolition materials into radioactive and non-radioactive loads
- Excavation and load-out of radioactive-contaminated soil
- Excavation of four previously characterized arsenic-contaminated hot spots
- Removal, characterization, and disposal of wastewater inside Building E2364
- Demolition of wastewater system, including wastewater pits, tanks, sewer lines, and sumps
- Packaging and transporting of all radioactive and non-radioactive-contaminated materials for off-site disposal



- Backfilling of open excavations and tanks after soil sample results and verification measurements have demonstrated that radiological contaminants have been reduced to acceptable levels
- Soil verification sampling and analysis to confirm that remediation goals were met
- Site restoration and seeding.

The Removal Action included excavation and removal of soil contaminated with radioactive materials and arsenic so that residual contaminant concentrations would be below the cleanup goals established in the HHRRA (GP, 2004). The Removal Action also included the demolition and removal of seven buildings, three concrete slabs, and the wastewater system (i.e., pits, tanks, sewer lines, sumps, and impacted soils). Radiation surveys were performed on all excavated soils and demolition debris. During Phase I, all radioactive-contaminated soils were placed in 9-yd<sup>3</sup> lift liners and disposed of at *Energy Solutions*, a licensed radioactive waste disposal facility. All radioactive-contaminated materials were placed in 25-yd<sup>3</sup> intermodal containers and also disposed of at *Energy Solutions*. Another objective of this project was to establish conditions and collect data that may support termination of the NRC license under which past site operations were performed. All non-radioactive-contaminated materials were placed in 30-yd<sup>3</sup> roll-offs and disposed of at Model City Landfill, a hazardous waste disposal facility in New York State.

## **1.5 AUTHORITY TO PERFORM THE SOW**

### **1.5.1 Responsible Parties**

Past activities involving radioactive materials had been performed for decades by a wide range of site occupants at the Rad Yard. The NRC determined that recent activities were conducted under NRC license number 19-10306-01, which was held by the U.S. Army Research Development and Engineering Command (RDECOM). DSHE is responsible for planning and conducting environmental activities at the Edgewood Area, and WESTON was contracted by DSHE to perform this Removal Action. The U.S. Army Corps of Engineers performed construction oversight for DSHE on this project. Regulatory agency oversight was provided by the NRC (Region I) in the lead role, EPA, and MDE.



### **1.5.2 License Authority**

The NRC identified license number 19-10306-01 as having responsibility for past activities at the Rad Yard. That license referred to storage of radioactive material at the site and was held by RDECOM, formerly the Edgewood Chemical Biological Center, U.S. Army Soldier and Biological Chemical Command (SBCCOM). RDECOM was therefore the responsible party for actions associated with the site under the scope of the NRC license and for changes in the license status for this site. WESTON performed the Removal Action activities under a written agreement with the site licensee and used its Services License, which was granted by the New Mexico Environmental Department and granted reciprocity by Region IV of the NRC. The agreement between RDECOM and WESTON described their respective roles and responsibilities and was signed by representatives from both licenses. License responsibility for the site was returned to RDECOM on 10 June 2005 when the initial remedial activities were completed and WESTON staff demobilized from the site.

### **1.5.3 Regulatory Agencies**

This Non-Critical Removal Action at the Rad Yard fell under dual regulatory agency oversight because both radioactive ( $\text{Co}^{60}$  and  $\text{Cs}^{137}$ ) and hazardous (arsenic) contaminants were present. The NRC provided radiological oversight while EPA and MDE provided oversight of hazardous materials. The NRC assumed the primary leadership role because removal of the radioactive contaminants to the cleanup levels established in the HHRRA could be cost-effectively performed and verified, while ensuring that the arsenic contamination levels would be significantly reduced. The primary regulatory guidance for this project was taken from the Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM), dated August 2000 with 2002 updates (NRC, 2002), which was jointly developed by both agencies to address sites such as this.

## **1.6 DECONTAMINATION & DECOMMISSIONING GOALS**

The objective of the Rad Yard project was to perform the CERCLA Non-Time Critical Removal Action of soils and debris contaminated with  $\text{Co}^{60}$ ,  $\text{Cs}^{137}$ , and arsenic as described in prior reports such as the HHRRA and the EE/CA. Site activities were intended to (1) identify, remove, and properly dispose of debris, materials, and soils that were contaminated at levels



above the derived concentration guideline levels (DCGLs) and surface release criteria, and (2) acquire the radiological data necessary to support the development of a Final Status Survey Plan (FSSP), which when approved by the NRC and successfully executed will release the site from further regulation. The MARSSIM was the primary guidance document for determining the data requirements to meet the site release goal.



## **2. SUMMARY OF REMOVAL ACTION**

### **2.1 PLANNING AND PREPARATION**

Prior to commencement of the Removal Action at the Rad Yard, several planning and preparation activities had to occur to ensure a successful Removal Action. Planning and preparation activities include the following:

- Building characterization
- Access road upgrade
- Level B investigation
- UXO clearance
- Staking and marking excavation areas
- Waste profile sampling
- Wastewater treatment pilot test
- Radiological correlation studies
- Reference area survey
- Onsite correlation studies
- Sample identification and handling.

#### **2.1.1 Building Characterization**

Building characterization activities were conducted to determine if any hazardous substances were present in the buildings slated to be demolished. The purpose of the characterization was to determine whether materials such as lead-based paint, asbestos, light ballasts containing polychlorinated biphenyls (PCBs), mercury switches, or other components were present and, if so, to determine their appropriate disposal.

The results of the building characterization are listed below:

- Building E2356
  - No hazardous substances were found.
- Building E2360



- No asbestos-containing materials (ACM) were found.
- Lead paint was found, but below the regulatory limit for disposal.
- Light ballasts contained PCBs.
- A mercury switch was found.
- An aboveground fuel tank outside the building contained some #2 fuel oil, but no PCBs were detected.
- Building E2362
  - No ACM was found.
  - Lead paint was found, but below the regulatory limit for disposal.
  - Several 50-pound bags of diatomite and sodium sulphate were found inside the building.
- Building E2363
  - Lead paint was found, but below the regulatory limit for disposal.
- Building E2364
  - Friable and non-friable ACM was found on portions of the interior and exterior walls.
  - Lead paint was found, but below the regulatory limit for disposal.
  - A piece of mechanical equipment contained non-PCB hydraulic oil.
- Building E2366
  - Friable ACM was found on exterior piping.
  - Lead paint was found, but below the regulatory limit for disposal.
- Building E2368
  - Friable and non-friable ACM were found on the interior and exterior walls and on pipe coverings.
  - Two mercury switches were found.
  - Two mercury thermometers were found.
  - Lead paint was found, but below the regulatory limit for disposal.



All hazardous materials were removed and disposed of prior to demolition. The ACM was removed by MARCOR Remediation, Inc., and the material was disposed of by Onyx Environmental. The remainder of the hazardous materials was removed by WESTON and disposed of by Onyx Environmental.

### **2.1.2 Access Road Upgrade**

Prior to site mobilization, approximately 20 loads of CR-6 stone were delivered and spread on the access road entering the Rad Yard to accommodate heavy equipment traffic during the Removal Action activities. A portion of the security fence was also moved for the same purpose. Additional CR-6 stone was delivered and spread on the road throughout the duration of the project as needed.

### **2.1.3 Level B Investigation**

A total of 44 sealed 55-gallon steel drums and four sealed smaller drums were found inside Buildings E2360 and E2362. These drums were opened using Level B personal protective equipment (PPE) to determine if any hazardous materials were inside. The drums were screened with a HAZMATCAD and a photoionization detector (PID). No chemical warfare material (CWM) or organic vapors were detected inside the drums. During this investigation, eight soil samples were collected from underneath the building slabs and along the wastewater line. These samples were screened for CWM, and in turn, no detections were found.

### **2.1.4 Waste Profile Sampling**

All radioactive-contaminated materials were disposed of at *Energy Solutions*, a radioactive waste disposal facility in Utah. Prior to shipping any waste, *Energy Solutions* required a waste profile for the Rad Yard to characterize all of the potential material they would be receiving for disposal. Composite samples were collected from all waste materials and analyzed at a Utah-certified laboratory (Eberline Analytical Services) in accordance with the requirements of *Energy Solutions*. *Energy Solutions* approved the waste profile and accepted all radioactive-contaminated materials from the Rad Yard for disposal.



### **2.1.5 UXO Clearance**

Prior to commencement of the Removal Action at the Rad Yard, a UXO surface clearance was conducted on the entire site. Numerous obstructions such as scrap metal and exposed railroad rails were discovered. No UXO was found. During all excavation activities, a UXO team was on-site to monitor the excavations for potential UXO.

### **2.1.6 Staking and Marking of Excavation Areas**

All areas excavated at the Rad Yard during the Removal Action were staked and marked. Clear markings helped the heavy equipment operator locate the contaminated areas with ease.

### **2.1.7 Wastewater Treatment Pilot Test**

A pilot test was conducted on the wastewater from the three sumps inside Building E2364. The test was designed to determine if filtering the water using a bag filtration system would remove low levels of metals and radionuclides from the wastewater. The sump water was pumped using a 2-in. trash pump through a 50-micron bag filtration system. The water was discharged into a 55-gallon drum and analyzed for gamma spec, gross alpha/beta, and Sr<sup>90</sup>. The results indicated that no radionuclides were present above the discharge criteria; however, cadmium, lead, and zinc were present at concentration levels slightly above the discharge criteria.

Then, the wastewater was analyzed for the same parameters without pumping it through a bag filtration system. The same results were found. Even though no radionuclides were found and cadmium, lead, and zinc were found with and without using the bag filtration system, the system was still employed to help contain any heavy sediment or other organic material while the wastewater was pumped out of the sumps.

### **2.1.8 Radiological Correlation Studies**

A preliminary correlation study was performed to estimate the response of portable field gamma-ray detecting instruments to known soil concentrations of Cs<sup>137</sup> within the Rad Yard. Ten locations were selected based upon a range of in-situ measurements using a Ludlum 44-10 2x2 sodium iodide (NaI) detector coupled to a scaler. In-situ measurements were collected both on contact with the soil and at a height of 45 centimeters (cm). Measurements collected on contact with the soil at these locations ranged from approximately 7,000 counts per minute (cpm) to



670,000 cpm. At some of the correlation locations, the in-situ measurements were significantly different at 45 cm above the soil versus on contact. This information led to the conclusion that the soil concentration at these locations was not homogeneous, and therefore soil sample results may not have been indicative of the average concentration within the in-situ instrument's field-of-view. Soil samples were collected at the 10 locations from depths of 0 to 15 cm and forwarded to the analytical laboratory for gross alpha, gross beta, gamma isotopic, and total strontium analyses.

Concentrations of Cs<sup>137</sup> in these 10 samples ranged from 0.7 to 344 pCi/g. Co<sup>60</sup> was detected in two of the 10 samples, with the highest concentration observed at 1.1 pCi/g.

The naturally occurring uranium and thorium series isotopes, and potassium-40 (K<sup>40</sup>) were detected at concentrations normally expected for this area. Gross beta activity generally trended with Cs<sup>137</sup> concentrations. No anomalous gross alpha activity was detected in any of the samples.

When in-situ gamma-ray data were compared with Cs<sup>137</sup> concentrations, a linear correlation was observed. However, the correlation coefficient was poor, probably due to the non-homogeneity of the soil described previously. From this data, it was concluded that an approximate response of 700 cpm per pCi/g of Cs<sup>137</sup> would be a conservative correlation factor for the 2x2 NaI detector to guide the daily soil excavation effort. However, as the Cs<sup>137</sup> residual concentration approached homogeneous background levels, and the gamma-ray contribution from the naturally occurring uranium and thorium isotopes became more significant to the overall gross count rate, node-specific correlation equations were developed that resulted in a reasonably accurate estimate of the soil concentration from in-situ measurements.

### **2.1.9 Reference Area Survey**

For the reference area survey, an area outside of the APG boundary was chosen that closely mimics the geomorphological and topographical features of the Rad Yard. Permission was obtained through the Harford County Parks and Recreation Department to perform this survey at Flying Point Park on Willoughby Beach Road in Edgewood, MD. Flying Point Park is located approximately 4 miles northwest of the Rad Yard. Like the Rad Yard, Flying Point Park is located along the western bank of the Bush River. Flying Point Park is upstream of APG.



A series of 10 soil samples was collected in a grid pattern over an area of approximately 1 acre. Each location was a composite of five samples with approximately 2 ft x 2 ft dimensions in an “X” pattern. Samples were collected from the surface to a depth of 15 cm. Composite samples were identified as RS-31-N through RS-40-N and submitted to the analytical laboratory for gross alpha, gross beta, gamma isotopic, and total strontium analyses. The laboratory was instructed to identify all gamma-emitting isotopes in the samples.

Gamma isotopic analyses identified the naturally occurring isotopes of the uranium and thorium series and  $K^{40}$  at concentrations normally expected for this area. The uranium series isotopes averaged  $0.7 \pm 0.1$  pCi/g, and the thorium series isotopes averaged  $0.8 \pm 0.1$  pCi/g. The concentration of  $K^{40}$  was  $7.6 \pm 1.7$  pCi/g. The concentration of  $Cs^{137}$  ranged from 0.2 to 0.4 pCi/g, and averaged  $0.3 \pm 0.1$  pCi/g. Neither  $Co^{60}$  nor total strontium was detected above the minimum detectable concentration (MDC) for the analyses. No anomalous gross alpha or beta activity was detected in any of the samples.

In-situ measurements of gamma-ray activity emanating from the surface of the reference area at each sample location were also collected using a Ludlum 44-10 2x2 NaI detector coupled to a scaler and a Ludlum 44-2 microR meter. Measurements were collected at ground surface and at 45 cm above the surface for both sets of in-situ measurements. Data collected with the NaI detector ranged from 6,606 to 8,596 cpm on contact and 6,409 to 8,466 cpm at a 45-cm height. The average count rates were approximately  $7,800 \pm 700$  cpm for both the contact and 45 cm height measurements. This agreement in contact and elevated measurements indicates that the ambient gamma activity is relatively uniform. Data collected with the microR meter ranged from 9 to 12 microrentgen per hour ( $\mu R/h$ ), and averaged 10  $\mu R/h$  on both contact and at a 45-cm height.

#### **2.1.10 Sample Identification and Handling**

WESTON used their corporate sampling program known as FieldFast for sampling activities conducted at the Rad Yard. FieldFast is a database that helps organize large quantities of sampling data and generates computerized forms and labels. For the Rad Yard Removal Action project, the FieldFast database was populated with project-specific values to help generate sample identifications (IDs), chain of custody (COC) forms, and sample labels.



A project-specific sample ID structure was formed for the Rad Yard Removal Action project. The sample IDs generated by FieldFast contained a seven-part alphanumeric system to identify key characteristics of each sample.

The first part of the sample ID identified the sample type. Excavation confirmation (EC), building confirmation (BS), and supplemental sample (SS) were designated to identify the sample type.

The second part of the sample ID identified the general location where the sample was collected. The following codes identified samples collected from the former buildings and structures at the Rad Yard: B1 = Building E2360; B2 = Building E2362; B3 = Building E2364; B4 = Building E2366; and B6 = Building E2368. Similarly, the following codes identified soil samples collected from the 11 nodes at the Rad Yard: N1 = Node 1; N2 = Node 2; N3 = Node 3; N4 = Node 4; N5 = Node 5; N6 = Node 6; N7 = Node 7; N8 = Node 8; N9 = Node 9; N0 = Node 10; N11 = Node 11; and N12 = Node 12.

The third part of the sample ID identified the sample number within each general location. The first sample for each building/structure and node began with sample number “001.”

The fourth part of the sample ID identified the specific location where the sample was collected. A floor sample (F) indicates a soil sample collected from the bottom of an excavation. A wall sample (W) indicates a soil sample collected from the sidewall of an excavation. A floor penetration (FP) sample indicates that the sample was collected by coring through a structural foundation. Former sump (FS) samples were collected from the various sumps at the Rad Yard. WESTON also collected soil samples from the area where two one-ton containers (1T) were located. The containers were recessed into the subsurface, and the tops were open and flush with grade. The samples collected around the 1T were also identified in the FieldFast sample ID structure.

The fifth part of the sample ID identifies the round number for soil samples collected within a specific node. If a sample from Round 1 did not pass NRC release criteria, then additional soil would be excavated and a second round of sampling would be conducted until all soil samples analyzed from the Rad Yard met the established NRC release criteria for the contaminants of concern. No third round sampling was necessary.



The sixth part of the sample ID identified the depth at which the soil sample was collected. Typically, the first lift of soil removal was less than 2 ft deep. When the count rate was at or near the perceived background for that specific area, a confirmation sample was collected from that particular depth and identified depending on which lift was excavated.

The seventh and last part of the sample ID identified the sample's quality control type. For this project, "0" identified a Normal Sample and "1" identified a Duplicate Sample. Duplicate samples were collected approximately every 10 samples, and matrix spike/matrix spike duplicate (MS/MSD) samples were collected every 20 samples, in accordance with the SSWP.

Table 2-1 shows the seven parts of the sample ID structure. For example, sample ID EC-N2-009-F-1-1-0 would be an excavation confirmation sample (Part 1), at node 2, the ninth sample (009), floor sample taken during round 1 at 1 ft as a normal sample (Part 2), and continues to "0" which is Part 7. Appendix B of this document is a CD-ROM that includes all laboratory data for this project in Adobe Acrobat (pdf) format.

**Table 2-1 FieldFast Database Sample ID Structure**

1	2	3	4	5	6	7
Type	General Location	Number	Specific Location	Round #	Depth	Quality Control Type
Excavation Confirmation (EC)	B1 = E2360	001	Floor (F)	1 = Round 1	0 = Surface	0 = Normal
Building Confirmation (BC)	B2 = E2362	002	Sidewall (W)	2 = Round 2	1 = Lift 1	1 = Duplicate
Supplemental Sample (SS)	B3 = E2364	003	Floor Penetration (FP)	3 = Round 3	2 = Lift 2	
Concrete Slab (CS)	B4 = E2366	004	Former Sump (FS)	4 = Round 4	3 = Lift 3	
	B6 = E2368	...	1-Ton Container (1T)	...	4 = Lift 4	
	VP = Valve Pit				...	
	WW = Wastewater Line					
	N1 = Node 1					
	N2 = Node 2					
	N3 = Node 3					
	N4 = Node 4					
	N5 = Node 5					
	N6 = Node 6					
	N7 = Node 7					
	N8 = Node 8					
	N9 = Node 9					
	N0 = Node 10					
	N11 = Node 11					
	N12 = Node 12					

\*Each Sample ID date and time of collection are stored in the FieldFast database.



In addition to collecting and analyzing confirmation samples, the supplemental samples (SS) were collected and held on-site. These SS were recommended by the NRC in case their review to remove the site from the license would require additional analysis. These samples would be submitted to the laboratory for analysis upon NRC request.

All containers, preservatives, and coolers for the sampling events were provided by the analytical laboratory. Disposable spoons were used to minimize investigative derived waste (IDW) and were disposed of along with the radioactive-contaminated debris. All solid samples (soil and sludge) were cleared for CWM in accordance with APG Standard Operating Procedure (SOP) 035, *Submission of Samples for Chemical Warfare Agent Screening*, prior to sample shipment to the analytical laboratory. Samples were shipped under the appropriate COC in accordance with APG SOP 002, *Chain of Custody*.

## **2.2 BUILDING DEMOLITION**

After planning and preparation activities were completed, the Removal Action at the Rad Yard commenced. Seven buildings/structures (E2356, E2360, E2362, E2363, E2364, E2366, and E2368) (see Figure 2-1) were demolished, loaded out, and transported off-site for disposal. All building structures and contents were screened for radioactive contamination and disposed of accordingly. All radioactive materials were disposed of at Energy *Solutions*, and materials released as non-radioactive were disposed of at Model City Landfill in New York. All concrete building foundations were screened for radioactive contamination as well. The concrete foundations for Buildings E2356, E2366, E2368, and portions of E2364 were released as non-radioactive waste and therefore were abandoned in-place. All other building debris and other materials on-site (i.e., railroad rails, property fence) were screened for radioactive contamination and disposed of accordingly. A total of approximately 500 yd<sup>3</sup> of debris was transported to Energy *Solutions*, and approximately 450 yd<sup>3</sup> of debris was transported to Model City Landfill in New York.

### **2.2.1 Building Material Release Criteria**

This section presents the release criteria, a description of the survey technique, an explanation of the classification system used to survey buildings and debris, and the derivation of static and scanning measurement sensitivities.





## Legend

Rad Yard Site

Gravel Roads

Existing Structures

Demolished Structures

Nodes 1-12

Radiological Hot Spot

Arsenic Hot Spot

## Sump\Valve Pit\UST

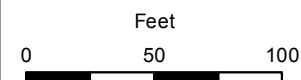
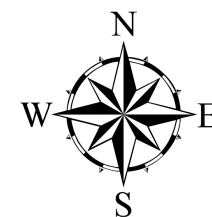
Abandoned

Excavated

## Waste Water Line

Abandoned

Excavated



**Figure 2-1  
Bush River  
Rad Yard Site Map**



This project used activity-based criteria for beta-gamma emitters such as Cs<sup>137</sup> that were taken from the NRC Regulatory Guide 1.86 and applied to building debris and equipment released from the Rad Yard site and to concrete slabs, walls, or floors that were left on-site and were determined to have no potential as reusable structures. The limits in Regulatory Guide 1.86 are provided in three categories:

- Total (fixed and removable) radioactivity from the relevant radionuclide averaged over an area of 1 square meter (m<sup>2</sup>)
- Maximum total radioactivity from the relevant radionuclide taken measured over a 100-cm<sup>2</sup> area
- Removable radioactive contamination measured by wiping an area of 100 cm<sup>2</sup> and assessing the activity on the wipe.

For Cs<sup>137</sup>, the total average surface beta activity is limited to 5,000 dpm per 100 cm<sup>2</sup> (dpm/100 cm<sup>2</sup>) in 1 m<sup>2</sup>, with a maximum surface activity of 15,000 dpm in any 100 cm<sup>2</sup> area. Removable beta activity is limited to 1,000 dpm/100 cm<sup>2</sup>. Measurements were taken during the project to assess compliance with all three limits. These values are based on the observation that nearly all radionuclide-specific measurements collected during site remediation identified Cs<sup>137</sup> as the only significant contaminant.

To demonstrate compliance with this criterion, the surface area to be surveyed was divided into 1-m<sup>2</sup> areas. Each 1-m<sup>2</sup> area was scanned using a beta sensitive probe, either a Ludlum 44-116 or a Ludlum 44-9 coupled with a portable scaler, with an audio output. The scanning rate was approximately one detector width per second, and the detector-to-surface distance was approximately 0.5 cm. The technician performing the scan moved the probe over the surface covering the entire 1-m<sup>2</sup> area collecting an integrated count over 1 minute. If an increase in audible response was detected, the technician stopped and held the probe stationary over the spot. If no elevated spots were detected by the audio output, the technician recorded the integrated count for the entire 1-minute survey over the 1-m<sup>2</sup> area. If a hot spot was detected, the technician recorded the stationary 1-minute count over the hot spot. All areas selected for survey were monitored with a beta sensitive instrument. Because the HHRRA identified uranium and radium-226 (Ra<sup>226</sup>) as potential contaminants, and in conformance with good health physics



practices, WESTON also performed an alpha survey on a subset of these areas, which covered approximately 5% of the total.

Normally, debris and equipment were released based on direct measurements for total activity. If any discernable activity was detected, the debris was segregated for disposal as radioactive waste, even if the release criterion was not exceeded. More information regarding the minimum sensitivity of these measurements is presented in Section 2.2.3 “Static and Scanning Measurement Sensitivities.” In addition, a smear for removable activity was collected from a few suspect pieces of debris, or when the geometry of the area being surveyed prevented a direct measurement. Smears were collected over a 100-cm<sup>2</sup> surface area using moderate pressure. Smears were counted for removable alpha and beta activity using a Ludlum 2929.

## **2.2.2 Building Material Classification**

All debris and equipment were segregated into two types, non-impacted and impacted. Non-impacted materials have no contamination potential based on process history; impacted materials have some contamination potential based on operations and process history. Materials that have never been in the radiological area are typically classified as non-impacted. Impacted materials are further subdivided into three classes based on the known or potential contamination levels of the materials.

This graded approach to classification is commensurate with the level or degree of survey effort to be expended to determine if the material is contaminated. That is, the specific classification dictates the required rigor of the clearance survey. Class 1 materials are those that have the potential for contamination (based on process knowledge) or known contamination (based on previous surveys) above the release criteria. Class 1 materials require systematic scanning of 100% of the material. Class 2 materials are those with the potential for contamination, but are not expected to have concentrations above the release criteria. Class 2 materials are nearly clean and require systematic scanning of about 50% of the total impacted area. Class 3 materials are those that either are not expected to contain any contamination or are expected to be contaminated with less than some small fraction of the release criteria based on process knowledge and previous surveys. Class 3 materials are likely clean and require only judgmental scans over a small portion of the material area.



How this classification was applied at the Rad Yard site can best be demonstrated by a few examples. First, all areas within the controlled access fence and some suspect areas outside of the fence (such as node 10, a portion of node 5, a portion of node 2 along both sides of the road, and the sump to the north of the fence) were designated as impacted areas. These areas were then further classified as to their expected level of contamination. All materials or debris having been in a classified area were assigned the same classification as the area.

Buildings E2360, E2362, and E2364 provide examples of applying the classification system to buildings. The concrete floor of E2362 was known, based on direct measurements, to be contaminated well above the release criteria. The concrete floor of E2360 was not so obviously contaminated, but signage indicated that radioactive materials had been present in the building. Also, previous surveys in Building E2360 had found some contamination on the floor, which could not be repeated during the current effort. As a result, all of the concrete floors in Buildings E2360 and E2362 were excavated, stockpiled, and later shipped as radioactive waste without further measurements being collected.

Building E2360 is more accurately described as an open air shed with three metal walls, and Building E2362 as a shed with only one metal wall. The metal walls were uninsulated corrugated metal nailed to a wooden frame. All walls in Buildings E2360 and E2362 were designated as Class 1 areas, and surface measurements were collected from 100% of both sides of the walls from the floor to the roof. Only a few small areas of detectable contamination were found on the back wall of Building E2362. These small areas were cut out and segregated for disposal as radioactive waste. The remainder of the walls were surveyed clean and released for disposal at Model City Landfill in New York.

The steel roof beams in Buildings E2360 and E2362 were designated as Class 1 and were 100% surveyed. All beams were determined to be clean and were sent to a metal recycler. The metal “tin” roofs of Buildings E2360 and E2362 were designated as Class 2 areas. As each roof segment was removed, it was placed on the ground and a 1-m<sup>2</sup> area was surveyed. All roof pieces surveyed as clean and were released for disposal at a hazardous waste landfill.

All debris found in Buildings E2360 and E2362 was designated as Class 1 and was 100% surveyed. Debris included tools, wood pallets, cardboard boxes, burlap bags, and barrels. Items



that could not be accurately surveyed due to geometry effects were assumed to be contaminated and handled as radioactive waste.

Building E2364 was a large two-story structure with several wastewater-filled sumps that were known by direct measurements to be contaminated. The interior and exterior walls up to a 6-ft height were classified as Class 1 and were 100% surveyed. Most lower-wall areas were determined to be clean and were released for disposal at Model City Landfill. A few areas were identified with detectable contamination and were segregated for disposal as radioactive waste. As the upper walls and roof were being removed, some of the debris fell into the sumps. Debris that fell into the sumps was considered radioactive waste and segregated for disposal. Debris that fell onto clean soil or concrete was considered Class 2 materials. In this case, a 1-m<sup>2</sup> area of each segment was surveyed for contamination. All Class 2 debris surveyed as clean.

The sediment in the sumps did have elevated levels of radionuclides. This sediment was solidified using adsorbent material and was excavated and disposed of as radioactive-contaminated waste. Once the sumps had been removed as radioactive waste, the concrete floors to Building E2364 were removed. Based on contamination found on the underside of the concrete floors, most of the concrete floor was segregated for disposal as radioactive waste.

Under the concrete floor were two additional sumps that were believed to have been used as white phosphorus storage pits prior to when the building was renovated for radioactive waste processing. A significant volume of contaminated debris was found in the west sump of Building E2364. All of this debris was segregated as radioactive waste. After removal of the contaminated debris, the floor and walls of the west sump were designated as Class 1. A 100-m<sup>2</sup> grid was applied, and a 100% survey was performed. A few spots of elevated activity were found and removed. The remainder of the floor and walls surveyed as clean and were left in place. Clean sand was found in the east sump of Building E2364. After removal of the sand, the east sump was designated as Class 2. Eighteen 1-m<sup>2</sup> grid blocks were systematically surveyed across the walls and floor of the east sump. All grid blocks surveyed as clean. The east sump was also left in place and backfilled with clean soil. Section 2.4 provides additional information regarding the survey of these floors and walls.



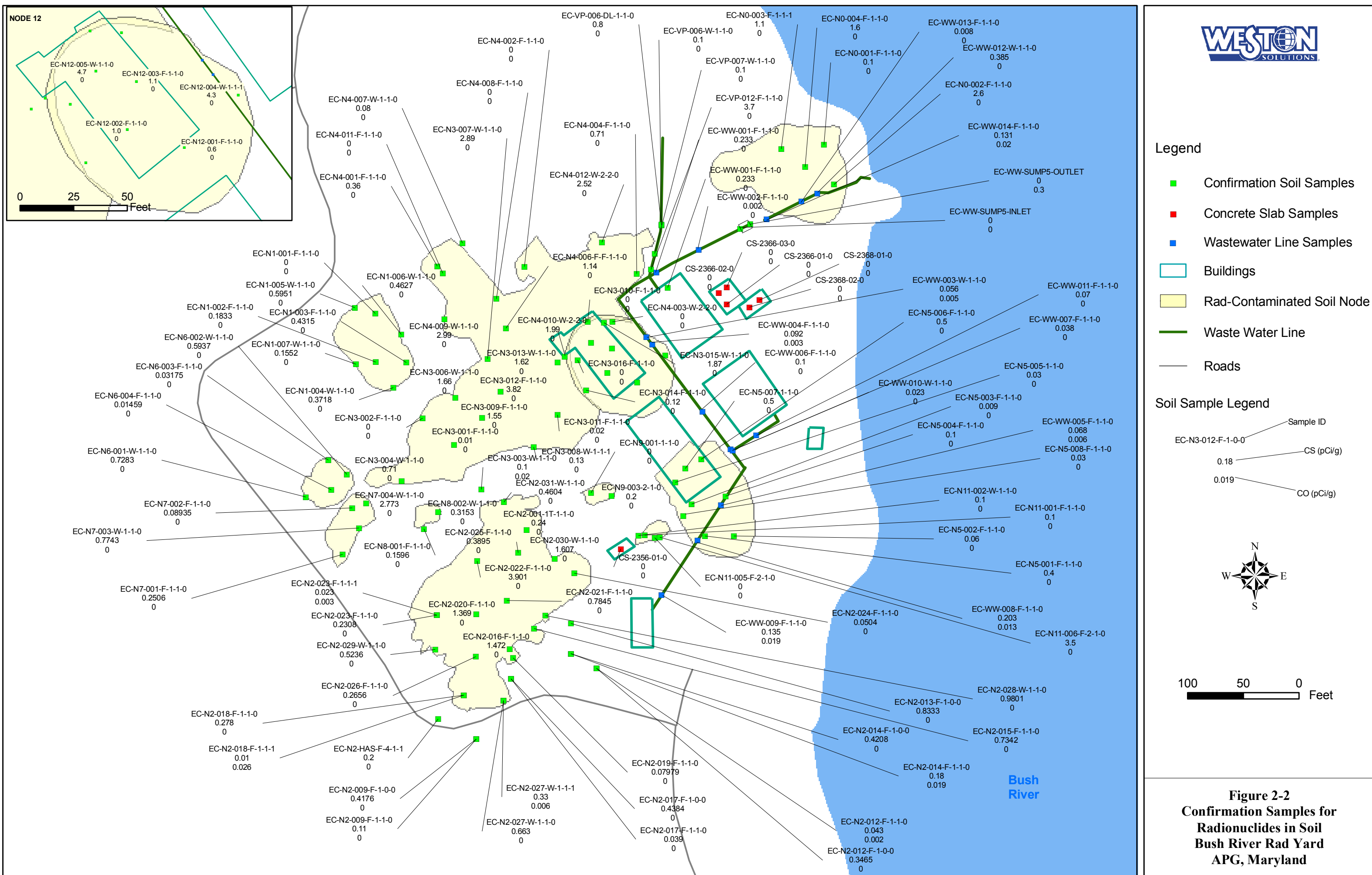
Six soil samples of approximately 1 kg each were collected from beneath three concrete slabs left in-place at the Rad Yard. These slabs were identified as E2365, E2366, and E2368 on Figure 2-1 of this report. These six samples were forwarded under COC to a commercial laboratory for analysis by gamma spectrometry. Figure 2-2 shows these sample locations with corresponding laboratory results. As well, Table 2-2 lists the results for all soil confirmation samples from beneath these three concrete slabs.

None of the gamma spectrometry results for all six samples identified any unusual analytes. Gamma isotopic analysis identified the naturally occurring isotopes of uranium, thorium, and  $K^{40}$  at concentrations normally expected for this area, and as reported for the reference area in Section 2.1.9 of the Final Report. Uranium and thorium in these six samples ranged from about 0.2 pCi/g to 1.5 pCi/g, and  $K^{40}$  ranged from about 2 to 10 pCi/g.  $Co^{60}$  was not detected in any of the six samples above the MDL for the laboratory, which was about 0.1 pCi/g.  $Cs^{137}$  was not detected in two of the six samples above the laboratory MDL.  $Cs^{137}$  was detected in two samples at a concentration of about 0.2 pCi/g, which is about equal to the 0.3 pCi/g detected in the reference area as described in Section 2.1.9. One sample each from beneath E2366 and E2368 indicated a low level of  $Cs^{137}$  contamination. These results were 0.75 and 0.95 pCi/g, both with 2 sigma error terms of 0.2 pCi/g. While these samples are slightly above the concentration seen in the reference area, they are both below the DCGL of 5 pCi/g.

This approach to classification was also applied to heavy equipment used during the remedial action. For example, machinery components known to have been in contact with contamination were designated as Class 1. After washing and scraping to remove all visible dirt, these areas were 100% surveyed prior to unconditional release. These components included tracks, tires, excavation buckets and blades, and operator foot pedals and seats. Other areas of the equipment were designated as Class 2 or 3, depending on the potential for contamination.

This approach to debris and equipment classification and the rigor of survey required for each classification was applied throughout the Rad Yard project. Survey data collected on all materials are presented in Appendix A.







**Table 2-2 Radionuclide and Arsenic Results**

Location	Sample ID	Easting <sup>(1)</sup>	Northing <sup>(1)</sup>	Sample Results			Avg Depth of Excavation (meters bgs) <sup>(2)</sup>
				Co <sup>60</sup>	Cs <sup>137</sup>	As (total)	
				(pCi/g)		(mg/kg)	
Node 1	EC-N1-001-F-1-1-0	1281540.370	14310864.087	0.0	0.0	10.1	0.5
	EC-N1-002-F-1-1-0	1281540.485	14310820.855	0.0	0.2	10	
	EC-N1-003-F-1-1-0	1281568.133	14310820.489	0.0	0.4	17.1	
	EC-N1-004-W-1-1-0	1281556.242	14310797.690	0.0	0.4	33.3	
	EC-N1-005-W-1-1-0	1281521.714	14310869.612	0.0	0.6	15.9	
	EC-N1-006-W-1-1-0	1281563.468	14310845.595	0.0	0.5	98.5	
	EC-N1-007-W-1-1-0	1281523.000	14310818.995	0.0	0.2	491	
Node 2	EC-N2-001-1T-1-1-0	1281675.720	14310670.515	0.0	0.2	26	0.5-1.0
	EC-N2-009-F-1-0-0	1281630.620	14310483.262	0.0	0.4	7.1	
	EC-N2-009-F-1-1-0	1281630.620	14310483.262	0.0	0.1	2.1	
	EC-N2-012-F-1-0-0	1281738.306	14310546.523	0.0	0.3	3.9	
	EC-N2-012-F-1-1-0	1281738.306	14310546.523	0.0	0.0	4.4	
	EC-N2-013-F-1-0-0	1281715.215	14310586.567	0.0	0.8	26.6	
	EC-N2-014-F-1-0-0	1281715.427	14310559.782	0.0	0.4	3.6	
	EC-N2-014-F-1-1-0	1281715.427	14310559.782	0.0	0.2	2.4	
	EC-N2-015-F-1-1-0	1281682.447	14310582.050	0.0	0.7	168	
	EC-N2-016-F-1-1-0	1281660.590	14310563.822	0.0	1.5	247	
	EC-N2-017-F-1-0-0	1281661.778	14310537.140	0.0	0.4	8.2	
	EC-N2-017-F-1-1-0	1281661.778	14310537.140	0.0	0.0	5.3	
	EC-N2-018-F-1-1-0	1281619.250	14310522.745	0.0	0.3	11.3	
	EC-N2-018-F-1-1-1	1281619.250	14310522.745	0.0	0.0	7.4	
	EC-N2-019-F-1-1-0	1281663.403	14310555.871	0.0	0.1	9.8	
	EC-N2-020-F-1-1-0	1281630.438	14310594.819	0.0	1.4	33.2	
	EC-N2-021-F-1-1-0	1281657.957	14310607.170	0.0	0.8	4.7	
	EC-N2-022-F-1-1-0	1281631.402	14310642.746	0.0	3.9	27.8	
	EC-N2-023-F-1-1-0	1281595.407	14310594.081	0.0	0.2	145	
	EC-N2-023-F-1-1-1	1281595.407	14310594.081	0.0	0.0	128	
	EC-N2-024-F-1-1-0	1281718.199	14310631.607	0.0	0.1	60.8	
	EC-N2-025-F-1-1-0	1281668.116	14310650.009	0.0	0.4	23.6	
	EC-N2-026-F-1-1-0	1281630.176	14310557.056	0.0	0.3	17.5	
	EC-N2-027-W-1-1-0	1281654.829	14310517.616	0.0	0.7	16.4	
	EC-N2-027-W-1-1-1	1281654.829	14310517.616	0.0	0.3	12.7	
	EC-N2-028-W-1-1-0	1281692.424	14310593.783	0.0	1.0	115	
	EC-N2-029-W-1-1-0	1281593.737	14310563.313	0.0	0.5	52	
	EC-N2-030-W-1-1-0	1281700.668	14310644.809	0.0	1.6	51.4	
	EC-N2-031-W-1-1-0	1281655.373	14310695.289	0.0	0.5	45.5	
	EC-N2-HAS-F-4-1-1	1281596.474	14310501.412	0.0	0.2	8.5	



Location	Sample ID	Easting <sup>(1)</sup>	Northing <sup>(1)</sup>	Sample Results			Avg Depth of Excavation (meters bgs) <sup>(2)</sup>
				Co <sup>60</sup>	Cs <sup>137</sup>	As (total)	
				(pCi/g)		(mg/kg)	
Node 3	EC-N3-001-F-1-1-0	1281610.529	14310746.783	0.0	0.0	15.6	0.5
	EC-N3-002-F-1-1-0	1281582.605	14310770.493	0.0	0.0	42.5	
	EC-N3-003-W-1-1-0	1281634.985	14310706.623	0.0	0.1	222	
	EC-N3-004-W-1-1-0	1281563.768	14310714.038	0.0	0.7	85.3	
	EC-N3-006-W-1-1-0	1281611.928	14310788.669	0.0	1.7	94	
	EC-N3-007-W-1-1-0	1281640.605	14310823.850	0.0	2.9	19.8	
	EC-N3-008-W-1-1-1	1281682.123	14310744.485	0.0	0.1	20.7	
	EC-N3-009-F-1-1-0	1281635.775	14310770.665	0.0	1.6	59.9	
	EC-N3-010-F-1-1-0	1281730.500	14310856.716	0.0	0.0	32.7	
	EC-N3-011-F-1-1-0	1281703.365	14310773.311	0.0	0.0	13.7	
	EC-N3-012-F-1-1-0	1281652.484	14310794.551	0.0	3.8	69.9	
	EC-N3-013-W-1-1-0	1281703.213	14310820.387	0.0	1.6	9.1	
	EC-N3-014-F-1-1-0	1281728.634	14310795.388	0.0	0.1	3.3	
	EC-N3-015-W-1-1-0	1281745.080	14310856.088	0.0	1.9	7	
	EC-N3-016-F-1-1-0	1281721.263	14310822.610	0.0	0.0	2.5	
Node 4	EC-N4-001-F-1-1-0	1281595.640	14310906.427	0.0	0.4	2.9	0.5
	EC-N4-002-F-1-1-0	1281673.771	14310906.256	0.0	0.0	9.6	
	EC-N4-003-W-2-2-0	1281752.538	14310856.532	0.0	0.2	--	
	EC-N4-004-F-1-1-0	1281774.209	14310899.638	0.0	0.7	6.7	
	EC-N4-006-F-F-1-1-0	1281657.023	14310851.215	0.0	1.1	53.1	
	EC-N4-007-W-1-1-0	1281618.242	14310927.038	0.0	0.1	2.4	
	EC-N4-008-F-1-1-0	1281648.654	14310877.434	0.0	0.0	8.6	
	EC-N4-009-W-1-1-0	1281601.940	14310859.340	0.0	3.0	39.6	
	EC-N4-010-W-2-2-0	1281709.614	14310825.421	0.0	2.0	--	
	EC-N4-011-F-1-1-0	1281600.712	14310900.161	0.0	0.0	3.3	
	EC-N4-012-W-2-2-0	1281743.068	14310928.078	0.0	2.5	19	
Node 5	EC-N5-001-F-1-1-0	1281835.122	14310665.128	0.0	0.4	2.1	0.3
	EC-N5-002-F-1-1-0	1281861.215	14310665.225	0.0	0.1	2.9	
	EC-N5-003-F-1-1-0	1281823.149	14310693.477	0.0	0.0	11.5	
	EC-N5-004-F-1-1-0	1281853.640	14310700.692	0.0	0.1	6.9	
	EC-N5-005-1-1-0	1281808.597	14310712.970	0.0	0.0	3.2	
	EC-N5-006-F-1-1-0	1281831.885	14310733.767	0.0	0.5	31.1	
	EC-N5-007-1-1-0	1281817.654	14310725.521	0.0	0.5	9.5	
	EC-N5-008-F-1-1-0	1281815.757	14310683.139	0.0	0.0	10.2	
Node 6	EC-N6-001-W-1-1-0	1281478.148	14310699.983	0.0	0.7	117	0.5
	EC-N6-002-W-1-1-0	1281514.796	14310720.074	0.0	0.6	38.4	
	EC-N6-003-F-1-1-0	1281498.281	14310732.998	0.0	0.0	3.7	
	EC-N6-004-F-1-1-0	1281500.965	14310706.354	0.0	0.0	2	



Location	Sample ID	Easting <sup>(1)</sup>	Northing <sup>(1)</sup>	Sample Results			Avg Depth of Excavation (meters bgs) <sup>(2)</sup>
				Co <sup>60</sup>	Cs <sup>137</sup>	As (total)	
				(pCi/g)		(mg/kg)	
Node 7	EC-N7-001-F-1-1-0	1281510.982	14310648.765	0.0	0.3	27.3	0.5
	EC-N7-002-F-1-1-0	1281519.519	14310690.108	0.0	0.1	2.9	
	EC-N7-003-W-1-1-0	1281525.422	14310672.253	0.0	0.8	4.9	
	EC-N7-004-W-1-1-0	1281531.893	14310694.518	0.0	2.8	55.8	
Node 8	EC-N8-001-F-1-1-0	1281583.571	14310671.490	0.0	0.2	4.2	0.5
	EC-N8-002-W-1-1-0	1281596.444	14310686.418	0.0	0.3	11	
Node 9	EC-N9-001-1-1-0	1281733.168	14310703.805	0.0	0.0	5.5	0.5
	EC-N9-003-2-1-0	1281751.731	14310701.108	0.0	0.2	110	
Node 10	EC-N0-001-F-1-1-0	1281941.632	14311015.259	0.0	0.1	4.8	0.5-1.0
	EC-N0-002-F-1-1-0	1281950.617	14310979.542	0.0	2.6	9.3	
	EC-N0-003-F-1-1-1	1281903.668	14311011.403	0.0	1.1	19.6	
	EC-N0-004-F-1-1-0	1281924.872	14310995.337	0.0	1.6	9.2	
Node 11	EC-N11-001-F-1-1-0	1281781.342	14310665.997	0.0	0.1	59.7	0.5-1.0
	EC-N11-002-W-1-1-0	1281775.656	14310665.434	0.0	0.1	45.9	
	EC-N11-005-F-2-1-0	1281790.389	14310663.415	0.0	0	4.6	
	EC-N11-006-F-2-1-0	1281794.964	14310663.802	0.0	3.5	9.1	
Node 12	EC-N12-001-F-1-1-0	1281774.511	14310802.494	0.0	0.6	7.7	0.5-1.0
	EC-N12-002-F-1-1-0	1281747.965	14310810.887	0.0	1.0	4.7	
	EC-N12-003-F-1-1-0	1281752.227	14310833.124	0.0	1.1	3.5	
	EC-N12-004-W-1-1-0	1281799.717	14310826.855	0.0	4.3	4.5	
	EC-N12-005-W-1-1-0	1281733.199	14310837.970	0.0	4.7	6.0	
Building E2364	BC-B3-006-WN-1-0-0	--	--	0.0	0.0	NS	NA
	BC-B3-013-WE-1-0-0	--	--	0.0	1.0	NS	
	BC-B3-018-W-1-1-0	--	--	0.0	0.0	NS	
	BC-B3-019-FP-1-0-0	--	--	0.0	0.0	NS	
	BC-B3-019-FP-1-1-0	--	--	0.0	0.0	NS	
	BC-B3-020-FP-1-0-0	--	--	0.0	0.0	NS	
	BC-B3-020-FP-1-1-0	--	--	0.0	0.1	NS	
	BC-B3-021-FP-1-0-0	--	--	0.0	0.0	NS	
	BC-B3-021-FP-1-1-0	--	--	0.0	0.1	NS	
	BC-B3-022-FP-1-0-0	--	--	0.0	1.0	NS	
	BC-B3-022-FP-1-1-0	--	--	0.0	0.8	NS	
	BC-B3-023-WS-1-1-0	--	--	0.0	0.1	NS	
	BC-B3-024-W-1-1-0	--	--	0.0	0.1	NS	
	BC-B3-025-W-1-1-0	--	--	0.0	0.0	NS	
	BC-B3-026-W-1-1-0	--	--	0.0	0.0	NS	
	BC-B3-027-W-1-1-0	--	--	0.0	0.0	NS	
	BC-B3-015-WW-1-1-0	--	--	0.0	0.0	NS	



Location	Sample ID	Easting <sup>(1)</sup>	Northing <sup>(1)</sup>	Sample Results			Avg Depth of Excavation (meters bgs) <sup>(2)</sup>
				Co <sup>60</sup>	Cs <sup>137</sup>	As (total)	
				(pCi/g)		(mg/kg)	
	BC-B3-001-FFS2-1-0-0	--	--	0.0	3.5	NS	
	BC-B3-001-FP-2-1-0	--	--	0.0	0.4	NS	
	BC-B3-002-FP-2-1-0	--	--	0.0	1.7	NS	
	EC-B3-001-W-1-1-0	1281845.371	14310841.145	0.0	0.4	NS	
Other Building Slabs	CS-2368-01-0	1281884.086	14310876.257	0.0	0.8	ND	NA
	CS-2368-02-0	1281874.983	14310869.808	0.0	0.0	ND	
	CS-2366-03-0	1281854.879	14310887.636	0.0	0.0	ND	
	CS-2366-01-0	1281854.879	14310872.464	0.0	1.0	ND	
	CS-2366-02-0	1281847.672	14310882.705	0.0	0.2	ND	
	CS-2356-01-0	1281759.791	14310653.288	0.0	0.2	ND	
Valve Pit	EC-VP-006-DL-1-1-0	1281796.209	14310943.144	0.0	0.8	NS	2.0-3.0
	EC-VP-006-W-1-1-0	1281796.209	14310944.012	0.0	0.1	NS	
	EC-VP-007-W-1-1-0	1281790.133	14310917.971	0.0	0.1	NS	
	EC-VP-012-F-1-1-0	1281786.831	14310903.631	0.0	3.7	NS	
Wastewater Line	EC-WW-001-F-1-1-0	1281791.940	14310901.053	0.0	0.2	NS	1.0
	EC-WW-002-F-1-1-0	1281829.637	14310921.207	0.0	0.0	NS	
	EC-WW-003-W-1-1-0	1281782.957	14310843.159	0.0	0.1	NS	
	EC-WW-004-F-1-1-0	1281787.897	14310836.557	0.0	0.1	NS	
	EC-WW-005-F-1-1-0	1281849.588	14310692.978	0.0	0.1	NS	
	EC-WW-006-F-1-1-0	1281833.024	14310776.260	0.0	0.1	NS	
	EC-WW-007-F-1-1-0	1281858.181	14310742.646	0.0	0.0	NS	
	EC-WW-008-F-1-1-0	1281828.464	14310660.885	0.0	0.2	NS	
	EC-WW-009-F-1-1-0	1281796.412	14310612.191	0.0	0.1	NS	
	EC-WW-010-W-1-1-0	1281860.123	14310741.626	0.0	0.0	NS	
	EC-WW-011-F-1-1-0	1281880.967	14310754.908	0.0	0.1	NS	
	EC-WW-012-W-1-1-0	1281935.949	14310971.872	0.0	0.4	NS	
	EC-WW-013-F-1-1-0	1281921.703	14310964.632	0.0	0.0	NS	
	EC-WW-014-F-1-1-0	1281890.361	14310948.704	0.0	0.1	NS	
5,000-Gal UST	EC-WW-SUMP5-INLET	1281866.748	14310939.855	0.0	0.0	NS	2.5-3.0
	EC-WW-SUMP5-OUTLET	1281875.630	14310944.341	0.0	0.3	NS	

**NOTES:**

(1) Coordinate system for the easting and northing is UTM Zone 18, NAD 83 in feet.

(2) These average depths below ground surface (bgs) were recorded during excavation and prior to backfill and final grading of the site.



### 2.2.3 Static and Scanning Measurement Sensitivities

The measurement of contamination during clearance surveys often involves measuring contamination at near-background levels. Therefore, it is essential to determine the minimum amount of radioactivity that can be detected using a given survey instrument and measurement procedure. In general, the MDC is the minimum activity concentration on a surface that an instrument is expected to detect with 95% confidence.

Radiation detection instruments are selected based on the type and quantity of radiation anticipated. Prior surveys of the Rad Yard identified Cs<sup>137</sup> as the only contaminant found in significant quantities. As a consequence, the primary survey instrument was selected specifically to monitor for this isotope on a routine basis. However, the presence on-site of other isotopes, such as Sr<sup>90</sup>, Ra<sup>226</sup>, uranium, and tritium (H<sup>3</sup>), was thought to be possible but not probable. Therefore, specific samples and measurements were collected periodically for these other radionuclides.

Cs<sup>137</sup> emits beta particles with a 514 kiloelectron-volt (KeV) maximum energy 94% of the transformations, and a 1.2 megaelectron-volt (MeV) maximum energy for the remaining 6%. Tc<sup>99</sup> was chosen as the calibration check source to determine instrument efficiency as it emits beta particles with a 292 KeV maximum energy. By choosing a calibration source with a lower average energy, the instrument efficiency could be conservatively estimated. To detect any potential alpha contamination, thorium-230 (Th<sup>230</sup>) was used as the instrument check source.

All radiation detection instruments used on the Rad Yard project were on a 1-year calibration schedule. Instruments used to make daily survey measurements were response checked at the beginning and end of each work shift. If the instrument was not used that day, it was not response checked. An acceptable response for field instruments was a consistent instrument reading within  $\pm 10\%$  of the established check source value. In like manner, the background of each instrument was recorded at the beginning and end of each work shift. This background check was collected within the office trailer.

The MDC for a specific instrument and procedure depended on the counting time, geometry, sample size, detector efficiency, background count rate, surface roughness, and sometimes the skill of the surveyor. Two different MDCs were applicable to demonstrate compliance with the



release criteria.  $MDC_{static}$  was used to quantify the average beta concentration over a  $1\text{-m}^2$  area, while  $MDC_{scan}$  was used to look for small elevated levels of beta activity. These MDCs are calculated differently.

The technician performing the survey moved the probe over the  $1\text{-m}^2$  area and listened to the audio output from the scaler. If no change in the count rate was discernable, the technician recorded the integrated 1-minute count, representing the average activity across the  $1\text{-m}^2$  area. This technique is analogous to taking a stationary 1-minute count, but with the improvement of collecting data over an area much larger than the probe face.

The equation (2001, Abelquist) used to calculate the  $MDC_{static}$  for direct beta measurements was

$$MDC_{static} = \frac{3 + 3.29\sqrt{R_b t_s (1 + t_s / t_b)}}{e_i e_s t_s A / 100}$$

Where:

$R_b$  = background count rate (cpm)

$t_b$  = background count time (minutes)

$t_s$  = sample count time (minutes)

$e_i$  = instrument efficiency (cpm/dpm)

$e_s$  = surface efficiency (assumed 0.5)

$A$  = detector area ( $\text{cm}^2$ )

Using this equation, a background and sample count time of 1 minute each, and specific background count rate, area, and efficiency values for each detector, the  $MDC_{static}$  for the Ludlum 44-116 large area beta scintillator was 430 dpm/100  $\text{cm}^2$ , and for the Ludlum 44-9 pancake G-M detector was 2,400 dpm/100  $\text{cm}^2$ . The release criteria for this measurement was 5,000 dpm/100  $\text{cm}^2$ , so both detector sets meet the desired MDC. However, because of the much lower MDC, and the larger detector active area, the 44-116 was routinely selected for clearance surveys.



Using the same equation, 1-minute count times, a surface efficiency of 0.5, and instrument specific background count rate and efficiency, the  $MDC_{static}$  for the Ludlum 43-5 alpha scintillation detector was calculated to be 150 dpm/100 cm<sup>2</sup>.

While the  $MDC_{static}$  provides an estimate of the minimum contamination level that could be detected averaged over a 1-m<sup>2</sup> area, the minimum concentration that can be detected for an elevated area on a surface, or hot spot must be determined. This value is represented by the  $MDC_{scan}$  and is calculated by the equation (NRC, 2000)

$$MDC_{scan} = \frac{d''(b_i)^{0.5} * 60/i}{e_i e_s (p)^{0.5} (A/100)}$$

Where:

$d'$  = index of detectability ( $d'$ )

$i$  = observation counting interval (seconds)

$b_i$  = background count per observation interval

$p$  = surveyor efficiency (assumed 0.5)

$e_i$  = instrument efficiency (cpm/dpm)

$e_s$  = surface efficiency (assumed 0.5)

$A$  = detector area (cm<sup>2</sup>)

The numerator of this equation is defined as the minimum detectable count rate (MDCR) and is the signal level that a surveyor is expected to recognize as having a signal-to-noise ratio that is distinctly above the ambient detector background noise. This MDCR is dependent on the observation interval, which is the time, usually 0.5 to 2 seconds, that the moving detector is physically above and able to detect the activity. This observation interval is therefore dependent on the dimensions of the hot spot and scan speed. The index of detectability ( $d'$ ) is another factor to be defined. Values of  $d'$  are taken from Table 6-5 of the MARSSIM, (NRC, 2000). These values are based on acceptable true positive and false positive decision errors. Accepting a “true



positive” of 95% (activity above background is detected accurately 95% of the time), and a false positive of 60% (background activity is erroneously identified as contamination 60% of the time), the  $d'$  value from Table 6-5 is 1.38.

Accepting this value for  $d'$ , and assuming the area of the hot spot is  $100 \text{ cm}^2$ , the observation interval is 1 second, the surveyor efficiency is 0.5, and specific background count rate, area, and efficiencies for each detector, the  $\text{MDC}_{\text{scan}}$  for the Ludlum 44-116 large area beta scintillator was 1,300 dpm/ $100 \text{ cm}^2$ , and for the Ludlum 44-9 G-M pancake detector was 7,100 dpm/ $100 \text{ cm}^2$ . As the release criteria for hot spots is 15,000 dpm in any  $100\text{-cm}^2$  area, both detector sets meet the desired MDC.

The instrument-specific MDCs compared with building material release criteria, previously identified in Section 2.2.1, are summarized in Table 2-3.

**Table 2-3 Minimum Detectable Concentration**

		Acceptable Surface Contamination Level Reg. Guide 1.86, Table I	
		Average	Maximum
Instrument	MDC	5,000 dpm/ $100\text{cm}^2$	15,000 dpm/ $100\text{cm}^2$
44-116	Static	430 dpm/ $100\text{cm}^2$	–
	Scan	–	1,300 dpm/ $100\text{cm}^2$
44-9	Static	2,400 dpm/ $100\text{cm}^2$	–
	Scan	–	7,100 dpm/ $100\text{cm}^2$

## 2.3 BUILDING E2364 WASTEWATER DISPOSAL

Addendum 4 to the SSWP for the Rad Yard project provides a description of the wastewater and contaminated sludge in the concrete sumps of Building E2364 and adjacent valve pit and the anticipated method to be employed to remediate and dispose of these materials.

The metals results from the wastewater treatment pilot test were compared with the most recent Numerical Criteria for Toxic Substances in Surface Waters (COMAR 26.08.02.03-2), the National Recommended Water Quality Criteria (EPA-822-R-02-047, 2002), and the limits on Effluent Release Concentrations (NRC 10 CFR 20, Appendix B, Table 2). The results indicated that the radiological parameters were below the release criteria. However, sample results showed elevated readings just above the action levels for one or more of the following



parameters in all three sumps: cadmium, lead, and zinc. After consulting with DSHE and MDE, it was agreed that the filtered wastewater from the sumps could be discharged to the APG Sewage Treatment Plant outfall located on Beach Point Road. After discharge, the wastewater would mix with the treatment plant effluent, diluting the sump water to acceptable discharge levels. In agreement with MDE, the expected maximum diluted concentrations of the metals were calculated using a mass balance, and the following results provide adequate justification that the action levels would be achieved.

- Cadmium:  
Diluted Concentration = 0.19 µg/L  
Action Level = 0.25 µg/L
- Lead:  
Diluted Concentration = 1.3 µg/L  
Action Level = 2.5 µg/L
- Zinc:  
Diluted Concentration = 63 µg/L  
Action Level = 120 µg/L

The approach for disposal of the water in these sumps and pit as described in the SSWP was followed without modification. This activity commenced on 28 March 2005, and was completed on 5 April 2005. Five tanker trucks of water from Building E2364 sumps and valve pit were discharged in this manner, with an estimated total water volume of approximately 34,500 gallons.

In summary, water was pumped through a 10- or 50-micron bag filter into a tanker truck. Both sizes of mesh filters were used. Bag filters were changed regularly as the filter material became clogged by the sediment. Measurable exposure rates were never observed on the used filters, indicating that the sediment material collected on the filters did not result in a significant exposure to personnel operating the filter system.

A 4-L composite water sample from each tanker truck was analyzed by gamma spectrometry to confirm that radionuclide concentrations were below the limits listed in 10 CFR 20, Appendix B; specifically 1,000 and 3,000 pCi/L for Cs<sup>137</sup> and Co<sup>60</sup>, respectively. The analytical results for Co<sup>60</sup> ranged from non-detectable to 6 pCi/L with a MDL of about 4 pCi/L. The analytical results



for Cs<sup>137</sup> ranged from 113 to 740 pCi/L, again with an MDL of about 4 pCi/L in all samples. After confirmation, each tanker truck discharged its contents to the APG Sewage Treatment Plant outfall located on Beach Point Road in the Edgewood Area of APG.

The sediment in the sumps did have elevated levels of radionuclides. This sediment was solidified using adsorbent material and was excavated and disposed of as radioactive-contaminated waste.

## **2.4 BUILDING E2364 SUMP REMOVALS**

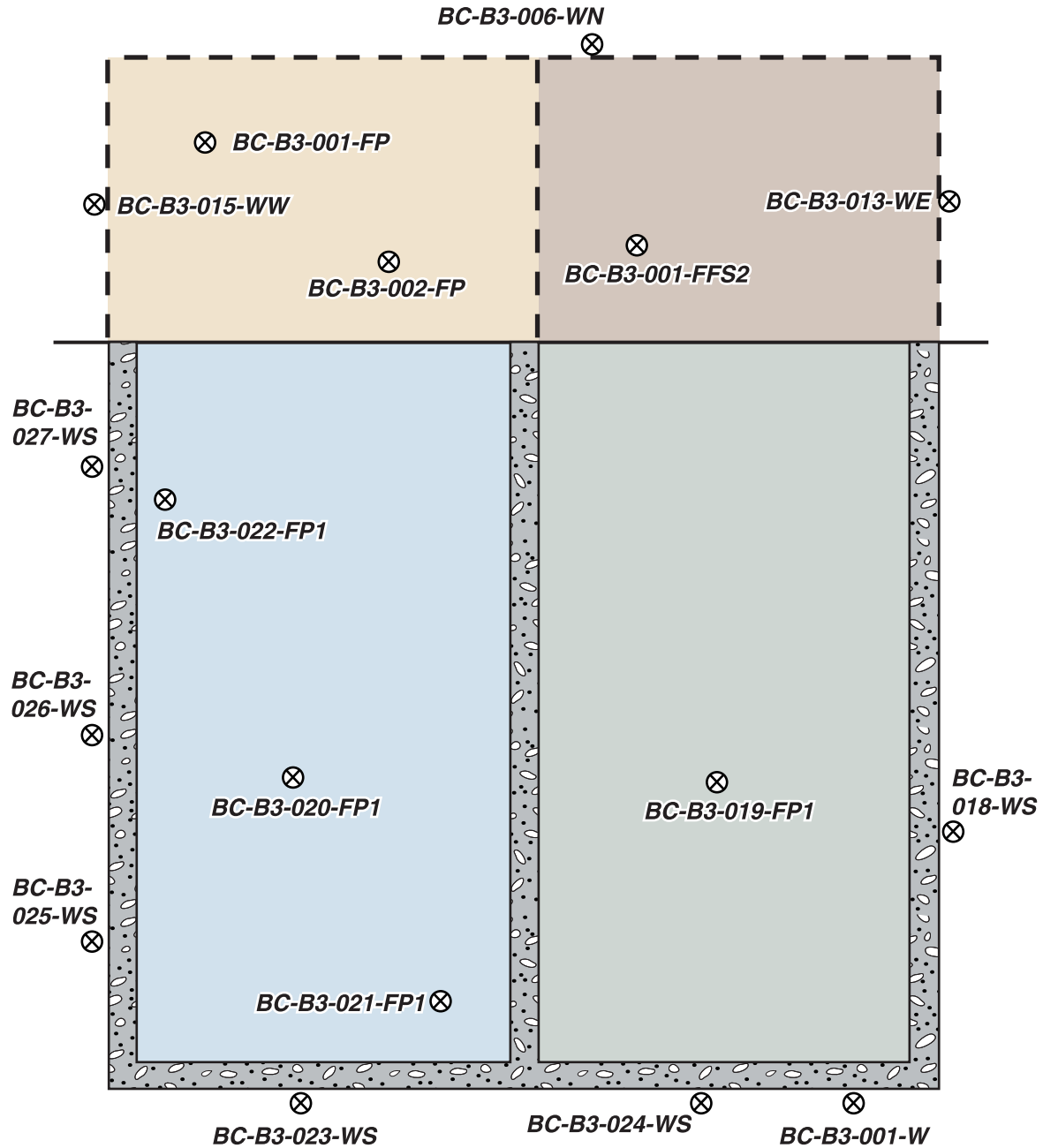
After the water was removed from the three sumps and valve pit in Building E2364, exposure rates across the surface of the sump floors ranged up to 1 mR/h on contact, and 0.3 mR/h approximately 3 m above the sump floor surface. Following the procedure described in Addendum 4 to the SSWP, workers removed the contaminated sediment and debris in the sumps and segregated the material as radioactive waste. The concrete sump walls were determined to be contaminated with beta surface contamination levels up to about 50,000 dpm/cm<sup>2</sup>. Therefore, the sump walls and floors were also removed and shipped as radioactive waste. The subfloor to sump 3 was left in place in an attempt to stem the infusion of groundwater into the excavated pit.

The soil walls and floor where the sumps had been were scanned using a 2x2 NaI detector, and no anomalous areas of gamma-ray exposure were identified. A total of 80 1-minute static counts were collected at the surface of the three soil wall faces and floor using the same instrument. These static counts averaged 7,826 cpm, with a standard deviation of 1,676 cpm.

A soil sample was collected from each of the three soil walls (BC-B3-006-WN, BC-B3-013-WE, and BC-B3-015-WW) and from the soil floor under sump 2 (BC-B3-001-FFS2). The sample locations and laboratory results are depicted in Figure 2-3. As well, Table 2-2 lists all soil confirmation samples from under this floor. Analytical results for these samples indicate typical concentrations for K<sup>40</sup> and uranium and thorium series isotopes. All results for Co<sup>60</sup> were below the minimum detectable activity (MDA) and are therefore assumed to be zero. Analytical results for Cs<sup>137</sup> were below the MDA for two of the samples and were therefore assumed to be zero. The Cs<sup>137</sup> result for the east wall was 1 pCi/g, and for the former location of the sump 2 floor was 3.6 pCi/g. The subfloor to sump 3 was included in the following survey of the west sump.

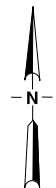


## PLAN VIEW



### Legend

- |                                  |                   |                          |
|----------------------------------|-------------------|--------------------------|
| ⊗ Soil Sample                    | Concrete Wall     | West Sump Concrete Floor |
| --- Dirt Wall (Concrete Removed) | Sump 3 Subfloor   | East Sump Concrete Floor |
|                                  | Sump 2 Dirt Floor |                          |



**FIGURE 2-3 BUILDING E2364 SUMPS  
SOIL SAMPLE LOCATIONS**



The remaining concrete floors at ground level and stem walls to Building E2364 were surveyed for radiological contamination. A few small areas on the surface of the floors and walls were determined to be contaminated and therefore were segregated as radioactive waste. However, as the concrete floors were lifted, workers noted two additional sumps separated by a common concrete wall that ran north-south. The east and west sumps had been filled with sand, the surface of which had become contaminated.

Sand was excavated from the east sump in 0.3-m lifts and segregated into clean and contaminated fractions. After the first lift, most of the sand was found to be clean and stockpiled for later use. Approximately 55 m<sup>3</sup> of sand from the east sump was determined to be contaminated and shipped as radioactive waste.

As sand from the west sump was removed, workers noted that this sump had been filled with contaminated debris. Metal and wood debris with surface gamma exposure rates ranging from about 0.1 to 1 mR/h were uncovered. Pieces of metal debris were collected and forwarded to a commercial laboratory where gamma spectrometry analysis revealed Cs<sup>137</sup> to be the only radionuclide in the sample. All of the sand and debris recovered from the west sump was segregated as contaminated waste. The volume of contaminated waste removed from the west sump was estimated to be about 130 m<sup>3</sup>. Based on the material found in the east and west sumps, the west sump was designated as a Class 1 survey unit, and the east sump was designated as a Class 2 survey unit.

Technicians performed a scanning survey of the west sump floor using a 2x2 NaI detector to verify that there were no anomalous areas of gamma exposure. One hundred percent of the concrete floor and walls of the sump were then surveyed using Ludlum 44-166 beta scintillation detectors. The floors and walls were gridded into 1-m<sup>2</sup> areas, and a 1-minute integrated count was collected over each grid area. A total of 145 1-minute integrated measurements were collected from the west sump floors and walls, and the subfloor to sump 3. A few small spots of contamination were detected and removed by abrasion from the west sump. After removal of each hot spot, the area was resurveyed. Fourteen 1-minute integrated counts were collected from the walls and floor of the east sump in the same manner using the same instruments. No contamination was detected in the east sump.



A total of 159 1-minute integrated counts were collected from the floors and walls of the east and west sumps of Building E2364. Of this total, 156 of the integrated counts were below the calculated  $MDC_{static}$  of 430 dpm/100 cm<sup>2</sup> for the instrument. The three measurements recorded above this minimum sensitivity were 448, 552, and 1,660 dpm/100 cm<sup>2</sup>, which are all below the allowable surface criterion of 5,000 dpm/100 cm<sup>2</sup>. Survey data representing the final status of the east and west sumps are presented in Appendix A.

Six soil samples (from locations BC-B3-020, -021, and -022 at 0- to 6-in. and 6- to 12-in. depths) were collected and analyzed from beneath the floor of the west sump, and two soil samples (BC-B3-019 at 0- to 6-in. and 6- to 12-in. depths) from beneath the floor of the east sump. Two soil samples (BC-B3-001 and -002) were collected from beneath the sub-floor of sump 3. Three spare soil samples were collected from the west sump and placed into secure storage for subsequent analysis, if required.

In addition, six trenches were dug to a depth of 1 m along the remaining outer walls of the east and west sumps. The side wall of each trench was scanned with a 2x2 NaI detector, and a soil sample (BC-B3-018, -023, -024, -025, -026, and -027) was collected from the depth with the highest reading. The locations of these samples and laboratory results are depicted in Figure 2-3.

Analytical results for these 16 samples indicate typical concentrations for K<sup>40</sup> and uranium and thorium series isotopes. All results for Co<sup>60</sup> were below the MDA and therefore assumed to be zero. Analytical results of Cs<sup>137</sup> for 8 of the 16 samples were below the MDA and therefore assumed to be zero. Those samples with positive results for Cs<sup>137</sup> ranged from 0.1 to 1.7 pCi/g.

In summary, 20 soil samples were collected and analyzed from beneath and around the three sumps and the east and west sumps to Building E2364 following remediation. Analytical results for all samples indicated typical concentrations for K<sup>40</sup> and uranium and thorium series isotopes. Co<sup>60</sup> was not detected in any of the samples. The average Cs<sup>137</sup> concentration was 0.5 pCi/g, with a standard deviation 0.9 pCi/g, and ranged from 0 to 3.7 pCi/g. Also, a total of 159 1-minute integrated measurements of the residual beta surface activity were collected from the floor and walls. All surface activity measurements were below the release criterion of 5,000 dpm/100 cm<sup>2</sup>.



It was concluded that the remaining subsurface partial walls and floor did not constitute a reusable structure. Clean sand and soil were subsequently used to backfill the east and west sumps, and the surfaces of the sumps were leveled to grade.

## **2.5 SOIL EXCAVATION**

Radioactive- and arsenic-contaminated soil was excavated and disposed of at the Rad Yard.

### **2.5.1 Radioactive**

This section describes soil remediation activities due to contamination by radionuclides, including application of the release criteria. WESTON was contracted to remove surface soil in 1-ft lifts from 12 distinct areas or nodes located within or near the controlled access area of the Rad Yard (see Figure 2-1). The work plan (WESTON, 2004a) specified the boundaries of the nodes to be remediated. An additional node (node 11) was discovered during the Removal Action (see Figure 2-1). After the contaminated surface soil identified in the work plan was removed, the excavated area was scanned using a 2x2 NaI detector coupled to a ratemeter with audio output. This instrument was adjusted to detect gamma-rays of energy greater than about 50 KeV. This photon energy lower threshold was selected for two reasons. First the contaminants of concern, Cs<sup>137</sup> and Co<sup>60</sup>, have primary gamma energies of 662, 1,170, and 1,330 KeV. Therefore, these gamma-rays and their Compton scattered photons would be detected. A second reason to set the energy threshold at 50 KeV is that if there were any other gamma emitters present, such as uranium-238 (U<sup>238</sup>), which emits gamma-rays of 63 and 93 KeV, or Ra<sup>226</sup> decay products, which emit gamma-rays of 350 and 609 KeV, these unexpected radioisotopes would also be detected. The technician performing the scan listened for a change in count rate as the node was slowly traversed. If the technician detected an increased count rate, he or she hesitated over the area to confirm the elevated area, and then identified the boundaries of increased count rate. In the opinion of the technician, if the increased count rate appeared to indicate residual contamination, additional soil was excavated from the area.

After all residual contamination detectable by this technique had been excavated, and the gamma-ray count rate emanating from the surface of the node appeared to be uniform, clearance surveys were performed to collect data to demonstrate that the release criteria or DCGLs had been attained. Criteria for radionuclides applicable to the Rad Yard were 5 pCi/g Cs<sup>137</sup>, and 0.5



pCi/g Co<sup>60</sup>. Other applicable cleanup criteria were established for arsenic, but are discussed in Section 2.5.2.

Results from the analysis of individual soil samples collected across the node were the primary measurement to demonstrate compliance with the release criteria. Samples of approximately 1-kg mass were collected from the surface to a depth of 15 cm and at a spacing of approximately 15 m across each excavated node. These samples were analyzed for gross alpha and beta activity and for Cs<sup>137</sup>, Co<sup>60</sup>, and any other identifiable isotopes by gamma spectrometry. Figure 2-2 shows these soil sample locations with their corresponding laboratory result. As well, Table 2-2 shows all soil confirmation laboratory results.

To assess the variability of residual contamination that might exist between soil sample locations, two types of in-situ measurements were collected across each node:

1. Static, 1-minute integrated in-situ measurements were collected at approximately 3-m spacing using a 2x2 NaI detector held approximately 15 cm above the soil surface, coupled to a scaler. The instrument was adjusted to detect gamma-rays of energy greater than about 50 KeV. Measurement locations were accurately located by a differentially corrected global positioning system (GPS).
2. Radiological data maps of the gamma-ray emission rate from areas between each static measurement location were generated using a scanning technique. In this technique, the technician used a 2x2 NaI detector held approximately 45 cm above the soil surface, coupled to a ratemeter and GPS. The technician walked across the node at approximately 0.5 meters per second (m/s), with transect spacing of about 1 m. Gamma-ray count rates were data-logged at approximately 2-second intervals and tagged to a location identified by GPS.

An empirical method was used to estimate the residual concentration of Cs<sup>137</sup> from the static and scanning gamma-ray count rate measurements. A correlation study was performed early in the project to obtain an estimate of the gamma-ray count rate per picocuries per gram of Cs<sup>137</sup> contamination. This study indicated a gamma-ray response for the 2x2 NaI detector of 700 cpm per pCi/g. However, as the Cs<sup>137</sup> residual concentration approached background levels, the gamma-ray contribution from naturally occurring uranium and thorium became more significant



in the overall gross count rate. Therefore, a background gamma-ray count rate specific to the node or sub-node was applied. The empirical method was used to determine the background gamma count rate, which when subtracted from the static and scanning count rate, best estimated the Cs<sup>137</sup> concentration as measured by laboratory analyses of the soil samples. Data used in this correlation included static, 1-minute counts collected on-contact at 15 and 45 cm above each soil sample location, and average count rate data collected across the node. This background count rate was generally in the range of 6,000 to 8,000 cpm, and was dependent on the soil morphology.

However, another factor that affected the response of the 2x2 detector was the geometry in which the measurement was being taken. If the measurement was collected in a depression or “hole,” the surrounding soil caused an increase in the recorded count. Consideration of this “geometry effect” was at the discretion of the technician when directing the excavation, and is discussed in the case narratives for each node.

An estimate of the MDC<sub>scan</sub> for a 2x2 NaI detector and Cs<sup>137</sup> as the contaminant is available in Table 6.7 of the MARSSIM (NRC 2002). This reference indicates an MDC<sub>scan</sub> of 6.4 pCi/g for this isotope, which is slightly above the cleanup criteria. However, this value is based on an ambient gamma-ray background of 10,000 cpm. The Radiological Sampling and Analysis Plan (WESTON, 2004b) prepared for the Rad Yard project estimated an MDC<sub>scan</sub> of 2.4 pCi/g based on the lower background anticipated for this site.

Using the excavation method described above, project staff remediated most areas within the nodes to near background levels of Cs<sup>137</sup>, well below the MDC for the in-situ measurements. Therefore, the calculated concentrations from static and scanning in-situ measurements are representative of the variability in residual soil concentration, while the laboratory analyses of the individual soil samples are the definitive measurement to confirm compliance with the cleanup criteria.

A discussion of the remediation activity and the data from these clearance or confirmation surveys are presented in the following case narratives for each node.



### **2.5.1.1 Node 1**

#### **2.5.1.1.1 Pre-Excavation Survey**

No soil samples were collected from within this node prior to remediation. A scanning survey was conducted over and around the node to verify that no contamination was present outside of the boundaries identified in the work plan prior to excavation.

#### **2.5.1.1.2 Excavation**

Node 1 was excavated from 25 January to 1 February 2005. The depth of the excavation was about 0.5 m or less. The excavated area footprint was approximately 375 m<sup>2</sup>, and the volume of soil removed was approximately 261 m<sup>3</sup>.

#### **2.5.1.1.3 Confirmation Surveys**

Seven soil samples were collected (EC-N1-001 through -007) to define the final status of this node. An additional six soil samples were collected and placed into secured storage for later analysis if required. No remedial action support samples were collected from this node. The analytical results indicate residual activity of about 0.7 pCi/g for the uranium series isotopes and 1.0 pCi/g for the thorium series isotopes. Analytical results for K<sup>40</sup> ranged from 6 to 15 pCi/g and averaged 9 pCi/g. Analytical results for all samples were below the MDA for Co<sup>60</sup> and are therefore assumed zero. The Cs<sup>137</sup> analytical result for sample EC-N1-001-F was below the MDA and is therefore assumed to be zero. Concentrations of Cs<sup>137</sup> in the remaining six samples ranged from 0.2 to 0.6 pCi/g. The average of all seven soil samples was 0.3 pCi/g, and the standard deviation was 0.2 pCi/g.

Fifty-one 1-minute in-situ static counts were recorded over the node at approximately 10-ft spacing. These readings ranged from about 8,000 to 10,000 cpm, except for lower in-situ count rates recorded around the perimeter of the excavation where crushed rock remains. Background was about 6,000 cpm over the crushed rock and about 8,000 cpm over the deeper, clay-like soil.

Residual soil concentrations of Cs<sup>137</sup> were calculated from 1-minute static counts, assuming a background count rate of 8,000 cpm over the unexcavated area and 6,000 cpm over the excavated area, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-4. All calculated negative concentrations were assigned a value of zero.



The Cs<sup>137</sup> concentrations calculated from 1-minute readings ranged from 0.0 to 3.6 pCi/g, and averaged 0.5 pCi/g. The standard deviation of these 51 data points was 0.6 pCi/g.

Although the scanning survey produces data points that are spaced much closer together, the data are less accurate than the 1-minute counts due to their short count times. A total of 1601 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated Cs<sup>137</sup> concentrations range from 0.0 to 5.6 pCi/g, and average 0.6 pCi/g. The standard deviation of this data set is 0.9 pCi/g.

### **2.5.1.2 Node 2**

#### **2.5.1.2.1 Pre-Excavation Survey**

With a surface area of approximately 0.5 acre, this node is one of the larger areas identified for excavation in the work plan. During preparations for excavation, in-situ radiation measurements indicated that approximately 25% of the surface area of node 2 may not have contamination above the DCGL. This sub-node is along the southern boundary of node 2, between the security fence and the road. WESTON decided to investigate and characterize this potentially uncontaminated area further to determine if it should be excluded from remedial action.

During the first week of December 2004, WESTON performed a detailed characterization of this sub-node. A scanning survey over the sub-node did not identify any areas of elevated activity. It appeared that the ambient gamma activity originating from the surface of the sub-node was relatively uniform.

Of particular concern was the potential presence of contamination under the gravel road, which was the southern boundary of the sub-node. A hand-driven auger was used to drill 11 2-in.-diameter holes (BH-1 to -11) to a depth of 12 in. along both sides of the road. These boreholes were then logged with a 2x2 NaI scintillation detector. One-minute static counts were collected at the surface and at depths of 6 and 12 in. These data are shown in Appendix A. Borehole 9 exhibited an anomalously high reading at the 12-in. depth, and therefore 0- to 6-in. and 6- to 12-in. soil samples were collected from this point. Analytical results for these two samples (EC-N2-009-F-1-0-0 and EC-N2-009-F-1-1-0) reveal that the elevated gamma readings in the borehole appear to be from a slightly higher concentration of thorium series isotopes, with a reported value of about 2.1 pCi/g. No significant Cs<sup>137</sup> or Co<sup>60</sup> was detected in these samples.



# Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations



## Gamma Scanning Survey (CPM)

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

## 1-Minute Integrated Gamma Count

- ★ EC Sample Location
- ★ SS Sample Location
- Excavation Boundary

Excavation  
In: pCi/g = (CPM-9,000) / 700  
Out: pCi/g = (CPM-6,000) / 700

Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N1-001-F	0.0	0.0
EC-N1-002-F	0.0	0.2
EC-N1-003-F	0.0	0.4
EC-N1-004-W	0.0	0.4
EC-N1-005-W	0.0	0.6
EC-N1-006-W	0.0	0.5
EC-N1-007-W	0.0	0.2
Action Level	0.5	5.0

Statistical Test	Gamma Scan Data	1-Minute Count Data
Records	1601	51
Mean	0.6	0.5
Std. Dev.	0.9	0.6
Maximum	5.6	3.6

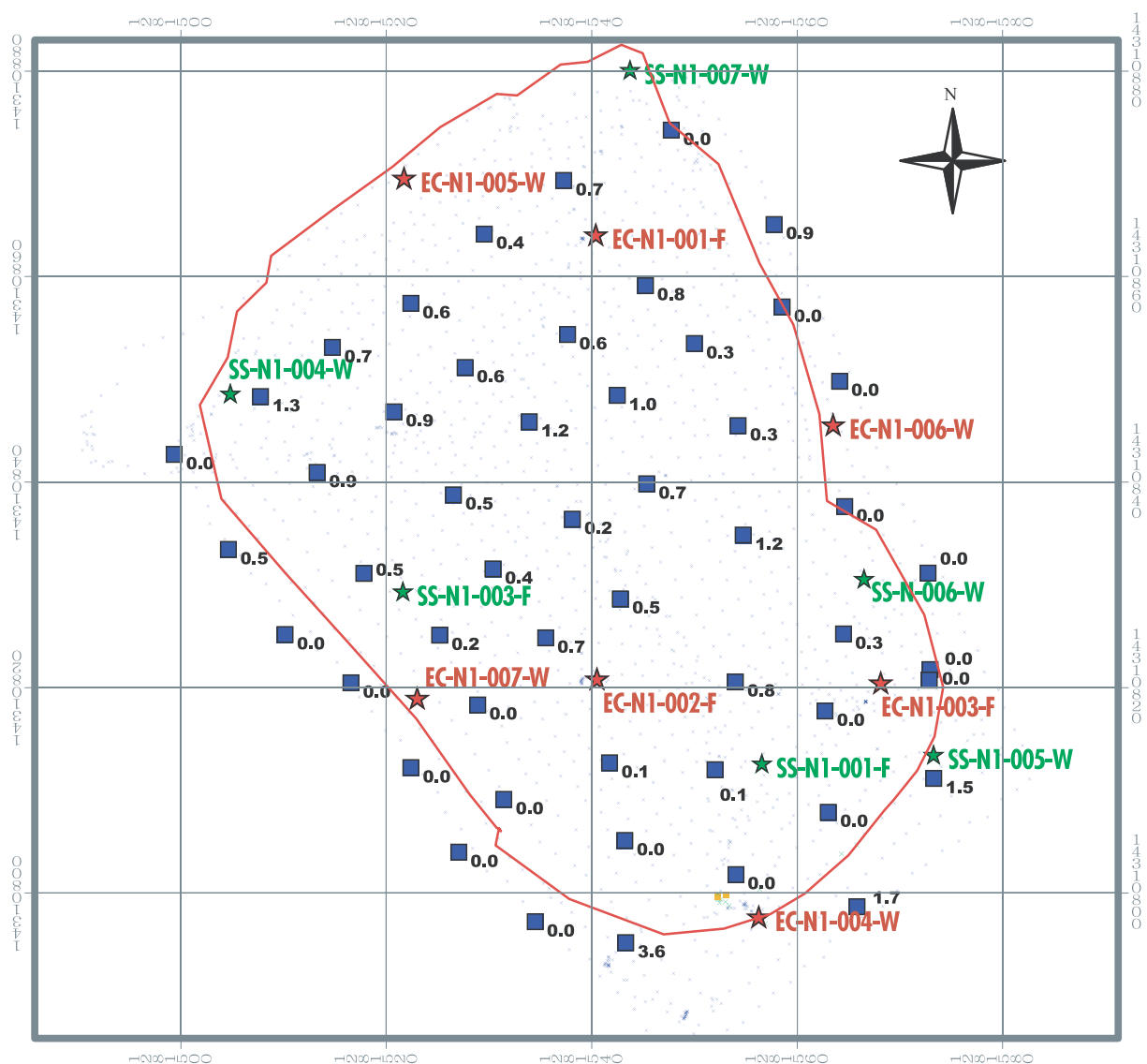


Figure 2-4 Node 1



To aid in the interpretation of these in-situ measurements, two reference or background sample locations (RA-1 and -2) were selected from uncontaminated areas near the node, and one sample location was selected from an area of known contamination (CA-1). Core samples from the surface to 6 in. deep and 6 to 12 in. deep were collected from these three sample locations using the 2-in.-diameter hand auger. Laboratory analytical results for these calibration samples (CS-11-N through CS-16-N) indicate uranium series isotopic activity of about 0.5 to 0.6 pCi/g in the surface to 6-in. depth sample and 0.7 to 0.9 pCi/g in the 6- to 12-in. depth sample. Similarly, thorium series isotopes appear to be about 30% higher in activity in subsurface samples than in surface samples. However, all samples are within the range considered normal for background. The concentration of  $K^{40}$  in all samples ranged from 3 to 10 pCi/g, with the surface sample always higher in the 6- to 12-in. depth core. All six analytical results for  $Co^{60}$  were below the MDA, and are therefore assumed to be zero. Analytical results for  $Cs^{137}$  in the two surface samples taken from the reference locations were about 0.5 pCi/g, whereas the results for the 6- to 12-in. cores were about 0.05 pCi/g. Analytical results for the samples taken from the contaminated area contained about 18 pCi/g of  $Cs^{137}$  at the surface and 3.3 pCi/g in the 6- to 12-in. core. These three sampling locations were logged with a 2x2 NaI scintillation detector at the surface and 12-in. depth. These data are also depicted in Appendix A.

Six sample locations were selected along the remaining three sides of the perimeter of this sub-node (locations 12 through 17). Soil samples were collected using the 2-in.-diameter auger at depths of 0 to 6 in. and 6 to 12 in. (EC-N2-012-F through -017-F). A 2x2 NaI detector was inserted into each augered hole and the data were logged. These data are also presented in Appendix A. Analytical results for all soil samples collected revealed no detectable  $Co^{60}$  activity, and the  $Cs^{137}$  concentration detected in all samples was well below the DCGL. All sample results were in the range of normal background for  $K^{40}$  and the uranium and thorium series isotopes. Only one sample, that collected from 0 to 6 in. at location 16, contained  $Cs^{137}$  at a concentration above ambient background. The concentration in this sample was about 1.5 pCi/g.

Comparing these survey data with the radionuclide cleanup criteria, WESTON concluded that this sub-node did not require remedial action or excavation. However, stable element chemical analyses of these samples revealed elevated arsenic concentrations at locations 13, 15, and 16. To remediate this chemical contaminant, WESTON excavated an area approximately 3 m in



diameter around these three sample points to a depth of approximately 0.5 m. Since the analytical results for Cs<sup>137</sup> in samples EC-N2-013, -015, and -016 were from samples collected prior to excavation and do not represent the site after remediation, they are excluded from the confirming survey data.

#### 2.5.1.2.2 Excavation

Excavation began on Monday 2 January 2005 and was completed on 20 January. The area of the excavation footprint is approximately 1,600 m<sup>2</sup>. Including the non-excavated area, node 2 has a surface area of about 2,190 m<sup>2</sup>. The volume of soil removed was approximately 500 m<sup>3</sup>.

On 11 January the area where the one-ton containers had been buried was re-excavated. The containers were pulled from the ground on 3 December 2004 and placed into an intermodal for disposal as radioactive waste. Prior to disposal, the outside surfaces of the containers were sampled for removable contamination, and none was detected.

After the area was re-excavated, it was radiologically surveyed to confirm that the surrounding soil was uncontaminated. An in-situ survey of the trench using the 2x2 detector yielded a count rate of about 14,500 cpm. One soil sample (EC-N2-001-1T-1-1-0) was collected from the floor of the trench and analyzed for radioactive constituents. The sample was analyzed twice by the laboratory. Analytical results for Co<sup>60</sup> were below the MDA and are therefore assumed to be zero. Analytical results for Cs<sup>137</sup> were about 0.3 pCi/g. Results for K<sup>40</sup> were about 8 pCi/g. No other radionuclides were identified. Two additional soil samples (SS-N2-001-F and -002-F) from the trench floor and one from the trench side wall (SS-N2-003-W) were collected and placed into secured storage for later analyses if needed.

#### 2.5.1.2.3 Confirmation Surveys

Figure 2-5 depicts data collected from node 2. The excavated area within the node is defined by Zone C. Zone A is the unexcavated area covered with crushed stone. Zone B defines the sub-zone originally identified in the work plan for excavation but determined by WESTON to meet the cleanup criteria without excavation. The small unexcavated area with a slightly elevated thorium concentration is defined by Zone D.



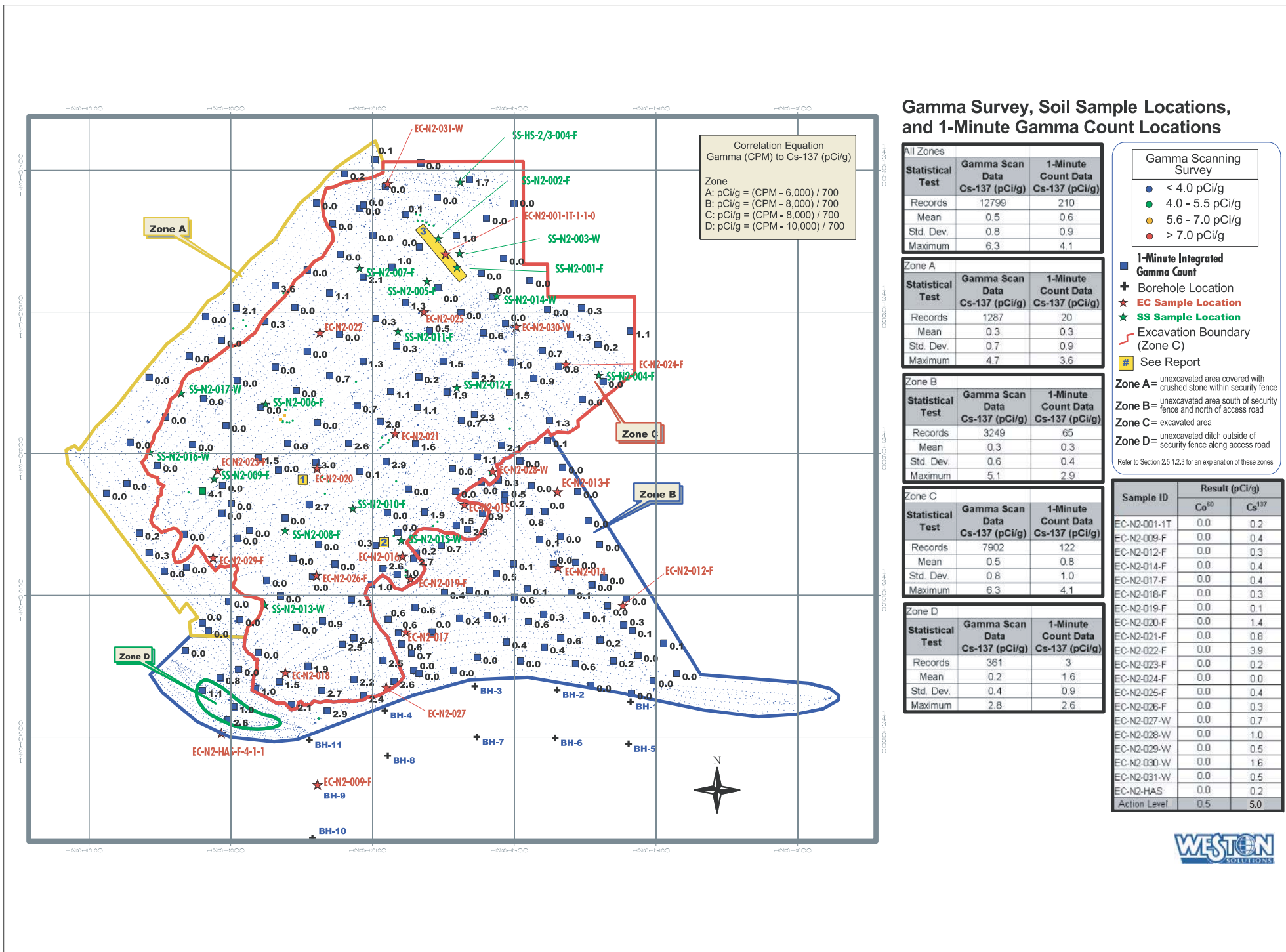


Figure 2-5 Node 2



Twenty soil samples were collected and analyzed that define the final status of this node. In addition, 18 supplemental soil samples were collected and placed into secured storage for subsequent analysis if required. As determined by sample analysis, the average concentrations of uranium and thorium across the node were 0.7 pCi/g and 0.9 pCi/g, respectively. However, the analytical results were unusual in that a few of the samples contained uranium and thorium as low as 0.1 pCi/g. Concentrations of  $K^{40}$  ranged from 0.7 to 12 pCi/g. All 20 analytical results for  $Co^{60}$  were reported below the MDA and are therefore assumed to be zero. One of the 20 analytical results for  $Cs^{137}$  was below the MDA and is assumed to be zero. The concentration of  $Cs^{137}$  across the node ranged from 0 to 3.9 pCi/g, with the average of 0.7 pCi/g. The standard deviation of these 20 data points was 0.9 pCi/g.

The static 1-minute in-situ measurements ranged from about 5,000 cpm over the unexcavated area covered with crushed rock, and about 8,000 cpm over the silt loam type soil in the unexcavated sub-node, to a high of about 11,000 cpm over the excavated area. The static in-situ count rate over the area near coordinates 14310500 Northing and 1281600 Easting (near the road in the southwest corner of node 2) was about 12,000 cpm. Analysis of a soil sample collected from this location (EC-N2-HAS-F-4-1-1) revealed that the higher count rate resulted from an elevated concentration of thorium isotopes, similar to results from borehole 9 across the road.

Residual soil concentrations of  $Cs^{137}$  over the excavated area were calculated from 1-minute static in-situ measurements assuming a background count rate specific to this node of 8,000 cpm, and a conversion factor of 700 cpm per pCi/g. A background of 8,000 cpm was also used for measurements collected over the unexcavated sub-node, and 6,000 cpm over the crushed rock area. These concentrations are depicted on Figure 2-5. All calculated negative concentrations were assigned a value of 0 pCi/g. The  $Cs^{137}$  concentrations calculated from the 1-minute static readings range from 0 to 4.1 pCi/g, and averaged 0.6 pCi/g. The standard deviation of these 210 data points is 0.9 pCi/g.

The scanning survey produces data points that are spaced closer together. However, due to the short count times the data are inherently less accurate than the 1-minute static counts. Out of a total of 12,799 scanning records, two locations indicated anomalous measurements. These locations, identified as 1 and 2, are shown on Figure 2-5. After reviewing the preliminary



scanning data, technicians attempted to resurvey these locations. However, the anomalous readings could not be reproduced. Anomalous location 3 is where the one-ton containers were excavated. Data from this area were scanned in an approximately 4-ft deep hole, which affected the results by geometry. Therefore, the data for these three locations are excluded from the statistical summary. When the correlation equations are applied to these count rates, the calculated Cs<sup>137</sup> concentrations range from 0.0 to 6.3 pCi/g, and average 0.5 pCi/g. The standard deviation of this data set is 0.8 pCi/g.

### **2.5.1.3 Node 3**

#### **2.5.1.3.1 Pre-Excavation Survey**

No soil samples were collected from within this node prior to remediation. A scanning survey was conducted over and around this node to verify that no contamination was present outside of the boundaries identified in the work plan prior to excavation.

#### **2.5.1.3.2 Excavation**

Excavation of node 3 was conducted from 1 February to 16 February, 2005 and then again from 9 March to 22 March. The depth of the excavation is about 0.5 m or less. The footprint of the excavated area is approximately 1,200 m<sup>2</sup>, and the volume of soil removed is approximately 790 m<sup>3</sup>. One remedial action support sample (EC-N3-005-1) was collected from this node.

#### **2.5.1.3.3 Confirmation Surveys**

A total of 13 soil samples were collected to define the final status of this node. Additionally, ten supplemental samples were collected and placed into secured storage for later analysis if required. The analytical results indicate residual activity of about 0.8 pCi/g for the uranium series isotopes and 1.1 pCi/g for the thorium series isotopes. Analytical results for K<sup>40</sup> ranged from 4 to 19 pCi/g and averaged 8 pCi/g. Confirmation sample EC-N3-010-F may have indicated the presence of a low level of depleted uranium. However, the analytical results at approximately 2 ±1 pCi/g are not conclusive or significant. Analytical results for all samples were below the MDA for Co<sup>60</sup> and are therefore assumed zero. The Cs<sup>137</sup> analytical results for four samples were below the MDA and are therefore assumed to be zero. Concentrations of Cs<sup>137</sup> in the remaining nine samples ranged from 0.1 to 4.8 pCi/g. The average of all 13 soil samples was 1.4 pCi/g, and the standard deviation was 1.5 pCi/g.



One-minute in-situ static counts were recorded at 125 locations over the node at approximately 10-ft spacing. These readings ranged from about 6,000 to 11,400 cpm, with lower in-situ count rates recorded around the perimeter of the excavation where crushed rock remains.

Residual soil concentrations of  $\text{Cs}^{137}$  were calculated from 1-minute static counts, assuming a background count rate of 8,000 cpm over the entire node, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-6. All calculated negative concentrations are assigned a value of zero. The  $\text{Cs}^{137}$  concentrations calculated from 1-minute readings ranged from 0.0 to 4.9 pCi/g, and averaged 1.3 pCi/g. The standard deviation of these 125 data points was 1.1 pCi/g.

The scanning survey produces data points that are spaced much closer together. However, due to their short count times the data are less accurate than the 1-minute counts. A total of 5,288 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated  $\text{Cs}^{137}$  concentrations range from 0.0 to 6.9, and average 1.1. The standard deviation of this data set is 1.1 pCi/g.

#### **2.5.1.4 Node 4**

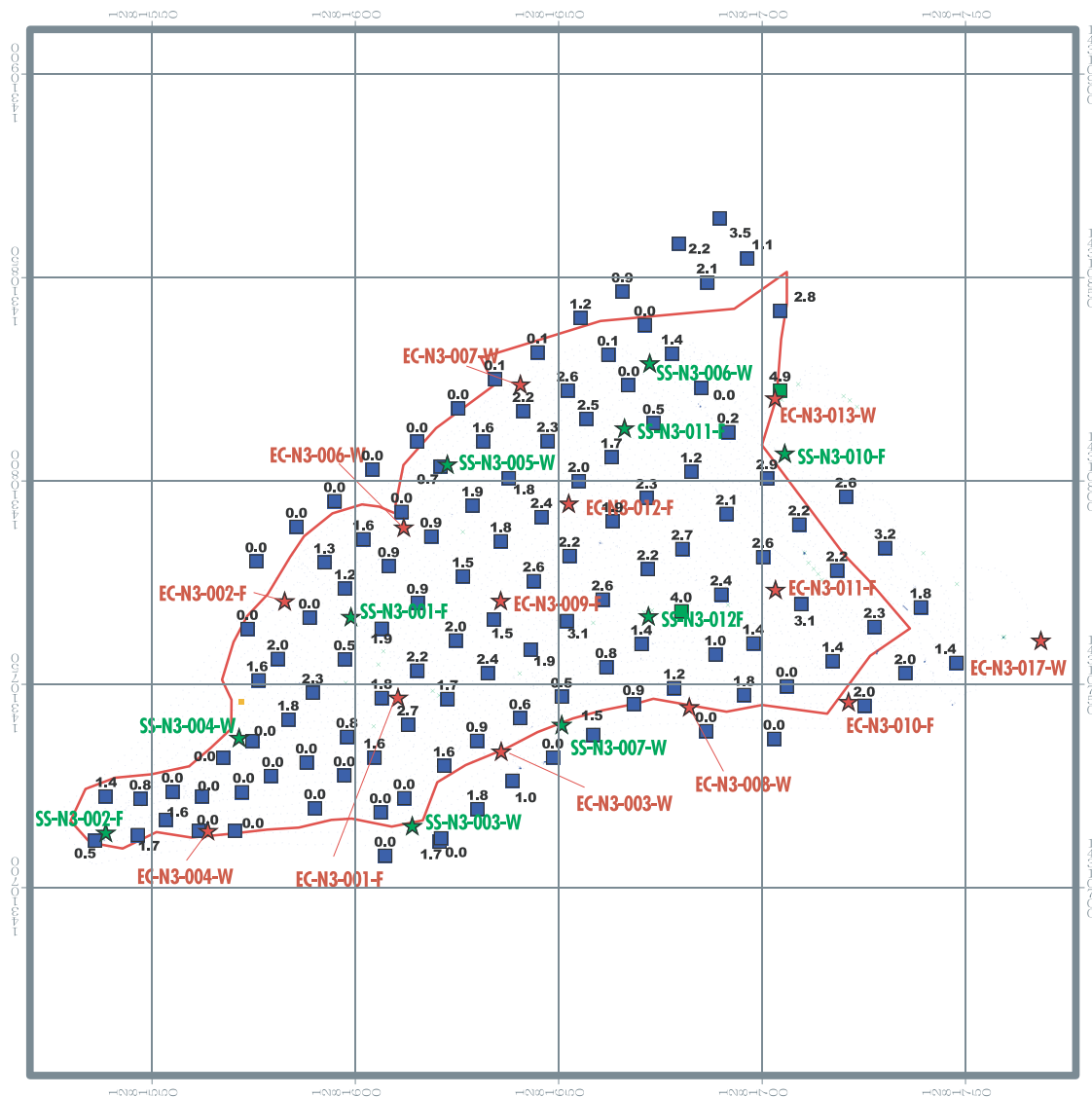
##### **2.5.1.4.1 Pre-Excavation Survey**

No soil samples were collected from within this node prior to remediation. A scanning survey was conducted over and around this node to verify that no contamination was present outside of the boundaries identified in the work plan prior to excavation.

##### **2.5.1.4.2 Excavation**

Node 4 was excavated from 16 February to 10 March, 2005. The depth of the excavation was about 0.5 m or less, with a few exceptions. The area of the excavated footprint is approximately 1,100 m<sup>2</sup>, and the volume of soil removed is approximately 350 m<sup>3</sup>. Four remedial action support samples (EC-002-F-1-1-0, 003-W-1-1-0, 010-W-2-2-0, and 012-W-2-2) were collected from this node.





## Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations

Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N3-001-F	0.0	0.0
EC-N3-002-F	0.0	1.8
EC-N3-003-W	0.0	0.1
EC-N3-004-W	0.0	4.8
EC-N3-006-W	0.0	1.7
EC-N3-007-W	0.0	2.9
EC-N3-008-W	0.0	0.1
EC-N3-009-F	0.0	1.6
EC-N3-010-F	0.0	0.0
EC-N3-011-F	0.0	0.0
EC-N3-012-F	0.0	3.8
EC-N3-013-W	0.0	1.6
EC-N3-017-W	0.0	0.0
Action Level	0.5	5.0

Gamma Scanning Survey (CPM)

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

pCi/g = (CPM-8,000)/700

- 1-Minute Integrated Gamma Count
- ★ EC Sample Location
- ★ SS Sample Location
- Excavation Boundary

Statistical Test	Gamma Scan Data	1-Minute Count Data
	Cs-137 (pCi/g)	Cs-137 (pCi/g)
Records	5288	125
Mean	1.1	1.3
Std. Dev.	1.1	1.1
Maximum	6.9	4.9

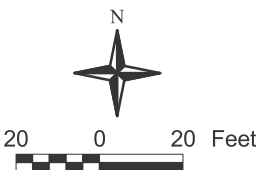


Figure 2-6 Node 3



During excavation of this node, a buried sump was uncovered at approximately 14310900 Northing, 1281700 Easting. This sump was first located as a small source of elevated gamma-ray activity emanating from the surface. As the spot was uncovered, the gamma-ray count rate increased. Ultimately, a cube of soil approximately 1 m on each side was excavated as contaminated soil. The volume appeared to be filled with sand, and was lined by timbers. One soil sample (EC-N4-001-F) was collected from the bottom of the excavated pit. A second, similarly sized sump was soon located within about 5 m of the first. However, this sump had a metal, 10-in. corrugated pipe leading away towards the northeast. This sump was also excavated and added to the radioactive waste pile. Approximately 2 in. of the metal pipe were excavated and surveyed for beta or gamma contamination. None was detected on the pipe or in the surrounding soil. A soil sample was not collected from the excavated area.

#### 2.5.1.4.3 Confirmation Surveys

Twelve soil samples were collected (EC-N4-001 through -012) to define the final status of this node. An additional eight supplemental samples were collected and placed into secured storage for later analysis if required. The analytical results indicate residual activity of about 0.9 pCi/g for the uranium series isotopes and 1.2 pCi/g for the thorium series isotopes. Analytical results for  $K^{40}$  ranged from 6 to 14 pCi/g and averaged 10 pCi/g. Confirmation samples EC-N4-006 and -008-F may have indicated the presence of a low level of depleted uranium. However, the analytical results at approximately  $2 \pm 1$  pCi/g are not conclusive or significant. Analytical results for all samples were below the MDA for  $Co^{60}$  and are therefore assumed zero. The  $Cs^{137}$  analytical results for three samples were below the MDA and are therefore assumed to be zero. Concentrations of  $Cs^{137}$  in the remaining nine samples ranged from 0.1 to 2.5 pCi/g. The average of all nine soil samples was 0.9 pCi/g, and the standard deviation was 1.1 pCi/g.

One-minute in-situ static counts were recorded at 98 locations over the node at approximately 10-ft spacing. These readings ranged from about 6,000 to 11,100 cpm, with lower in-situ count rates recorded around the perimeter of the excavation where crushed rock remains.



Residual soil concentrations of Cs<sup>137</sup> were calculated from 1-minute static counts, assuming a background count rate of 8,000 cpm over the entire node, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-7. All calculated negative concentrations are assigned a value of zero. The Cs<sup>137</sup> concentrations calculated from 1-minute readings ranged from 0.0 to 4.5 pCi/g, and averaged 1.3 pCi/g. The standard deviation of these 98 data points was 1.1 pCi/g.

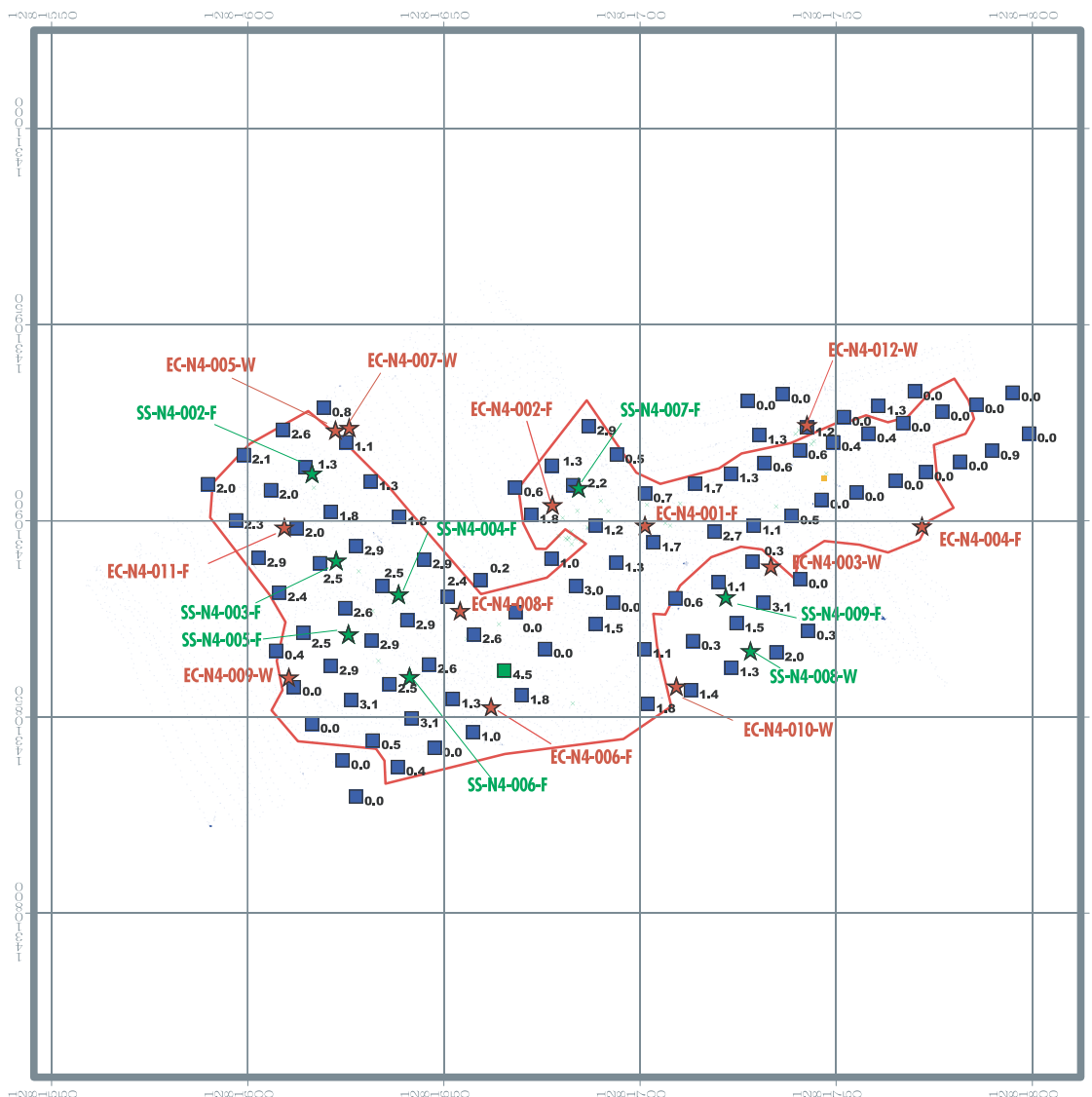
The scanning survey produces data points that are spaced much closer together. However, due to their short count times the data are less accurate than the 1-minute counts. A total of 5,946 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated Cs<sup>137</sup> concentrations range from 0.0 to 6.0 pCi/g, and average 0.8 pCi/g. The standard deviation of this data set is 1.1 pCi/g. As previously discussed in Section 2.5.1, factors that affect the count rate detected during the scanning survey include the concentration of Cs<sup>137</sup>, the variability in the concentrations of uranium, thorium, and K<sup>40</sup> in the host soil and rock, and the geometry in which the measurement was being taken. If the measurement were collected in a depression or “hole,” the geometry of the surrounding soil causes an increase in the scanning count rate. In this case where the scanning survey identifies a small spot, a single record, where the calculated Cs<sup>137</sup> concentration is 6 pCi/g, the technician would re-inspect the spot in question to ascertain if additional soil should be excavated. This decision would be based on a re-scan of the area and the analytical laboratory results of soil samples collected in the vicinity. If it was determined that additional soil excavation was not warranted, the calculated Cs<sup>137</sup> concentration was retained on the figure.

### **2.5.1.5 Node 5**

#### **2.5.1.5.1 Pre-Excavation Survey**

One soil sample was collected from within this node, which was located at a small area of elevated activity or hot spot near the former site access gate. The 2x2 NaI detector in-situ count rate was 17,599 cpm, and the soil sample results were 18.0 pCi/g for the 0- to 6-in. depth, and 3.3 pCi/g for the 6- to 12-in. depth.





## Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations

Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N4-001-F	0.0	0.4
EC-N4-002-F	0.0	0.0
EC-N4-003-W	0.0	0.2
EC-N4-004-F	0.0	0.7
EC-N4-005-W	0.0	0.2
EC-N4-006-F	0.0	1.1
EC-N4-007-W	0.0	0.1
EC-N4-008-F	0.0	0.0
EC-N4-009-W	0.0	3.0
EC-N4-010-W	0.0	2.0
EC-N4-011-F	0.0	0.0
EC-N4-012-W	0.0	2.5
Action Level	0.5	5.0

Gamma Scanning Survey (CPM)

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

pCi/g = (CPM-8,000)/700

- 1-Minute Integrated Gamma Count
- ★ EC Sample Location
- ★ SS Sample Location
- Excavation Boundary

Statistical Test	Gamma Scan Data	1-Minute Count Data
	Cs-137 (pCi/g)	Cs-137 (pCi/g)
Records	5946	98
Mean	0.8	1.3
Std. Dev.	1.1	1.1
Maximum	6	4.5

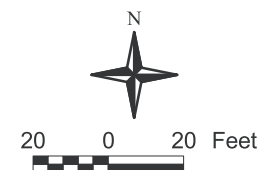


Figure 2-7 Node 4



#### 2.5.1.5.2 Excavation

Excavation began on Wednesday 15 December 2004 and was completed the following Friday. The area of the excavation footprint is approximately 450 m<sup>2</sup>. After removing the top 0.15 m of soil from across the entire node, the excavated area was scanned using a 2x2 NaI detector. The NaI detector revealed gross count rates of about 8,000 cpm, well above the residual count rate observed in node 10. The decision was made to remove another 0.15-m lift of soil across the node. After the soils were removed, the node was re-scanned. The count rate was fairly uniform and did not decrease from the earlier scan. It was surmised that the residual count rate obtained from the 2x2 NaI detector across this node was not from Cs<sup>137</sup> contamination. This assumption was verified by the confirmation samples discussed below. The volume of soil removed was approximately 117 m<sup>3</sup>.

#### 2.5.1.5.3 Confirmation Surveys

Six soil samples (EC-N5-001 through -006) were collected at a spacing of about 35 ft across the node. Two additional bias samples (EC-N5-007 and -008) were collected from areas where the 2x2 NaI detector scanning survey identified the highest residual count rate. The analytical results for these eight samples indicated residual activity of about 1 pCi/g for the uranium and thorium series isotopes and about 9 pCi/g for K<sup>40</sup>, which is indicative of normal background levels. All eight analytical results for Co<sup>60</sup> were reported below the MDA and are therefore assumed to be zero. Four of the eight analytical results for Cs<sup>137</sup> were reported below the MDA and are therefore assumed to be zero. The four Cs<sup>137</sup> results reported above the MDA indicated near background surface concentrations of 0.1, 0.4, 0.5, and 0.6 pCi/g.

Based on these analytical results, the residual Cs<sup>137</sup> contamination over node 5 appears to be about zero to background levels. The in-situ 2x2 NaI detector count rates ranged from about 8,000 to 9,000 cpm. The soil over the excavated area contains a high percentage of clay. However, the soil along the outer boundaries of the node where the soil was not excavated contains a higher percentage of silt loam. In this area, the in-situ count rate ranged from 5,000 to 6,000 cpm. It is assumed that the difference in soil morphology is the cause of the difference in observed count rate.



Residual soil concentrations of  $\text{Cs}^{137}$  were calculated from in-situ measurements, assuming a background count rate specific to this node of 8,000 cpm, and a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-8. All calculated negative concentrations were assigned a value of 0 pCi/g. The  $\text{Cs}^{137}$  concentrations calculated from the 1-minute static readings range from 0 to 2.3 pCi/g, and averaged 0.7 pCi/g. The standard deviation of these 55 data points is 0.7 pCi/g.

The scanning survey produces data points that are spaced closer together. However, due to the short count times, the data are inherently less accurate than the 1-minute static counts. A total of 2,608 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated  $\text{Cs}^{137}$  concentrations range from 0.0 to 7.6, with an average of 0.8 pCi/g. The standard deviation of this data set is 0.9 pCi/g.

### **2.5.1.6 Nodes 6 and 7**

#### **2.5.1.6.1 Pre-Excavation Survey**

Nodes 6 and 7 are evaluated together as they are located near one another and appear to share a common morphology. No soil samples were collected from within these nodes prior to remediation. A scanning survey was conducted over and around nodes 6 and 7 to verify that no contamination was present outside of the boundaries identified in the work plan for excavation.

#### **2.5.1.6.2 Excavation**

Node 6 was excavated from 20 January to 26 January, 2005. Node 7 was excavated from 21 January to 26 January, 2005. The depth of both excavations was about 0.5 m or less, except along the southeastern edge of node 6 where the depth of excavation was about 1 m. The area of the excavated footprint of node 6 is approximately  $125 \text{ m}^2$ , and the volume of soil removed is approximately  $94 \text{ m}^3$ . The area of the excavated footprint of node 7 is approximately  $140 \text{ m}^2$ , and the volume of the soil removed is approximately  $75 \text{ m}^3$ .







#### 2.5.1.6.3 Confirmation Surveys

Eight soil samples were collected (EC-N6-001-W, -002-W, -003-F, -004-F, EC-N7-001-F, -002-F, -003-W, and -004-W) to define the final status of this node. An additional eight supplemental samples were collected and placed into secured storage for later analysis if required. No remedial action support samples were collected from these nodes. The analytical results indicate residual activity of about 0.7 pCi/g for the uranium series isotopes and 0.8 pCi/g for the thorium series isotopes, with one exception. Analysis of sample EC-07-001-F identified Th<sup>234</sup> at a concentration of 2.4 pCi/g. As Th<sup>234</sup> is the first daughter of U<sup>238</sup>, and since bismuth-214 (Bi<sup>214</sup>) and lead-214 (Pb<sup>214</sup>) were both reported in this sample at about 0.3 pCi/g, this analytical result may indicate a low concentration of depleted uranium activity. Analyses for K<sup>40</sup> ranged from 3 to 11 pCi/g and averaged 7 pCi/g. Analytical results for all samples were below the MDA for Co<sup>60</sup> and are therefore assumed zero. The Cs<sup>137</sup> analytical results for samples EC-N6-003-F, EC-N6-004-F, and N7-002-F were below the MDA and are therefore assumed to be zero. Cs<sup>137</sup> analyses of the remaining five samples ranged from 0.3 to 2.8 pCi/g. The average of all eight soil samples was 0.7 pCi/g, and the standard deviation was 0.9 pCi/g.

Seventy-three 1-minute in-situ static counts were recorded over the nodes at approximately 10-ft spacing. These readings ranged from about 4,400 to 10,400 cpm, with one exception. A count rate of 12,401 cpm was recorded along the southern boundary of node 6. Visual inspection determined that this measurement point is a 1-m-deep hole, and therefore the measurement was impacted by geometry effects. Lower in-situ count rates were recorded around the perimeter of the excavation where crushed rock remains. The background over this node ranges from 6,000 to 8,000 cpm depending on the morphology of the surface material. Background is about 6,000 cpm over the crushed rock, and about 8,000 cpm over the deeper, clay-like soil.

Residual soil concentrations of Cs<sup>137</sup> were calculated from 1-minute static counts, assuming a background count rate of 6,000 cpm over the unexcavated area, and 8,000 cpm over the excavated area, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-9. All calculated negative concentrations are assigned a value of zero. The Cs<sup>137</sup> concentrations calculated from 1-minute readings ranged from 0.0 to 3.4 pCi/g, and averaged 0.5 pCi/g. The standard deviation of these 73 data points was 0.8 pCi/g.



# Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations



## Gamma Scanning Survey

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

## 1-Minute Integrated Gamma Count

- ★ **EC Sample Location**
- ★ **SS Sample Location**
- Excavation Boundary
- Area Counts Affected by Geometry

Statistical Test	Gamma Scan Data Cs-137 (pCi/g)	1-Minute Count Data Cs-137 (pCi/g)
Records	1569	73
Mean	0.6	0.5
Std. Dev.	0.9	0.8
Maximum	5.4	3.4

Correlation Equation  
Gamma (CPM) to Cs-137 (pCi/g)  
Excavation  
In:  $pCi/g = (CPM - 8,000) / 700$   
Out:  $pCi/g = (CPM - 6,000) / 700$   
Geometry  
 $pCi/g = (CPM - 10,000) / 700$

Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N6-001-W	0.0	0.7
EC-N6-002-W	0.0	0.6
EC-N6-003-F	0.0	0.0
EC-N6-004-F	0.0	0.0
EC-N7-001-F	0.0	0.3
EC-N7-002-F	0.0	0.0
EC-N7-003-W	0.0	0.8
EC-N7-004-W	0.0	2.8
Action Level	0.5	5.0

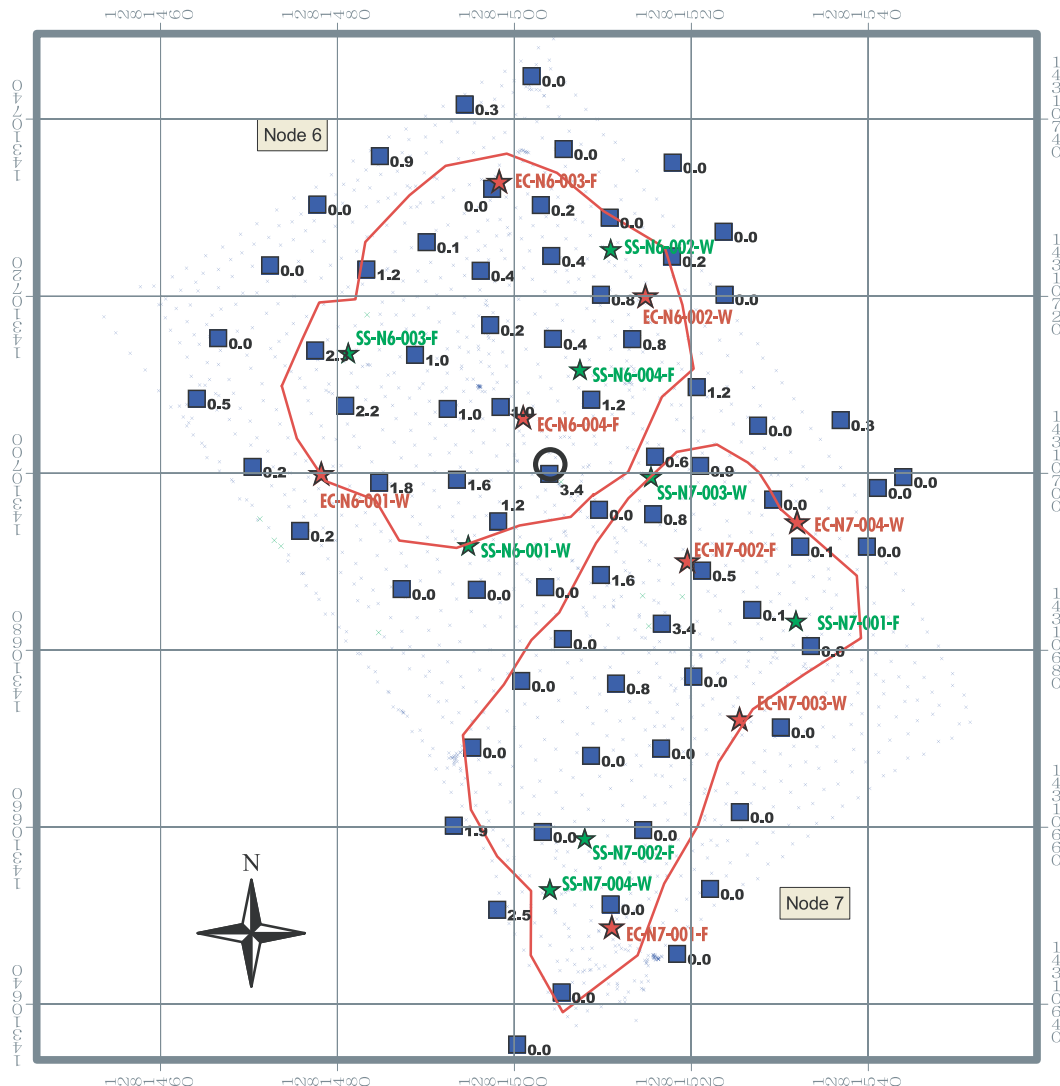


Figure 2-9 Nodes 6 & 7



The scanning survey produces data points that are spaced much closer together. However, due to their short count times, the data are less accurate than the 1-minute counts. A total of 1,569 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated Cs<sup>137</sup> concentrations range from 0.0 to 5.4 pCi/g, and average 0.6 pCi/g. The standard deviation of this data set is 0.9 pCi/g.

#### **2.5.1.7 Node 8**

##### **2.5.1.7.1 Pre-Excavation Survey**

No soil samples were collected nor in-situ measurements made from within this node prior to remediation.

##### **2.5.1.7.2 Excavation**

Node 8 was excavated on 19 January 2005. The depth of the excavation was about 0.5 m or less. The area footprint of the excavation was approximately 30 m<sup>2</sup>, and the volume of soil removed was approximately 9 yd<sup>3</sup>.

##### **2.5.1.7.3 Confirmation Surveys**

Three soil samples were collected (EC-N8-001F, EC-N8-001F duplicate, and EC-N8-002W) to define the final status of this node. Two supplemental samples were collected and placed into secured storage for later analysis if required. No remedial action support samples were collected from this node. The analytical results for samples 001 and 002 indicate residual activity of about 0.9 pCi/g for the uranium series isotopes and 1.1 pCi/g for the thorium series isotopes. Analytical results for K<sup>40</sup> ranged from 7 to 11 pCi/g. Analytical results for all samples were below the MDA for Co<sup>60</sup> and are therefore assumed to be zero. The Cs<sup>137</sup> analytical result for all samples is about 0.3 pCi/g, or slightly below the average background for surface soil.

Nine in-situ 1-minute static counts were collected over the node at approximately 10-ft spacing. These readings ranged from about 5,600 to 10,200 cpm, with the highest in-situ count rate recorded within 1 ft of where sample EC-N8-001 and the EC-N8-001 duplicate were collected. This sample point is located at the deeper area of the floor excavation where the soil is characterized by high clay content. Lower in-situ count rates were recorded around the perimeter of the excavation where crushed rock remains. The background over this node ranges from



6,000 to 8,000 cpm, depending on the morphology of the surface material. Background is about 6,000 cpm over the crushed rock, and about 8,000 cpm over the deeper, clay-like soil.

Residual soil concentrations of Cs<sup>137</sup> were calculated from 1-minute static counts, assuming a background count rate of 6,000 cpm over the unexcavated area, and 8,000 cpm over the excavated area, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-10. All calculated negative concentrations are assigned a value of zero. The Cs<sup>137</sup> concentrations calculated from 1-minute readings ranged from 0.0 to 1.7 pCi/g, and averaged 0.4 pCi/g. The standard deviation of these nine data points was 0.6 pCi/g.

The scanning survey produces data points that are spaced much closer together. However, due to their short count times the data are less accurate than the 1-minute counts. A total of 363 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated Cs<sup>137</sup> concentrations range from 0.0 to 1.7 pCi/g, and average 0.3 pCi/g. The standard deviation of this data set is 0.6 pCi/g.

### **2.5.1.8 Node 9**

#### **2.5.1.8.1 Pre-Excavation Survey**

No soil samples were collected from within this node prior to remediation. An in-situ scanning survey of the node identified that the contamination extended about 1 m beyond the southwest corner of the designated excavation boundary.

#### **2.5.1.8.2 Excavation**

Node 9 was excavated on 22 December 2004. Analytical laboratory results were received indicating some residual contamination; therefore, additional excavation was conducted on 29 December. The depth of the excavation was about 0.5 m or less. The area of the excavation footprint was approximately 85 m<sup>2</sup>. The volume of soil removed was approximately 14 m<sup>3</sup>.







#### 2.5.1.8.3 Confirmation Surveys

Two soil samples were collected (EC-N9-001 and EC-N9-003) to define the final status of this node. EC-N9-002 is a remedial action support sample. The analytical results for samples 001 and 003 indicate residual activity at about 1 pCi/g for the uranium and thorium series isotopes, and 8 to 13 pCi/g for  $K^{40}$ . Analytical results for both samples were below the MDA for  $Co^{60}$  and are therefore assumed zero. The  $Cs^{137}$  analytical result for sample EC-N9-001 is below the MDA and assumed zero. The analytical result for sample EC-N9-003 is about 0.2 pCi/g, or slightly below the average background for surface soil.

In-situ 1-minute static counts were collected over the node at approximately 10-ft spacing. These readings ranged from about 7,200 to 9,600 cpm, with the highest in-situ count rate recorded within 2 ft of where sample EC-N9-001 was collected. This sample point is located at the deeper area of the floor excavation where the soil is characterized by high clay content. Lower in-situ count rates were recorded around the perimeter of the excavation where crushed rock remains. The background over this node ranges from 7,000 to 8,000 cpm, depending on the morphology of the surface material. Background is about 7,000 cpm over the crushed rock, and about 8,000 cpm over the deeper, clay-like soil.

Residual soil concentrations of  $Cs^{137}$  were calculated from 1-minute static counts, assuming a background count rate of 7,000 cpm over areas of crushed rock, 8,000 cpm over subsurface soil, with a conversion factor of 700 cpm per pCi/g. These concentrations are depicted on Figure 2-11. All calculated negative concentrations are assigned a value of zero. The  $Cs^{137}$  concentrations calculated from 1-minute readings ranged from 0.0 to 2.3 pCi/g, and averaged 0.6 pCi/g. The standard deviation of these 12 data points was 0.7 pCi/g.

The scanning survey produces data points that are spaced much closer together. However, due to their short count times, the data are less accurate than the 1-minute counts. A total of 946 scanning survey points was recorded across this node. When the same correlation equation is applied to these count rates, the calculated  $Cs^{137}$  concentrations range from 0.0 to 3.6 pCi/g, and average 0.3 pCi/g. The standard deviation of this data set is 0.6 pCi/g.



# Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations

Gamma Scanning Survey

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

In: pCi/g = (CPM-8,000)/700  
Not In: pCi/g = (CPM-7,000)/700

- + Gamma Scan Reading
- 1-Minute Integrated Gamma Count
- ★ Soil Sample Location
- Excavation Boundary



Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N9-001	0	0
EC-N9-003	0	0.2
Action Level	0.5	5.0

Statistical Test	Gamma Scan Data Cs-137 (pCi/g)	1-Minute Count Data Cs-137 (pCi/g)
Records	946	12
Mean	0.3	0.6
Std. Dev.	0.6	0.7
Maximum	3.6	2.3

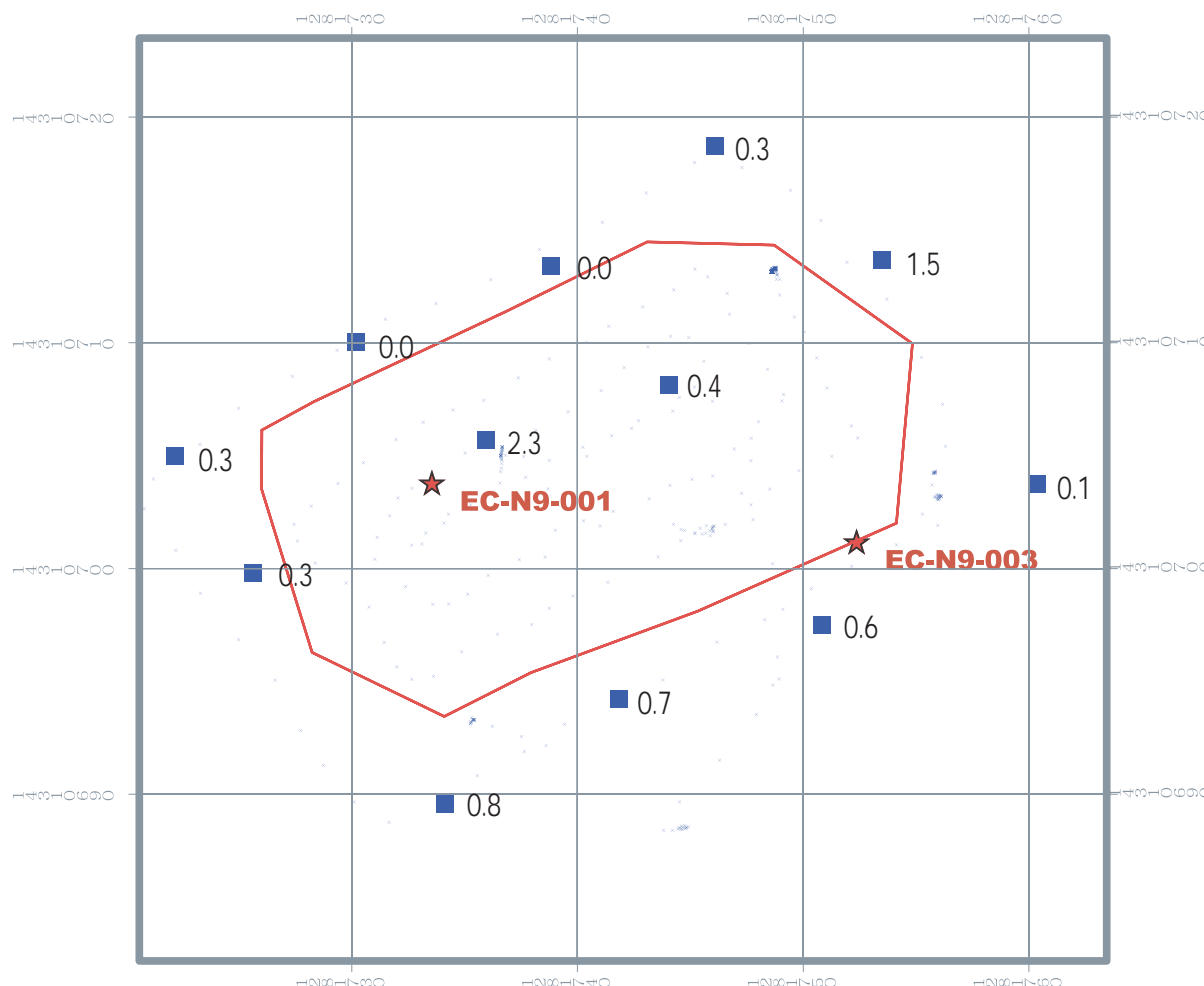


Figure 2-11 Node 9



### **2.5.1.9 Node 10**

#### **2.5.1.9.1 Pre-Excavation Survey**

No soil samples were collected from this node prior to remediation. An in-situ survey was conducted to identify any elevated areas of activity. The survey reflected some low level, but above criteria, contamination along the outer fence line, and a couple of small, less than 3-ft-diameter hot spots on the outside of the northern fence.

#### **2.5.1.9.2 Excavation**

Excavation began on Monday 13 December 2004 and was essentially completed on Wednesday 15 December. A small amount of soil was hand excavated along the eastern fence line on 17 December. The area of the excavation footprint covered approximately 400 m<sup>2</sup>. The volume of soil removed was approximately 213 m<sup>3</sup>.

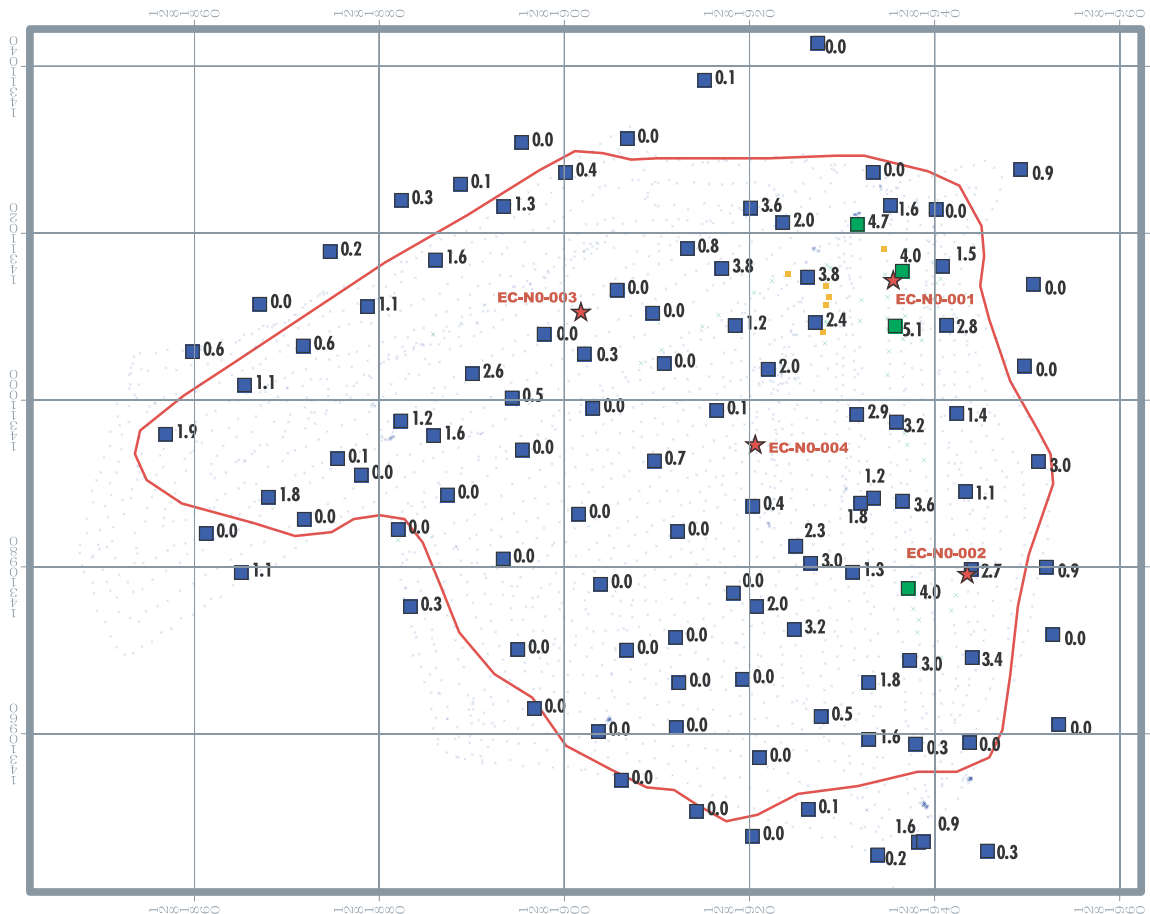
During excavation near the corner where the northern and eastern fence line meet, technicians using in-situ instruments detected a small hot spot. A small area, approximately 2 m in diameter, was excavated to a depth of 1 m. At the bottom of this hole the in-situ count rate was approximately 20,000 cpm, which is well above the derived cleanup level. One soil sample (EC-N0-001) was collected from the bottom of this excavation. Gamma spectrometry analysis of the sample did not identify any elevated radionuclides, and confirmed that the elevated count rate was not due to residual Cs<sup>137</sup> contamination. It is assumed that the elevated in-situ count rate is due to the geometry effect discussed in Section 2.5.1.

#### **2.5.1.9.3 Confirmation Surveys**

Three soil samples (EC-N0-002 through EC-N0-004) were collected at spacing of about 40 ft across the node. Locations for EC-N0-002 and EC-N0-003 were identified by GPS and are therefore accurately depicted on Figure 2-12. The area around EC-N0-004 was backfilled with clean soil before it was located by GPS; therefore, its location is estimated. Analytical results of Cs<sup>137</sup> for these three samples were 2.6, 1.1, and 1.6 pCi/g, and averaged 1.8 pCi/g. All analytical results for Co<sup>60</sup> are below the MDA and are therefore assumed to be zero. Analytical results for uranium and thorium series isotopes are about 1 pCi/g, and for K<sup>40</sup> about 7 pCi/g.



## Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations



Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N0-001	0	0.1
EC-N0-002	0	2.6
EC-N0-003	0	1.1
EC-N0-004	0	1.6
Action Level	0.5	5.0

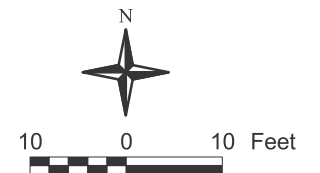
Statistical Test	Gamma Scan Data	1-Minute Count Data
	Cs-137 (pCi/g)	Cs-137 (pCi/g)
Records	2570	105
Mean	0.7	1.1
Std. Dev.	1.1	1.3
Maximum	6.3	5.1

### Gamma Scanning Survey

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

$$\text{pCi/g} = (\text{CPM} - 6,000) / 700$$

- + Gamma Scan Reading
- 1-Minute Integrated Gamma Count
- ★ Soil Sample Location
- └ Excavation Boundary





On Wednesday, December 15, a scanning survey was conducted over node 10. The results of this survey identified an anomalous area for further study. A visual inspection was conducted to confirm that a relatively higher count rate occurred over the hole that had been excavated near the fence corner. The analytical results for the sample (EC-N0-001) collected from this hole are 0.1 pCi/g Cs<sup>137</sup>, less than the MDA for Co<sup>60</sup>, about 1 pCi/g for the isotopes of the uranium and thorium series, and 14.5 pCi/g K<sup>40</sup>. This concentration of K<sup>40</sup> is about twice that observed in surface soil background samples. The elevated gamma count rates detected in the scanning survey and in the subsequent 1-minute static counts support the conclusion that the elevated count rate is not a result of residual Cs<sup>137</sup> contamination.

The ambient gamma background count rate over the loamy type soil areas in node 10 was about 6,000 cpm as measured by a 2x2 NaI detector. However, as the deeper, more clayey soil is exposed, the natural gamma background detected by a 2x2 NaI detector increases to about 8,000 cpm. Some of the scanned area along the southern border of node 10 was a rock road, which has a significantly lower gamma signature. This unusually low count rate should not be considered as indicative of the ambient background above soil.

Residual Cs<sup>137</sup> concentrations were calculated from in-situ measurements using an assumed background count rate of 6,000 cpm, and a conversion factor of 700 cpm per pCi/g. These calculated concentrations are depicted on Figure 2-12. All calculated negative concentrations are assigned a value of 0 pCi/g. The concentrations calculated from the static 1-minute readings ranged from 0 to 5.1 pCi/g, and averaged 1.1 pCi/g. The standard deviation of these 105 data points is 1.3 pCi/g.

Residual Cs<sup>137</sup> concentrations were also calculated from the scanning survey using the same correlation. The scanning survey collects data that are more closely spaced; however, due to the shorter count times, these data are less accurate than the 1-minute static counts. The calculated concentrations from the scanning data ranged from 0 to 6.3 pCi/g, and averaged 0.7 pCi/g. The standard deviation of these 2,570 data points is 1.1 pCi/g.



#### **2.5.1.10 Node 11**

##### **2.5.1.10.1 Pre-Excavation Survey**

This node was not previously identified for excavation in the original work plan. A scanning survey based upon in-situ 2x2 NaI detector readings of up to 40,000 cpm indicated that the area was a candidate for remediation. No soil samples were collected from this node prior to initiation of excavation.

##### **2.5.1.10.2 Excavation**

Initial excavation began on 22 December 2004 when the majority of the footprint was excavated. During the excavation personnel observed in-situ count rates above the derived action level near and around the upright poles supporting the power panel. In-situ count rates in this small area ranged from about 12,000 to 15,000 cpm. Site personnel collected two soil samples (EC-N11-003 and EC-N11-004) from this suspect area. Subsequent laboratory analyses of these samples revealed Cs<sup>137</sup> concentrations of 8.4 and 5.2 pCi/g, respectively. Given the elevated results, the soil from around the power panel was then excavated on 29 December. The depth of the excavation ranged from about 0.5 to 1 m, with the deepest excavation occurring along the southern boundary. The area of the footprint was approximately 70 m<sup>2</sup>. The volume of soil removed was approximately 28 m<sup>3</sup>.

##### **2.5.1.10.3 Confirmation Surveys**

Four soil samples (EC-N11-001, -002, -005, and -006) were collected from this node to define the post-excavation status. Figure 2-13 depicts the locations of these four confirmation samples, plus the location of two spare samples collected and placed into storage for subsequent analysis, if required. All six sample locations are accurately depicted as located by GPS. Two of the samples (EC-N11-001 and EC-N11-005) were collected from the floor of the excavation, and two samples (EC-N11-002 and EC-N11-006) were collected from the sidewalls. Samples EC-N11-005 and EC-N11-006 were collected at the locations showing the highest in-situ count rates.



# Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations

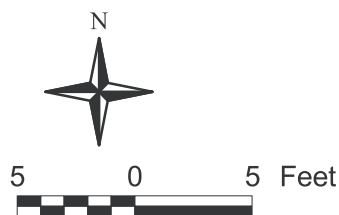
Gamma Scanning Survey (CPM)

- < 4.0 pCi/g
- 4.0 - 5.5 pCi/g
- 5.6 - 7.0 pCi/g
- > 7.0 pCi/g

Floor: pCi/g = (CPM-8,500)/700  
Wall: pCi/g = (CPM-10,000)/700

1-Minute Integrated Gamma Count

- EC Sample Location
- SS Sample Location
- Excavation Boundary



Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N11-001	0	0.1
EC-N11-002	0	0.1
EC-N11-005	0	0
EC-N11-006	0	3.5
Action Level	0.5	5.0

Statistical Test	Gamma Scan Data Cs-137 (pCi/g)	1-Minute Count Data Cs-137 (pCi/g)
Records	888	15
Mean	0.3	0.8
Std. Dev.	0.6	1.3
Maximum	3.6	3.8

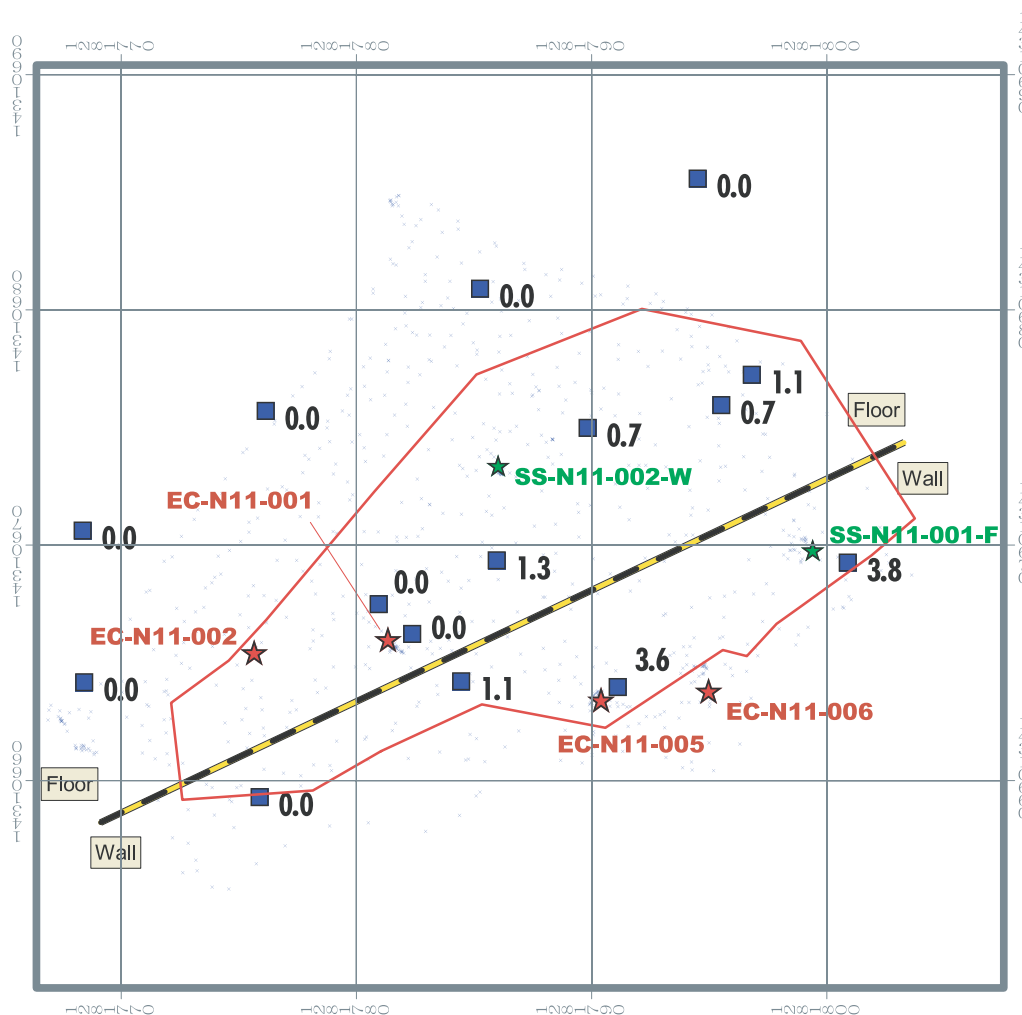


Figure 2-13 Node 11



Analytical results of all four soil samples indicated residual activity of about 1 pCi/g for uranium and thorium series isotopes, and 8 to 12 pCi/g for  $K^{40}$ . All four analytical results for  $Co^{60}$  were below the MDA and are therefore assumed to be zero. The analytical result for  $Cs^{137}$  from one floor sample was 0.1 pCi/g and the other was less than the MDA and is therefore assumed to be zero. The  $Cs^{137}$  result for one wall sample was 0.1 pCi/g, and the other was  $3.5 \pm 0.4$  pCi/g. This sample was collected from the excavated area near the power panel and indicates that some residual (but below criteria)  $Cs^{137}$  activity remains in this area.

In-situ 1-minute static counts were collected over the node at approximately 10-ft spacing. These readings ranged from about 7,200 to 12,700 cpm. The highest count rates were observed along the wall where soil sample EC-N11-006 was taken (3.5 pCi/g of  $Cs^{137}$ ). It appears that background is about 7,200 cpm along the perimeter of the excavation where crushed rock remains. Above the clay-like soil in the deeper excavated area, background is about 8,500 cpm. However, along the wall near the power panel, where the excavation is 18 to 24 in. deep, the background count rate is about 10,000 cpm due to geometry effects with respect to the instrument.

Residual soil concentrations of  $Cs^{137}$  were calculated from 1-minute static counts, assuming a background count rate of 8,500 cpm over the excavated floor, and using 10,000 cpm along the wall. A conversion factor of 700 cpm per pCi/g was applied in both cases. All calculated negative concentrations are assigned a value of zero. The  $Cs^{137}$  concentrations calculated from 1-minute readings ranged from 0.0 to 3.8 pCi/g, and averaged 0.8 pCi/g. The standard deviation of these 15 data points was 1.3 pCi/g.

The scanning survey produces data points that are spaced much closer together. However, due to their short count times, the data are inherently less accurate than the 1-minute counts. A total of 888 scanning survey points was recorded within this node. When the same correlation equation is applied to these count rates, the calculated  $Cs^{137}$  concentrations range from 0.0 to 3.6 pCi/g and average 0.3 pCi/g. The standard deviation of this data set is 0.6 pCi/g.



### **2.5.1.11 Node 12**

#### **2.5.1.11.1 Pre-Excavation Survey**

This area can be approximately defined as the footprint and surrounding soil of Building E2362, and as such contained significant contamination. This node was added by WESTON following the 2004/2005 removal action field activities to signify the area used for staging and temporary storage of radioactive debris excavated from the basement of Building 2364, and contaminated soil and concrete from the valve pit. The above grade debris and soil stockpile mixture staged on node 12 was excavated during the winter of 2004 and spring of 2005. After the debris and soil stockpile mixture was packaged and prior to remediation of this node, an in-situ survey was conducted around the perimeter of node 12 to determine the lateral extent of contamination required for removal. No soil samples were collected from this node prior to excavation.

#### **2.5.1.11.2 Excavation**

After the in-situ survey was conducted around the perimeter of node 12, excavation of contaminated soil began on Thursday, 17 August 2006 and was completed on Friday, 18 August 2006. The volume of contaminated soil removed was approximately 115 m<sup>3</sup>. The contaminated soil was excavated to an average depth of about 0.5 m. Two localized areas were excavated to a depth of about 1.7 m. The total area of the excavation footprint was approximately circular with an area of about 750 m<sup>2</sup>.

As the two localized “holes” were excavated within this node, ash layers were observed that exhibited a count rate of about two to four times background using the 2x2 NaI detector. An unusual odor was also detected that was thought by the UXO technician present to be decay of white phosphorous. The odor emanating from the excavation was the same odor detected during the excavation of the E2364 valve pit drain line. The “holes” were excavated to a sand layer where ground water was encountered, and the gamma-ray readings dropped to approximately 5,000 cpm.

#### **2.5.1.11.3 Confirmation Surveys**

Five soil samples were collected (EC-N12-001 through EC-N12-005) to define the final status of this node: three were collected from the floor of the excavation and two from walls. A duplicate sample was collected and analyzed from location 004, and five additional samples were collected



and placed into secured storage for later analysis if required. Analytical results of Cs<sup>137</sup> for these five samples were 0.6, 1.0, 1.1, 4.3, and 4.7 pCi/g, and averaged 2.3 pCi/g. These results compare favorably with a cleanup criteria of 5 pCi/g. All analytical results for Co<sup>60</sup> are below the MDA and are therefore assumed to be zero. Analytical results for uranium and thorium series isotopes are about 1 pCi/g, and the K<sup>40</sup> ranged from about 7 to 15 pCi/g.

The ambient gamma background count rate over the unexcavated soil edges around node 12 was approximately 8,000 cpm as measured by a 2x2 NaI detector. Residual Cs<sup>137</sup> concentrations were calculated from in-situ measurements using an assumed background count rate of 8,000 cpm, and a conversion factor of 700 cpm per pCi/g. These calculated concentrations are depicted on Figure 2-14. All calculated negative concentrations are assigned a value of 0 pCi/g. The concentrations calculated from the static 1-minute readings ranged from 0 to 4.9 pCi/g, and averaged 1.2 pCi/g. The standard deviation of these 79 data points is 1.2 pCi/g.

Residual Cs<sup>137</sup> concentrations were not calculated from the scanning survey because the data were collected with a toggle switch on the instrument set incorrectly. On the instrument used to collect this data, an unprotected toggle switch controlled whether the instrument “window” is “in” or “out.” As previously described in Section 2.5.1, the correct procedure is to perform this survey with the “window out,” whereby gamma-rays of energy greater than about 50 KeV can be detected. As the instrument was placed into the backpack used to carry the instrument, the toggle switch was inadvertently bumped to the “window in” position. With the threshold set to approximately 50 KeV, and the window width at approximately 100 KeV, the gamma-rays detected during this scanning survey were well below the characteristic 662 KeV gamma-rays emitted from Cs<sup>137</sup>. Therefore, these data were considered robust enough from which to estimate the Cs<sup>137</sup> concentrations in-situ.

However, the data have some limited value. Should a significantly high concentration of Cs<sup>137</sup> be present, the Compton scattered photons from the Cs<sup>137</sup> would have been detected in this lower energy range, and a higher count rate would have been observed. Therefore, the scanning survey data are also presented on Figure 2-14, but in units of cpm. The cpm data appear to be relatively uniform across the node, with the majority of the counts in the 3,000 to 4,000 cpm range. The highest count rate of 5,262 was observed at coordinates 14310845 N, 1281755 E



# Gamma Survey, Soil Sample Locations, and 1-Minute Gamma Count Locations

$$\text{pCi/g} = (\text{CPM} - 8,000) / 700$$

## Gamma Scanning Survey (cpm)

- < 2,000
- 2,000 - 3,000
- 3,000 - 4,000
- 4,000 - 5,000
- > 5,000

## 1-Minute Integrated Gamma Count

- ★ EC Sample Location
- ★ SS Sample Location
- Excavation Boundary



Sample ID	Result (pCi/g)	
	Co <sup>60</sup>	Cs <sup>137</sup>
EC-N12-001-F	0.0	0.6
EC-N12-002-F	0.0	1.0
EC-N12-003-F	0.0	1.1
EC-N12-004-W	0.0	4.3
EC-N12-005-W	0.0	4.7
Action Level*	0.5	5.5

\* Based on NRC action level plus background

Statistical Test	Gamma Scan Data (cpm)	1-Minute Count Data Cs-137 (pCi/g)
Records	1535	79
Mean	3361	1.2
Std. Dev.	561	1.2
Maximum	5262	4.9

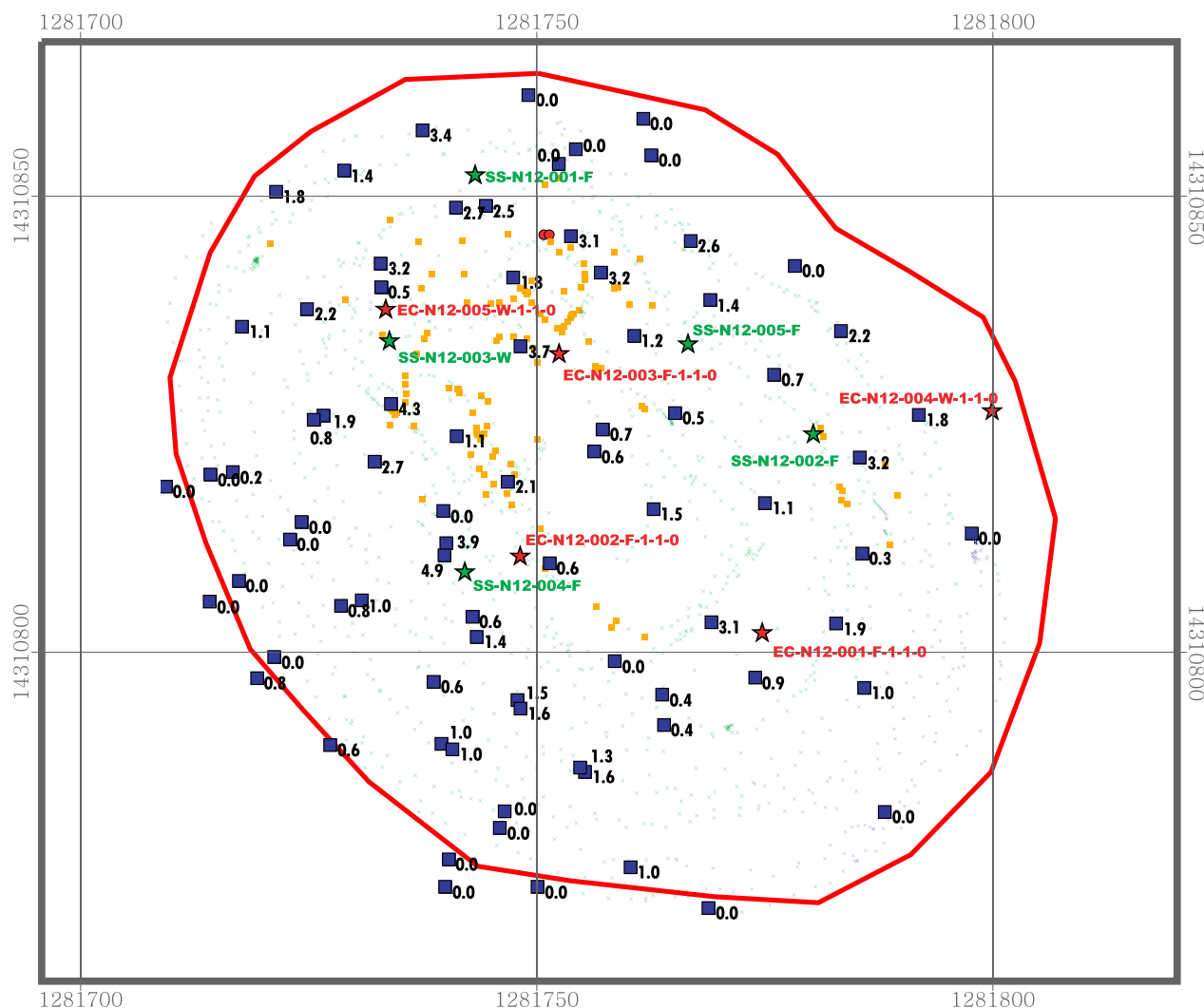


Figure 2-14 Node 12



where a nearby 1-minute count estimated the Cs<sup>137</sup> concentration at 3.1 pCi/g. While the MDA for the scanning survey cannot be determined because of the incorrectly set window switch, it appears from the scanning data that there are no excessive hot spots of contamination within node 12.

### **2.5.2 Arsenic**

During planning and preparation activities, the cleanup goal for arsenic in soils at the Rad Yard was 10 mg/kg. The EPA and MDE agreed to a modified cleanup level for arsenic of 20 mg/kg when radionuclides were at or below background levels. For areas where radionuclides were above background, but below the radiation cleanup levels, 20 mg/kg arsenic was used if the sum of the risk from all components (radiation and arsenic) was below a 10<sup>-4</sup> risk for industrial exposure. Since much of the arsenic was co-mingled with the high levels of radionuclides, and these areas were excavated, graded, and covered with topsoil, a substantial portion of the site would then have very low arsenic levels after the Removal Action. Removal of the additional arsenic hot spots (not co-mingled with the high levels of radionuclides) above 20 mg/kg and similarly grading and placing topsoil should produce an average area-wide arsenic level and exposure point concentration of arsenic near, at, or below the original goal of 10 mg/kg arsenic for the overall area.

The NRC explained that as long as the NRC license is in effect, all of the excavated soils must go off-site to a radioactive waste disposal facility instead of being used as landfill subbase, as was originally planned.

By approaching the removal with the modified cleanup level, the amount of soil sent to Energy *Solutions* was reduced, and a safe cleanup level was maintained. After the Removal Action, the MARSSIM final status survey will be conducted. Any additional removals based on that survey will be completed, and the Rad Yard will be eligible for release from RDECOM's base-wide NRC license. At that time the final arsenic cleanup levels will be calculated and presented to the BTAG. Prior to a final Record of Decision (ROD) for this area, the BTAG will review the final cleanup levels achieved to determine whether the levels are satisfactory or if additional ecological studies are recommended.



Arsenic co-mingled with radioactive soil contamination was excavated and loaded out for disposal as radioactive waste during the radioactive-contaminated soil removal. During confirmation sampling to prove that radiation was below the NRC release criteria, a split sample was collected and analyzed for arsenic. Figure 2-15 shows the laboratory results for arsenic at each of the confirmation sample locations. As well, Table 2-2 lists all soil confirmation samples and their corresponding arsenic result.

The HHRRA identified four arsenic hot spots above 20 mg/kg that were separate from the radioactive-contaminated soil. These hot spots were excavated and loaded out for disposal as radioactive waste and are identified in Figure 3 of the HHRRA (GP, 2004). The sample ID numbers in the HHRRA that correspond to these arsenic hot spots are SS-97, C11-SS-03, SS-94, and SS-41. WESTON located the sample ID coordinates using a GPS, and a 10-ft-diameter by 2-ft-depth excavation was removed at each arsenic hot spot. The four arsenic hot spots are shown in Figure 2-1.

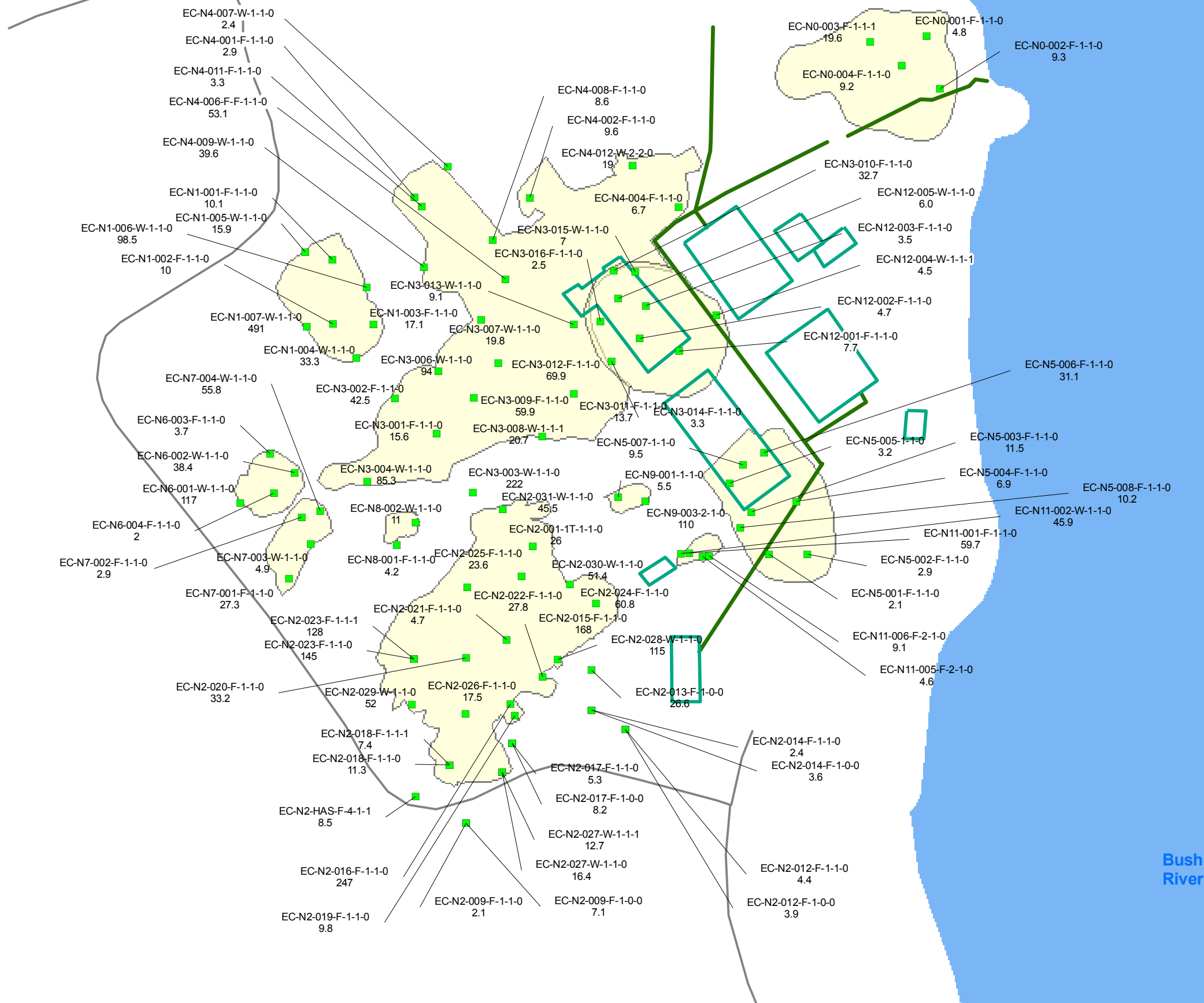
WESTON identified three additional arsenic hot spots in the southern area of node 2. As discussed in the node 2 case narrative in Section 2.5.1.2, WESTON proved that the southeastern portion of node 2 did not qualify for remediation of Cs<sup>137</sup> or Co<sup>60</sup>. However, the supporting samples identified three additional arsenic hot spots above 20 mg/kg (sample IDs -013, -015 and -016). The average arsenic concentration of the three samples was 147 mg/kg. These three arsenic hot spots were excavated to a depth of 2 ft by 10 ft diameter. Figure 2-1 shows these three additional arsenic hot spots. Under the guidance of the NRC, arsenic soils that contained radioactivity below the MDA, but above background, were disposed of as radioactive waste. WESTON loaded out the material from arsenic hot spots into lift liners for disposal at Energy Solutions.

## 2.6 WASTEWATER LINE REMOVAL

The wastewater line at the Rad Yard consisted of three main sections that all met at the Building E2364 valve pit (see Figure 2-1):

- From Building E2364 valve pit to E2354
- From Building E2364 valve pit to Bush River
- Building E2364 valve pit to the 22<sup>nd</sup> Street Landfill sump (just north of the Rad Yard).







As the block walls and floor of the valve pit were removed, it was evident that contamination was present in the surrounding soil. After removal and segregation of the contaminated soil and concrete, the floor and walls of the valve pit were scanned with a 2x2 NaI detector, and eight soil samples were collected across the floor at approximately 2-m intervals. Seven of the samples were placed into secure storage for subsequent analysis, if required. The soil sample from the area with the highest gamma activity was analyzed for radionuclides. Analysis of this sample revealed about 0.5 pCi/g of uranium series isotopes, 1 pCi/g of thorium series isotopes, 7 pCi/g of  $K^{40}$ , no detectable  $Co^{60}$ , and 3.7 pCi/g of  $Cs^{136}$ . Figure 2-2 shows the confirmation sample locations for the wastewater line. As well, Table 2-2 lists all laboratory confirmation results for the wastewater line. The floor of the valve pit was approximately square with measurements of 5 m on a side.

The section of wastewater line leading to the 22<sup>nd</sup> Street Landfill sump was approximately 6 ft below ground surface. The pipe was constructed of high-density polyethylene (HDPE). Near the valve pit, this section contained perforations and was set in gravel. Due to what appeared to be a makeshift leach field, the radioactive contamination spread laterally several feet perpendicular to the length of pipe. The contamination was excavated to levels below the release criteria and disposed of as radioactive-contaminated material. As this section of pipe neared the Rad Yard property fence, radioactive contamination decreased to below the release criteria. Therefore, the wastewater line removal stopped at the property fence.

The exposed end of the line was surveyed with a 2x2 NaI detector and sampled for radioactive contamination. The line was filled with sand, which was sampled (EC-VP-006-DL). Radiochemical analysis of this sample revealed about 0.4 pCi/g of uranium and thorium series isotopes, no detectable  $Co^{60}$ , and about 0.8 pCi/g of  $Cs^{137}$ . Soil samples were collected below (EC-VP-006-W) and above (EC-VP-007-W) the wastewater line as it passed beneath the Rad Yard fence. Radiochemical analyses of these samples revealed about 1.2 pCi/g of thorium series isotopes, 0.9 pCi/g of uranium series isotopes, 11 pCi/g of  $K^{40}$ , and no detectable  $Co^{60}$ . No  $Cs^{137}$  was detected in the sample collected above the line, while the sample collected from below the line contained about 1.2 pCi/g. An additional five spare soil samples were collected at about 2-m intervals along the length of the trench between the valve pit and the fence line and placed into secure storage for later analysis, if needed. The floors and walls of the trench were scanned with



the 2x2 NaI detector to monitor for any anomalous areas of gamma activity. Radiation levels were below release criteria; therefore, the remainder of the line from the Rad Yard property fence to the 22<sup>nd</sup> Street Landfill was abandoned in-place.

The 22<sup>nd</sup> Street Landfill sump (see Figure 2-1) is located in a marshy area and surrounded by large grassy mounds. The mounds are believed to be a part of the 22<sup>nd</sup> Street Landfill. It is believed that the sump used to receive drainage from the Building E2364 valve pit. On 4 April 2005, WESTON cleaned loose sludge from the sump and surveyed the inside of the sump using a beta scintillation detector and swipes. The results of the survey and screening identified that the sump was not contaminated with radioactivity. As a result, the sump was abandoned in-place.

The wastewater line from the valve pit was removed up to approximately 3 m from Building E2354. The excavated trench was scanned with a 2x2 NaI detector, and 10 soil samples were collected along the floor of the trench at approximately 10-m intervals (EC-WW-002 through -011). When analyzed for radionuclides, all of the samples contained normal background concentrations of uranium and thorium series isotopes and K<sup>40</sup>. None of the samples contained Co<sup>60</sup> at a detectable concentration. Six of the 10 samples were reported below the MDA for Cs<sup>137</sup> and are assumed to be zero, while the positive results ranged from 0.1 to 0.5 pCi/g. The average Cs<sup>137</sup> concentration was 0.1 pCi/g, and the standard deviation of the 10 samples was 0.2 pCi/g. Of note, sample EC-WW-011-F was collected from the trench leading to the Adamsite vaults. Analytical results for Co<sup>60</sup> and Cs<sup>137</sup> were below the MDA reported by the laboratory, and are therefore assumed to be zero.

The soil around the section of wastewater line from the valve pit to Bush River was then excavated and the line removed. Approximately 50 ft of line from the valve pit to a 5,000-gallon underground storage tank (UST) was removed. The 5,000-gallon (8 ft x 12 ft x 8 ft) UST (see Figure 2-1) was made of concrete and filled with wastewater. The final disposition of this UST and its contents are discussed in Section 2.7.1. The wastewater line entered the UST, but no outlet line existed. Test pits were excavated downstream of the 5,000-gallon UST to determine if a line existed toward Bush River. Approximately 10 ft downstream of the UST, a terracotta pipe was located. This line contained elevated radiation levels inside the pipe and in the



surrounding soils. The line and soil were removed up to Bush River and disposed of as radioactive-contaminated material.

One soil sample (EC-WW-001) was collected from the floor of the excavation trench midway between the valve pit and the UST. Soil samples were also collected along the wall of the UST on the inlet side (EC-WW-SUMP5-INLET) and outlet side (EC-WW-SUMP5-OUTLET). Three soil samples (EC-WW-012-W, 013-F, and 014-F) were collected from the trench between the UST and Bush River. When analyzed, all samples contained normal background levels of uranium and thorium series isotopes and  $K^{40}$ . None of the samples contained  $Co^{60}$  at a detectable concentration. The concentration of  $Cs^{137}$  in the samples ranged from below the MDA to 0.5 pCi/g. The average concentration was 0.2 pCi/g, and the standard deviation of the six samples was 0.2 pCi/g.

## **2.7 UNANTICIPATED REMOVALS**

During the Removal Action at the Rad Yard, several unanticipated removals were conducted. These unanticipated removals included the following:

- 5,000-gallon UST
- Additional buried lines
- Additional soil contamination
- Additional wastewater.

### **2.7.1 5,000-Gallon Underground Storage Tank**

A 5,000-gallon UST that measured 8 ft x 12 ft x 8 ft was discovered during the excavation of the wastewater line that ran from the valve pit to Bush River (see Figure 2-1). The concrete manway on top of the UST was difficult to locate because it was covered with overburden material. An additional volume of wastewater was found inside the UST. Although the presence of wastewater was not anticipated in the SSWP, the wastewater was treated in the same manner as the wastewater in the Building E2364 sumps and valve pit. Approximately 5,000 gallons of water were filtered and transferred to a tanker truck on 20 May 2005. A composite sample was collected from the wastewater inside the UST and analyzed by gamma spectrometry. No radionuclides were detected above an MDL of approximately 4 pCi/L by this analysis. Based on



this analysis, the filtered wastewater was transported to the APG Sewage Treatment Plant and discharged to the outfall.

Once the wastewater was removed, the sediment in the bottom of the tank showed elevated radiation levels. This sediment was solidified with concrete, removed, and disposed of as radioactive-contaminated material. The walls and floor of the tank were determined to be Class 1 areas and were 100% surveyed for radioactive contamination with the Ludlum 44-116 beta scintillation detector. The floors and walls were gridded into 1-m<sup>2</sup> areas, and a 1-minute integrated count was collected over each grid area. A total of 71 integrated 1-minute measurements was collected from the UST. Of this total, 19 measurements were greater than the MDC<sub>static</sub> of 430 dpm/100 cm<sup>2</sup> for this instrument. The maximum value recorded was 1,228 dpm/100 cm<sup>2</sup>, which is less than the release criterion of 5,000 dpm/100 cm<sup>2</sup>. These data are provided in Appendix A.

Test trenches were excavated along the inlet and outlet sides of the UST, and soil samples were collected near the bottom of the tank. The sample results were also below the release criteria. The UST was then filled with 22 yd<sup>3</sup> of flowable concrete and abandoned in-place.

### **2.7.2 Additional Buried Lines**

Two additional buried lines were encountered while excavating. One of these was a 10-in. corrugated metal pipe, which was found north of Building E2362 and continued to the north. Field personnel observed the sump filling with water coincident with the rising tide of the Bush River. At the upgradient end of the pipe close to the former E2362 slab, a brick drainage pit filled with pea gravel was encountered. The instrument readings showed radiation levels well above background in the area around the pipe; however, direct measurements taken from the interior and exterior of the pipe itself did not display any elevated readings. The pit and soil around the pit were excavated to background levels. The line was then removed to the northern fence line. At the fence line, the pipe and surrounding soils were screened, and the readings were below the release criteria.

The second line found during the excavation teed off from the existing wastewater line toward the former Adamsite building. This line was excavated to the former Adamsite building, where



the line terminated. The pipe and surrounding soils were screened at the existing Adamsite foundation, and no elevated radiation levels were discovered.

The wastewater line from Building E2354 has been removed within 10 in. of the building to the Bush River outfall. The wastewater lines that ran to both the valve pit at Building E2364 and the former Adamsite building have also been removed, and the surrounding soil sampled and screened clean by surveys with a Ludlum 2x2 NaI probe. Figure 2-1 graphically depicts the removed and abandoned sections of wastewater piping.

### **2.7.3 Additional Soil Contamination**

A small area of soil surrounding a section of wastewater line between the UST and Bush River contained a strong fuel odor. Two samples were collected from the areas of the strongest odor and analyzed for toxic compound leaching procedure (TCLP) volatile organic compounds (VOCs) and PCBs. The results would determine whether or not the soil would be accepted at Energy *Solutions* under the Rad Yard waste profile. The results were below hazardous levels, and therefore, the soil was acceptable for disposal at Energy *Solutions*.

### **2.7.4 Additional Wastewater**

A sample of surface wastewater collected from around the radioactive waste staging area was analyzed by gamma spectrometry on 11 May 2005. No radionuclides were detected above an MDL of about 4 pCi/L by this analysis. This wastewater was pumped to a previously remediated area of the Rad Yard for dust control.

## **2.8 MATERIAL TRANSPORTATION AND DISPOSAL**

Arsenic and radioactive-contaminated soil were packaged into 9-yd<sup>3</sup> lift liners for disposal at Energy *Solutions*. A lift liner consisted of a woven and coated polypropylene fabric sack with an inner liner. The lift liners were filled with 9 yd<sup>3</sup> of soil and then closed using a series of straps and flaps around the top of the lift liner. The lift liner was then removed from the frame with a forklift. The forklift transported the lift liner to a nearby site weigh station/screening area. The lift liners were weighed, assigned a unique identification number, and labeled according to Department of Transportation (DOT) guidelines. The DOT shipping guidelines require the exposure rate from the container and the level of surface contamination on the shipping container



surface. Using a Ludlum MicroR meter, the exterior sides of the lift liner were surveyed for radiation levels, and the highest reading from each of the six sides was documented. A swipe sample was collected from a 100-cm<sup>2</sup> area on each of the six sides of the lift liner. The sample was analyzed for removable alpha and beta activity. The lift liners were then ready for roadway transportation to the APG rail spur located in the Aberdeen Area of APG. At the rail spur, the lift liners were placed onto gondola cars. The appropriate bill of ladings and manifests were completed for the waste transport to Energy *Solutions*.

Intermodals were used as packaging for all radioactive debris at the Rad Yard and for radioactive soil during Phase III. The intermodals are similar to a standard roll-off container in that they are made of metal. The intermodals contained aluminum lids that sealed shut with a gasket. Heavy equipment was used to load radioactive materials into the intermodals. Once the intermodal was filled and the lid sealed shut, any loose debris on the intermodal exterior was removed. The intermodal was then surveyed using a Ratemeter, and swipe samples were collected and analyzed for removable alpha and beta activity. The intermodals were roadway transported to the APG rail spur and loaded onto railcars for disposal at Energy *Solutions*.

Radioactive waste was shipped in intermodal containers and lift liners via roadway in accordance with DOT regulations specified in 49 CFR §173.433. This regulation classifies radiation exposure rates less than 500 µrem/h as exempt status. All packaging leaving the Rad Yard was no greater than 50% of the allowable limit.

Once the waste packaging arrived at the APG rail spur, the intermodals were placed onto rail cars and lift liners onto gondola cars using a crane. All shipments were conducted in accordance with DOT regulations.

All non-radioactive waste from the Rad Yard was loaded into 30-yd<sup>3</sup> roll-off containers and roadway shipped to Model City Landfill in New York. Proper DOT manifesting and bill of ladings were completed prior to waste shipment.

All landfill disposal receipts are included as Appendix C of this report.



## 2.9 SITE RESTORATION

After the cleanup criteria goals were met for the arsenic hot spots, sumps, wastewater line, and soil, the site was graded to ensure proper site drainage. About 700 yd<sup>3</sup> of topsoil was delivered by truck to the site. A sample of the topsoil was collected by WESTON and analyzed for total petroleum hydrocarbons (TPH), pesticides/PCBs, TCLP metals, gamma spectroscopy, and gross alpha/beta prior to the acceptance of the soil and its subsequent use at the site. The soil results were compared with the MDE clean soil guidance to ensure that contaminated soils are not introduced to the site. The results can be found in Appendix B. Generally, topsoil was added to fill in excavated areas to promote drainage. Unexcavated areas were generally not disturbed to prevent the potential for cross-contamination from residual arsenic.

After the site re-grade and topsoil addition, the site was prepared for hydroseed. The site received a blanket of straw and was then hydroseeded. The seeding was successful as germination and growth were observed within one week. The area was then inspected to ensure that the site was stabilized.

## 2.10 PHASE II, III, AND IV ACTIVITIES

### 2.10.1 Phase II – Additional Removal Action Activities

At the conclusion of Phase I, an above grade stockpile of radiologically contaminated soil and debris was staged on node 12, and approximately 150 yd<sup>3</sup> of radioactive-contaminated soil was staged onsite in lift liners. This soil remained onsite awaiting additional government funds for packaging, transport, and disposal at a licensed facility. The additional funds were received in February 2006, and WESTON mobilized to the Rad Yard site on 20 March 2006 to execute Phase II of the project.

The Phase II effort included the following activities:

- Packaged and transported all 17 lift liners (approximately 150 yd<sup>3</sup>) of soil to Energy *Solutions* in Utah for disposal.
- Packaged, loaded, and transported 40 intermodals (approximately 500 yd<sup>3</sup>) of material from the debris and soil stockpile to Energy *Solutions* in Utah for disposal.



Due to the unexpected dense nature of the debris and soil stockpile material, government funding constraints prevented packaging all of the debris and soil stockpile material. As a result, approximately 55% of the debris and soil stockpile was packaged and transported to Energy *Solutions* in Utah for disposal. Landfill disposal records for this disposed material at Energy *Solutions* are located in Appendix C of this report. Package and transport of the remaining 45% of stockpiled material and radioactive-contaminated soil from node 12 would wait for additional government funding. WESTON completed the Phase II field effort on 24 March 2006.

### **2.10.2 Phase III – Additional Removal Action Activities**

Additional government funds were received in June 2006 and WESTON mobilized to the Rad Yard site again on 14 August 2006 to execute Phase III of the project, including packaging all remaining stockpiled material and radioactive-contaminated soil from node 12.

The Phase III effort included the following activities:

- Packaged 31 intermodals (approximately 400 yd<sup>3</sup>) from the debris and soil stockpile and staged onsite for ultimate disposal at Energy *Solutions* in Utah.
- Packaged 10 intermodals (approximately 150 yd<sup>3</sup>) with radiologically-contaminated soil from underneath the stockpile (node 12) and staged onsite for ultimate disposal at Energy *Solutions* in Utah.

The 41 packaged intermodals (31 for the debris and soil stockpile and 10 for node 12 soils) would remain staged onsite to wait for additional government funding for transport and disposal at Energy *Solutions* in Utah. WESTON completed the Phase III field effort on 21 August 2006.

### **2.10.3 Phase IV – Additional Removal Action Activities**

After additional government funding was made available, WESTON mobilized to the Rad Yard site again on 14 November 2006 to execute Phase IV of the project that included transporting 41 pre-packaged intermodals to Energy *Solutions* in Utah for disposal. WESTON completed the Phase IV field effort on 16 November 2006. Landfill disposal records for the material disposed at Energy *Solutions* are located in Appendix C of this report.



## **2.11 ENVIRONMENTAL HEALTH AND SAFETY MONITORING**

All field activities were performed in accordance with the Site-Specific Safety and Health Plan (SSSHP) (WESTON, 2004c), applicable WESTON policies and procedures, all applicable state regulations and laws, and requirements of the Occupational Safety and Health Administration (OSHA) and the NRC. Prior to working on-site, workers were briefed on chemical, physical, and radiological hazards. Workers were also briefed on the specific radiological hazards of each task and signed a radiation work permit briefing form.

### **2.11.1 UXO Safety**

Before site activities began, a UXO surface sweep was completed over the Rad Yard area to ensure that no UXO items were near the ground surface. The buildings were also investigated prior to building demolition. During earthwork activities, UXO personnel were on-site to observe and monitor for UXO.

### **2.11.2 Personal Protective Equipment**

All fieldwork was conducted in Level D PPE in accordance with the SSSHP. To increase the level of protection, workers wore Tyvek while excavating radioactive-contaminated soil.

During the removal of the E2364 sumps, sarex Tyvek was worn by all personnel due to the elevated levels of radiation in the sediment. Also during the wastewater removal, radiation badges and rings were worn by on-site personnel to ensure that no radiation exposure had occurred.

Level C PPE (full face cartridge respirators) was used when personnel cut contaminated steel. This precaution ensured that workers were not being exposed to airborne radiation during the cutting process.

### **2.11.3 Air Monitoring**

A personal Data Ram Particulate meter was used during building demolition and soil excavation to ensure that dust levels were below the calculated exposure limits. If dust levels were at or near the exposure limits, dust suppression methods were implemented.



While work was being completed on Building E2364, personal lapel air samplers were worn by site personnel to monitor for any inhalation exposure. Airborne contaminants were of particular concern during this phase of demolition as a result of the dust associated with breaking up and removing the contaminated concrete from E2364. Water was sprayed onto the concrete in an effort to minimize airborne dust as heavy equipment broke the concrete. Along with the lapel samplers, a site environmental sampler was also employed. The site sampler was calibrated to sample 20 liters per minute (L/min). The lapel samplers were calibrated to sample 2 L/min. The cellulose elements were left overnight to allow for radon daughter decay, then the samples were analyzed using a Ludlum 2929 for gross alpha/beta activity the following morning. No activity was detected throughout the course of the sampling.

#### **2.11.4 Site Ingress/Egress**

Before entering the site, workers were required to sign in and receive a briefing on the hazards of the specific radiation work. Workers entered and exited the site via a controlled access point located along the former Rad Yard fence line north of Building E2354. Upon exiting the site, all workers were required to frisk themselves using a GM pancake detector to ensure that no radiation left the site. If contamination was detected on clothing or PPE, the clothing/PPE was discarded into an appropriate container and disposed of as radioactive debris.



### 3. REFERENCES

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## **APPENDIX A SURVEY DATA (CD-ROM)**

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TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.22		
Date:	10/23/2004			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	249			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
wood # 1	134	1 Min	-115	-415	Y	N	
wood # 2	136	1 Min	-113	-408	Y	N	
wood # 3	131	1 Min	-118	-426	Y	N	
wood # 4	142	1 Min	-107	-386	Y	N	
wood # 5	126	1 Min	-123	-444	Y	N	
pallet 2-1	135	1 Min	-114	-411	Y	N	
pallet 2-2	156	1 Min	-93	-335	Y	N	
pallet 2-3	145	1 Min	-104	-375	Y	N	
pallet 2-4	158	1 Min	-91	-328	Y	N	
metal ruler 3-1	248	1 Min	-1	-4	Y	N	
metal ruler 3-2	453	1 Min	204	736	N	Y	
angle iron4-1	142	1 Min	-107	-386	Y	N	
angle iron4-2	154	1 Min	-95	-343	Y	N	
Pallet 5-1	154	1 Min	-95	-343	Y	N	
Pallet 5-2	124	1 Min	-125	-451	Y	N	
Pallet 5-3	115	1 Min	-134	-483	Y	N	
Pallet 5-4	160	1 Min	-89	-321	Y	N	
Pallet 6-1	158	1 Min	-91	-328	Y	N	
Pallet 6-2	125	1 Min	-124	-447	Y	N	
Pallet 6-3	173	1 Min	-76	-274	Y	N	
Pallet 6-4	147	1 Min	-102	-368	Y	N	
Pallet 7-1	151	1 Min	-98	-354	Y	N	
Pallet 7-2	160	1 Min	-89	-321	Y	N	
Pallet 7-3	141	1 Min	-108	-390	Y	N	
Pallet 7-4	189	1 Min	-60	-216	Y	N	
Pallet 8-1	164	1 Min	-87	-314	Y	N	
Pallet 8-2	162	1 Min	344	1241	N	Y	
Pallet 8-3	593	1 Min	-120	-433	Y	N	
Pallet 8-4	129	1 Min	-93	-335	Y	N	
Pallet 9-1	156	1 Min	-112	-404	Y	N	
Pallet 9-2	137	1 Min	-75	-271	Y	N	
Pallet 9-3	174	1 Min	-33	-119	Y	N	
Pallet 9-4	216	1 Min	-102	-368	Y	N	
Pipe 10-1	147	1 Min	-107	-386	Y	N	
Pipe 10-2	142	1 Min	-117	-422	Y	N	
Pallet 11-1	132	1 Min	-134	-483	Y	N	
Pallet 11-2	115	1 Min	-127	-458	Y	N	
Pallet 11-3	122	1 Min	-113	-408	Y	N	
Pallet 11-4	136	1 Min	-81	-292	Y	N	
Plastic bin 12-1	168	1 Min	-115	-415	Y	N	
Plastic bin 12-2	134	1 Min	-128	-462	Y	N	
Wood box 13-1	121	1 Min	-149	-538	Y	N	
Wood box 13-2	100	1 Min	-114	-411	Y	N	
Wood box 13-3	135	1 Min	-142	-512	Y	N	
Wood box 13-4	107	1 Min	-127	-458	Y	N	
Wood box 13-5	122	1 Min	-136	-491	Y	N	
Wood box 13-6	113	1 Min	-152	-548	Y	N	
Wood box 13-7	97	1 Min	-114	-411	Y	N	
Wood box 13-8	135	1 Min	-129	-465	Y	N	
Wood box 13-9	120	1 Min	-134	-483	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	10/23/2004			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	249			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
Wood box 13-10		115	1 Min	-116	-418	Y	N
Wood box 14-1		133	1 Min	-138	-498	Y	N
Wood box 14-2		111	1 Min	-137	-494	Y	N
Wood box 14-3		112	1 Min	-136	-491	Y	N
Wood box 14-4		113	1 Min	-118	-426	Y	N
Wood box 14-5		131	1 Min	-133	-480	Y	N
Wood box 14-6		116	1 Min	-129	-465	Y	N
Wood box 14-7		120	1 Min	-123	-444	Y	N
Wood box 14-8		126	1 Min	-130	-469	Y	N
Wood box 14-9		119	1 Min	-114	-411	Y	N
Wood box 14-10		135	1 Min	-133	-480	Y	N
Wood box 28-4		116	1 Min	-128	-462	Y	N
Wood box 28-5		121	1 Min	-138	-498	Y	N
Wood box 28-6		111	1 Min	-120	-433	Y	N
Wood box 28-7		129	1 Min	-158	-570	Y	N
Wood box 28-8		91	1 Min	-141	-509	Y	N
Wood box 28-9		108	1 Min	-119	-429	Y	N
Wood box 28-10		130	1 Min	-249	-898	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.14	<b>Probe face area (cm2):</b>	76
<b>Date:</b>	10/23/2005			<b>Calibration factor</b>	9.4		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	RAD YARD
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
		0	1min	0	0		



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm)			
Date:	10/23/2005			Calibration factor	#DIV/0!	Probe face area (cm2):	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
		233	1 Min	233	#DIV/0!	Y	N







TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.23		
Date:	10/25/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	151			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Sand bag	141	1 Min	-10	-35	Y	N	
Sand bag	127	1 Min	-24	-83	Y	N	
Bar	133	1 Min	-18	-62	Y	N	
Bar	205	1 Min	54	186	Y	N	
Container	123	1 Min	-28	-97	Y	N	
Container	191	1 Min	40	138	Y	N	
wood sheet	189	1 Min	38	131	Y	N	
wood sheet	129	1 Min	-22	-76	Y	N	
cone	132	1 Min	-19	-66	Y	N	
case	152	1 Min	1	3	Y	N	
case (inner)	234	1 Min	83	286	Y	N	
pallet	195	1 Min	44	152	Y	N	
pallet 8-2	189	1 Min	38	131	Y	N	
pallet 8-3	167	1 Min	16	55	Y	N	
pallet 8-4	219	1 Min	68	235	Y	N	
Pallet 9-1	229	1 Min	78	269	Y	N	
Pallet 9-2	158	1 Min	7	24	Y	N	
Pallet 9-3	153	1 Min	2	7	Y	N	
Pallet 9-4	135	1 Min	-16	-55	Y	N	
Unknown container 10	251	1 Min	100	345	Y	N	
Unknown container 11	248	1 Min	97	335	Y	N	
plastic sheeting	157	1 Min	6	21	Y	N	
Aluminum pan	248	1 Min	97	335	Y	N	
plastic sheeting	178	1 Min	27	93	Y	N	
14-4	166	1 Min	15	52	Y	N	
14-3	159	1 Min	8	28	Y	N	
14-2	128	1 Min	-23	-79	Y	N	
15-1	143	1 Min	-8	-28	Y	N	
15-2	131	1 Min	-20	-69	Y	N	
15-3	141	1 Min	-10	-35	Y	N	
16-1	154	1 Min	3	10	Y	N	
16-2	136	1 Min	-15	-52	Y	N	
16-3	131	1 Min	-20	-69	Y	N	
16-4	153	1 Min	2	7	Y	N	
17	147	1 Min	-4	-14	Y	N	
wood 1-1	158	1 Min	7	24	Y	N	
wood 1-2	183	1 Min	32	110	Y	N	
wood 2-1	170	1 Min	19	66	Y	N	
wood 2-2	159	1 Min	8	28	Y	N	
wood 3-1	127	1 Min	-24	-83	Y	N	
wood 3-2	103	1 Min	-48	-166	Y	N	
wood 4-1	129	1 Min	-22	-76	Y	N	
wood 4-2	123	1 Min	-28	-97	Y	N	
wood 5-1	131	1 Min	-20	-69	Y	N	
wood 5-2	143	1 Min	-8	-28	Y	N	
wood box 6-1	116	1 Min	-35	-121	Y	N	
wood box 6-2	115	1 Min	-36	-124	Y	N	
wood box 6-3	123	1 Min	-28	-97	Y	N	
wood box 6-4	108	1 Min	-43	-148	Y	N	
wood box 6-5	105	1 Min	-46	-159	Y	N	
wood box 6-6	116	1 Min	-35	-121	Y	N	
wood box 6-7	107	1 Min	-44	-152	Y	N	



## TOTAL BETA CONTAMINATION SURVEY DATA FORM

				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.23		
Date:	10/25/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	151			release exceedance:	700 cpm		
Facility	RAD YARD						
wood box 6-8		102	1 Min	-49	-169	Y	N
wood box 6-9		116	1 Min	-35	-121	Y	N
wood box 7-1		117	1 Min	-34	-117	Y	N
wood box 7-2		135	1 Min	-16	-55	Y	N
wood box 7-3		96	1 Min	-55	-190	Y	N
wood box 7-4		117	1 Min	-34	-117	Y	N
wood box 7-5		96	1 Min	-55	-190	Y	N
wood box 7-6		99	1 Min	-52	-179	Y	N
wood box 8-1		117	1 Min	-34	-117	Y	N
wood box 8-2		98	1 Min	-53	-183	Y	N
wood box 8-3		111	1 Min	-40	-138	Y	N
wood box 8-4		99	1 Min	-52	-179	Y	N
wood box 8-5		98	1 Min	-53	-183	Y	N
wood box 8-6		101	1 Min	-50	-173	Y	N
wood box 8-7		81	1 Min	-70	-242	Y	N
wood box 8-8		95	1 Min	-56	-193	Y	N
wood box 8-9		100	1 Min	-51	-176	Y	N
wood box 8-10		115	1 Min	-36	-124	Y	N
wood box 9-1		142	1 Min	-9	-31	Y	N
wood box 9-2		90	1 Min	-61	-210	Y	N
wood box 9-3		91	1 Min	-60	-207	Y	N
wood box 9-4		112	1 Min	-39	-135	Y	N
wood box 9-5		118	1 Min	-33	-114	Y	N
wood box 9-6		120	1 Min	-31	-107	Y	N
wood box 9-7		111	1 Min	-40	-138	Y	N
wood box 9-8		116	1 Min	-35	-121	Y	N
wood box 9-9		102	1 Min	-49	-169	Y	N
wood box 9-10		93	1 Min	-58	-200	Y	N
wood box 10-1		127	1 Min	-24	-83	Y	N
wood box 10-2		138	1 Min	-13	-45	Y	N
wood box 11-1		153	1 Min	2	7	Y	N
wood box 11-2		175	1 Min	24	83	Y	N
wood box 12-1		155	1 Min	4	14	Y	N
wood box 12-2		160	1 Min	9	31	Y	N
wood box 12-3		177	1 Min	26	90	Y	N
wood box 12-4		138	1 Min	-13	-45	Y	N
wood box 13-1		211	1 Min	60	207	Y	N
wood box 13-2		231	1 Min	80	276	Y	N
wood box 13-3		133	1 Min	-18	-62	Y	N
wood box 13-4		125	1 Min	-26	-90	Y	N
wood box 13-5		165	1 Min	14	48	Y	N
wood box 13-6		119	1 Min	-32	-110	Y	N
wood box 13-7		137	1 Min	-14	-48	Y	N
wood box 13-8		177	1 Min	26	90	Y	N
wood box 13-9		164	1 Min	13	45	Y	N
wood box 13-10		115	1 Min	-36	-124	Y	N
wood box 14-1		119	1 Min	-32	-110	Y	N
wood box 14-2		143	1 Min	-8	-28	Y	N
wood box 14-3		123	1 Min	-28	-97	Y	N
wood box 14-4		121	1 Min	-30	-104	Y	N
wood box 14-5		118	1 Min	-33	-114	Y	N
wood box 14-6		109	1 Min	-42	-145	Y	N
wood box 14-7		107	1 Min	-44	-152	Y	N
wood box 14-8		130	1 Min	-21	-72	Y	N
wood box 14-9		125	1 Min	-26	-90	Y	N
metal cabinet 14-10		120	1 Min	-31	-107	Y	N
metal cabinet 14-11		119	1 Min	-32	-110	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	10/25/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>	151			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
metal cabinet 14-12		129	1 Min	-22	-76	Y	N
metal cabinet 14-13		116	1 Min	-35	-121	Y	N
metal cabinet 14-14		129	1 Min	-22	-76	Y	N
metal cabinet 14-15		135	1 Min	-16	-55	Y	N
metal cabinet 14-16		152	1 Min	1	3	Y	N
metal cabinet 15-1		116	1 Min	-35	-121	Y	N
metal cabinet 15-2		120	1 Min	-31	-107	Y	N
metal cabinet 15-3		120	1 Min	-31	-107	Y	N
metal cabinet 15-4		110	1 Min	-41	-141	Y	N
metal cabinet 15-5		101	1 Min	-50	-173	Y	N
metal cabinet 15-6		107	1 Min	-44	-152	Y	N
metal cabinet 15-7		97	1 Min	-54	-186	Y	N
metal cabinet 15-8		107	1 Min	-44	-152	Y	N
metal cabinet 15-9		84	1 Min	-67	-231	Y	N
metal cabinet 15-10		98	1 Min	-53	-183	Y	N
metal cabinet 15-11		89	1 Min	-62	-214	Y	N
metal cabinet 15-12		98	1 Min	-53	-183	Y	N
metal cabinet 15-13		26	1 Min	-125	-431	Y	N
metal cabinet 15-14		99	1 Min	-52	-179	Y	N
metal cabinet 15-15		126	1 Min	-25	-86	Y	N
metal cabinet 15-16		115	1 Min	-36	-124	Y	N
shelves 16-1		124	1 Min	-27	-93	Y	N
shelves 17-1		150	1 Min	-1	-3	Y	N
shelves	18-1	128	1 Min	-23	-79	Y	N
shelves	19-2	136	1 Min	-15	-52	Y	N
shelves	19-1	137	1 Min	-14	-48	Y	N
shelves	17-2	154	1 Min	3	10	Y	N
shelves	16-2	138	1 Min	-13	-45	Y	N
shelves	20-1	123	1 Min	-28	-97	Y	N
shelves	20-2	115	1 Min	-36	-124	Y	N
shelves	20-3	111	1 Min	-40	-138	Y	N
shelves	20-4	104	1 Min	-47	-162	Y	N
shelves	20-5	98	1 Min	-53	-183	Y	N
shelves	20-6	132	1 Min	-19	-66	Y	N
shelves	21-2	120	1 Min	-31	-107	Y	N
shelves	21-1	120	1 Min	-31	-107	Y	N
shelves	21-3	105	1 Min	-46	-159	Y	N
shelves	21-4	107	1 Min	-44	-152	Y	N
shelves	21-5	118	1 Min	-33	-114	Y	N
shelves	21-6	94	1 Min	-57	-197	Y	N
drum lid		107	1 Min	-44	-152	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.24		
Date:	10/25/2004			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	150			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Plastic Bucket 1-1	119	1 Min	-31	-103	Y	N	
Plastic Bucket 1-2	119	1 Min	-31	-103	Y	N	
Plastic Bucket 1-3	107	1 Min	-43	-142	Y	N	
Plastic Bucket 1-4	148	1 Min	-2	-7	Y	N	
Angle Iron 2-1	133	1 Min	-17	-56	Y	N	
Angle Iron 2-2	110	1 Min	-40	-132	Y	N	
Plastic Jug 3-1	156	1 Min	6	20	Y	N	
Plastic Jug 3-2	128	1 Min	-22	-73	Y	N	
Plastic Jug 4-1	137	1 Min	-13	-43	Y	N	
Plastic Jug 4-2	146	1 Min	-4	-13	Y	N	
Pallet 5-1	170	1 Min	20	66	Y	N	
Pallet 5-2	170	1 Min	20	66	Y	N	
Pallet 5-3	150	1 Min	0	0	Y	N	
Pallet 5-4	154	1 Min	4	13	Y	N	
Pallet 6-1	148	1 Min	-2	-7	Y	N	
Pallet 6-2	134	1 Min	-16	-53	Y	N	
Pallet 6-3	151	1 Min	1	3	Y	N	
Pallet 6-4	171	1 Min	21	69	Y	N	
pallet 7-1	158	1 Min	8	26	Y	N	
pallet 7-2	155	1 Min	5	17	Y	N	
pallet 7-3	149	1 Min	-1	-3	Y	N	
pallet 7-4	178	1 Min	28	93	Y	N	
Box 8-1	178	1 Min	28	93	Y	N	
Box 8-2	147	1 Min	-3	-10	Y	N	
Box 8-3	144	1 Min	-6	-20	Y	N	
Box 8-4	175	1 Min	25	83	Y	N	
Box 8-5	154	1 Min	4	13	Y	N	
Box 8-6	123	1 Min	-27	-89	Y	N	
Box 8-7	147	1 Min	-3	-10	Y	N	
Box 8-8	147	1 Min	-3	-10	Y	N	
Box 9-1	122	1 Min	-28	-93	Y	N	
Box 9-2	141	1 Min	-9	-30	Y	N	
Box 9-3	147	1 Min	-3	-10	Y	N	
Box 9-4	136	1 Min	-14	-46	Y	N	
Box 9-5	100	1 Min	-50	-165	Y	N	
Box 9-6	92	1 Min	-58	-192	Y	N	
Box 9-7	94	1 Min	-56	-185	Y	N	
Box 9-8	107	1 Min	-43	-142	Y	N	
Pallet 18-1	166	1 Min	16	53	Y	N	
Pallet 18-2	133	1 Min	-17	-56	Y	N	
Pallet 18-3	112	1 Min	-38	-126	Y	N	
Pallet 18-4	150	1 Min	0	0	Y	N	
Pallet box 19-1	136	1 Min	-14	-46	Y	N	
Pallet box 19-2	149	1 Min	-1	-3	Y	N	
Pallet box 19-3	121	1 Min	-29	-96	Y	N	
Pallet box 19-4	115	1 Min	-35	-116	Y	N	
Light fixture 20-1	156	1 Min	6	20	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	10/25/2004			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	150			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
Metal	21-1	126	1 Min	-24	-79	Y	N
Metal	21-2	97	1 Min	-53	-175	Y	N
Metal	22	148	1 Min	-2	-7	Y	N
Metal	23	146	1 Min	-4	-13	Y	N
Wooden Box	24-1	110	1 Min	-40	-132	Y	N
Wooden Box	24-2	102	1 Min	-48	-159	Y	N
Wooden Box	24-3	104	1 Min	-46	-152	Y	N
Wooden Box	24-4	113	1 Min	-37	-122	Y	N
Wooden Box	24-5	103	1 Min	-47	-155	Y	N
Wooden Box	24-6	128	1 Min	-22	-73	Y	N
Wooden Box	24-7	90	1 Min	-60	-198	Y	N
Wooden Box	24-8	114	1 Min	-36	-119	Y	N
Wooden Box	24-9	103	1 Min	-47	-155	Y	N
Wooden Box	24-10	101	1 Min	-49	-162	Y	N
Wooden Box	25-1	183	1 Min	33	109	Y	N
Wooden Box	25-2	166	1 Min	16	53	Y	N
Wooden Box	26-1	154	1 Min	4	13	Y	N
Wooden Box	26-2	129	1 Min	-21	-69	Y	N
Wooden Box	26-3	109	1 Min	-41	-136	Y	N
Wooden Box	26-4	128	1 Min	-22	-73	Y	N
Wooden Box	26-5	112	1 Min	-38	-126	Y	N
Drum	27-1	137	1 Min	-13	-43	Y	N
Drum	27-2	157	1 Min	7	23	Y	N
Drum	27-3	113	1 Min	-37	-122	Y	N
Drum	27-4	89	1 Min	-61	-202	Y	N
Drum	27-5	103	1 Min	-47	-155	Y	N
Drum	27-6	117	1 Min	-33	-109	Y	N
Metal	28	152	1 Min	2	7	Y	N
Drum (55gal)	29-1	118	1 Min	-32	-106	Y	N
Drum (55gal)	29-2	156	1 Min	6	20	Y	N
Drum (55gal)	29-3	90	1 Min	-60	-198	Y	N
	29-4	96	1 Min	-54	-179	Y	N
	29-5	77	1 Min	-73	-241	Y	N
	29-6	97	1 Min	-53	-175	Y	N
	30-1	135	1 Min	-15	-50	Y	N
	30-2	142	1 Min	-8	-26	Y	N
	30-3	95	1 Min	-55	-182	Y	N
	30-4	90	1 Min	-60	-198	Y	N
	30-5	91	1 Min	-59	-195	Y	N
	30-6	98	1 Min	-52	-172	Y	N



<b>TOTAL BETA CONTAMINATION SURVEY DATA FORM</b>							
<b>FORM 3.03</b>							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>		<b>Probe face area (cm2):</b>	76
<b>Date:</b>	10/25/2004			<b>Calibration factor</b>	#DIV/0!		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>				<b>release exceedance:</b>	12 cpm	<b>Facility</b>	RAD YARD
<b>Item</b>	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
	0	1min	0	#DIV/0!			



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	10/26/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	<b>700 cpm</b>		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:		43-5	S/N	PR145049	Efficiency (cpm )	0.14	Probe face area (cm2)
Date:	10/26/2004			Calibration factor	9.4		76
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
		0	1min	0	0		



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.24		
Date:	10/26/2004			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	150			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Plywood 1-1	149	1 Min	-1	-3	Y	N	
Plywood 1-2	180	1 Min	30	99	Y	N	
wood	271	1 Min	121	400	Y	N	
wood	280	1 Min	130	430	Y	N	
plywood 3-1	160	1 Min	10	33	Y	N	
Plywood 3-2	160	1 Min	10	33	Y	N	
Plywood 4-1	163	1 Min	13	43	Y	N	
Plywood 4-2	152	1 Min	2	7	Y	N	
Plywood 5-1	171	1 Min	21	69	Y	N	
Plywood 5-2	162	1 Min	12	40	Y	N	
Plywood 6-1	143	1 Min	-7	-23	Y	N	
Plywood 6-2	154	1 Min	4	13	Y	N	
Plywood 7-1	146	1 Min	-4	-13	Y	N	
Plywood 7-2	234	1 Min	84	278	Y	N	
Plywood 8	274	1 Min	124	410	Y	N	
Plywood 9	284	1 Min	134	443	Y	N	
Plywood 10	297	1 Min	147	486	Y	N	
Plywood 11-1	228	1 Min	78	258	Y	N	
Plywood 11-2	311	1 Min	161	532	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	10/27/2004			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	190			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no data		138	1 Min	-52	-188	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.14	<b>Probe face area (cm2)</b>	76
<b>Date:</b>	10/27/2004			<b>Calibration factor</b>	9.4		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	RAD YARD
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NBC boxes		0	1min	0	0	Y	N
cardboard box labeled "Roller"		0					
misc metal		0					
metal cabinet		2					
ac unit		3					
large vessel boxes		1					
C.of E. USA sun compass 1		1					
C.of E. USA sun compass 2		1					
C.of E. USA sun compass 3		1					
large vessel interior		0					
North end of vessel		2					
east end of vessel		1					
west end of vessel		0					
interior box1		0					
interior box2		0					
interior box3		0					
interior box4		0					
interior box5		0					
large vessel exteriorS		1					
North end of vessel		1					
east end of vessel		2					
west end of vessel		1					
large vessel interior		0					
large vessel interior		2					
large vessel interior		1					
large vessel interior		0					



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm)</b>	0.23		
<b>Date:</b>	10/27/2004			<b>Calibration factor</b>	3.5	<b>Probe face area (cm2):</b>	126
<b>Background (cpm)</b>	175			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no data		134	1 Min	-41	-141	Y	N







TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	<b>Probe face area (cm2)=</b>	76
<b>Date:</b>	10/28/2004			<b>Calibration factor</b>	10.1		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	RAD YARD
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Fire cabinet 1		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		2	1min	2	20	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		3	1min	3	30	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
Fire cabinet		0	1min	0	0	Y	N
metal roof bldg 2360		2	1min	2	20	Y	N
metal roof bldg 2361		7	1min	7	71	Y	N
metal roof bldg 2362		2	1min	2	20	Y	N
metal roof bldg 2363		1	1min	1	10	Y	N
metal roof bldg 2364		0	1min	0	0	Y	N
metal roof bldg 2365		4	1min	4	40	Y	N
metal roof bldg 2366		0	1min	0	0	Y	N
Roll off R3170RT		1	1min	1	10	Y	N
Roll off R3170RT		1	1min	1	10	Y	N
Roll off R3170RT		1	1min	1	10	Y	N
Roll off R3170RT		1	1min	1	10	Y	N
Roll off R3170RT		1	1min	1	10	Y	N
roofing mat'l		1	1min	1	10	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		0	1min	0	0	Y	N
Bldg 2360		0	1min	0	0	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		0	1min	0	0	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		0	1min	0	0	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		0	1min	0	0	Y	N
Bldg 2360		9	1min	9	91	Y	N
Bldg 2360		7	1min	7	71	Y	N
Bldg 2360		4	1min	4	40	Y	N
Bldg 2360		5	1min	5	51	Y	N
Bldg 2360		3	1min	3	30	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		2	1min	2	20	Y	N
Bldg 2360		3	1min	3	30	Y	N
Bldg 2360		5	1min	5	51	Y	N
Bldg 2360		1	1min	1	10	Y	N
Bldg 2360		2	1min	2	20	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM						
FORM 3.03						
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	<b>Probe face area (cm2)=</b> 76
<b>Date:</b>	10/28/2004			<b>Calibration factor</b>	10.1	
						<b>Background (cpm)</b> 0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b> RAD YARD
Bldg 2360		3	1min	3	30	Y N
roof materials		2	1min	2	20	Y N
roof materials		2	1min	2	20	Y N
concrete pillar		2	1min	2	20	Y N
wood		2	1min	2	20	Y N
wood		2	1min	2	20	Y N
telephone pole		0	1min	0	0	Y N
telephone pole		1	1min	1	10	Y N
telephone pole		2	1min	2	20	Y N
telephone pole		1	1min	1	10	Y N
Pole light		1	1min	1	10	Y N
roofing mat'l		4	1min	4	40	Y N
roofing mat'l		2	1min	2	20	Y N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm)	0.23		
Date:	10/28/2004			Calibration factor	3.5	Probe face area (cm2):	126
Background (cpm)	175			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Fire cabinet	1	134	1 Min	-41	-141	Y	N
Fire cabinet	2	120	1 Min	-55	-190	Y	N
Fire cabinet	3	149	1 Min	-26	-90	Y	N
Fire cabinet	4	143	1 Min	-32	-110	Y	N
Fire cabinet	5	168	1 Min	-7	-24	Y	N
Fire cabinet	6	121	1 Min	-54	-186	Y	N
Fire cabinet	7	122	1 Min	-53	-183	Y	N
Fire cabinet	8	139	1 Min	-36	-124	Y	N
Fire cabinet	9	129	1 Min	-46	-159	Y	N
Fire cabinet	10	130	1 Min	-45	-155	Y	N
Fire cabinet	11	145	1 Min	-30	-104	Y	N
Fire cabinet	12	133	1 Min	-42	-145	Y	N
Fire cabinet	13	145	1 Min	-30	-104	Y	N
Fire cabinet	14	151	1 Min	-24	-83	Y	N
Fire cabinet	15	122	1 Min	-53	-183	Y	N
Fire cabinet	16	124	1 Min	-51	-176	Y	N
Fire cabinet	17	112	1 Min	-63	-217	Y	N
Fire cabinet	18	143	1 Min	-32	-110	Y	N
Fire cabinet	19	167	1 Min	-8	-28	Y	N
Fire cabinet	20	101	1 Min	-74	-255	Y	N
Fire cabinet	21	99	1 Min	-76	-262	Y	N
Fire cabinet	22	98	1 Min	-77	-266	Y	N
Fire cabinet	23	110	1 Min	-65	-224	Y	N
Fire cabinet	24	113	1 Min	-62	-214	Y	N
Fire cabinet	25	127	1 Min	-48	-166	Y	N
Fire cabinet	26	164	1 Min	-11	-38	Y	N
Fire cabinet	27	131	1 Min	-44	-152	Y	N
Fire cabinet	28	140	1 Min	-35	-121	Y	N
Fire cabinet	29	127	1 Min	-48	-166	Y	N
Fire cabinet	30	102	1 Min	-73	-252	Y	N
Fire cabinet	31	152	1 Min	-23	-79	Y	N
Fire cabinet	32	123	1 Min	-52	-179	Y	N
Fire cabinet	33	113	1 Min	-62	-214	Y	N
Fire cabinet	34	115	1 Min	-60	-207	Y	N
Fire cabinet	35	119	1 Min	-56	-193	Y	N
Fire cabinet	36	134	1 Min	-41	-141	Y	N
Fire cabinet	37	122	1 Min	-53	-183	Y	N
Fire cabinet	38	150	1 Min	-25	-86	Y	N
Fire cabinet	39	121	1 Min	-54	-186	Y	N
2360 roof		283	1 Min	108	373	Y	N
2360 roof		271	1 Min	96	331	Y	N
2360 roof		166	1 Min	-9	-31	Y	N
stacked roof sheets 4		198	1 Min	23	79	Y	N
stacked roof sheets 5		298	1 Min	123	424	Y	N
stacked roof sheets 6		255	1 Min	80	276	Y	N
stacked roof sheets 7		248	1 Min	73	252	Y	N
stacked roof sheets 8		229	1 Min	54	186	Y	N
stacked roof sheets 9		248	1 Min	73	252	Y	N
stacked roof sheets 10		257	1 Min	82	283	Y	N
stacked roof sheets 11		262	1 Min	87	300	Y	N
stacked roof sheets 12		298	1 Min	123	424	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm)</b>	0.23		
<b>Date:</b>	10/28/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2):	126
<b>Background (cpm)</b>	175			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
stacked roof sheets 13	161	1 Min	-14	-48	Y	N	
stacked roof sheets 14	141	1 Min	-34	-117	Y	N	
stacked roof sheets 15	134	1 Min	-41	-141	Y	N	
stacked roof sheets 16	156	1 Min	-19	-66	Y	N	
stacked roof sheets 17	163	1 Min	-12	-41	Y	N	
stacked roof sheets 18	133	1 Min	-42	-145	Y	N	
stacked roof sheets 19	136	1 Min	-39	-135	Y	N	
stacked roof sheets 20	134	1 Min	-41	-141	Y	N	
stacked roof sheets 21	142	1 Min	-33	-114	Y	N	
stacked roof sheets 22	261	1 Min	86	297	Y	N	
stacked roof sheets 23	202	1 Min	27	93	Y	N	
stacked roof sheets 24	249	1 Min	74	255	Y	N	
stacked roof sheets 25	231	1 Min	56	193	Y	N	
stacked roof sheets 26	135	1 Min	-40	-138	Y	N	
stacked roof sheets 27	255	1 Min	80	276	Y	N	
stacked roof sheets 28	200	1 Min	25	86	Y	N	
stacked roof sheets 29	252	1 Min	77	266	Y	N	
stacked roof sheets 30	269	1 Min	94	324	Y	N	
stacked roof sheets 31	237	1 Min	62	214	Y	N	
stacked roof sheets 32	230	1 Min	55	190	Y	N	
stacked roof sheets 33	217	1 Min	42	145	Y	N	
stacked roof sheets 34	254	1 Min	79	273	Y	N	
stacked roof sheets 35	202	1 Min	27	93	Y	N	
stacked roof sheets 36	187	1 Min	12	41	Y	N	
stacked roof sheets 37	202	1 Min	27	93	Y	N	
stacked roof sheets 38	258	1 Min	83	286	Y	N	
stacked roof sheets 39	198	1 Min	23	79	Y	N	
stacked roof sheets 40	158	1 Min	-17	-59	Y	N	
stacked roof sheets 41	281	1 Min	106	366	Y	N	
stacked roof sheets 42	163	1 Min	-12	-41	Y	N	
stacked roof sheets 43	117	1 Min	-58	-200	Y	N	
stacked roof sheets 44	154	1 Min	-21	-72	Y	N	
stacked roof sheets 45	227	1 Min	52	179	Y	N	
stacked roof sheets 46	175	1 Min	0	0	Y	N	
stacked roof sheets 47	197	1 Min	22	76	Y	N	
Rolloff end	135	1 Min	-40	-138	Y	N	
Rolloff end	120	1 Min	-55	-190	Y	N	
Rolloff side	136	1 Min	-39	-135	Y	N	
Rolloff side	108	1 Min	-67	-231	Y	N	
Rolloff side	109	1 Min	-66	-228	Y	N	
Rolloff side	119	1 Min	-56	-193	Y	N	
Rolloff side	139	1 Min	-36	-124	Y	N	
Rolloff end	143	1 Min	-32	-110	Y	N	
rolloff side	148	1 Min	-27	-93	Y	N	
Rolloff end	135	1 Min	-40	-138	Y	N	
Rolloff end	132	1 Min	-43	-148	Y	N	
Rolloff end	137	1 Min	-38	-131	Y	N	
Rolloff end	132	1 Min	-43	-148	Y	N	
2360 roof	132	1 Min	-43	-148	Y	N	
2360 roof	132	1 Min	-43	-148	Y	N	
2360 roof	132	1 Min	-43	-148	Y	N	



<b>TOTAL</b>							
				<b>FORM 3.03</b>			
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	10/29/2004			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	190			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
barrel 2-1		202	1 Min	12	43	Y	N
barrel 2-2		183	1 Min	-7	-25	Y	N
barrel 2-3		257	1 Min	67	242	Y	N
barrel 2-4		136	1 Min	-54	-195	Y	N
barrel 2-5		138	1 Min	-52	-188	Y	N
barrel 2-6		140	1 Min	-50	-180	Y	N
barrel 5-1		164	1 Min	-26	-94	Y	N
barrel 3-2		169	1 Min	-21	-76	Y	N
barrel 3-3		174	1 Min	-16	-58	Y	N
barrel 3-4		141	1 Min	-49	-177	Y	N
barrel 3-5		388	1 Min	198	714	Y	N
barrel 3-6		169	1 Min	-21	-76	Y	N
barrel 3-7		167	1 Min	-23	-83	Y	N
barrel 4-1		170	1 Min	-20	-72	Y	N
barrel 4-2		169	1 Min	-21	-76	Y	N
barrel 4-3		196	1 Min	6	22	Y	N
barrel 4-4		168	1 Min	-22	-79	Y	N
barrel 4-5		157	1 Min	-33	-119	Y	N
barrel 4-6		180	1 Min	-10	-36	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.14	Probe face area (cm2)=	76
Date:	10/29/2004			Calibration factor	9.4		
Background (cpm)	1			release exceedance:	12 cpm	Background (cpm)	0
						Facility	RAD YARD
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Bldg 2360column 1	N	4	1min	3	28	Y	N
	E	1	1min	0	0	Y	N
	S	2	1min	1	9	Y	N
	W	5	1min	4	38	Y	N
Bldg 2360column 1	N	2	1min	1	9	Y	N
	E	1	1min	0	0	Y	N
	S	1	1min	0	0	Y	N
	W	1	1min	0	0	Y	N
North wall		1	1min	0	0	Y	N
		0	1min	-1	-9	Y	N
		2	1min	1	9	Y	N
		0	1min	-1	-9	Y	N
Column 3 sw corner #3 (sw)		0	1min	-1	-9	Y	N
west wall between #3 and 4	2	1min	1	9	Y	N	N
west wall between #3 and 4	1	1min	0	0	Y	N	N
west wall between #3 and 4	1	1min	0	0	Y	N	N
west wall between #3 and 4	2	1min	1	9	Y	N	N
west wall between #3 and 4	0	1min	-1	-9	Y	N	N
west wall between #3 and 4	0	1min	-1	-9	Y	N	N
column 4 west side	2	1min	1	9	Y	N	N
west wall between #4 and #5	1	1min	0	0	Y	N	N
west wall between #4 and #5	2	1min	1	9	Y	N	N
west wall between #4 and #5	2	1min	1	9	Y	N	N
west wall between #4 and #5	1	1min	0	0	Y	N	N
Column #5 S	2	1min	1	9	Y	N	N
W	1	1min	0	0	Y	N	N
E	1	1min	0	0	Y	N	N
East Side of wall between 5&4	3	1min	2	19	Y	N	N
East Side of wall between 5&4	2	1min	1	9	Y	N	N
East Side of wall between 5&4	0	1min	-1	-9	Y	N	N
South door east side of wall	1	1min	0	0	Y	N	N
South door east side of wall	2	1min	1	9	Y	N	N
north door east	0	1min	-1	-9	Y	N	N
north door east	0	1min	-1	-9	Y	N	N
east wall between 4+3	1	1min	0	0	Y	N	N
east wall between 4+3	1	1min	0	0	Y	N	N
East wall between 4+3	1	1min	0	0	Y	N	N
East wall between 4+3	0	1min	-1	-9	Y	N	N
East wall between 4+3	0	1min	-1	-9	Y	N	N
East wall between 4+3	1	1min	0	0	Y	N	N
East wall between 4+3	0	1min	-1	-9	Y	N	N
East wall between 4+3	0	1min	-1	-9	Y	N	N
B area 1 1-1	1	1min	0	0	Y	N	N
B area 1 1-2	0	1min	-1	-9	Y	N	N
B area 1 1-3	2	1min	1	9	Y	N	N
B area 1 1-4	0	1min	-1	-9	Y	N	N
B area 1 1-5	0	1min	-1	-9	Y	N	N
B area 1 1-6	0	1min	-1	-9	Y	N	N
B area 1 1-7	1	1min	0	0	Y	N	N
B area 1 2-1	2	1min	1	9	Y	N	N
B area 1 2-2	0	1min	-1	-9	Y	N	N
B area 1 2-3	0	1min	-1	-9	Y	N	N
B area 1 2-4	0	1min	-1	-9	Y	N	N
B area 1 2-5	0	1min	-1	-9	Y	N	N
barrel 3-1	5	1min	4	38	Y	N	N
barrel 3-2	2	1min	1	9	Y	N	N
barrel 3-3	5	1min	4	38	Y	N	N
barrel 3-4	0	1min	-1	-9	Y	N	N
barrel 3-5	6	1min	5	47	Y	N	N
barrel 3-6	1	1min	0	0	Y	N	N
barrel 4-1	2	1min	1	9	Y	N	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.14	Probe face area (cm2)=	76
Date:	10/29/2004			Calibration factor	9.4		
						Background (cpm)	0
Background (cpm)	1			release exceedance:	12 cpm	Facility	RAD YARD
barrel 4-2		4	1min	3	28	Y	N
barrel 4-3		4	1min	3	28	Y	N
barrel 4-4		1	1min	0	0	Y	N
barrel 4-5		2	1min	1	9	Y	N
barrel 4-6		3	1min	2	19	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm)</b>	0.23		
<b>Date:</b>	10/29/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)	126
<b>Background (cpm)</b>	180			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Barrel (55gal)	2362	160	1 Min	-20	-69	Y	N
Barrel 1-2		173	1 Min	-7	-24	Y	N
Barrel 1-3		123	1 Min	-57	-197	Y	N
Barrel 1-4		136	1 Min	-44	-152	Y	N
Barrel 1-5		126	1 Min	-54	-186	Y	N
Barrel 1-6		128	1 Min	-52	-179	Y	N
I-beam 1-1		144	1 Min	-36	-124	Y	N
I-beam 1-2		142	1 Min	-38	-131	Y	N
I-beam 1-3		151	1 Min	-29	-100	Y	N
I-beam 1-4		136	1 Min	-44	-152	Y	N
I-beam 1-5		140	1 Min	-40	-138	Y	N
I-beam 1-6		156	1 Min	-24	-83	Y	N
I-beam 2-1		148	1 Min	-32	-110	Y	N
I-beam 2-2		137	1 Min	-43	-148	Y	N
I-beam 2-3		162	1 Min	-18	-62	Y	N
I-beam 2-4		160	1 Min	-20	-69	Y	N
I-beam 2-5		147	1 Min	-33	-114	Y	N
I-beam 2-6		132	1 Min	-48	-166	Y	N
I-beam 3-1		144	1 Min	-36	-124	Y	N
I-beam 3-2		137	1 Min	-43	-148	Y	N
I-beam 3-3		174	1 Min	-6	-21	Y	N
I-beam 3-4		153	1 Min	-27	-93	Y	N
I-beam 3-5		150	1 Min	-30	-104	Y	N
I-beam 3-6		119	1 Min	-61	-210	Y	N



<b>TOTAL BETA</b>							
				<b>FORM 3.03</b>			
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	11/1/2004			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	190			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
barrel 2-1		202	1 Min	12	43	Y	N
barrel 2-2		183	1 Min	-7	-25	Y	N
barrel 2-3		257	1 Min	67	242	Y	N
barrel 2-4		136	1 Min	-54	-195	Y	N
barrel 2-5		138	1 Min	-52	-188	Y	N
barrel 2-6		140	1 Min	-50	-180	Y	N
barrel 5-1		164	1 Min	-26	-94	Y	N
barrel 3-2		169	1 Min	-21	-76	Y	N
barrel 3-3		174	1 Min	-16	-58	Y	N
barrel 3-4		141	1 Min	-49	-177	Y	N
barrel 3-5		388	1 Min	198	714	N	N
barrel 3-6		169	1 Min	-21	-76	Y	N
barrel 3-7		167	1 Min	-23	-83	Y	N
barrel 4-1		170	1 Min	-20	-72	Y	N
barrel 4-2		169	1 Min	-21	-76	Y	N
barrel 4-3		196	1 Min	6	22	Y	N
barrel 4-4		168	1 Min	-22	-79	Y	N
barrel 4-5		157	1 Min	-33	-119	Y	N
barrel 4-6		180	1 Min	-10	-36	Y	N



## TOTAL ALPHA CONTAMINATION SURVEY DATA FORM

FORM 3.03

Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.14	Probe face area (cm2)	76
Date:	11/1/2004			Calibration factor	9.4		
Background (cpm)		1		release exceedance:	12 cpm	Background (cpm)	0
				Facility		RAD YARD	

Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Bldg 2360column 1	N	4	1min	3	28	Y	N
	E	1	1min	0	0	Y	N
	S	2	1min	1	9	Y	N
	W	5	1min	4	38	Y	N
Bldg 2360column 1	N	2	1min	1	9	Y	N
	E	1	1min	0	0	Y	N
	S	1	1min	0	0	Y	N
	W	1	1min	0	0	Y	N
North wall		1	1min	0	0	Y	N
		0	1min	-1	-9	Y	N
		2	1min	1	9	Y	N
		0	1min	-1	-9	Y	N
Column 3 sw corner #3 (sw)		0	1min	-1	-9	Y	N
west wall between #3 and 4		2	1min	1	9	Y	N
west wall between #3 and 4		1	1min	0	0	Y	N
west wall between #3 and 4		1	1min	0	0	Y	N
west wall between #3 and 4		2	1min	1	9	Y	N
west wall between #3 and 4		0	1min	-1	-9	Y	N
west wall between #3 and 4		0	1min	-1	-9	Y	N
column 4 west side		2	1min	1	9	Y	N
west wall between #4 and #5		1	1min	0	0	Y	N
west wall between #4 and #5		2	1min	1	9	Y	N
west wall between #4 and #5		2	1min	1	9	Y	N
west wall between #4 and #5		1	1min	0	0	Y	N
Column #5 S		2	1min	1	9	Y	N
W		1	1min	0	0	Y	N
E		1	1min	0	0	Y	N
East Side of wall between 5&4		3	1min	2	19	Y	N
East Side of wall between 5&4		2	1min	1	9	Y	N
East Side of wall between 5&4		0	1min	-1	-9	Y	N
South door east side of wall		1	1min	0	0	Y	N
South door east side of wall		2	1min	1	9	Y	N
north door east		0	1min	-1	-9	Y	N
north door east		0	1min	-1	-9	Y	N
east wall between 4+3		1	1min	0	0	Y	N
east wall between 4+3		1	1min	0	0	Y	N
East wall between 4+3		1	1min	0	0	Y	N
East wall between 4+3		0	1min	-1	-9	Y	N
East wall between 4+3		0	1min	-1	-9	Y	N
East wall between 4+3		1	1min	0	0	Y	N
East wall between 4+3		0	1min	-1	-9	Y	N
East wall between 4+3		0	1min	-1	-9	Y	N
B area 1 1-1		1	1min	0	0	Y	N
B area 1 1-2		0	1min	-1	-9	Y	N
B area 1 1-3		2	1min	1	9	Y	N
B area 1 1-4		0	1min	-1	-9	Y	N
B area 1 1-5		0	1min	-1	-9	Y	N
B area 1 1-6		0	1min	-1	-9	Y	N
B area 1 1-7		1	1min	0	0	Y	N
B area 1 2-1		2	1min	1	9	Y	N
B area 1 2-2		0	1min	-1	-9	Y	N
B area 1 2-3		0	1min	-1	-9	Y	N
B area 1 2-4		0	1min	-1	-9	Y	N
B area 1 2-5		0	1min	-1	-9	Y	N
barrel 3-1		5	1min	4	38	Y	N



## TOTAL ALPHA CONTAMINATION SURVEY DATA FORM

FORM 3.03

<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.14	<b>Probe face area (cm2)</b>	76
<b>Date:</b>	11/1/2004			<b>Calibration factor</b>	9.4		
				<b>Background (cpm)</b>		0	
<b>Background (cpm)</b>	1			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	RAD YARD
barrel 3-2		2	1min	1	9	Y	N
barrel 3-3		5	1min	4	38	Y	N
barrel 3-4		0	1min	-1	-9	Y	N
barrel 3-5		6	1min	5	47	Y	N
barrel 3-6		1	1min	0	0	Y	N
barrel 4-1		2	1min	1	9	Y	N
barrel 4-2		4	1min	3	28	Y	N
barrel 4-3		4	1min	3	28	Y	N
barrel 4-4		1	1min	0	0	Y	N
barrel 4-5		2	1min	1	9	Y	N
barrel 4-6		3	1min	2	19	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm)</b>	0.23		
<b>Date:</b>	11/1/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)	126
<b>Background (cpm)</b>	180			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Barrel (55gal)	2362	160	1 Min	-20	-69	Y	N
Barrel 1-2		173	1 Min	-7	-24	Y	N
Barrel 1-3		123	1 Min	-57	-197	Y	N
Barrel 1-4		136	1 Min	-44	-152	Y	N
Barrel 1-5		126	1 Min	-54	-186	Y	N
Barrel 1-6		128	1 Min	-52	-179	Y	N
I-beam 1-1		144	1 Min	-36	-124	Y	N
I-beam 1-2		142	1 Min	-38	-131	Y	N
I-beam 1-3		151	1 Min	-29	-100	Y	N
I-beam 1-4		136	1 Min	-44	-152	Y	N
I-beam 1-5		140	1 Min	-40	-138	Y	N
I-beam 1-6		156	1 Min	-24	-83	Y	N
I-beam 2-1		148	1 Min	-32	-110	Y	N
I-beam 2-2		137	1 Min	-43	-148	Y	N
I-beam 2-3		162	1 Min	-18	-62	Y	N
I-beam 2-4		160	1 Min	-20	-69	Y	N
I-beam 2-5		147	1 Min	-33	-114	Y	N
I-beam 2-6		132	1 Min	-48	-166	Y	N
I-beam 3-1		144	1 Min	-36	-124	Y	N
I-beam 3-2		137	1 Min	-43	-148	Y	N
I-beam 3-3		174	1 Min	-6	-21	Y	N
I-beam 3-4		153	1 Min	-27	-93	Y	N
I-beam 3-5		150	1 Min	-30	-104	Y	N
I-beam 3-6		119	1 Min	-61	-210	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/2/2004			Calibration Factor	3.31		
Background (cpm)	194			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	Pillar 2	193	1 Min	-1	0	Y	N
2	Tin wall	252	1 Min	58	13	Y	N
3	Tin wall	253	1 Min	59	14	Y	N
4	Tin wall	262	1 Min	68	16	Y	N
5	Tin wall	252	1 Min	58	13	Y	N
6	Tin wall	234	1 Min	40	9	Y	N
7	Tin wall	267	1 Min	73	17	Y	N
8	Pillar 3	212	1 Min	18	4	Y	N
9	Tin wall	318	1 Min	124	29	Y	N
10	Tin wall	259	1 Min	65	15	Y	N
11	Tin wall	316	1 Min	122	28	Y	N
12	Tin wall	252	1 Min	58	13	Y	N
13	2362 back wall outside	252	1 Min	58	13	Y	N
14	2363 back wall outside	252	1 Min	58	13	Y	N
15	2364 back wall outside	252	1 Min	58	13	Y	N
16	2365 back wall outside	252	1 Min	58	13	Y	N
17	2366 back wall outside	252	1 Min	58	13	Y	N
18	2367 back wall outside	252	1 Min	58	13	Y	N
19	2368 back wall outside	252	1 Min	58	13	Y	N
20	2369 back wall outside	252	1 Min	58	13	Y	N
21	2370 back wall outside	252	1 Min	58	13	Y	N
22	2371 back wall outside	252	1 Min	58	13	Y	N
23	2372 back wall outside	252	1 Min	58	13	Y	N
24	2373 back wall outside	252	1 Min	58	13	Y	N
24	2374 back wall outside	296	1 Min	102	23.46	Y	N
24	2375 back wall outside	267	1 Min	73	16.79	Y	N
24	2376 back wall outside	239	1 Min	45	10.35	Y	N
24	2377 back wall outside	242	1 Min	48	11.04	Y	N
24	2378 back wall outside	295	1 Min	101	23.23	Y	N
24	2379 back wall outside	245	1 Min	51	11.73	Y	N
24	2380 back wall outside	269	1 Min	75	17.25	Y	N
24	2381 back wall outside	271	1 Min	77	17.71	Y	N
24	2382 back wall outside	256	1 Min	62	14.26	Y	N
24	2383 back wall outside	222	1 Min	28	6.44	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/2/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2360 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	east interior wall	1	1 Min	1	10	Y	N
2	east interior wall	1	1 Min	1	10	Y	N
3	east interior wall	0	1 Min	0	0	Y	N
4	east interior wall	0	1 Min	0	0	Y	N
5	east interior wall	0	1 Min	0	0	Y	N
6	east interior wall	1	1 Min	1	10	Y	N
7	east interior wall	0	1 Min	0	0	Y	N
8	east interior wall	1	1 Min	1	10	Y	N
9	east interior wall	0	1 Min	0	0	Y	N
10	east interior wall	0	1 Min	0	0	Y	N
11	east interior wall	0	1 Min	0	0	Y	N
12	east interior wall	0	1 Min	0	0	Y	N
13	east interior wall	0	1 Min	0	0	Y	N
14	east interior wall	1	1 Min	1	10	Y	N
15	east interior wall	0	1 Min	0	0	Y	N
16	east interior wall	0	1 Min	0	0	Y	N
17	east interior wall	2	1 Min	2	20	Y	N
18	east interior wall	0	1 Min	0	0	Y	N
19	east interior wall	0	1 Min	0	0	Y	N
20	east interior wall	3	1 Min	3	30	Y	N
21	east interior wall	0	1 Min	0	0	Y	N
22	east interior wall	0	1 Min	0	0	Y	N
23	east interior wall	2	1 Min	2	20	Y	N
24	east interior wall	0	1 Min	0	0	Y	N
25	east interior wall	2	1 Min	2	20	Y	N
26	east interior wall	2	1 Min	2	20	Y	N
27	east interior wall	1	1 Min	1	10	Y	N
28	east interior wall	0	1 Min	0	0	Y	N
29	east interior wall	1	1 Min	1	10	Y	N
30	east interior wall	0	1 Min	0	0	Y	N
31	east interior wall	0	1 Min	0	0	Y	N
32	east interior wall	1	1 Min	1	10	Y	N
33	east interior wall	0	1 Min	0	0	Y	N
34	east interior wall	0	1 Min	0	0	Y	N
35	east interior wall	0	1 Min	0	0	Y	N
36	east interior wall	1	1 Min	1	10	Y	N
37	east interior wall	0	1 Min	0	0	Y	N
38	plywood -used to display "radiation tools" from Bldg 2360	0	1 Min	0	0	Y	N
39		3	1 Min	3	30	Y	N
40		0	1 Min	0	0	Y	N
41		1	1 Min	1	10	Y	N
42		3	1 Min	3	30	Y	N
43		2	1 Min	2	20	Y	N
44		0	1 Min	0	0	Y	N
45		0	1 Min	0	0	Y	N
46		0	1 Min	0	0	Y	N
47		0	1 Min	0	0	Y	N
48		0	1 Min	0	0	Y	N
49		2	1 Min	2	20	Y	N
50		0	1 Min	0	0	Y	N
51		2	1 Min	2	20	Y	N
52		1	1 Min	1	10	Y	N
53		0	1 Min	0	0	Y	N
54		0	1 Min	0	0	Y	N
55		0	1 Min	0	0	Y	N
56		3	1 Min	3	30	Y	N
57		0	1 Min	0	0	Y	N
58		2	1 Min	2	20	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/2/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2360 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
59	east exterior wall	2	1 Min	2	20	Y	N
60		0	1 Min	0	0	Y	N
61		1	1 Min	1	10	Y	N
62		0	1 Min	0	0	Y	N
63		2	1 Min	2	20	Y	N
64		1	1 Min	1	10	Y	N
65		3	1 Min	3	30	Y	N
66		0	1 Min	0	0	Y	N
67		0	1 Min	0	0	Y	N
68		2	1 Min	2	20	Y	N
69		0	1 Min	0	0	Y	N
70		0	1 Min	0	0	Y	N
71		2	1 Min	2	20	Y	N
72		0	1 Min	0	0	Y	N
73		2	1 Min	2	20	Y	N
74		4	1 Min	4	40	Y	N
75		0	1 Min	0	0	Y	N
76		0	1 Min	0	0	Y	N
77		0	1 Min	0	0	Y	N
78		0	1 Min	0	0	Y	N
79		2	1 Min	2	20	Y	N
80		0	1 Min	0	0	Y	N
81		1	1 Min	1	10	Y	N
82		0	1 Min	0	0	Y	N
83		0	1 Min	0	0	Y	N
84		2	1 Min	2	20	Y	N
85		0	1 Min	0	0	Y	N
86		0	1 Min	0	0	Y	N
87		1	1 Min	1	10	Y	N
88		0	1 Min	0	0	Y	N
89	1	1 Min	1	10	Y	N	
90	0	1 Min	0	0	Y	N	
91	I beams	0	1 Min	0	0	Y	N
92	I beams	0	1 Min	0	0	Y	N
93	I beams	0	1 Min	0	0	Y	N
94	I beams	1	1 Min	1	10	Y	N
95	I beams	0	1 Min	0	0	Y	N
96	I beams	2	1 Min	2	20	Y	N
97	I beams	0	1 Min	0	0	Y	N
98	I beams	1	1 Min	1	10	Y	N
99	I beams	0	1 Min	0	0	Y	N
100	I beams	0	1 Min	0	0	Y	N
101	I beams	0	1 Min	0	0	Y	N
102	I beams	0	1 Min	0	0	Y	N
103	I beams	0	1 Min	0	0	Y	N
104	I beams	1	1 Min	1	10	Y	N
105	I beams	3	1 Min	3	30	Y	N
106	I beams	0	1 Min	0	0	Y	N
107	pillar-2360	0	1 Min	0	0	Y	N
108	pillar-2360	0	1 Min	0	0	Y	N
109	pillar-2360	2	1 Min	2	20	Y	N
110	pillar-2360	0	1 Min	0	0	Y	N
111	pillar-2360	1	1 Min	1	10	Y	N
112	pillar-2360	0	1 Min	0	0	Y	N
113	pillar-2360	1	1 Min	1	10	Y	N
114	pillar-2360	2	1 Min	2	20	Y	N
115	E interior pillar 2360	0	1 Min	0	0	Y	N
116	S Pillar 2360	2	1 Min	2	20	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/2/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2360 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
117	S Pillar 2361	1	1 Min	1	10	Y	N
118	S Pillar 2362	3	1 Min	3	30	Y	N
119	S Pillar 2363	2	1 Min	2	20	Y	N
120	wood box (roped area)	0	1 Min	0	0	Y	N
121	wood box (roped area)	1	1 Min	1	10	Y	N
122	wood box (roped area)	1	1 Min	1	10	Y	N
123	wood box (roped area)	0	1 Min	0	0	Y	N
124	Tin roofing mat'l	7	1 Min	7	71	Y	N
125	Tin roofing mat'l	2	1 Min	2	20	Y	N
126	Tin roofing mat'l	0	1 Min	0	0	Y	N
127	Tin roofing mat'l	0	1 Min	0	0	Y	N
128	Tin roofing mat'l	1	1 Min	1	10	Y	N
129	Tin roofing mat'l	0	1 Min	0	0	Y	N
130	Tin roofing mat'l	2	1 Min	2	20	Y	N
131	Tin roofing mat'l	0	1 Min	0	0	Y	N
132	Tin roofing mat'l	3	1 Min	3	30	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm)	0		
Date:	11/2/2004			Calibration Factor	3		
Background (cpm)	159			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	plywood interior 2360	122	1 Min	-37	-9	Y	N
2	plywood interior 2360	145	1 Min	-14	-3	Y	N
3	plywood interior 2360	144	1 Min	-15	-4	Y	N
4	plywood interior 2360	124	1 Min	-35	-8	Y	N
5	plywood interior 2360	161	1 Min	2	0	Y	N
6	plywood interior 2360	134	1 Min	-25	-6	Y	N
7	plywood interior 2360	150	1 Min	-9	-2	Y	N
8	plywood interior 2360	153	1 Min	-6	-1	Y	N
9	plywood interior 2360	145	1 Min	-14	-3	Y	N
10	plywood interior 2360	137	1 Min	-22	-5	Y	N
11	plywood interior 2360	140	1 Min	-19	-5	Y	N
12	2360 Tin roof	225	1 Min	66	16	Y	N
13	2361 Tin roof	222	1 Min	63	15	Y	N
14	2362 Tin roof	228	1 Min	69	17	Y	N
15	2363 Tin roof	186	1 Min	27	6	Y	N
16	2364 Tin roof	217	1 Min	58	14	Y	N
17	2365 Tin roof	190	1 Min	31	7	Y	N
18	2366 Tin roof	165	1 Min	6	1	Y	N
19	2367 Tin roof	254	1 Min	95	23	Y	N
20	2368 Tin roof	231	1 Min	72	17	Y	N
21	2369 Tin roof	183	1 Min	24	6	Y	N
22	2370 Tin roof	160	1 Min	1	0	Y	N
23	2371 Tin roof	163	1 Min	4	1	Y	N
24	metal pipes	208	1 Min	49	12	Y	N
25	steel beams 1-1	172	1 Min	13	3	Y	N
26	2	168	1 Min	9	2	Y	N
27	3	161	1 Min	2	0	Y	N
28	4	177	1 Min	18	4	Y	N
29	steel beams 2-1	173	1 Min	14	3	Y	N
30	2	161	1 Min	2	0	Y	N
31	3	146	1 Min	-13	-3	Y	N
32	4	149	1 Min	-10	-2	Y	N
33	steel beams 3-1	178	1 Min	19	5	Y	N
34	2	158	1 Min	-1	0	Y	N
35	3	170	1 Min	11	3	Y	N
36	4	152	1 Min	-7	-2	Y	N
37	steel beams 4-1	160	1 Min	1	0	Y	N
38	2	161	1 Min	2	0	Y	N
39	3	166	1 Min	7	2	Y	N
40	4	165	1 Min	6	1	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/3/2004			Calibration Factor	3.31		
Background (cpm)	194			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	Pillar 2	193	1 Min	-1	-3	Y	N
2	Tin wall	252	1 Min	58	13	Y	N
3	Tin wall	253	1 Min	59	14	Y	N
4	Tin wall	262	1 Min	68	16	Y	N
5	Tin wall	252	1 Min	58	13	Y	N
6	Tin wall	234	1 Min	40	9	Y	N
7	Tin wall	267	1 Min	73	17	Y	N
8	Pillar 3	212	1 Min	18	4	Y	N
9	Tin wall	318	1 Min	124	29	Y	N
10	Tin wall	259	1 Min	65	15	Y	N
11	Tin wall	316	1 Min	122	28	Y	N
12	Tin wall	252	1 Min	58	13	Y	N
13	2362 back wall outside	252	1 Min	58	13	Y	N
14	2363 back wall outside	252	1 Min	58	13	Y	N
15	2364 back wall outside	252	1 Min	58	13	Y	N
16	2365 back wall outside	252	1 Min	58	13	Y	N
17	2366 back wall outside	252	1 Min	58	13	Y	N
18	2367 back wall outside	252	1 Min	58	13	Y	N
19	2368 back wall outside	252	1 Min	58	13	Y	N
20	2369 back wall outside	252	1 Min	58	13	Y	N
21	2370 back wall outside	252	1 Min	58	13	Y	N
22	2371 back wall outside	252	1 Min	58	13	Y	N
23	2372 back wall outside	252	1 Min	58	13	Y	N
24	2373 back wall outside	252	1 Min	58	13	Y	N
24	2374 back wall outside	296	1 Min	102	23.46	Y	N
24	2375 back wall outside	267	1 Min	73	16.79	Y	N
24	2376 back wall outside	239	1 Min	45	10.35	Y	N
24	2377 back wall outside	242	1 Min	48	11.04	Y	N
24	2378 back wall outside	295	1 Min	101	23.23	Y	N
24	2379 back wall outside	245	1 Min	51	11.73	Y	N
24	2380 back wall outside	269	1 Min	75	17.25	Y	N
24	2381 back wall outside	271	1 Min	77	17.71	Y	N
24	2382 back wall outside	256	1 Min	62	14.26	Y	N
24	2383 back wall outside	222	1 Min	28	6.44	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/3/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	inside wall	1	1 Min	1	10	Y	N
2	inside wall	2	1 Min	2	20	Y	N
3	inside wall	1	1 Min	1	10	Y	N
4	wood partition	418	1 Min	418	4231	N	Y
5	inside wall	1	1 Min	1	10	Y	N
6	inside wall	3	1 Min	3	30	Y	N
7	inside wall	0	1 Min	0	0	Y	N
8	inside wall	0	1 Min	0	0	Y	N
9	inside wall	1	1 Min	1	10	Y	N
10	inside wall	0	1 Min	0	0	Y	N
11	inside wall	1	1 Min	1	10	Y	N
12	inside wall	0	1 Min	0	0	Y	N
13	outside wall 2362	3	1 Min	3	30	Y	N
14	outside wall 2363	0	1 Min	0	0	Y	N
15	outside wall 2364	1	1 Min	1	10	Y	N
16	outside wall 2365	1	1 Min	1	10	Y	N
17	outside wall 2366	0	1 Min	0	0	Y	N
18	outside wall 2367	3	1 Min	3	30	Y	N
19	outside wall 2368	0	1 Min	0	0	Y	N
20	outside wall 2369	4	1 Min	4	40	Y	N
21	outside wall 2370	2	1 Min	2	20	Y	N
22	outside wall 2371	1	1 Min	1	10	Y	N
23	outside wall 2372	1	1 Min	1	10	Y	N
24	outside wall 2373	2	1 Min	2	20	Y	N
25	outside wall 2374	0	2 Min	0	0	Y	N
26	outside wall 2375	3	1 Min	3	30	Y	N
27	outside wall 2376	3	1 Min	3	30	Y	N
28	outside wall 2377	1	1 Min	1	10	Y	N
29	outside wall 2378	2	1 Min	2	20	Y	N
30	outside wall 2379	1	1 Min	1	10	Y	N
31	outside wall 2380	1	1 Min	1	10	Y	N
32	outside wall 2381	2	1 Min	2	20	Y	N
33	outside wall 2382	0	1 Min	0	0	Y	N
34	outside wall 2383	2	1 Min	2	20	Y	N
35	outside wall 2384	0	1 Min	0	0	Y	N
36	outside wall 2385	0	1 Min	0	0	Y	N
37	outside wall 2386	0	1 Min	0	0	Y	N
38	outside wall 2387	0	1 Min	0	0	Y	N
13	pillar	0	1 Min	0	0	Y	N
14	pillar	0	1 Min	0	0	Y	N
15	pillar	1	1 Min	1	10	Y	N
16	tin wall inside	0	1 Min	0	0	Y	N
17	tin wall inside	0	1 Min	0	0	Y	N
18	tin wall inside	0	1 Min	0	0	Y	N
19	tin wall inside	0	1 Min	0	0	Y	N
20	tin wall inside	1	1 Min	1	10	Y	N
21	tin wall inside	0	1 Min	0	0	Y	N
	wood rail	218	1 Min	218	2206	N	Y
22	tin wall inside	0	1 Min	0	0	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/3/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
23	tin wall inside	0	1 Min	0	0	Y	N
24	tin wall inside	1	1 Min	1	10	Y	N
25	tin wall inside	2	1 Min	2	20	Y	N
26	tin wall inside	1	1 Min	1	10	Y	N
27	tin wall inside	1	1 Min	1	10	Y	N
28	Pillar	0	1 Min	0	0	Y	N
29	Pillar	1	1 Min	1	10	Y	N
30	Pillar	0	1 Min	0	0	Y	N
31	Wall	0	1 Min	0	0	Y	N
32	Wall	1	1 Min	1	10	Y	N
33	Wall	0	1 Min	0	0	Y	N
34	Wall	0	1 Min	0	0	Y	N
35	Wall	0	1 Min	0	0	Y	N
36	Wall	1	1 Min	1	10	Y	N
37	Wall	0	1 Min	0	0	Y	N
38	Wall	0	1 Min	0	0	Y	N
39	Wall	0	1 Min	0	0	Y	N
40	Wall	0	1 Min	0	0	Y	N
41	Wall	0	1 Min	0	0	Y	N
42	Wall	0	1 Min	0	0	Y	N
43	Wall	0	1 Min	0	0	Y	N
44	Wall	0	1 Min	0	0	Y	N
45	Wall	0	1 Min	0	0	Y	N
46	Wall	0	1 Min	0	0	Y	N
47	Wall	1	1 Min	1	10	Y	N
48	Wall	0	1 Min	0	0	Y	N
49	Wall	0	1 Min	0	0	Y	N
50	Wall	1	1 Min	1	10	Y	N
51	2x4	1	1 Min	1	10	Y	N
52	Wall	1	1 Min	1	10	Y	N
53	Wall	1	1 Min	1	10	Y	N
54	Wall	1	1 Min	1	10	Y	N
55	Wall	0	1 Min	0	0	Y	N
56	Wall	1	1 Min	1	10	Y	N
57	wood frame	36	1 Min	36	364	N	Y
58	Wall	0	1 Min	0	0	Y	N
59	Wall	0	1 Min	0	0	Y	N
60	Wall	1	1 Min	1	10	Y	N
62	wall	1	1 Min	1	10	Y	N
63	wall	0	1 Min	0	0	Y	N
64	wood 2x4	1	1 Min	1	10	Y	N
65	wall	0	1 Min	0	0	Y	N
66	wall	1	1 Min	1	10	Y	N
67	wall	0	1 Min	0	0	Y	N
68	wall	0	1 Min	0	0	Y	N
69	wall	1	1 Min	1	10	Y	N
70	wall	1	1 Min	1	10	Y	N
72	wall	1	1 Min	1	10	Y	N
73	wall	1	1 Min	1	10	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13		
Date:	11/3/2004			Calibration factor	10.1	Probe face area (cm <sup>2</sup> )	76
Background (cpm)	0			Exc flag:	17 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
75	wall	0	1 Min	0	0	Y	N
77	wall	1	1 Min	1	10	Y	N
78	wall	0	1 Min	0	0	Y	N
80	wall	1	1 Min	1	10	Y	N
81	wall	1	1 Min	1	10	Y	N
83	wall	0	1 Min	0	0	Y	N
84	wall	0	1 Min	0	0	Y	N
85	high beta	x	1 Min	#VALUE!	#VALUE!	Y	N
86	wall	0	1 Min	0	0	Y	N
87	wall	0	1 Min	0	0	Y	N
88	wall	1	1 Min	1	10	Y	N
89	wall	0	1 Min	0	0	Y	N
90	wall	1	1 Min	1	10	Y	N
91	high beta	x	1 Min	#VALUE!	#VALUE!	Y	N
92	high beta	x	1 Min	#VALUE!	#VALUE!	Y	N
93	wall	1	1 Min	1	10	Y	N
94	wall	1	1 Min	1	10	Y	N
95	wall	0	1 Min	0	0	Y	N
96	frame	3	1 Min	3	30	Y	N
97	high beta	x	1 Min	#VALUE!	#VALUE!	Y	N
98	frame	1	1 Min	1	10	Y	N
99	frame	0	1 Min	0	0	Y	N
100	frame	0	1 Min	0	0	Y	N
101	frame	2	1 Min	2	20	Y	N
102	frame	0	1 Min	0	0	Y	N
103	frame	2	1 Min	2	20	Y	N
104	frame	3	1 Min	3	30	Y	N
105	frame	0	1 Min	0	0	Y	N
106	tin wall inside	0	1 Min	0	0	Y	N
107	tin wall inside	1	1 Min	1	10	Y	N
108	tin wall inside	1	1 Min	1	10	Y	N
109	tin wall inside	0	1 Min	0	0	Y	N
110	tin wall inside	1	1 Min	1	10	Y	N
1	outside wall	1	1 Min	1	10	Y	N
2	outside wall	2	1 Min	2	20	Y	N
3	outside wall	1	1 Min	1	10	Y	N
4	outside wall	0	1 Min	0	0	Y	N
5	outside wall	1	1 Min	1	10	Y	N
6	outside wall	3	1 Min	3	30	Y	N
7	outside wall	0	1 Min	0	0	Y	N
8	outside wall	0	1 Min	0	0	Y	N
9	outside wall	1	1 Min	1	10	Y	N
10	outside wall	0	1 Min	0	0	Y	N
11	outside wall	1	1 Min	1	10	Y	N
12	outside wall	0	1 Min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0		
Date:	11/3/2004			Calibration Factor	3		
Background (cpm)	159			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	inside wall	227	1 Min	68	235	Y	N
2	inside wall	213	1 Min	54	186	Y	N
3	inside wall	196	1 Min	37	128	Y	N
4	inside wall	237	1 Min	78	269	Y	N
5	inside wall	198	1 Min	39	135	Y	N
6	inside wall	211	1 Min	52	179	Y	N
7	inside wall	214	1 Min	55	190	Y	N
8	inside wall	232	1 Min	73	252	Y	N
9	inside wall	232	1 Min	73	252	Y	N
10	inside wall	202	1 Min	43	148	Y	N
11	inside wall	249	1 Min	90	311	Y	N
12	inside wall	205	1 Min	46	159	Y	N
13	wood	1298	1 Min	1139	3930	N	Y
14	wood	270	1 Min	111	383	Y	N
15	wood	219	1 Min	60	207	Y	N
16	wood	198	1 Min	39	135	Y	N
17	wood	217	1 Min	58	200	Y	N
18	wood	218	1 Min	59	204	Y	N
19	wood	248	1 Min	89	307	Y	N
20	wood	225	1 Min	66	228	Y	N
21	wood	253	1 Min	94	324	Y	N
22	wood	221	1 Min	62	214	Y	N
23	wood	259	1 Min	100	345	Y	N
24	wood	275	1 Min	116	400	Y	N
25	wood	309	1 Min	150	518	Y	N
26	wood	220	1 Min	61	210	Y	N
27	wood	229	1 Min	70	242	Y	N
28	wood	262	1 Min	103	355	Y	N
29	wood	238	1 Min	79	273	Y	N
30	wood	210	1 Min	51	176	Y	N
31	wood	223	1 Min	64	221	Y	N
32	wood	220	1 Min	61	210	Y	N
33	wood	241	1 Min	82	283	Y	N
34	wood	218	1 Min	59	204	Y	N
35	wood	218	1 Min	59	204	Y	N
36	wood	251	1 Min	92	317	Y	N
37	wood	242	1 Min	83	286	Y	N
38	wood	300	1 Min	141	486	Y	N
39	wood	302	1 Min	143	493	Y	N
40	wood	241	1 Min	82	283	Y	N
41	wood	243	1 Min	84	290	Y	N
42	wood	235	1 Min	76	262	Y	N
43	wood	260	1 Min	101	348	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0		
Date:	11/3/2004			Calibration Factor	3		
Background (cpm)	159			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
44	wood	250	1 Min	91	314	Y	N
45	wood	231	1 Min	72	248	Y	N
46	wood	290	1 Min	131	452	Y	N
47	wood	268	1 Min	109	376	Y	N
48	wood	261	1 Min	102	352	Y	N
49	wood	249	1 Min	90	311	Y	N
50	wood	258	1 Min	99	342	Y	N
51	wood	236	1 Min	77	266	Y	N
52	wood	251	1 Min	92	317	Y	N
53	wood	252	1 Min	93	321	Y	N
54	wood	230	1 Min	71	245	Y	N
55	wood	249	1 Min	90	311	Y	N
56	wood	250	1 Min	91	314	Y	N
57	wood	277	1 Min	118	407	Y	N
58	wood	302	1 Min	143	493	Y	N
59	wood	246	1 Min	87	300	Y	N
60	wood	265	1 Min	106	366	Y	N
61	wood	297	1 Min	138	476	Y	N
62	wood	246	1 Min	87	300	Y	N
63	wood	327	1 Min	168	580	Y	N
64	wood	297	1 Min	138	476	Y	N
65	wood	246	1 Min	87	300	Y	N
66	wood	327	1 Min	168	580	Y	N
67	pillar 2	193	1 Min	34	117	Y	N
68	tin wall	252	1 Min	93	321	Y	N
69	tin wall	253	1 Min	94	324	Y	N
70	tin wall	262	1 Min	103	355	Y	N
71	tin wall	252	1 Min	93	321	Y	N
72	tin wall	234	1 Min	75	259	Y	N
73	tin wall	267	1 Min	108	373	Y	N
74	pillar	212	1 Min	53	183	Y	N
75	tin wall	318	1 Min	159	549	Y	N
76	tin wall	259	1 Min	100	345	Y	N
77	tin wall	316	1 Min	157	542	Y	N
78	tin wall	252	1 Min	93	321	Y	N
79	tin wall	269	1 Min	110	380	Y	N
80	tin wall	236	1 Min	77	266	Y	N
81	tin wall	183	1 Min	24	83	Y	N
82	tin wall	216	1 Min	57	197	Y	N
83	tin wall	226	1 Min	67	231	Y	N
84	tin wall	195	1 Min	36	124	Y	N
85	tin wall	225	1 Min	66	228	Y	N
86	tin wall	135	1 Min	-24	-83	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0		
Date:	11/3/2004			Calibration Factor	3		
Background (cpm)	159			Exc flag:	600 cpm		
Facility	2362 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level dpm/100cm <sup>2</sup>	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
87	tin wall	224	1 Min	65	224	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	11/4/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	159			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
59	2362 inside	295	1 Min	136	469	Y	N
60	2362 inside	324	1 Min	165	569	Y	N
61	2362 inside	395	1 Min	236	814	N	Y
62	2362 inside	259	1 Min	100	345	Y	N
63	2362 inside	284	1 Min	125	431	Y	N
64	2362 inside	322	1 Min	163	562	Y	N
65	2362 inside	310	1 Min	151	521	Y	N
66	2362 inside	332	1 Min	173	597	Y	N
67	2362 inside	310	1 Min	151	521	Y	N
68	2362 inside	292	1 Min	133	459	Y	N
69	2362 inside	238	1 Min	79	273	Y	N
70	2362 inside	336	1 Min	177	611	Y	N
71	2362 inside	829	1 Min	670	2312	N	Y
72	2362 inside	289	1 Min	130	449	Y	N
73	2362 inside	295	1 Min	136	469	Y	N
74	2362 inside	630	1 Min	471	1625	N	Y
75	2362 inside	232	1 Min	73	252	Y	N
76	2362 inside	632	1 Min	473	1632	N	Y
77	2362 inside	297	1 Min	138	476	Y	N
78	2362 inside	332	1 Min	173	597	Y	N
79	2362 inside	632	1 Min	473	1632	N	Y
80	2362 inside	283	1 Min	124	428	Y	N
81	2362 inside	283	1 Min	124	428	Y	N
82	2362 inside	630	1 Min	471	1625	N	Y
83	2362 inside	230	1 Min	71	245	Y	N
84	2362 inside	219	1 Min	60	207	Y	N
85	2362 inside	632	1 Min	473	1632	N	Y
86	2362 inside	331	1 Min	172	594	Y	N
87	2362 inside	264	1 Min	105	362	Y	N
88	Desk drawer	157	1 Min	-2	-7	Y	N
89	Desk drawer	158	1 Min	-1	-3	Y	N
90	Desk drawer	143	1 Min	-16	-55	Y	N
91	Desk drawer	166	1 Min	7	24	Y	N
92	Desk drawer	164	1 Min	5	17	Y	N
93	Desk drawer	152	1 Min	-7	-24	Y	N
94	Desk drawer	139	1 Min	-20	-69	Y	N
95	Desk drawer	164	1 Min	5	17	Y	N
	barrel 1 inside	334	1 Min	175	604	Y	N
	barrel 1 outside	337	1 Min	178	614	Y	N
	barrel 1 outside	369	1 Min	210	725	Y	N
	barrel 2 inside	452	1 Min	293	1011	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/4/2004			Calibration factor	10.1		
Background (cpm)	159			release exceedance:	12cpm	Background (cpm)	0
Facility	2362 RAD YARD					Facility	2362 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
84	inside wall	0	1 Min	0	0	Y	N
86	inside wall	0	1 Min	0	0	Y	N
87	inside wall	0	1 Min	0	0	Y	N
88	inside wall	1	1 Min	1	10	Y	N
89	inside wall	0	1 Min	0	0	Y	N
90	inside wall	1	1 Min	1	10	Y	N
91	inside wall	1	1 Min	1	10	Y	N
93	inside wall	1	1 Min	1	10	Y	N
94	inside wall	1	1 Min	1	10	Y	N
95	inside wall	0	1 Min	0	0	Y	N
96	wood frame	3	1 Min	3	30	Y	N
98	inside wall	1	1 Min	1	10	Y	N
99	inside wall	0	1 Min	0	0	Y	N
100	inside wall	0	1 Min	0	0	Y	N
101	inside wall	2	1 Min	2	20	Y	N
102	inside wall	0	1 Min	0	0	Y	N
103	inside wall	2	1 Min	2	20	Y	N
104	inside wall	3	1 Min	3	30	Y	N
105	inside wall	0	1 Min	0	0	Y	N
106	inside wall	0	1 Min	0	0	Y	N
107	inside wall	1	1 Min	1	10	Y	N
108	inside wall	1	2 Min	1	10	Y	N
109	inside wall	0	1 Min	0	0	Y	N
110	inside wall	1	1 Min	1	10	Y	N
1	2364 shelves	1	1 Min	1	10	Y	N
2	2364 shelves	0	1 Min	0	0	Y	N
3	2364 shelves	0	1 Min	0	0	Y	N
4	2364 shelves	0	1 Min	0	0	Y	N
5	2364 shelves	0	1 Min	0	0	Y	N
6	2364 shelves	1	1 Min	1	10	Y	N
7	2364 shelves	0	1 Min	0	0	Y	N
8	2364 shelves	0	1 Min	0	0	Y	N
9	2364 shelves	0	1 Min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	149389	Efficiency (cpm)	0.21		
Date:	11/5/2004			Calibration factor	3.8	Probe face area (cm2)=	126
Background (cpm)	134			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	2363 beams	97	1 Min	-37	-140	Y	Y
2	2363 beams	113	1 Min	-21	-79	Y	Y
3	2363 beams	117	1 Min	-17	-64	Y	Y
4	2363 beams	199	1 Min	65	246	Y	Y
5	2363 beams	147	1 Min	13	49	Y	Y
6	2363 beams	118	1 Min	-16	-60	Y	Y
7	2363 beams	115	1 Min	-19	-72	Y	Y
8	2363 beams	157	1 Min	23	87	Y	Y
9	2363 beams	131	1 Min	-3	-11	Y	Y
10	2363 beams	173	1 Min	39	147	Y	Y
11	2363 beams	92	1 Min	-42	-159	Y	Y
12	2363 beams	513	1 Min	379	1432	N	Y
13	2363 beams	116	1 Min	-18	-68	Y	Y
14	2363 beams	115	1 Min	-19	-72	Y	Y
15	2363 beams	106	1 Min	-28	-106	Y	Y
16	2363 beams	198	1 Min	64	242	Y	Y
17	2363 beams	120	1 Min	-14	-53	Y	Y
18	2363 beams	123	1 Min	-11	-42	Y	Y
19	2363 beams	204	1 Min	70	265	Y	Y
20	2363 beams	190	1 Min	56	212	Y	Y
21	2363 beams	127	1 Min	-7	-26	Y	Y
22	2363 beams	118	1 Min	-16	-60	Y	Y
23	2363 beams	119	1 Min	-15	-57	Y	Y
24	2363 beams	234	1 Min	100	378	Y	Y
25	Tin Roof 2362	197	1 Min	63	238	Y	Y
26	Tin Roof 2362	219	1 Min	85	321	Y	Y
27	Tin Roof 2362	192	1 Min	58	219	Y	Y



28	Tin Roof 2362	186	1 Min	52	197	Y	Y
29	Tin Roof 2362	163	1 Min	29	110	Y	Y
30	Tin Roof 2362	103	1 Min	-31	-117	Y	Y
31	Tin Roof 2362	130	1 Min	-4	-15	Y	Y
32	Tin Roof 2362	201	1 Min	67	253	Y	Y
33	Tin Roof 2362	293	1 Min	159	601	Y	Y
34	Tin Roof 2362	110	1 Min	-24	-91	Y	Y
35	Tin Roof 2362	120	1 Min	-14	-53	Y	Y
36	Tin Roof 2362	213	1 Min	79	299	Y	Y
37	Tin Roof 2362	141	1 Min	7	26	Y	Y
38	Tin Roof 2362	206	1 Min	72	272	Y	Y
39	Tin Roof 2362	115	1 Min	-19	-72	Y	Y
40	Tin Roof 2362	110	1 Min	-24	-91	Y	Y
41	Tin Roof 2362	205	1 Min	71	268	Y	Y
42	Tin Roof 2362	168	1 Min	34	128	Y	Y
43	Tin Roof 2362	190	1 Min	56	212	Y	Y
44	Tin Roof 2362	190	1 Min	56	212	Y	Y
45	Tin Roof 2362	175	1 Min	41	155	Y	Y
46	Tin Roof 2362	164	1 Min	30	113	Y	Y
47	Tin Roof 2362	200	1 Min	66	249	Y	Y
48	Tin Roof 2362	213	1 Min	79	299	Y	Y
49	Tin Roof 2362	212	1 Min	78	295	Y	Y
50	Tin Roof 2362	124	1 Min	-10	-38	Y	Y
51	Tin Roof 2362	104	1 Min	-30	-113	Y	Y
52	Tin Roof 2362	103	1 Min	-31	-117	Y	Y
53	Tin Roof 2362	182	1 Min	48	181	Y	Y
54	Tin Roof 2362	303	1 Min	169	639	Y	Y
55	Tin Roof 2362	114	1 Min	-20	-76	Y	Y
56	Tin Roof 2362	201	1 Min	67	253	Y	Y
57	Tin Roof 2362	246	1 Min	112	423	Y	Y
58	Tin Roof 2362	122	1 Min	-12	-45	Y	Y
59	Tin Roof 2362	184	1 Min	50	189	Y	Y
60	Tin Roof 2362	222	1 Min	88	333	Y	Y
61	Tin Roof 2362	230	1 Min	96	363	Y	Y
62	Tin Roof 2362	244	1 Min	110	416	Y	Y



63	Tin Roof 2362	241	1 Min	107	404	Y	Y
64	Tin Roof 2362	118	1 Min	-16	-60	Y	Y
65	Tin Roof 2362	111	1 Min	-23	-87	Y	Y
66	Tin Roof 2362	231	1 Min	97	367	Y	Y
67	Tin Roof 2362	209	1 Min	75	283	Y	Y
68	Tin Roof 2362	113	1 Min	-21	-79	Y	Y
69	Tin Roof 2362	245	1 Min	111	420	Y	Y
70	Tin Roof 2362	125	1 Min	-9	-34	Y	Y
71	Tin Roof 2362	186	1 Min	52	197	Y	Y
72	Tin Roof 2362	241	1 Min	107	404	Y	Y



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	142893	Efficiency (cpm )	0.23		
Date:	11/5/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	193			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
59	2362 Scale	280	1 Min	87	300	Y	Y
60	2362 banding tool	165	1 Min	-28	-97	Y	Y
61	2362stand1	224	1 Min	31	107	Y	Y
62	2362stand2	261	1 Min	68	235	Y	Y
64	2362 wood table	292	1 Min	99	342	Y	Y
65	2362chair	167	1 Min	-26	-90	Y	Y
66	2362 barrel lifter	175	1 Min	-18	-62	Y	Y
67	2362 misc tools	1165	1 Min	972	3354	N	Y
68	2363 beams	292	1 Min	232	801	Y	Y
69	2363 beams	238	1 Min	164	566	Y	Y
70	2363 beams	336	1 Min	111	383	Y	Y
71	2363 beams	829	1 Min	157	542	Y	Y
72	2363 beams	289	1 Min	136	469	Y	Y
73	2363 beams	295	1 Min	207	714	Y	Y
74	2363 beams	630	1 Min	225	776	N	Y



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/5/2004			Calibration factor	10.1		
Background (cpm)	1			release exceedance:		Background (cpm)	
Facility	2362 RAD YARD					Facility	2362 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
1	Misc tools	0	1 min	-1	-10	Y	N
1.1	upright column 2363	2	1 min	1	10	Y	N
1.2	"	2	1 min	1	10	Y	N
1.3	"	1	1 min	0	0	Y	N
1.4	"	2	1 min	1	10	Y	N
2.1	"	1	1 min	0	0	Y	N
2.2	"	0	1 min	-1	-10	Y	N
2.3	"	3	1 min	2	20	Y	N
3.1	"	0	1 min	-1	-10	Y	N
3.2	"	2	1 min	1	10	Y	N
3.3	"	0	1 min	-1	-10	Y	N
3.4	"	3	1 min	2	20	Y	N
4.1	"	1	1 min	0	0	Y	N
4.2	"	1	1 min	0	0	Y	N
4.3	"	4	1 min	3	30	Y	N
4.4	"	1	1 min	0	0	Y	N
1.5	"	3	1 min	2	20	Y	N
1.6	"	0	1 min	-1	-10	Y	N
1.7	"	0	1 min	-1	-10	Y	N
2.4	"	0	1 min	-1	-10	Y	N
2.5	"	2	1 min	1	10	Y	N
3.5	"	0	1 min	-1	-10	Y	N
3.6	"	1	1 min	0	0	Y	N
4.5	"	0	1 min	-1	-10	Y	N
4.6	"	2	1 min	1	10	Y	N
4.7	"	3	1 min	2	20	Y	N
a-1	tin roof 2362	0	1 min	-1	-10	Y	N
b-2	tin roof 2362	0	1 min	-1	-10	Y	N
a-3	tin roof 2362	0	1 min	-1	-10	Y	N
b-4	tin roof 2362	0	1 min	-1	-10	Y	N
a-5	tin roof 2362	0	1 min	-1	-10	Y	N
b-6	tin roof 2362	0	1 min	-1	-10	Y	N
a-7	tin roof 2362	0	1 min	-1	-10	Y	N
b-8	tin roof 2362	0	1 min	-1	-10	Y	N
a-9	tin roof 2362	2	1 min	1	10	Y	N
b-10	tin roof 2362	1	1 min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116			Efficiency (cpm)	0.22		
Date:	11/6/2004			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	133			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Electrical conduit + pipes	2362	115	1 Min	-18	-65	Y	N
Electrical conduit + pipes	2362	107	1 Min	-26	-94	Y	N
Electrical conduit + pipes	2362	137	1 Min	4	14	Y	N
Electrical conduit + pipes	2362	151	1 Min	18	65	Y	N
Electrical conduit + pipes	2362	153	1 Min	20	72	Y	N
Electrical conduit + pipes	2362	114	1 Min	-19	-69	Y	N
Electrical conduit + pipes	2362	110	1 Min	-23	-83	Y	N
Plywood	2362	129	1 Min	-4	-14	Y	N
metal board	2362	122	1 Min	-11	-40	Y	N
wood debris	2362	186	1 Min	53	191	Y	N
wood debris	2362	153	1 Min	20	72	Y	N
wood debris	2362	152	1 Min	19	69	Y	N
wood debris	2362	207	1 Min	74	267	Y	N
compactor -Ram	2362	85	1 Min	-48	-173	Y	N
"inside floor	2362	103	1 Min	-30	-108	Y	N
"inside door	2362	120	1 Min	-13	-47	Y	N
"outside door	2362	100	1 Min	-33	-119	Y	N
"ram top	2362	90	1 Min	-43	-155	Y	N
"filter housing	2362	106	1 Min	-27	-97	Y	N
"control panel	2362	105	1 Min	-28	-101	Y	N
power saw blad	2362	103	1 Min	-30	-108	Y	N
" other	2362	105	1 Min	-28	-101	Y	N
chiller	2362	123	1 Min	-10	-36	Y	N
compressor	2362	126	1 Min	-7	-25	Y	N



AMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	43-5		PR145049	Efficiency (cpm )	0.14	Probe face area (cm2)=	76
Date:	11/6/2004			Calibration factor	9		
Background (cpm)	0			release exceedance:		Background (cpm)	0
Facility	2362 RAD YARD					Facility	2362 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
od debris from2362		4	1min	4	38	Y	N
od debris from2362		1	1min	1	9	Y	N
od debris from2362		0	1min	0	0	Y	N
od debris from2362		2	1min	2	19	Y	N
metal		0	1min	0	0	Y	N
plywood		2	1min	2	19	Y	N
drum crusher inner door		0	1min	0	0	Y	N
drum crusher bottom		2	1min	2	19	Y	N
plate top		0	1min	0	0	Y	N
plate bottom		0	1min	0	0	Y	N
left wall		0	1min	0	0	Y	N
right wall		0	1min	0	0	Y	N
rear wall		0	1min	0	0	Y	N
exhaust		0	1min	0	0	Y	N
saw		0	1min	0	0	Y	N
air compressor		0	1min	0	0	Y	N
cooling unit		3	1min	3	28	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/8/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	2362/2364/2366 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
steel beam 2362 1		166	1 Min	19	66	Y	N
steel beam 2362 2		133	1 Min	-14	-48	Y	N
steel beam 2362 3		148	1 Min	1	3	Y	N
steel beam 2362 4		129	1 Min	-18	-62	Y	N
steel beam 2362 5		205	1 Min	58	200	Y	N
steel beam 2362 6		160	1 Min	13	45	Y	N
steel beam 2362 7		230	1 Min	83	286	Y	N
steel beam 2362 8		165	1 Min	18	62	Y	N
steel beam 2362 9		149	1 Min	2	7	Y	N
steel beam 2362 10		169	1 Min	22	76	Y	N
steel beam 2362 11		164	1 Min	17	59	Y	N
steel beam 2362 12		183	1 Min	36	124	Y	N
steel beam 2362 13		213	1 Min	66	228	Y	N
steel beam 2362 14		139	1 Min	-8	-28	Y	N
steel beam 2362 15		148	1 Min	1	3	Y	N
steel beam 2362 16		159	1 Min	12	41	Y	N
steel beam 2362 17		203	1 Min	56	193	Y	N
steel beam 2362 18		163	1 Min	16	55	Y	N
steel beam 2362 19		132	1 Min	-15	-52	Y	N
steel beam 2362 20		156	1 Min	9	31	Y	N
steel beam 2362 21		174	1 Min	27	93	Y	N
steel beam 2362 22		127	1 Min	-20	-69	Y	N
steel beam 2362 23		123	1 Min	-24	-83	Y	N
steel beam 2362 24		129	1 Min	-18	-62	Y	N
steel beam 2362 25		114	1 Min	-33	-114	Y	N
steel beam 2362 26		125	1 Min	-22	-76	Y	N
steel beam 2362 27		192	1 Min	45	155	Y	N
steel beam 2362 28		116	1 Min	-31	-107	Y	N
steel beam 2362 29		241	1 Min	94	324	Y	N
steel beam 2362 30		203	1 Min	56	193	Y	N
steel beam 2362 31		116	1 Min	-31	-107	Y	N
steel beam 2362 32		168	1 Min	21	72	Y	N
steel beam 2362 33		155	1 Min	8	28	Y	N
steel beam 2362 34		280	1 Min	133	459	Y	N
steel beam 2362 35		183	1 Min	36	124	Y	N
steel beam 2362 36		207	1 Min	60	207	Y	N
steel beam 2362 37		270	1 Min	123	424	Y	N
steel beam 2362 38		279	1 Min	132	455	Y	N
steel beam 2362 39		328	1 Min	181	625	Y	N
steel beam 2362 40		233	1 Min	86	297	Y	N
steel beam 2362 41		193	1 Min	46	159	Y	N
steel beam 2362 42		199	1 Min	52	179	Y	N
steel beam 2362 43		387	1 Min	240	828	N	Y
steel beam 2362 44		230	1 Min	83	286	Y	N
steel beam 2362 45		164	1 Min	17	59	Y	N
steel beam 2362 46		164	1 Min	17	59	Y	N
steel beam 2362 47		158	1 Min	11	38	Y	N
steel beam 2362 48		146	1 Min	-1	-3	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/8/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	2362/2364/2366 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
steel beam 2362 49		226	1 Min	79	273	Y	N
steel beam 2362 50		157	1 Min	10	35	Y	N
steel beam 2362 51		135	1 Min	-12	-41	Y	N
roof top 2356 1		394	1 Min	247	852	N	Y
roof top 2356 2		214	1 Min	67	231	Y	N
roof top 2356 3		168	1 Min	21	72	Y	N
roof top 2356 4		354	1 Min	207	714	N	Y
roof top 2356 5		155	1 Min	8	28	Y	N
roof top 2356 6		166	1 Min	19	66	Y	N
roof top 2356 7		175	1 Min	28	97	Y	N
2366 hoist		196	1 Min	49	169	Y	N
2366 hoist		172	1 Min	25	86	Y	N
steel beams 1		161	1 Min	14	48	Y	N
steel beams 2		133	1 Min	-14	-48	Y	N
steel beams 3		148	1 Min	1	3	Y	N
steel beams 4		129	1 Min	-18	-62	Y	N
steel beams 5		205	1 Min	58	200	Y	N
steel beams 6		160	1 Min	13	45	Y	N
steel beams 7		230	1 Min	83	286	Y	N
steel beams 8		165	1 Min	18	62	Y	N
steel beams 9		149	1 Min	2	7	Y	N
steel beams 10		169	1 Min	22	76	Y	N
steel beams 11		164	1 Min	17	59	Y	N
steel beams 12		183	1 Min	36	124	Y	N
steel beams 13		213	1 Min	66	228	Y	N
steel beams 14		139	1 Min	-8	-28	Y	N
steel beams 15		148	1 Min	1	3	Y	N
steel beams 16		159	1 Min	12	41	Y	N
steel beams 17		203	1 Min	56	193	Y	N
steel beams 18		163	1 Min	16	55	Y	N
steel beams 19		132	1 Min	-15	-52	Y	N
steel beams 20		156	1 Min	9	31	Y	N
steel beams 21		174	1 Min	27	93	Y	N
steel beams 22		127	1 Min	-20	-69	Y	N
steel beams 23		123	1 Min	-24	-83	Y	N
steel beams 24		129	1 Min	-18	-62	Y	N
steel beams 25		114	1 Min	-33	-114	Y	N
steel beams 26		125	1 Min	-22	-76	Y	N
steel beams 27		192	1 Min	45	155	Y	N
steel beams 28		110	1 Min	-37	-128	Y	N
steel beams 29		241	1 Min	94	324	Y	N
steel beams 30		203	1 Min	56	193	Y	N
steel beams 31		116	1 Min	-31	-107	Y	N
steel beams 32		168	1 Min	21	72	Y	N
steel beams 33		155	1 Min	8	28	Y	N
steel beams 34		280	1 Min	133	459	Y	N
steel beams 35		183	1 Min	36	124	Y	N
steel beams 36		207	1 Min	60	207	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
		FORM 3.03					
<b>Model:</b>	44-116	<b>S/N</b>	PR142893	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	11/8/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>	147			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	2362/2364/2366 RAD YARD						
<b>Item</b>	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
steel beams 37	270	1 Min	123	424	Y	N	
steel beams 38	279	1 Min	132	455	Y	N	
steel beams 39	328	1 Min	181	625	Y	N	
steel beams 40	233	1 Min	86	297	Y	N	
steel beams 41	193	1 Min	46	159	Y	N	
steel beams 42	199	1 Min	52	179	Y	N	
steel beams 43	387	1 Min	240	828	N	Y	
steel beams 44	230	1 Min	83	286	Y	N	
steel beams 45	164	1 Min	17	59	Y	N	
steel beams 46	164	1 Min	17	59	Y	N	
steel beams 47	158	1 Min	11	38	Y	N	
steel beams 48	146	1 Min	-1	-3	Y	N	
steel beams 49	226	1 Min	79	273	Y	N	
steel beams 50	157	1 Min	10	35	Y	N	
steel beams 51	135	1 Min	-12	-41	Y	N	
roof top 2356 1	394	1 Min	247	852	N	Y	
roof top 2356 2	214	1 Min	67	231	Y	N	
roof top 2356 3	168	1 Min	21	72	Y	N	
roof top 2356 4	354	1 Min	207	714	N	Y	
roof top 2356 5	155	1 Min	8	28	Y	N	
roof top 2356 6	166	1 Min	19	66	Y	N	
roof top 2356 7	175	1 Min	28	97	Y	N	
2366 hoist	196	1 Min	49	169	Y	N	
2366 hoist	172	1 Min	25	86	Y	N	
Roll off 30030 1	127	1 Min	-20	-69	Y	N	
Roll off 30030 2	148	1 Min	1	3	Y	N	
Roll off 30030 3	115	1 Min	-32	-110	Y	N	
Roll off 30030 4	145	1 Min	-2	-7	Y	N	
Roll off 30030 5	113	1 Min	-34	-117	Y	N	
Roll off 30030 6	114	1 Min	-33	-114	Y	N	
Roll off 30030 7	117	1 Min	-30	-104	Y	N	
Roll off 30030 8	137	1 Min	-10	-35	Y	N	
Roll off 30030 9	144	1 Min	-3	-10	Y	N	
Roll off 30030 10	131	1 Min	-16	-55	Y	N	
Pallet jack top	150	1 Min	3	10	Y	N	
pallet jack bottom	155	1 Min	8	28	Y	N	
pallet jack wheels	162	1 Min	15	52	Y	N	
E2366 beams 1	154	1 Min	7	24	Y	N	
E2366 beams 2	151	1 Min	4	14	Y	N	
E2366 beams 3	160	1 Min	13	45	Y	N	
E2366 beams 4	165	1 Min	18	62	Y	N	
E2366 beams 5	190	1 Min	43	148	Y	N	
E2366 beams 6	145	1 Min	-2	-7	Y	N	
E2366 beams 7	165	1 Min	18	62	Y	N	
E2366 beams 8	170	1 Min	23	79	Y	N	
E2366 beams 9	160	1 Min	13	45	Y	N	
E2366 beams 10	128	1 Min	-19	-66	Y	N	
E2366 beams 11	180	1 Min	33	114	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/8/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	2362/2364/2366 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
E2366 beams 12		152	1 Min	5	17	Y	N
E2366 beams 13		142	1 Min	-5	-17	Y	N
E2366 beams 14		115	1 Min	-32	-110	Y	N
E2366 beams 15		156	1 Min	9	31	Y	N
E2366 beams 16		127	1 Min	-20	-69	Y	N
E2366 beams 17		160	1 Min	13	45	Y	N
E2366 beams 18		166	1 Min	19	66	Y	N
E2366 beams 19		238	1 Min	91	314	Y	N
E2366 beams 20		166	1 Min	19	66	Y	N
E2366 beams 21		146	1 Min	-1	-3	Y	N
E2366 beams 22		126	1 Min	-21	-72	Y	N
E2366 beams 23		186	1 Min	39	135	Y	N
E2366 beams 24		158	1 Min	11	38	Y	N
rail 1		166	1 Min	19	66	Y	N
rail 2		155	1 Min	8	28	Y	N
rail 3		159	1 Min	12	41	Y	N
rail 4		136	1 Min	-11	-38	Y	N
rail 5		174	1 Min	27	93	Y	N
rail 6		150	1 Min	3	10	Y	N
rail 7		183	1 Min	36	124	Y	N
rail 8		199	1 Min	52	179	Y	N
Boiler 1		115	1 Min	-32	-110	Y	N
Boiler 2		146	1 Min	-1	-3	Y	N
Boiler 3		134	1 Min	-13	-45	Y	N
Water Tank 1		123	1 Min	-24	-83	Y	N
Water Tank 2		130	1 Min	-17	-59	Y	N
Water Tank 3		133	1 Min	-14	-48	Y	N
Water Tank 4		109	1 Min	-38	-131	Y	N
Water Tank 5		142	1 Min	-5	-17	Y	N
Water Tank 6		133	1 Min	-14	-48	Y	N
Pipes 1		126	1 Min	-21	-72	Y	N
Pipes 2		131	1 Min	-16	-55	Y	N
Pipes 3		142	1 Min	-5	-17	Y	N
E2368 wall inside 1		118	1 Min	-29	-100.0690131	Y	N
E2368 wall inside 2		134	1 Min	-13	-44.85852312	Y	N
E2368 wall inside 3		124	1 Min	-23	-79.36507937	Y	N
E2368 wall inside 4		158	1 Min	11	37.95721187	Y	N
E2368 wall outside 1		131	1 Min	-16	-55.21048999	Y	N
E2368 wall outside 2		160	1 Min	13	44.85852312	Y	N
E2368 wall outside 3		157	1 Min	10	34.50655625	Y	N
E2368 wall outside 4		154	1 Min	7	24.15458937	Y	N
E2368 wall outside 5		155	1 Min	8	27.605245	Y	N
E2368 wall outside 6		137	1 Min	-10	-34.50655625	Y	N
E2368 wall outside 7		134	1 Min	-13	-44.85852312	Y	N



**TOTAL BETA CONTAMINATION SURVEY DATA FORM  
FORM 3.03**

<b>Model:</b>	44-116	<b>S/N</b>	PR 131321	<b>Efficiency (cpm)</b>	0.23		
<b>Date:</b>	11/8/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126

<b>Background (cpm)</b>	164	
<b>Facility</b>	2362/2364/2366 RAD YARD	

<b>release exceedance:</b>	700 cpm
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Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
E2362 steel beams 1	250	1 Min	86	297	Y	N
E2362 steel beams 2	188	1 Min	24	83	Y	N
E2362 steel beams 3	197	1 Min	33	114	Y	N
E2362 steel beams 4	126	1 Min	-38	-131	Y	N
E2362 steel beams 5	191	1 Min	27	93	Y	N
E2362 steel beams 6	168	1 Min	4	14	Y	N
E2362 steel beams 7	162	1 Min	-2	-7	Y	N
E2362 steel beams 8	132	1 Min	-32	-110	Y	N
E2362 steel beams 9	129	1 Min	-35	-121	Y	N
E2362 steel beams 10	127	1 Min	-37	-128	Y	N
E2362 steel beams 11	149	1 Min	-15	-52	Y	N
E2362 steel beams 12	151	1 Min	-13	-45	Y	N
E2362 steel beams 13	144	1 Min	-20	-69	Y	N
E2362 steel beams 14	178	1 Min	14	48	Y	N
E2362 steel beams 15	167	1 Min	3	10	Y	N
E2362 steel beams 16	234	1 Min	70	242	Y	N
E2362 steel beams 17	171	1 Min	7	24	Y	N
E2362 steel beams 18	276	1 Min	112	386	Y	N
E2362 steel beams 19	239	1 Min	75	259	Y	N
E2362 steel beams 20	189	1 Min	25	86	Y	N
E2362 steel beams 21	160	1 Min	-4	-14	Y	N
E2362 steel beams 22	185	1 Min	21	72	Y	N
E2362 steel beams 23	153	1 Min	-11	-38	Y	N
E2362 steel beams 24	129	1 Min	-35	-121	Y	N
E2362 steel beams 25	133	1 Min	-31	-107	Y	N
E2362 steel beams 26	129	1 Min	-35	-121	Y	N
E2362 steel beams 27	161	1 Min	-3	-10	Y	N
E2362 steel beams 28	143	1 Min	-21	-72	Y	N
E2362 steel beams 29	108	1 Min	-56	-193	Y	N
E2362 steel beams 30	148	1 Min	-16	-55	Y	N
E2362 steel beams 31	172	1 Min	8	28	Y	N
E2362 steel beams 32	144	1 Min	-20	-69	Y	N
E2362 steel beams 33	176	1 Min	12	41	Y	N
E2362 steel beams 34	120	1 Min	-44	-152	Y	N
2356 wood roof underside	127	1 Min	-37	-128	Y	N
2357 wood roof underside	127	1 Min	-37	-128	Y	N
2358 wood roof underside	120	1 Min	-44	-152	Y	N
2359 wood roof underside	127	1 Min	-37	-128	Y	N
wood footing	191	1 Min	27	93	Y	N
wood footing	167	1 Min	3	10	Y	N
wood footing	156	1 Min	-8	-28	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM						
FORM 3.03						
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	Probe face area (cm2)= 76
<b>Date:</b>	11/8/2004			<b>Calibration factor</b>	10.1	
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b> RAD YARD
<b>Facility</b>	2362/2364/2366 RAD YARD					
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
2362 steel beam	0	1min	0	0	Y	N
2356 wood roof - footing	0	1min	0	0	Y	N
2357 wood roof - underside	2	1min	2	20	Y	N
2358 wood roof - underside	0	1min	0	0	Y	N
E2362 - steel beam 1	0	1min	0	0	Y	N
E2362 - steel beam 2	0	1min	0	0	Y	N
E2362 - steel beam 3	3	1min	3	30	Y	N
E2362 - steel beam 4	1	1min	1	10	Y	N
E2362 - steel beam 5	4	1min	4	40	Y	N
E2362 - steel beam 6	3	1min	3	30	Y	N
E2362 - steel beam 7	3	1min	3	30	Y	N
E2362 - steel beam 8	4	1min	4	40	Y	N
E2356 roof top 1	11	1min	11	111	Y	N
E2356 roof top 2	4	1min	4	40	Y	N
E2356 roof top 3	3	1min	3	30	Y	N
E2356 roof top 4	3	1min	3	30	Y	N
2368 - Boiler	0	1min	0	0	Y	N
2368 - Boiler	0	1min	0	0	Y	N
2368 - Boiler	1	1min	1	10	Y	N
water tank	1	1min	1	10	Y	N
water tank	0	1min	0	0	Y	N
Pipes	0	1min	0	0	Y	N
Pipes	0	1min	0	0	Y	N
Pipes	1	1min	1	10	Y	N
E2368 boiler stack	0	1min	0	0	Y	N
E2368 rear wall inside	0	1min	0	0	Y	N
E2368 rear wall inside	0	1min	0	0	Y	N
E2368 rear wall inside	0	1min	0	0	Y	N
E2368 rear wall outside	1	1min	1	10	Y	N
E2368 rear wall outside	0	1min	0	0	Y	N
E2368 rear wall outside	0	1min	0	0	Y	N
front door E2368	0	1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.23		
Date:	11/8/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	125			release exceedance:	700 cpm		
Facility	2362/2364/2366 RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Pallet Jack top	150	1 Min	25	86	Y	N	
Pallet Jack bottom	155	1 Min	30	104	Y	N	
Pallet Jack wheels	162	1 Min	37	128	Y	N	
Roll off 1	127	1 Min	2	7	Y	N	
Roll off 2	148	1 Min	23	79	Y	N	
Roll off 3	115	1 Min	-10	-35	Y	N	
Roll off 4	145	1 Min	20	69	Y	N	
Roll off 5	113	1 Min	-12	-41	Y	N	
Roll off 6	114	1 Min	-11	-38	Y	N	
Roll off 7	117	1 Min	-8	-28	Y	N	
Roll off 8	137	1 Min	12	41	Y	N	
Roll off 9	144	1 Min	19	66	Y	N	
Roll off 10	131	1 Min	6	21	Y	N	
roof top of 2356	161	1 Min	36	124	Y	N	
hoist 2356 -1	155	1 Min	30	104	Y	N	
hoist 2356 -2	123	1 Min	-2	-7	Y	N	
hoist 2356 -3	138	1 Min	13	45	Y	N	
I beam 2362 -1	118	1 Min	-7	-24	Y	N	
I beam 2362 -2	130	1 Min	5	17	Y	N	
I beam 2362 -3	104	1 Min	-21	-72	Y	N	
I beam 2362 -4	112	1 Min	-13	-45	Y	N	
2368 muffler	98	1 Min	-27	-93	Y	N	
10"pipe	127	1 Min	2	7	Y	N	
10"pipe	96	1 Min	-29	-100	Y	N	
Boiler 1	120	1 Min	-5	-17	Y	N	
Boiler 2	107	1 Min	-18	-62	Y	N	
Back wall 1	128	1 Min	3	10	Y	N	
Back wall 2	122	1 Min	-3	-10	Y	N	
Back wall 3	176	1 Min	51	176	Y	N	
Back wall 4	129	1 Min	4	14	Y	N	
Frame 1	127	1 Min	2	7	Y	N	
Frame 2	132	1 Min	7	24	Y	N	
Frame 3	109	1 Min	-16	-55	Y	N	
wood frame 4	137	1 Min	12	41	Y	N	
wood frame 5	109	1 Min	-16	-55	Y	N	
wood frame 6	120	1 Min	-5	-17	Y	N	
2366 I beam	140	1 Min	15	52	Y	N	
2366 I beam	111	1 Min	-14	-48	Y	N	
2366 I beam	112	1 Min	-13	-45	Y	N	
2366 I beam	110	1 Min	-15	-52	Y	N	
2366 I beam	116	1 Min	-9	-31	Y	N	
2366 I beam	131	1 Min	6	21	Y	N	
2366 I beam	123	1 Min	-2	-7	Y	N	
2366 I beam	140	1 Min	15	52	Y	N	
2366 I beam	142	1 Min	17	59	Y	N	
2366 I beam	119	1 Min	-6	-21	Y	N	
2366 I beam	122	1 Min	-3	-10	Y	N	
2366 I beam	163	1 Min	38	131	Y	N	
2366 I beam	188	1 Min	63	217	Y	N	
misc 1	121	1 Min	-4	-14	Y	N	
misc 2	139	1 Min	14	48	Y	N	
misc 3	141	1 Min	16	55	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/9/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
2364 outside wall 1		132	1 Min	-15	-52	Y	N
2364 outside wall 1		165	1 Min	18	62	Y	N
2364 outside wall 1		164	1 Min	17	59	Y	N
2364 outside wall 1		129	1 Min	-18	-62	Y	N
2364 outside wall 1		152	1 Min	5	17	Y	N
2364 outside wall 1		154	1 Min	7	24	Y	N
2364 outside wall 1		152	1 Min	5	17	Y	N
2364 outside wall 1		142	1 Min	-5	-17	Y	N
2364 outside wall 1		149	1 Min	2	7	Y	N
2364 outside wall 1		179	1 Min	32	110	Y	N
2364 outside wall 1		143	1 Min	-4	-14	Y	N
2364 outside wall 1		139	1 Min	-8	-28	Y	N
2364 outside wall 1		161	1 Min	14	48	Y	N
2364 outside wall 1		160	1 Min	13	45	Y	N
2364 door		183	1 Min	36	124	Y	N
2364 door		234	1 Min	87	300	Y	N
2364 door		228	1 Min	81	280	Y	N
2364 interior left room		126	1 Min	-21	-72	Y	N
2364 interior left room		146	1 Min	-1	-3	Y	N
2364 interior left room		148	1 Min	1	3	Y	N
2364 interior left room		170	1 Min	23	79	Y	N
2364 interior left room		144	1 Min	-3	-10	Y	N
2364 interior left room		152	1 Min	5	17	Y	N
2364 interior left room		166	1 Min	19	66	Y	N
2364 interior left room		166	1 Min	19	66	Y	N
2364 interior left room		131	1 Min	-16	-55	Y	N
2364 interior left room		131	1 Min	-16	-55	Y	N
2364 interior left room		126	1 Min	-21	-72	Y	N
2364 interior left room		161	1 Min	14	48	Y	N
2364 interior left room		175	1 Min	28	97	Y	N
2364 interior left room		158	1 Min	11	38	Y	N
2364 interior left room		146	1 Min	-1	-3	Y	N
2364 interior left room		128	1 Min	-19	-66	Y	N
2364 interior left room		126	1 Min	-21	-72	Y	N
2364 interior left room		150	1 Min	3	10	Y	N
2364 interior left room		145	1 Min	-2	-7	Y	N
2364interior right room		136	1 Min	-11	-38	Y	N
2364interior right room		149	1 Min	2	7	Y	N
2364interior right room		116	1 Min	-31	-107	Y	N
2364interior right room		136	1 Min	-11	-38	Y	N
2364interior right room		157	1 Min	10	35	Y	N
2364interior right room		169	1 Min	22	76	Y	N
desk		140	1 Min	-7	-24	Y	N
desk		148	1 Min	1	3	Y	N
desk		175	1 Min	28	97	Y	N
desk		130	1 Min	-17	-59	Y	N
desk		145	1 Min	-2	-7	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR142893	Efficiency (cpm )	0.23		
Date:	11/9/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
desk		138	1 Min	-9	-31	Y	N
light housing		262	1 Min	115	397	Y	N
light housing		269	1 Min	122	421	Y	N
light housing		270	1 Min	123	424	Y	N
light housing		253	1 Min	106	366	Y	N
light housing		263	1 Min	116	400	Y	N
light housing		284	1 Min	137	473	Y	N
light housing		149	1 Min	2	7	Y	N
light housing		155	1 Min	8	28	Y	N
light housing		139	1 Min	-8	-28	Y	N
light housing		135	1 Min	-12	-41	Y	N
light housing		143	1 Min	-4	-14	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.23		
Date:	11/9/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	159			release exceedance:	700 cpm		
Facility	2362/2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
2364 outside wall 1		118	1 Min	-41	-141	Y	N
2365 outside wall 1		127	1 Min	-32	-110	Y	N
2366 outside wall 1		136	1 Min	-23	-79	Y	N
2367 outside wall 1		126	1 Min	-33	-114	Y	N
2368 outside wall 1		117	1 Min	-42	-145	Y	N
2369 outside wall 1		116	1 Min	-43	-148	Y	N
2364 interior left room		183	1 Min	24	83	Y	N
2364 interior left room		142	1 Min	-17	-59	Y	N
2364 interior left room		149	1 Min	-10	-35	Y	N
2364 interior left room		132	1 Min	-27	-93	Y	N
2364 interior left room		128	1 Min	-31	-107	Y	N
2364 interior left room		115	1 Min	-44	-152	Y	N
2364 interior left room		146	1 Min	-13	-45	Y	N
2364 interior left room		128	1 Min	-31	-107	Y	N
2364 interior left room		159	1 Min	0	0	Y	N
2364 interior left room		175	1 Min	16	55	Y	N
2364 interior left room		149	1 Min	-10	-35	Y	N
2364 interior left room		126	1 Min	-33	-114	Y	N
2364 interior left room		113	1 Min	-46	-159	Y	N
2364 interior left room		121	1 Min	-38	-131	Y	N
2364 interior left room		109	1 Min	-50	-173	Y	N
2364 interior left room		179	1 Min	20	69	Y	N
Roll off R3204RT		147	1 Min	-12	-41	Y	N
Roll off R3204RT		130	1 Min	-29	-100	Y	N
Roll off R3204RT		120	1 Min	-39	-135	Y	N
Roll off R3204RT		149	1 Min	-10	-35	Y	N
Roll off R3204RT		142	1 Min	-17	-59	Y	N
Roll off R3204RT		168	1 Min	9	31	Y	N
Roll off R3204RT		164	1 Min	5	17	Y	N
Roll off R3204RT		128	1 Min	-31	-107	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.24		
Date:	11/9/2004			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	173			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Bldg. 2368 roof		142	1 Min	-31	-103	Y	N
Bldg. 2368 roof		167	1 Min	-6	-20	Y	N
Bldg. 2368 roof		151	1 Min	-22	-73	Y	N
Bldg. 2368 roof		135	1 Min	-38	-126	Y	N
Bldg. 2368 roof		190	1 Min	17	56	Y	N
Bldg. 2368 roof		145	1 Min	-28	-93	Y	N
Bldg. 2368 roof		148	1 Min	-25	-83	Y	N
Bldg. 2368 roof		150	1 Min	-23	-76	Y	N
Beams		132	1 Min	-41	-136	Y	N
Beams		166	1 Min	-7	-23	Y	N
Beams		173	1 Min	0	0	Y	N
Beams		159	1 Min	-14	-46	Y	N



				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/9/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Facility	2364 RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
2364 outside wall 1	0	1min	0	0	Y	N	
2365 outside wall 1	4	1 min	4	40	Y	N	
2366 outside wall 1	1	1 min	1	10	Y	N	
2364interior left room	1	1 min	1	10	Y	N	
2364interior left room	2	1 min	2	20	Y	N	
2364interior left room	1	1 min	1	10	Y	N	
2364interior right room	1	1 min	1	10	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	11/10/2004			Calibration factor	3.5	Probe face area (cm2):	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	E2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
roll off bkru013068	End	153	1 Min	6	21	Y	N
roll off bkru013069	Side	131	1 Min	-16	-55	Y	N
roll off bkru013070	Side	134	1 Min	-13	-45	Y	N
roll off bkru013071	Side	131	1 Min	-16	-55	Y	N
roll off bkru013072	End	144	1 Min	-3	-10	Y	N
roll off bkru013073	Side	146	1 Min	-1	-3	Y	N
roll off bkru013074	End	149	1 Min	2	7	Y	N
roll off bkru013075	End	167	1 Min	20	69	Y	N
E2364 Roof		233	1 Min	86	297	Y	N
E2364 Roof		153	1 Min	6	21	Y	N
E2364 Roof		140	1 Min	-7	-24	Y	N
E2364 Roof		128	1 Min	-19	-66	Y	N
E2364 Roof		120	1 Min	-27	-93	Y	N
E2364 Roof		162	1 Min	15	52	Y	N
E2364 Roof		146	1 Min	-1	-3	Y	N
E2364 Roof		134	1 Min	-13	-45	Y	N
E2364 Roof		143	1 Min	-4	-14	Y	N
E2364 Roof		128	1 Min	-19	-66	Y	N
E2364 Roof		141	1 Min	-6	-21	Y	N
E2364 Roof		153	1 Min	6	21	Y	N
E2364 Roof		128	1 Min	-19	-66	Y	N
E2364 Roof		220	1 Min	73	252	Y	N
E2364 Roof		165	1 Min	18	62	Y	N
E2364 Roof		148	1 Min	1	3	Y	N
E2364 Roof		132	1 Min	-15	-52	Y	N
E2364 Roof		146	1 Min	-1	-3	Y	N
E2364 Roof		175	1 Min	28	97	Y	N
E2364 Roof		138	1 Min	-9	-31	Y	N
E2364 Roof		163	1 Min	16	55	Y	N
E2364 Roof		203	1 Min	56	193	Y	N
E2364 Roof		130	1 Min	-17	-59	Y	N
E2364 Roof		122	1 Min	-25	-86	Y	N
roll off 2070		182	1 Min	35	121	Y	N
roll off 2070		165	1 Min	18	62	Y	N
roll off 2070		191	1 Min	44	152	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	11/10/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	187			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no readings today		118	1 Min	-69	-261	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.25		
Date:	11/10/2004			Calibration factor	3.2	Probe face area (cm2):	126
Background (cpm)	173			release exceedance:	700 cpm		
Facility	E2364 RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Sheets of plywood 1		132	1 Min	-41	-130	Y	N
Sheets of plywood 2		131	1 Min	-42	-133	Y	N
Sheets of plywood 3		139	1 Min	-34	-108	Y	N
Sheets of plywood 4		199	1 Min	26	83	Y	N
Sheets of plywood 5		139	1 Min	-34	-108	Y	N
Sheets of plywood 6		134	1 Min	-39	-124	Y	N
Sheets of plywood 7		193	1 Min	20	63	Y	N
Sheets of plywood 8		189	1 Min	16	51	Y	N
Sheets of plywood 9		149	1 Min	-24	-76	Y	N
Sheets of plywood 10		143	1 Min	-30	-95	Y	N
Sheets of plywood 11		130	1 Min	-43	-137	Y	N
wood pieces		219	1 Min	46	146	Y	N
wood pieces		129	1 Min	-44	-140	Y	N
wood pieces		182	1 Min	9	29	Y	N
wood pieces		179	1 Min	6	19	Y	N
wood pieces		140	1 Min	-33	-105	Y	N
wood pieces		127	1 Min	-46	-146	Y	N
wood pieces		147	1 Min	-26	-83	Y	N
wood pieces		127	1 Min	-46	-146	Y	N
wood pieces		118	1 Min	-55	-175	Y	N
wood pieces		162	1 Min	-11	-35	Y	N
wood pieces		151	1 Min	-22	-70	Y	N
wood pieces		123	1 Min	-50	-159	Y	N
	hood canopy	104	1 Min	-69	-219	Y	N
	hood canopy	96	1 Min	-77	-244	Y	N
	hood canopy	121	1 Min	-52	-165	Y	N
	hood canopy	131	1 Min	-42	-133	Y	N
	hood canopy	108	1 Min	-65	-206	Y	N
	hood canopy	106	1 Min	-67	-213	Y	N
	hood canopy	120	1 Min	-53	-168	Y	N
	hood canopy	123	1 Min	-50	-159	Y	N
	hood canopy	114	1 Min	-59	-187	Y	N
	hood canopy	136	1 Min	-37	-117	Y	N
	hood canopy	164	1 Min	-9	-29	Y	N
	hood base	184	1 Min	11	35	Y	N
	hood base	133	1 Min	-40	-127	Y	N
	hood base	114	1 Min	-59	-187	Y	N
	hood base wood	148	1 Min	-25	-79	Y	N
	hood base wood	154	1 Min	-19	-60	Y	N
	roll off 2070	138	1 Min	-35	-111	Y	N
	roll off 2070	161	1 Min	-12	-38	Y	N
	roll off 2070	153	1 Min	-20	-63	Y	N
	roll off 2070	115	1 Min	-58	-184	Y	N
	roll off 2070	114	1 Min	-59	-187	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	Probe face area (cm2)=	76
<b>Date:</b>	11/10/2004			<b>Calibration factor</b>	10.1		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	2364 RAD YARD
<b>Facility</b>	2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
hood canopy		0	1min	0	0	Y	N
hood canopy		0	1min	0	0	Y	N
hood canopy		0	1min	0	0	Y	N
hood base		3	1min	3	30	Y	N
hood base		2	1min	2	20	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	11/11/2004			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	199			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no use		153	1 Min	-46	-152	Y	N







TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.23		
Date:	11/11/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	144			release exceedance:	700 cpm		
Facility	RAD YARD						
96							
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
E2364 Center Wall	141	1 Min	-3	-10	Y	N	
E2364 Center Wall	166	1 Min	22	76	Y	N	
E2364 Center Wall	146	1 Min	2	7	Y	N	
E2364 Center Wall	130	1 Min	-14	-48	Y	N	
E2364 Center Wall	180	1 Min	36	124	Y	N	
E2364 Center Wall	133	1 Min	-11	-38	Y	N	
E2364 Center Wall	132	1 Min	-12	-41	Y	N	
E2364 Center Wall	146	1 Min	2	7	Y	N	
E2364 Center Wall	139	1 Min	-5	-17	Y	N	
E2364 Center Wall	149	1 Min	5	17	Y	N	
E2364 Center Wall	147	1 Min	3	10	Y	N	
E2364 Center Wall	139	1 Min	-5	-17	Y	N	
E2364 Center Wall	116	1 Min	-28	-97	Y	N	
E2364 Center Wall	116	1 Min	-28	-97	Y	N	
E2364 Center Wall	132	1 Min	-12	-41	Y	N	
E2364 Center Wall	142	1 Min	-2	-7	Y	N	
E2364 Center Wall	128	1 Min	-16	-55	Y	N	
E2364 Center Wall	135	1 Min	-9	-31	Y	N	
E2364 Center Wall	149	1 Min	5	17	Y	N	
E2364 Center Wall	148	1 Min	4	14	Y	N	
E2364 Center Wall	196	1 Min	52	179	Y	N	
E2364 Center Wall	199	1 Min	55	190	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM						
FORM 3.03						
43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
11/11/2004			Calibration factor	10.1		
					Background (cpm)	0
			release exceedance:	12 cpm	Facility	2364 RAD YARD
	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no use	0	1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	11/12/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	140			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no readings		153	1 Min	13	49	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )			
Date:	11/12/2004			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	E2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no readings		118	1 Min	118	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	11/12/2004			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	175			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
96							
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Roll off BKRU013948		110	1 Min	-65	-215	Y	N
Roll off BKRU013949		129	1 Min	-46	-152	Y	N
Roll off BKRU013950		140	1 Min	-35	-116	Y	N
Roll off BKRU013951		182	1 Min	7	23	Y	N
Roll off BKRU013952		168	1 Min	-7	-23	Y	N
Roll off BKRU013953		162	1 Min	-13	-43	Y	N
Roll off BKRU013954		145	1 Min	-30	-99	Y	N
Roll off BKRU013955		153	1 Min	-22	-73	Y	N



<b>TOTAL BETA CONTAMINATION SURVEY DATA FORM</b>						
				<b>FORM 3.03</b>		
43-5	S/N	PR145049	Efficiency (cpm )		Probe face area (cm2)=	76
11/12/2004			Calibration factor	#DIV/0!		
					Background (cpm)	
			release exceedance:	12 cpm	Facility	2364 RAD YARD
	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no readings	0	1min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	11/15/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	161			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Steel beams 1	175	1 Min	14	48	Y	N	
Steel beams 1	182	1 Min	21	72	Y	N	
Steel beams 1	131	1 Min	-30	-104	Y	N	
Steel beams 2	173	1 Min	12	41	Y	N	
Steel beams 2	167	1 Min	6	21	Y	N	
Steel beams 2	171	1 Min	10	35	Y	N	
Steel beams 3	171	1 Min	10	35	Y	N	
Steel beams 3	146	1 Min	-15	-52	Y	N	
Steel beams 4	173	1 Min	12	41	Y	N	
Steel beams 4	140	1 Min	-21	-72	Y	N	
Steel beams 4	148	1 Min	-13	-45	Y	N	
Steel beams 5	161	1 Min	0	0	Y	N	
Steel beams 5	191	1 Min	30	104	Y	N	
Steel beams 5	155	1 Min	-6	-21	Y	N	
Steel beams 6	178	1 Min	17	59	Y	N	
Steel beams 6	150	1 Min	-11	-38	Y	N	
Steel beams 6	181	1 Min	20	69	Y	N	
Steel beams 7	181	1 Min	20	69	Y	N	
Steel beams 7	204	1 Min	43	148	Y	N	
Steel beams 7	171	1 Min	10	35	Y	N	
Steel beams 8	171	1 Min	10	35	Y	N	
Steel beams 8	165	1 Min	4	14	Y	N	
Steel beams 8	149	1 Min	-12	-41	Y	N	
Steel beams 9	182	1 Min	21	72	Y	N	
Steel beams 9	172	1 Min	11	38	Y	N	
Steel beams 9	130	1 Min	-31	-107	Y	N	
Steel beams 10	162	1 Min	1	3	Y	N	
Steel beams 10	148	1 Min	-13	-45	Y	N	
Steel beams 10	166	1 Min	5	17	Y	N	
Steel beams 11	163	1 Min	2	7	Y	N	
Steel beams 11	135	1 Min	-26	-90	Y	N	
Steel beams 11	162	1 Min	1	3	Y	N	
Steel beams 12	156	1 Min	-5	-17	Y	N	
Steel beams 12	157	1 Min	-4	-14	Y	N	
Steel beams 12	153	1 Min	-8	-28	Y	N	
Steel beams 13	157	1 Min	-4	-14	Y	N	
Steel beams 13	154	1 Min	-7	-24	Y	N	
Steel beams 13	187	1 Min	26	90	Y	N	
Steel beams 14	168	1 Min	7	24	Y	N	
Steel beams 14	171	1 Min	10	35	Y	N	
Steel beams 14	151	1 Min	-10	-35	Y	N	
Steel beams 15	179	1 Min	18	62	Y	N	
Steel beams 15	175	1 Min	14	48	Y	N	
Steel beams 15	164	1 Min	3	10	Y	N	
Steel beams 16	181	1 Min	20	69	Y	N	
Steel beams 16	165	1 Min	4	14	Y	N	
Steel beams 16	171	1 Min	10	35	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	11/15/2004			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	161			release exceedance:	700 cpm		
Facility	RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Steel beams 17	173	1 Min	12	41	Y	N	
Steel beams 17	176	1 Min	15	52	Y	N	
Steel beams 17	180	1 Min	19	66	Y	N	
Steel beams 18	140	1 Min	-21	-72	Y	N	
Steel beams 18	158	1 Min	-3	-10	Y	N	
Steel beams 18	161	1 Min	0	0	Y	N	
Steel beams 19	173	1 Min	12	41	Y	N	
Steel beams 19	172	1 Min	11	38	Y	N	
Steel beams 19	186	1 Min	25	86	Y	N	
Steel beams 20	180	1 Min	19	66	Y	N	
Steel beams 20	158	1 Min	-3	-10	Y	N	
Steel beams 20	164	1 Min	3	10	Y	N	
Steel beams 21	167	1 Min	6	21	Y	N	
Steel beams 21	161	1 Min	0	0	Y	N	
Steel beams 21	177	1 Min	16	55	Y	N	
Steel beams 22	154	1 Min	-7	-24	Y	N	
Steel beams 22	147	1 Min	-14	-48	Y	N	
Steel beams 22	132	1 Min	-29	-100	Y	N	
Steel beams 23	152	1 Min	-9	-31	Y	N	
Steel beams 23	169	1 Min	8	28	Y	N	
Steel beams 23	134	1 Min	-27	-93	Y	N	
Steel beams 24	187	1 Min	26	90	Y	N	
Steel beams 24	157	1 Min	-4	-14	Y	N	
Steel beams 24	196	1 Min	35	121	Y	N	
Steel beams 25	181	1 Min	20	69	Y	N	
Steel beams 25	170	1 Min	9	31	Y	N	
Steel beams 25	163	1 Min	2	7	Y	N	
Steel beams 26	179	1 Min	18	62	Y	N	
Steel beams 26	184	1 Min	23	79	Y	N	
Steel beams 26	158	1 Min	-3	-10	Y	N	
Steel beams 27	162	1 Min	1	3	Y	N	
Steel beams 27	166	1 Min	5	17	Y	N	
Steel beams 27	155	1 Min	-6	-21	Y	N	
Steel beams 28	171	1 Min	10	35	Y	N	
Steel beams 28	156	1 Min	-5	-17	Y	N	
Steel beams 28	183	1 Min	22	76	Y	N	
Steel beams 29	191	1 Min	30	104	Y	N	
Steel beams 29	170	1 Min	9	31	Y	N	
Steel beams 29	136	1 Min	-25	-86	Y	N	
Steel beams 30	179	1 Min	18	62	Y	N	
Steel beams 30	176	1 Min	15	52	Y	N	
Steel beams 30	152	1 Min	-9	-31	Y	N	
Steel beams 31	155	1 Min	-6	-21	Y	N	
Steel beams 31	167	1 Min	6	21	Y	N	
Steel beams 31	145	1 Min	-16	-55	Y	N	
Steel beams 32	160	1 Min	-1	-3	Y	N	
Steel beams 32	153	1 Min	-8	-28	Y	N	







TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm)</b>	0.21		
<b>Date:</b>	11/15/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	120			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2360 RAD YARD						
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
steel beam E2360	101	1 Min	-19	-72	Y	N	
steel beam E2360	95	1 Min	-25	-94	Y	N	
steel beam E2360	111	1 Min	-9	-34	Y	N	
steel beam E2360	124	1 Min	4	15	Y	N	
steel beam E2360	92	1 Min	-28	-106	Y	N	
steel beam E2360	121	1 Min	1	4	Y	N	
steel beam E2360	108	1 Min	-12	-45	Y	N	
steel beam E2360	116	1 Min	-4	-15	Y	N	
steel beam E2360	133	1 Min	13	49	Y	N	
steel beam E2360	129	1 Min	9	34	Y	N	
steel beam E2360	114	1 Min	-6	-23	Y	N	
steel beam E2360	134	1 Min	14	53	Y	N	
steel beam E2360	123	1 Min	3	11	Y	N	
steel beam E2360	110	1 Min	-10	-38	Y	N	
steel beam E2360	122	1 Min	2	8	Y	N	
steel beam E2360	123	1 Min	3	11	Y	N	
steel beam E2360	128	1 Min	8	30	Y	N	
steel beam E2360	117	1 Min	-3	-11	Y	N	
steel beam E2360	131	1 Min	11	42	Y	N	
steel beam E2360	122	1 Min	2	8	Y	N	
steel beam E2360	116	1 Min	-4	-15	Y	N	
steel beam E2360	151	1 Min	31	117	Y	N	
steel beam E2360	143	1 Min	23	87	Y	N	
steel beam E2360	119	1 Min	-1	-4	Y	N	
steel beam E2360	119	1 Min	-1	-4	Y	N	
steel beam E2360	123	1 Min	3	11	Y	N	
steel beam E2360	133	1 Min	13	49	Y	N	
steel beam E2360	129	1 Min	9	34	Y	N	
steel beam E2360	148	1 Min	28	106	Y	N	
steel beam E2360	130	1 Min	10	38	Y	N	
steel beam E2360	115	1 Min	-5	-19	Y	N	
steel beam E2360	170	1 Min	50	189	Y	N	
steel beam E2360	128	1 Min	8	30	Y	N	
steel beam E2360	117	1 Min	-3	-11	Y	N	
steel beam E2360	120	1 Min	0	0	Y	N	
steel beam E2360	99	1 Min	-21	-79	Y	N	
steel beam E2360	97	1 Min	-23	-87	Y	N	
steel beam E2360	111	1 Min	-9	-34	Y	N	
steel beam E2360	118	1 Min	-2	-8	Y	N	
steel beam E2360	143	1 Min	23	87	Y	N	
steel beam E2360	112	1 Min	-8	-30	Y	N	
steel beam E2360	129	1 Min	9	34	Y	N	
steel beam E2360	154	1 Min	34	128	Y	N	
steel beam E2360	133	1 Min	13	49	Y	N	
steel beam E2360	113	1 Min	-7	-26	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	11/15/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	120			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2360 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
steel beam E2360		120	1 Min	0	0	Y	N
steel beam E2360		118	1 Min	-2	-8	Y	N
steel beam E2360		118	1 Min	-2	-8	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	11/15/2004			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	180			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
		96					
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No Use			1 Min	-180	-595	Y	N



<b>TOTAL BETA CONTAMINATION SURVEY DATA FORM</b>						
<b>FORM 3.03</b>						
43-5	S/N	PR145049	Efficiency (cpm )	0.12	Probe face area (cm2)=	76
11/15/2004			Calibration factor	11.0		
					Background (cpm)	1
			release exceedance:	12 cpm	Facility	2364 RAD YARD
	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE		1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.24		
Date:	11/16/2004			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	177			release exceedance:	700 cpm		
Facility	E2364 RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	-177	-585	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	11/16/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	136			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
	no readings		1 Min	-136	-514	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	11/16/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>	198			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	-198	-683	Y	N



<b>TOTAL BETA CONTAMINATION SURVEY DATA FORM</b>						
			<b>FORM 3.03</b>			
43-5	<b>S/N</b>	<b>PR145049</b>	<b>Efficiency (cpm )</b>		Probe face area (cm2)=	76
11/16/2004			<b>Calibration factor</b>	<b>#DIV/0!</b>		
					<b>Background (cpm)</b>	
			<b>release exceedance:</b>	<b>12 cpm</b>	<b>Facility</b>	2364 RAD YARD
	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE		1min	0	#DIV/0!	<b>Y</b>	<b>N</b>



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/17/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
		153	1 Min	153	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/17/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/17/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



<b>TOTAL BETA CONTAMINATION SURVEY DATA FORM</b>						
			<b>FORM 3.03</b>			
43-5	S/N	PR145049	Efficiency (cpm )		Probe face area (cm2)=	76
11/17/2004			Calibration factor	#DIV/0!		
					Background (cpm)	
			release exceedance:	12 cpm	Facility	2364 RAD YARD
	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE		1min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	11/18/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	161			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No Use		153	1 Min	-8	-30	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
			FORM 3.03				
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.24		
Date:	11/18/2004			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	-147	-486	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/18/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



ALPHA	TOTAL BETA CONTAMINATION SURVEY DATA FORM						
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/18/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
NO USE		1min	0	0	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	11/19/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>	172			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	E2364 RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Railroad rails		189	1 Min	17	59	Y	N
Railroad rails		125	1 Min	-47	-162	Y	N
Railroad rails		145	1 Min	-27	-93	Y	N
Railroad rails		183	1 Min	11	38	Y	N
Railroad rails		183	1 Min	11	38	Y	N
Railroad rails		146	1 Min	-26	-90	Y	N
Railroad rails		186	1 Min	14	48	Y	N
Railroad rails		193	1 Min	21	72	Y	N
Railroad rails		193	1 Min	21	72	Y	N
Railroad rails		165	1 Min	-7	-24	Y	N
Railroad rails		354	1 Min	182	628	Y	N
Railroad rails		490	1 Min	318	1097	N	Y
Railroad rails		262	1 Min	90	311	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )	0.12		
Date:	11/19/2004			Calibration factor	6.6	Probe face area (cm2)=	126
Background (cpm)	0			release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	0	0	Y	N



ALPHA	BETA						
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/19/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/23/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm)	0.22		
Date:	11/23/2004			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	131			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
bkru013016	roll off	113	1 Min	-18	-65	Y	N
bkru013016	roll off	99	2 Min	-32	-115	Y	N
bkru013016	roll off	109	3 Min	-22	-79	Y	N
	rails	115	4 Min	-16	-58	Y	N
	rails	143	5 Min	12	43	Y	N
	rails	134	6 Min	3	11	Y	N
	rails	151	7 Min	20	72	Y	N
	rails	153	8 Min	22	79	Y	N
	rails	143	9 Min	12	43	Y	N
	rails	177	10 Min	46	166	Y	N
	rails	114	11 Min	-17	-61	Y	N
	rails	135	12 Min	4	14	Y	N
	rails	154	13 Min	23	83	Y	N
	rails	544	14 Min	413	1490	N	N
	rails	1029	15 Min	898	3240	N	N
	rails	418	16 Min	287	1035	N	N
	rails	128	17 Min	-3	-11	Y	N
	rails	441	18 Min	310	1118	N	N
	rails	160	19 Min	29	105	Y	N
	rails	285	20 Min	154	556	Y	N
	rails	128	21 Min	-3	-11	Y	N
	rails	167	22 Min	36	130	Y	N
	rails	204	23 Min	73	263	Y	N
	rails	138	24 Min	7	25	Y	N
	rails	145	25 Min	14	51	Y	N
	rails	119	26 Min	-12	-43	Y	N
	rails	165	27 Min	34	123	Y	N
	rails	2085	28 Min	1954	7049	N	N
	rails	170	29 Min	39	141	Y	N
	rails	477	30 Min	346	1248	N	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>			
<b>Date:</b>	11/23/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/23/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.24		
Date:	11/29/2004			Calibration factor	3.3	Probe face area (cm2)-	126
Background (cpm)	179			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
backhoe release	rr	159	1 Min	-20	-66	Y	N
backhoe release	fr	153	1 Min	-26	-86	Y	N
backhoe release	fl	152	1 Min	-27	-89	Y	N
backhoe release	rl	158	1 Min	-21	-69	Y	N
backhoe release	boom left	152	1 Min	-27	-89	Y	N
backhoe release	boom right	160	1 Min	-19	-63	Y	N
backhoe release	rod	149	1 Min	-30	-99	Y	N
cabin floor	seat	161	1 Min	-18	-60	Y	N
	bucket	168	1 Min	-11	-36	Y	N
	air filter	157	1 Min	-22	-73	Y	N
roll off	bkru013011	147	1 Min	-32	-106	Y	N
roll off	bkru013011	133	1 Min	-46	-152	Y	N
roll off	bkru013011	196	1 Min	17	56	Y	N
roll off	bkru013011	153	1 Min	-26	-86	Y	N
roll off	bkru013011	152	1 Min	-27	-89	Y	N
railroad rails		177	1 Min	-2	-7	Y	N
railroad rails		223	1 Min	44	146	Y	N
railroad rails		206	1 Min	27	89	Y	N
railroad rails		222	1 Min	43	142	Y	N
railroad rails		732	1 Min	553	1829	N	Y
railroad rails		177	1 Min	-2	-7	Y	N
railroad rails		211	1 Min	32	106	Y	N
railroad rails		198	1 Min	19	63	Y	N
railroad rails		203	1 Min	24	79	Y	N
railroad rails		201	1 Min	22	73	Y	N
railroad rails		181	1 Min	2	7	Y	N
railroad rails		195	1 Min	16	53	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )			
Date:	11/29/2004			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no use		113	1 Min	113	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	11/29/2004			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	Probe face area (cm2)=	76
<b>Date:</b>	11/29/2004			<b>Calibration factor</b>	10.1		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	2364 RAD YARD
<b>Item</b>	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
air filter	2	1min	2	20	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	11/30/2004			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>	174			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No Use		150	1 Min	-24	-83	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm)	0.21		
Date:	11/30/2004			Calibration factor	3.8	Probe face area (cm2)=	126
Background (cpm)	121			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
railroad rails		157	1 Min	36	136	Y	N
railroad rails		200	1 Min	79	299	Y	N
railroad rails		147	1 Min	26	98	Y	N
railroad rails		148	1 Min	27	102	Y	N
railroad rails		225	1 Min	104	393	Y	N
railroad rails		149	1 Min	28	106	Y	N
railroad rails		138	1 Min	17	64	Y	N
railroad rails		179	1 Min	58	219	Y	N
railroad rails		138	1 Min	17	64	Y	N
railroad rails		114	1 Min	-7	-26	Y	N
railroad rails		161	1 Min	40	151	Y	N
railroad rails		149	1 Min	28	106	Y	N
railroad rails		444	1 Min	323	1221	Y	N
railroad rails		128	1 Min	7	26	Y	N
railroad rails		120	1 Min	-1	-4	Y	N
railroad rails		126	1 Min	5	19	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	11/30/2004			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	11/30/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
rails	1	1min	1	10	Y	N	
rails	1	1min	1	10	Y	N	
rails	0	1min	0	0	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	12/1/2004			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	203			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
railroad rails		217	1 Min	14	46	Y	N
railroad rails		288	1 Min	85	281	Y	N
railroad rails		407	1 Min	204	675	Y	N
railroad rails		368	1 Min	165	546	Y	N
railroad rails		213	1 Min	10	33	Y	N
railroad rails		427	1 Min	224	741	N	N
railroad rails		207	1 Min	4	13	Y	N
railroad rails		954	1 Min	751	2483	N	N
railroad rails		355	1 Min	152	503	Y	N
railroad rails		359	1 Min	156	516	Y	N
railroad rails		367	1 Min	164	542	Y	N
railroad rails		350	1 Min	147	486	Y	N
railroad rails		288	1 Min	85	281	Y	N
railroad rails		220	1 Min	17	56	Y	N
railroad rails		271	1 Min	68	225	Y	N
railroad rails		251	1 Min	48	159	Y	N
railroad rails		290	1 Min	87	288	Y	N
railroad rails		302	1 Min	99	327	Y	N
railroad rails		318	1 Min	115	380	Y	N
railroad rails		317	1 Min	114	377	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	12/1/2004			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	121			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
railroad rails		157	1 Min	36	136	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>			
<b>Date:</b>	12/1/2004			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
NO USE			1 Min	0	#DIV/0!	Y	N



TOTAL ALPHA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	Probe face area (cm2)=	76
<b>Date:</b>	12/1/2004			<b>Calibration factor</b>	10.1		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	0			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	2364 RAD YARD
<b>Item</b>	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
no use		1min	0	0	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	1/10/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>	203			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No USAGE		217	1 Min	14	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.21		
<b>Date:</b>	1/10/2005			<b>Calibration factor</b>	3.8	Probe face area (cm2)=	126
<b>Background (cpm)</b>	121			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
railroad rails		134	1 Min	13	49	Y	N
railroad rails		161	1 Min	40	151	Y	N
railroad rails		183	1 Min	62	234	Y	N
railroad rails		86	1 Min	-35	-132	Y	N
railroad rails		118	1 Min	-3	-11	Y	N
railroad rails		154	1 Min	33	125	Y	N
railroad rails		3446	1 Min	3325	12566	Y	N
railroad rails		129	1 Min	8	30	Y	N
railroad rails		154	1 Min	33	125	Y	N
railroad rails		133	1 Min	12	45	Y	N
railroad rails		108	1 Min	-13	-49	Y	N
railroad rails		130	1 Min	9	34	Y	N
railroad rails		132	1 Min	11	42	Y	N
railroad rails		154	1 Min	33	125	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	1/10/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	0	#DIV/0!	Y	N



ALPHA							
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	1/10/2005			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no use			1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	149400	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	2/10/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	188			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
monkey burner		156	1min	-32	-110	Y	N
monkey burner		167	1min	-21	-72	Y	N
monkey burner		164	1min	-24	-83	Y	N
monkey burner		147	1min	-41	-141	Y	N
monkey burner		156	1min	-32	-110	Y	N
monkey burner		156	1min	-32	-110	Y	N
monkey burner		192	1min	4	14	Y	N
monkey burner		158	1min	-30	-104	Y	N
monkey burner		155	1min	-33	-114	Y	N
monkey burner		166	1min	-22	-76	Y	N
monkey burner		164	1min	-24	-83	Y	N
monkey burner		140	1min	-48	-166	Y	N
monkey burner		195	1min	7	24	Y	N
monkey burner		140	1min	-48	-166	Y	N
monkey burner		196	1min	8	28	Y	N
monkey burner		170	1min	-18	-62	Y	N
monkey burner		182	1min	-6	-21	Y	N
monkey burner		176	1min	-12	-41	Y	N
monkey burner		194	1min	6	21	Y	N
monkey burner		174	1min	-14	-48	Y	N
monkey burner		162	1min	-26	-90	Y	N
monkey burner		193	1min	5	17	Y	N
monkey burner		184	1min	-4	-14	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	2/17/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	214			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
railroad rails		142	1 Min	-72	-248	Y	N
railroad rails		150	1 Min	-64	-221	Y	N
railroad rails		131	1 Min	-83	-286	Y	N
railroad rails		320	1 Min	106	366	Y	N
railroad rails		198	1 Min	-16	-55	Y	N
railroad rails		165	1 Min	-49	-169	Y	N
railroad rails		145	1 Min	-69	-238	Y	N
railroad rails		324	1 Min	110	380	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.21		
Date:	2/17/2005			Calibration factor	3.8	Probe face area (cm2)=	126
Background (cpm)	133			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
railroad rails		179	1 Min	46	174	Y	N
railroad rails		148	1 Min	15	57	Y	N
railroad rails		164	1 Min	31	117	Y	N
railroad rails		158	1 Min	25	94	Y	N
railroad rails		173	1 Min	40	151	Y	N
railroad rails		158	1 Min	25	94	Y	N
railroad rails		161	1 Min	28	106	Y	N
railroad rails		152	1 Min	19	72	Y	N
railroad rails		154	1 Min	21	79	Y	N
railroad rails		201	1 Min	68	257	Y	N
railroad rails		143	1 Min	10	38	Y	N
railroad rails		150	1 Min	17	64	Y	N
railroad rails		154	1 Min	21	79	Y	N
railroad rails		201	1 Min	68	257	Y	N
railroad rails		235	1 Min	102	385	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	2/17/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
NO USE			1 Min	0	#DIV/0!	Y	N



ALPHA							
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )		Probe face area (cm2)=	76
Date:	2/17/2005			Calibration factor	#DIV/0!		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	2364 RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
no use			1min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	3/14/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Excavator release			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm)	0.23		
Date:	3/14/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	220			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Sump (north)		113	1 Min	-107	-369	Y	N
Sump (north)		162	1 Min	-58	-200	Y	N
Sump (north)		177	1 Min	-43	-148	Y	N
Sump (north)		130	1 Min	-90	-311	Y	N
Sump (north)		139	1 Min	-81	-280	Y	N
Sump (north)		121	1 Min	-99	-342	Y	N
Sump (north)		143	1 Min	-77	-266	Y	N
Sump (north)		116	1 Min	-104	-359	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	3/14/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
excavator release			1 Min	0	#DIV/0!	Y	N



ALPHA							
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	3/14/2005			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	0			release exceedance:	12 cpm	Facility	RAD YARD
Item	CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)	
Sump (north)	0	1min	0	0	Y	N	
Sump (north)	3	1min	3	30	Y	N	
Sump (north)	2	1min	2	20	Y	N	
Sump (north)	1	1min	1	10	Y	N	
Sump (north)	0	1min	0	0	Y	N	
Sump (north)	0	1min	0	0	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )			
Date:	3/15/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Excavator release			1 Min	0	#DIV/0!	Y	N











ALPHA				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	3/15/2004			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	1			release exceedance:	12 cpm	Facility	RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Excavator release			1min	-1	-10	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	2/16/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Excavator release			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm)	0.23		
Date:	3/16/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	147			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Excavator release cabin		95	1 Min	-52	-179	Y	N
Excavator release cabin		103	1 Min	-44	-152	Y	N
Excavator release cabin		91	1 Min	-56	-193	Y	N
Excavator release cabin		103	1 Min	-44	-152	Y	N
Excavator release cabin		133	1 Min	-14	-48	Y	N
right track		99	1 Min	-48	-166	Y	N
right track		104	1 Min	-43	-148	Y	N
right track		128	1 Min	-19	-66	Y	N
right track		93	1 Min	-54	-186	Y	N
right track		109	1 Min	-38	-131	Y	N
right track		109	1 Min	-38	-131	Y	N
right track		93	1 Min	-54	-186	Y	N
right track		102	1 Min	-45	-155	Y	N
right track		98	1 Min	-49	-169	Y	N
right track		115	1 Min	-32	-110	Y	N
right track		109	1 Min	-38	-131	Y	N
rear of body		111	1 Min	-36	-124	Y	N
inner dr track		99	1 Min	-48	-166	Y	N
inner dr track		99	1 Min	-48	-166	Y	N
inner dr track		108	1 Min	-39	-135	Y	N
inner dr track		99	1 Min	-48	-166	Y	N
bottom plate		110	1 Min	-37	-128	Y	N
track (Op's right)		99	1 Min	-48	-166	Y	N
track (Op's right)		78	1 Min	-69	-238	Y	N
track (Op's right)		106	1 Min	-41	-141	Y	N
track (Op's right)		124	1 Min	-23	-79	Y	N
track (Op's right)		103	1 Min	-44	-152	Y	N
track (Op's right)		98	1 Min	-49	-169	Y	N
track (Op's right)		95	1 Min	-52	-179	Y	N
track (Op's right)		94	1 Min	-53	-183	Y	N
track (Op's right)		103	1 Min	-44	-152	Y	N
track (Op's right)		111	1 Min	-36	-124	Y	N
track (Op's right)		112	1 Min	-35	-121	Y	N
track (Op's right)		94	1 Min	-53	-183	Y	N
track (Op's right)		124	1 Min	-23	-79	Y	N
track (Op's right)		89	1 Min	-58	-200	Y	N
track (Op's right)		113	1 Min	-34	-117	Y	N
track (Op's right)		111	1 Min	-36	-124	Y	N
track (Op's right)		148	1 Min	1	3	Y	N
track (Op's right)		110	1 Min	-37	-128	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	3/16/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
excavator release			1 Min	0	#DIV/0!	Y	N



## TOTAL ALPHA CONTAMINATION SURVEY DATA FORM

[illegible]



TOTAL BETA CONTAMINATION SURVEY DATA FORM					
<b>Model:</b>	44-9	<b>S/N</b>	2241		
<b>Date:</b>	3/29/2005			gross counts	2800
<b>Background (cpm)</b>	40				
<b>Facility</b>	RAD YARD				

Item		CPM	Count time	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
railroad rails		42	1 Min	Y	N
railroad rails		78	1 Min	N	Y
railroad rails		25	1 Min	Y	N
railroad rails		31	1 Min	Y	N
railroad rails		32	1 Min	Y	N
railroad rails		28	1 Min	Y	N
railroad rails		31	1 Min	Y	N
railroad rails		40	1 Min	Y	N
railroad rails		21	1 Min	Y	N
railroad rails		25	1 Min	Y	N
railroad rails		34	1 Min	Y	N
railroad rails		25	1 Min	Y	N
railroad rails		28	1 Min	Y	N
railroad rails		26	1 Min	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.23		
<b>Date:</b>	4/4/2005			<b>Calibration factor</b>	3.5	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Railroad rails		154	1 Min	154	531	Y	N
Railroad rails		173	1 Min	173	597	Y	N
Railroad rails		158	1 Min	158	545	Y	N
Railroad rails		153	1 Min	153	528	Y	N
Railroad rails		147	1 Min	147	507	Y	N
Railroad rails		143	1 Min	143	493	Y	N
Railroad rails		154	1 Min	154	531	Y	N
Railroad rails		167	1 Min	167	576	Y	N
Railroad rails		154	1 Min	154	531	Y	N
Railroad rails		178	1 Min	178	614	Y	N
Railroad rails		196	1 Min	196	676	Y	N
Railroad rails		156	1 Min	156	538	Y	N
Railroad rails		185	1 Min	185	638	Y	N
Railroad rails		236	1 Min	236	814	Y	N
Railroad rails		128	1 Min	128	442	Y	N
Railroad rails		163	1 Min	163	562	Y	N
Railroad rails		181	1 Min	181	625	Y	N
Railroad rails		165	1 Min	165	569	Y	N
Railroad rails		156	1 Min	156	538	Y	N
Railroad rails		289	1 Min	289	997	Y	N
Railroad rails		199	1 Min	199	687	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	4/4/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	126			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
railroad rails		130	1 Min	4	14	Y	N
railroad rails		131	1 Min	5	18	Y	N
railroad rails		154	1 Min	28	101	Y	N
railroad rails		137	1 Min	11	40	Y	N
railroad rails		132	1 Min	6	22	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>			
<b>Date:</b>	4/4/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
	96						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
excavator release			1 Min	0	#DIV/0!	Y	N



ALPHA							
				FORM 3.03			
Model:	43-5	S/N	PR145049	Efficiency (cpm )	0.13	Probe face area (cm2)=	76
Date:	4/4/2005			Calibration factor	10.1		
						Background (cpm)	0
Background (cpm)	1			release exceedance:	12 cpm	Facility	RAD YARD
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Excavator release		0	1min	-1	-10	Y	N
air filter (primary)		2	1min	1	10	Y	N
air filter (primary)		1	1min	0	0	Y	N
secondary filter		0	1min	-1	-10	Y	N
secondary filter		1	1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	4/8/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
4 above ground walls (inside)		214	1 Min	214	738	Y	N
	B	232	1 Min	232	801	Y	N
	C	222	1 Min	222	766	Y	N
	D	207	1 Min	207	714	Y	N
	E	243	1 Min	243	839	Y	N
	F	268	1 Min	268	925	Y	N
	G	286	1 Min	286	987	Y	N
	H	293	1 Min	293	1011	Y	N
	I	1200	1 Min	1200	4141	Y	N
	J	2100	1 Min	2100	7246	Y	N
	K	2000	1 Min	2000	6901	Y	N
(Outside)	A	203	1 Min	203	700	Y	N
	B	214	1 Min	214	738	Y	N
	C	192	1 Min	192	663	Y	N
	D	204	1 Min	204	704	Y	N
	E	222	1 Min	222	766	Y	N
	F	199	1 Min	199	687	Y	N
	G	193	1 Min	193	666	Y	N
	H	177	1 Min	177	611	Y	N
	I	na	1 Min	#VALUE!	#VALUE!	N	N
	J	na	1 Min	#VALUE!	#VALUE!	N	N
	K	na	1 Min	#VALUE!	#VALUE!	N	N
middle wall 236	J	578	1 Min	578	1994		
	M	528	1 Min	528	1822		
	H	623	1 Min	623	2150		
	G	600	1 Min	600	2070		
	F	281	1 Min	281	970		
	E	252	1 Min	252	870		
	D	247	1 Min	247	852		
	C	233	1 Min	233	804		
	B	216	1 Min	216	745		
	A	252	1 Min	252	870		
	K	247	1 Min	247	852		
	J	NA	1 Min	#VALUE!	#VALUE!		
	M	NA	1 Min	#VALUE!	#VALUE!		
	H	na	1 Min	#VALUE!	#VALUE!		
	G	NA	1 Min	#VALUE!	#VALUE!		
	F	168	1 Min	168	580		
	E	1000	1 Min	1000	3451		
	D	174	1 Min	174	600		
	C	156	1 Min	156	538		
	B	NA	1 Min	#VALUE!	#VALUE!		
	A	213	1 Min	213	735		
	K	176	1 Min	176	607		



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	4/8/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	126			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
railroad rails		130	1 Min	4	14	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 142893	Efficiency (cpm )			
Date:	4/8/2005			Calibration factor	#DIV/0!	Probe face area (cm2)=	126
Background (cpm)				release exceedance:	700 cpm		
Facility	RAD YARD						
	96						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
			1 Min	0	#DIV/0!	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	<b>Probe face area (cm2)=</b>	76
<b>Date:</b>	4/8/2005			<b>Calibration factor</b>	10.1		
						<b>Background (cpm)</b>	0
<b>Background (cpm)</b>	1			<b>release exceedance:</b>	12 cpm	<b>Facility</b>	2364 demo
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Excavator release		0	1min	-1	-10	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.24		
Date:	4/14/2005			Calibration factor	3.3	Probe face area (cm2)=	126
Background (cpm)	177			release exceedance:			
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
west wall		175	1 Min	-2	-7	Y	N
west wall		164	1 Min	-13	-43	Y	N
west wall		173	1 Min	-4	-13	Y	N
west wall		184	1 Min	7	23	Y	N
west wall		205	1 Min	28	93	Y	N
west wall		188	1 Min	11	36	Y	N
west wall		234	1 Min	57	188	Y	N
west wall		194	1 Min	17	56	Y	N
west wall		211	1 Min	34	112	Y	N
west wall		198	1 Min	21	69	Y	N
west wall		264	1 Min	87	288	Y	N
west wall		177	1 Min	0	0	Y	N
south wall		178	1 Min	1	3	Y	N
south wall		185	1 Min	8	26	Y	N
south wall		167	1 Min	-10	-33	Y	N
south wall		140	1 Min	-37	-122	Y	N
south wall		171	1 Min	-6	-20	Y	N
south wall		179	1 Min	2	7	Y	N
south wall		174	1 Min	-3	-10	Y	N
south wall		188	1 Min	11	36	Y	N
south wall		162	1 Min	-15	-50	Y	N
south wall		147	1 Min	-30	-99	Y	N
south wall		177	1 Min	0	0	Y	N
south wall		153	1 Min	-24	-79	Y	N
Floor		177	1 Min	0	0	Y	N
Floor		160	1 Min	-17	-56	Y	N
Floor		198	1 Min	21	69	Y	N
Floor		206	1 Min	29	96	Y	N
Floor		172	1 Min	-5	-17	Y	N
Floor		181	1 Min	4	13	Y	N
Floor		192	1 Min	15	50	Y	N
Floor		208	1 Min	31	103	Y	N
Floor		200	1 Min	23	76	Y	N
Floor		206	1 Min	29	96	Y	N
Floor		211	1 Min	34	112	Y	N
Floor		196	1 Min	19	63	Y	N
Floor		199	1 Min	22	73	Y	N
Floor		239	1 Min	62	205	Y	N
Floor		234	1 Min	57	188	Y	N
Floor		220	1 Min	43	142	Y	N
Floor		223	1 Min	46	152	Y	N
Floor		211	1 Min	34	112	Y	N
Floor		219	1 Min	42	139	Y	N
Floor		242	1 Min	65	215	Y	N
Floor		194	1 Min	17	56	Y	N
Floor		202	1 Min	25	83	Y	N
Floor		191	1 Min	14	46	Y	N
Floor		192	1 Min	15	50	Y	N
Floor		201	1 Min	24	79	Y	N
Floor		198	1 Min	21	69	Y	N
Floor		204	1 Min	27	89	Y	N
Floor		200	1 Min	23	76	Y	N
Floor		190	1 Min	13	43	Y	N
Floor		267	1 Min	90	298	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	4/14/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	161			<b>release exceedance:</b>	700		
<b>Facility</b>	RAD YARD	E2364 basement					
<b>Item</b>	<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
east wall	208	1 Min	14	51	Y	N	
east wall	114	1 Min	3	11	Y	N	
east wall	145	1 Min	12	43	Y	N	
east wall	129	1 Min	23	83	Y	N	
east wall	225	1 Min	44	159	Y	N	
east wall	146	1 Min	27	97	Y	N	
east wall	152	1 Min	73	263	Y	N	
east wall	141	1 Min	33	119	Y	N	
east wall	181	1 Min	50	180	Y	N	
east wall	146	1 Min	37	133	Y	N	
east wall	267	1 Min	103	372	Y	N	
east wall	192	1 Min	16	58	Y	N	
east wall	199	1 Min	22	73	Y	N	
east wall	238	1 Min	61	202	Y	N	
east wall	187	1 Min	10	33	Y	N	
east wall	214	1 Min	37	122	Y	N	
east wall	136	1 Min	-41	-136	Y	N	
east wall	178	1 Min	1	3	Y	N	
east wall	169	1 Min	-8	-26	Y	N	
east wall	150	1 Min	-11	-40	Y	N	
floor	158	1 Min	-19	-63	Y	N	
floor	144	1 Min	-33	-109	Y	N	
floor	139	1 Min	-38	-126	Y	N	
floor	158	1 Min	-19	-63	Y	N	
floor	133	1 Min	-44	-146	Y	N	
floor	174	1 Min	-3	-10	Y	N	
floor	149	1 Min	-28	-93	Y	N	
floor	122	1 Min	-55	-182	Y	N	
floor	156	1 Min	-21	-69	Y	N	
floor	137	1 Min	-40	-132	Y	N	
floor	143	1 Min	-34	-112	Y	N	
floor	146	1 Min	-31	-103	Y	N	
floor	163	1 Min	-14	-46	Y	N	
floor	160	1 Min	-17	-56	Y	N	
floor	163	1 Min	-14	-46	Y	N	
floor	209	1 Min	32	106	Y	N	
floor	136	1 Min	-41	-136	Y	N	
floor	152	1 Min	-25	-83	Y	N	
floor	169	1 Min	-8	-26	Y	N	
floor	160	1 Min	-17	-56	Y	N	
floor	167	1 Min	-10	-33	Y	N	
floor	188	1 Min	11	36	Y	N	
floor	131	1 Min	-46	-152	Y	N	
floor	145	1 Min	-32	-106	Y	N	
floor	144	1 Min	-33	-109	Y	N	
floor	157	1 Min	-20	-66	Y	N	
west wall	192	1 Min	15	50	Y	N	
west wall	153	1 Min	-24	-79	Y	N	
west wall	189	1 Min	12	40	Y	N	
west wall	158	1 Min	-19	-63	Y	N	
west wall	171	1 Min	-6	-20	Y	N	
west wall	129	1 Min	-48	-159	Y	N	
west wall	152	1 Min	-25	-83	Y	N	
west wall	170	1 Min	-7	-23	Y	N	
west wall	130	1 Min	-47	-155	Y	N	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.21		
Date:	4/15/2005			Calibration factor	3.8	Probe face area (cm2)=	126
Background (cpm)	169			release exceedance:			
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
west floor		236	1 Min	67	253	Y	N
west floor		281	1 Min	112	423	Y	N
west floor		315	1 Min	146	552	Y	N
west floor		237	1 Min	68	257	Y	N
west floor		282	1 Min	113	427	Y	N
west floor		242	1 Min	73	276	Y	N
west floor		248	1 Min	79	299	Y	N
west floor		243	1 Min	74	280	Y	N
west floor		246	1 Min	77	291	Y	N
west floor		253	1 Min	84	317	Y	N
east basement	east wall	132	1 Min	-37	-140	Y	N
east basement	east wall	177	1 Min	8	30	Y	N
east basement	east wall	210	1 Min	41	155	Y	N
east basement	south wall	129	1 Min	-40	-151	Y	N
east basement	south wall	116	1 Min	-53	-200	Y	N
east basement	floor	126	1 Min	-43	-163	Y	N
east basement	floor	120	1 Min	-49	-185	Y	N
east basement	floor	129	1 Min	-40	-151	Y	N
east basement	floor	187	1 Min	18	68	Y	N
east basement	floor	177	1 Min	8	30	Y	N
east basement	floor	194	1 Min	25	94	Y	N
east basement	west wall	146	1 Min	-23	-87	Y	N
east basement	west wall	172	1 Min	3	11	Y	N
east basement	west wall	158	1 Min	-11	-42	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.25		
Date:	4/15/2005			Calibration factor	3.2	Probe face area (cm2)=	126
Background (cpm)	130			release exceedance:			
Facility	RAD YARD	E2364					
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
2364	west floor	158	1 Min	28	89	Y	N
	west floor	133	1 Min	3	10	Y	N
	west floor	124	1 Min	-6	-19	Y	N
	west floor	147	1 Min	17	54	Y	N
	west floor	137	1 Min	7	22	Y	N
	west floor	146	1 Min	16	51	Y	N
	west floor	143	1 Min	13	41	Y	N
	west floor	158	1 Min	28	89	Y	N
	west floor	141	1 Min	11	35	Y	N
	west floor	134	1 Min	4	13	Y	N
	west floor	163	1 Min	33	105	Y	N
	west floor	169	1 Min	39	124	Y	N
	west floor	169	1 Min	39	124	Y	N
	west floor	148	1 Min	18	57	Y	N
	west floor	142	1 Min	12	38	Y	N
	west floor	129	1 Min	-1	-3	Y	N
	west floor	155	1 Min	25	79	Y	N
	west floor	141	1 Min	11	35	Y	N
	west floor	653	1 Min	523	1660	Y	N
	west floor	128	1 Min	-2	-6	Y	N
	west floor	149	1 Min	19	60	Y	N
	west floor	174	1 Min	44	140	Y	N
	west floor	215	1 Min	85	270	Y	N
	west floor	271	1 Min	141	448	Y	N
	west floor	247	1 Min	117	371	Y	N
	west floor	164	1 Min	34	108	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM								
				FORM 3.03				
<b>Model:</b>	44-116	<b>S/N</b>	PR 142893	<b>Efficiency (cpm )</b>				
<b>Date:</b>	4/15/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126	
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm			
<b>Facility</b>	RAD YARD							
	96							
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>	
excavator release			1 Min	0	#DIV/0!	Y	N	



<b>Model:</b>	43-5	<b>S/N</b>	PR145049	<b>Efficiency (cpm )</b>	0.13	Probe face area (cm2)=	76
<b>Date:</b>	4/15/2004			<b>Calibration factor</b>	10.1		
<b>Background (cpm)</b>	1			<b>release exceedance:</b>	12 cpm	<b>Background (cpm)</b>	0
						<b>Facility</b>	RAD YARD
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Excavator release		0	1min	-1	-10	Y	N
air filter (primary)		2	1min	1	10	Y	N
air filter (primary)		1	1min	0	0	Y	N
secondary filter		0	1min	-1	-10	Y	N
secondary filter		1	1min	0	0	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>	0.24		
<b>Date:</b>	5/2/2005			<b>Calibration factor</b>	3.3	Probe face area (cm2)=	126
<b>Background (cpm)</b>	212			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
no data collected			1 Min	-212	-701	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	5/2/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	130			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No Data collected			1 Min	-130	-469	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	5/16/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	180			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Forklift release							
Forklift release		105	1 Min	-75	-259	Y	N
Forklift release		119	1 Min	-61	-210	Y	N
Forklift release		125	1 Min	-55	-190	Y	N
Forklift release		142	1 Min	-38	-131	Y	N
Forklift release		116	1 Min	-64	-221	Y	N
Forklift release		137	1 Min	-43	-148	Y	N
Forklift release		134	1 Min	-46	-159	Y	N
Forklift release		118	1 Min	-62	-214	Y	N
Forklift release		128	1 Min	-52	-179	Y	N
Forklift release		139	1 Min	-41	-141	Y	N
Forklift release		147	1 Min	-33	-114	Y	N
Forklift release		122	1 Min	-58	-200	Y	N
Forklift air filter		155	1 Min	-25	-86	Y	N
Backhoe		117	1 Min	-63	-217	Y	N
Backhoe		127	1 Min	-53	-183	Y	N
Backhoe		134	1 Min	-46	-159	Y	N
Backhoe		146	1 Min	-34	-117	Y	N
Backhoe		116	1 Min	-64	-221	Y	N
Backhoe		146	1 Min	-34	-117	Y	N
Backhoe		138	1 Min	-42	-145	Y	N
Backhoe	air filter	134	1 Min	-46	-159	Y	N
Backhoe		128	1 Min	-52	-179	Y	N
Backhoe		134	1 Min	-46	-159	Y	N
Backhoe		130	1 Min	-50	-173	Y	N
Backhoe		124	1 Min	-56	-193	Y	N
Backhoe		143	1 Min	-37	-128	Y	N
Backhoe		122	1 Min	-58	-200	Y	N
Backhoe		129	1 Min	-51	-176	Y	N
Backhoe		133	1 Min	-47	-162	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	5/2/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)	126
<b>Background (cpm)</b>	130			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
Concrete pad (former 1ton steamout) 1			1 Min	-130	-469	Y	N



TOTAL BETA							
				FORM 3.03			
Model:	44-116	S/N	PR131321	Efficiency (cpm )	0.23		
Date:	5/17/2005			Calibration factor	3.5	Probe face area (cm2)=	126
Background (cpm)	223			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
sump 5		202	1 Min	-21	-72	Y	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.22		
Date:	5/24/2005			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	140			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
Excavator Release		141	1 Min	1	4	Y	N
Excavator Release		99	1 Min	-41	-148	Y	N
Excavator Release		91	1 Min	-49	-177	Y	N
Excavator Release		87	1 Min	-53	-191	Y	N
Excavator Release		96	1 Min	-44	-159	Y	N
Excavator Release		110	1 Min	-30	-108	Y	N
Excavator Release		137	1 Min	-3	-11	Y	N
Excavator Release		114	1 Min	-26	-94	Y	N
Excavator Release		101	1 Min	-39	-141	Y	N
Excavator Release		114	1 Min	-26	-94	Y	N
Excavator Release		137	1 Min	-3	-11	Y	N
Excavator Release		151	1 Min	11	40	Y	N
Excavator Release		97	1 Min	-43	-155	Y	N
Excavator Release		94	1 Min	-46	-166	Y	N
Excavator Release		88	1 Min	-52	-188	Y	N
Excavator Release		114	1 Min	-26	-94	Y	N
Excavator Release		88	1 Min	-52	-188	Y	N
Excavator Release		114	1 Min	-26	-94	Y	N
Excavator Release		88	1 Min	-52	-188	Y	N
Excavator Release		154	1 Min	14	51	Y	N
Excavator Release		124	1 Min	-16	-58	Y	N
Excavator Release		82	1 Min	-58	-209	Y	N
Excavator Release		97	1 Min	-43	-155	Y	N
Excavator Release		72	1 Min	-68	-245	Y	N
Excavator Release		112	1 Min	-28	-101	Y	N
Excavator Release		101	1 Min	-39	-141	Y	N
Excavator Release		105	1 Min	-35	-126	Y	N
Excavator Release		98	1 Min	-42	-152	Y	N
Excavator Release		92	1 Min	-48	-173	Y	N
Excavator Release		97	1 Min	-43	-155	Y	N
Excavator Release		72	1 Min	-68	-245	Y	N
Excavator Release		77	1 Min	-63	-227	Y	N
Excavator Release		69	1 Min	-71	-256	Y	N
Excavator Release		87	1 Min	-53	-191	Y	N
Excavator Release		72	1 Min	-68	-245	Y	N
Excavator Release		54	1 Min	-86	-310	Y	N
Excavator Release		89	1 Min	-51	-184	Y	N
Excavator Release		123	1 Min	-17	-61	Y	N
Excavator Release		142	1 Min	2	7	Y	N
Excavator Release		149	1 Min	9	32	Y	N
Excavator Release		157	1 Min	17	61	Y	N
Excavator Release		161	1 Min	21	76	Y	N
Excavator Release		151	1 Min	11	40	Y	N
Bulldozer Release		172	1 Min	32	115	Y	N
Bulldozer Release		129	1 Min	-11	-40	Y	N
Bulldozer Release		133	1 Min	-7	-25	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR 150362	<b>Efficiency (cpm )</b>	0.22		
<b>Date:</b>	5/24/2005			<b>Calibration factor</b>	3.6	Probe face area (cm2)=	126
<b>Background (cpm)</b>	140			<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
Bulldozer Release		139	1 Min	-1	-4	Y	N
Bulldozer Release		122	1 Min	-18	-65	Y	N
Bulldozer Release		153	1 Min	13	47	Y	N
Bulldozer Release		99	1 Min	-41	-148	Y	N
Bulldozer Release		109	1 Min	-31	-112	Y	N
Bulldozer Release		87	1 Min	-53	-191	Y	N
Bulldozer Release		59	1 Min	-81	-292	Y	N
Bulldozer Release		113	1 Min	-27	-97	Y	N
Bulldozer Release		127	1 Min	-13	-47	Y	N
Bulldozer Release		112	1 Min	-28	-101	Y	N
Bulldozer Release		112	1 Min	-28	-101	Y	N
Bulldozer Release		110	1 Min	-30	-108	Y	N
Bulldozer Release		117	1 Min	-23	-83	Y	N
Bulldozer Release		105	1 Min	-35	-126	Y	N
Bulldozer Release		99	1 Min	-41	-148	Y	N
Bulldozer Release		76	1 Min	-64	-231	Y	N
Bulldozer Release		113	1 Min	-27	-97	Y	N
Bulldozer Release		124	1 Min	-16	-58	Y	N
Bulldozer Release		127	1 Min	-13	-47	Y	N
Bulldozer Release		155	1 Min	15	54	Y	N
Bulldozer Release		105	1 Min	-35	-126	Y	N
Bulldozer Release		87	1 Min	-53	-191	Y	N
Bulldozer Release		89	1 Min	-51	-184	Y	N
Bulldozer Release		96	1 Min	-44	-159	Y	N



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
<b>Model:</b>	44-116	<b>S/N</b>	PR131321	<b>Efficiency (cpm )</b>			
<b>Date:</b>	5/26/2005			<b>Calibration factor</b>	#DIV/0!	Probe face area (cm2)=	126
<b>Background (cpm)</b>				<b>release exceedance:</b>	700 cpm		
<b>Facility</b>	RAD YARD						
<b>Item</b>		<b>CPM</b>	<b>Count time</b>	<b>Net CPM</b>	<b>Contamination level</b>	<b>Meets Release Limit (Y/N)</b>	<b>Swipe necessary (Y/N)</b>
No data		202	1 Min	202	#DIV/0!	Y	



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
FORM 3.03							
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.22		
Date:	5/26/2005			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	123			release exceedance:	700 cpm		
Facility	RAD YARD						
Item		CPM	Count time	Net CPM	Contamination level	Meets Release Limit (Y/N)	Swipe necessary (Y/N)
conex release	conex release	120	1 Min	-3	-11	Y	Y
conex release	conex release	118	1 Min	-5	-18	Y	Y
conex release	conex release	97	1 Min	-26	-94	Y	Y
conex release	conex release	104	1 Min	-19	-69	Y	Y
conex release	conex release	119	1 Min	-4	-14	Y	Y
conex release	conex release	96	1 Min	-27	-97	Y	Y
conex release	conex release	99	1 Min	-24	-87	Y	Y
conex release	conex release	101	1 Min	-22	-79	Y	Y
conex release	conex release	106	1 Min	-17	-61	Y	Y
conex release	conex release	139	1 Min	16	58	Y	Y
conex release	conex release	124	1 Min	1	4	Y	Y
conex release	conex release	124	1 Min	1	4	Y	Y
conex release	conex release	119	1 Min	-4	-14	Y	Y
conex release	conex release	110	1 Min	-13	-47	Y	Y
conex release	conex release	114	1 Min	-9	-32	Y	Y
conex release	conex release	116	1 Min	-7	-25	Y	Y
conex release	conex release	112	1 Min	-11	-40	Y	Y
conex release	conex release	115	1 Min	-8	-29	Y	Y
conex release	conex release	115	1 Min	-8	-29	Y	Y
Table in main room (trailer)	Table in main room (trailer)	107	1 Min	-16	-58	Y	Y
Table in main room (trailer)	Table in main room (trailer)	114	1 Min	-9	-32	Y	Y
Table in main room (trailer)	Table in main room (trailer)	130	1 Min	7	25	Y	Y
scales	scale 1	111	1 Min	-12	-43	Y	Y
	scale 1	109	1 Min	-14	-51	Y	Y
	scale 1	114	1 Min	-9	-32	Y	Y
	scale 1	107	1 Min	-16	-58	Y	Y
	scale 1	113	1 Min	-10	-36	Y	Y
scales	scale 2	103	1 Min	-20	-72	Y	Y
	scale 2	130	1 Min	7	25	Y	Y
	scale 2	115	1 Min	-8	-29	Y	Y
	scale 2	110	1 Min	-13	-47	Y	Y
	scale 2	106	1 Min	-17	-61	Y	Y
lifting	frame	94	1 Min	-29	-105	Y	Y
bag	frame1	98	1 Min	-25	-90	Y	Y
bag	frame1	101	1 Min	-22	-79	Y	Y
bag	frame1	106	1 Min	-17	-61	Y	Y
bag	frame1	101	1 Min	-22	-79	Y	Y
bag	frame1	96	1 Min	-27	-97	Y	Y
bag	frame1	98	1 Min	-25	-90	Y	Y
bag	frame1	105	1 Min	-18	-65	Y	Y
Concrete pad	(former 2366)	122	1 Min	-1	-4	Y	Y
Concrete pad	(former 2366)	88	1 Min	-35	-126	Y	Y
Concrete pad	(former 2366)	102	1 Min	-21	-76	Y	Y
Concrete pad	(former 2366)	98	1 Min	-25	-90	Y	Y
Concrete pad	(former 2366)	100	1 Min	-23	-83	Y	Y
Concrete pad	(former 2366)	110	1 Min	-13	-47	Y	Y
Concrete pad	(former 2366)	76	1 Min	-47	-170	Y	Y
Concrete pad	(former 2366)	121	1 Min	-2	-7	Y	Y
Concrete pad	(former 2366)	79	1 Min	-44	-159	Y	Y
Concrete pad	(former 2366)	100	1 Min	-23	-83	Y	Y



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.22		
Date:	5/26/2005			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	123			release exceedance:	700 cpm		
Facility	RAD YARD						
Concrete pad	(former 2366)	106	1 Min	-17	-61	Y	Y
Concrete pad	(former 2366)	201	1 Min	78	281	Y	Y
Concrete pad	(former 2366)	142	1 Min	19	69	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	86	1 Min	-37	-133	Y	Y
Concrete pad	(former 2366)	113	1 Min	-10	-36	Y	Y
Concrete pad	(former 2366)	109	1 Min	-14	-51	Y	Y
Concrete pad	(former 2366)	101	1 Min	-22	-79	Y	Y
Concrete pad	(former 2366)	107	1 Min	-16	-58	Y	Y
Concrete pad	(former 2366)	86	1 Min	-37	-133	Y	Y
Concrete pad	(former 2366)	101	1 Min	-22	-79	Y	Y
Concrete pad	(former 2366)	115	1 Min	-8	-29	Y	Y
Concrete pad	(former 2366)	116	1 Min	-7	-25	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	132	1 Min	9	32	Y	Y
Concrete pad	(former 2366)	117	1 Min	-6	-22	Y	Y
Concrete pad	(former 2366)	116	1 Min	-7	-25	Y	Y
Concrete pad	(former 2366)	105	1 Min	-18	-65	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	136	1 Min	13	47	Y	Y
Concrete pad	(former 2366)	141	1 Min	18	65	Y	Y
Concrete pad	(former 2366)	107	1 Min	-16	-58	Y	Y
Concrete pad	(former 2366)	116	1 Min	-7	-25	Y	Y
Concrete pad	(former 2366)	97	1 Min	-26	-94	Y	Y
Concrete pad	(former 2366)	102	1 Min	-21	-76	Y	Y
Concrete pad	(former 2366)	113	1 Min	-10	-36	Y	Y
Concrete pad	(former 2366)	115	1 Min	-8	-29	Y	Y
Concrete pad	(former 2366)	117	1 Min	-6	-22	Y	Y
Concrete pad	(former 2366)	108	1 Min	-15	-54	Y	Y
Concrete pad	(former 2366)	136	1 Min	13	47	Y	Y
Concrete pad	(former 2366)	142	1 Min	19	69	Y	Y
Concrete pad	(former 2366)	109	1 Min	-14	-51	Y	Y
Concrete pad	(former 2366)	90	1 Min	-33	-119	Y	Y
Concrete pad	(former 2366)	102	1 Min	-21	-76	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	139	1 Min	16	58	Y	Y
Concrete pad	(former 2366)	142	1 Min	19	69	Y	Y
Concrete pad	(former 2366)	147	1 Min	24	87	Y	Y
Concrete pad	(former 2366)	107	1 Min	-16	-58	Y	Y
Concrete pad	(former 2366)	64	1 Min	-59	-213	Y	Y
Concrete pad	(former 2366)	116	1 Min	-7	-25	Y	Y
Concrete pad	(former 2366)	98	1 Min	-25	-90	Y	Y
Concrete pad	(former 2366)	119	1 Min	-4	-14	Y	Y
Concrete pad	(former 2366)	125	1 Min	2	7	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	109	1 Min	-14	-51	Y	Y
Concrete pad	(former 2366)	126	1 Min	3	11	Y	Y
Concrete pad	(former 2366)	121	1 Min	-2	-7	Y	Y
Concrete pad	(former 2366)	120	1 Min	-3	-11	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	154	1 Min	31	112	Y	Y
Concrete pad	(former 2366)	133	1 Min	10	36	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	155	1 Min	32	115	Y	Y



TOTAL BETA CONTAMINATION SURVEY DATA FORM							
				FORM 3.03			
Model:	44-116	S/N	PR 150362	Efficiency (cpm )	0.22		
Date:	5/26/2005			Calibration factor	3.6	Probe face area (cm2)=	126
Background (cpm)	123			release exceedance:	700 cpm		
Facility	RAD YARD						
Concrete pad	(former 2366)	97	1 Min	-26	-94	Y	Y
Concrete pad	(former 2366)	108	1 Min	-15	-54	Y	Y
Concrete pad	(former 2366)	76	1 Min	-47	-170	Y	Y
Concrete pad	(former 2366)	79	1 Min	-44	-159	Y	Y
Concrete pad	(former 2366)	122	1 Min	-1	-4	Y	Y
Concrete pad	(former 2366)	97	1 Min	-26	-94	Y	Y
Concrete pad	(former 2366)	88	1 Min	-35	-126	Y	Y
Concrete pad	(former 2366)	102	1 Min	-21	-76	Y	Y
Concrete pad	(former 2366)	98	1 Min	-25	-90	Y	Y
Concrete pad	(former 2366)	100	1 Min	-23	-83	Y	Y
Concrete pad	(former 2366)	110	1 Min	-13	-47	Y	Y
Concrete pad	(former 2366)	96	1 Min	-27	-97	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	116	1 Min	-7	-25	Y	Y
Concrete pad	(former 2366)	115	1 Min	-8	-29	Y	Y
Concrete pad	(former 2366)	101	1 Min	-22	-79	Y	Y
Concrete pad	(former 2366)	85	1 Min	-38	-137	Y	Y
Concrete pad	(former 2366)	107	1 Min	-16	-58	Y	Y
Concrete pad	(former 2366)	101	1 Min	-22	-79	Y	Y
Concrete pad	(former 2366)	109	1 Min	-14	-51	Y	Y
Concrete pad	(former 2366)	121	1 Min	-2	-7	Y	Y
Concrete pad	(former 2366)	113	1 Min	-10	-36	Y	Y
Concrete pad	(former 2366)	86	1 Min	-37	-133	Y	Y
Concrete pad	(former 2366)	79	1 Min	-44	-159	Y	Y
Concrete pad	(former 2366)	127	1 Min	4	14	Y	Y
Concrete pad	(former 2366)	100	1 Min	-23	-83	Y	Y
Concrete pad	(former 2366)	142	1 Min	19	69	Y	Y
Concrete pad	(former 2366)	106	1 Min	-17	-61	Y	Y
Concrete pad	(former 2366)	201	1 Min	78	281	Y	Y
Loader		111	1 Min	-12	-43	Y	Y
Loader		76	1 Min	-47	-170	Y	Y
Loader		79	1 Min	-44	-159	Y	Y
Loader		97	1 Min	-26	-94	Y	Y
Loader		110	1 Min	-13	-47	Y	Y
Loader		108	1 Min	-15	-54	Y	Y
Loader		98	1 Min	-25	-90	Y	Y
Loader		97	1 Min	-26	-94	Y	Y
Loader		101	1 Min	-22	-79	Y	Y
Loader		107	1 Min	-16	-58	Y	Y
Loader		112	1 Min	-11	-40	Y	Y
Loader		96	1 Min	-27	-97	Y	Y
Loader		114	1 Min	-9	-32	Y	Y
Loader		106	1 Min	-17	-61	Y	Y
Loader		101	1 Min	-22	-79	Y	Y
Loader		111	1 Min	-12	-43	Y	Y
Loader		114	1 Min	-9	-32	Y	Y
Loader		102	1 Min	-21	-76	Y	Y



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**APPENDIX B  
LABORATORY DATA  
(CD-ROM)**

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STL

STL St. Louis  
13715 Rider Trail North  
Earth City, MO 63045

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## ANALYTICAL REPORT

Bush River Rad Yard

Lot #: P4J230113

Joe Gross

Weston Solutions Inc  
1309 Continental Drive  
Suite M  
Abingdon, MD 21009

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "D. Rekosh".

David Rekosh  
Project Manager

October 29, 2004



**Case Narrative**  
**LOT NUMBER: F4J230113**

This report contains the analytical results for the 20 samples received under chain of custody by STL St. Louis on October 23, 2004. These samples are associated with your Bush River Rad Yard project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There were no observations or nonconformances associated with the analysis of these samples.



## METHODS SUMMARY

F4J230113

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Gross Alpha/Beta by GFPC	SW846 9310 MOD	SW846 9310 MOD
Total Strontium By GFPC	EPA 905 MOD	

### References:

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY  
PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.



# SAMPLE SUMMARY

F4J230113

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
GVC7T	001	RS-31-N	10/21/04	15:30
GVC77	002	RS-32-N	10/21/04	15:40
GVC78	003	RS-33-N	10/21/04	15:50
GVC8A	004	RS-34-N	10/21/04	16:00
GVC8C	005	RS-35-N	10/21/04	16:10
GVC8E	006	RS-36-N	10/21/04	16:20
GVC8F	007	RS-37-N	10/21/04	16:30
GVC8H	008	RS-38-N	10/21/04	16:30
GVC8J	009	RS-39-N	10/21/04	16:50
GVC8K	010	RS-40-N	10/21/04	17:00
GVC8L	011	CS-01-N	10/22/04	09:00
GVC8M	012	CS-02-N	10/22/04	09:20
GVC8P	013	CS-03-N	10/22/04	09:45
GVC8Q	014	CS-04-N	10/22/04	10:10
GVC8R	015	CS-05-N	10/22/04	10:30
GVC8T	016	CS-06-N	10/22/04	10:50
GVC8V	017	CS-07-N	10/22/04	11:05
GVC8W	018	CS-08-N	10/22/04	11:20
GVC8X	019	CS-09-N	10/22/04	11:40
GVC80	020	CS-10-N	10/22/04	12:00

## NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-31-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-001  
 Work Order: GVC7T  
 Matrix: SOLID

Date Collected: 10/21/04 1530  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	0.40		0.13	0.13	10/26/04	10/26/04	4300146	
Cobalt 60	0.010	U	0.050	0.11	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	1.42		0.54	0.22	10/26/04	10/26/04	4300146	
Bismuth 214	0.84		0.26	0.20	10/26/04	10/26/04	4300146	
Lead 210	2.6		1.9	2.1	10/26/04	10/26/04	4300146	
Lead 212	0.79		0.20	0.22	10/26/04	10/26/04	4300146	
Lead 214	0.72		0.26	0.24	10/26/04	10/26/04	4300146	
Potassium 40	8.8		2.2	0.9	10/26/04	10/26/04	4300146	
Radium 228	1.42		0.45	0.06	10/26/04	10/26/04	4300146	
Thallium 208	0.21		0.11	0.1	10/26/04	10/26/04	4300146	
Thorium 232	1.42		0.45	0.06	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	0.25	U	0.25	0.41	10/25/04	10/27/04	4299404	89
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	27.3		8.9	9.0	10/26/04	10/26/04	4300170	
Gross Beta	36.1		9.2	12	10/26/04	10/26/04	4300170	

#### NOTE (S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-31-N DUP

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-001X  
 Work Order: GVC7T  
 Matrix: SOLID

Date Collected: 10/21/04 1530  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
<b>Total SR BY GFPC EPA-905 MOD</b>				<b>pCi/g</b>		<b>905 MOD</b>		
Strontium Total	0.20	U	0.25	0.42	10/25/04	10/27/04	4299404	81
<b>Gamma Cs-137 &amp; Hits by EPA 901.1 MOD</b>				<b>pCi/g</b>		<b>901.1 MOD</b>		
Cesium 137	0.36		0.13	0.12	10/26/04	10/26/04	4300146	
Cobalt 60	-0.043	U	0.052	0.077	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.73		0.37	0.39	10/26/04	10/26/04	4300146	
Bismuth 214	0.79		0.30	0.26	10/26/04	10/26/04	4300146	
Lead 212	0.89		0.25	0.18	10/26/04	10/26/04	4300146	
Lead 214	0.84		0.24	0.16	10/26/04	10/26/04	4300146	
Potassium 40	7.3		2.1	1	10/26/04	10/26/04	4300146	
Radium 228	0.73		0.34	0.37	10/26/04	10/26/04	4300146	
Thallium 208	0.33		0.12	0.07	10/26/04	10/26/04	4300146	
Thorium 232	0.73		0.34	0.37	10/26/04	10/26/04	4300146	
<b>GROSS A/B BY GFPC SW846 9310 MOD</b>				<b>pCi/g</b>		<b>9310 MOD</b>		
Gross Alpha	30.7		9.7	8.5	10/26/04	10/26/04	4300170	
Gross Beta	38.0		9.9	13	10/26/04	10/26/04	4300170	

#### NOTE (S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-32-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F43230113-002  
 Work Order: GVC77  
 Matrix: SOLID

Date Collected: 10/21/04 1540  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	0.24		0.10	0.1	10/26/04	10/26/04	4300146	
Cobalt 60	0.020	0	0.060	0.13	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	1.01		0.39	0.30	10/26/04	10/26/04	4300146	
Bismuth 214	0.62		0.19	0.18	10/26/04	10/26/04	4300146	
Lead 212	0.78		0.18	0.15	10/26/04	10/26/04	4300146	
Lead 214	0.77		0.21	0.17	10/26/04	10/26/04	4300146	
Potassium 40	8.7		1.9	1.1	10/26/04	10/26/04	4300146	
Radium 228	1.01		0.32	0.27	10/26/04	10/26/04	4300146	
Thallium 208	0.314		0.097	0.082	10/26/04	10/26/04	4300146	
Thorium 232	1.01		0.32	0.27	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	-0.62	U	0.24	0.41	10/25/04	10/27/04	4299464	79
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	29.1		9.0	8.9	10/26/04	10/26/04	4300170	
Gross Beta	33.9		7.9	9.8	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-33-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-003  
 Work Order: GVC78  
 Matrix: SOLID

Date Collected: 10/21/04 1550  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					pCi/g 901.1 MOD			
Cesium 137	0.37		0.13	0.11	10/26/04	10/26/04	4300146	
Cobalt 60	0.048	U	0.058	0.14	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.82		0.37	0.31	10/26/04	10/26/04	4300146	
Bismuth 214	0.63		0.21	0.16	10/26/04	10/26/04	4300146	
Lead 210	2.1		1.7	1.9	10/26/04	10/26/04	4300146	
Lead 212	0.80		0.19	0.17	10/26/04	10/26/04	4300146	
Lead 214	0.61		0.20	0.17	10/26/04	10/26/04	4300146	
Potassium 40	7.0		1.8	1.3	10/26/04	10/26/04	4300146	
Radium 228	0.82		0.33	0.36	10/26/04	10/26/04	4300146	
Thallium 208	0.29		0.11	0.10	10/26/04	10/26/04	4300146	
Thorium 232	0.82		0.33	0.36	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					pCi/g 905 MOD			
Strontium Total	0.12	U	0.23	0.39	10/25/04	10/27/04	4299404	80
GROSS A/B BY GFPC SW846 9310 MOD					pCi/g 9310 MOD			
Gross Alpha	25.1		7.9	7.3	10/26/04	10/26/04	4300170	
Gross Beta	35.2		9.5	13	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-34-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-004  
 Work Order: GVC8A  
 Matrix: SOLID

Date Collected: 10/21/04 1600  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	0.32		0.12	0.09	10/26/04	10/26/04	4300146	
Cobalt 60	-0.030	U	0.055	0.097	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.94		0.39	0.24	10/26/04	10/26/04	4300146	
Bismuth 214	0.51		0.21	0.17	10/26/04	10/26/04	4300146	
Lead 210	2.2		1.5	1.8	10/26/04	10/26/04	4300146	
Lead 212	0.56		0.17	0.19	10/26/04	10/26/04	4300146	
Lead 214	0.90		0.23	0.18	10/26/04	10/26/04	4300146	
Potassium 40	5.5		1.7	1.1	10/26/04	10/26/04	4300146	
Radium 228	0.94		0.33	0.24	10/26/04	10/26/04	4300146	
Thallium 208	0.193		0.090	0.080	10/26/04	10/26/04	4300146	
Thorium 232	0.94		0.33	0.24	10/26/04	10/26/04	4300146	
<hr/>								
Total SR BY GFPC EPA-905 MOD				pCi/g		905 MOD		
Strontium Total	0.06	U	0.23	0.39	10/25/04	10/27/04	4299404	85
<hr/>								
GROSS A/B BY GFPC SW846 9310 MOD				pCi/g		9310 MOD		
Gross Alpha	27.7		9.6	10	10/26/04	10/26/04	4300170	
Gross Beta	35.9		9.1	11	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-35-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F43230113-005  
 Work Order: GVC8C  
 Matrix: SOLID

Date Collected: 10/21/04 1610  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g		901.1 MOD			
Cesium 137	0.35		0.11	0.1	10/26/04	10/26/04	4300146	
Cobalt 60	-0.001	U	0.049	0.10	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.62		0.42	0.35	10/26/04	10/26/04	4300146	
Bismuth 214	0.54		0.17	0.12	10/26/04	10/26/04	4300146	
Lead 212	0.62		0.17	0.18	10/26/04	10/26/04	4300146	
Lead 214	0.65		0.17	0.15	10/26/04	10/26/04	4300146	
Potassium 40	6.5		1.7	1.0	10/26/04	10/26/04	4300146	
Radium 228	0.62		0.40	0.35	10/26/04	10/26/04	4300146	
Thallium 208	0.260		0.089	0.081	10/26/04	10/26/04	4300146	
Thorium 232	0.62		0.40	0.35	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD			pCi/g		905 MOD			
Strontium Total	0.17	U	0.26	0.43	10/25/04	10/27/04	4299404	81
GROSS A/B BY GFPC SW846 9310 MOD			pCi/g		9310 MOD			
Gross Alpha	29.7		9.7	8.7	10/26/04	10/26/04	4300170	
Gross Beta	24.7		8.9	13	10/26/04	10/26/04	4300170	

#### NOTE (S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-36-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-006  
 Work Order: GVC8E  
 Matrix: SOLID

Date Collected: 10/21/04 1620  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					pCi/g 901.1 MOD			
Cesium 137	0.23		0.10	0.09	10/26/04	10/26/04	4300146	
Cobalt 60	-0.006	U	0.038	0.078	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Bismuth 214	0.44		0.16	0.18	10/26/04	10/26/04	4300146	
Lead 212	0.59		0.16	0.12	10/26/04	10/26/04	4300146	
Lead 214	0.65		0.19	0.15	10/26/04	10/26/04	4300146	
Potassium 40	5.1		1.5	0.7	10/26/04	10/26/04	4300146	
Thallium 208	0.205		0.090	0.090	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					pCi/g 905 MOD			
Strontium Total	0.17	U	0.23	0.38	10/25/04	10/27/04	4299404	82
GROSS A/B BY GFPC SW846 9310 MOD					pCi/g 9310 MOD			
Gross Alpha	26.6		9.0	8.8	10/26/04	10/26/04	4300170	
Gross Beta	25.5		7.3	9.5	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-37-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-007  
 Work Order: GVC8F  
 Matrix: SOLTD

Date Collected: 10/21/04 1630  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	0.250		0.092	0.087	10/26/04	10/26/04	4300146	
Cobalt 60	-0.050	U	0.047	0.074	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	1.08		0.40	0.33	10/26/04	10/26/04	4300146	
Bismuth 214	0.71		0.24	0.15	10/26/04	10/26/04	4300146	
Lead 212	0.84		0.18	0.18	10/26/04	10/26/04	4300146	
Lead 214	0.54		0.18	0.17	10/26/04	10/26/04	4300146	
Potassium 40	8.2		1.8	0.7	10/26/04	10/26/04	4300146	
Radium 228	1.08		0.33	0.33	10/26/04	10/26/04	4300146	
Thallium 208	0.286		0.095	0.098	10/26/04	10/26/04	4300146	
Thorium 232	1.08		0.33	0.33	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD				pCi/g		905 MOD		
Strontium Total	0.03	U	0.25	0.42	10/25/04	10/27/04	4299404	76
GROSS A/B BY GFPC SW846 9310 MOD				pCi/g		9310 MOD		
Gross Alpha	21.4		7.1	7.2	10/26/04	10/26/04	4300170	
Gross Beta	26.4		7.5	10	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-38-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: P4J230113-008  
 Work Order: GVC8H  
 Matrix: SOLID

Date Collected: 10/21/04 1630  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	0.28		0.12	0.12	10/26/04	10/26/04	4300146	
Cobalt 60	-0.027	U	0.066	0.12	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.63		0.43	0.37	10/26/04	10/26/04	4300146	
Bismuth 214	0.66		0.23	0.20	10/26/04	10/26/04	4300146	
Lead 210	2.0		1.2	1.1	10/26/04	10/26/04	4300146	
Lead 212	0.88		0.19	0.18	10/26/04	10/26/04	4300146	
Lead 214	0.68		0.19	0.18	10/26/04	10/26/04	4300146	
Potassium 40	11.0		2.1	1	10/26/04	10/26/04	4300146	
Radium 228	0.62		0.41	0.37	10/26/04	10/26/04	4300146	
Thallium 208	0.28		0.10	0.09	10/26/04	10/26/04	4300146	
Thorium 232	0.62		0.41	0.37	10/26/04	10/26/04	4300146	
Thorium 234	1.56		0.53	0.80	10/26/04	10/26/04	4300146	
Uranium 238	1.56		0.52	0.80	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	0.36	U	0.33	0.54	10/25/04	10/27/04	4299404	67
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	20.1		7.1	7.4	10/26/04	10/26/04	4300170	
Gross Beta	22.0		7.4	10	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-39-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-009  
 Work Order: GVC8J  
 Matrix: SOLID

Date Collected: 10/21/04 1650  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	0.34		0.12	0.13	10/26/04	10/26/04	4300146	
Cobalt 60	0.0009	U	0.049	0.11	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	1.32		0.51	0.28	10/26/04	10/26/04	4300146	
Bismuth 214	0.69		0.27	0.22	10/26/04	10/26/04	4300146	
Lead 212	0.79		0.21	0.22	10/26/04	10/26/04	4300146	
Lead 214	0.86		0.25	0.20	10/26/04	10/26/04	4300146	
Potassium 40	7.4		2.1	1.1	10/26/04	10/26/04	4300146	
Radium 228	1.32		0.43	0.24	10/26/04	10/26/04	4300146	
Thorium 232	1.32		0.43	0.24	10/26/04	10/26/04	4300146	
<hr/>								
Total SR BY GFPC EPA-905 MOD				pCi/g		905 MOD		
Strontium Total	0.10	U	0.23	0.39	10/25/04	10/27/04	4299464	93
<hr/>								
GROSS A/B BY GFPC SW846 9310 MOD				pCi/g		9310 MOD		
Gross Alpha	26.5		7.8	6.9	10/26/04	10/26/04	4300170	
Gross Beta	33.4		7.7	9.4	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: RS-40-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-010  
 Work Order: GVC8K  
 Matrix: SOLID

Date Collected: 10/21/04 1700  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g		901.1 MOD			
Cesium 137	0.28		0.11	0.09	10/26/04	10/26/04	4300146	
Cobalt 60	-0.040	U	0.043	0.073	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Bismuth 214	0.54		0.20	0.20	10/26/04	10/26/04	4300146	
Lead 212	0.65		0.18	0.15	10/26/04	10/26/04	4300146	
Lead 214	0.72		0.22	0.17	10/26/04	10/26/04	4300146	
Potassium 40	7.8		1.9	0.8	10/26/04	10/26/04	4300146	
Thallium 208	0.27		0.10	0.09	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD			pCi/g		905 MOD			
Strontium Total	0.12	U	0.27	0.45	10/25/04	10/27/04	4299404	80
GROSS A/B BY GFPC SW846 9310 MOD			pCi/g		9310 MOD			
Gross Alpha	18.6		6.8	6.9	10/26/04	10/26/04	4300170	
Gross Beta	29.7		7.1	8.9	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: CS-01-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-011  
 Work Order: CVC8L  
 Matrix: SOLID

Date Collected: 10/22/04 0900  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	196		22	0.2	10/26/04	10/26/04	4300146	
Cobalt 60	0.019	U	0.039	0.090	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Potassium 40	3.11		0.97	0.47	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	0.21	U	0.28	0.47	10/25/04	10/27/04	4299404	78
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	51		11	8	10/26/04	10/26/04	4300170	
Gross Beta	489		52	10	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-02-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-012  
Work Order: GVC8M  
Matrix: SOLID

Date Collected: 10/22/04 0920  
Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					pCi/g 901.1 MOD			
Cesium 137	216		30	0.3	10/26/04	10/26/04	4300146	
Cobalt 60	1.09		0.21	0.09	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Potassium 40	3.2		1.0	0.9	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					pCi/g 905 MOD			
Strontium Total	0.37	U	0.29	0.46	10/25/04	10/27/04	4299404	73
GROSS A/B BY GFPC SW846 9310 MOD					pCi/g 9310 MOD			
Gross Alpha	56		13	10	10/26/04	10/26/04	4300170	
Gross Beta	575		61	12	10/26/04	10/26/04	4300170	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-03-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-013

Work Order: GVC8P

Matrix: SOLID

Date Collected: 10/22/04 0945

Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	344		44	0.3	10/26/04	10/26/04	4300146	
Cobalt 60	0.034	U	0.041	0.097	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Potassium 40	2.4		1.1	0.5	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	~0.09	U	0.27	0.46	10/25/04	10/27/04	4299404	71
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	35.9		9.4	7.4	10/26/04	10/26/04	4300170	
Gross Beta	805		84	13	10/26/04	10/26/04	4300170	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: CS-04-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-014  
 Work Order: GVC80  
 Matrix: SOLID

Date Collected: 10/22/04 1010  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	244		27	0.3	10/26/04	10/26/04	4300146	
Cobalt 60	0.090	U	0.068	0.17	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Actinium 228	0.67		0.32	0.35	10/26/04	10/26/04	4300146	
Bismuth 214	0.77		0.47	0.65	10/26/04	10/26/04	4300146	
Potassium 40	5.6		1.7	0.8	10/26/04	10/26/04	4300146	
Radium 228	0.67		0.28	0.35	10/26/04	10/26/04	4300146	
Thorium 232	0.67		0.28	0.35	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	0.26	U	0.27	0.43	10/25/04	10/27/04	4299404	78
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	21.2		8.3	9.5	10/26/04	10/26/04	4300170	
Gross Beta	305		34	10	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: CS-05-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: P4J230113-015  
 Work Order: GVC8R  
 Matrix: SOLID

Date Collected: 10/22/04 1030  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					901.1 MOD			
Cesium 137	0.98		0.18	0.07	10/26/04	10/26/04	4300146	
Cobalt 60	-0.010	U	0.018	0.030	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Lead 212	0.192		0.078	0.091	10/26/04	10/26/04	4300146	
Potassium 40	2.51		0.84	0.45	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					905 MOD			
Strontium Total	-0.22	U	0.31	0.54	10/25/04	10/27/04	4299404	79
GROSS A/B BY GFPC SW846 9310 MOD					9310 MOD			
Gross Alpha	14.2		7.4	9.0	10/26/04	10/26/04	4300170	
Gross Beta	27.3		9.5	13	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-06-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-016  
 Work Order: GVC8T  
 Matrix: SOLID

Date Collected: 10/22/04 1050  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g		901.1 MOD			
Cesium 137	0.69		0.14	0.05	10/26/04	10/26/04	4300146	
Cobalt 60	-0.006	U	0.038	0.077	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Bismuth 214	0.26		0.11	0.11	10/26/04	10/26/04	4300146	
Lead 212	0.408		0.098	0.11	10/26/04	10/26/04	4300146	
Potassium 40	4.3		1.1	0.7	10/26/04	10/26/04	4300146	
Thallium 208	0.103		0.057	0.069	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD			pCi/g		905 MOD			
Strontium Total	0.15	U	0.30	0.50	10/25/04	10/27/04	4299404	68
GROSS A/B BY GFPC SW846 9310 MOD			pCi/g		9310 MOD			
Gross Alpha	21.1		8.6	9.4	10/26/04	10/26/04	4300170	
Gross Beta	25.2		8.2	11	10/26/04	10/26/04	4300170	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-07-N

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-017  
Work Order: GVC8V  
Matrix: SOLID

Date Collected: 10/22/04 1105  
Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g		901.1 MOD			
Cesium 137	1.12		0.19	0.07	10/26/04	10/26/04	4300146	
Cobalt 60	0.020	U	0.030	0.081	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Lead 212	0.151		0.094	0.10	10/26/04	10/26/04	4300146	
Potassium 40	2.5		1.0	0.6	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD			pCi/g		905 MOD			
Strontium Total	0.17	U	0.37	0.62	10/25/04	10/27/04	4299404	65
GROSS A/B BY GFPC SW846 9310 MOD			pCi/g		9310 MOD			
Gross Alpha	9.0	J	5.7	7.5	10/26/04	10/26/04	4300170	
Gross Beta	22.1		7.1	9.8	10/26/04	10/26/04	4300170	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-08-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-018  
Work Order: GVC8W  
Matrix: SOLID

Date Collected: 10/22/04 1120  
Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	87		11	0.2	10/26/04	10/26/04	4300146	
Cobalt 60	0.243		0.074	0.076	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Potassium 40	2.3		1.0	0.8	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD				pCi/g	905 MOD			
Strontium Total	0.83	J	0.28	0.38	10/25/04	10/27/04	4299404	94
GROSS A/B BY GFPC SW846 9310 MOD				pCi/g	9310 MOD			
Gross Alpha	12.7		5.8	6.8	10/26/04	10/26/04	4300170	
Gross Beta	206		24	9	10/26/04	10/26/04	4300170	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

J Result is greater than sample detection limit but less than stated reporting limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-09-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-019  
Work Order: GVC8X  
Matrix: SOLID

Date Collected: 10/22/04 1140  
Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD					pCi/g 901.1 MOD			
Cesium 137	63.0		8.7	0.2	10/26/04	10/26/04	4300146	
Cobalt 60	0.057	U	0.048	0.11	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Potassium 40	2.77		0.86	0.53	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD					pCi/g 905 MOD			
Strontium Total	0.46	U	0.30	0.47	10/25/04	10/27/04	4299404	76
GROSS A/B BY GFPC SW846 9310 MOD					pCi/g 9310 MOD			
Gross Alpha	15.2		6.9	8.5	10/26/04	10/26/04	4300170	
Gross Beta	178		22	14	10/26/04	10/26/04	4300170	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

## Client Sample ID: CS-10-N

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4J230113-020  
 Work Order: CVC80  
 Matrix: SOLID

Date Collected: 10/22/04 1200  
 Date Received: 10/23/04 0910

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g		901.1 MOD			
Cesium 137	1.04		0.18	0.06	10/26/04	10/26/04	4300146	
Cobalt 60	0.038	U	0.045	0.10	10/26/04	10/26/04	4300146	
--- Other Detected Radionuclides ---								
Bismuth 214	0.167		0.083	0.11	10/26/04	10/26/04	4300146	
Lead 212	0.225		0.076	0.082	10/26/04	10/26/04	4300146	
Lead 214	0.171		0.084	0.098	10/26/04	10/26/04	4300146	
Potassium 40	3.24		0.94	0.69	10/26/04	10/26/04	4300146	
Thallium 208	0.109		0.053	0.048	10/26/04	10/26/04	4300146	
Total SR BY GFPC EPA-905 MOD			pCi/g		905 MOD			
Strontium Total	0.18	U	0.28	0.47	10/25/04	10/27/04	4299404	69
GROSS A/B BY GFPC SW846 9310 MOD			pCi/g		9310 MOD			
Gross Alpha	16.7		7.6	9.4	10/26/04	10/26/04	4300170	
Gross Beta	28.1		8.8	12	10/26/04	10/26/04	4300170	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# METHOD BLANK REPORT

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4J230113  
Matrix: SOLID

					Lab Sample ID			
Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Total SR BY GFPC EPA-905 MOD					pCi/g	905 MOD	F4J250000-404B	
Strontium Total	-0.55	U	0.27	0.46	10/25/04	10/27/04	4299404	88
GROSS A/B BY GFPC SW846 9310 MOD					pCi/g	9310 MOD	F4J260000-170B	
Gross Alpha	3.6	U	3.7	5.7	10/26/04	10/26/04	4300170	
Gross Beta	4.1	U	2.7	4.3	10/26/04	10/26/04	4300170	
Gamma Cs-137 & Hits by EPA 901.1 MOD					pCi/g	901.1 MOD	F4J260000-146B	
Cesium 137	-0.014	U	0.027	0.049	10/26/04	10/26/04	4300146	
Cobalt 60	0.019	U	0.037	0.090	10/26/04	10/26/04	4300146	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# DUPLICATE EVALUATION REPORT

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4J230113  
Matrix: SOLID

Date Sampled: 10/21/04  
Date Received: 10/23/04

Parameter	SAMPLE Result	Total Uncert. (2σ +/-)	% Yld	DUPLICATE Result	Total Uncert. (2σ +/-)	% Yld	QC Sample ID Precision
<b>Total SR BY GFPC EPA-905 MOD pCi/g 905 MOD F4J230113-001</b>							
Strontium Total	0.25 U	0.25	89	0.20 U	0.25	81	22 SRPD
	Batch #:	4299404 (Sample)		4299404 (Duplicate)			
<b>Gamma Cs-137 &amp; Hits by EPA 901.1 MOD pCi/g 901.1 MOD F4J230113-001</b>							
Cesium 137	0.40	0.13		0.36	0.13		11 SRPD
Cobalt 60	0.010 U	0.050		-0.043 U	0.052		-328 SRPD
---Other Detected Radionuclides---							
Actinium 228	1.42	0.54		0.73	0.37		65 SRPD
Bismuth 214	0.84	0.26		0.79	0.30		6 SRPD
Lead 212	0.79	0.20		0.89	0.25		13 SRPD
Lead 214	0.72	0.26		0.84	0.24		15 SRPD
Potassium 40	8.8	2.2		7.3	2.1		20 SRPD
Radium 228	1.42	0.45		0.73	0.34		65 SRPD
Thallium 208	0.21	0.11		0.33	0.12		44 SRPD
Thorium 232	1.42	0.45		0.73	0.34		65 SRPD
	Batch #:	4300146 (Sample)		4300146 (Duplicate)			
<b>GROSS A/B BY GFPC SW846 9310 MOD pCi/g 9310 MOD F4J230113-001</b>							
Gross Alpha	27.3	8.9		30.7	9.7		12 SRPD
Gross Beta	36.1	9.2		38.0	9.9		5 SRPD
	Batch #:	4300170 (Sample)		4300170 (Duplicate)			

### NOTE(S)

Data are incomplete without the case narrative.

Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.



# Laboratory Control Sample Report

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4J230113  
Matrix: SOLID

Parameter	Spike Amount	Result	Total Uncert. (2 $\sigma$ +/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
<hr/>							
Total SR BY GFPC	EPA-905 MOD		pCi/g	905 MOD			F4J250000-404C
Strontium Total	9.66	6.79	0.79	0.34	100	70	(60 - 113)
	Batch #:	4299404		Analysis Date:	10/27/04		
<hr/>							
Gamma Cs-137 & Hits by EPA	901.1 MOD		pCi/g	901.1 MOD			F4J260000-146C
Americium 241	70.0	73.5	8.9	0.8		105	(90 - 115)
Cesium 137	29.5	31.9	3.6	0.3		108	(90 - 115)
Cobalt 60	42.4	42.9	4.7	0.3		101	(90 - 111)
	Batch #:	4300146		Analysis Date:	10/26/04		
<hr/>							
GROSS A/B BY GFPC	SW846 9310 MOD		pCi/g	9310 MOD			F4J260000-170C
Gross Alpha	34.0	30.3	7.3	4.7		89	(70 - 130)
Gross Beta	37.0	30.6	5.9	6.9		83	(70 - 127)
	Batch #:	4300170		Analysis Date:	10/26/04		
<hr/>							

### NOTE(S)

MDC is determined by instrument performance only  
Calculations are performed before rounding to avoid round-off error in calculated results





STL

STL St. Louis  
13715 Rider Trail North  
Earth City, MO 63045

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## ANALYTICAL REPORT

Bush River Rad Yard

Lot #: F4K100260

Joe Gross

Weston Solutions Inc  
1309 Continental Drive  
Suite M  
Abingdon, MD 21009

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in cursive script, appearing to read "David Rekosh".

David Rekosh  
Project Manager

November 16, 2004



**Case Narrative**  
**LOT NUMBER: F4K100260**

This report contains the analytical results for the 12 samples received under chain of custody by STL St. Louis on November 10, 2004. These samples are associated with your Bush River Rad Yard project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There were no observations or nonconformances associated with the analysis of these samples.



## METHODS SUMMARY

F4K100260

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010

### References:

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY  
PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.



# SAMPLE SUMMARY

F4K100260

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
GWMFD	001	CS-11-N	11/06/04	12:55
GWMFL	002	CS-12-N	11/06/04	13:00
GWMFV	003	CS-13-N	11/06/04	13:05
GWMF7	004	CS-14-N	11/06/04	13:10
GWMF8	005	CS-15-N	11/06/04	13:20
GWMGC	006	CS-16-N	11/06/04	13:25
GWMGG	007	CS-2368-01-0	11/06/04	13:55
GWMGJ	008	CS-2368-02-0	11/06/04	14:00
GWMGK	009	CS-2366-03-0	11/06/04	14:10
GWMGM	010	CS-2366-01-0	11/06/04	14:20
GWMGN	011	CS-2366-02-0	11/06/04	14:35
GWMGQ	012	CS-2356-01-0	11/06/04	14:40

## NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



# WESTON SOLUTIONS INC

Client Sample ID: CS-11-N

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-001  
Work Order: GWMFD  
Matrix: SOLID

Date Collected: 11/06/04 1255  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	0.45		0.12	0.08	11/12/04	11/13/04	4317327	
Cobalt 60	~0.008	U	0.052	0.10	11/12/04	11/13/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.69		0.28	0.23	11/12/04	11/13/04	4317327	
Bismuth 214	0.38		0.18	0.16	11/12/04	11/13/04	4317327	
Lead 212	0.47		0.13	0.14	11/12/04	11/13/04	4317327	
Lead 214	0.34		0.16	0.17	11/12/04	11/13/04	4317327	
Potassium 40	3.4		1.3	1.2	11/12/04	11/13/04	4317327	
Radium 228	0.69		0.25	0.23	11/12/04	11/13/04	4317327	
Thallium 208	0.205		0.098	0.078	11/12/04	11/13/04	4317327	
Thorium 232	0.69		0.25	0.23	11/12/04	11/13/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-11-N DUP

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-001X  
Work Order: GWMFD  
Matrix: SOLID

Date Collected: 11/06/04 1255  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.54		0.13	0.08	11/12/04	11/13/04	4317327	
Cobalt 60	0.062	U	0.045	0.11	11/12/04	11/13/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.40		0.23	0.24	11/12/04	11/13/04	4317327	
Bismuth 214	0.49		0.15	0.13	11/12/04	11/13/04	4317327	
Lead 210	2.1		1.5	1.3	11/12/04	11/13/04	4317327	
Lead 212	0.51		0.13	0.16	11/12/04	11/13/04	4317327	
Lead 214	0.46		0.14	0.13	11/12/04	11/13/04	4317327	
Radium 228	0.40		0.22	0.22	11/12/04	11/13/04	4317327	
Thallium 208	0.228		0.067	0.074	11/12/04	11/13/04	4317327	
Thorium 232	0.40		0.22	0.22	11/12/04	11/13/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-12-N

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-002

Date Collected: 11/06/04 1300

Work Order: GWMFL

Date Received: 11/10/04 0900

Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.036	U	0.058	0.11	11/12/04	11/13/04	4317327	
Cobalt 60	0.006	U	0.044	0.093	11/12/04	11/13/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.91		0.36	0.32	11/12/04	11/13/04	4317327	
Bismuth 214	0.65		0.22	0.19	11/12/04	11/13/04	4317327	
Lead 212	0.93		0.19	0.19	11/12/04	11/13/04	4317327	
Lead 214	0.74		0.19	0.15	11/12/04	11/13/04	4317327	
Potassium 40	7.7		2.1	0.8	11/12/04	11/13/04	4317327	
Radium 228	0.91		0.30	0.32	11/12/04	11/13/04	4317327	
Thallium 208	0.33		0.11	0.09	11/12/04	11/13/04	4317327	
Thorium 232	0.91		0.30	0.32	11/12/04	11/13/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-13-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-003

Date Collected: 11/06/04 1305

Work Order: GWMFV

Date Received: 11/10/04 0900

Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.43		0.13	0.11	11/12/04	11/13/04	4317327	
Cobalt 60	-0.011	U	0.067	0.13	11/12/04	11/13/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.59		0.33	0.28	11/12/04	11/13/04	4317327	
Bismuth 214	0.53		0.20	0.20	11/12/04	11/13/04	4317327	
Lead 210	1.4		1.3	1.2	11/12/04	11/13/04	4317327	
Lead 212	0.69		0.18	0.15	11/12/04	11/13/04	4317327	
Lead 214	0.70		0.21	0.17	11/12/04	11/13/04	4317327	
Potassium 40	6.6		1.8	1.1	11/12/04	11/13/04	4317327	
Radium 228	0.59		0.30	0.29	11/12/04	11/13/04	4317327	
Thallium 208	0.267		0.097	0.090	11/12/04	11/13/04	4317327	
Thorium 232	0.59		0.30	0.29	11/12/04	11/13/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-14-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-004  
Work Order: GWMF7  
Matrix: SOLID

Date Collected: 11/06/04 1310  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.048	U	0.058	0.12	11/12/04	11/14/04	4317327	
Cobalt 60	0.030	U	0.060	0.13	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.97		0.38	0.37	11/12/04	11/14/04	4317327	
Bismuth 214	0.74		0.27	0.16	11/12/04	11/14/04	4317327	
Lead 212	0.95		0.20	0.17	11/12/04	11/14/04	4317327	
Lead 214	0.85		0.21	0.13	11/12/04	11/14/04	4317327	
Potassium 40	9.5		2.7	1.1	11/12/04	11/14/04	4317327	
Radium 228	0.97		0.32	0.36	11/12/04	11/14/04	4317327	
Thallium 208	0.31		0.13	0.09	11/12/04	11/14/04	4317327	
Thorium 232	0.97		0.32	0.36	11/12/04	11/14/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-15-N

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-005  
Work Order: GWMF8  
Matrix: SOLID

Date Collected: 11/06/04 1320  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	18.0		2.2	0.1	11/12/04	11/14/04	4317327	
Cobalt 60	0.059	U	0.044	0.10	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Bismuth 214	0.34		0.14	0.16	11/12/04	11/14/04	4317327	
Lead 212	0.28		0.15	0.17	11/12/04	11/14/04	4317327	
Lead 214	0.34		0.20	0.24	11/12/04	11/14/04	4317327	
Potassium 40	3.07		0.92	0.68	11/12/04	11/14/04	4317327	
Thallium 208	0.122		0.074	0.096	11/12/04	11/14/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



# WESTON SOLUTIONS INC

Client Sample ID: CS-16-N

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-006

Date Collected: 11/06/04 1325

Work Order: GWMGC

Date Received: 11/10/04 0900

Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	3.37		0.51	0.10	11/12/04	11/14/04	4317327	
Cobalt 60	0.023	U	0.050	0.11	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.90		0.35	0.30	11/12/04	11/14/04	4317327	
Bismuth 214	0.92		0.24	0.16	11/12/04	11/14/04	4317327	
Lead 212	0.82		0.21	0.17	11/12/04	11/14/04	4317327	
Lead 214	0.72		0.22	0.17	11/12/04	11/14/04	4317327	
Potassium 40	7.6		1.7	1.0	11/12/04	11/14/04	4317327	
Radium 228	0.90		0.29	0.30	11/12/04	11/14/04	4317327	
Thallium 208	0.33		0.11	0.1	11/12/04	11/14/04	4317327	
Thorium 232	0.90		0.29	0.30	11/12/04	11/14/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2368-01-0

TCLP Metals

Lot-Sample #...: F4K100260-007

Matrix.....: SOLID

Date Sampled...: 11/06/04 13:55 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4317373						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGG1AC
		Dilution Factor: 2.5		Analysis Time...: 21:46		

NOTE(S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



# WESTON SOLUTIONS INC

## Client Sample ID: CS-2368-01-0

### Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-007

Date Collected: 11/06/04 1355

Work Order: GWMGC

Date Received: 11/10/04 0900

Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.75		0.15	0.09	11/12/04	11/14/04	4317327	
Cobalt 60	-0.0002	U	0.030	0.069	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Bismuth 214	0.35		0.14	0.11	11/12/04	11/14/04	4317327	
Lead 212	0.29		0.12	0.12	11/12/04	11/14/04	4317327	
Lead 214	0.44		0.16	0.14	11/12/04	11/14/04	4317327	
Potassium 40	3.4		1.6	1.0	11/12/04	11/14/04	4317327	
Thallium 208	0.180		0.071	0.076	11/12/04	11/14/04	4317327	

#### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2368-02-0

TCLP Metals

Lot-Sample #...: F4K100260-008

Matrix.....: SOLID

Date Sampled...: 11/06/04 14:00 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4317373						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGJ1AC
		Dilution Factor: 2.5		Analysis Time...: 21:50		

**NOTE(S) :**

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



# WESTON SOLUTIONS INC

Client Sample ID: CS-2368-02-0

## Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-008

Work Order: GWMGJ

Matrix: SOLID

Date Collected: 11/06/04 1400

Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	-0.037	U	0.044	0.070	11/12/04	11/14/04	4317327	
Cobalt 60	-0.007	U	0.044	0.087	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	0.98		0.38	0.26	11/12/04	11/14/04	4317327	
Bismuth 214	0.64		0.18	0.17	11/12/04	11/14/04	4317327	
Lead 212	0.70		0.13	0.11	11/12/04	11/14/04	4317327	
Lead 214	0.52		0.16	0.15	11/12/04	11/14/04	4317327	
Potassium 40	6.5		1.6	1	11/12/04	11/14/04	4317327	
Radium 228	0.98		0.32	0.24	11/12/04	11/14/04	4317327	
Thallium 208	0.312		0.086	0.077	11/12/04	11/14/04	4317327	
Thorium 232	0.98		0.32	0.24	11/12/04	11/14/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2366-03-0

TCLP Metals

Lot-Sample #...: F4K100260-009

Matrix.....: SOLID

Date Sampled...: 11/06/04 14:10 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4317373						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGK1AC
		Dilution Factor: 2.5		Analysis Time...: 22:04		

NOTE(S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



WESTON SOLUTIONS INC

Client Sample ID: CS-2366-03-0

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-009  
Work Order: GWMGK  
Matrix: SOLID

Date Collected: 11/06/04 1410  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.006	U	0.030	0.064	11/12/04	11/14/04	4317327	
Cobalt 60	-0.015	U	0.032	0.062	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Bismuth 214	0.201		0.076	0.080	11/12/04	11/14/04	4317327	
Lead 212	0.183		0.082	0.073	11/12/04	11/14/04	4317327	
Potassium 40	2.16		0.70	0.51	11/12/04	11/14/04	4317327	

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2366-01-0

TCLP Metals

Lot-Sample #...: F4K100260-010

Matrix.....: SOLID

Date Sampled...: 11/06/04 14:20 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4317373						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGM1AC
		Dilution Factor: 2.5		Analysis Time...: 22:08		

NOTE(S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



# WESTON SOLUTIONS INC

Client Sample ID: CS-2366-01-0

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-010  
Work Order: GWMGM  
Matrix: SOLID

Date Collected: 11/06/04 1420  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g	901.1 MOD			
Cesium 137	0.95		0.20	0.08	11/12/04	11/14/04	4317327	
Cobalt 60	0.009	U	0.050	0.11	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Bismuth 214	0.87		0.25	0.18	11/12/04	11/14/04	4317327	
Lead 212	0.54		0.16	0.18	11/12/04	11/14/04	4317327	
Lead 214	0.84		0.27	0.18	11/12/04	11/14/04	4317327	
Potassium 40	3.2		1.4	1.1	11/12/04	11/14/04	4317327	
Thallium 208	0.292		0.096	0.080	11/12/04	11/14/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2366-02-0

TCLP Metals

Lot-Sample #...: F4K100260-011

Matrix.....: SOLID

Date Sampled...: 11/06/04 14:35 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...	4317373					
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGN1AC
		Dilution Factor: 2.5		Analysis Time...: 22:12		

NOTE(S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



# WESTON SOLUTIONS INC

**Client Sample ID: CS-2366-02-0**

**Severn Trent Laboratories - Radiochemistry**

Lab Sample ID: F4K100260-011  
 Work Order: GWMGN  
 Matrix: SOLID

Date Collected: 11/06/04 1435  
 Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 $\sigma$ +/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
<b>Gamma Cs-137 &amp; Hits by EPA 901.1 MOD</b>				<b>pCi/g</b>		<b>901.1 MOD</b>		
Cesium 137	0.202		0.054	0.041	11/12/04	11/14/04	4317327	
Cobalt 60	0.017	U	0.029	0.069	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Lead 212	0.284		0.078	0.084	11/12/04	11/14/04	4317327	
Lead 214	0.226		0.088	0.086	11/12/04	11/14/04	4317327	
Potassium 40	1.58		0.60	0.45	11/12/04	11/14/04	4317327	
Thallium 208	0.077		0.050	0.050	11/12/04	11/14/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



WESTON SOLUTIONS INC

Client Sample ID: CS-2356-01-0

TCLP Metals

Lot-Sample #...: F4K100260-012

Matrix.....: SOLID

Date Sampled...: 11/06/04 14:40 Date Received...: 11/10/04

Leach Date.....: 11/11/04 Leach Batch #...: P431606

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4317373						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWMGQ1AC
		Dilution Factor: 2.5		Analysis Time...: 22:17		

NOTE(S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311



# WESTON SOLUTIONS INC

Client Sample ID: CS-2356-01-0

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4K100260-012  
Work Order: GWMGO  
Matrix: SOLID

Date Collected: 11/06/04 1440  
Date Received: 11/10/04 0900

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/g		901.1 MOD		
Cesium 137	0.207		0.097	0.11	11/12/04	11/14/04	4317327	
Cobalt 60	0.011	U	0.061	0.13	11/12/04	11/14/04	4317327	
--- Other Detected Radionuclides ---								
Actinium 228	1.47		0.56	0.50	11/12/04	11/14/04	4317327	
Bismuth 212	1.09		0.60	0.89	11/12/04	11/14/04	4317327	
Bismuth 214	1.42		0.35	0.21	11/12/04	11/14/04	4317327	
Lead 212	1.32		0.26	0.23	11/12/04	11/14/04	4317327	
Lead 214	1.49		0.34	0.21	11/12/04	11/14/04	4317327	
Potassium 40	9.6		2.3	1.3	11/12/04	11/14/04	4317327	
Radium 228	1.47		0.47	0.45	11/12/04	11/14/04	4317327	
Thallium 208	0.65		0.18	0.11	11/12/04	11/14/04	4317327	
Thorium 232	1.47		0.47	0.45	11/12/04	11/14/04	4317327	

## NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC

U Result is less than the sample detection limit.



**METHOD BLANK REPORT**

**TCLP Metals**

Client Lot #...: F4K100260

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
<b>MB Lot-Sample #:</b> F4K110000-477 <b>Prep Batch #...</b> : 4317373						
<b>Leach Date.....</b> : 11/11/04 <b>Leach Batch #...</b> : P431606						
Arsenic	ND	500	ug/L	SW846 6010B	11/12-11/15/04	GWRPG1AA
Dilution Factor: 2.5						
Analysis Time...: 21:37						

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.



# METHOD BLANK REPORT

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4K100260

Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Lab Sample ID		
						Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g	901.1 MOD	F4K120000-327B			
Cesium 137	-0.004	U	0.029	0.063	11/12/04	11/14/04	4317327	
Cobalt 60	-0.006	U	0.028	0.063	11/12/04	11/14/04	4317327	

### NOTE(S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only

Bold results are greater than the MDC

U Result is less than the sample detection limit.



LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F4K100260

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
------------------	-----------------------------	----------------------------	---------------	---------------------------------------	---------------------

ICS Lot-Sample#: F4K120000-373 Prep Batch #...: 4317373

Arsenic 103 (80 ~ 120) SW846 6010B 11/12-11/15/04 GWWJK1AA

Dilution Factor: 2.5 Analysis Time...: 21:42

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.



# Laboratory Control Sample Report

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4K100260

Matrix: SOLID

Parameter	Spike Amount	Result	Total Uncert.	MDC	Lab Sample ID		QC Control Limits
			(2 $\sigma$ +/-)		% Yld	% Rec	
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g	901.1 MOD	F4K120000-327C		
Americium 241	70.0	71.0	8.5	0.8		101	(90 - 115)
Cesium 137	29.5	30.0	3.4	0.4		102	(90 - 115)
Cobalt 60	42.4	41.7	4.6	0.4		98	(90 - 111)
Batch #:		4317327	Analysis Date: 11/14/04				

### NOTE(S)

MDC is determined by instrument performance only

Calculations are performed before rounding to avoid round-off error in calculated results



# MATRIX SPIKE SAMPLE EVALUATION REPORT

## TCLP Metals

Client Lot #...: F4K100260

Matrix.....: SOLID

Date Sampled...: 11/08/04 14:30 Date Received...: 11/10/04

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
-----------	---------------------	--------------------	-----	---------------	--------	-------------------------------	-----------------

MS Lot-Sample #: F4K100268-001 Prep Batch #...: 4317373

Leach Date.....: 11/11/04 Leach Batch #...: P431606

Arsenic	99	(83 - 111)			SW846 6010B	11/12-11/15/04	GWMGP1AL
	99	(83 - 111)	0.44	(0-20)	SW846 6010B	11/12-11/15/04	GWMGP1AM

Dilution Factor: 2.5

Analysis Time...: 22:25

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.



# DUPLICATE EVALUATION REPORT

## Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4K100260

Date Sampled: 11/06/04

Matrix: SOLID

Date Received: 11/10/04

Parameter	SAMPLE Result	Total Uncert. (2σ +/-)	% Yld	DUPLICATE Result	Total Uncert. (2σ +/-)	% Yld	QC Sample ID Precision
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/g	901.1 MOD			F4K100260-001
Cesium 137	0.45	0.12		0.54	0.13		19 %RPD
Cobalt 60	-0.008 U	0.052		0.062 U	0.045		263 %RPD
---Other Dedected Radionuclides---							
Actinium 228	0.69	0.28		0.40	0.23		53 %RPD
Bismuth 214	0.38	0.18		0.49	0.15		24 %RPD
Lead 212	0.47	0.13		0.51	0.13		9 %RPD
Lead 214	0.34	0.16		0.46	0.14		32 %RPD
Radium 228	0.69	0.25		0.40	0.22		53 %RPD
Thallium 208	0.205	0.098		0.228	0.067		10 %RPD
Thorium 232	0.69	0.25		0.40	0.22		53 %RPD
Batch #:		4317327 (Sample)		4317327 (Duplicate)			

### NOTE(S)

Data are incomplete without the case narrative.

Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.





**EBERLINE**  
SERVICES

EBS-OR-21761

December 22, 2004

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 04-12098-OR

SAMPLE RECEIPT

This work order contains one soil sample received 12/17/2004. This sample was analyzed by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
BIAS HOT SPOT	04-12098-04

ANALYTICAL METHODS

Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

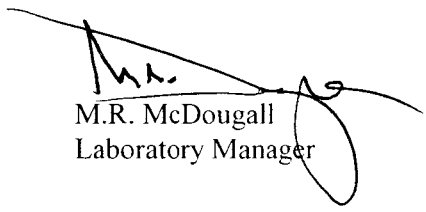
GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known mass/aliquot of the prepared and homogenized sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

Sample demonstrated slightly positive results for Cesium-137 and Potassium-40 activity and non-detect equivalent results for Cobalt-60 activity. Results for Cobalt-60 were reported from the gamma spectroscopy "non-identified" nuclides report and should be qualified as non-detect. Since this analysis was screening data only, no quality control data was generated.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

  
M.R. McDougall  
Laboratory Manager

Date: 12/22/04



Eberline Services				Work Order Details:									
Final Report of Analysis				Report To:									
Joe Gross				04-12098									
Weston Solutions				SDG: DSHE									
1309 Continental Drive, #M				Purchase Order: ENVIRONMENTAL									
Abingdon, MD 21009				Analysis Category: SO									
				Sample Matrix: SO									
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12098-04	DO	BIAS HOT SPOT	12/14/04 15:00	12/17/2004	12/17/2004	04-12098	Cobalt-60	LANL ER-130 Modified	-3.16E-03	6.57E-02	6.57E-02	1.25E-01	pCi/g
04-12098-04	DO	BIAS HOT SPOT	12/14/04 15:00	12/17/2004	12/17/2004	04-12098	Cesium-137	LANL ER-130 Modified	2.37E+00	3.61E-01	3.64E-01	1.30E-01	pCi/g
04-12098-04	DO	BIAS HOT SPOT	12/14/04 15:00	12/17/2004	12/17/2004	04-12098	Potassium-40	LANL ER-130 Modified	4.12E+00	1.55E+00	1.55E+00	9.86E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/09/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L748

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-NI-001-F-1-1-0	Arsenic, Total	10.1	MG/KG	2.1	6.0
-002	EC-NI-002-F-1-1-0	Arsenic, Total	10.0	MG/KG	2.1	6.0
-003	EC-NI-003-F-1-1-0	Arsenic, Total	17.1	MG/KG	1.9	6.0
-004	EC-NI-004-W-1-1-0	Arsenic, Total	33.3	MG/KG	1.9	6.0
-005	EC-NI-004-W-1-1-1	Arsenic, Total	25.3	MG/KG	2.0	6.0
-006	EC-NI-005-W-1-1-0	Arsenic, Total	15.9	MG/KG	2.0	6.0
-007	EC-NI-006-W-1-1-0	Arsenic, Total	98.5	MG/KG	1.4	6.0
-008	EC-NI-007-W-1-1-0	Arsenic, Total	491	MG/KG	2.0	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/09/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L748

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0063-MB1	Arsenic, Total	1.2	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/09/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L748

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-NI-001-F-1-1-0	Arsenic, Total	228	10.1	240	90.8	6.0



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/09/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L748

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-NI-001-F-1-1-0	Arsenic, Total	10.1	10.6	4.8	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/09/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L748

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0063-LC1	Arsenic, LCS	930	1000	MG/KG	93.0





EBS-OR-21966

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

#### CASE NARRATIVE

Work Order# 05-02016-OR

#### SAMPLE RECEIPT

This work order contains eight soil samples received 2/3/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N1-001-F-1-1-0	05-02016-04	EC-N1-004-W-1-1-1	05-02016-08
EC-N1-002-F-1-1-0	05-02016-05	EC-N1-005-W-1-1-0	05-02016-09
EC-N1-003-F-1-1-0	05-02016-06	EC-N1-006-W-1-1-0	05-02016-10
EC-N1-004-W-1-1-0	05-02016-07	EC-N1-007-W-1-1-0	05-02016-11

#### ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

#### ANALYTICAL RESULTS

##### GROSS ALPHA/BETA

Samples demonstrated background equivalent to only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

##### GAMMA SPECTROSCOPY

Samples demonstrated background equivalent results for Uranium and Thorium series radionuclides. Samples demonstrated slightly positive results for Potassium-40, non-detect equivalent results for Cobalt-60 activity, and non-detect or near detection limit equivalent results for Cesium-137 activity. Results for the method blank demonstrated non-detect or background equivalent activity for all gamma-emitting



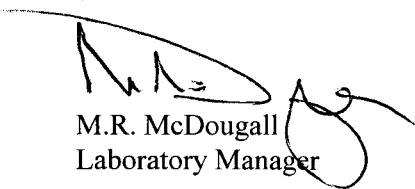
ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY continued

radionuclides as reported. Results for the replicate demonstrated an acceptable relative percent difference and normalized difference for radionuclides calculated. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-02016			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02016-01	LCS	KNOWN	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g
05-02016-01	LCS	SPIKE	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	2.95E+02	5.76E+00	2.10E+01	4.39E-01	pCi/g
05-02016-02	MBL	BLANK	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	0.00E+00	8.56E-02	0.00E+00	2.28E-01	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	7.80E+00	2.59E+00	2.64E+00	2.38E+00	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	6.19E+00	2.57E+00	2.61E+00	3.08E+00	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	7.57E+00	2.31E+00	2.37E+00	1.57E+00	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	6.48E+00	2.06E+00	2.11E+00	1.62E+00	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	5.31E+00	2.02E+00	2.05E+00	1.65E+00	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	5.35E+00	2.15E+00	2.18E+00	2.14E+00	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	3.82E+00	1.82E+00	1.84E+00	2.16E+00	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	3.89E+00	1.74E+00	1.76E+00	1.75E+00	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/7/2005	05-02016	Gross Alpha	LANL MLR-100 Modified	4.19E+00	2.00E+00	2.02E+00	2.37E+00	pCi/g
05-02016-01	LCS	KNOWN	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.47E+00			pCi/g
05-02016-01	LCS	SPIKE	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	2.48E+02	4.64E+00	1.23E+01	6.77E-01	pCi/g
05-02016-02	MBL	BLANK	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	2.50E-01	3.80E-01	3.80E-01	6.47E-01	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	4.84E+00	2.41E+00	2.42E+00	3.64E+00	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	6.16E+00	2.70E+00	2.71E+00	4.02E+00	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	3.84E+00	2.46E+00	2.47E+00	3.89E+00	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	4.17E+00	2.29E+00	2.30E+00	3.56E+00	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	3.13E+00	2.46E+00	2.47E+00	3.98E+00	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	5.13E+00	2.56E+00	2.57E+00	3.91E+00	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	4.07E+00	2.25E+00	2.26E+00	3.48E+00	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	2.67E+00	2.34E+00	2.34E+00	3.82E+00	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/7/2005	05-02016	Gross Beta	LANL MLR-100 Modified	3.48E+00	2.43E+00	2.44E+00	3.90E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG: 05-02016		0047329				
			Weston Solutions										
			1309 Continental Drive, #M										
			Abingdon, MD 21009				Purchase Order:		ENVIRONMENTAL				
							Analysis Category:		Sample Matrix: SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02016-01	LCS	KNOWN	02/03/05 00:00	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-02016-01	LCS	KNOWN	02/03/05 00:00	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-02016-01	LCS	SPIKE	02/03/05 00:00	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	1.28E+02	6.94E+00	7.34E+00	7.77E-01	pCi/g
05-02016-01	LCS	SPIKE	02/03/05 00:00	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	7.56E+01	7.99E+00	8.11E+00	6.81E-01	pCi/g
05-02016-02	MBL	BLANK	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Cobalt-60	LANL ER-130 Modified	4.98E-03	1.48E-02	1.48E-02	2.89E-02	pCi/g
05-02016-02	MBL	BLANK	02/03/05 00:00	2/3/2005	2/7/2005	05-02016	Cesium-137	LANL ER-130 Modified	-2.37E-03	1.60E-02	1.60E-02	2.86E-02	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	1.43E+00	1.59E-01	1.61E-01	1.79E-01	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	9.79E-01	1.55E-01	1.56E-01	2.12E-01	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	-1.90E-02	2.78E-02	2.78E-02	4.56E-02	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	-2.02E-03	2.70E-02	2.70E-02	4.75E-02	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	1.45E+01	1.49E+00	1.51E+00	3.44E-01	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	1.26E+00	1.29E-01	1.31E-01	7.97E-02	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	8.68E-01	9.60E-02	9.74E-02	8.47E-02	pCi/g
05-02016-03	DUP	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	1.12E+00	1.38E-01	1.39E-01	1.24E-01	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	1.41E+00	1.93E-01	1.95E-01	1.89E-01	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	7.91E-01	1.51E-01	1.52E-01	1.09E-01	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	3.31E-03	3.54E-02	3.54E-02	6.40E-02	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	1.66E-03	3.53E-02	3.53E-02	6.30E-02	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	1.54E+01	1.68E+00	1.71E+00	3.44E-01	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	1.30E+00	1.44E-01	1.46E-01	9.46E-02	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	9.13E-01	1.24E-01	1.25E-01	1.10E-01	pCi/g
05-02016-04	DO	EC-N1-001-F-1-1-0	02/01/05 16:00	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	1.22E+00	1.64E-01	1.66E-01	1.60E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	1.56E+00	3.04E-01	3.05E-01	3.55E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	9.33E-01	2.44E-01	2.45E-01	2.12E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	1.51E-02	7.09E-02	7.09E-02	1.34E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	1.83E-01	8.41E-02	8.41E-02	1.11E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	1.18E+00	2.15E+00	2.16E+00	1.10E+00	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	1.41E+00	1.92E-01	1.94E-01	1.61E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	1.01E+00	1.99E-01	2.00E-01	1.98E-01	pCi/g
05-02016-05	TRG	EC-N1-002-F-1-1-0	02/01/05 16:10	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	1.23E+00	2.66E-01	2.67E-01	2.99E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross				SDG:				05-02016					
Weston Solutions				Purchase Order:				0047329					
1309 Continental Drive, #M				Analysis Category:				ENVIRONMENTAL					
Abingdon, MD 21009				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	1.12E+00	2.75E-01	2.76E-01	3.70E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	7.56E-01	2.06E-01	2.06E-01	2.10E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	1.91E-02	6.57E-02	6.57E-02	1.26E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	4.32E-01	1.37E-01	1.37E-01	1.19E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	1.15E+01	1.97E+00	1.98E+00	9.07E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	1.48E+00	1.97E-01	1.99E-01	1.56E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	7.05E-01	2.02E-01	2.02E-01	2.04E-01	pCi/g
05-02016-06	TRG	EC-N1-003-F-1-1-0	02/01/05 16:20	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	1.25E+00	2.66E-01	2.67E-01	2.93E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	8.28E-01	2.33E-01	2.34E-01	3.64E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	6.08E-01	1.62E-01	1.63E-01	1.97E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	-1.11E-02	5.60E-02	5.60E-02	1.02E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	3.72E-01	9.89E-02	9.91E-02	9.57E-02	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	7.50E+00	1.52E+00	1.52E+00	7.64E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	8.52E-01	1.79E-01	1.80E-01	1.32E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	4.16E-01	1.96E-01	1.96E-01	1.81E-01	pCi/g
05-02016-07	TRG	EC-N1-004-W-1-1-0	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	6.48E-01	1.60E-01	1.61E-01	2.41E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	8.41E-01	2.02E-01	2.02E-01	2.75E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	5.87E-01	1.42E-01	1.42E-01	1.18E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	2.76E-02	4.88E-02	4.88E-02	9.48E-02	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	1.27E-01	8.76E-02	8.76E-02	8.52E-02	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	8.39E+00	1.27E+00	1.28E+00	4.52E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	8.50E-01	1.28E-01	1.29E-01	1.04E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	4.94E-01	1.42E-01	1.43E-01	1.48E-01	pCi/g
05-02016-08	TRG	EC-N1-004-W-1-1-1	02/01/05 16:35	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	7.15E-01	1.51E-01	1.52E-01	2.19E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	7.11E-01	2.82E-01	2.82E-01	2.86E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	6.86E-01	1.40E-01	1.40E-01	1.77E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	1.79E-02	5.24E-02	5.24E-02	1.04E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	5.95E-01	1.11E-01	1.12E-01	9.94E-02	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	8.49E+00	1.58E+00	1.59E+00	7.63E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	9.70E-01	1.60E-01	1.61E-01	1.44E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	7.21E-01	1.50E-01	1.50E-01	1.98E-01	pCi/g
05-02016-09	TRG	EC-N1-005-W-1-1-0	02/01/05 16:45	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	7.61E-01	1.89E-01	1.90E-01	2.63E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-02016			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	7.54E-01	2.01E-01	2.02E-01	2.61E-01	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	5.42E-01	1.35E-01	1.35E-01	1.29E-01	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	-2.03E-02	4.43E-02	4.43E-02	7.55E-02	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	4.63E-01	1.10E-01	1.11E-01	7.24E-02	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	7.50E+00	1.26E+00	1.26E-01	6.07E-01	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	6.83E-01	1.16E-01	1.17E-01	1.12E-01	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	5.89E-01	1.36E-01	1.36E-01	1.21E-01	pCi/g
05-02016-10	TRG	EC-N1-006-W-1-1-0	02/01/05 16:50	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	5.44E-01	1.47E-01	1.48E-01	2.05E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Actinium-228	LANL ER-130 Modified	9.55E-01	2.50E-01	2.51E-01	3.39E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Bismuth-214	LANL ER-130 Modified	6.40E-01	1.86E-01	1.86E-01	1.57E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Cobalt-60	LANL ER-130 Modified	-1.86E-02	5.89E-02	5.89E-02	1.04E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Cesium-137	LANL ER-130 Modified	1.55E-01	8.45E-02	8.45E-02	1.01E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Potassium-40	LANL ER-130 Modified	7.28E+00	1.41E+00	1.42E+00	6.28E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Lead-212	LANL ER-130 Modified	9.69E-01	1.56E-01	1.57E-01	1.29E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Lead-214	LANL ER-130 Modified	6.13E-01	1.47E-01	1.47E-01	1.68E-01	pCi/g
05-02016-11	TRG	EC-N1-007-W-1-1-0	02/01/05 17:00	2/3/2005	2/4/2005	05-02016	Thallium-208	LANL ER-130 Modified	4.82E-01	1.67E-01	1.67E-01	2.89E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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EBS-OR-21760

December 22, 2004

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
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CASE NARRATIVE  
Work Order# 04-12093-OR

SAMPLE RECEIPT

This work order contains fourteen soil samples received 12/16/2004. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N2-009-F-1-0-0	04-12093-04	EC-N2-014-F-1-1-0	04-12093-11
EC-N2-009-F-1-1-0	04-12093-05	EC-N2-015-F-1-0-0	04-12093-12
EC-N2-012-F-1-0-0	04-12093-06	EC-N2-015-F-1-1-0	04-12093-13
EC-N2-012-F-1-1-0	04-12093-07	EC-N2-016-F-1-0-0	04-12093-14
EC-N2-013-F-1-0-0	04-12093-08	EC-N2-016-F-1-1-0	04-12093-15
EC-N2-013-F-1-1-0	04-12093-09	EC-N2-017-F-1-0-0	04-12093-16
EC-N2-014-F-1-0-0	04-12093-10	EC-N2-017-F-1-1-0	04-12093-17

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Samples were prepared by conducting mixed acid digestions as appropriate for dissolution and were then subsequently volumetrically diluted. Sample dilutions were apportioned in order to obtain results for all analytes as required. Aliquots from dilutions reflect the volume equivalency as applicable to each sample's total volume.

GROSS ALPHA/BETA

Samples were prepared by digesting representative aliquots with HNO<sub>3</sub>. Digestates were volumetrically diluted and then mass equivalent aliquots were transferred to steel planchets for final evaporation to dryness. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Gross Alpha results for sample fraction -04 (Client ID: EC-N2-009-F-1-0-0) demonstrated a slightly high detection limit. Results for this sample were positive or greater than the detection limit.



## ANALYTICAL RESULTS CONTINUED

### GROSS ALPHA/BETA continued

Gross Beta results demonstrated a slightly high detection limit. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

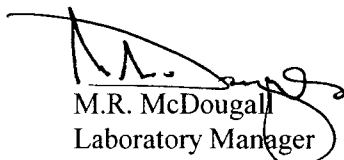
### GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.

Samples demonstrated near background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, non-detect equivalent to slightly positive results for Cesium-137 activity, and non-detect equivalent results for Cobalt-60 activity. Cobalt-60 results for all samples and Cesium-137 results for sample fractions -07 and -13 (Client IDs: EC-N2-012-F-1-1-0 and EC-N2-015-F-1-1-0) were reported from the gamma spectroscopy "non-identified" nuclides report and should be qualified as non-detect. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sampled demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 12/22/04



Eberline Services			Report To:				Work Order Details:						
Final Report of Analysis			Joe Gross				SDG:		04-12093				
			Weston Solutions				Purchase Order:		DSHE				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
			Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU
04-12093-01	LCS	KNOWN	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.28E+01			pCi/g
04-12093-01	LCS	SPIKE	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	3.14E+02	5.94E+00	2.23E+01	3.84E-01	pCi/g
04-12093-02	MBL	BLANK	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	-1.24E-01	1.92E-01	1.93E-01	4.67E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	1.34E+01	4.34E+00	4.43E+00	3.11E+00	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	1.10E+01	4.68E+00	4.74E+00	5.66E+00	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	1.49E+01	5.20E+00	5.30E+00	5.49E+00	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	4.78E+00	2.44E+00	2.46E+00	2.47E+00	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	9.50E+00	3.80E+00	3.85E+00	3.53E+00	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	9.64E+00	3.39E+00	3.46E+00	8.49E-01	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	3.39E+00	2.60E+00	2.61E+00	3.71E+00	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	3.15E+00	2.76E+00	2.77E+00	4.13E+00	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	5.10E+00	3.38E+00	3.40E+00	4.77E+00	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	5.63E+00	2.70E+00	2.73E+00	2.62E+00	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	7.43E+00	3.02E+00	3.07E+00	2.19E+00	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	6.18E+00	3.21E+00	3.24E+00	3.86E+00	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	2.82E+00	2.26E+00	2.27E+00	3.32E+00	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	4.22E+00	3.07E+00	3.09E+00	4.47E+00	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Gross Alpha	LANL MLR-100 Modified	6.55E+00	2.76E+00	2.80E+00	2.44E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services			Report To:				Work Order Details:						
Final Report of Analysis			Joe Gross				SDG:		04-12093				
			Weston Solutions				Purchase Order:		DSHE				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-01	LCS	KNOWN	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.48E+00			pCi/g
04-12093-01	LCS	SPIKE	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	2.47E+02	4.66E+00	1.24E+01	7.52E-01	pCi/g
04-12093-02	MBL	BLANK	12/16/04 00:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	1.61E-01	4.04E-01	4.04E-01	7.03E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	8.08E+00	4.56E+00	4.57E+00	7.08E+00	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	1.17E+01	5.23E+00	5.26E+00	7.89E+00	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	1.37E+01	5.12E+00	5.16E+00	7.37E+00	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	3.08E+00	4.01E+00	4.01E+00	6.75E+00	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	5.75E+00	5.00E+00	5.01E+00	8.19E+00	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	2.33E+01	5.28E+00	5.39E+00	6.45E+00	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	7.23E+00	4.33E+00	4.34E+00	6.77E+00	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	-3.43E-01	4.51E+00	4.51E+00	8.08E+00	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	8.36E+00	4.67E+00	4.68E+00	7.24E+00	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	4.94E+00	4.13E+00	4.14E+00	6.72E+00	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	8.63E+00	4.71E+00	4.73E+00	7.28E+00	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	1.08E+01	4.74E+00	4.76E+00	7.08E+00	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	5.11E+00	3.80E+00	3.81E+00	6.13E+00	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	2.51E+01	5.63E+00	5.75E+00	7.20E+00	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Gross Beta	LANL MLR-100 Modified	1.16E+01	4.17E+00	4.20E+00	5.90E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		04-12093			
				Weston Solutions				Purchase Order:		DSHE			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-01	LCS	KNOWN	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
04-12093-01	LCS	KNOWN	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
04-12093-01	LCS	SPIKE	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cobalt-60	LANL ER-130 Modified	1.26E+02	6.85E+00	7.24E+00	1.01E+00	pCi/g
04-12093-01	LCS	SPIKE	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cesium-137	LANL ER-130 Modified	7.58E+01	6.02E+00	6.18E+00	9.37E-01	pCi/g
04-12093-02	MBL	BLANK	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cobalt-60	LANL ER-130 Modified	6.22E-03	1.64E-02	1.64E-02	3.39E-02	pCi/g
04-12093-02	MBL	BLANK	12/16/04 00:00	12/16/2004	12/20/2004	04-12093	Cesium-137	LANL ER-130 Modified	8.67E-03	2.15E-02	2.15E-02	4.00E-02	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.62E+00	2.02E-01	2.04E-01	2.08E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	1.06E+00	1.52E-01	1.53E-01	1.26E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	5.28E-04	3.78E-02	3.78E-02	6.69E-02	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	4.18E-01	8.80E-02	8.83E-02	6.44E-02	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.11E+00	1.24E+00	1.25E+00	5.72E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.58E+00	1.99E-01	2.02E-01	1.01E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	1.17E+00	1.64E-01	1.65E-01	1.26E-01	pCi/g
04-12093-03	DUP	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.28E+00	1.64E-01	1.66E-01	1.84E-01	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.49E+00	1.95E-01	1.97E-01	2.65E-01	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	9.35E-01	1.49E-01	1.50E-01	1.30E-01	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	4.15E-02	4.05E-02	4.05E-02	7.72E-02	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	4.02E-01	9.71E-02	9.73E-02	6.98E-02	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	8.94E+00	1.25E+00	1.26E+00	5.29E-01	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.79E+00	2.42E-01	2.45E-01	9.92E-02	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.85E-01	1.41E-01	1.42E-01	1.27E-01	pCi/g
04-12093-04	DO	EC-N2-009-F-1-0-0	12/02/04 11:30	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.32E+00	1.84E-01	1.86E-01	1.78E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	2.15E+00	2.52E-01	2.55E-01	2.89E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	1.65E+00	1.96E-01	1.99E-01	1.58E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-5.56E-02	5.39E-02	5.39E-02	8.75E-02	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	1.12E-01	7.46E-02	7.46E-02	9.63E-02	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.58E+00	1.37E+00	1.38E+00	6.22E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	2.37E+00	2.47E-01	2.50E-01	1.28E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	1.48E+00	1.77E-01	1.79E-01	1.61E-01	pCi/g
04-12093-05	TRG	EC-N2-009-F-1-1-0	12/02/04 11:35	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.93E+00	2.31E-01	2.34E-01	2.40E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross			SDG:		04-12093					
			Weston Solutions			Purchase Order:		DSHE					
			1309 Continental Drive, #M			Analysis Category:		ENVIRONMENTAL					
			Abingdon, MD 21009			Sample Matrix:		SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.07E+00	1.37E-01	1.39E-01	1.50E-01	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	8.32E-01	1.10E-01	1.11E-01	8.03E-02	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	2.11E-02	2.50E-02	2.50E-02	4.80E-02	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	3.47E-01	6.91E-02	6.94E-02	4.68E-02	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	8.31E+00	9.43E-01	9.55E-01	2.84E-01	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.08E+00	1.11E-01	1.13E-01	7.27E-02	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.17E-01	9.25E-02	9.40E-02	8.76E-02	pCi/g
04-12093-06	TRG	EC-N2-012-F-1-0-0	12/03/04 13:00	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	8.97E-01	1.14E-01	1.15E-01	1.18E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.12E+00	2.11E-01	2.12E-01	2.60E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	8.20E-01	1.48E-01	1.49E-01	1.35E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-3.16E-02	4.49E-02	4.49E-02	7.62E-02	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	2.45E-03	4.28E-02	4.28E-02	7.50E-02	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.96E+00	1.32E+00	1.33E+00	6.06E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.24E+00	1.46E-01	1.47E-01	1.01E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.26E-01	1.30E-01	1.31E-01	1.33E-01	pCi/g
04-12093-07	TRG	EC-N2-012-F-1-1-0	12/03/04 13:05	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.08E+00	1.66E-01	1.67E-01	1.93E-01	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.01E+00	1.45E-01	1.46E-01	1.48E-01	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	8.11E-01	1.07E-01	1.08E-01	8.26E-02	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	2.84E-02	2.61E-02	2.61E-02	5.06E-02	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	8.33E-01	1.06E-01	1.07E-01	4.57E-02	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	8.37E+00	9.69E-01	9.82E-01	3.58E-01	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.02E+00	1.08E-01	1.10E-01	7.31E-02	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.40E-01	1.03E-01	1.05E-01	8.82E-02	pCi/g
04-12093-08	TRG	EC-N2-013-F-1-0-0	12/03/04 13:30	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	7.51E-01	1.05E-01	1.06E-01	1.11E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

04-12093

SDG:

DSHE

Purchase Order:

ENVIRONMENTAL

Sample Matrix:

SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.16E+00	1.77E-01	1.78E-01	2.05E-01	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	8.94E-01	1.40E-01	1.41E-01	1.13E-01	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	1.30E-02	3.68E-02	3.68E-02	6.09E-02	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	8.19E-02	5.07E-02	5.07E-02	6.79E-02	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	1.06E+01	1.32E+00	1.34E+00	4.42E-01	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.32E+00	1.71E-01	1.72E-01	9.31E-02	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	8.88E-01	1.27E-01	1.28E-01	1.27E-01	pCi/g
04-12093-09	TRG	EC-N2-013-F-1-1-0	12/03/04 13:35	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	9.79E-01	1.53E-01	1.54E-01	1.68E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	9.34E-01	1.68E-01	1.68E-01	2.47E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	7.47E-01	1.68E-01	1.68E-01	1.49E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-1.54E-02	4.63E-02	4.63E-02	8.32E-02	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	4.21E-01	1.04E-01	1.04E-01	7.63E-02	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	8.14E+00	1.32E+00	1.32E+00	3.90E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.10E+00	1.41E-01	1.43E-01	1.14E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	1.01E+00	1.44E-01	1.45E-01	1.29E-01	pCi/g
04-12093-10	TRG	EC-N2-014-F-1-0-0	12/03/04 14:00	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	8.38E-01	1.79E-01	1.80E-01	2.15E-01	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.14E+00	1.38E-01	1.40E-01	1.36E-01	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	9.11E-01	1.01E-01	1.02E-01	8.30E-02	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	1.93E-02	2.51E-02	2.51E-02	4.78E-02	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	1.18E-01	5.57E-02	5.57E-02	4.11E-02	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.38E+00	1.03E+00	1.04E+00	3.50E-01	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.11E+00	1.10E-01	1.12E-01	6.61E-02	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	1.03E+00	1.04E-01	1.05E-01	7.89E-02	pCi/g
04-12093-11	TRG	EC-N2-014-F-1-1-0	12/03/04 14:05	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	9.28E-01	1.18E-01	1.19E-01	1.19E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample;MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

SERVICES

## Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Work Order Details:

04-12093

SDG:

Purchase Order:

Analysis Category:

Sample Matrix:

DSHE

ENVIRONMENTAL

SO

Result

CU

TPU

MDA

Report Units

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.25E+00	1.72E-01	1.74E-01	2.05E-01	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	8.71E-01	1.50E-01	1.50E-01	1.22E-01	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	1.19E-02	4.00E-02	4.00E-02	7.23E-02	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	7.34E-01	1.20E-01	1.21E-01	6.52E-02	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.24E+00	1.27E+00	1.28E+00	6.82E-01	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.21E+00	1.65E-01	1.67E-01	9.67E-02	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	8.32E-01	1.32E-01	1.33E-01	1.30E-01	pCi/g
04-12093-12	TRG	EC-N2-015-F-1-0-0	12/03/04 14:30	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	9.02E-01	1.50E-01	1.51E-01	1.73E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.23E+00	1.85E-01	1.87E-01	2.52E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	1.14E+00	1.60E-01	1.61E-01	1.36E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-2.14E-02	4.77E-02	4.77E-02	8.31E-02	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	-3.63E-03	4.65E-02	4.65E-02	8.05E-02	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	1.03E+01	1.37E+00	1.38E+00	6.68E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.39E+00	1.57E-01	1.59E-01	1.10E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.11E-01	1.38E-01	1.39E-01	1.43E-01	pCi/g
04-12093-13	TRG	EC-N2-015-F-1-1-0	12/03/04 14:35	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.09E+00	1.60E-01	1.61E-01	2.03E-01	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	6.63E-01	1.16E-01	1.17E-01	1.11E-01	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	5.20E-01	8.55E-02	8.61E-02	7.10E-02	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-1.94E-02	2.27E-02	2.27E-02	3.83E-02	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	1.47E+00	1.72E-01	1.74E-01	4.05E-02	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	5.88E+00	7.65E-01	7.73E-01	3.02E-01	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	6.40E-01	8.21E-02	8.29E-02	6.93E-02	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	5.02E-01	8.26E-02	8.31E-02	8.85E-02	pCi/g
04-12093-14	TRG	EC-N2-016-F-1-0-0	12/03/04 15:00	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	6.43E-01	9.84E-02	9.91E-02	1.16E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services			Report To:			Work Order Details:							
Final Report of Analysis			Joe Gross			SDG:			04-12093				
			Weston Solutions			Purchase Order:			DSHE				
			1309 Continental Drive, #M			Analysis Category:			ENVIRONMENTAL				
			Abingdon, MD 21009			Sample Matrix:			SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.29E+00	1.94E-01	1.95E-01	1.97E-01	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	9.49E-01	1.45E-01	1.46E-01	1.05E-01	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	6.85E-04	3.56E-02	3.56E-02	6.30E-02	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	1.09E-01	6.33E-02	6.33E-02	6.21E-02	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	9.56E+00	1.26E+00	1.27E+00	5.42E-01	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.45E+00	1.84E-01	1.86E-01	9.04E-02	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	1.01E+00	1.48E-01	1.49E-01	1.12E-01	pCi/g
04-12093-15	TRG	EC-N2-016-F-1-1-0	12/03/04 15:05	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.02E+00	1.63E-01	1.64E-01	1.70E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.55E+00	3.83E-01	3.84E-01	5.91E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	1.03E+00	1.75E-01	1.76E-01	1.58E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-6.30E-02	5.14E-02	5.14E-02	8.15E-02	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	4.38E-01	1.11E-01	1.11E-01	8.37E-02	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	7.99E+00	1.32E+00	1.33E+00	6.84E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.38E+00	1.70E-01	1.72E-01	1.28E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.59E-01	1.52E-01	1.53E-01	1.65E-01	pCi/g
04-12093-16	TRG	EC-N2-017-F-1-0-0	12/03/04 15:30	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.17E+00	2.03E-01	2.04E-01	2.26E-01	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Actinium-228	LANL ER-130 Modified	1.26E+00	1.47E-01	1.49E-01	1.45E-01	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Bismuth-214	LANL ER-130 Modified	1.03E+00	1.20E-01	1.21E-01	7.83E-02	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Cobalt-60	LANL ER-130 Modified	-2.22E-03	2.53E-02	2.53E-02	4.55E-02	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Cesium-137	LANL ER-130 Modified	3.93E-02	3.68E-02	3.68E-02	4.62E-02	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Potassium-40	LANL ER-130 Modified	1.08E+01	1.16E+00	1.18E+00	3.64E-01	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Lead-212	LANL ER-130 Modified	1.31E+00	1.25E-01	1.28E-01	7.30E-02	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Lead-214	LANL ER-130 Modified	9.41E-01	9.96E-02	1.01E-01	8.71E-02	pCi/g
04-12093-17	TRG	EC-N2-017-F-1-1-0	12/03/04 15:35	12/16/2004	12/17/2004	04-12093	Thallium-208	LANL ER-130 Modified	1.19E+00	1.33E-01	1.35E-01	1.14E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
EBERLINE-WSI

DATE RECEIVED: 01/25/05

LVL LOT # :0501L666

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
EC-N2-018-F-1-1-0						
ARSENIC, TOTAL	001	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	001 REP	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	001 MS	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	001 MSD	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-018-F-1-1-1						
ARSENIC, TOTAL	002	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-019-F-1-1-0						
ARSENIC, TOTAL	003	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-020-F-1-1-0						
ARSENIC, TOTAL	004	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-021-F-1-1-0						
ARSENIC, TOTAL	005	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-022-F-1-1-0						
ARSENIC, TOTAL	006	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-023-F-1-1-0						
ARSENIC, TOTAL	007	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-023-F-1-1-1						
ARSENIC, TOTAL	008	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-024-F-1-1-0						
ARSENIC, TOTAL	009	S	05L0046	01/21/05	01/26/05	01/27/05



Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
EBERLINE-WSI

DATE RECEIVED: 01/25/05

LVL LOT # :0501L666

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
EC-N2-025-F-1-1-0						
ARSENIC, TOTAL	010	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-026-F-1-1-0						
ARSENIC, TOTAL	011	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-027-W-1-1-0						
ARSENIC, TOTAL	012	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-027-W-1-1-1						
ARSENIC, TOTAL	013	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-028-W-1-1-0						
ARSENIC, TOTAL	014	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-029-W-1-1-0						
ARSENIC, TOTAL	015	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-030-W-1-1-0						
ARSENIC, TOTAL	016	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N2-031-W-1-1-0						
ARSENIC, TOTAL	017	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N8-001-F-1-1-0						
ARSENIC, TOTAL	018	S	05L0046	01/21/05	01/26/05	01/27/05
EC-N8-001-F-1-1-1						
ARSENIC, TOTAL	019	S	05L0046	01/21/05	01/26/05	01/27/05

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Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
EBERLINE-WSI

DATE RECEIVED: 01/25/05

LVL LOT # :0501L666

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
EC-N8-002-W-1-1-0						
ARSENIC, TOTAL	020	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	020 REP	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	020 MS	S	05L0046	01/21/05	01/26/05	01/27/05
ARSENIC, TOTAL	020 MSD	S	05L0046	01/21/05	01/26/05	01/27/05

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	05L0046	N/A	01/26/05	01/27/05
ARSENIC, TOTAL	MB1	S	05L0046	N/A	01/26/05	01/27/05

00000000





## Analytical Report

Client : EBERLINE-WSI  
LVL# : 0501L666

W.O.# : 11343-623-001-9999-00  
Date Received : 01-25-04

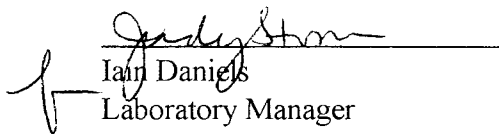
### METALS CASE NARRATIVE

1. This narrative covers the analyses of 20 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All samples were analyze with 6-fold dilutions due to sample matrix.
3. All analyses were performed within the required holding times.
4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits.
7. The preparation/method blank was within method criteria. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. All MSs and MSDs were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.
12. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 19 pages.



13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

  
Ian Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated  
jjw/m01-666

2/4/08  
Date



00000005



# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 05014666

Leaching Procedure:   1310     1311     1312     Other:  

CLP Metals    Digestion and    Analysis Methods:   ILM03.0     ILM04.0  

Metals Digestion Methods:   3005A     3010A     3015     3020A     3050B     3051     200.7     SS17    
  Other:  

## Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Antimony	<u>  6010B  </u> <u>  7041<sup>s</sup>  </u>	<u>  200.7  </u> <u>  204.2  </u>			<u>  99  </u>
Arsenic	<u>  6010B  </u> <u>  7060A<sup>s</sup>  </u>	<u>  200.7  </u> <u>  206.2  </u>	<u>  3113B  </u>		<u>  99  </u>
Barium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Beryllium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Bismuth	<u>  6010B<sup>1</sup>  </u>	<u>  200.7<sup>1</sup>  </u>		<u>  1620  </u>	<u>  99  </u>
Boron	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Cadmium	<u>  6010B  </u> <u>  7131A<sup>s</sup>  </u>	<u>  200.7  </u> <u>  213.2  </u>			<u>  99  </u>
Calcium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Chromium	<u>  6010B  </u> <u>  7191<sup>s</sup>  </u>	<u>  200.7  </u> <u>  218.2  </u>			<u>  SS17  </u>
Cobalt	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Copper	<u>  6010B  </u> <u>  7211<sup>s</sup>  </u>	<u>  200.7  </u> <u>  220.2  </u>			<u>  99  </u>
Iron	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Lead	<u>  6010B  </u> <u>  7421<sup>s</sup>  </u>	<u>  200.7  </u> <u>  239.2  </u>	<u>  3113B  </u>		<u>  99  </u>
Lithium	<u>  6010B  </u> <u>  7430<sup>4</sup>  </u>	<u>  200.7  </u>		<u>  1620  </u>	<u>  99  </u>
Magnesium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Manganese	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Mercury	<u>  7470A<sup>3</sup>  </u> <u>  7471A<sup>3</sup>  </u>	<u>  245.1<sup>2</sup>  </u> <u>  245.5<sup>2</sup>  </u>			<u>  99  </u>
Molybdenum	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Nickel	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Potassium	<u>  6010B  </u> <u>  7610<sup>4</sup>  </u>	<u>  200.7  </u> <u>  258.1<sup>4</sup>  </u>			<u>  99  </u>
Rare Earths	<u>  6010B<sup>1</sup>  </u>	<u>  200.7<sup>1</sup>  </u>		<u>  1620  </u>	<u>  99  </u>
Selenium	<u>  6010B  </u> <u>  7740<sup>s</sup>  </u>	<u>  200.7  </u> <u>  270.2  </u>	<u>  3113B  </u>		<u>  99  </u>
Silicon	<u>  6010B<sup>1</sup>  </u>	<u>  200.7  </u>		<u>  1620  </u>	<u>  99  </u>
Silica	<u>  6010B  </u>	<u>  200.7  </u>		<u>  1620  </u>	<u>  99  </u>
Silver	<u>  6010B  </u> <u>  7761<sup>s</sup>  </u>	<u>  200.7  </u> <u>  272.2  </u>			<u>  99  </u>
Sodium	<u>  6010B  </u> <u>  7770<sup>4</sup>  </u>	<u>  200.7  </u> <u>  273.1<sup>4</sup>  </u>			<u>  99  </u>
Strontium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Thallium	<u>  6010B  </u> <u>  7841<sup>s</sup>  </u>	<u>  200.7  </u> <u>  279.2  </u> <u>  200.9  </u>			<u>  99  </u>
Tin	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Titanium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Uranium	<u>  6010B<sup>1</sup>  </u>	<u>  200.7<sup>1</sup>  </u>		<u>  1620  </u>	<u>  99  </u>
Vanadium	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Zinc	<u>  6010B  </u>	<u>  200.7  </u>			<u>  99  </u>
Zirconium	<u>  6010B<sup>1</sup>  </u>	<u>  200.7<sup>1</sup>  </u>		<u>  1620  </u>	<u>  99  </u>

Other:                     

Method:



# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

## ABBREVIATIONS

- MB = Method or Preparation Blank.  
MS = Matrix Spike.  
MSD = Matrix Spike Duplicate.  
REP = Sample Replicate  
LCS = Laboratory Control Sample.  
NC = Not calculated.

## ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-WI-033/N-04/98



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	11.3	MG/KG	1.9	6.0
-002	EC-N2-018-F-1-1-1	Arsenic, Total	7.4	MG/KG	1.7	6.0
-003	EC-N2-019-F-1-1-0	Arsenic, Total	9.8	MG/KG	1.7	6.0
-004	EC-N2-020-F-1-1-0	Arsenic, Total	33.2	MG/KG	2.0	6.0
-005	EC-N2-021-F-1-1-0	Arsenic, Total	4.7	MG/KG	1.9	6.0
-006	EC-N2-022-F-1-1-0	Arsenic, Total	27.8	MG/KG	1.4	6.0
-007	EC-N2-023-F-1-1-0	Arsenic, Total	145	MG/KG	1.6	6.0
-008	EC-N2-023-F-1-1-1	Arsenic, Total	128	MG/KG	1.6	6.0
-009	EC-N2-024-F-1-1-0	Arsenic, Total	60.8	MG/KG	1.5	6.0
-010	EC-N2-025-F-1-1-0	Arsenic, Total	240	MG/KG	2.3	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-011	EC-N2-026-F-1-1-0	Arsenic, Total	17.5	MG/KG	1.7	6.0
-012	EC-N2-027-W-1-1-0	Arsenic, Total	16.4	MG/KG	1.9	6.0
-013	EC-N2-027-W-1-1-1	Arsenic, Total	12.7	MG/KG	1.9	6.0
-014	EC-N2-028-W-1-1-0	Arsenic, Total	115	MG/KG	1.8	6.0
-015	EC-N2-029-W-1-1-0	Arsenic, Total	52.0	MG/KG	1.6	6.0
-016	EC-N2-030-W-1-1-0	Arsenic, Total	51.4	MG/KG	1.5	6.0
-017	EC-N2-031-W-1-1-0	Arsenic, Total	45.5	MG/KG	1.7	6.0
-018	EC-N8-001-F-1-1-0	Arsenic, Total	4.2	MG/KG	1.8	6.0
-019	EC-N8-001-F-1-1-1	Arsenic, Total	4.6	MG/KG	1.6	6.0
-020	EC-N8-002-W-1-1-0	Arsenic, Total	11.0	MG/KG	1.3	6.0

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0046-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0

000000010



## INORGANICS ACCURACY REPORT 02/01/05

LVL LOT #: 0501L666

SAMPLE	SITE ID	ANALYTE	SPIKED	INITIAL	SPIKED	%RECOV	DILUTION
			SAMPLE	RESULT	AMOUNT		FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	246	11.3	256	91.9	6.0
		Arsenic, Total MSD	203	11.3	207	92.5	6.0
-020	EC-N8-002-W-1-1-0	Arsenic, Total	180	11.0	180	94.3	6.0
		Arsenic, Total MSD	200	11.0	200	94.6	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	91.9	92.5	0.70
-020	EC-N8-002-W-1-1-0	Arsenic, Total	94.3	94.6	0.34

000000012



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N2-018-F-1-1-0	Arsenic, Total	11.3	9.9	13.2	6.0
-020REP	EC-N8-002-W-1-1-0	Arsenic, Total	11.0	9.4	15.7	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0046-LC1	Arsenic, LCS	932	1000	MG/KG	93.2



FIELD PERSONNEL: COMPLETE ONLY SHADEN AREAS

A.B.C. *Mr*  
1/25/05

See SRC

[illegible]

Per mth, TAT = 5 days

DATE/REVISIONS:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

Relinquished by	Received by	Date	Time
<i>[Signature]</i>	<i>[Signature]</i>	1-25-05	10:00

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
<b>"COMPOSITE ORIGINAL"</b>			
WACHTER	BRUNNEN		



Page 2 of 1

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

[illegible]

**00000000000000000000**

**Special Instructions:**

**DATE/REVISIONS:**

6 5 4 3 2 1

Reinquished by	Received by	Date	Time
del	W. Smith	1/5/55	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time











Lionville Laboratory Incorporated  
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: Eberline WSI

Date: 1-25-05

Purchase Order / Project# /  
AF# / SOW# / Release #:

LvLI Batch #:

05014666

Sample Custodian:

JL Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |   |
|---|---|---|
| 1. Samples Hand Delivered or <u>Shipped</u>   | Carrier <u>FEDEX</u>  | Airbill# <u>7904 0428 3646</u>                  |
| 2. Custody seals on coolers or shipping container intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals      Comments |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 5. Samples received cooled or <u>ambient</u> ?  | Temp <u>9.8 °C</u>  | Cooler # <u>1220</u>                            |
| 6. Custody seals on sample containers intact, signed and dated?   | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> No Seals    |
| 7. coc signed and dated?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 8. Sample containers are intact?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 9. All samples on coc received? All samples received on coc?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 10. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 11. Samples properly preserved?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 12. Samples received within hold times? Short holds taken to wet lab?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |
| 13. VOA, TOC, TOX free of headspace?  | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A         |
| 14. QC stickers placed on bottles designated by client?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A                    |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)     | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <u>See #5</u>                                   |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)                             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Discrepancies       |



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/21/04

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L470

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-009-F-1-0-0	Arsenic, Total	7.1	MG/KG	1.9	6.0
-002	EC-N2-009-F-1-1-0	Arsenic, Total	2.1	MG/KG	1.6	6.0
-003	EC-N2-012-F-1-0-0	Arsenic, Total	3.9	MG/KG	1.5	6.0
-004	EC-N2-012-F-1-1-0	Arsenic, Total	4.4	MG/KG	1.3	6.0
-005	EC-N2-013-F-1-0-0	Arsenic, Total	26.6	MG/KG	1.1	6.0
-006	EC-N2-013-F-1-1-0	Arsenic, Total	20.9	MG/KG	1.3	6.0
-007	EC-N2-014-F-1-0-0	Arsenic, Total	3.6	MG/KG	1.3	6.0
-008	EC-N2-014-F-1-1-0	Arsenic, Total	2.4	MG/KG	1.3	6.0
-009	EC-N2-015-F-1-0-0	Arsenic, Total	5.6	MG/KG	1.3	6.0
-010	EC-N2-015-F-1-1-0	Arsenic, Total	168	MG/KG	1.1	6.0
-011	EC-N2-016-F-1-0-0	Arsenic, Total	247	MG/KG	1.2	6.0
-012	EC-N2-016-F-1-1-0	Arsenic, Total	41.7	MG/KG	1.3	6.0
-013	EC-N2-017-F-1-0-0	Arsenic, Total	8.2	MG/KG	1.4	6.0
-014	EC-N2-017-F-1-1-0	Arsenic, Total	5.3	MG/KG	1.3	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/21/04

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L470

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0760-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/21/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L470

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-009-F-1-0-0	Arsenic, Total	152	7.1	158	91.6	6.0
		Arsenic, Total MSD	210	7.1	220	92.1	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/21/04

CLIENT: EBERLINE-WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L470

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	EC-N2-009-F-1-0-0	Arsenic, Total	91.6	92.1	0.58



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/21/04

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L470

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N2-009-F-1-0-0	Arsenic, Total	7.1	7.6	6.8	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/21/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L470

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0760-LC1	Arsenic, LCS	938	1000	MG/KG	93.8



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	11.3	MG/KG	1.9	6.0
-002	EC-N2-018-F-1-1-1	Arsenic, Total	7.4	MG/KG	1.7	6.0
-003	EC-N2-019-F-1-1-0	Arsenic, Total	9.8	MG/KG	1.7	6.0
-004	EC-N2-020-F-1-1-0	Arsenic, Total	33.2	MG/KG	2.0	6.0
-005	EC-N2-021-F-1-1-0	Arsenic, Total	4.7	MG/KG	1.9	6.0
-006	EC-N2-022-F-1-1-0	Arsenic, Total	27.8	MG/KG	1.4	6.0
-007	EC-N2-023-F-1-1-0	Arsenic, Total	145	MG/KG	1.6	6.0
-008	EC-N2-023-F-1-1-1	Arsenic, Total	128	MG/KG	1.6	6.0
-009	EC-N2-024-F-1-1-0	Arsenic, Total	60.8	MG/KG	1.5	6.0
-010	EC-N2-025-F-1-1-0	Arsenic, Total	240	MG/KG	2.3	6.0



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-011	EC-N2-026-F-1-1-0	Arsenic, Total	17.5	MG/KG	1.7	6.0
-012	EC-N2-027-W-1-1-0	Arsenic, Total	16.4	MG/KG	1.9	6.0
-013	EC-N2-027-W-1-1-1	Arsenic, Total	12.7	MG/KG	1.9	6.0
-014	EC-N2-028-W-1-1-0	Arsenic, Total	115	MG/KG	1.8	6.0
-015	EC-N2-029-W-1-1-0	Arsenic, Total	52.0	MG/KG	1.6	6.0
-016	EC-N2-030-W-1-1-0	Arsenic, Total	51.4	MG/KG	1.5	6.0
-017	EC-N2-031-W-1-1-0	Arsenic, Total	45.5	MG/KG	1.7	6.0
-018	EC-N8-001-F-1-1-0	Arsenic, Total	4.2	MG/KG	1.8	6.0
-019	EC-N8-001-F-1-1-1	Arsenic, Total	4.6	MG/KG	1.6	6.0
-020	EC-N8-002-W-1-1-0	Arsenic, Total	11.0	MG/KG	1.3	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0046-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	246	11.3	256	91.9	6.0
		Arsenic, Total MSD	203	11.3	207	92.5	6.0
-020	EC-N8-002-W-1-1-0	Arsenic, Total	180	11.0	180	94.3	6.0
		Arsenic, Total MSD	200	11.0	200	94.6	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		
			%RECOV	%RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N2-018-F-1-1-0	Arsenic, Total	91.9	92.5	0.70
-020	EC-N8-002-W-1-1-0	Arsenic, Total	94.3	94.6	0.34



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N2-018-F-1-1-0	Arsenic, Total	11.3	9.9	13.2	6.0
-020REP	EC-N8-002-W-1-1-0	Arsenic, Total	11.0	9.4	15.7	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/01/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L666

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0046-LC1	Arsenic, LCS	932	1000	MG/KG	93.2





EBS-OR-21895

January 27, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE

Work Order# 05-01079-OR

SAMPLE RECEIPT

This work order contains two soil samples received 1/20/2005. Both samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

CLIENT ID

LAB ID

EC-N2-001-IT-1-1-0  
STOCKPILE02

05-01079-04  
05-01079-05

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a slightly high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated non-detect equivalent results for Cobalt-60 activity and slightly positive results for Cesium-137 and Potassium-40 activity. Results for the Cobalt-60, Cesium-137 and Potassium-40 method blank demonstrated non-detect or background equivalent activity. Results for the Cobalt-60 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable analytical technique limits. Results for the Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

  
for

M.R. McDougall  
Laboratory Manager

Date: 1/27/05



# Eberline Services

## Final Report of Analysis

Report To:				Work Order Details:									
Joe Gross				SDG:		05-01079							
Weston Solutions				Purchase Order:		0047329							
1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL							
Abingdon, MD 21009				Sample Matrix:		SO							
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01079-01	LCS	KNOWN	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.25E+01			pCi/g
05-01079-01	LCS	SPIKE	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	3.10E+02	5.99E+00	2.21E+01	4.25E-01	pCi/g
05-01079-02	MBL	BLANK	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	1.24E-01	2.11E-01	2.11E-01	3.74E-01	pCi/g
05-01079-03	DUP	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	6.50E+00	2.31E+00	2.35E+00	2.11E+00	pCi/g
05-01079-04	DO	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	8.10E+00	2.27E+00	2.33E+00	1.17E+00	pCi/g
05-01079-05	TRG	STOCKPILE02	01/18/05 10:00	1/20/2005	1/24/2005	05-01079	Gross Alpha	LANL MLR-100 Modified	3.96E+00	2.06E+00	2.07E+00	2.54E+00	pCi/g
05-01079-01	LCS	KNOWN	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.45E+00			pCi/g
05-01079-01	LCS	SPIKE	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	2.57E+02	4.80E+00	1.29E+01	8.07E-01	pCi/g
05-01079-02	MBL	BLANK	01/20/05 00:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	4.04E-01	4.15E-01	4.15E-01	6.86E-01	pCi/g
05-01079-03	DUP	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	7.31E+00	2.77E+00	2.79E+00	4.00E+00	pCi/g
05-01079-04	DO	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	5.25E+00	2.39E+00	2.40E+00	3.56E+00	pCi/g
05-01079-05	TRG	STOCKPILE02	01/18/05 10:00	1/20/2005	1/24/2005	05-01079	Gross Beta	LANL MLR-100 Modified	4.26E+00	2.55E+00	2.55E+00	4.00E+00	pCi/g
05-01079-01	LCS	KNOWN	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	1.28E+02	3.39E+00			pCi/g
05-01079-01	LCS	KNOWN	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	8.06E+01	2.42E+00			pCi/g
05-01079-01	LCS	SPIKE	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	1.30E+02	7.03E+00	7.43E+00	7.82E-01	pCi/g
05-01079-01	LCS	SPIKE	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	7.71E+01	8.15E+00	8.27E+00	6.96E-01	pCi/g
05-01079-02	MBL	BLANK	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	1.45E-02	2.43E-02	2.43E-02	5.12E-02	pCi/g
05-01079-02	MBL	BLANK	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	1.51E-02	2.29E-02	2.29E-02	4.70E-02	pCi/g
05-01079-02	MBL	BLANK	01/20/05 00:00	1/20/2005	1/21/2005	05-01079	Potassium-40	LANL ER-130 Modified	3.34E-01	2.36E-01	2.36E-01	3.76E-01	pCi/g
05-01079-03	DUP	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	-1.06E-02	2.94E-02	2.94E-02	5.07E-02	pCi/g
05-01079-03	DUP	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	2.94E-01	6.84E-02	6.86E-02	4.91E-02	pCi/g
05-01079-03	DUP	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Potassium-40	LANL ER-130 Modified	7.95E+00	1.11E+00	1.12E+00	4.16E-01	pCi/g
05-01079-04	DO	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	1.84E-02	2.95E-02	2.95E-02	5.70E-02	pCi/g
05-01079-04	DO	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	2.41E-01	6.56E-02	6.58E-02	4.73E-02	pCi/g
05-01079-04	DO	EC-N2-001-1T-1-1-0	01/11/05 11:00	1/20/2005	1/21/2005	05-01079	Potassium-40	LANL ER-130 Modified	8.41E+00	1.12E+00	1.13E+00	3.55E-01	pCi/g
05-01079-05	TRG	STOCKPILE02	01/18/05 10:00	1/20/2005	1/21/2005	05-01079	Cobalt-60	LANL ER-130 Modified	4.59E-02	4.84E-02	4.84E-02	9.69E-02	pCi/g
05-01079-05	TRG	STOCKPILE02	01/18/05 10:00	1/20/2005	1/21/2005	05-01079	Cesium-137	LANL ER-130 Modified	2.34E-01	1.04E-01	1.04E-01	7.09E-02	pCi/g
05-01079-05	TRG	STOCKPILE02	01/18/05 10:00	1/20/2005	1/21/2005	05-01079	Potassium-40	LANL ER-130 Modified	6.87E+00	1.27E+00	1.28E+00	7.91E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 01/31/05 14:26

RFW Batch Number: 0501L653

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE02		STOCKPILE02	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	002	05LE0053-MB1	05LE0053-MB1	05LE0053-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg
<hr/>					
p-Terphenyl		139 * %	D %	89 %	89 %
<hr/>					
Diesel Range Organics		190	NA	67 %	73 %
Motor Oil Range Organics		E	340	12.0 U	NS
<hr/>					

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Initiator: John Leach  
Date: 1/31/05  
Client: Eberline WSI

Batch: 0501 L653  
Samples: 2  
Method: SW846/MCAWW/CLP/

Parameter: DRO  
Matrix: Soil  
Prep Batch: 05LE0053

**1. Reason for SDR**

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other \_\_\_\_\_

**b. General Discrepancy**

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

**c. Problem (Include all relevant specific results; attach data if necessary)**

Surrogate elements @ 135% Limit 130%

**2. Known or Probable Causes(s)**

Interference from Hydrocarbons

**3. Discussion and Proposed Action**

Other Description:

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

Narrative

**4. Project Manager Instructions...signature/date: \_\_\_\_\_**

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☒ Include in Case Narrative  
☐ Client Contacted:  
☐ Date/Person \_\_\_\_\_  
☐ Add  
☐ Cancel

**5. Final Action...signature/date: \_\_\_\_\_** Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☐ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR
<input checked="" type="checkbox"/>	X Initiator
<input checked="" type="checkbox"/>	X Lab General Manager: M. Taylor
<input checked="" type="checkbox"/>	X Project Mgr. Stone/Johnson/Haslett
<input checked="" type="checkbox"/>	X Technical Mgr. Wesson/Daniels
<input checked="" type="checkbox"/>	X QA (file): Alberts
<input type="checkbox"/>	Data Management: Feldman
<input type="checkbox"/>	Sample Prep: Beegle/Kiger

Route	Distribution of Completed SDR
<input type="checkbox"/>	Metals: Beegle
<input type="checkbox"/>	Inorganic: Perrone
<input type="checkbox"/>	GC/LC: Kiger
<input type="checkbox"/>	MS: Rychlak/Layman
<input type="checkbox"/>	Log-in: Melnic
<input type="checkbox"/>	Admin: Soos
<input type="checkbox"/>	Other: _____



Lionville Laboratory, Inc.

Report Date: 01/25/05 10:33

PCBs by GC

Work Order: 11343623001 Page: 1

RFW Batch Number: 0501L653

Client: EBERLINE-WSI

Cust ID: STOCKPILE02 PBLKEY PBLKEY BS PBLKEY BSD

Sample Information RFW#: 002 05LE0054-MB1 05LE0054-MB1 05LE0054-MB1

Matrix: SOIL SOIL SOIL SOIL

D.F.: 1.00 1.00 1.00 1.00

Units: UG/KG UG/KG UG/KG UG/KG

Surrogate: Tetrachloro-m-xylene	67	%	78	%	80	%	77	%
Decachlorobiphenyl	74	%	87	%	92	%	87	%
Aroclor-1016	17	U	13	U	74	%	72	%
Aroclor-1221	17	U	13	U	13	U	13	U
Aroclor-1232	17	U	13	U	13	U	13	U
Aroclor-1242	17	U	13	U	13	U	13	U
Aroclor-1248	17	U	13	U	13	U	13	U
Aroclor-1254	17	U	13	U	13	U	13	U
Aroclor-1260	17	U	13	U	85	%	76	%

*Handwritten signature*

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 01/26/05 14:40

RFW Batch Number: 0501L653

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE02 STOCKPILE02 PBLKEY PBLKEY BS PBLKEY BSD

Sample Information RFW#: 002 002 DL 05LE0054-MB1 05LE0054-MB1 05LE0054-MB1  
Matrix: SOIL SOIL SOIL SOIL SOIL  
D.F.: 5.00 20.0 1.00 1.00 1.00  
Units: UG/KG UG/KG UG/KG UG/KG UG/KG

Surrogate: Tetrachloro-m-xylene	92	%	D	%	97	%	85	%	99	%
Decachlorobiphenyl	107	%	D	%	95	%	79	%	92	%
Alpha-BHC	8.3	U	NA		1.7	U	95	%	109	%
Beta-BHC	8.3	U	NA		1.7	U	84	%	96	%
Delta-BHC	8.3	U	NA		1.7	U	97	%	113	%
gamma-BHC (Lindane)	8.3	U	NA		1.7	U	92	%	106	%
Heptachlor	8.3	U	NA		1.7	U	88	%	103	%
Aldrin	20		NA		1.7	U	89	%	104	%
Heptachlor epoxide	8.3	U	NA		1.7	U	91	%	105	%
Endosulfan I	8.3	U	NA		1.7	U	80	%	93	%
Dieldrin	17	U	NA		3.3	U	91	%	106	%
4,4'-DDE		E	69		3.3	U	90	%	104	%
Endrin	17	U	NA		3.3	U	98	%	115	%
Endosulfan II	17	U	NA		3.3	U	85	%	98	%
4,4'-DDD	8.4		NA		3.3	U	76	%	88	%
Endosulfan sulfate	16		NA		3.3	U	88	%	104	%
4,4'-DDT		E	48		3.3	U	89	%	105	%
Methoxychlor	83	U	NA		17	U	84	%	96	%
Endrin ketone		E	34		3.3	U	87	%	100	%
Endrin aldehyde	17	U	NA		3.3	U	69	%	83	%
alpha-Chlordane	8.3	U	NA		1.7	U	80	%	92	%
gamma-Chlordane	8.3	U	NA		1.7	U	89	%	103	%
Toxaphene	830	U	NA		170	U	170	U	170	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

*Handwritten signature*



Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 01/28/05 15:05

RFW Batch Number: 0501L653

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE02		TBLKST	TBLKST BS
Sample Information	RFW#:	002	05LVJ127-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
<hr/>			
Fluorobenzene		87 %	102 %
<hr/>			
Gasoline Range Organics (GRO)		33 U	111 %
<hr/>			

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-001-iT-1-1-0	Arsenic, Total	26.0	MG/KG	0.22	1.0
-002	STOCKPILE02	Silver, Total	0.94	MG/KG	0.11	1.0
		Aluminum, Total	11800	MG/KG	3.5	1.0
		Arsenic, Total	6.2	MG/KG	0.29	1.0
		Barium, Total	84.8	MG/KG	0.05	1.0
		Beryllium, Total	0.71	MG/KG	0.01	1.0
		Calcium, Total	8220	MG/KG	3.1	1.0
		Cadmium, Total	0.39	MG/KG	0.03	1.0
		Cobalt, Total	6.2	MG/KG	0.08	1.0
		Chromium, Total	32.8	MG/KG	0.09	1.0
		Copper, Total	23.0	MG/KG	0.16	1.0
		Iron, Total	15800	MG/KG	3.1	1.0
		Mercury, Total	0.72	MG/KG	0.02	1.0
		Potassium, Total	711	MG/KG	2.1	1.0
		Magnesium, Total	5400	MG/KG	0.78	1.0
		Manganese, Total	426	MG/KG	0.03	1.0
		Sodium, Total	245	MG/KG	0.57	1.0
		Nickel, Total	28.5	MG/KG	0.14	1.0
		Lead, Total	52.0	MG/KG	0.25	1.0
		Antimony, Total	0.53	MG/KG	0.32	1.0
		Selenium, Total	0.61	MG/KG	0.42	1.0
		Thallium, Total	0.54 u	MG/KG	0.54	1.0
		Vanadium, Total	32.8	MG/KG	0.08	1.0
		Zinc, Total	85.9	MG/KG	0.15	1.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0041-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	3.1 u	MG/KG	3.1	1.0
		Arsenic, Total	0.26 u	MG/KG	0.26	1.0
		Barium, Total	0.04 u	MG/KG	0.04	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	2.8 u	MG/KG	2.8	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.08	MG/KG	0.08	1.0
		Copper, Total	0.14 u	MG/KG	0.14	1.0
		Iron, Total	2.8 u	MG/KG	2.8	1.0
		Potassium, Total	3.7	MG/KG	1.9	1.0
		Magnesium, Total	0.74	MG/KG	0.69	1.0
		Manganese, Total	0.03 u	MG/KG	0.03	1.0
		Sodium, Total	2.6	MG/KG	0.51	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.22 u	MG/KG	0.22	1.0
		Antimony, Total	0.28 u	MG/KG	0.28	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.48 u	MG/KG	0.48	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	0.16	MG/KG	0.13	1.0
BLANK1	05C0015-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0



## Lionville Laboratory, Inc.

## INORGANICS ACCURACY REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-002	STOCKPILE02	Silver, Total	5.8	0.94	5.5	88.4	1.0
		Silver, Total MSD	5.8	0.94	5.7	85.3	1.0
		Aluminum, Total	15000	11800	219	1490 *	1.0
		Aluminum, Total MSD	17800	11800	227	2660 *	1.0
		Arsenic, Total	210	6.2	219	92.7	1.0
		Arsenic, Total MSD	216	6.2	227	92.1	1.0
		Barium, Total	286	84.8	219	91.8	1.0
		Barium, Total MSD	293	84.8	227	91.6	1.0
		Beryllium, Total	6.0	0.71	5.5	96.2	1.0
		Beryllium, Total MSD	6.2	0.71	5.7	96.3	1.0
		Calcium, Total	7060	8220	2740	-42.	1.0
		Calcium, Total MSD	9160	8220	2840	32.9	1.0
		Cadmium, Total	5.3	0.39	5.5	89.3	1.0
		Cadmium, Total MSD	5.5	0.39	5.7	89.7	1.0
		Cobalt, Total	57.5	6.2	54.9	93.4	1.0
		Cobalt, Total MSD	59.8	6.2	56.8	94.4	1.0
		Chromium, Total	53.1	32.8	21.9	92.7	1.0
		Chromium, Total MSD	52.7	32.8	22.7	87.7	1.0
		Copper, Total	47.1	23.0	27.4	88.0	1.0
		Copper, Total MSD	47.0	23.0	28.4	84.5	1.0
		Iron, Total	19000	15800	110	2871 *	1.0
		Iron, Total MSD	20800	15800	114	4390 *	1.0
		Mercury, Total	0.58	0.72	0.16	-84. *	1.0
		Mercury, Total MSD	0.61	0.72	0.21	-54.	1.0
		Potassium, Total	3600	711	2740	105.4	1.0
		Potassium, Total MSD	3950	711	2840	114.0	1.0
		Magnesium, Total	5970	5400	2740	20.5	1.0
		Magnesium, Total MSD	6480	5400	2840	37.9	1.0
		Manganese, Total	409	426	54.9	-31. *	1.0
		Manganese, Total MSD	334	426	56.8	-160. *	1.0
		Sodium, Total	2940	245	2740	98.1	1.0
		Sodium, Total MSD	3080	245	2840	99.7	1.0
		Nickel, Total	72.2	28.5	54.9	79.6	1.0
		Nickel, Total MSD	77.9	28.5	56.8	87.0	1.0
		Lead, Total	102	52.0	54.9	91.4	1.0
		Lead, Total MSD	98.1	52.0	56.8	81.2	1.0
		Antimony, Total	22.1	0.53	54.9	39.3	1.0
		Antimony, Total MSD	24.5	0.53	56.8	42.2	1.0
		Selenium, Total	199	0.61	219	90.2	1.0
		Selenium, Total MSD	203	0.61	227	88.9	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-002	STOCKPILE02	Thallium, Total	211	0.54u	219	96.3	1.0
		Thallium, Total MSD	215	0.54u	227	94.5	1.0
		Vanadium, Total	89.2	32.8	54.9	102.7	1.0
		Vanadium, Total MSD	93.8	32.8	56.8	107.4	1.0
		Zinc, Total	130	85.9	54.9	80.3	1.0
		Zinc, Total MSD	133	85.9	56.8	82.6	1.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-002	STOCKPILE02	Silver, Total	88.4	85.3	3.6
		Aluminum, Total	1490	2660 *	NC
		Arsenic, Total	92.7	92.1	0.58
		Barium, Total	91.8	91.6	0.21
		Beryllium, Total	96.2	96.3	0.14
		Calcium, Total	-42.	32.9	1600.
		Cadmium, Total	89.3	89.7	0.42
		Cobalt, Total	93.4	94.4	0.98
		Chromium, Total	92.7	87.7	5.6
		Copper, Total	88.0	84.5	4.0
		Iron, Total	2871	4390 *	NC
		Mercury, Total	-84.	-54.	NC
		Potassium, Total	105.4	114.0	7.8
		Magnesium, Total	20.5	37.9	59.5
		Manganese, Total	-31.	-160. *	NC
		Sodium, Total	98.1	99.7	1.6
		Nickel, Total	79.6	87.0	8.9
		Lead, Total	91.4	81.2	11.9
		Antimony, Total	39.3	42.2	7.1
		Selenium, Total	90.2	88.9	1.5
		Thallium, Total	96.3	94.5	1.9
		Vanadium, Total	102.7	107.4	4.4
		Zinc, Total	80.3	82.6	2.8



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL		DILUTION
			RESULT	REPLICATE RPD	FACTOR (REP)
=====	=====	=====	=====	=====	=====
-002REP	STOCKPILE02	Silver, Total	0.94	0.55 52.5	1.0
		Aluminum, Total	11800	11300 3.9	1.0
		Arsenic, Total	6.2	5.6 10.2	1.0
		Barium, Total	84.8	69.2 20.3	1.0
		Beryllium, Total	0.71	0.72 1.5	1.0
		Calcium, Total	8220	6960 16.6	1.0
		Cadmium, Total	0.39	0.14 92.1	1.0
		Cobalt, Total	6.2	5.9 5.0	1.0
		Chromium, Total	32.8	26.3 22.0	1.0
		Copper, Total	23.0	19.6 16.0	1.0
		Iron, Total	15800	16400 3.5	1.0
		Mercury, Total	0.72	0.95 27.7	1.0
		Potassium, Total	711	678 4.8	1.0
		Magnesium, Total	5400	3590 40.4	1.0
		Manganese, Total	426	387 9.5	1.0
		Sodium, Total	245	220 10.6	1.0
		Nickel, Total	28.5	18.7 41.5	1.0
		Lead, Total	52.0	40.9 23.9	1.0
		Antimony, Total	0.53	0.31u NC	1.0
		Selenium, Total	0.61	0.41u NC	1.0
		Thallium, Total	0.54u	0.54u NC	1.0
		Vanadium, Total	32.8	32.1 2.2	1.0
		Zinc, Total	85.9	76.0 12.2	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/26/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L653

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0041-LC1	Silver, LCS	49.9	50.0	MG/KG	99.8
		Aluminum, LCS	509	500	MG/KG	101.9
		Arsenic, LCS	951	1000	MG/KG	95.1
		Barium, LCS	503	500	MG/KG	100.5
		Beryllium, LCS	24.5	25.0	MG/KG	98.0
		Calcium, LCS	2530	2500	MG/KG	101.1
		Cadmium, LCS	24.7	25.0	MG/KG	98.8
		Cobalt, LCS	251	250	MG/KG	100.4
		Chromium, LCS	50.7	50.0	MG/KG	101.4
		Copper, LCS	127	125	MG/KG	101.5
		Iron, LCS	508	500	MG/KG	101.6
		Potassium, LCS	2600	2500	MG/KG	104.0
		Magnesium, LCS	2500	2500	MG/KG	100
		Manganese, LCS	77.8	75.0	MG/KG	103.7
		Sodium, LCS	2500	2500	MG/KG	99.8
		Nickel, LCS	200	200	MG/KG	100.2
		Lead, LCS	250	250	MG/KG	99.9
		Antimony, LCS	297	300	MG/KG	98.9
		Selenium, LCS	918	1000	MG/KG	91.8
		Thallium, LCS	990	1000	MG/KG	99.0
		Vanadium, LCS	250	250	MG/KG	100.2
		Zinc, LCS	98.6	100	MG/KG	98.6
LCS1	05C0015-LC1	Mercury, LCS	6.5	6.2	MG/KG	104.9





EBS-OR-21896

January 27, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

#### CASE NARRATIVE

Work Order# 05-01086-OR

#### SAMPLE RECEIPT

This work order contains seventeen soil samples received 1/22/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N2-018-F-1-1-0	05-01086-04	EC-N2-025-F-1-1-0	05-01086-13
EC-N2-018-F-1-1-1	05-01086-05	EC-N2-026-F-1-1-0	05-01086-14
EC-N2-019-F-1-1-0	05-01086-06	EC-N2-027-W-1-1-0	05-01086-15
EC-N2-020-F-1-1-0	05-01086-07	EC-N2-027-W-1-1-1	05-01086-16
EC-N2-021-F-1-1-0	05-01086-08	EC-N2-028-W-1-1-0	05-01086-17
EC-N2-022-F-1-1-0	05-01086-09	EC-N2-029-W-1-1-0	05-01086-18
EC-N2-023-F-1-1-0	05-01086-10	EC-N2-030-W-1-1-0	05-01086-19
EC-N2-023-F-1-1-1	05-01086-11	EC-N2-031-W-1-1-0	05-01086-20
EC-N2-024-F-1-1-0	05-01086-12		

#### ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

#### ANALYTICAL RESULTS

##### GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

##### GAMMA SPECTROSCOPY

Samples demonstrated background or non-detect equivalent to slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-214 and Thallium-208 activity, non-detect equivalent results for Cobalt-60 activity, and slightly positive results for Lead-212 activity. Actinium-228 and



## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

Bismuth-214 results for several samples, Cesium-137 results for sample fractions -05 and -12 (Client IDs: EC-N2-018-F-1-1-1 and EC-N2-024-F-1-1-0), Lead-214 results for sample fraction -18 (Client ID: EC-N2-029-W-1-1-0), and Thallium-208 results for sample fraction -05 (Client ID: EC-N2-018-F-1-1-1) were reported from the gamma spectroscopy "non-identified" nuclides report and should be qualified as non-detect. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cesium-137 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable analytical technique limits. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

  
for

M.R. McDougall  
Laboratory Manager

Date: 1/27/05



Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009			SDG:  0047329  ENVIRONMENTAL  SO				05-01086						
							Purchase Order:						
							Analysis Category:						
							Sample Matrix:						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
05-01086-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	2.46E+02	5.26E+00	1.76E+01	2.16E-01	pCi/g
05-01086-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	9.29E-02	2.65E-01	2.65E-01	4.92E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	6.25E+00	1.99E+00	2.03E+00	4.49E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	6.43E+00	2.40E+00	2.44E+00	2.68E+00	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	5.98E+00	2.14E+00	2.18E+00	2.07E+00	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	6.70E+00	2.06E+00	2.11E+00	1.57E+00	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	2.67E+00	1.60E+00	1.61E+00	2.01E+00	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	4.29E+00	1.75E+00	1.77E+00	1.27E+00	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	6.03E+00	2.21E+00	2.25E+00	2.45E+00	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	3.59E+00	1.65E+00	1.66E+00	1.68E+00	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	4.35E+00	1.88E+00	1.91E+00	2.12E+00	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	1.03E+01	2.68E+00	2.78E+00	2.08E+00	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	2.62E+00	1.57E+00	1.58E+00	2.02E+00	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	4.63E+00	1.73E+00	1.76E+00	1.39E+00	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	3.03E+00	1.74E+00	1.75E+00	2.25E+00	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	5.49E-01	1.08E+00	1.08E+00	1.94E+00	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	3.07E+00	1.65E+00	1.66E+00	1.94E+00	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	1.58E-01	9.30E-01	9.30E-01	1.90E+00	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	3.21E+00	1.77E+00	1.79E+00	2.04E+00	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Gross Alpha	LANL MLR-100 Modified	2.18E+00	1.37E+00	1.37E+00	1.68E+00	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-01086			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.46E+00			pCi/g
05-01086-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.05E+02	4.25E+00	1.05E+01	6.82E-01	pCi/g
05-01086-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	6.25E-01	4.13E-01	4.14E-01	6.47E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	6.26E+00	2.40E+00	2.42E+00	3.44E+00	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	3.86E+00	2.49E+00	2.50E+00	3.95E+00	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	3.14E+00	2.27E+00	2.28E+00	3.65E+00	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	4.51E+00	2.10E+00	2.11E+00	3.15E+00	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.34E+00	2.34E+00	2.34E+00	3.87E+00	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.67E+00	2.60E+00	2.60E+00	4.29E+00	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	6.12E+00	2.59E+00	2.61E+00	3.90E+00	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	1.20E+00	2.15E+00	2.15E+00	3.68E+00	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	3.43E+00	2.23E+00	2.23E+00	3.53E+00	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	8.29E+00	2.65E+00	2.67E+00	3.68E+00	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	8.71E+00	2.58E+00	2.61E+00	3.52E+00	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.81E+00	2.36E+00	2.37E+00	3.86E+00	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.91E+00	2.43E+00	2.43E+00	3.96E+00	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	7.87E-01	1.99E+00	1.99E+00	3.45E+00	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	4.22E+00	2.50E+00	2.50E+00	3.92E+00	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	-1.75E+00	2.28E+00	2.28E+00	4.27E+00	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	3.34E+00	2.43E+00	2.44E+00	3.90E+00	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Gross Beta	LANL MLR-100 Modified	2.77E+00	2.40E+00	2.40E+00	3.93E+00	pCi/g

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# Eberline Services

## Final Report of Analysis

Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-01086			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-01086-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-01086-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	1.29E+02	6.50E+00	6.92E+00	5.24E-01	pCi/g
05-01086-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	7.70E+01	6.86E+00	7.01E+00	4.72E-01	pCi/g
05-01086-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.72E-02	2.60E-02	2.60E-02	5.92E-02	pCi/g
05-01086-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01086	Cesium-137	LANL ER-130 Modified	3.43E-02	3.13E-02	3.13E-02	4.29E-02	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.29E+00	3.42E-01	3.43E-01	3.88E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	1.16E+00	2.19E-01	2.20E-01	2.07E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-1.07E-02	8.21E-02	8.21E-02	1.46E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	2.78E-01	1.21E-01	1.21E-01	1.10E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	1.05E+01	1.84E+00	1.85E+00	9.02E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.48E+00	2.00E-01	2.02E-01	1.64E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	1.03E+00	2.26E-01	2.27E-01	1.99E-01	pCi/g
05-01086-03	DUP	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	9.68E-01	2.35E-01	2.36E-01	2.83E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.28E+00	3.39E-01	3.40E-01	3.95E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	9.38E-01	1.78E-01	1.79E-01	1.95E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.20E-02	7.59E-02	7.59E-02	1.43E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	1.54E-01	8.90E-02	8.91E-02	1.06E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	1.12E+01	1.94E+00	1.95E+00	1.03E+00	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.62E+00	2.12E-01	2.14E-01	1.62E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	1.04E+00	2.00E-01	2.01E-01	1.99E-01	pCi/g
05-01086-04	DO	EC-N2-018-F-1-1-0	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	1.32E+00	2.47E-01	2.48E-01	3.03E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG: 05-01086					
				Weston Solutions				Purchase Order: 0047329					
				1309 Continental Drive, #M				Analysis Category: ENVIRONMENTAL					
				Abingdon, MD 21009				Sample Matrix: SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.08E+00	2.20E-01	2.21E-01	3.14E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	8.21E-01	1.58E-01	1.58E-01	1.41E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.62E-02	4.44E-02	4.44E-02	8.68E-02	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	1.08E-01	5.42E-02	5.42E-02	1.09E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	9.19E+00	1.58E+00	1.59E+00	6.57E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.15E+00	1.45E-01	1.46E-01	1.09E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	7.10E-01	1.41E-01	1.41E-01	1.38E-01	pCi/g
05-01086-05	TRG	EC-N2-018-F-1-1-1	01/21/05 10:00	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	8.81E-01	2.35E-01	2.36E-01	4.05E-01	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.43E+00	1.77E-01	1.79E-01	1.96E-01	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	9.36E-01	1.30E-01	1.31E-01	1.14E-01	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-2.98E-02	3.61E-02	3.61E-02	5.82E-02	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	7.98E-02	4.90E-02	4.90E-02	5.67E-02	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	1.25E+01	1.45E+00	1.47E+00	5.22E-01	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.61E+00	2.06E-01	2.08E-01	8.86E-02	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	9.37E-01	1.14E-01	1.15E-01	1.17E-01	pCi/g
05-01086-06	TRG	EC-N2-019-F-1-1-0	01/21/05 10:05	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	1.26E+00	1.60E-01	1.62E-01	1.54E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	8.76E-01	2.65E-01	2.66E-01	5.69E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	6.11E-01	1.88E-01	1.88E-01	3.07E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-9.48E-03	5.08E-02	5.08E-02	9.08E-02	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	1.37E+00	2.18E-01	2.19E-01	9.48E-02	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.41E+00	1.25E+00	1.26E+00	7.68E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	7.51E-01	1.36E-01	1.37E-01	1.33E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	5.40E-01	1.57E-01	1.57E-01	1.71E-01	pCi/g
05-01086-07	TRG	EC-N2-020-F-1-1-0	01/21/05 10:10	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	7.90E-01	1.78E-01	1.78E-01	2.49E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-01086			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.17E+00	2.41E-01	2.42E-01	3.57E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	9.66E-01	2.39E-01	2.39E-01	4.01E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.88E-02	6.62E-02	6.62E-02	1.28E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	7.85E-01	1.33E-01	1.34E-01	1.08E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	9.22E+00	1.84E+00	1.84E+00	8.95E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.24E+00	1.74E-01	1.75E-01	1.50E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	7.70E-01	1.83E-01	1.83E-01	2.14E-01	pCi/g
05-01086-08	TRG	EC-N2-021-F-1-1-0	01/21/05 10:15	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	8.55E-01	2.36E-01	2.37E-01	2.70E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	9.90E-01	1.89E-01	1.90E-01	2.15E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	7.61E-01	1.43E-01	1.43E-01	1.31E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-1.24E-02	3.61E-02	3.61E-02	6.24E-02	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	3.90E+00	3.90E-01	3.97E-01	7.37E-02	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	8.93E+00	1.17E+00	1.19E+00	4.99E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.20E+00	2.07E-01	2.08E-01	1.13E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	8.30E-01	1.39E-01	1.40E-01	1.46E-01	pCi/g
05-01086-09	TRG	EC-N2-022-F-1-1-0	01/21/05 10:20	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	1.03E+00	1.57E-01	1.58E-01	2.03E-01	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	5.21E-01	1.13E-01	1.14E-01	1.35E-01	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	4.25E-01	7.83E-02	7.87E-02	7.08E-02	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.50E-03	2.11E-02	2.11E-02	3.93E-02	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	2.31E-01	6.21E-02	6.22E-02	3.86E-02	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	4.87E+00	7.26E-01	7.31E-01	2.60E-01	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	6.29E-01	9.63E-02	9.70E-02	6.07E-02	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	3.70E-01	7.67E-02	7.70E-02	7.39E-02	pCi/g
05-01086-10	TRG	EC-N2-023-F-1-1-0	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	4.81E-01	9.25E-02	9.30E-02	1.09E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:				05-01086					
				Purchase Order:				0047329					
				Analysis Category:				ENVIRONMENTAL					
				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	9.65E-01	2.35E-01	2.36E-01	3.07E-01	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	5.38E-01	1.28E-01	1.28E-01	1.53E-01	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.05E-02	4.59E-02	4.59E-02	9.03E-02	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	4.38E-01	1.18E-01	1.18E-01	8.71E-02	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.81E+00	1.48E+00	1.49E+00	7.37E-01	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.14E+00	2.07E-01	2.08E-01	1.17E-01	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	4.57E-01	1.55E-01	1.55E-01	1.68E-01	pCi/g
05-01086-11	TRG	EC-N2-023-F-1-1-1	01/21/05 10:25	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	7.86E-01	1.82E-01	1.83E-01	2.51E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	7.84E-01	3.11E-01	3.11E-01	6.81E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	8.96E-01	2.11E-01	2.11E-01	1.85E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.35E-02	6.32E-02	6.32E-02	1.25E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	5.04E-02	6.14E-02	6.14E-02	1.22E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	7.28E+00	1.55E+00	1.56E+00	8.94E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.09E+00	1.67E-01	1.68E-01	1.39E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	8.75E-01	1.81E-01	1.81E-01	1.80E-01	pCi/g
05-01086-12	TRG	EC-N2-024-F-1-1-0	01/21/05 10:45	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	9.71E-01	2.05E-01	2.05E-01	2.47E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.10E+00	1.73E-01	1.74E-01	1.63E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	6.69E-01	1.31E-01	1.32E-01	1.28E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	3.31E-02	3.56E-02	3.56E-02	6.23E-02	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	7.65E+00	7.09E-01	7.23E-01	5.32E-02	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	8.09E+00	1.01E+00	1.03E+00	2.66E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.13E+00	2.03E-01	2.04E-01	1.23E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	7.64E-01	1.53E-01	1.54E-01	1.59E-01	pCi/g
05-01086-13	TRG	EC-N2-025-F-1-1-0	01/21/05 11:00	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	8.92E-01	1.54E-01	1.55E-01	1.87E-01	pCi/g

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# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

05-01086

SDG:

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	7.21E-01	2.03E-01	2.04E-01	2.78E-01	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	5.68E-01	1.54E-01	1.54E-01	1.41E-01	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-1.52E-02	4.49E-02	4.49E-02	7.83E-02	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	2.66E-01	1.01E-01	1.01E-01	7.44E-02	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.06E+00	1.20E+00	1.20E+00	7.32E-01	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	7.91E-01	1.24E-01	1.25E-01	1.07E-01	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	5.98E-01	1.26E-01	1.26E-01	1.39E-01	pCi/g
05-01086-14	TRG	EC-N2-026-F-1-1-0	01/21/05 11:15	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	6.80E-01	1.59E-01	1.59E-01	2.07E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	7.24E-01	2.63E-01	2.63E-01	3.57E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	6.39E-01	1.89E-01	1.89E-01	3.28E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	5.22E-02	5.02E-02	5.02E-02	1.13E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	6.63E-01	1.37E-01	1.38E-01	1.12E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	4.21E+00	1.19E+00	1.19E+00	7.35E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	8.83E-01	1.46E-01	1.47E-01	1.38E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	5.00E-01	1.65E-01	1.65E-01	1.61E-01	pCi/g
05-01086-15	TRG	EC-N2-027-W-1-1-0	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	6.84E-01	1.88E-01	1.89E-01	2.27E-01	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	8.27E-01	1.72E-01	1.72E-01	1.87E-01	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	7.20E-01	1.22E-01	1.22E-01	1.04E-01	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	5.78E-03	3.22E-02	3.22E-02	6.02E-02	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	3.27E-01	7.32E-02	7.35E-02	6.45E-02	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.77E+00	1.01E+00	1.01E+00	3.81E-01	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	8.71E-01	1.16E-01	1.17E-01	8.88E-02	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	6.16E-01	1.23E-01	1.24E-01	1.11E-01	pCi/g
05-01086-16	TRG	EC-N2-027-W-1-1-1	01/21/05 11:30	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	7.28E-01	1.36E-01	1.36E-01	1.45E-01	pCi/g

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Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross				SDG:				05-01086					
Weston Solutions				Purchase Order:				0047329					
1309 Continental Drive, #M				Analysis Category:				ENVIRONMENTAL					
Abingdon, MD 21009				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.23E+00	2.60E-01	2.61E-01	4.74E-01	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	6.83E-01	1.32E-01	1.33E-01	1.18E-01	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	-9.17E-03	3.48E-02	3.48E-02	6.12E-02	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	9.80E-01	1.34E-01	1.35E-01	5.68E-02	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	7.24E+00	1.19E+00	1.19E+00	5.01E-01	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	8.50E-01	1.16E-01	1.17E-01	9.08E-02	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	7.36E-01	1.17E-01	1.18E-01	1.13E-01	pCi/g
05-01086-17	TRG	EC-N2-028-W-1-1-0	01/21/05 12:00	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	7.54E-01	1.45E-01	1.46E-01	1.63E-01	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	1.01E-01	1.14E-01	1.14E-01	2.36E-01	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	1.16E-01	6.90E-02	6.90E-02	1.10E-01	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	5.82E-03	2.67E-02	2.67E-02	5.29E-02	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	5.24E-01	9.37E-02	9.42E-02	4.93E-02	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.79E-01	3.60E-01	3.60E-01	4.07E-01	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	1.78E-01	8.61E-02	8.62E-02	7.02E-02	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	1.25E-02	6.49E-02	6.49E-02	1.23E-01	pCi/g
05-01086-18	TRG	EC-N2-029-W-1-1-0	01/21/05 12:15	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	1.52E-01	7.98E-02	7.98E-02	1.41E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Actinium-228	LANL ER-130 Modified	9.90E-01	2.47E-01	2.48E-01	2.85E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Bismuth-214	LANL ER-130 Modified	8.31E-01	1.78E-01	1.79E-01	1.71E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Cobalt-60	LANL ER-130 Modified	2.12E-03	6.09E-02	6.09E-02	1.02E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Cesium-137	LANL ER-130 Modified	1.61E+00	2.11E-01	2.13E-01	8.74E-02	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Potassium-40	LANL ER-130 Modified	6.11E+00	1.41E+00	1.41E+00	8.69E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Lead-212	LANL ER-130 Modified	9.95E-01	1.60E-01	1.61E-01	1.53E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Lead-214	LANL ER-130 Modified	8.59E-01	1.96E-01	1.96E-01	1.83E-01	pCi/g
05-01086-19	TRG	EC-N2-030-W-1-1-0	01/21/05 12:30	1/22/2005	1/24/2005	05-01086	Thallium-208	LANL ER-130 Modified	7.77E-01	2.12E-01	2.12E-01	2.81E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:			05-01086						
				Purchase Order:			0047329						
				Analysis Category:			ENVIRONMENTAL						
				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Actinium-228	LANL ER-130 Modified	2.70E-01	8.94E-02	8.95E-02	1.25E-01	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Bismuth-214	LANL ER-130 Modified	2.68E-01	7.09E-02	7.11E-02	7.08E-02	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Cobalt-60	LANL ER-130 Modified	3.18E-03	2.35E-02	2.35E-02	4.35E-02	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Cesium-137	LANL ER-130 Modified	4.60E-01	6.99E-02	7.04E-02	3.57E-02	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Potassium-40	LANL ER-130 Modified	2.11E+00	4.57E-01	4.59E-01	2.82E-01	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Lead-212	LANL ER-130 Modified	3.15E-01	6.38E-02	6.41E-02	5.63E-02	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Lead-214	LANL ER-130 Modified	1.98E-01	7.89E-02	7.90E-02	7.29E-02	pCi/g
05-01086-20	TRG	EC-N2-031-W-1-1-0	01/21/05 13:00	1/22/2005	1/25/2005	05-01086	Thallium-208	LANL ER-130 Modified	3.13E-01	7.64E-02	7.66E-02	1.07E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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COC ID: EC node 2/8

## Client

DSHE

**Site Name** Bush River Rad Yard

W. O.

**Eberline Services**

TAT 3 days

**Contact Name**

**Contact Phone No.**

**Lab Contact**

Lab Phone 865-481-0683

Joe Gross

410-612-5900

**Mike McDougal**

**365-481-0683**

# Chain of Custody Record



Page 1 of 1

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	Preservative	Container	Filtered
4	EC-N2-018-F-1-1-0	S		Y	1/21/2005 10:00	3		
5	EC-N2-018-F-1-1-1	S		N	1/21/2005 10:00	1		
6	EC-N2-019-F-1-1-0	S		N	1/21/2005 10:05	1		
7	EC-N2-020-F-1-1-0	S		N	1/21/2005 10:10	1		
8	EC-N2-021-F-1-1-0	S		N	1/21/2005 10:15	1		
9	EC-N2-022-F-1-1-0	S		N	1/21/2005 10:20	1		
10	EC-N2-023-F-1-1-0	S		N	1/21/2005 10:25	1		
11	EC-N2-023-F-1-1-1	S		N	1/21/2005 10:25	1		
12	EC-N2-024-F-1-1-0	S		N	1/21/2005 10:45	1		
13	EC-N2-025-F-1-1-0	S		N	1/21/2005 11:00	1		
14	EC-N2-026-F-1-1-0	S		N	1/21/2005 11:15	1		
15	EC-N2-027-W-1-1-0	S		N	1/21/2005 11:30	1		
16	EC-N2-027-W-1-1-1	S		N	1/21/2005 11:30	1		
17	EC-N2-028-W-1-1-0	S		N	1/21/2005 12:00	1		
18	EC-N2-029-W-1-1-0	S		N	1/21/2005 12:15	1		
19	EC-N2-030-W-1-1-0	S		N	1/21/2005 12:30	1		
20	EC-N2-031-W-1-1-0	S		N	1/21/2005 13:00	1		
	BC-B3-002-B200 W			N	1/21/05 13:55			

## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

**Lab Use Only**

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

Relinquished By

Date / Time

Received By

Date / Time

**Acquired By**

Received By \_\_\_\_\_

Date / Time

COC Tape was present on outer package

COC Tape was unbroken on outer package ☒ Y ☐ N

COC Tane ws present on sample. ☒ N

COC Tape was unbroken on sample N

**Figure 1**

Figure 1 shows a schematic diagram of the experimental setup. A subject is seated at a computer workstation, viewing a video screen. The screen displays a target area (a circle) and a starting point (a dot). The subject's hand is positioned over the starting point. The distance between the starting point and the target area is labeled as 'Distance'. The angle between the horizontal axis and the line connecting the starting point to the target area is labeled as 'Angle'.

Labels indicate Properly Preserved

Models indicate Properly Preserved ☒ N

**0**





EBS-OR-21965

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-01110-OR

SAMPLE RECEIPT

This work order contains nine soil samples received 1/27/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N2-025-F-2-2-0	05-01110-04	EC-N7-001-F-1-1-0	05-01110-09
EC-N6-001-W-1-1-0	05-01110-05	EC-N7-002-F-1-1-0	05-01110-10
EC-N6-002-W-1-1-0	05-01110-06	EC-N7-003-W-1-1-0	05-01110-11
EC-N6-003-F-1-1-0	05-01110-07	EC-N7-004-W-1-1-0	05-01110-12
EC-N6-004-F-1-1-0	05-01110-08		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated background equivalent results for Uranium and Thorium series radionuclides. Samples demonstrated slightly positive results for Potassium-40, non-detect equivalent results for Cobalt-60 activity, and non-detect equivalent to only slightly positive results for Cesium-137 activity. Results for the method blank demonstrated non-detect or background equivalent activity for all gamma-emitting



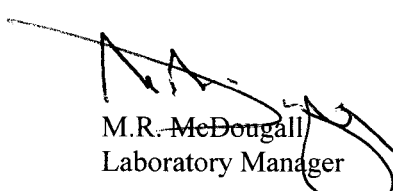
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

radionuclides as reported. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:		05-01110				
			Weston Solutions				Purchase Order:		0047329				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01110-01	LCS	KNOWN	01/27/05 00:00	1/27/2005	2/1/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-01110-01	LCS	SPIKE	01/27/05 00:00	1/27/2005	2/1/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	3.09E+02	8.34E+00	2.28E+01	5.45E-01	pCi/g
05-01110-02	MBL	BLANK	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	2.66E-01	1.92E-01	1.93E-01	2.18E-01	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	4.81E+00	1.98E+00	2.00E+00	2.00E+00	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	4.15E+00	2.13E+00	2.15E+00	2.77E+00	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	3.42E+00	1.60E+00	1.61E+00	1.51E+00	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	1.58E+00	1.32E+00	1.32E+00	1.90E+00	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	4.44E+00	1.56E+00	1.59E+00	3.91E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	3.58E+00	1.67E+00	1.69E+00	1.59E+00	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	2.68E+00	1.54E+00	1.55E+00	1.81E+00	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	3.82E+00	1.55E+00	1.58E+00	1.13E+00	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	2.23E+00	1.47E+00	1.48E+00	1.92E+00	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Gross Alpha	LANL MLR-100 Modified	4.06E+00	2.05E+00	2.07E+00	2.50E+00	pCi/g
05-01110-01	LCS	KNOWN	01/27/05 00:00	1/27/2005	2/1/2005	05-01110	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.44E+00			pCi/g
05-01110-01	LCS	SPIKE	01/27/05 00:00	1/27/2005	2/1/2005	05-01110	Gross Beta	LANL MLR-100 Modified	2.45E+02	6.57E+00	1.32E+01	1.12E+00	pCi/g
05-01110-02	MBL	BLANK	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	1.03E-01	4.58E-01	4.58E-01	8.02E-01	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	4.93E+00	2.30E+00	2.31E+00	3.44E+00	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	6.01E+00	2.36E+00	2.38E+00	3.40E+00	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	3.44E+00	2.33E+00	2.33E+00	3.70E+00	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	2.62E+00	2.16E+00	2.17E+00	3.51E+00	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	4.47E+00	2.05E+00	2.06E+00	3.03E+00	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	4.49E+00	2.49E+00	2.50E+00	3.86E+00	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	4.26E+00	2.42E+00	2.42E+00	3.75E+00	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	3.99E+00	2.18E+00	2.18E+00	3.34E+00	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	2.81E+00	2.08E+00	2.08E+00	3.32E+00	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Gross Beta	LANL MLR-100 Modified	6.58E+00	2.39E+00	2.41E+00	3.33E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

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## Oak Ridge Laboratory

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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

**SDG: 05-01110**  
**Purchase Order: 0047329**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01110-01	LCS	KNOWN	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-01110-01	LCS	KNOWN	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-01110-01	LCS	SPIKE	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.29E+02	6.92E+00	7.32E+00	5.31E-01	pCi/g
05-01110-01	LCS	SPIKE	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	7.78E+01	8.17E+00	8.29E+00	4.88E-01	pCi/g
05-01110-02	MBL	BLANK	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	-4.40E-05	2.94E-02	2.94E-02	5.81E-02	pCi/g
05-01110-02	MBL	BLANK	01/27/05 00:00	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	5.67E-02	3.37E-02	3.37E-02	4.39E-02	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	1.09E+00	1.66E-01	1.67E-01	1.73E-01	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	8.34E-01	1.65E-01	1.66E-01	2.28E-01	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.44E-02	3.15E-02	3.15E-02	5.94E-02	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	3.55E-01	7.09E-02	7.12E-02	4.23E-02	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	8.34E+00	1.13E+00	1.14E+00	4.43E-01	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	1.09E+00	1.29E-01	1.31E-01	9.11E-02	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	8.04E-01	1.07E-01	1.08E-01	9.96E-02	pCi/g
05-01110-03	DUP	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	8.90E-01	1.33E-01	1.34E-01	1.47E-01	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	1.14E+00	1.57E-01	1.58E-01	1.65E-01	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	6.35E-01	1.32E-01	1.32E-01	2.20E-01	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	-1.64E-03	3.10E-02	3.10E-02	5.59E-02	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	3.90E-01	8.13E-02	8.17E-02	5.37E-02	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	8.00E+00	1.05E+00	1.06E+00	3.72E-01	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	1.07E+00	1.22E-01	1.24E-01	8.49E-02	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	8.46E-01	1.12E-01	1.13E-01	1.03E-01	pCi/g
05-01110-04	DO	EC-N2-025-F-2-2-0	01/26/05 13:10	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	1.03E+00	1.45E-01	1.46E-01	1.37E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	5.96E-01	2.24E-01	2.25E-01	2.79E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	5.62E-01	1.45E-01	1.46E-01	1.24E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.56E-02	4.42E-02	4.42E-02	8.44E-02	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	7.28E-01	1.31E-01	1.32E-01	7.45E-02	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	6.12E+00	1.19E+00	1.20E+00	5.43E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	8.05E-01	1.20E-01	1.20E-01	1.14E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	5.71E-01	1.31E-01	1.31E-01	1.51E-01	pCi/g
05-01110-05	TRG	EC-N6-001-W-1-1-0	01/26/05 14:20	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	6.68E-01	1.40E-01	1.40E-01	2.08E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

Joe Gross  
Weston Solutions  
1309 Continental Drive, #M  
Abingdon, MD 21009

Report To:

Work Order Details:

SDG: **05-01110**  
Purchase Order: 0047329  
Analysis Category: ENVIRONMENTAL  
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	7.69E-01	1.73E-01	1.73E-01	1.68E-01	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	8.57E-03	5.28E-02	5.28E-02	1.02E-01	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	5.94E-01	1.10E-01	1.11E-01	9.28E-02	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	6.38E+00	1.37E+00	1.38E+00	6.61E-01	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	8.30E-01	1.41E-01	1.42E-01	1.31E-01	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	5.58E-01	1.63E-01	1.63E-01	1.92E-01	pCi/g
05-01110-06	TRG	EC-N6-002-W-1-1-0	01/26/05 14:30	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	7.83E-01	1.99E-01	1.99E-01	2.58E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	9.10E-01	1.97E-01	1.97E-01	2.79E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	7.90E-01	1.55E-01	1.55E-01	1.39E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	2.91E-02	4.65E-02	4.65E-02	9.12E-02	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	3.18E-02	4.46E-02	4.46E-02	8.63E-02	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	7.67E+00	1.27E+00	1.28E+00	7.50E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	1.01E+00	1.41E-01	1.42E-01	1.11E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	7.23E-01	1.54E-01	1.55E-01	1.45E-01	pCi/g
05-01110-07	TRG	EC-N6-003-F-1-1-0	01/26/05 14:45	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	8.17E-01	1.57E-01	1.57E-01	2.08E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	8.86E-01	2.71E-01	2.72E-01	3.70E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	9.74E-01	2.01E-01	2.02E-01	1.89E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	4.78E-02	6.22E-02	6.22E-02	1.28E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	1.48E-02	6.47E-02	6.47E-02	1.20E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	9.71E+00	1.65E+00	1.66E+00	8.57E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	1.29E+00	1.82E-01	1.84E-01	1.59E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	1.05E+00	1.92E-01	1.93E-01	2.09E-01	pCi/g
05-01110-08	TRG	EC-N6-004-F-1-1-0	01/26/05 15:00	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	1.09E+00	2.20E-01	2.20E-01	2.68E-01	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	3.25E-01	8.11E-02	8.13E-02	1.60E-01	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.03E-02	2.41E-02	2.41E-02	4.71E-02	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	2.51E-01	4.98E-02	5.00E-02	4.38E-02	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	4.18E+00	6.84E-01	6.89E-01	3.49E-01	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	4.62E-01	7.38E-02	7.43E-02	6.83E-02	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	3.48E-01	7.19E-02	7.22E-02	8.08E-02	pCi/g
05-01110-09	TRG	EC-N7-001-F-1-1-0	01/26/05 13:25	1/27/2005	1/31/2005	05-01110	Thorium-234	LANL ER-130 Modified	2.39E+00	8.96E-01	8.97E-01	8.39E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample;MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

Work Order Details:

**SGD: 05-01110**  
**Purchase Order: 0047329**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Actinium-228	LANL ER-130 Modified	1.21E+00	2.20E-01	2.21E-01	3.08E-01	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	7.30E-01	1.70E-01	1.71E-01	1.82E-01	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	-4.77E-03	4.94E-02	4.94E-02	8.84E-02	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	8.94E-02	6.46E-02	6.46E-02	9.31E-02	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	1.10E+01	1.58E+00	1.59E+00	8.09E-01	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	1.28E+00	1.68E-01	1.68E-01	1.12E-01	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	8.34E-01	1.58E-01	1.59E-01	1.55E-01	pCi/g
05-01110-10	TRG	EC-N7-002-F-1-1-0	01/26/05 13:35	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	8.45E-01	1.80E-01	1.81E-01	2.48E-01	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.01E-02	3.59E-02	3.59E-02	7.49E-02	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	7.74E-01	1.22E-01	1.23E-01	7.16E-02	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	2.71E+00	8.29E-01	8.27E-01	5.38E-01	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	5.06E-01	1.07E-01	1.07E-01	1.08E-01	pCi/g
05-01110-11	TRG	EC-N7-003-W-1-1-0	01/26/05 13:48	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	4.08E-01	1.46E-01	1.46E-01	2.07E-01	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Bismuth-214	LANL ER-130 Modified	4.51E-01	1.30E-01	1.30E-01	1.74E-01	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Cobalt-60	LANL ER-130 Modified	1.53E-02	2.85E-02	2.85E-02	5.45E-02	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Cesium-137	LANL ER-130 Modified	2.77E+00	3.17E-01	3.21E-01	4.71E-02	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Potassium-40	LANL ER-130 Modified	5.03E+00	7.92E-01	7.97E-01	3.50E-01	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Lead-212	LANL ER-130 Modified	6.10E-01	9.19E-02	9.26E-02	7.95E-02	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Lead-214	LANL ER-130 Modified	4.57E-01	1.09E-01	1.09E-01	1.05E-01	pCi/g
05-01110-12	TRG	EC-N7-004-W-1-1-0	01/26/05 13:55	1/27/2005	1/31/2005	05-01110	Thallium-208	LANL ER-130 Modified	5.03E-01	1.04E-01	1.04E-01	1.27E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
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05-011110

COC ID: EC node 6/7

## Chain of Custody Record



Page 1 of 1

Client DSHESite Name Bush River Rad YardContact Name Joe Gross

W. O.

Contact Phone No. 410-612-5900Lab Eberline ServicesLab Contact Mike McDougalTAT 3 daysLab Phone 865-481-0683Gross  
AlphaBeta,Gam  
ma Spec,ArsenicFiltered  
Container  
PreservativeI-L Poly  
COOL

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected
4	EC-N2-025-F-2-2-0	S		N	1/26/2005 13:10
5	EC-N6-001-W-1-1-0	S		N	1/26/2005 14:20
6	EC-N6-002-W-1-1-0	S		N	1/26/2005 14:30
7	EC-N6-003-F-1-1-0	S		N	1/26/2005 14:45
8	EC-N6-004-F-1-1-0	S		N	1/26/2005 15:00
9	EC-N7-001-F-1-1-0	S		N	1/26/2005 13:25
10	EC-N7-002-F-1-1-0	S		N	1/26/2005 13:35
11	EC-N7-003-W-1-1-0	S		N	1/26/2005 13:48
12	EC-N7-004-W-1-1-0	S		N	1/26/2005 13:55

Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

Lab Use Only

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

Relinquished By

Date / Time

Received By

Date / Time

Relinquished By

Date / Time

Received By

Date / Time

COC Tape was present on outer package Y N

COC Tape was unbroken on outer package Y N

COC Tape was present on sample Y N

COC Tape was unbroken on sample Y N

Received in good condition Y N

Labels indicate Properly Preserved Y N

Received within Holding Time Y N

RECEIVED  
JAN 27 2005  
10:00 AM  
JAN 27 2005





EBS-OR-22014

February 24, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-02089-OR

SAMPLE RECEIPT

This work order contains one soil sample received 02/17/05. This sample was analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N2-HAS-F-4-1-0	05-02089-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

*2<sup>nd</sup> Analytical Attempt:*

Sample was reanalyzed because results failed to meet laboratory QC requirements. Sample demonstrated near background equivalent results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated a slightly high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

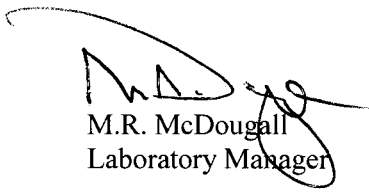
GAMMA SPECTROSCOPY

Sample demonstrated near background equivalent to only slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Sample demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/24/2005



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross				SDG:			05-02089						
Weston Solutions				Purchase Order:			0047329						
1309 Continental Drive, #M				Analysis Category:			ENVIRONMENTAL						
Abingdon, MD 21009				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02089-01	LCS	KNOWN	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-02089-01	LCS	KNOWN	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-02089-01	LCS	SPIKE	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cobalt-60	LANL ER-130 Modified	1.27E+02	6.94E+00	7.32E+00	9.67E-01	pCi/g
05-02089-01	LCS	SPIKE	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cesium-137	LANL ER-130 Modified	7.35E+01	5.83E+00	5.99E+00	8.77E-01	pCi/g
05-02089-02	MBL	BLANK	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cobalt-60	LANL ER-130 Modified	-1.54E-04	2.74E-02	2.74E-02	5.49E-02	pCi/g
05-02089-02	MBL	BLANK	02/17/05 00:00	2/17/2005	2/18/2005	05-02089	Cesium-137	LANL ER-130 Modified	-7.56E-04	2.83E-02	2.83E-02	5.59E-02	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Actinium-228	LANL ER-130 Modified	2.19E+00	3.25E-01	3.28E-01	3.96E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Bismuth-214	LANL ER-130 Modified	1.51E+00	2.33E-01	2.34E-01	1.77E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Cobalt-60	LANL ER-130 Modified	6.95E-03	6.03E-02	6.03E-02	1.11E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Cesium-137	LANL ER-130 Modified	1.41E-01	1.19E-01	1.19E-01	1.15E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Potassium-40	LANL ER-130 Modified	9.52E+00	1.74E+00	1.75E+00	9.61E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Lead-212	LANL ER-130 Modified	2.18E+00	2.53E-01	2.57E-01	1.64E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Lead-214	LANL ER-130 Modified	1.42E+00	2.05E-01	2.06E-01	2.05E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Thallium-208	LANL ER-130 Modified	1.89E+00	2.73E-01	2.75E-01	2.85E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Actinium-228	LANL ER-130 Modified	2.22E+00	3.56E-01	3.59E-01	3.22E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Bismuth-214	LANL ER-130 Modified	1.47E+00	2.43E-01	2.45E-01	1.81E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Cobalt-60	LANL ER-130 Modified	2.88E-02	5.88E-02	5.88E-02	1.13E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Cesium-137	LANL ER-130 Modified	2.46E-01	8.59E-02	8.60E-02	1.04E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Potassium-40	LANL ER-130 Modified	1.09E+01	1.76E+00	1.77E+00	9.07E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Lead-212	LANL ER-130 Modified	2.19E+00	2.50E-01	2.53E-01	1.67E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Lead-214	LANL ER-130 Modified	1.37E+00	1.97E-01	1.99E-01	2.00E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/18/2005	05-02089	Thallium-208	LANL ER-130 Modified	2.08E+00	2.94E-01	2.97E-01	3.06E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross				SDG:			05-02089						
Weston Solutions				Purchase Order:			0047329						
1309 Continental Drive, #M				Analysis Category:			ENVIRONMENTAL						
Abingdon, MD 21009				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02089-01	LCS	KNOWN	02/17/05 00:00	2/17/2005	2/22/2005	05-02089	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.25E+01			pCi/g
05-02089-01	LCS	SPIKE	02/17/05 00:00	2/17/2005	2/22/2005	05-02089	Gross Alpha	LANL MLR-100 Modified	3.12E+02	8.49E+00	2.30E+01	5.59E-01	pCi/g
05-02089-02	MBL	BLANK	02/17/05 00:00	2/17/2005	2/21/2005	05-02089	Gross Alpha	LANL MLR-100 Modified	6.04E-02	9.67E-02	9.67E-02	1.68E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/21/2005	05-02089	Gross Alpha	LANL MLR-100 Modified	9.75E-01	1.72E-01	1.84E-01	1.54E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/21/2005	05-02089	Gross Alpha	LANL MLR-100 Modified	1.20E+00	2.12E-01	2.28E-01	2.07E-01	pCi/g
05-02089-01	LCS	KNOWN	02/17/05 00:00	2/17/2005	2/22/2005	05-02089	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.43E+00			pCi/g
05-02089-01	LCS	SPIKE	02/17/05 00:00	2/17/2005	2/22/2005	05-02089	Gross Beta	LANL MLR-100 Modified	2.51E+02	6.71E+00	1.35E+01	1.14E+00	pCi/g
05-02089-02	MBL	BLANK	02/17/05 00:00	2/17/2005	2/21/2005	05-02089	Gross Beta	LANL MLR-100 Modified	1.53E-01	2.43E-01	2.43E-01	4.12E-01	pCi/g
05-02089-03	DUP	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/21/2005	05-02089	Gross Beta	LANL MLR-100 Modified	8.21E-01	1.59E-01	1.64E-01	2.19E-01	pCi/g
05-02089-04	DO	EC-N2-HSA-F-4-1-0	02/15/05 14:00	2/17/2005	2/21/2005	05-02089	Gross Beta	LANL MLR-100 Modified	9.69E-01	1.66E-01	1.72E-01	2.17E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



COC ID: EC Node 2-3

Client DSHESite Name Bush River Rad Yard

W. O.

Lab Eberline ServicesTAT 3 daysContact Name Joe GrossContact Phone No. 410-612-5900Lab Contact Mike McDougalLab Phone 865-481-0683

## Chain of Custody Record



Page 1 of 1

Gross  
AlphaBeta,Gam  
ma Spec,Arsenic

Filtered

Container

Preservative

Date-Time Collected

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected
	EC-N2-HSA-F-4-1-0	S		N	2/15/2005 14:00

1

## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

## Lab Use Only

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

Relinquished By

Date / Time

Received By

Date / Time

Relinquished By

Date / Time

Received By

Date / Time

COC Tape was present on outer package

COC Tape was unbroken on outer package

COC Tape was present on sample

COC Tape was unbroken on sample

Received in good condition

Labels indicate Properly Preserved

Received within Holding Time

Date / Time

Received By

Date / Time

Received By

Date / Time



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/25/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L840

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-HSA-F-4-1-0	Arsenic, Total	8.5	MG/KG	2.1	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/25/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L840

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0098-MB1	Arsenic, Total	0.29 u	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/25/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L840

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-HSA-F-4-1-0	Arsenic, Total	205	8.5	218	90.2	6.0
		Arsenic, Total MSD	230	8.5	241	91.7	6.0



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/25/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L840

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N2-HSA-F-4-1-0	Arsenic, Total	8.5	19.7	79.4	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/25/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L840

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0098-LC1	Arsenic, LCS	954	1000	MG/KG	95.4





**EBERLINE**  
SERVICES

EBS-OR-22006

February 22, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE

Work Order # 05-02069-OR

SAMPLE RECEIPT

This work order contains four soil samples received 02/14/05. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N3-001-F-1-1-0	05-02069-04	EC-N3-003-W-1-1-0	05-02069-06
EC-N3-002-F-1-1-0	05-02069-05	EC-N3-004-W-1-1-0	05-02069-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

*2<sup>nd</sup> Analytical Attempt:*

Samples were reanalyzed because the laboratory control sample failed to meet laboratory QC requirements. Samples demonstrated background equivalent to slightly positive results for Gross Alpha activity. Samples demonstrated slightly positive results for Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a slightly high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated background or non-detect equivalent to slightly positive results for Actinium-228 and Cesium-137 activity. Samples demonstrated background equivalent results for Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Bismuth-214 and Potassium-40 replicate



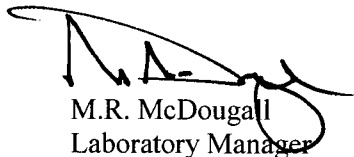
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY CONTINUED

demonstrated an acceptable relative percent difference and normalized difference. Results for the Cesium-137 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/22/2005



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To: **Work Order Details:**

**SDG:**  
**Purchase Order:**  
**Analysis Category:**  
**Sample Matrix:**

**05-02069**  
**0047329**  
**ENVIRONMENTAL**  
**SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02069-01	LCS	KNOWN	02/14/05 00:00	2/14/2005	2/18/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-02069-01	LCS	SPIKE	02/14/05 00:00	2/14/2005	2/18/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	2.96E+02	8.26E+00	2.19E+01	6.84E-01	pCi/g
05-02069-02	MBL	BLANK	02/14/05 00:00	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	-8.29E-02	9.53E-02	9.55E-02	2.15E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	5.31E+00	9.01E-01	9.72E-01	4.12E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	5.15E+00	9.68E-01	1.03E+00	8.02E-01	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	2.71E+00	7.77E-01	7.99E-01	9.08E-01	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	2.13E+00	6.74E-01	6.90E-01	7.60E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/17/2005	05-02069	Gross Alpha	LANL MLR-100 Modified	9.68E-01	5.31E-01	5.35E-01	7.29E-01	pCi/g
05-02069-01	LCS	KNOWN	02/14/05 00:00	2/14/2005	2/18/2005	05-02069	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.41E+00			pCi/g
05-02069-01	LCS	SPIKE	02/14/05 00:00	2/14/2005	2/18/2005	05-02069	Gross Beta	LANL MLR-100 Modified	2.37E+02	6.51E+00	1.28E+01	1.09E+00	pCi/g
05-02069-02	MBL	BLANK	02/14/05 00:00	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	7.21E-02	2.63E-01	2.63E-01	4.52E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	5.38E+00	9.79E-01	1.01E+00	1.30E+00	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	4.14E+00	9.63E-01	9.82E-01	1.36E+00	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	2.84E+00	9.38E-01	9.47E-01	1.42E+00	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	2.69E+00	9.10E-01	9.19E-01	1.38E+00	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/17/2005	05-02069	Gross Beta	LANL MLR-100 Modified	4.43E+00	9.70E-01	9.91E-01	1.36E+00	pCi/g
05-02069-01	LCS	KNOWN	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-02069-01	LCS	KNOWN	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-02069-01	LCS	SPIKE	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	1.29E+02	6.87E+00	7.28E+00	5.68E-01	pCi/g
05-02069-01	LCS	SPIKE	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	7.95E+01	8.38E+00	8.51E+00	4.78E-01	pCi/g
05-02069-02	MBL	BLANK	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	3.59E-03	1.31E-02	1.31E-02	2.60E-02	pCi/g
05-02069-02	MBL	BLANK	02/14/05 00:00	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	2.08E-02	2.02E-02	2.02E-02	2.87E-02	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample;MBL=Blank;DUP=Duplicate;TRG=Normal Sample;DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

Work Order Details:

**SDG:**  
**Purchase Order:**  
**Analysis Category:**  
**Sample Matrix:**

**05-02069**  
**0047329**  
**ENVIRONMENTAL**  
**SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Actinium-228	LANL ER-130 Modified	1.33E+00	3.32E-01	3.33E-01	4.03E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Bismuth-214	LANL ER-130 Modified	1.09E+00	2.35E-01	2.36E-01	2.08E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	1.48E-02	7.62E-02	7.62E-02	1.43E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	8.96E-03	6.57E-02	6.57E-02	1.23E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Potassium-40	LANL ER-130 Modified	1.18E+01	2.05E+00	2.06E+00	8.47E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Lead-212	LANL ER-130 Modified	1.51E+00	2.07E-01	2.09E-01	1.65E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Lead-214	LANL ER-130 Modified	9.61E-01	1.99E-01	2.00E-01	2.16E-01	pCi/g
05-02069-03	DUP	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Thallium-208	LANL ER-130 Modified	1.47E+00	2.90E-01	2.91E-01	3.29E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Actinium-228	LANL ER-130 Modified	1.56E+00	2.92E-01	2.93E-01	3.59E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Bismuth-214	LANL ER-130 Modified	1.19E+00	2.31E-01	2.32E-01	1.94E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	-5.78E-02	7.81E-02	7.81E-02	1.29E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	6.12E-03	6.21E-02	6.21E-02	1.17E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Potassium-40	LANL ER-130 Modified	1.12E+01	1.99E+00	2.00E+00	9.53E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Lead-212	LANL ER-130 Modified	1.56E+00	2.09E-01	2.11E-01	1.68E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Lead-214	LANL ER-130 Modified	9.81E-01	2.01E-01	2.02E-01	2.28E-01	pCi/g
05-02069-04	DO	EC-N3-001-F-1-1-0	02/10/05 15:30	2/14/2005	2/15/2005	05-02069	Thallium-208	LANL ER-130 Modified	1.09E+00	2.59E-01	2.60E-01	3.23E-01	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Actinium-228	LANL ER-130 Modified	1.03E+00	2.02E-01	2.03E-01	3.82E-01	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Bismuth-214	LANL ER-130 Modified	5.75E-01	1.17E-01	1.17E-01	9.40E-02	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	-4.69E-03	2.76E-02	2.76E-02	4.85E-02	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	1.75E+00	2.15E-01	2.17E-01	5.02E-02	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Potassium-40	LANL ER-130 Modified	7.19E+00	1.02E+00	1.03E+00	4.57E-01	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Lead-212	LANL ER-130 Modified	7.81E-01	1.04E-01	1.05E-01	8.70E-02	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Lead-214	LANL ER-130 Modified	6.48E-01	1.06E-01	1.07E-01	1.15E-01	pCi/g
05-02069-05	TRG	EC-N3-002-F-1-1-0	02/10/05 15:40	2/14/2005	2/15/2005	05-02069	Thallium-208	LANL ER-130 Modified	8.22E-01	1.29E-01	1.30E-01	1.30E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
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**Oak Ridge Laboratory**

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# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG: 05-02069  Purchase Order: 0047329  Analysis Category: ENVIRONMENTAL  Sample Matrix: SO						
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Actinium-228	LANL ER-130 Modified	1.27E+00	1.65E-01	1.66E-01	1.91E-01	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Bismuth-214	LANL ER-130 Modified	8.89E-01	1.24E-01	1.25E-01	1.05E-01	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	2.11E-02	3.60E-02	3.60E-02	6.58E-02	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	1.09E-01	7.51E-02	7.51E-02	5.32E-02	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Potassium-40	LANL ER-130 Modified	1.00E+01	1.18E+00	1.19E+00	4.47E-01	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Lead-212	LANL ER-130 Modified	1.32E+00	1.53E-01	1.55E-01	9.81E-02	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Lead-214	LANL ER-130 Modified	1.01E+00	1.25E-01	1.27E-01	1.11E-01	pCi/g
05-02069-06	TRG	EC-N3-003-W-1-1-0	02/10/05 15:45	2/14/2005	2/15/2005	05-02069	Thallium-208	LANL ER-130 Modified	1.13E+00	1.51E-01	1.53E-01	1.61E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0		2/14/2005	2/15/2005								
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Actinium-228	LANL ER-130 Modified	4.16E-01	2.21E-01	2.21E-01	3.67E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Bismuth-214	LANL ER-130 Modified	6.24E-01	1.35E-01	1.36E-01	1.47E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Cobalt-60	LANL ER-130 Modified	1.20E-02	3.70E-02	3.70E-02	7.10E-02	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Cesium-137	LANL ER-130 Modified	4.80E+00	5.46E-01	5.53E-01	7.67E-02	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Potassium-40	LANL ER-130 Modified	3.66E+00	8.79E-01	8.81E-01	6.03E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Lead-212	LANL ER-130 Modified	6.04E-01	1.16E-01	1.17E-01	1.20E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Lead-214	LANL ER-130 Modified	5.22E-01	1.52E-01	1.52E-01	1.72E-01	pCi/g
05-02069-07	TRG	EC-N3-004-W-1-1-0	02/10/05 15:50	2/14/2005	2/15/2005	05-02069	Thallium-208	LANL ER-130 Modified	5.84E-01	1.42E-01	1.42E-01	2.14E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N3-001-F-1-1-0	Arsenic, Total	15.6	MG/KG	2.0	6.0
-002	EC-N3-002-F-1-1-0	Arsenic, Total	42.5	MG/KG	2.0	6.0
-003	EC-N3-003-W-1-1-0	Arsenic, Total	222	MG/KG	1.9	6.0
-004	EC-N3-004-W-1-1-0	Arsenic, Total	85.3	MG/KG	1.9	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0085-MB1	Arsenic, Total	0.29 u	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N3-001-F-1-1-0	Arsenic, Total	214	15.6	225	88.0	6.0
		Arsenic, Total MSD	213	15.6	225	87.6	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		
			%RECOV	%RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N3-001-F-1-1-0	Arsenic, Total	88.0	87.6	0.46



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N3-001-F-1-1-0	Arsenic, Total	15.6	10.5	39.1	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/18/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L809

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0085-LC1	Arsenic, LCS	907	1000	MG/KG	90.7





EBS-OR-22096

March 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-03052-OR

SAMPLE RECEIPT

This work order contains two soil samples relogged 03/09/05 at the request of the client. Both samples were analyzed for Total Strontium and Gross Alpha/Beta.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
BC-B3-001-FS2-1-0-0	05-03052-04	BC-B3-001-FS3-1-0-0	05-03052-05

ANALYTICAL METHODS

Total Strontium was analyzed using EIChrOM Method SRW01 Modified. Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified.

ANALYTICAL RESULTS

TOTAL STRONTIUM

Samples demonstrated slightly positive results for Total Strontium activity. Samples demonstrated the presence of apparent dissolved metals during the digestion process. Samples were brown in color post digestions. Chemical recovery was acceptable for all samples. Results for the Total Strontium method blank demonstrated non-detect equivalent activity. Results for the Total Strontium replicate demonstrated a high relative percent difference and normalized difference. Sample matrix was somewhat problematic causing this condition. Results for the Total Strontium laboratory control sample demonstrated an acceptable percent recovery.

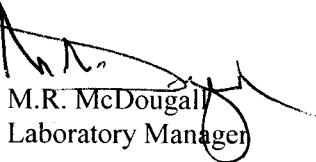
GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha activity. Samples demonstrated the presence of apparent dissolved metals during the digestion process. Samples were brown in color post digestions. Samples demonstrated slightly positive results for Gross Beta activity. Sample results demonstrated slightly high detection limits. This was directly related to apparent dissolved metals within these samples. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougal  
Laboratory Manager

Date: 3/14/2005



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
				Joe Gross			SDG:		05-03052				
				Weston Solutions			Purchase Order:		0047329				
				1309 Continental Drive, #M			Analysis Category:		ENVIRONMENTAL				
				Abingdon, MD 21009			Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03052-01	LCS	KNOWN	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g
05-03052-01	LCS	SPIKE	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	2.86E+02	8.13E+00	2.12E+01	3.62E-01	pCi/g
05-03052-02	MBL	BLANK	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	3.09E-02	1.81E-01	1.81E-01	3.71E-01	pCi/g
05-03052-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	1.99E+01	9.55E+00	9.65E+00	9.26E+00	pCi/g
05-03052-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	2.17E+01	1.20E+01	1.21E+01	1.55E+01	pCi/g
05-03052-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/9/2005	3/9/2005	05-03052	Gross Alpha	LANL MLR-100 Modified	4.15E+02	4.28E+01	5.14E+01	1.75E+01	pCi/g
05-03052-01	LCS	KNOWN	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.46E+00			pCi/g
05-03052-01	LCS	SPIKE	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	2.49E+02	6.68E+00	1.34E+01	1.07E+00	pCi/g
05-03052-02	MBL	BLANK	03/09/05 00:00	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	-8.99E-02	4.72E-01	4.72E-01	8.51E-01	pCi/g
05-03052-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	2.35E+02	2.00E+01	2.28E+01	1.41E+01	pCi/g
05-03052-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	2.60E+02	2.15E+01	2.47E+01	1.51E+01	pCi/g
05-03052-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/9/2005	3/9/2005	05-03052	Gross Beta	LANL MLR-100 Modified	6.83E+03	1.01E+02	3.33E+02	1.56E+01	pCi/g
05-03052-01	LCS	KNOWN	03/09/05 00:00	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	4.89E+01	2.74E-01			pCi/g
05-03052-01	LCS	SPIKE	03/09/05 00:00	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	4.62E+01	1.23E+00	5.02E+00	5.15E-01	pCi/g
05-03052-02	MBL	BLANK	03/09/05 00:00	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	-1.91E-01	2.79E-01	2.79E-01	5.06E-01	pCi/g
05-03052-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	4.49E+00	7.89E-01	9.20E-01	9.83E-01	pCi/g
05-03052-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	2.12E+00	3.76E-01	4.38E-01	4.76E-01	pCi/g
05-03052-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/9/2005	3/11/2005	05-03052	Total Strontium	EiChroM SRW01 Modified	7.26E+01	1.50E+00	7.79E+00	4.39E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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05-03052 05-03052 KAS 3/9/05

COC ID: sumps3.3.05

Client DSHE

Site Name Bush River Rad Yard

W. O.

Lab Eberline Services

TAT 3 days

Contact Name Joe Gross

Contact Phone No. 410-612-5900

Lab Contact Mike McDougal

Lab Phone 865-481-0683

# Chain of Custody Record



Gross AlphaBeta, Gamma Spec, Arsenic

Filtered Container Preservative

Lab ID Sample ID Matrix PID MS/MSD Date-Time Collected

BC-B3-001-FS2-1-0-0 S N 3/3/2005 13:45

BC-B3-001-FS3-1-0-0 S N 3/3/2005 14:15

EC-N4-001-F-1-1-0 S N 3/3/2005 11:00

RECEIVED MAR - 7 2005

## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

## Lab Use Only

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

Relinquished By

Date / Time

Received By

Date / Time

Relinquished By

Date / Time

Received By

Date / Time

COC Tape was present on outer package

COC Tape was unbroken on outer package

COC Tape was present on sample

COC Tape was unbroken on sample

Received in good condition

Labels indicate Properly Preserved

Received within Holding Time





EBS-OR-22105

March 16, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-03057-OR

SAMPLE RECEIPT

This work order contains nine soil samples received 03/10/05. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N3-005-W-1-1-0	05-03057-04	EC-N3-009-F-1-1-0	05-03057-09
EC-N3-006-W-1-1-0	05-03057-05	EC-N3-010-F-1-1-0	05-03057-10
EC-N3-007-W-1-1-0	05-03057-06	EC-N3-011-F-1-1-0	05-03057-11
EC-N3-007-W-1-1-1	05-03057-07	EC-N3-012-F-1-1-0	05-03057-12
EC-N3-008-W-1-1-1	05-03057-08		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha activity. Samples demonstrated background equivalent results for Gross Beta activity. Gross Beta results for some samples demonstrated slightly high detection limits. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Samples demonstrated non-detect equivalent to slightly positive results for Cesium-137 activity. Samples demonstrated near background equivalent results for Uranium and Thorium series radionuclides. Results for the Cobalt-60



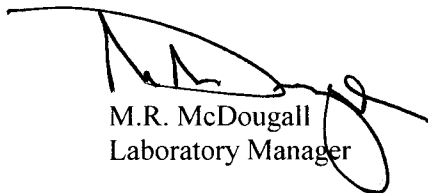
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY CONTINUED

and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Uranium and Thorium series radionuclides method blank demonstrated background equivalent activity. Results for the Cesium-137, Potassium-40 and Lead-214 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 3/16/2005



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-03057			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03057-01	LCS	KNOWN	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
05-03057-01	LCS	SPIKE	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	2.84E+02	4.60E+00	2.00E+01	2.75E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	6.14E-02	1.55E-01	1.55E-01	2.89E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	1.14E+00	1.28E+00	1.29E+00	2.04E+00	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	3.23E+00	1.86E+00	1.87E+00	2.32E+00	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	-1.41E+00	1.62E+00	1.62E+00	3.87E+00	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	1.08E+00	1.75E+00	1.75E+00	3.05E+00	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	2.71E+00	1.86E+00	1.87E+00	2.18E+00	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	3.45E+00	1.98E+00	1.99E+00	2.56E+00	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	1.64E+00	1.86E+00	1.86E+00	3.04E+00	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	2.78E+00	1.94E+00	1.95E+00	2.77E+00	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	5.09E+00	2.31E+00	2.33E+00	2.66E+00	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Gross Alpha	LANL MLR-100 Modified	4.10E+00	1.99E+00	2.01E+00	2.10E+00	pCi/g
05-03057-01	LCS	KNOWN	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.44E+00			pCi/g
05-03057-01	LCS	SPIKE	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	2.39E+02	3.74E+00	1.17E+01	5.45E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	4.04E-01	3.16E-01	3.16E-01	5.11E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	2.28E+00	3.00E+00	3.00E+00	5.06E+00	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	7.06E-01	3.07E+00	3.07E+00	5.35E+00	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	4.11E+00	2.80E+00	2.81E+00	4.47E+00	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	2.80E+00	3.03E+00	3.04E+00	5.06E+00	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	1.65E+00	3.57E+00	3.57E+00	6.11E+00	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	1.98E+00	3.11E+00	3.11E+00	5.27E+00	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	9.60E-02	3.45E+00	3.45E+00	6.05E+00	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	2.85E+00	3.12E+00	3.13E+00	5.21E+00	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	3.07E+00	3.30E+00	3.30E+00	5.51E+00	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Gross Beta	LANL MLR-100 Modified	3.57E+00	2.90E+00	2.91E+00	4.73E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:			05-03057						
				Purchase Order:			0047329						
				Analysis Category:			ENVIRONMENTAL						
				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03057-01	LCS	KNOWN	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-03057-01	LCS	KNOWN	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-03057-01	LCS	SPIKE	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.27E+02	6.91E+00	7.30E+00	9.69E-01	pCi/g
05-03057-01	LCS	SPIKE	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cesium-137	LANL ER-130 Modified	7.61E+01	6.03E+00	6.19E+00	8.57E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Actinium-228	LANL ER-130 Modified	-2.06E-02	7.81E-02	7.81E-02	1.48E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Bismuth-214	LANL ER-130 Modified	1.22E-01	9.27E-02	9.27E-02	1.34E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.55E-02	2.40E-02	2.40E-02	5.50E-02	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Cesium-137	LANL ER-130 Modified	3.04E-02	2.57E-02	2.57E-02	5.84E-02	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.97E-01	3.46E-01	3.46E-01	1.10E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Lead-212	LANL ER-130 Modified	-2.08E-02	3.61E-02	3.61E-02	6.42E-02	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Lead-214	LANL ER-130 Modified	2.32E-02	4.92E-02	4.92E-02	9.62E-02	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Thorium-234	LANL ER-130 Modified	-3.46E-01	4.30E-01	4.30E-01	7.54E-01	pCi/g
05-03057-02	MBL	BLANK	03/10/05 00:00	3/10/2005	3/14/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.16E-02	6.88E-02	6.88E-02	1.41E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	5.50E-01	1.22E-01	1.22E-01	1.69E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	4.04E-01	1.14E-01	1.14E-01	1.17E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	3.13E-02	3.01E-02	3.01E-02	5.98E-02	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	6.93E+00	7.53E-01	7.64E-01	5.89E-02	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.82E+00	6.84E-01	6.88E-01	4.74E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	5.02E-01	1.41E-01	1.41E-01	1.14E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	2.65E-01	1.08E-01	1.08E-01	1.85E-01	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	1.39E+00	1.16E+00	1.16E+00	1.15E+00	pCi/g
05-03057-03	DUP	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.61E-01	9.93E-02	9.95E-02	1.72E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Work Order Details:

**SDG: 05-03057**  
**Purchase Order: 0047329**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Report To:

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	4.57E-01	1.26E-01	1.26E-01	1.34E-01	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	3.97E-01	9.43E-02	9.45E-02	1.16E-01	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	4.70E-02	3.94E-02	3.94E-02	6.61E-02	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	6.67E+00	7.25E-01	7.35E-01	5.72E-02	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.59E+00	6.58E-01	6.62E-01	3.67E-01	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	5.02E-01	1.38E-01	1.38E-01	1.15E-01	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	3.36E-01	1.23E-01	1.23E-01	1.53E-01	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	4.75E-01	7.27E-01	7.27E-01	1.33E+00	pCi/g
05-03057-04	DO	EC-N3-005-W-1-1-0	03/09/05 13:00	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.76E-01	9.52E-02	9.55E-02	1.84E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	6.75E-01	3.72E-01	3.72E-01	5.52E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	5.63E-01	1.56E-01	1.56E-01	1.56E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	-2.28E-02	5.06E-02	5.06E-02	8.85E-02	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	1.68E+00	2.15E-01	2.17E-01	9.33E-02	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.55E+00	1.05E+00	1.05E+00	5.85E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	6.02E-01	1.85E-01	1.86E-01	1.51E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	3.65E-01	1.42E-01	1.43E-01	1.90E-01	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	3.52E-01	9.04E-01	9.04E-01	1.55E+00	pCi/g
05-03057-05	TRG	EC-N3-006-W-1-1-0	03/09/05 13:10	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.70E-01	1.39E-01	1.39E-01	2.46E-01	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	4.22E-01	1.05E-01	1.05E-01	1.31E-01	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	2.99E-01	6.68E-02	6.70E-02	9.78E-02	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.27E-02	2.36E-02	2.36E-02	4.53E-02	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	3.21E+00	3.59E-01	3.64E-01	4.53E-02	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.56E+00	5.97E-01	6.01E-01	2.82E-01	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	3.60E-01	1.00E-01	1.00E-01	8.37E-02	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	2.76E-01	7.65E-02	7.67E-02	1.07E-01	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	-8.96E-03	5.68E-01	5.68E-01	1.03E+00	pCi/g
05-03057-06	TRG	EC-N3-007-W-1-1-0	03/09/05 13:20	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.23E-01	7.60E-02	7.62E-02	1.28E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Work Order Details:

Eberline Services Final Report of Analysis				Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009			05-03057 SDG: Purchase Order: 0047329 Analysis Category: ENVIRONMENTAL Sample Matrix: SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	3.51E-01	1.78E-01	1.78E-01	3.68E-01	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	2.71E-01	1.30E-01	1.30E-01	2.23E-01	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	2.86E-02	3.62E-02	3.62E-02	8.07E-02	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	2.89E+00	2.97E-01	3.02E-01	7.95E-02	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	3.23E+00	9.14E-01	9.16E-01	5.65E-01	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	5.29E-01	1.52E-01	1.52E-01	1.23E-01	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	3.69E-01	1.99E-01	1.99E-01	2.32E-01	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	2.29E-03	8.19E-01	8.19E-01	1.38E+00	pCi/g
05-03057-07	TRG	EC-N3-007-W-1-1-1	03/09/05 13:30	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	3.38E-01	1.51E-01	1.51E-01	2.41E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	1.19E+00	1.90E-01	1.92E-01	2.16E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	9.98E-01	1.30E-01	1.31E-01	1.03E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.66E-03	4.50E-02	4.50E-02	6.98E-02	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	1.29E-01	6.33E-02	6.34E-02	6.51E-02	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	8.85E+00	1.20E+00	1.21E+00	4.59E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	1.24E+00	1.43E-01	1.45E-01	1.04E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	9.83E-01	1.13E-01	1.14E-01	1.15E-01	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	3.26E+00	1.41E+00	1.41E+00	1.32E+00	pCi/g
05-03057-08	TRG	EC-N3-008-W-1-1-1	03/09/05 13:40	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	9.08E-01	1.55E-01	1.56E-01	1.73E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	1.19E+00	4.49E-01	4.50E-01	7.51E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	9.17E-01	1.99E-01	2.00E-01	2.10E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	1.49E-03	5.52E-02	5.52E-02	1.07E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	1.55E+00	2.10E-01	2.12E-01	1.16E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	7.47E+00	1.71E+00	1.72E+00	8.62E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	1.15E+00	1.93E-01	1.95E-01	1.83E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	8.11E-01	2.18E-01	2.19E-01	2.41E-01	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	-1.73E-01	1.39E+00	1.39E+00	2.27E+00	pCi/g
05-03057-09	TRG	EC-N3-009-F-1-1-0	03/09/05 13:50	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	8.69E-01	2.03E-01	2.03E-01	3.37E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-03057

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	1.10E+00	2.12E-01	2.13E-01	2.08E-01	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	7.61E-01	1.31E-01	1.32E-01	1.26E-01	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	2.85E-03	3.95E-02	3.95E-02	7.02E-02	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	-3.44E-03	3.50E-02	3.50E-02	6.23E-02	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	1.03E+01	1.33E+00	1.35E+00	4.11E-01	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	1.23E+00	1.41E-01	1.43E-01	1.03E-01	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	8.72E-01	1.22E-01	1.23E-01	1.22E-01	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	2.43E+00	1.66E+00	1.66E+00	1.28E+00	pCi/g
05-03057-10	TRG	EC-N3-010-F-1-1-0	03/09/05 14:00	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	1.05E+00	1.61E-01	1.63E-01	1.68E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	1.60E+00	3.98E-01	3.99E-01	7.19E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	9.00E-01	1.96E-01	1.97E-01	1.69E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	-2.25E-02	4.85E-02	4.85E-02	8.45E-02	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	2.17E-02	6.21E-02	6.21E-02	1.15E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	1.03E+01	1.71E+00	1.72E+00	8.44E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	1.25E+00	1.75E-01	1.76E-01	1.47E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	8.96E-01	1.61E-01	1.62E-01	1.82E-01	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	1.17E+00	1.23E+00	1.23E+00	2.07E+00	pCi/g
05-03057-11	TRG	EC-N3-011-F-1-1-0	03/09/05 14:15	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	1.20E+00	2.44E-01	2.45E-01	2.75E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Actinium-228	LANL ER-130 Modified	7.24E-01	2.26E-01	2.28E-01	2.42E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Bismuth-214	LANL ER-130 Modified	6.20E-01	1.65E-01	1.65E-01	1.56E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Cobalt-60	LANL ER-130 Modified	4.76E-02	5.04E-02	5.04E-02	1.02E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Cesium-137	LANL ER-130 Modified	3.82E+00	4.53E-01	4.58E-01	9.57E-02	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Potassium-40	LANL ER-130 Modified	5.34E+00	1.05E+00	1.06E+00	7.91E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Lead-212	LANL ER-130 Modified	8.70E-01	1.42E-01	1.42E-01	1.44E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Lead-214	LANL ER-130 Modified	6.36E-01	1.62E-01	1.62E-01	1.96E-01	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Thorium-234	LANL ER-130 Modified	7.05E-01	1.09E+00	1.09E+00	1.95E+00	pCi/g
05-03057-12	TRG	EC-N3-012-F-1-1-0	03/09/05 14:25	3/10/2005	3/11/2005	05-03057	Thallium-208	LANL ER-130 Modified	5.61E-01	1.46E-01	1.47E-01	2.41E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/17/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L985

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N3-005-W-1-1-0	Arsenic, Total	157	MG/KG	1.9	6.0
-002	EC-N3-006-W-1-1-0	Arsenic, Total	94.0	MG/KG	1.6	6.0
-003	EC-N3-007-W-1-1-0	Arsenic, Total	19.8	MG/KG	1.9	6.0
-004	EC-N3-008-W-1-1-1	Arsenic, Total	20.7	MG/KG	1.8	6.0
-005	EC-N3-009-W-1-1-0	Arsenic, Total	59.9	MG/KG	2.1	6.0
-006	EC-N3-010-W-1-1-0	Arsenic, Total	32.7	MG/KG	2.0	6.0
-007	EC-N3-011-W-1-1-0	Arsenic, Total	13.7	MG/KG	1.9	6.0
-008	EC-N3-012-W-1-1-0	Arsenic, Total	69.9	MG/KG	1.6	6.0
-009	EC-N3-007-W-1-1-1	Arsenic, Total	20.0	MG/KG	1.8	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/17/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L985

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
=====	=====	=====	=====	=====	=====
-001	EC-N3-005-W-1-1-0	Arsenic, Total	87.8	91.0	3.6



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/17/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L985

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N3-005-W-1-1-0	Arsenic, Total	157	167	6.3	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/17/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L985

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0131-LC1	Arsenic, LCS	959	1000	MG/KG	95.9





EBS-OR-22181

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-03156-OR

SAMPLE RECEIPT

This work order contains nine soil samples received 3/30/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N3-013-W-1-1-0	05-03156-04	EC-N4-002-F-1-1-0	05-03156-09
EC-N3-014-F-1-1-0	05-03156-05	EC-N4-002-F-1-1-1	05-03156-10
EC-N3-014-F-1-1-1	05-03156-06	EC-N4-003-W-1-1-0	05-03156-11
EC-N3-015-W-1-1-0	05-03156-07	EC-N4-004-F-1-1-0	05-03156-12
EC-N3-016-F-1-1-0	05-03156-08		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated background equivalent to only slightly positive results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, non-detect equivalent results for Cobalt-60 activity, and non-detect equivalent to slightly positive results for Cesium-137 activity. Sample fraction -08 (Client ID: EC-N3-016-F-1-1-0) demonstrated a negative result for Cesium-137 activity. This appeared to be related to the non-identified nuclides algorithm used by the Canberra,



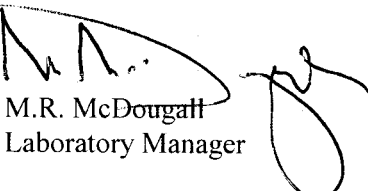
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

Pro-Count software. This sample did not contain any positive Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cobalt-60 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Cesium-137 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:			05-03156						
				Purchase Order:			0047329						
				Analysis Category:			ENVIRONMENTAL						
				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03156-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-03156-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	2.98E+02	8.47E+00	2.21E+01	6.31E-01	pCi/g
05-03156-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	6.96E-02	8.49E-02	8.51E-02	1.40E-01	pCi/g
05-03156-03	DUP	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	3.18E+00	1.11E+00	1.13E+00	1.10E+00	pCi/g
05-03156-04	TRG	EC-N3-013-W-1-1-0	03/21/05 10:00	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	2.15E+00	1.05E+00	1.06E+00	1.33E+00	pCi/g
05-03156-05	TRG	EC-N3-014-F-1-1-0	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	2.93E+00	1.26E+00	1.28E+00	1.58E+00	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	5.14E+00	1.37E+00	1.41E+00	1.34E+00	pCi/g
05-03156-07	TRG	EC-N3-015-W-1-1-0	03/21/05 10:35	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	1.88E+00	1.08E+00	1.09E+00	1.56E+00	pCi/g
05-03156-08	TRG	EC-N3-016-F-1-1-0	03/09/05 10:48	3/30/2005	3/31/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	4.18E+00	1.39E+00	1.42E+00	1.54E+00	pCi/g
05-03156-09	TRG	EC-N4-002-F-1-1-0	03/21/05 11:15	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	3.04E+00	1.51E+00	1.54E+00	1.43E+00	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	3.14E+00	1.46E+00	1.47E+00	1.78E+00	pCi/g
05-03156-11	TRG	EC-N4-003-W-1-1-0	03/21/05 11:35	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	2.15E+00	1.28E+00	1.29E+00	1.69E+00	pCi/g
05-03156-12	DO	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	4/1/2005	05-03156	Gross Alpha	LANL MLR-100 Modified	1.52E+00	1.73E+00	1.73E+00	2.87E+00	pCi/g
05-03156-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.40E+00			pCi/g
05-03156-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.48E+02	6.80E+00	1.34E+01	1.05E+00	pCi/g
05-03156-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.78E-01	2.44E-01	2.44E-01	4.03E-01	pCi/g
05-03156-03	DUP	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	5.05E+00	1.76E+00	1.77E+00	2.68E+00	pCi/g
05-03156-04	TRG	EC-N3-013-W-1-1-0	03/21/05 10:00	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.50E+00	1.85E+00	1.86E+00	3.04E+00	pCi/g
05-03156-05	TRG	EC-N3-014-F-1-1-0	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	3.23E+00	1.83E+00	1.84E+00	2.94E+00	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	3.99E+00	1.72E+00	1.73E+00	2.69E+00	pCi/g
05-03156-07	TRG	EC-N3-015-W-1-1-0	03/21/05 10:35	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	3.95E+00	1.59E+00	1.60E+00	2.46E+00	pCi/g
05-03156-08	TRG	EC-N3-016-F-1-1-0	03/09/05 10:48	3/30/2005	3/31/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.42E+00	1.71E+00	1.72E+00	2.79E+00	pCi/g
05-03156-09	TRG	EC-N4-002-F-1-1-0	03/21/05 11:15	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	4.80E+00	2.35E+00	2.37E+00	3.71E+00	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	9.00E-01	2.09E+00	2.09E+00	3.58E+00	pCi/g
05-03156-11	TRG	EC-N4-003-W-1-1-0	03/21/05 11:35	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	5.82E+00	2.20E+00	2.21E+00	3.32E+00	pCi/g
05-03156-12	DO	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	4/1/2005	05-03156	Gross Beta	LANL MLR-100 Modified	2.43E+00	2.12E+00	2.12E+00	3.49E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-03156			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03156-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-03156-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-03156-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	1.26E+02	6.86E+00	7.24E+00	7.80E-01	pCi/g
05-03156-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	7.75E+01	8.20E+00	8.32E+00	6.71E-01	pCi/g
05-03156-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	8.80E-03	1.82E-02	1.82E-02	4.35E-02	pCi/g
05-03156-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	2.63E-02	3.08E-02	3.08E-02	5.46E-02	pCi/g
05-03156-03	DUP	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	-5.98E-03	3.54E-02	3.54E-02	6.06E-02	pCi/g
05-03156-03	DUP	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	6.14E-01	1.19E-01	1.20E-01	4.90E-02	pCi/g
05-03156-04	TRG	EC-N3-013-W-1-1-0	03/21/05 10:00	3/30/2005	4/1/2005	05-03156	Cobalt-60	LANL ER-130 Modified	3.27E-03	3.92E-02	3.92E-02	6.86E-02	pCi/g
05-03156-04	TRG	EC-N3-013-W-1-1-0	03/21/05 10:00	3/30/2005	4/1/2005	05-03156	Cesium-137	LANL ER-130 Modified	1.62E+00	2.20E-01	2.22E-01	5.71E-02	pCi/g
05-03156-05	TRG	EC-N3-014-F-1-1-0	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	-5.14E-02	3.90E-02	3.90E-02	5.68E-02	pCi/g
05-03156-05	TRG	EC-N3-014-F-1-1-0	03/21/05 10:15	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	-1.89E-01	6.45E-02	6.46E-02	7.31E-02	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Actinium-228	LANL ER-130 Modified	1.53E+00	2.30E-01	2.31E-01	2.60E-01	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Bismuth-214	LANL ER-130 Modified	9.49E-01	1.62E-01	1.63E-01	1.34E-01	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Cobalt-60	LANL ER-130 Modified	-2.92E-03	4.31E-02	4.31E-02	7.65E-02	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Cesium-137	LANL ER-130 Modified	1.16E-01	8.82E-02	8.82E-02	7.14E-02	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Potassium-40	LANL ER-130 Modified	1.17E+01	1.53E+00	1.54E+00	6.90E-01	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Lead-212	LANL ER-130 Modified	1.41E+00	1.63E-01	1.65E-01	1.15E-01	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Lead-214	LANL ER-130 Modified	1.02E+00	1.52E-01	1.53E-01	1.37E-01	pCi/g
05-03156-06	TRG	EC-N3-014-F-1-1-1	03/21/05 10:15	3/30/2005	4/1/2005	05-03156	Thallium-208	LANL ER-130 Modified	1.30E+00	1.88E-01	1.90E-01	2.10E-01	pCi/g
05-03156-07	TRG	EC-N3-015-W-1-1-0	03/21/05 10:35	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	2.16E-02	2.87E-02	2.87E-02	5.72E-02	pCi/g
05-03156-07	TRG	EC-N3-015-W-1-1-0	03/21/05 10:35	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	1.87E+00	2.40E-01	2.43E-01	5.50E-02	pCi/g
05-03156-08	TRG	EC-N3-016-F-1-1-0	03/09/05 10:48	3/30/2005	4/1/2005	05-03156	Cobalt-60	LANL ER-130 Modified	-1.66E-02	5.62E-02	5.62E-02	9.82E-02	pCi/g
05-03156-08	TRG	EC-N3-016-F-1-1-0	03/09/05 10:48	3/30/2005	4/1/2005	05-03156	Cesium-137	LANL ER-130 Modified	-5.48E+00	4.78E-01	4.89E-01	1.43E-01	pCi/g
05-03156-08	TRG	EC-N3-016-F-1-1-0	03/09/05 10:48	3/30/2005	4/1/2005	05-03156	Potassium-40	LANL ER-130 Modified	4.29E+00	1.61E+00	1.61E+00	5.77E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services			Report To:				Work Order Details:						
Final Report of Analysis			Joe Gross				SDG:		05-03156				
			Weston Solutions				Purchase Order:		0047329				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03156-09	TRG	EC-N4-002-F-1-1-0	03/21/05 11:15	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	9.54E-03	4.43E-02	4.43E-02	7.88E-02	pCi/g
05-03156-09	TRG	EC-N4-002-F-1-1-0	03/21/05 11:15	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	-2.80E-01	7.54E-02	7.56E-02	7.31E-02	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Actinium-228	LANL ER-130 Modified	1.37E+00	2.77E-01	2.78E-01	3.02E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Bismuth-214	LANL ER-130 Modified	7.35E-01	1.93E-01	1.93E-01	1.88E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	6.84E-03	5.65E-02	5.65E-02	1.04E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	-5.22E-02	5.58E-02	5.58E-02	9.46E-02	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Potassium-40	LANL ER-130 Modified	1.31E+01	1.84E+00	1.86E+00	7.37E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Lead-212	LANL ER-130 Modified	1.59E+00	2.40E-01	2.41E-01	1.45E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Lead-214	LANL ER-130 Modified	9.55E-01	1.70E-01	1.71E-01	1.65E-01	pCi/g
05-03156-10	TRG	EC-N4-002-F-1-1-1	03/21/05 11:25	3/30/2005	3/31/2005	05-03156	Thallium-208	LANL ER-130 Modified	1.21E+00	2.27E-01	2.28E-01	2.54E-01	pCi/g
05-03156-11	TRG	EC-N4-003-W-1-1-0	03/21/05 11:35	3/30/2005	4/1/2005	05-03156	Cobalt-60	LANL ER-130 Modified	2.03E-02	3.77E-02	3.77E-02	6.94E-02	pCi/g
05-03156-11	TRG	EC-N4-003-W-1-1-0	03/21/05 11:35	3/30/2005	4/1/2005	05-03156	Cesium-137	LANL ER-130 Modified	5.70E+00	6.29E-01	6.38E-01	4.93E-02	pCi/g
05-03156-12	DO	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Cobalt-60	LANL ER-130 Modified	1.82E-02	3.25E-02	3.25E-02	6.11E-02	pCi/g
05-03156-12	DO	EC-N4-004-F-1-1-0	03/21/05 11:45	3/30/2005	3/31/2005	05-03156	Cesium-137	LANL ER-130 Modified	7.06E-01	1.19E-01	1.20E-01	5.58E-02	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N3-013-W-1-1-0	Arsenic, Total	9.1	MG/KG	1.9	6.0
-002	EC-N3-014-F-1-1-0	Arsenic, Total	2.9	MG/KG	1.8	6.0
-003	EC-N3-014-F-1-1-0	Arsenic, Total	3.3	MG/KG	1.8	6.0
-004	EC-N3-015-W-1-1-0	Arsenic, Total	7.0	MG/KG	1.9	6.0
-005	EC-N3-016-F-1-1-0	Arsenic, Total	2.5	MG/KG	1.9	6.0
-006	EC-N4-002-F-1-1-0	Arsenic, Total	9.6	MG/KG	1.8	6.0
-007	EC-N4-002-F-1-1-0	Arsenic, Total	8.4	MG/KG	1.9	6.0
-008	EC-N4-003-W-1-1-0	Arsenic, Total	14.4	MG/KG	1.7	6.0
-009	EC-N4-004-F-1-1-0	Arsenic, Total	6.7	MG/KG	1.9	6.0
-010	EC-N4-005-W-1-1-0	Arsenic, Total	46.6	MG/KG	2.0	6.0
-011	EC-N4-006-F-1-1-0	Arsenic, Total	53.1	MG/KG	1.8	6.0
-012	EC-N4-007-W-1-1-0	Arsenic, Total	2.4	MG/KG	1.9	6.0
-013	EC-N4-008-F-1-1-0	Arsenic, Total	8.6	MG/KG	1.9	6.0
-014	EC-N4-009-W-1-1-0	Arsenic, Total	39.6	MG/KG	1.9	6.0
-015	EC-N4-010-W-1-1-0	Arsenic, Total	23.8	MG/KG	1.7	6.0
-016	EC-N4-011-F-1-1-0	Arsenic, Total	3.3	MG/KG	1.8	6.0
-017	EC-N4-012-W-1-1-0	Arsenic, Total	19.0	MG/KG	2.0	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0175-MB1	Arsenic, Total	0.29 u	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N3-013-W-1-1-0	Arsenic, Total	204	9.1	212	91.8	6.0
		Arsenic, Total MSD	206	9.1	216	91.1	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N3-013-W-1-1-0	Arsenic, Total	91.8	91.1	0.85



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N3-013-W-1-1-0	Arsenic, Total	9.1	15.9	54.4	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/05/05

CLIENT: EBERLINE SERVICES - WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L121

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0175-LC1	Arsenic, LCS	955	1000	MG/KG	95.5





EBS-OR-22470

May 26, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-05086-OR

SAMPLE RECEIPT

This work order contains one soil sample received 05/20/05. This sample was analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N3-017-W-1-1-0	05-05086-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Sample demonstrated near background equivalent results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

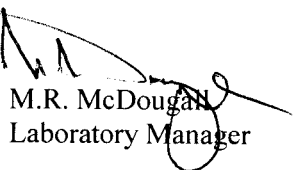
GAMMA SPECTROSCOPY

Sample demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Sample demonstrated non-detect equivalent results for Cobalt-60 and Cesium-137 activity. Results for the method blank demonstrated non-detect equivalent activity for all gamma-emitting radionuclides as reported. Results for the Actinium-228, Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougal  
Laboratory Manager

Date: 5/26/2005



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Work Order Details:

Eberline Services				Joe Gross		SDG: 05-05086							
Final Report of Analysis				Weston Solutions		Purchase Order: 0047329							
				1309 Continental Drive, #M		Analysis Category: ENVIRONMENTAL							
				Abingdon, MD 21009		Sample Matrix: SO							
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05086-01	LCS	KNOWN	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g
05-05086-01	LCS	SPIKE	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Gross Alpha	LANL MLR-100 Modified	3.16E+02	8.50E+00	2.33E+01	6.00E-01	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/20/2005	05-05086	Gross Alpha	LANL MLR-100 Modified	-1.39E-01	9.12E-02	9.17E-02	2.23E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/20/2005	05-05086	Gross Alpha	LANL MLR-100 Modified	5.27E+00	1.00E+00	1.07E+00	1.36E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/20/2005	05-05086	Gross Alpha	LANL MLR-100 Modified	5.12E+00	1.12E+00	1.18E+00	9.74E-01	pCi/g
05-05086-01	LCS	KNOWN	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g
05-05086-01	LCS	SPIKE	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Gross Beta	LANL MLR-100 Modified	2.55E+02	6.71E+00	1.36E+01	1.07E+00	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/20/2005	05-05086	Gross Beta	LANL MLR-100 Modified	1.49E-01	2.17E-01	2.17E-01	3.66E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/20/2005	05-05086	Gross Beta	LANL MLR-100 Modified	4.26E+00	1.26E+00	1.28E+00	1.87E+00	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/20/2005	05-05086	Gross Beta	LANL MLR-100 Modified	4.40E+00	1.26E+00	1.27E+00	1.85E+00	pCi/g
05-05086-01	LCS	KNOWN	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-05086-01	LCS	KNOWN	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-05086-01	LCS	SPIKE	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cobalt-60	LANL ER-130 Modified	1.24E+02	6.78E+00	7.16E+00	9.53E-01	pCi/g
05-05086-01	LCS	SPIKE	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cesium-137	LANL ER-130 Modified	7.35E+01	5.83E+00	5.99E+00	8.44E-01	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Actinium-228	LANL ER-130 Modified	-3.39E-02	8.62E-02	8.62E-02	1.65E-01	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Bismuth-214	LANL ER-130 Modified	-1.17E-02	5.53E-02	5.53E-02	1.02E-01	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cobalt-60	LANL ER-130 Modified	-6.74E-03	2.09E-02	2.09E-02	4.01E-02	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Cesium-137	LANL ER-130 Modified	8.89E-03	2.51E-02	2.51E-02	5.17E-02	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Lead-212	LANL ER-130 Modified	-3.79E-03	3.65E-02	3.65E-02	6.78E-02	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Lead-214	LANL ER-130 Modified	-1.32E-02	4.79E-02	4.79E-02	8.75E-02	pCi/g
05-05086-02	MBL	BLANK	05/20/05 00:00	5/20/2005	5/23/2005	05-05086	Thallium-208	LANL ER-130 Modified	-6.47E-02	7.43E-02	7.43E-02	1.23E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Actinium-228	LANL ER-130 Modified	1.99E+00	2.59E-01	2.61E-01	2.95E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Bismuth-214	LANL ER-130 Modified	1.22E+00	2.01E-01	2.02E-01	1.49E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Cobalt-60	LANL ER-130 Modified	3.23E-02	5.63E-02	5.63E-02	1.02E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Cesium-137	LANL ER-130 Modified	-2.66E-02	4.81E-02	4.81E-02	7.99E-02	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Potassium-40	LANL ER-130 Modified	2.05E+01	2.31E+00	2.34E+00	5.99E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Lead-212	LANL ER-130 Modified	2.13E+00	2.19E-01	2.23E-01	1.32E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Lead-214	LANL ER-130 Modified	1.46E+00	1.75E-01	1.77E-01	1.58E-01	pCi/g
05-05086-03	DUP	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Thallium-208	LANL ER-130 Modified	1.63E+00	2.25E-01	2.27E-01	2.39E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross				SDG:				05-05086					
Weston Solutions				Purchase Order:				0047329					
1309 Continental Drive, #M				Analysis Category:				ENVIRONMENTAL					
Abingdon, MD 21009				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Actinium-228	LANL ER-130 Modified	1.96E+00	2.62E-01	2.65E-01	2.66E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Bismuth-214	LANL ER-130 Modified	1.32E+00	1.97E-01	1.99E-01	1.42E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Cobalt-60	LANL ER-130 Modified	1.14E-02	4.97E-02	4.97E-02	8.88E-02	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Cesium-137	LANL ER-130 Modified	-1.55E-02	5.23E-02	5.23E-02	8.86E-02	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Potassium-40	LANL ER-130 Modified	1.86E+01	2.14E+00	2.18E+00	6.16E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Lead-212	LANL ER-130 Modified	1.89E+00	2.09E-01	2.12E-01	1.41E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Lead-214	LANL ER-130 Modified	1.27E+00	1.78E-01	1.79E-01	1.59E-01	pCi/g
05-05086-04	DO	EC-N3-017-W-1-1-0	05/19/05 10:00	5/20/2005	5/23/2005	05-05086	Thallium-208	LANL ER-130 Modified	1.56E+00	2.30E-01	2.31E-01	2.33E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/11/05

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L937

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N4-001-F-1-1-0	Arsenic, Total	2.9	MG/KG	1.5	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/11/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L937

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0123-MB1	Arsenic, Total	0.29 u	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/11/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L937

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N4-001-F-1-1-0	Arsenic, Total	170	2.9	195	85.6	6.0
		Arsenic, Total MSD	196	2.9	217	89.4	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/11/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L937

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N4-001-F-1-1-0	Arsenic, Total	85.6	89.4	4.3



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/11/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0503L937

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N4-001-F-1-1-0	Arsenic, Total	2.9	4.1	34.3	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/11/05

CLIENT: EBERLINE-WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0503L937

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0123-LC1	Arsenic, LCS	942	1000	MG/KG	94.2





EBS-OR-22182

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-03157-OR

SAMPLE RECEIPT

This work order contains nine soil samples received 3/30/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N4-005-W-1-1-0	05-03157-04	EC-N4-010-W-1-1-0	05-03157-09
EC-N4-006-F-1-1-0	05-03157-05	EC-N4-011-F-1-1-0	05-03157-10
EC-N4-007-W-1-1-0	05-03157-06	EC-N4-012-W-1-1-0	05-03157-11
EC-N4-008-F-1-1-0	05-03157-07	SS-032905-01	05-03157-12
EC-N4-009-W-1-1-0	05-03157-08		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated background equivalent to slightly positive results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214, Thallium-208 and Thorium-234 activity, non-detect equivalent results for Cobalt-60 activity, and non-detect equivalent to slightly positive results for Cesium-137 activity. Cesium-137 results for sample fraction -11 (Client ID: EC-N4-012-W-1-1-0) and Cobalt-60



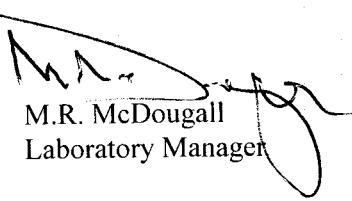
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

results for sample fraction -08 (Client ID: EC-N4-009-W-1-1-0) demonstrated slightly high detection limits. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Lead-212 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross			SDG:		05-03157					
			Weston Solutions			Purchase Order:		0047329					
			1309 Continental Drive, #M			Analysis Category:		ENVIRONMENTAL					
			Abingdon, MD 21009			Sample Matrix:		SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03157-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-03157-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	2.92E+02	8.12E+00	2.16E+01	5.91E-01	pCi/g
05-03157-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	8.23E-02	7.54E-02	7.56E-02	1.11E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	4.53E+00	1.55E+00	1.58E+00	1.64E+00	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	3.27E+00	1.64E+00	1.66E+00	2.31E+00	pCi/g
05-03157-05	TRG	EC-N4-006-F-1-1-0	03/21/05 13:05	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	3.09E+00	1.01E+00	1.04E+00	8.14E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	4.70E+00	1.09E+00	1.14E+00	1.81E-01	pCi/g
05-03157-07	TRG	EC-N4-008-F-1-1-0	03/21/05 13:25	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	5.99E+00	1.49E+00	1.55E+00	2.64E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	6.42E+00	1.68E+00	1.71E+00	1.33E+00	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	1.84E+00	1.01E+00	1.02E+00	1.38E+00	pCi/g
05-03157-10	TRG	EC-N4-011-F-1-1-0	03/21/05 14:10	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	3.64E+00	1.05E+00	1.07E+00	7.55E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	3.22E+00	2.40E+00	2.41E+00	3.74E+00	pCi/g
05-03157-12	TRG	SS-032905-01	03/29/05 09:00	3/30/2005	3/31/2005	05-03157	Gross Alpha	LANL MLR-100 Modified	2.87E+00	9.98E-01	1.02E+00	8.37E-01	pCi/g
05-03157-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Gross Beta	LANL MLR-100 Modified	2.46E+02	7.39E+00			pCi/g
05-03157-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Gross Beta	LANL MLR-100 Modified	2.49E+02	6.61E+00	1.33E+01	9.63E-01	pCi/g
05-03157-02	MBL	BLANK	03/30/05 00:00	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	3.03E-01	2.22E-01	2.22E-01	3.62E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	2.21E+00	1.65E+00	1.65E+00	2.69E+00	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	4.04E+00	1.75E+00	1.76E+00	2.72E+00	pCi/g
05-03157-05	TRG	EC-N4-006-F-1-1-0	03/21/05 13:05	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	3.07E+00	1.57E+00	1.58E+00	2.49E+00	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	5.22E+00	1.54E+00	1.56E+00	2.27E+00	pCi/g
05-03157-07	TRG	EC-N4-008-F-1-1-0	03/21/05 13:25	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	4.85E+00	2.01E+00	2.02E+00	3.15E+00	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	5.87E+00	1.99E+00	2.01E+00	3.05E+00	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	9.48E+00	1.75E+00	1.81E+00	2.32E+00	pCi/g
05-03157-10	TRG	EC-N4-011-F-1-1-0	03/21/05 14:10	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	3.89E+00	1.57E+00	1.58E+00	2.43E+00	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	2.01E+01	2.51E+00	2.67E+00	3.04E+00	pCi/g
05-03157-12	TRG	SS-032905-01	03/29/05 09:00	3/30/2005	3/31/2005	05-03157	Gross Beta	LANL MLR-100 Modified	2.64E+00	1.61E+00	1.61E+00	2.59E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To: Work Order Details:

Eberline Services Final Report of Analysis				Joe Gross		SDG: 05-03157							
				Weston Solutions		Purchase Order: 0047329							
				1309 Continental Drive, #M		Analysis Category: ENVIRONMENTAL							
				Abingdon, MD 21009		Sample Matrix: SO							
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03157-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-03157-01	LCS	KNOWN	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-03157-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	1.26E+02	6.83E+00	7.22E+00	7.88E-01	pCi/g
05-03157-01	LCS	SPIKE	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	7.64E+01	8.08E+00	8.20E+00	6.62E-01	pCi/g
05-03157-02	MBL	BLANK	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	-2.32E-03	2.02E-02	2.02E-02	3.88E-02	pCi/g
05-03157-02	MBL	BLANK	03/30/05 00:00	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	-4.07E+00	3.50E-01	3.58E-01	4.11E-02	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Actinium-228	LANL ER-130 Modified	9.42E-01	1.54E-01	1.54E-01	1.79E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Bismuth-214	LANL ER-130 Modified	4.42E-01	1.12E-01	1.12E-01	1.01E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Cobalt-60	LANL ER-130 Modified	1.00E-02	3.22E-02	3.22E-02	5.90E-02	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Cesium-137	LANL ER-130 Modified	2.18E-01	7.98E-02	7.98E-02	5.75E-02	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Potassium-40	LANL ER-130 Modified	8.40E+00	1.08E+00	1.09E+00	4.60E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Lead-212	LANL ER-130 Modified	1.06E+00	1.46E-01	1.47E-01	7.69E-02	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Lead-214	LANL ER-130 Modified	5.48E-01	9.92E-02	9.97E-02	1.01E-01	pCi/g
05-03157-03	DUP	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Thallium-208	LANL ER-130 Modified	8.11E-01	1.40E-01	1.41E-01	1.41E-01	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Actinium-228	LANL ER-130 Modified	9.53E-01	1.78E-01	1.79E-01	1.79E-01	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Bismuth-214	LANL ER-130 Modified	5.49E-01	1.15E-01	1.15E-01	1.01E-01	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Cobalt-60	LANL ER-130 Modified	-1.21E-03	3.29E-02	3.29E-02	5.82E-02	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Cesium-137	LANL ER-130 Modified	2.26E-01	7.05E-02	7.06E-02	5.21E-02	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Potassium-40	LANL ER-130 Modified	8.46E+00	1.05E+00	1.06E+00	4.30E-01	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Lead-212	LANL ER-130 Modified	1.01E+00	1.41E-01	1.42E-01	8.20E-02	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Lead-214	LANL ER-130 Modified	4.90E-01	9.97E-02	1.00E-01	1.05E-01	pCi/g
05-03157-04	DO	EC-N4-005-W-1-1-0	03/21/05 12:00	3/30/2005	3/31/2005	05-03157	Thallium-208	LANL ER-130 Modified	6.56E-01	1.22E-01	1.23E-01	1.56E-01	pCi/g
05-03157-05	TRG	EC-N4-006-F-1-1-0	03/21/05 13:05	3/30/2005	3/31/2005	05-03157	Cobalt-60	LANL ER-130 Modified	6.50E-05	1.95E-02	1.95E-02	3.38E-02	pCi/g
05-03157-05	TRG	EC-N4-006-F-1-1-0	03/21/05 13:05	3/30/2005	3/31/2005	05-03157	Cesium-137	LANL ER-130 Modified	1.14E+00	1.47E-01	1.49E-01	3.49E-02	pCi/g
05-03157-05	TRG	EC-N4-006-F-1-1-0	03/21/05 13:05	3/30/2005	3/31/2005	05-03157	Thorium-234	LANL ER-130 Modified	1.91E+00	8.48E-01	8.49E-01	7.93E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
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Report To: **Work Order Details:**

Eberline Services				Joe Gross		SDG: 05-03157							
Final Report of Analysis				Weston Solutions		Purchase Order: 0047329							
				1309 Continental Drive, #M		ENVIRONMENTAL							
				Abingdon, MD 21009		Sample Matrix: SO							
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Actinium-228	LANL ER-130 Modified	1.05E+00	2.07E-01	2.08E-01	2.64E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Bismuth-214	LANL ER-130 Modified	8.38E-01	1.48E-01	1.48E-01	1.23E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Cobalt-60	LANL ER-130 Modified	3.39E-02	4.92E-02	4.92E-02	9.34E-02	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Cesium-137	LANL ER-130 Modified	8.23E-02	6.28E-02	6.28E-02	8.20E-02	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Potassium-40	LANL ER-130 Modified	9.96E+00	1.41E+00	1.42E+00	5.90E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Lead-212	LANL ER-130 Modified	1.27E+00	1.55E-01	1.57E-01	1.05E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Lead-214	LANL ER-130 Modified	7.35E-01	1.39E-01	1.39E-01	1.47E-01	pCi/g
05-03157-06	TRG	EC-N4-007-W-1-1-0	03/21/05 13:15	3/30/2005	3/31/2005	05-03157	Thallium-208	LANL ER-130 Modified	1.11E+00	1.85E-01	1.86E-01	1.93E-01	pCi/g
05-03157-07	TRG	EC-N4-008-F-1-1-0	03/21/05 13:25	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	6.53E-02	6.23E-02	6.24E-02	7.89E-02	pCi/g
05-03157-07	TRG	EC-N4-008-F-1-1-0	03/21/05 13:25	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	-1.41E-01	7.35E-02	7.36E-02	9.69E-02	pCi/g
05-03157-07	TRG	EC-N4-008-F-1-1-0	03/21/05 13:25	3/30/2005	4/1/2005	05-03157	Thorium-234	LANL ER-130 Modified	3.93E+00	1.38E+00	1.38E+00	1.57E+00	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Actinium-228	LANL ER-130 Modified	1.59E+00	2.86E-01	2.88E-01	3.38E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Bismuth-214	LANL ER-130 Modified	8.42E-01	2.17E-01	2.18E-01	1.91E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	2.61E-02	6.25E-02	6.25E-02	1.18E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	2.99E+00	3.66E-01	3.70E-01	8.98E-02	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Potassium-40	LANL ER-130 Modified	1.41E+01	1.90E+00	1.92E+00	6.11E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Lead-212	LANL ER-130 Modified	1.29E+00	1.82E-01	1.83E-01	1.60E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Lead-214	LANL ER-130 Modified	6.05E-01	1.90E-01	1.90E-01	2.08E-01	pCi/g
05-03157-08	TRG	EC-N4-009-W-1-1-0	03/21/05 13:40	3/30/2005	4/1/2005	05-03157	Thallium-208	LANL ER-130 Modified	1.15E+00	2.14E-01	2.15E-01	2.86E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Actinium-228	LANL ER-130 Modified	7.54E-01	1.98E-01	1.98E-01	2.39E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Bismuth-214	LANL ER-130 Modified	7.25E-01	1.48E-01	1.49E-01	2.71E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	3.73E-02	4.43E-02	4.43E-02	8.69E-02	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	5.96E+00	5.11E-01	5.23E-01	8.69E-02	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Potassium-40	LANL ER-130 Modified	6.05E+00	1.08E+00	1.09E+00	5.28E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Lead-212	LANL ER-130 Modified	8.44E-01	1.30E-01	1.31E-01	1.32E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Lead-214	LANL ER-130 Modified	5.08E-01	1.61E-01	1.61E-01	1.81E-01	pCi/g
05-03157-09	TRG	EC-N4-010-W-1-1-0	03/21/05 13:50	3/30/2005	4/1/2005	05-03157	Thallium-208	LANL ER-130 Modified	5.98E-01	1.45E-01	1.45E-01	2.42E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:						
			Weston Solutions				Purchase Order:						
			1309 Continental Drive, #M				Analysis Category:						
			Abingdon, MD 21009				Sample Matrix:						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03157-10	TRG	EC-N4-011-F-1-1-0	03/21/05 14:10	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	-6.20E-04	3.85E-02	3.85E-02	6.69E-02	pCi/g
05-03157-10	TRG	EC-N4-011-F-1-1-0	03/21/05 14:10	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	-1.71E-01	6.55E-02	6.56E-02	7.77E-02	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Actinium-228	LANL ER-130 Modified	1.06E+00	2.13E-01	2.14E-01	2.41E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Bismuth-214	LANL ER-130 Modified	9.52E-01	1.71E-01	1.72E-01	2.14E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	5.05E-02	4.34E-02	4.35E-02	8.78E-02	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	2.45E+01	2.59E+00	2.63E+00	1.18E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Potassium-40	LANL ER-130 Modified	6.75E+00	1.08E+00	1.09E+00	6.25E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Lead-212	LANL ER-130 Modified	1.23E+00	2.88E-01	2.89E-01	2.08E-01	pCi/g
05-03157-11	TRG	EC-N4-012-W-1-1-0	03/21/05 15:00	3/30/2005	4/1/2005	05-03157	Thallium-208	LANL ER-130 Modified	7.93E-01	1.84E-01	1.84E-01	3.24E-01	pCi/g
05-03157-12	TRG	SS-032905-01	03/29/05 09:00	3/30/2005	4/1/2005	05-03157	Cobalt-60	LANL ER-130 Modified	6.83E-03	3.42E-02	3.42E-02	6.28E-02	pCi/g
05-03157-12	TRG	SS-032905-01	03/29/05 09:00	3/30/2005	4/1/2005	05-03157	Cesium-137	LANL ER-130 Modified	-2.07E-01	7.59E-02	7.60E-02	8.79E-02	pCi/g

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EBS-OR-22328

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
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Abingdon, MD 21009

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601 Scarboro Road  
Oak Ridge, TN 37830  
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CASE NARRATIVE  
Work Order# 05-04148-OR

SAMPLE RECEIPT

This work order contains two soil samples received 4/28/2005. Both samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N4-012-W-2-2-0	05-04148-04
EC-WW-001-F-1-1-0	05-04148-05

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

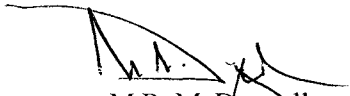
GAMMA SPECTROSCOPY

Samples demonstrated slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212 and Lead-214, non-detect equivalent results for Cobalt-60 activity, and background equivalent results for Thorium-234 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Bismuth-214, Cesium-137 and Lead-214 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:		05-04148				
			Weston Solutions				Purchase Order:		0047329				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04148-01	LCS	KNOWN	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
05-04148-01	LCS	SPIKE	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	2.93E+02	8.42E+00	2.18E+01	6.33E-01	pCi/g
05-04148-02	MBL	BLANK	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	3.08E-02	1.05E-01	1.05E-01	1.94E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	4.41E+00	1.04E+00	1.08E+00	7.78E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	4.82E+00	1.24E+00	1.29E+00	1.35E+00	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Gross Alpha	LANL MLR-100 Modified	6.90E+00	1.40E+00	1.48E+00	1.28E+00	pCi/g
05-04148-01	LCS	KNOWN	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g
05-04148-01	LCS	SPIKE	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	2.46E+02	6.77E+00	1.33E+01	1.18E+00	pCi/g
05-04148-02	MBL	BLANK	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	-2.82E-01	2.67E-01	2.68E-01	4.85E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	4.31E+00	1.39E+00	1.40E+00	2.10E+00	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	6.61E+00	1.50E+00	1.53E+00	2.12E+00	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Gross Beta	LANL MLR-100 Modified	7.80E+00	1.39E+00	1.44E+00	1.79E+00	pCi/g
05-04148-01	LCS	KNOWN	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	1.28E+02	3.39E+00			pCi/g
05-04148-01	LCS	KNOWN	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	8.06E+01	2.42E+00			pCi/g
05-04148-01	LCS	SPIKE	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	1.26E+02	6.89E+00	7.27E+00	1.05E+00	pCi/g
05-04148-01	LCS	SPIKE	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	7.52E+01	5.97E+00	6.13E+00	8.80E-01	pCi/g
05-04148-02	MBL	BLANK	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	8.57E-03	1.74E-02	1.74E-02	3.92E-02	pCi/g
05-04148-02	MBL	BLANK	04/28/05 00:00	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	-4.40E-03	2.08E-02	2.08E-02	3.89E-02	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Actinium-228	LANL ER-130 Modified	1.43E+00	2.04E-01	2.06E-01	2.26E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Bismuth-214	LANL ER-130 Modified	9.53E-01	1.57E-01	1.57E-01	1.40E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	-9.10E-03	4.45E-02	4.45E-02	7.57E-02	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	2.41E+00	2.95E-01	2.98E-01	6.98E-02	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Potassium-40	LANL ER-130 Modified	1.06E+01	1.42E+00	1.43E+00	6.19E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Lead-212	LANL ER-130 Modified	1.35E+00	1.66E-01	1.68E-01	1.29E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Lead-214	LANL ER-130 Modified	1.18E+00	1.67E-01	1.69E-01	1.53E-01	pCi/g
05-04148-03	DUP	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Thorium-234	LANL ER-130 Modified	2.14E+00	1.54E+00	1.54E+00	1.61E+00	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		05-04148			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Actinium-228	LANL ER-130 Modified	1.29E+00	2.06E-01	2.07E-01	2.31E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Bismuth-214	LANL ER-130 Modified	8.67E-01	1.62E-01	1.63E-01	1.43E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	1.02E-02	4.11E-02	4.11E-02	7.44E-02	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	2.52E+00	3.07E-01	3.10E-01	7.22E-02	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Potassium-40	LANL ER-130 Modified	1.06E+01	1.40E+00	1.42E+00	4.12E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Lead-212	LANL ER-130 Modified	1.44E+00	1.67E-01	1.69E-01	1.29E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Lead-214	LANL ER-130 Modified	1.02E+00	1.52E-01	1.53E-01	1.59E-01	pCi/g
05-04148-04	DO	EC-N4-012-W-2-2-0	04/26/05 11:35	4/28/2005	4/29/2005	05-04148	Thorium-234	LANL ER-130 Modified	2.21E+00	1.36E+00	1.36E+00	1.83E+00	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Actinium-228	LANL ER-130 Modified	1.43E+00	2.87E-01	2.88E-01	3.46E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Bismuth-214	LANL ER-130 Modified	8.92E-01	2.02E-01	2.03E-01	1.73E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Cobalt-60	LANL ER-130 Modified	-1.61E-02	5.74E-02	5.74E-02	1.01E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Cesium-137	LANL ER-130 Modified	2.33E-01	9.64E-02	9.65E-02	1.06E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Potassium-40	LANL ER-130 Modified	1.27E+00	1.92E+00	1.93E+00	7.69E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Lead-212	LANL ER-130 Modified	1.39E+00	1.99E-01	2.00E-01	1.49E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Lead-214	LANL ER-130 Modified	8.83E-01	2.09E-01	2.10E-01	1.94E-01	pCi/g
05-04148-05	TRG	EC-WW-001-F-1-1-0	04/26/05 12:10	4/28/2005	4/29/2005	05-04148	Thorium-234	LANL ER-130 Modified	7.75E-01	1.26E+00	1.26E+00	2.29E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Company Name:  
**Weston Solutions, Inc.**  
**Abingdon Office**

Point of Contact:  
Borden Borden  
Phone: (410) 616 9512  
Project Name:  
Rad Yard

Chain of Custody Record

**WESTON**  
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1309 Continental Drive Suite M  
Abingdon, MD 21009  
Telephone: (410) 612-5900  
Fax: (410) 612-5901

Sample Storage Location:

Purchase Order:

Report Deliverables:  
Hardcopy & EDD (all data package)  
DUE TO CLIENT: 30 days from sample receipt

Page 1 of 1 Report #:

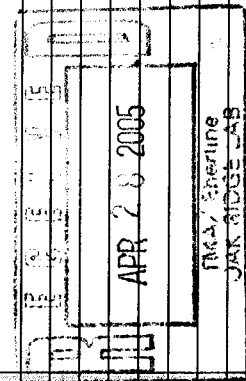
Date Time Water Soil Sample Identification  
19 Characters

4/24/05 1135 EC-WH-OR-W-2-2-0  
120 EC-WW-001-F-1-1-0

Remarks

3 DAY TAT

Lab  
Accession  
Number



Sampled by: (Signature)  
Relinquished by: (Signature)

Date/Time  
4/24/05

Relinquished by: (Signature)  
Received by Laboratory: (Signature)  
R. Borden

Date/Time  
4/28/05

Received by: (Signature)

Date/Time

Cooler Temp. C pH: Yes No Comments:

Airbill Number:  
791610085279

Sample Shipped by: (Circle)  
Fed Ex Puro.  
Hand Carried  
Other:

NOTE: Please indicate method number for analyses requested. This will help clarify any questions with laboratory techniques.

Shaded Areas for Lab Use Only





EBS-OR-22436

May 23, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-05059-OR

SAMPLE RECEIPT

This work order contains two soil samples received 05/13/05. Both samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N4-003-W-2-2-0	05-05059-04	EC-N4-010-W-2-2-0	05-05059-05

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

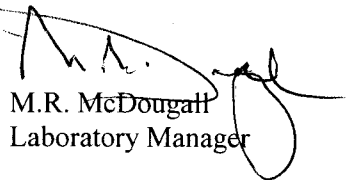
GAMMA SPECTROSCOPY

Samples demonstrated slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 5/23/2005



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:		05-05059				
			Weston Solutions				Purchase Order:		0047329				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05059-01	LCS	KNOWN	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
05-05059-01	LCS	SPIKE	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	3.05E+02	8.58E+00	2.26E+01	7.90E-01	pCi/g
05-05059-02	MBL	BLANK	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	-6.15E-02	9.85E-02	9.85E-02	2.13E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	2.34E+00	9.03E-01	9.17E-01	1.14E+00	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	4.04E+00	1.01E+00	1.05E+00	8.87E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/13/2005	05-05059	Gross Alpha	LANL MLR-100 Modified	2.53E+00	9.47E-01	9.63E-01	1.18E+00	pCi/g
05-05059-01	LCS	KNOWN	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.40E+00			pCi/g
05-05059-01	LCS	SPIKE	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	2.52E+02	6.85E+00	1.36E+01	1.17E+00	pCi/g
05-05059-02	MBL	BLANK	05/13/05 00:00	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	-3.24E-01	2.68E-01	2.69E-01	4.89E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	2.16E+00	1.24E+00	1.24E+00	1.99E+00	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	2.74E+00	1.36E+00	1.37E+00	2.17E+00	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/13/2005	05-05059	Gross Beta	LANL MLR-100 Modified	7.55E+00	1.42E+00	1.46E+00	1.91E+00	pCi/g
05-05059-01	LCS	KNOWN	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-05059-01	LCS	KNOWN	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-05059-01	LCS	SPIKE	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	1.29E+02	7.02E+00	7.42E+00	7.46E-01	pCi/g
05-05059-01	LCS	SPIKE	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	7.58E+01	8.01E+00	8.14E+00	6.46E-01	pCi/g
05-05059-02	MBL	BLANK	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	1.00E-02	2.19E-02	2.19E-02	4.63E-02	pCi/g
05-05059-02	MBL	BLANK	05/13/05 00:00	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	3.05E-03	2.27E-02	2.27E-02	4.40E-02	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Actinium-228	LANL ER-130 Modified	1.11E+00	2.21E-01	2.22E-01	2.42E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Bismuth-214	LANL ER-130 Modified	1.07E+00	1.58E-01	1.59E-01	1.24E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	-2.35E-02	4.25E-02	4.25E-02	6.95E-02	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	1.39E-01	6.11E-02	6.11E-02	7.44E-02	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Potassium-40	LANL ER-130 Modified	9.20E+00	1.35E+00	1.36E+00	5.76E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Lead-212	LANL ER-130 Modified	1.31E+00	1.58E-01	1.60E-01	1.15E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Lead-214	LANL ER-130 Modified	1.06E+00	1.40E-01	1.41E-01	1.38E-01	pCi/g
05-05059-03	DUP	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Thallium-208	LANL ER-130 Modified	1.04E+00	1.73E-01	1.74E-01	1.85E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-05059			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Actinium-228	LANL ER-130 Modified	1.16E+00	1.90E-01	1.91E-01	2.31E-01	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Bismuth-214	LANL ER-130 Modified	9.15E-01	1.59E-01	1.60E-01	1.23E-01	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	-3.16E-03	3.66E-02	3.66E-02	6.47E-02	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	1.73E-01	6.61E-02	6.61E-02	7.10E-02	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Potassium-40	LANL ER-130 Modified	9.61E+00	1.39E+00	1.40E+00	4.84E-01	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Lead-212	LANL ER-130 Modified	1.27E+00	1.54E-01	1.55E-01	1.09E-01	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Lead-214	LANL ER-130 Modified	9.99E-01	1.39E-01	1.41E-01	1.43E-01	pCi/g
05-05059-04	DO	EC-N4-003-W-2-2-0	05/12/05 14:45	5/13/2005	5/16/2005	05-05059	Thallium-208	LANL ER-130 Modified	1.20E+00	1.68E-01	1.70E-01	1.78E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0											
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Actinium-228	LANL ER-130 Modified	1.57E+00	2.04E-01	2.06E-01	1.92E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Bismuth-214	LANL ER-130 Modified	9.79E-01	1.47E-01	1.48E-01	1.37E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Cobalt-60	LANL ER-130 Modified	4.92E-03	4.44E-02	4.44E-02	7.71E-02	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Cesium-137	LANL ER-130 Modified	1.99E+00	2.14E-01	2.17E-01	7.09E-02	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Potassium-40	LANL ER-130 Modified	1.25E+01	1.52E+00	1.54E+00	4.73E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Lead-212	LANL ER-130 Modified	1.29E+00	1.63E-01	1.65E-01	1.26E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Lead-214	LANL ER-130 Modified	7.59E-01	1.70E-01	1.71E-01	1.50E-01	pCi/g
05-05059-05	TRG	EC-N4-010-W-2-2-0	05/12/05 14:30	5/13/2005	5/16/2005	05-05059	Thallium-208	LANL ER-130 Modified	1.19E+00	1.68E-01	1.70E-01	2.05E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Chain of Custody Record

[illegible]





# EBERLINE SERVICES

EBS-OR-21764

December 22, 2004

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

## CASE NARRATIVE Work Order# 04-12101-OR

### SAMPLE RECEIPT

This work order contains nine soil samples received 12/18/2004. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N5-001-F-1-1-0	04-12101-04	EC-N5-006-F-1-1-0	04-12101-09
EC-N5-002-F-1-1-0	04-12101-05	EC-N5-007-F-1-1-0	04-12101-10
EC-N5-003-F-1-1-0	04-12101-06	EC-N5-008-F-1-1-0	04-12101-11
EC-N5-004-F-1-1-0	04-12101-07	EC-N0-001-F-1-1-0	04-12101-12
EC-N5-005-F-1-1-0	04-12101-08		

### ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

### ANALYTICAL RESULTS

#### GROSS ALPHA/BETA

Samples were prepared by digesting representative aliquots with HNO<sub>3</sub>. Digestates were volumetrically diluted and then mass equivalent aliquots were transferred to steel planchets for final evaporation to dryness. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference and normalized difference. Replicate results were within the expected precision for the technique and matrix. Significant difference can and does occur for Gross Alpha and Gross Beta determinations within soil due to inherent self-absorption and other counting limitations. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.



## ANALYTICAL RESULTS CONTINUED

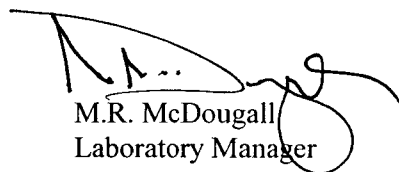
### GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.

Samples demonstrated near background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, non-detect equivalent results for Cobalt-60 activity, and non-detect equivalent to slightly positive results for Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 12/22/04



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:	04-12101					
			Weston Solutions				Purchase Order:	DSHE					
			1309 Continental Drive, #M				Analysis Category:	ENVIRONMENTAL					
			Abingdon, MD 21009				Sample Matrix:	SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12101-01	LCS	KNOWN	12/18/04 00:00	12/18/2004	12/21/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g
04-12101-01	LCS	SPIKE	12/18/04 00:00	12/18/2004	12/21/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	3.07E+02	8.40E+00	2.26E+01	3.60E-01	pCi/g
04-12101-02	MBL	BLANK	12/18/04 00:00	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	1.06E-01	1.44E-01	1.45E-01	2.44E-01	pCi/g
04-12101-03	DUP	EC-N5-001-F-1-1-0	12/17/04 12:00	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	6.78E+00	1.99E+00	2.04E+00	1.86E+00	pCi/g
04-12101-04	DO	EC-N5-001-F-1-1-0	12/17/04 12:00	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	2.94E+01	3.83E+00	4.32E+00	3.55E-01	pCi/g
04-12101-05	TRG	EC-N5-002-F-1-1-0	12/17/04 12:05	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	5.81E+00	1.78E+00	1.83E+00	1.12E+00	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	5.77E+00	1.88E+00	1.92E+00	1.88E+00	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	6.14E+00	2.06E+00	2.10E+00	2.09E+00	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	6.54E+00	1.78E+00	1.83E+00	3.43E-01	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	7.48E+00	1.86E+00	1.93E+00	3.29E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	5.58E+00	1.80E+00	1.84E+00	1.43E+00	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	6.38E+00	2.34E+00	2.38E+00	2.73E+00	pCi/g
04-12101-12	TRG	EC-N0-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Gross Alpha	LANL MLR-100 Modified	7.40E+00	2.06E+00	2.12E+00	1.45E+00	pCi/g
04-12101-01	LCS	KNOWN	12/18/04 00:00	12/18/2004	12/21/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.50E+02	7.49E+00			pCi/g
04-12101-01	LCS	SPIKE	12/18/04 00:00	12/18/2004	12/21/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.54E+02	6.69E+00	1.36E+01	1.05E+00	pCi/g
04-12101-02	MBL	BLANK	12/18/04 00:00	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.04E-01	3.49E-01	3.49E-01	5.95E-01	pCi/g
04-12101-03	DUP	EC-N5-001-F-1-1-0	12/17/04 12:00	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	7.39E+00	2.38E+00	2.40E+00	3.43E+00	pCi/g
04-12101-04	DO	EC-N5-001-F-1-1-0	12/17/04 12:00	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.83E+01	3.42E+00	3.66E+00	3.57E+00	pCi/g
04-12101-05	TRG	EC-N5-002-F-1-1-0	12/17/04 12:05	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	5.18E+00	2.48E+00	2.49E+00	3.83E+00	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	3.16E+00	2.26E+00	2.27E+00	3.67E+00	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.19E+00	2.25E+00	2.26E+00	3.74E+00	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	2.99E+00	2.20E+00	2.21E+00	3.57E+00	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	4.09E+00	2.11E+00	2.12E+00	3.28E+00	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	6.19E+00	2.33E+00	2.35E+00	3.44E+00	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	1.54E+00	2.58E+00	2.58E+00	4.38E+00	pCi/g
04-12101-12	TRG	EC-N0-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Gross Beta	LANL MLR-100 Modified	5.10E+00	2.58E+00	2.59E+00	4.04E+00	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To: **Joe Gross**

Work Order Details:

**04-12101**

SDG:

Purchase Order: **DSHE**Analysis Category: **ENVIRONMENTAL**Sample Matrix: **SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Arcinium-228	LANL ER-130 Modified	1.20E+00	1.93E-01	1.94E-01	2.05E-01	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	9.79E-01	1.40E-01	1.41E-01	1.12E-01	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	9.64E-05	3.26E-02	3.26E-02	6.02E-02	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	9.13E-03	3.81E-02	3.81E-02	6.60E-02	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	1.02E+01	1.30E+00	1.31E+00	4.70E-01	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.37E+00	1.51E-01	1.53E-01	1.02E-01	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	1.06E+00	1.23E-01	1.24E-01	1.20E-01	pCi/g
04-12101-06	TRG	EC-N5-003-F-1-1-0	12/17/04 12:10	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.15E+00	1.98E-01	1.99E-01	3.46E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Arcinium-228	LANL ER-130 Modified	1.11E+00	2.34E-01	2.35E-01	2.89E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	8.44E-01	1.70E-01	1.71E-01	1.60E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	9.33E-03	5.14E-02	5.14E-02	9.41E-02	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	1.46E-01	6.73E-02	6.74E-02	7.98E-02	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	9.01E+00	1.43E+00	1.44E+00	6.74E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.43E+00	2.02E-01	2.04E-01	1.16E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	9.19E-01	1.33E-01	1.34E-01	1.44E-01	pCi/g
04-12101-07	TRG	EC-N5-004-F-1-1-0	12/17/04 12:15	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	9.91E-01	1.76E-01	1.77E-01	2.28E-01	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Arcinium-228	LANL ER-130 Modified	1.20E+00	1.75E-01	1.77E-01	1.87E-01	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	8.35E-01	1.35E-01	1.36E-01	1.00E-01	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	4.20E-03	3.08E-02	3.08E-02	5.79E-02	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	3.54E-02	3.59E-02	3.59E-02	6.58E-02	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	9.39E+00	1.21E+00	1.22E+00	3.46E-01	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.18E+00	1.31E-01	1.33E-01	9.58E-02	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	9.42E-01	1.36E-01	1.37E-01	1.04E-01	pCi/g
04-12101-08	TRG	EC-N5-005-F-1-1-0	12/17/04 12:20	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.04E+00	1.83E-01	1.84E-01	3.23E-01	pCi/g

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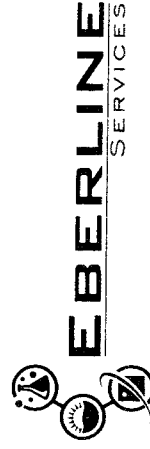


# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:			Work Order Details:							
			Joe Gross			SDG:		04-12101					
			Weston Solutions			Purchase Order:		DSHE					
			1309 Continental Drive, #M			Analysis Category:		ENVIRONMENTAL					
			Abingdon, MD 21009			Sample Matrix:		SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Actinium-228	LANL ER-130 Modified	1.09E+00	2.03E-01	2.04E-01	2.42E-01	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	9.07E-01	1.47E-01	1.48E-01	1.23E-01	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	-2.33E-02	4.27E-02	4.27E-02	7.11E-02	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	5.56E-01	1.06E-01	1.06E-01	6.57E-02	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	8.56E+00	1.20E+00	1.21E+00	5.54E-01	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.23E+00	1.69E-01	1.70E-01	9.62E-02	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	8.12E-01	1.46E-01	1.47E-01	1.23E-01	pCi/g
04-12101-09	TRG	EC-N5-006-F-1-1-0	12/17/04 12:25	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.22E+00	1.71E-01	1.72E-01	1.71E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Actinium-228	LANL ER-130 Modified	1.27E+00	2.29E-01	2.30E-01	2.40E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	9.93E-01	1.70E-01	1.71E-01	1.33E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	1.20E-02	4.86E-02	4.86E-02	8.99E-02	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	5.09E-01	1.13E-01	1.13E-01	7.84E-02	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	8.57E+00	1.37E+00	1.38E+00	6.17E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.23E+00	1.86E-01	1.87E-01	1.23E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	9.41E-01	1.29E-01	1.30E-01	1.51E-01	pCi/g
04-12101-10	TRG	EC-N5-007-F-1-1-0	12/17/04 12:30	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.03E+00	2.05E-01	2.06E-01	2.01E-01	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Actinium-228	LANL ER-130 Modified	1.28E+00	1.90E-01	1.91E-01	2.08E-01	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	1.05E+00	1.37E-01	1.39E-01	1.13E-01	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	-1.73E-03	3.62E-02	3.62E-02	6.59E-02	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	3.38E-02	3.55E-02	3.55E-02	6.48E-02	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	1.27E+01	1.46E+00	1.47E+00	4.88E-01	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	1.42E+00	1.49E-01	1.51E-01	9.98E-02	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	1.12E+00	1.27E-01	1.29E-01	1.21E-01	pCi/g
04-12101-11	TRG	EC-N5-008-F-1-1-0	12/17/04 12:35	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.30E+00	2.33E-01	2.34E-01	3.48E-01	pCi/g

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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG: 04-12101					
Weston Solutions				Purchase Order:				DSHE					
1309 Continental Drive, #M				Analysis Category:				ENVIRONMENTAL					
Abingdon, MD 21009				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Actinium-228	LANL ER-130 Modified	1.40E+00	2.26E-01	2.27E-01	2.83E-01	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Bismuth-214	LANL ER-130 Modified	1.02E+00	1.74E-01	1.75E-01	1.44E-01	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Cobalt-60	LANL ER-130 Modified	-4.54E-02	5.11E-02	5.11E-02	8.18E-02	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Cesium-137	LANL ER-130 Modified	1.01E-01	6.26E-02	6.26E-02	8.88E-02	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Potassium-40	LANL ER-130 Modified	1.45E+01	1.75E+00	1.77E+00	6.15E-01	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Lead-212	LANL ER-130 Modified	2.02E+00	2.84E-01	2.86E-01	1.07E-01	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Lead-214	LANL ER-130 Modified	9.96E-01	1.67E-01	1.68E-01	1.44E-01	pCi/g
04-12101-12	TRG	EC-NO-001-F-1-1-0	12/14/04 16:30	12/18/2004	12/20/2004	04-12101	Thallium-208	LANL ER-130 Modified	1.33E+00	2.00E-01	2.01E-01	2.12E-01	pCi/g

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**EBERLINE**  
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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N5-001-F-1-1-0	Arsenic, Total	2.1	MG/KG	1.0	6.0
-002	EC-N5-002-F-1-1-0	Arsenic, Total	2.9	MG/KG	1.8	6.0
-003	EC-N5-003-F-1-1-0	Arsenic, Total	11.5	MG/KG	1.6	6.0
-004	EC-N5-004-F-1-1-0	Arsenic, Total	6.9	MG/KG	1.8	6.0
-005	EC-N5-005-F-1-1-0	Arsenic, Total	3.2	MG/KG	1.4	6.0
-006	EC-N5-006-F-1-1-0	Arsenic, Total	31.1	MG/KG	1.7	6.0
-007	EC-N5-007-F-1-1-0	Arsenic, Total	9.5	MG/KG	1.5	6.0
-008	EC-N5-008-F-1-1-0	Arsenic, Total	10.2	MG/KG	1.6	6.0
-009	EC-N0-001-F-1-1-0	Arsenic, Total	4.8	MG/KG	1.5	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0768-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-008	EC-N5-008-F-1-1-0	Arsenic, Total	212	10.2	203	99.4	6.0
		Arsenic, Total MSD	208	10.2	217	91.2	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-008	EC-N5-008-F-1-1-0	Arsenic, Total	99.4	91.2	8.6



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-008REP	EC-N5-008-F-1-1-0	Arsenic, Total	10.2	15.5	41.2	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/23/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L490

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0768-LC1	Arsenic, LCS	976	1000	MG/KG	97.6



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/07/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-025-F-2-2-0	Arsenic, Total	23.6	MG/KG	1.7	6.0
-002	EC-N6-001-W-1-1-0	Arsenic, Total	117	MG/KG	1.6	6.0
-003	EC-N6-002-W-1-1-0	Arsenic, Total	38.4	MG/KG	1.7	6.0
-004	EC-N6-003-F-1-1-0	Arsenic, Total	3.7	MG/KG	2.0	6.0
-005	EC-N6-004-F-1-1-0	Arsenic, Total	2.0 u	MG/KG	2.0	6.0
-006	EC-N7-001-F-1-1-0	Arsenic, Total	27.3	MG/KG	1.6	6.0
-007	EC-N7-002-F-1-1-0	Arsenic, Total	2.9	MG/KG	1.4	6.0
-008	EC-N7-003-W-1-1-0	Arsenic, Total	4.9	MG/KG	2.0	6.0
-009	EC-N7-004-W-1-1-0	Arsenic, Total	55.8	MG/KG	1.8	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/07/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0054-MB1	Arsenic, Total	0.29 u	MG/KG	0.29	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/07/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N2-025-F-2-2-0	Arsenic, Total	228	23.6	210	97.4	6.0
		Arsenic, Total MSD	242	23.6	222	98.5	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/07/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	EC-N2-025-F-2-2-0	Arsenic, Total	97.4	98.5	1.1



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/07/05

CLIENT: BBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N2-025-F-2-2-0	Arsenic, Total	23.6	40.5	52.7	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/07/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L697

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0054-LC1	Arsenic, LCS	950	1000	MG/KG	95.0





EBS-OR-21907

January 31, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-01087-OR

SAMPLE RECEIPT

This work order contains three soil samples received 01/22/05. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N8-001-F-1-1-0	05-01087-04	EC-N8-002-W-1-1-0	05-01087-06
EC-N8-001-F-1-1-1	05-01087-05		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha activity. Samples demonstrated background equivalent results for Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable analytical technique limits. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

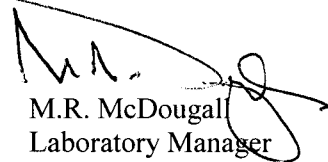
GAMMA SPECTROSCOPY

Samples demonstrated slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 1/31/2005



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-01087			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01087-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
05-01087-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	2.56E+02	7.87E+00	1.92E+01	6.35E-01	pCi/g
05-01087-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/24/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	1.20E-01	2.36E-01	2.36E-01	4.24E-01	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	5.89E+00	2.13E+00	2.16E+00	1.97E+00	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	8.37E+00	2.56E+00	2.62E+00	2.10E+00	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	6.01E+00	1.96E+00	2.00E+00	1.17E+00	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/24/2005	05-01087	Gross Alpha	LANL MLR-100 Modified	2.89E+00	1.72E+00	1.74E+00	2.27E+00	pCi/g
05-01087-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.46E+00			pCi/g
05-01087-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Gross Beta	LANL MLR-100 Modified	2.14E+02	6.33E+00	1.18E+01	1.16E+00	pCi/g
05-01087-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/24/2005	05-01087	Gross Beta	LANL MLR-100 Modified	-1.04E-01	4.45E-01	4.45E-01	8.06E-01	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Beta	LANL MLR-100 Modified	6.30E+00	2.39E+00	2.41E+00	3.42E+00	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Beta	LANL MLR-100 Modified	3.65E+00	2.48E+00	2.49E+00	3.95E+00	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/24/2005	05-01087	Gross Beta	LANL MLR-100 Modified	5.09E+00	2.35E+00	2.36E+00	3.51E+00	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/24/2005	05-01087	Gross Beta	LANL MLR-100 Modified	3.10E+00	2.41E+00	2.41E+00	3.90E+00	pCi/g
05-01087-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-01087-01	LCS	KNOWN	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-01087-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	1.29E+02	7.03E+00	7.42E+00	1.02E+00	pCi/g
05-01087-01	LCS	SPIKE	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	7.66E+01	6.07E+00	6.23E+00	9.12E-01	pCi/g
05-01087-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	3.72E-02	2.44E-02	2.44E-02	2.71E-02	pCi/g
05-01087-02	MBL	BLANK	01/22/05 00:00	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	-2.18E-03	1.60E-02	1.60E-02	2.97E-02	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Actinium-228	LANL ER-130 Modified	1.37E+00	1.66E-01	1.68E-01	2.06E-01	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Bismuth-214	LANL ER-130 Modified	8.91E-01	1.33E-01	1.34E-01	9.99E-02	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	-8.25E-03	3.66E-02	3.66E-02	6.30E-02	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	1.66E-01	4.77E-02	4.78E-02	5.53E-02	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Potassium-40	LANL ER-130 Modified	1.15E+01	1.31E+00	1.33E+00	3.95E-01	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-212	LANL ER-130 Modified	1.31E+00	1.54E-01	1.55E-01	9.16E-02	pCi/g
05-01087-03	DUP	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-214	LANL ER-130 Modified	9.74E-01	1.17E-01	1.19E-01	1.17E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-01087			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Actinium-228	LANL ER-130 Modified	1.42E+00	1.80E-01	1.81E-01	1.86E-01	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Bismuth-214	LANL ER-130 Modified	8.31E-01	1.26E-01	1.27E-01	1.11E-01	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	-2.19E-02	3.21E-02	3.21E-02	5.29E-02	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	1.60E-01	7.10E-02	7.10E-02	6.11E-02	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Potassium-40	LANL ER-130 Modified	1.08E+01	1.30E+00	1.31E+00	3.95E-01	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-212	LANL ER-130 Modified	1.41E+00	1.61E-01	1.63E-01	9.20E-02	pCi/g
05-01087-04	DO	EC-N8-001-F-1-1-0	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-214	LANL ER-130 Modified	9.51E-01	1.24E-01	1.25E-01	1.14E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Actinium-228	LANL ER-130 Modified	1.31E+00	2.96E-01	2.97E-01	3.68E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Bismuth-214	LANL ER-130 Modified	9.47E-01	2.10E-01	2.11E-01	1.85E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	5.49E-02	6.10E-02	6.10E-02	1.26E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	2.66E-01	1.12E-01	1.12E-01	1.02E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Potassium-40	LANL ER-130 Modified	9.84E+00	1.72E+00	1.73E+00	7.48E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-212	LANL ER-130 Modified	1.37E+00	1.86E-01	1.88E-01	1.54E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Lead-214	LANL ER-130 Modified	1.06E+00	2.38E-01	2.39E-01	1.93E-01	pCi/g
05-01087-05	TRG	EC-N8-001-F-1-1-1	01/21/05 13:15	1/22/2005	1/25/2005	05-01087	Thallium-208	LANL ER-130 Modified	1.19E+00	2.32E-01	2.33E-01	3.24E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Actinium-228	LANL ER-130 Modified	7.04E-01	2.41E-01	2.41E-01	2.97E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Bismuth-214	LANL ER-130 Modified	7.80E-01	1.59E-01	1.60E-01	1.53E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Cobalt-60	LANL ER-130 Modified	2.91E-03	4.90E-02	4.90E-02	9.33E-02	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Cesium-137	LANL ER-130 Modified	3.15E-01	1.08E-01	1.08E-01	8.00E-02	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Potassium-40	LANL ER-130 Modified	6.54E+00	1.32E+00	1.32E+00	7.02E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Lead-212	LANL ER-130 Modified	8.21E-01	1.37E-01	1.38E-01	1.36E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Lead-214	LANL ER-130 Modified	8.12E-01	1.75E-01	1.76E-01	1.64E-01	pCi/g
05-01087-06	TRG	EC-N8-002-W-1-1-0	01/21/05 13:30	1/22/2005	1/25/2005	05-01087	Thallium-208	LANL ER-130 Modified	7.41E-01	2.00E-01	2.00E-01	2.53E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621









EBS-OR-21792

January 4, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 04-12114-OR

SAMPLE RECEIPT

This work order contains seven soil samples received 12/23/04. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N11-001-F-1-1-0	04-12114-04	EC-N9-001-F-1-1-0	04-12114-08
EC-N11-002-W-1-1-0	04-12114-05	EC-N9-002-W-1-1-0	04-12114-09
EC-N11-003-F-1-0-0	04-12114-06	STOCKPILE1	04-12114-10
EC-N11-004-F-1-0-0	04-12114-07		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated non-detect equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

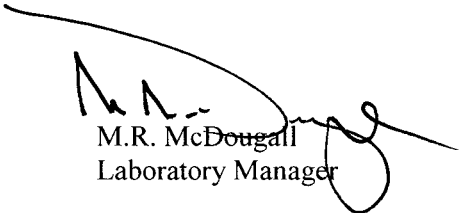
GAMMA SPECTROSCOPY

Samples demonstrated non-detect equivalent to slightly positive results for Cesium-137 activity. Samples demonstrated background equivalent results for Potassium-40, Lead-212, Lead-214, Bismuth-214, Thallium-208 and Actinium-228 activity. The method blank demonstrated non-detect equivalent results for Cobalt-60 and Cesium-137 activity. Results for the Bismuth-214, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 1/4/2005







# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				04-12114					
								SDG:		0047329			
								Purchase Order:		ENVIRONMENTAL			
								Analysis Category:		Sample Matrix:			
								SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	1.28E+00	1.35E-01	1.37E-01	1.38E-01	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	1.02E+00	1.06E-01	1.07E-01	7.11E-02	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	-1.66E-03	2.64E-02	2.64E-02	4.53E-02	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	1.55E-01	3.67E-02	3.68E-02	3.97E-02	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	1.26E+01	1.25E+00	1.27E+00	3.54E-01	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.31E+00	1.22E-01	1.24E-01	6.34E-02	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	1.12E+00	1.01E-01	1.03E-01	7.76E-02	pCi/g
04-12114-03	DUP	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	1.18E+00	1.25E-01	1.27E-01	1.01E-01	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	1.32E+00	1.40E-01	1.42E-01	1.25E-01	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	1.03E+00	1.16E-01	1.17E-01	6.87E-02	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	7.38E-03	2.50E-02	2.50E-02	4.42E-02	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	1.19E-01	5.05E-02	5.05E-02	4.07E-02	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	1.21E+01	1.22E+00	1.24E+00	3.41E-01	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.38E+00	1.29E-01	1.31E-01	6.58E-02	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	1.03E+00	9.96E-02	1.01E-01	7.78E-02	pCi/g
04-12114-04	DO	EC-N11-001-F-1-1-0	12/22/04 13:00	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	1.21E+00	1.29E-01	1.31E-01	1.05E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	1.43E+00	3.04E-01	3.05E-01	5.01E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	1.25E+00	1.69E-01	1.71E-01	1.31E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	1.91E-02	4.10E-02	4.10E-02	7.52E-02	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	1.41E-01	5.61E-02	5.61E-02	6.84E-02	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	1.08E+01	1.37E+00	1.38E+00	6.42E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.67E+00	2.07E-01	2.09E-01	1.02E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	1.27E+00	1.48E-01	1.50E-01	1.37E-01	pCi/g
04-12114-05	TRG	EC-N11-002-W-1-1-0	12/22/04 13:10	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	1.22E+00	1.65E-01	1.67E-01	1.83E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Work Order Details:

SDG: 04-12114

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	8.88E-01	2.39E-01	2.40E-01	2.42E-01	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	8.60E-01	1.68E-01	1.67E-01	1.71E-01	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	5.16E-02	4.49E-02	4.48E-02	9.11E-02	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	8.41E+00	6.98E-01	7.15E-01	8.84E-02	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	8.41E+00	1.32E+00	1.33E+00	5.79E-01	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.10E+00	1.64E-01	1.66E-01	1.53E-01	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	9.14E-01	2.11E-01	2.12E-01	2.13E-01	pCi/g
04-12114-06	TRG	EC-N11-003-F-1-0-0	12/22/04 14:45	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	9.47E-01	1.91E-01	1.92E-01	2.65E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	9.84E-01	2.03E-01	2.04E-01	2.36E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	8.06E-01	1.48E-01	1.49E-01	1.42E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	3.25E-02	4.13E-02	4.13E-02	7.85E-02	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	5.24E+00	5.77E-01	5.85E-01	7.00E-02	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	8.53E+00	1.24E+00	1.25E+00	5.72E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.17E+00	1.52E-01	1.53E-01	1.21E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	7.49E-01	1.65E-01	1.65E-01	1.62E-01	pCi/g
04-12114-07	TRG	EC-N11-004-F-1-0-0	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	7.72E-01	1.44E-01	1.45E-01	2.25E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	1.32E+00	2.22E-01	2.23E-01	2.73E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	1.31E+00	1.73E-01	1.75E-01	1.40E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	3.07E-02	4.68E-02	4.68E-02	8.89E-02	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	-2.99E-02	4.64E-02	4.64E-02	7.74E-02	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	1.31E+01	1.70E+00	1.71E+00	7.31E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.55E+00	1.75E-01	1.77E-01	1.11E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	1.21E+00	1.57E-01	1.59E-01	1.46E-01	pCi/g
04-12114-08	TRG	EC-N9-001-F-1-1-0	12/22/04 13:20	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	1.40E+00	1.82E-01	1.84E-01	2.05E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

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## Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross			SDG:		04-12114					
			Weston Solutions			Purchase Order:		0047329					
			1309 Continental Drive, #M			Analysis Category:		ENVIRONMENTAL					
			Abingdon, MD 21009			Sample Matrix:		SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	1.28E+00	1.42E-01	1.44E-01	1.27E-01	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	9.60E-01	1.00E-01	1.02E-01	9.11E-02	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	6.34E-03	2.54E-02	2.54E-02	4.47E-02	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	6.37E+00	6.82E-01	6.92E-01	4.31E-02	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	1.08E+01	1.13E+00	1.15E+00	3.07E-01	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	1.38E+00	1.33E-01	1.35E-01	8.38E-02	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	8.97E-01	1.19E-01	1.20E-01	1.13E-01	pCi/g
04-12114-09	TRG	EC-N9-002-W-1-1-0	12/22/04 13:30	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	1.08E+00	1.25E-01	1.26E-01	1.36E-01	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Actinium-228	LANL ER-130 Modified	9.11E-01	1.53E-01	1.54E-01	1.72E-01	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Bismuth-214	LANL ER-130 Modified	6.59E-01	1.05E-01	1.06E-01	9.48E-02	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Cobalt-60	LANL ER-130 Modified	2.17E-02	3.06E-02	3.06E-02	5.79E-02	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Cesium-137	LANL ER-130 Modified	7.39E-02	5.46E-02	5.46E-02	5.79E-02	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Potassium-40	LANL ER-130 Modified	6.01E+00	9.09E-01	9.15E-01	4.84E-01	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Lead-212	LANL ER-130 Modified	7.56E-01	9.84E-02	9.94E-02	7.85E-02	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Lead-214	LANL ER-130 Modified	6.48E-01	9.88E-02	9.95E-02	1.02E-01	pCi/g
04-12114-10	TRG	STOCKPILE1	12/22/04 15:00	12/23/2004	12/27/2004	04-12114	Thallium-208	LANL ER-130 Modified	7.14E-01	1.19E-01	1.19E-01	1.41E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/29/04

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L510

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N11-001-F-1-1-0	Arsenic, Total	59.7	MG/KG	3.0	6.0
-002	EC-N11-002-W-1-1-0	Arsenic, Total	45.9	MG/KG	3.3	6.0
-003	EC-N11-003-F-1-0-0	Arsenic, Total	48.0	MG/KG	4.1	6.0
-004	EC-N11-004-F-1-0-0	Arsenic, Total	34.7	MG/KG	3.6	6.0
-005	EC-N9-001-F-1-1-0	Arsenic, Total	5.5	MG/KG	3.4	6.0
-006	EC-N9-002-W-1-1-0	Arsenic, Total	35.2	MG/KG	3.1	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L510

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0776-MB1	Arsenic, Total	0.50 u	MG/KG	0.50	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L510

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-N11-001-F-1-1-0	Arsenic, Total	248	59.7	196	96.0	6.0
		Arsenic, Total MSD	249	59.7	198	95.6	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/29/04

CLIENT: EBERLINE-WSI  
WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L510

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
=====	=====	=====	=====	=====	=====
-001	EC-N11-001-F-1-1-0	Arsenic, Total	96.0	95.6	0.39



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/29/04

CLIENT: EBERLINE-WSI  
 WORK ORDER: 11343-623-001-9999-00

LVL LOT #: 0412L510

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	EC-N11-001-F-1-1-0	Arsenic, Total	59.7	68.9	14.3	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L510

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0776-LC1	Arsenic, LCS	909	1000	MG/KG	90.9





EBS-OR-21828

January 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE - Revised  
Work Order # 05-01004-OR

SAMPLE RECEIPT

This work order contains four soil samples received 01/04/05. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy. The client ID for sample fraction -06 has been changed per the client's direction (EC-N11-006-F-2-1-0 changed to EC-N11-006-W-2-1-0).

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
BC-DL-001-FS-1-1-0	05-01004-04	EC-N11-006-W-2-1-0	05-01004-06
EC-N11-005-F-2-1-0	05-01004-05	EC-N9-003-W-2-1-0	05-01004-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha activity. Samples demonstrated slightly positive results for Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.


GAMMA SPECTROSCOPY

Samples demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Samples demonstrated non-detect equivalent to slightly positive results for Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cobalt-60 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 1/14/2005



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

05-01004 Revised

0047329

ENVIRONMENTAL

SO

SDG:  
Purchase Order:  
Analysis Category:  
Sample Matrix:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01004-01	LCS	KNOWN	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-01004-01	LCS	SPIKE	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	2.94E+02	5.75E+00	2.10E+01	3.15E-01	pCi/g
05-01004-02	MBL	BLANK	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	-6.19E-02	2.10E-01	2.10E-01	4.65E-01	pCi/g
05-01004-03	DUP	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	1.28E+00	1.08E+00	1.09E+00	1.49E+00	pCi/g
05-01004-04	DO	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	1.56E+00	1.49E+00	1.50E+00	2.34E+00	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	8.44E+00	2.38E+00	2.45E+00	1.51E+00	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	3.16E+00	1.49E+00	1.50E+00	1.55E+00	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Gross Alpha	LANL MLR-100 Modified	4.71E+00	1.80E+00	1.83E+00	1.24E+00	pCi/g
05-01004-01	LCS	KNOWN	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.45E+00			pCi/g
05-01004-01	LCS	SPIKE	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	2.43E+02	4.62E+00	1.22E+01	6.30E-01	pCi/g
05-01004-02	MBL	BLANK	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	3.39E-01	3.82E-01	3.82E-01	6.36E-01	pCi/g
05-01004-03	DUP	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	7.23E+00	2.38E+00	2.41E+00	3.27E+00	pCi/g
05-01004-04	DO	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	8.77E+00	2.68E+00	2.71E+00	3.69E+00	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	5.30E+00	2.35E+00	2.37E+00	3.50E+00	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	7.22E+00	2.40E+00	2.42E+00	3.35E+00	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Gross Beta	LANL MLR-100 Modified	6.26E+00	2.51E+00	2.52E+00	3.65E+00	pCi/g
05-01004-01	LCS	KNOWN	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-01004-01	LCS	KNOWN	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-01004-01	LCS	SPIKE	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	1.25E+02	6.82E+00	7.20E+00	1.00E+00	pCi/g
05-01004-01	LCS	SPIKE	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	7.48E+01	5.95E+00	6.11E+00	9.28E-01	pCi/g
05-01004-02	MBL	BLANK	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	-5.04E-03	9.73E-03	9.73E-03	1.66E-02	pCi/g
05-01004-02	MBL	BLANK	01/04/05 00:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	-5.55E-03	1.12E-02	1.12E-02	1.92E-02	pCi/g
05-01004-03	DUP	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	2.87E-02	3.28E-02	3.28E-02	5.36E-02	pCi/g
05-01004-03	DUP	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	6.73E+00	5.53E-01	5.67E-01	5.56E-02	pCi/g
05-01004-03	DUP	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Potassium-40	LANL ER-130 Modified	1.28E+00	5.00E-01	5.01E-01	3.99E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

SERVICES

## Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG: 05-01004 Revised  Purchase Order: 0047329  Analysis Category: ENVIRONMENTAL  Sample Matrix: SO				Report Units					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01004-04	DO	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	7.38E-03	2.87E-02	2.87E-02	5.41E-02	pCi/g
05-01004-04	DO	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	6.88E+00	5.63E-01	5.77E-01	5.52E-02	pCi/g
05-01004-04	DO	BC-DL-001-FS-1-1-0	12/30/04 12:00	1/4/2005	1/5/2005	05-01004	Potassium-40	LANL ER-130 Modified	1.54E+00	6.13E-01	6.14E-01	4.78E-01	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Actinium-228	LANL ER-130 Modified	1.25E+00	1.63E-01	1.64E-01	1.58E-01	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Bismuth-214	LANL ER-130 Modified	9.06E-01	1.20E-01	1.21E-01	7.59E-02	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	-3.32E-04	2.74E-02	2.74E-02	4.79E-02	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	6.00E-02	3.21E-02	3.22E-02	6.06E-02	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Potassium-40	LANL ER-130 Modified	1.23E+01	1.33E+00	1.35E+00	3.00E-01	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Lead-212	LANL ER-130 Modified	1.31E+00	1.30E-01	1.32E-01	7.38E-02	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Lead-214	LANL ER-130 Modified	8.08E-01	1.02E-01	1.03E-01	8.88E-02	pCi/g
05-01004-05	TRG	EC-N11-005-F-2-1-0	12/30/04 15:40	1/4/2005	1/5/2005	05-01004	Thallium-208	LANL ER-130 Modified	1.10E+00	1.40E-01	1.42E-01	1.25E-01	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Actinium-228	LANL ER-130 Modified	1.07E+00	1.30E-01	1.31E-01	1.25E-01	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Bismuth-214	LANL ER-130 Modified	9.03E-01	1.13E-01	1.14E-01	7.72E-02	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	1.58E-02	2.65E-02	2.65E-02	4.84E-02	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	3.50E+00	3.84E-01	3.90E-01	4.31E-02	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Potassium-40	LANL ER-130 Modified	8.47E+00	1.01E+00	1.03E+00	3.57E-01	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Lead-212	LANL ER-130 Modified	1.13E+00	1.14E-01	1.16E-01	7.40E-02	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Lead-214	LANL ER-130 Modified	8.17E-01	9.95E-02	1.01E-01	9.88E-02	pCi/g
05-01004-06	TRG	EC-N11-006-W-2-1-0	12/30/04 16:00	1/4/2005	1/5/2005	05-01004	Thallium-208	LANL ER-130 Modified	8.93E-01	1.06E-01	1.08E-01	1.22E-01	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Actinium-228	LANL ER-130 Modified	9.02E-01	1.15E-01	1.16E-01	1.41E-01	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Bismuth-214	LANL ER-130 Modified	6.74E-01	1.02E-01	1.02E-01	7.63E-02	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Cobalt-60	LANL ER-130 Modified	2.87E-03	2.42E-02	2.42E-02	4.33E-02	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Cesium-137	LANL ER-130 Modified	1.54E-01	3.70E-02	3.71E-02	4.22E-02	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Potassium-40	LANL ER-130 Modified	7.95E+00	9.58E-01	9.69E-01	3.04E-01	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Lead-212	LANL ER-130 Modified	9.63E-01	1.01E-01	1.02E-01	6.18E-02	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Lead-214	LANL ER-130 Modified	7.65E-01	9.52E-02	9.62E-02	7.79E-02	pCi/g
05-01004-07	TRG	EC-N9-003-W-2-1-0	12/30/04 15:30	1/4/2005	1/5/2005	05-01004	Thallium-208	LANL ER-130 Modified	8.48E-01	1.05E-01	1.06E-01	1.04E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



COC ID: RY-123004

Client DSHE

Site Name Bush River Rad Yard

W. O.

**Lab**  
**Eberline Services**

TAT  
3day

**Contact Name** Joe Gross

**Contact Phone No. 410-612-5900**

**Lab Contact**  
**Mike McDougal**

Lab Phone 865-481-0683

# Chain of Custody Record



Page 1 of 1

Gross  
AlphaBeta,Gam  
ma Spec,Arsenic

Filtered  
Container  
Preservative

[illegible]

## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

**Lab Use Only**

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

### Relinquished By

Received By

Date / Time

Relinquished By

Date / Time

Received By

Date / Time

COC Tape was present on outer package

COC Tape was unbroken on outer package

COC Tape ws present on sample

COC Tape was unbroken on sample N

Received in good condition.

Labels indicate Properly Preserved

Received within Holding Time ☒ Yes ☐ No

**C** **B**

JAN - 4  
 1942  
 JAN 4 1942  
 JAN 4 1942



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	BC-DL-001-FS-1-1-0	Arsenic, Total	6.1	MG/KG	1.4	6.0
-002	EC-N11-005-F-2-1-0	Arsenic, Total	4.6	MG/KG	1.8	6.0
-003	EC-N11-006-F-2-1-0	Arsenic, Total	9.1	MG/KG	1.9	6.0
-004	EC-N9-003-W-2-1-0	Arsenic, Total	110	MG/KG	1.6	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0007-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	EC-DL-001-FS-1-1-0	Arsenic, Total	169	6.1	175	93.4	6.0
		Arsenic, Total MSD	170	6.1	166	98.2	6.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	BC-DL-001-FS-1-1-0	Arsenic, Total	93.4	98.2	5.0



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	BC-DL-001-FS-1-1-0	Arsenic, Total	6.1	4.7	25.9	6.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/12/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0501L540

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0007-LC1	Arsenic, LCS	964	1000	MG/KG	96.4





EBS-OR-21762

December 22, 2004

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 04-12099-OR

SAMPLE RECEIPT

This work order contains four soil samples received 12/17/2004. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N0-002-F-1-1-0	04-12099-04
EC-N0-003-F-1-1-0	04-12099-05
EC-N0-003-F-1-1-1	04-12099-06
EC-N0-004-F-1-1-0	04-12099-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples were prepared by digesting representative aliquots with HNO<sub>3</sub>. Digestates were volumetrically diluted and then mass equivalent aliquots were transferred to steel planchets for final evaporation to dryness. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Gross Beta results for sample fractions -04 and -07 (Client IDs: EC-N0-002-F-1-1-0 and EC-N0-004-F-1-1-0) demonstrated slightly high detection limits. In the case of these samples, dissolved solids within the digestate required the use of a small aliquot, therefore causing the high detection limits. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.



## ANALYTICAL RESULTS CONTINUED

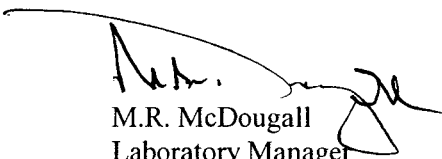
### GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.

Samples demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, slightly positive results for Cesium-137 activity and non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sampled demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 12/22/04



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

SDG: 04-12099

Purchase Order: DSHS

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12099-01	LCS	KNOWN	12/17/04 00:00	12/17/2004	12/21/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.26E+01			pCi/g
04-12099-01	LCS	SPIKE	12/17/04 00:00	12/17/2004	12/21/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	3.15E+02	8.77E+00	2.33E+01	6.41E-01	pCi/g
04-12099-02	MBL	BLANK	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	4.03E-02	1.48E-01	1.48E-01	2.85E-01	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	2.36E+00	1.73E+00	1.74E+00	2.52E+00	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	3.98E+00	2.00E+00	2.02E+00	2.44E+00	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	5.94E+00	2.19E+00	2.22E+00	2.11E+00	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	4.14E+00	1.82E+00	1.85E+00	1.97E+00	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Gross Alpha	LANL MLR-100 Modified	3.35E+00	2.02E+00	2.04E+00	2.79E+00	pCi/g
04-12099-01	LCS	KNOWN	12/17/04 00:00	12/17/2004	12/21/2004	04-12099	Gross Beta	LANL MLR-100 Modified	2.49E+02	7.48E+00			pCi/g
04-12099-01	LCS	SPIKE	12/17/04 00:00	12/17/2004	12/21/2004	04-12099	Gross Beta	LANL MLR-100 Modified	2.49E+02	6.83E+00	1.35E+01	1.15E+00	pCi/g
04-12099-02	MBL	BLANK	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	-1.86E-01	3.45E-01	3.45E-01	6.31E-01	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	6.65E+00	2.93E+00	2.93E+00	4.47E+00	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	3.99E+00	3.19E+00	3.19E+00	5.21E+00	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	2.23E+00	2.89E+00	2.89E+00	4.86E+00	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	2.95E+00	2.29E+00	2.30E+00	3.71E+00	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Gross Beta	LANL MLR-100 Modified	2.87E+00	3.08E+00	3.08E+00	5.13E+00	pCi/g
04-12099-01	LCS	KNOWN	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
04-12099-01	LCS	KNOWN	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
04-12099-01	LCS	SPIKE	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	1.28E+02	7.01E+00	7.40E+00	1.03E+00	pCi/g
04-12099-01	LCS	SPIKE	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	7.62E+01	6.06E+00	6.22E+00	9.24E-01	pCi/g
04-12099-02	MBL	BLANK	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	6.22E-03	1.83E-02	1.83E-02	3.70E-02	pCi/g
04-12099-02	MBL	BLANK	12/17/04 00:00	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	2.24E-02	2.44E-02	2.44E-02	1.89E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Actinium-228	LANL ER-130 Modified	7.66E-01	1.12E-01	1.13E-01	1.24E-01	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Bismuth-214	LANL ER-130 Modified	6.13E-01	9.02E-02	9.09E-02	6.99E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	3.64E-03	2.10E-02	2.10E-02	3.88E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	2.55E+00	2.63E-01	2.68E-01	4.01E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Potassium-40	LANL ER-130 Modified	6.54E+00	7.96E-01	8.05E-01	2.58E-01	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Lead-212	LANL ER-130 Modified	8.84E-01	9.62E-02	9.76E-02	6.26E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Lead-214	LANL ER-130 Modified	6.31E-01	8.74E-02	8.82E-02	8.75E-02	pCi/g
04-12099-03	DUP	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Thallium-208	LANL ER-130 Modified	7.40E-01	1.20E-01	1.21E-01	2.07E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross			SDG: 04-12099							
			Weston Solutions			Purchase Order: DSHE							
			1309 Continental Drive, #M			Analysis Category: ENVIRONMENTAL							
			Abingdon, MD 21009			Sample Matrix: SO							
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Actinium-228	LANL ER-130 Modified	7.07E-01	1.10E-01	1.11E-01	1.17E-01	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Bismuth-214	LANL ER-130 Modified	5.95E-01	9.04E-02	9.10E-02	7.45E-02	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	9.82E-03	2.01E-02	2.01E-02	3.82E-02	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	2.59E+00	2.68E-01	2.72E-01	4.01E-02	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Potassium-40	LANL ER-130 Modified	6.38E+00	7.98E-01	8.07E-01	2.93E-01	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Lead-212	LANL ER-130 Modified	8.43E-01	9.39E-02	9.51E-02	6.29E-02	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Lead-214	LANL ER-130 Modified	6.00E-01	9.87E-02	9.93E-02	8.42E-02	pCi/g
04-12099-04	DO	EC-N0-002-F-1-1-0	12/16/04 10:30	12/17/2004	12/20/2004	04-12099	Thallium-208	LANL ER-130 Modified	6.63E-01	9.21E-02	9.29E-02	1.00E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Actinium-228	LANL ER-130 Modified	8.34E-01	2.31E-01	2.31E-01	2.48E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Bismuth-214	LANL ER-130 Modified	6.48E-01	1.54E-01	1.55E-01	1.43E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	-9.05E-03	3.83E-02	3.83E-02	6.85E-02	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	1.08E+00	1.44E-01	1.45E-01	6.58E-02	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Potassium-40	LANL ER-130 Modified	6.49E+00	1.16E+00	1.16E+00	6.84E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Lead-212	LANL ER-130 Modified	1.03E+00	1.09E+00	1.09E+00	1.06E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Lead-214	LANL ER-130 Modified	5.60E-01	1.29E-01	1.30E-01	1.45E-01	pCi/g
04-12099-05	TRG	EC-N0-003-F-1-1-0	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Thallium-208	LANL ER-130 Modified	6.36E-01	1.48E-01	1.48E-01	2.25E-01	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Actinium-228	LANL ER-130 Modified	5.70E-01	1.75E-01	1.75E-01	2.90E-01	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Bismuth-214	LANL ER-130 Modified	4.18E-01	1.10E-01	1.11E-01	1.70E-01	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	-1.53E-03	3.04E-02	3.04E-02	5.36E-02	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	5.34E-01	9.18E-02	9.23E-02	4.49E-02	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Potassium-40	LANL ER-130 Modified	4.61E+00	7.72E-01	7.77E-01	3.94E-01	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Lead-212	LANL ER-130 Modified	4.77E-01	8.61E-02	8.66E-02	6.93E-02	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Lead-214	LANL ER-130 Modified	4.16E-01	8.93E-02	8.96E-02	8.90E-02	pCi/g
04-12099-06	TRG	EC-N0-003-F-1-1-1	12/16/04 10:42	12/17/2004	12/20/2004	04-12099	Thallium-208	LANL ER-130 Modified	4.42E-01	9.33E-02	9.37E-02	1.32E-01	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Actinium-228	LANL ER-130 Modified	8.80E-01	1.13E-01	1.14E-01	1.32E-01	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Bismuth-214	LANL ER-130 Modified	7.10E-01	9.67E-02	9.76E-02	7.62E-02	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Cobalt-60	LANL ER-130 Modified	-5.56E-03	2.21E-02	2.21E-02	3.92E-02	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Cesium-137	LANL ER-130 Modified	1.58E+00	1.83E-01	1.86E-01	3.77E-02	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Potassium-40	LANL ER-130 Modified	7.41E+00	8.75E-01	8.86E-01	3.33E-01	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Lead-212	LANL ER-130 Modified	9.80E-01	1.01E-01	1.02E-01	6.87E-02	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Lead-214	LANL ER-130 Modified	6.79E-01	8.63E-02	8.72E-02	8.34E-02	pCi/g
04-12099-07	TRG	EC-N0-004-F-1-1-0	12/16/04 11:00	12/17/2004	12/20/2004	04-12099	Thallium-208	LANL ER-130 Modified	7.48E-01	9.91E-02	1.00E-01	1.08E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

SERVICES

## Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



04-12099

# Chain of Custody Record



COC ID: ENode10-1

Client DSHE

Site Name Bush River Rad Yard

W. O.

Lab Eberline Services

TAT 3 days

Contact Name Joe Gross

Contact Phone No. 410-612-5900

Lab Contact Mike McDougal

Lab Phone 865-481-0683

Gamma Spec

Gross AlphaBeta,Gamma Spec,Arsenic

Filtered

Container

Preservative

Date-Time Collected

Matrix

PID

MS/MSD

Date-Time Collected

1

1

1

1

1

1

1

1

1

1

1

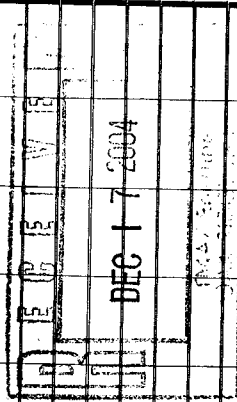
1

Wish Not Receive this sample. KRS 12/17/04

2

12/16/2004 3:00

BIAS HOT SPOT



## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

## Lab Use Only

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

COC Tape was present on outer package ☒ N

COC Tape was unbroken on outer package ☒ N

COC Tape was present on sample ☒ N

COC Tape was unbroken on sample ☒ N

Received in good condition ☒ N

Labels indicate Properly Preserved ☒ N

Received within Holding Time ☒ N

Relinquished By

Date / Time

Received By

Date / Time

Relinquished By

Date / Time

Received By

Date / Time

John 12/16/04

KBarnhiser 12/17/04 0900



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/22/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L476

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	EC-N0-002-F-1-1-0	Arsenic, Total	9.3	MG/KG	1.4	6.0
-002	EC-N0-003-F-1-1-0	Arsenic, Total	8.7	MG/KG	1.3	6.0
-003	EC-N0-003-F-1-1-1	Arsenic, Total	19.6	MG/KG	1.4	6.0
-004	EC-N0-004-F-1-1-0	Arsenic, Total	9.2	MG/KG	1.5	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/22/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L476

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0760-MB1	Arsenic, Total	0.26 u	MG/KG	0.26	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/22/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L476

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0760-LC1	Arsenic, LCS	938	1000	MG/KG	93.8





EBS-OR-24706

August 30, 2006

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 06-08159-OR

SAMPLE RECEIPT

This work order contains six soil samples received 08/24/06. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-N12-001-F-1-1-0	06-08159-04	EC-N12-004-W-1-1-0	06-08159-07
EC-N12-002-F-1-1-0	06-08159-05	EC-N12-004-W-1-1-1	06-08159-08
EC-N12-003-F-1-1-0	06-08159-06	EC-N12-005-W-1-1-0	06-08159-09

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples were prepared by evaporation of representative volumetric aliquots acidified with HNO<sub>3</sub>. Reduced samples were then transferred to steel planchets for final evaporation to dryness and flaming if appropriate. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated near background equivalent to only slightly positive results for Gross Alpha and Beta activity. Results for the Gross Alpha and Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.



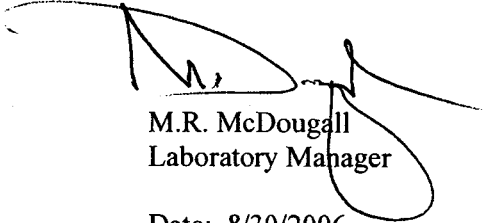
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY CONTINUED

Samples demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated near detection limit equivalent to slightly positive results for Cesium-137 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 8/30/2006



# Eberline Services

## Final Report of Analysis

Report To:

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Work Order Details:

SDG: 06-08159

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
06-08159-01	LCS	KNOWN	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	3.01E+02	1.30E+01			pCi/g
06-08159-01	LCS	SPIKE	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	2.96E+02	3.37E+00	2.06E+01	2.54E-01	pCi/g
06-08159-02	MBL	BLANK	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	-3.09E-02	1.26E-01	1.28E-01	2.48E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	5.41E+00	1.37E+00	1.42E+00	1.52E+00	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	5.03E+00	1.22E+00	1.27E+00	1.29E+00	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	5.99E+00	1.23E+00	1.30E+00	1.15E+00	pCi/g
06-08159-06	TRG	EC-N12-003-F-1-1-0	08/21/06 17:30	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	8.66E+00	1.44E+00	1.56E+00	1.15E+00	pCi/g
06-08159-07	TRG	EC-N12-004-W-1-1-0	08/21/06 17:35	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	4.41E+00	1.20E+00	1.24E+00	1.34E+00	pCi/g
06-08159-08	TRG	EC-N12-004-W-1-1-1	08/21/06 17:35	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	4.09E+00	1.28E+00	1.31E+00	1.60E+00	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/28/2006	06-08159	Gross Alpha	LANL MLR-100 Modified	4.52E+00	1.20E+00	1.24E+00	1.32E+00	pCi/g
06-08159-01	LCS	KNOWN	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g
06-08159-01	LCS	SPIKE	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	2.51E+02	2.73E+00	1.20E+01	4.25E-01	pCi/g
06-08159-02	MBL	BLANK	08/24/06 00:00	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	-9.36E-02	2.76E-01	2.76E-01	4.85E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	5.49E+00	1.64E+00	1.66E+00	2.48E+00	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	5.02E+00	1.54E+00	1.56E+00	2.34E+00	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	3.40E+00	1.47E+00	1.48E+00	2.31E+00	pCi/g
06-08159-06	TRG	EC-N12-003-F-1-1-0	08/21/06 17:30	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	6.74E+00	1.42E+00	1.45E+00	1.97E+00	pCi/g
06-08159-07	TRG	EC-N12-004-W-1-1-0	08/21/06 17:35	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	8.75E+00	1.57E+00	1.62E+00	2.10E+00	pCi/g
06-08159-08	TRG	EC-N12-004-W-1-1-1	08/21/06 17:35	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	6.69E+00	1.76E+00	1.79E+00	2.65E+00	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/28/2006	06-08159	Gross Beta	LANL MLR-100 Modified	7.30E+00	1.62E+00	1.65E+00	2.33E+00	pCi/g
06-08159-01	LCS	KNOWN	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	2.57E+02	6.82E+00			pCi/g
06-08159-01	LCS	KNOWN	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	1.62E+02	4.85E+00			pCi/g
06-08159-01	LCS	SPIKE	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	2.70E+02	1.47E+01	1.55E+01	1.89E+00	pCi/g
06-08159-01	LCS	SPIKE	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	1.61E+02	1.24E+01	1.27E+01	1.41E+00	pCi/g
06-08159-02	MBL	BLANK	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	4.29E-03	1.02E-02	1.02E-02	2.05E-02	pCi/g
06-08159-02	MBL	BLANK	08/24/06 00:00	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	1.62E-03	8.88E-03	8.88E-03	1.72E-02	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				SDG:		06-08159			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	1.66E+00	2.17E-01	2.19E-01	2.05E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	1.26E+00	1.37E-01	1.39E-01	1.20E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	-3.63E-02	4.07E-02	4.07E-02	6.56E-02	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	6.10E-01	9.96E-02	1.00E-01	6.92E-02	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	1.43E+01	1.45E+00	1.47E+00	5.22E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	1.80E+00	1.65E-01	1.68E-01	1.05E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	1.08E+00	1.40E-01	1.41E-01	1.32E-01	pCi/g
06-08159-03	DUP	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	1.55E+00	1.84E-01	1.87E-01	1.69E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	1.52E+00	2.10E-01	2.12E-01	2.17E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	1.07E+00	1.86E-01	1.87E-01	1.18E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	1.23E-02	3.84E-02	3.84E-02	6.94E-02	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	5.55E-01	9.97E-02	1.00E-01	6.75E-02	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	1.52E+01	1.54E+00	1.56E+00	4.75E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	1.67E+00	1.72E-01	1.75E-01	1.05E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	1.19E+00	1.42E-01	1.44E-01	1.29E-01	pCi/g
06-08159-04	DO	EC-N12-001-F-1-1-0	08/21/06 17:20	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	1.43E+00	1.77E-01	1.79E-01	1.69E-01	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	1.42E+00	1.76E-01	1.78E-01	2.01E-01	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	1.04E+00	1.27E-01	1.28E-01	9.98E-02	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	1.03E-02	3.80E-02	3.80E-02	6.16E-02	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	9.53E-01	1.18E-01	1.19E-01	5.24E-02	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	1.41E+01	1.53E+00	1.55E+00	3.94E-01	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	1.49E+00	1.35E-01	1.37E-01	8.72E-02	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	1.06E+00	1.20E-01	1.21E-01	1.02E-01	pCi/g
06-08159-05	TRG	EC-N12-002-F-1-1-0	08/21/06 17:25	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	1.29E+00	1.61E-01	1.63E-01	1.51E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:			Work Order Details:							
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009			Client ID			SDG: 06-08159							
						Purchase Order: 0047329							
						Analysis Category: ENVIRONMENTAL							
						Sample Matrix: SO							
Lab ID	Sample Type		Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	1.74E+00	2.99E-01	3.01E-01	3.84E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	1.31E+00	2.54E-01	2.55E-01	2.02E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	-2.29E-02	7.10E-02	7.10E-02	1.21E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	1.07E+00	1.81E-01	1.82E-01	1.06E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	1.31E+01	1.92E+00	1.93E+00	9.77E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	2.08E+00	3.09E-01	3.11E-01	1.51E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	1.39E+00	2.12E-01	2.14E-01	2.04E-01	pCi/g
06-08159-06	TRG		08/21/06 17:30	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	1.39E+00	2.37E-01	2.39E-01	2.71E-01	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	1.02E+00	1.22E-01	1.23E-01	1.28E-01	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	6.21E-01	8.18E-02	8.26E-02	7.78E-02	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	-5.44E-04	3.22E-02	3.22E-02	3.98E-02	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	4.34E+00	3.49E-01	3.58E-01	4.10E-02	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	7.72E+00	8.19E-01	8.31E-01	3.37E-01	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	8.19E-01	8.05E-02	8.19E-02	6.43E-02	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	6.05E-01	8.83E-02	8.90E-02	8.96E-02	pCi/g
06-08159-07	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	6.59E-01	1.41E-01	1.42E-01	2.16E-01	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	8.39E-01	1.58E-01	1.59E-01	3.08E-01	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	7.41E-01	9.97E-02	1.01E-01	8.68E-02	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	1.18E-03	2.71E-02	2.71E-02	4.78E-02	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	3.89E+00	3.19E-01	3.27E-01	4.40E-02	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	7.71E+00	8.79E-01	8.90E-01	3.25E-01	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	7.59E-01	9.90E-02	1.00E-01	7.92E-02	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	5.72E-01	9.79E-02	9.85E-02	1.10E-01	pCi/g
06-08159-08	TRG		08/21/06 17:35	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	7.90E-01	1.21E-01	1.22E-01	1.35E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		06-08159			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Actinium-228	LANL ER-130 Modified	8.66E-01	1.62E-01	1.63E-01	1.97E-01	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Bismuth-214	LANL ER-130 Modified	6.57E-01	1.30E-01	1.30E-01	2.34E-01	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Cobalt-60	LANL ER-130 Modified	-3.28E-02	4.15E-02	4.15E-02	6.66E-02	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Cesium-137	LANL ER-130 Modified	4.71E+00	3.98E-01	4.07E-01	7.02E-02	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Potassium-40	LANL ER-130 Modified	6.47E+00	9.99E-01	1.01E+00	4.64E-01	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Lead-212	LANL ER-130 Modified	8.75E-01	1.14E-01	1.15E-01	1.04E-01	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Lead-214	LANL ER-130 Modified	6.40E-01	1.21E-01	1.21E-01	1.45E-01	pCi/g
06-08159-09	TRG	EC-N12-005-W-1-1-0	08/21/06 17:40	8/24/2006	8/25/2006	06-08159	Thallium-208	LANL ER-130 Modified	8.20E-01	1.60E-01	1.61E-01	1.96E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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06-08159

## Chain of Custody Record

Nº 2295

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601 Scarboro Road  
Oak Ridge, TN 37830  
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Project Name: <u>Rad Yard</u>		Project Number:		Analysis Requested		Purchase Order #:		Page <u>1</u> of <u>1</u>	
Send Report To: <u>Joe Gross</u>		Sampler (Print Name): <u>BB</u>		* Gamma Spec		Comments, Special Instructions, etc.		Lab Sample ID (to be completed by lab)	
Address: <u>309 Centinela Dr</u>		Sampler (Print Name):		* Gamma Alpha/Beta					
City: <u>St. N</u>		Shipment Method:							
State: <u>Abingdon, MD 21009</u>		Airbill Number:							
Phone: <u>(410) 612-5900</u>		Laboratory Receiving:							
Fax: <u>(410) 612-5901</u>									
EC-N12- <del>001</del> -F-1-1-0	Sample Date: <u>8/17/06</u>	Sample Time: <u>1720</u>	Sample Matrix: <u>SL</u>	Number of Containers: <u>1</u>	X	X			
EC-N12- <del>002</del> -F-1-1-0	Sample Date: <u>8/21/06</u>	Sample Time: <u>1725</u>							
EC-N12- <del>003</del> -F-1-1-0	Sample Date: <u>8/21/06</u>	Sample Time: <u>1730</u>							
EC-N12- <del>004</del> -W-1-1-0	Sample Date: <u>8/21/06</u>	Sample Time: <u>1735</u>							
EC-N12- <del>004</del> -W-1-1-1	Sample Date: <u>8/21/06</u>	Sample Time: <u>1735</u>							
EC-N12- <del>005</del> -W-1-1-0	Sample Date: <u>8/21/06</u>	Sample Time: <u>1740</u>							
<p>* Analyze Gamma Spec for <u>CO-60</u> &amp; <u>Cs-137</u>. Report all isotopes &gt; bkgd. ** If Gross beta results exceed bkgd values by &gt; 3 std. devs. analyze for <u>Sr-90</u></p>									

Relinquished by: (Signature)		Received by: (Signature)		Date:		Time:		Sample Custodian Remarks (Completed By Laboratory):	
<u>[Signature]</u>		<u>[Signature]</u>		<u>8/24/06</u>		<u>0900</u>		QA/QC Level	
Relinquished by: (Signature)		Received by: (Signature)		Date:		Time:		Turnaround	
								Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> Other <input type="checkbox"/>	
Relinquished by: (Signature)		Received by: (Signature)		Date:		Time:		Routine <input type="checkbox"/> 24 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> Other <input type="checkbox"/>	
								Total # Containers Received? <input type="checkbox"/>	
								COC Seals Present? <input type="checkbox"/>	
								COC Seals Intact? <input type="checkbox"/>	
								Received Containers Intact? <input type="checkbox"/>	
								Temperature? <input type="checkbox"/>	



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	ED-N12-001-F-1-1-0	Arsenic, Total	7.7	MG/KG	0.66	1.0
-002	EC-N12-002-F-1-1-0	Arsenic, Total	4.7	MG/KG	0.67	1.0
-003	EC-N12-003-F-1-1-0	Arsenic, Total	3.5	MG/KG	0.67	1.0
-004	EC-N12-004-W-1-1-0	Arsenic, Total	4.5	MG/KG	0.64	1.0
-005	EC-N12-005-W-1-1-0	Arsenic, Total	6.0	MG/KG	0.64	1.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	06L0544-MB1	Arsenic, Total	0.61 u	MG/KG	0.61	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	ED-N12-001-F-1-1-0	Arsenic, Total	208	7.7	216	92.8	1.0
		Arsenic, Total MSD	208	7.7	216	92.9	1.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	ED-N12-001-F-1-1-0	Arsenic, Total	92.8	92.9	0.10



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	ED-N12-001-F-1-1-0	Arsenic, Total	7.7	8.2	6.3	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/30/06

CLIENT: WSI-ABERDEEN

LVL LOT #: 0608L798

WORK ORDER: 60106-005-001-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	06L0544-LC1	Arsenic, LCS	936	1000	MG/KG	93.6





EBS-OR-22080

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-03042-OR

SAMPLE RECEIPT

This work order contains three soil samples received 3/7/2005. All samples were analyzed by Gamma Spectroscopy. One sample was also analyzed for Gross Alpha/Beta.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
BC-B3-001-FS2-1-0-0	05-03042-04	EC-N4-001-F-1-1-0	05-03042-06
BC-B3-001-FS3-1-0-0	05-03042-05		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Sample demonstrated near background equivalent results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated non-detect or background equivalent to slightly positive results for Actinium-228, Silver-108m, Bismuth-214, Cobalt-60, Iodine-125, Potassium-40, Lead-212, Lead-214, Promethium-145, Antimony-124, Antimony-125, Thorium-234, Thallium-208 and Niobium-95 activity, and non-detect equivalent results for Cobalt-57, Cobalt-58, Antimony-126, Manganese-54, Ruthenium-103 and Zinc-65 activity. Due to the presence of Cesium-137, a full suite of fission and activation product radionuclides are being reported. In many instances, radionuclides as reported were not identified by the gamma spectroscopy Procount software. Samples demonstrated slightly positive results for Cesium-137 and



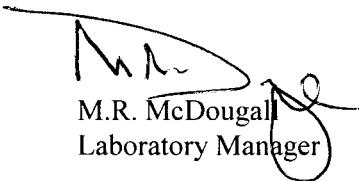
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

Cadmium-109 activity. Sample fractions -04 and -05 (Client IDs: BC-B3-001-FS2-1-0-0 and BC-B3-001-FS3-1-0-0) demonstrated slightly high detection limits. This was directly related to Compton effects from positive Cesium-137 activity present in these samples. Results for the method blank demonstrated non-detect or background equivalent activity for all gamma-emitting radionuclides as reported. Results for the Cobalt-60 and Cesium-137 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-03042			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03042-01	LCS	KNOWN	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-03042-01	LCS	SPIKE	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Alpha	LANL MLR-100 Modified	3.08E+02	8.63E+00	2.28E+01	6.77E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Alpha	LANL MLR-100 Modified	-1.96E-02	6.09E-02	6.09E-02	1.39E-01	pCi/g
05-03042-03	DUP	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Gross Alpha	LANL MLR-100 Modified	4.23E+00	9.68E-01	1.01E+00	5.78E-01	pCi/g
05-03042-06	DO	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Gross Alpha	LANL MLR-100 Modified	3.69E+00	1.13E+00	1.16E+00	1.36E+00	pCi/g
05-03042-01	LCS	KNOWN	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g
05-03042-01	LCS	SPIKE	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Beta	LANL MLR-100 Modified	2.51E+02	6.85E+00	1.35E+01	1.15E+00	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Gross Beta	LANL MLR-100 Modified	-2.17E-01	2.66E-01	2.67E-01	4.77E-01	pCi/g
05-03042-03	DUP	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Gross Beta	LANL MLR-100 Modified	2.44E+00	1.53E+00	1.54E+00	2.50E+00	pCi/g
05-03042-06	DO	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Gross Beta	LANL MLR-100 Modified	2.53E+00	1.50E+00	1.50E+00	2.43E+00	pCi/g
05-03042-01	LCS	KNOWN	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-03042-01	LCS	KNOWN	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-03042-01	LCS	SPIKE	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	1.27E+02	6.93E+00	7.32E+00	1.01E+00	pCi/g
05-03042-01	LCS	SPIKE	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	7.61E+01	6.03E+00	6.19E+00	8.65E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Actinium-228	LANL ER-130 Modified	-1.53E-02	1.08E-01	1.08E-01	2.01E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Bismuth-214	LANL ER-130 Modified	2.70E-02	5.61E-02	5.61E-02	1.12E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	9.94E-03	2.62E-02	2.62E-02	5.72E-02	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	-1.19E-02	3.06E-02	3.06E-02	5.47E-02	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Potassium-40	LANL ER-130 Modified	-2.75E-02	2.63E-01	2.63E-01	5.76E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Lead-212	LANL ER-130 Modified	7.02E-03	3.72E-02	3.72E-02	7.08E-02	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Lead-214	LANL ER-130 Modified	6.29E-02	5.09E-02	5.09E-02	1.06E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Thorium-234	LANL ER-130 Modified	-3.03E-01	4.03E-01	4.03E-01	7.12E-01	pCi/g
05-03042-02	MBL	BLANK	03/07/05 00:00	3/7/2005	3/8/2005	05-03042	Thallium-208	LANL ER-130 Modified	2.89E-02	7.05E-02	7.05E-02	1.45E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:	05-03042					
			Weston Solutions				Purchase Order:	0047329					
			1309 Continental Drive, #M				Analysis Category:	ENVIRONMENTAL					
			Abingdon, MD 21009				Sample Matrix:	SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Actinium-228	LANL ER-130 Modified	3.50E-01	5.53E-01	5.53E-01	1.11E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Bismuth-214	LANL ER-130 Modified	1.38E-01	8.75E-01	8.75E-01	1.52E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-57	LANL ER-130 Modified	-1.91E-01	2.88E-01	2.88E-01	4.94E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-58	LANL ER-130 Modified	1.12E-02	1.20E-01	1.20E-01	2.33E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	8.01E-01	1.94E-01	1.94E-01	2.24E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	3.05E+02	2.36E+01	2.43E+01	6.47E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Iodine-125	LANL ER-130 Modified	5.65E+01	1.02E+01	1.02E+01	1.10E+01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Potassium-40	LANL ER-130 Modified	4.88E+00	2.78E+00	2.79E+00	2.67E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Manganese-54	LANL ER-130 Modified	-2.03E-02	1.28E-01	1.28E-01	2.36E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Lead-212	LANL ER-130 Modified	2.41E-01	8.14E-01	8.14E-01	1.41E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Lead-214	LANL ER-130 Modified	1.41E+00	1.35E+00	1.35E+00	2.28E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Promethium-145	LANL ER-130 Modified	1.51E+01	1.01E+01	1.01E+01	2.93E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-124	LANL ER-130 Modified	-2.32E-01	4.14E-01	4.14E-01	6.99E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-125	LANL ER-130 Modified	9.26E-01	2.20E+00	2.20E+00	3.78E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-126	LANL ER-130 Modified	3.16E-01	3.26E-01	3.26E-01	6.76E-01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Thorium-234	LANL ER-130 Modified	2.32E+01	8.47E+00	8.48E+00	1.09E+01	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Thallium-208	LANL ER-130 Modified	5.14E-01	1.38E+00	1.38E+00	2.30E+00	pCi/g
05-03042-03	DUP	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Zinc-65	LANL ER-130 Modified	-2.44E-01	3.07E-01	3.07E-01	4.13E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Actinium-228	LANL ER-130 Modified	1.97E-01	4.71E-01	4.71E-01	9.50E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Bismuth-214	LANL ER-130 Modified	-1.49E-01	9.72E-01	9.72E-01	1.49E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-57	LANL ER-130 Modified	-2.92E-01	2.83E-01	2.83E-01	4.81E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-58	LANL ER-130 Modified	-2.95E-02	1.16E-01	1.16E-01	2.14E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	7.39E-01	1.99E-01	1.99E-01	2.60E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	3.08E+02	2.37E+01	2.44E+01	7.25E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Iodine-125	LANL ER-130 Modified	6.41E+01	1.15E+01	1.16E+01	1.11E+01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Potassium-40	LANL ER-130 Modified	2.82E+00	1.67E+00	1.67E+00	1.23E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Manganese-54	LANL ER-130 Modified	5.64E-02	1.34E-01	1.34E-01	2.68E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Lead-212	LANL ER-130 Modified	7.62E-01	8.22E-01	8.22E-01	1.44E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Lead-214	LANL ER-130 Modified	1.21E+00	1.32E+00	1.32E+00	2.30E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Promethium-145	LANL ER-130 Modified	1.71E+01	1.15E+01	1.15E+01	2.97E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-124	LANL ER-130 Modified	5.07E-01	4.39E-01	4.39E-01	7.86E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-125	LANL ER-130 Modified	1.00E+00	2.18E+00	2.18E+00	3.75E+00	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

Work Order Details:

**SDG: 05-03042**  
**Purchase Order: 0047329**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Antimony-126	LANL ER-130 Modified	5.80E-01	3.94E-01	3.95E-01	8.23E-01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Thorium-234	LANL ER-130 Modified	1.55E+01	9.40E+00	9.40E+00	1.11E+01	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Thallium-208	LANL ER-130 Modified	-7.68E-01	1.31E+00	1.31E+00	2.20E+00	pCi/g
05-03042-04	DO	BC-B3-001-FS2-1-0-0	03/03/05 13:45	3/7/2005	3/8/2005	05-03042	Zinc-65	LANL ER-130 Modified	1.24E-02	2.93E-01	2.93E-01	5.63E-01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Actinium-228	LANL ER-130 Modified	3.62E+00	3.75E+00	3.75E+00	4.21E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Silver-108m	LANL ER-130 Modified	1.26E+01	1.16E+00	1.19E+00	9.92E-01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Bismuth-214	LANL ER-130 Modified	2.27E+01	2.50E+00	2.53E+00	5.34E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Cadmium-109	LANL ER-130 Modified	6.07E+01	4.19E+01	4.19E+01	3.97E+01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Cobalt-57	LANL ER-130 Modified	2.15E+00	1.25E+00	1.25E+00	1.92E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Cobalt-58	LANL ER-130 Modified	-1.34E-01	5.95E-01	5.95E-01	1.00E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	7.49E+01	4.21E+00	4.43E+00	8.73E-01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	5.70E+03	4.37E+02	4.49E+02	2.62E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Iodine-125	LANL ER-130 Modified	8.14E+02	9.53E+01	9.65E+01	4.19E+01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Potassium-40	LANL ER-130 Modified	2.39E+00	2.37E+00	2.37E+00	4.62E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Manganese-54	LANL ER-130 Modified	-9.76E-03	5.94E-01	5.94E-01	1.01E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Niobium-95	LANL ER-130 Modified	2.41E+00	9.66E-01	9.67E-01	9.87E-01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Lead-212	LANL ER-130 Modified	-1.33E+00	3.15E+00	3.15E+00	5.34E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Lead-214	LANL ER-130 Modified	1.79E+01	5.29E+00	5.30E+00	8.29E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Promethium-145	LANL ER-130 Modified	2.17E+02	1.42E+02	1.42E+02	1.12E+01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Antimony-124	LANL ER-130 Modified	-2.48E-01	1.80E+00	1.80E+00	2.70E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Antimony-125	LANL ER-130 Modified	1.99E+00	9.19E+00	9.19E+00	1.39E+01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Antimony-126	LANL ER-130 Modified	2.09E+01	2.53E+00	2.55E+00	3.70E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Tin-126	LANL ER-130 Modified	6.06E+00	4.16E+00	4.16E+00	3.95E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Thorium-234	LANL ER-130 Modified	2.19E+02	3.87E+01	3.89E+01	4.01E+01	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Thallium-208	LANL ER-130 Modified	1.63E+00	5.03E+00	5.03E+00	8.48E+00	pCi/g
05-03042-05	TRG	BC-B3-001-FS3-1-0-0	03/03/05 14:15	3/7/2005	3/8/2005	05-03042	Zinc-65	LANL ER-130 Modified	1.78E+00	1.35E+00	1.35E+00	2.35E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
 SERVICES

**Oak Ridge Laboratory**

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# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #M**  
**Abingdon, MD 21009**

Report To:

Work Order Details:

**SDG:**  
**Purchase Order:**  
**Analysis Category:**  
**Sample Matrix:**

**05-03042**

0047329

ENVIRONMENTAL

SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Actinium-228	LANL ER-130 Modified	1.09E+00	2.44E-01	2.45E-01	3.48E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Silver-108m	LANL ER-130 Modified	2.31E-02	6.15E-02	6.15E-02	1.08E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Bismuth-214	LANL ER-130 Modified	8.78E-01	1.72E-01	1.72E-01	1.99E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Cadmium-109	LANL ER-130 Modified	2.84E+00	1.29E+00	1.29E+00	1.54E+00	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Cobalt-57	LANL ER-130 Modified	-2.25E-02	4.04E-02	4.04E-02	6.27E-02	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Cobalt-58	LANL ER-130 Modified	-9.56E-03	5.10E-02	5.10E-02	9.21E-02	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Cobalt-60	LANL ER-130 Modified	-4.30E-03	6.31E-02	6.31E-02	1.15E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Cesium-137	LANL ER-130 Modified	3.58E-01	1.20E-01	1.20E-01	9.57E-02	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Iodine-125	LANL ER-130 Modified	-7.57E-01	9.23E-01	9.23E-01	1.43E+00	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Potassium-40	LANL ER-130 Modified	8.24E+00	1.52E+00	1.53E+00	7.93E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Manganese-54	LANL ER-130 Modified	4.15E-03	5.19E-02	5.19E-02	9.64E-02	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Niobium-95	LANL ER-130 Modified	2.88E-02	6.11E-02	6.11E-02	1.12E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Lead-212	LANL ER-130 Modified	1.22E+00	1.70E-01	1.71E-01	1.37E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Lead-214	LANL ER-130 Modified	7.72E-01	1.30E-01	1.30E-01	1.80E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Promethium-145	LANL ER-130 Modified	1.20E-01	2.55E-01	2.55E-01	4.01E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Ruthenium-103	LANL ER-130 Modified	1.13E-01	7.47E-02	7.47E-02	8.29E-02	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Antimony-124	LANL ER-130 Modified	2.32E-02	6.13E-02	6.13E-02	1.04E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Antimony-125	LANL ER-130 Modified	-4.87E-02	1.39E-01	1.39E-01	2.42E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Antimony-126	LANL ER-130 Modified	-4.40E-02	1.44E-01	1.44E-01	2.26E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Tin-126	LANL ER-130 Modified	2.83E-01	1.27E-01	1.27E-01	1.54E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Thorium-234	LANL ER-130 Modified	1.28E+00	1.14E+00	1.14E+00	1.95E+00	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Thallium-208	LANL ER-130 Modified	7.21E-01	2.19E-01	2.20E-01	3.07E-01	pCi/g
05-03042-06	TRG	EC-N4-001-F-1-1-0	03/03/05 11:00	3/7/2005	3/8/2005	05-03042	Zinc-65	LANL ER-130 Modified	1.08E-01	1.06E-01	1.06E-01	2.15E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



COC ID: sumps3.3.05

Client DSHE

**Site Name** Bush River Rad Yard

W. O.

**Eberline Services**  
**Lab**

TAT  
3 days

**Contact Name** Joe Gross

**Contact Phone No.**

**Lab Contact**  
**Mike McDougal**

Lab Phone 865-481-0683

# Chain of Custody Record



Page 1 of 1

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	Preservative	Container	Filtered
	BC-B3-001-FS2-1-0-0	S		N	3/3/2005 13:45			
	BC-B3-001-FS3-1-0-0	S		N	3/3/2005 14:15			
	EC-N4-001-F-1-1-0	S		N	3/3/2005 11:00			

Site Name Bush River Rad Yard  
W. O.  
Lab Eberline Services  
TAT 3 days

Contact Name Joe Gross  
Contact Phone No. 410-612-5900  
Lab Contact Mike McDougal  
Lab Phone 865-481-0683

Gross  
AlphaBeta,Gam  
ma Spec,Arsenic

1-L Poly  
COOL

Gamma Spec

RECEIVED  
MAR - 7 2005

**ECEIVE**

MAR - 7 2005

COPY SENT TO:

DATE:

## Remarks/Comments

1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90.
2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background.
3. Pulverize & homogenize sample.

**Lab Use Only**

Temp of Cooler when Received, C

1	2	3	4	5
---	---	---	---	---

Relinquished By	Date / Time
-----------------	-------------

Received By	Date / Time
-------------	-------------

Relinquished By

Date / Time

Received By

Date / Time

COC Tape was present on outer package ☒ Y ☐ N

COC Tape was unbroken on outer package ☒ Y ☐ N

COCTape was present on sample

EOC Tape was unbroken on sample

Received in good condition

Labels indicate Properly Preserved

© 1994 by the American Psychological Association  
0893-3200/94/0904-0000\$05.00/0  
DOI: 10.1037/0893-3200.9.4.000

Received within Holding Time ON





EBS-OR-22315

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-04131-OR

SAMPLE RECEIPT

This work order contains four soil samples received 4/25/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-VP-006-DL-1-1-0	05-04131-04	EC-VP-007-W-1-1-0	05-04131-06
EC-VP-006-W-1-1-0	05-04131-05	EC-VP-012-F-1-1-0	05-04131-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated near background equivalent or only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

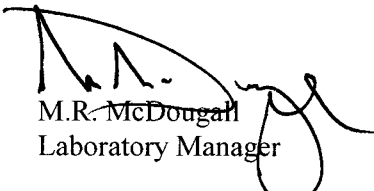
GAMMA SPECTROSCOPY

Samples demonstrated background equivalent to only slightly positive results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, and non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cesium-137, Potassium-40 and Lead-212 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-04131

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04131-01	LCS	KNOWN	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g
05-04131-01	LCS	SPIKE	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	3.04E+02	8.32E+00	2.24E+01	5.96E-01	pCi/g
05-04131-02	MBL	BLANK	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	-6.16E-02	1.10E-01	1.10E-01	2.31E-01	pCi/g
05-04131-03	DUP	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	3.27E+00	8.50E-01	8.79E-01	6.89E-01	pCi/g
05-04131-04	DO	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	2.97E+00	8.24E-01	8.49E-01	7.00E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/27/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	5.86E+00	1.23E+00	1.29E+00	1.10E+00	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/28/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	7.08E+00	1.39E+00	1.47E+00	9.71E-01	pCi/g
05-04131-07	TRG	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/28/2005	05-04131	Gross Alpha	LANL MLR-100 Modified	3.07E+00	1.13E+00	1.15E+00	1.45E+00	pCi/g
05-04131-01	LCS	KNOWN	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	2.46E+02	7.38E+00			pCi/g
05-04131-01	LCS	SPIKE	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	2.58E+02	6.74E+00	1.37E+01	1.07E+00	pCi/g
05-04131-02	MBL	BLANK	04/25/05 00:00	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	1.14E-01	2.64E-01	2.64E-01	4.51E-01	pCi/g
05-04131-03	DUP	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	3.15E+00	1.26E+00	1.27E+00	1.95E+00	pCi/g
05-04131-04	DO	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	2.21E+00	1.30E+00	1.30E+00	2.09E+00	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/27/2005	05-04131	Gross Beta	LANL MLR-100 Modified	5.63E+00	1.48E+00	1.50E+00	2.17E+00	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/28/2005	05-04131	Gross Beta	LANL MLR-100 Modified	6.75E+00	1.47E+00	1.50E+00	1.98E+00	pCi/g
05-04131-07	TRG	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/28/2005	05-04131	Gross Beta	LANL MLR-100 Modified	7.09E+00	1.62E+00	1.66E+00	2.28E+00	pCi/g
05-04131-01	LCS	KNOWN	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-04131-01	LCS	KNOWN	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-04131-01	LCS	SPIKE	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	1.24E+02	6.75E+00	7.13E+00	1.01E+00	pCi/g
05-04131-01	LCS	SPIKE	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	7.34E+01	5.82E+00	5.98E+00	8.73E-01	pCi/g
05-04131-02	MBL	BLANK	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	-1.85E-02	2.64E-02	2.64E-02	4.37E-02	pCi/g
05-04131-02	MBL	BLANK	04/25/05 00:00	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	2.19E-02	2.88E-02	2.88E-02	6.06E-02	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Actinium-228	LANL ER-130 Modified	9.12E-01	2.58E-01	2.58E-01	3.23E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Bismuth-214	LANL ER-130 Modified	6.25E-01	2.07E-01	2.08E-01	1.99E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	-1.48E-02	5.60E-02	5.60E-02	1.00E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	3.63E+00	3.67E-01	3.73E-01	1.19E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Potassium-40	LANL ER-130 Modified	8.77E+00	1.67E+00	1.68E+00	9.08E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Lead-212	LANL ER-130 Modified	1.07E+00	1.65E-01	1.66E-01	1.68E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Lead-214	LANL ER-130 Modified	7.01E-01	2.06E-01	2.06E-01	2.30E-01	pCi/g
05-04131-03	DUP	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Thallium-208	LANL ER-130 Modified	6.70E-01	2.08E-01	2.08E-01	2.95E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

SERVICES

Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis			Report To:				Work Order Details:						
			Joe Gross				SDG:		05-04131				
			Weston Solutions				Purchase Order:		0047329				
			1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009				Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Bismuth-214	LANL ER-130 Modified	3.18E-01	6.98E-02	7.00E-02	7.36E-02	pCi/g
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	2.75E-03	2.03E-02	2.03E-02	3.87E-02	pCi/g
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	8.43E-01	9.56E-02	9.69E-02	3.99E-02	pCi/g
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Potassium-40	LANL ER-130 Modified	4.01E+00	6.49E-01	6.54E-01	3.09E-01	pCi/g
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Lead-212	LANL ER-130 Modified	3.92E-01	6.87E-02	6.91E-02	6.12E-02	pCi/g
05-04131-04	TRG	EC-VP-006-DL-1-1-0	04/21/05 11:00	4/25/2005	4/26/2005	05-04131	Lead-214	LANL ER-130 Modified	3.70E-01	7.35E-02	7.38E-02	7.80E-02	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Actinium-228	LANL ER-130 Modified	1.05E+00	2.61E-01	2.62E-01	3.38E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Bismuth-214	LANL ER-130 Modified	8.08E-01	1.84E-01	1.85E-01	1.78E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	3.96E-03	5.44E-02	5.44E-02	1.00E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	1.24E+00	1.99E-01	2.00E-01	9.78E-02	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Potassium-40	LANL ER-130 Modified	1.10E+01	1.69E+00	1.71E+00	7.13E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Lead-212	LANL ER-130 Modified	1.33E+00	1.85E-01	1.87E-01	1.40E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Lead-214	LANL ER-130 Modified	9.13E-01	2.09E-01	2.09E-01	1.73E-01	pCi/g
05-04131-05	TRG	EC-VP-006-W-1-1-0	04/21/05 11:15	4/25/2005	4/26/2005	05-04131	Thallium-208	LANL ER-130 Modified	1.11E+00	2.24E-01	2.25E-01	2.63E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Actinium-228	LANL ER-130 Modified	1.36E+00	3.15E-01	3.16E-01	3.45E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Bismuth-214	LANL ER-130 Modified	9.14E-01	1.94E-01	1.95E-01	1.85E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	-1.45E-02	5.69E-02	5.69E-02	1.01E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	7.42E-02	8.87E-02	8.87E-02	1.05E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Potassium-40	LANL ER-130 Modified	1.17E+01	1.79E+00	1.80E+00	4.33E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Lead-212	LANL ER-130 Modified	1.39E+00	1.88E-01	1.90E-01	1.43E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Lead-214	LANL ER-130 Modified	1.03E+00	1.84E-01	1.85E-01	1.76E-01	pCi/g
05-04131-06	TRG	EC-VP-007-W-1-1-0	04/21/05 11:30	4/25/2005	4/26/2005	05-04131	Thallium-208	LANL ER-130 Modified	1.24E+00	2.30E-01	2.31E-01	2.53E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Actinium-228	LANL ER-130 Modified	1.33E+00	2.66E-01	2.66E-01	3.09E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Bismuth-214	LANL ER-130 Modified	6.11E-01	2.00E-01	2.01E-01	2.09E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Cobalt-60	LANL ER-130 Modified	-1.90E-02	5.50E-02	5.50E-02	9.76E-02	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Cesium-137	LANL ER-130 Modified	3.70E+00	3.71E-01	3.77E-01	1.03E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Potassium-40	LANL ER-130 Modified	7.45E+00	1.61E+00	1.61E+00	9.27E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Lead-212	LANL ER-130 Modified	9.89E-01	1.74E-01	1.75E-01	1.69E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Lead-214	LANL ER-130 Modified	4.29E-01	2.02E-01	2.02E-01	2.31E-01	pCi/g
05-04131-07	DO	EC-VP-012-F-1-1-0	04/21/05 15:45	4/25/2005	4/26/2005	05-04131	Thallium-208	LANL ER-130 Modified	8.77E-01	1.77E-01	1.78E-01	2.59E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621









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EBS-OR-22359

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
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CASE NARRATIVE  
Work Order# 05-05003-OR

SAMPLE RECEIPT

This work order contains thirteen soil samples received 5/2/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-B3-001- W-1-1-0	05-05003-04	EC-WW-011-F-1-1-0	05-05003-11
EC-WW-005-F-1-1-0	05-05003-05	STOCKPILE042905	05-05003-12
EC-WW-006-F-1-1-0	05-05003-06	EC-WW-002-F-1-1-0	05-05003-13
EC-WW-007-F-1-1-0	05-05003-07	EC-WW-003-F-1-1-0	05-05003-14
EC-WW-008-F-1-1-0	05-05003-08	EC-WW-003-F-1-1-1	05-05003-15
EC-WW-009-F-1-1-0	05-05003-09	EC-WW-004-W-1-1-0	05-05003-16
EC-WW-010-W-1-1-0	05-05003-10		

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated near background equivalent to only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity, non-detect equivalent results for Cobalt-60 activity, and



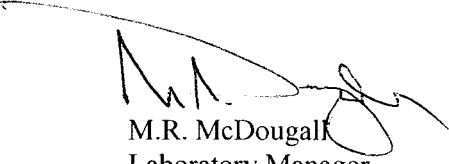
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY continued

non-detect equivalent to only slightly positive results for Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228, Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



Eberline Services			Report To:				Work Order Details:						
Final Report of Analysis			Joe Gross				05-05003						
			Weston Solutions				Purchase Order: 0047329						
			1309 Continental Drive, #M				Analysis Category: ENVIRONMENTAL						
			Abingdon, MD 21009				Sample Matrix: SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05003-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.92E+02	1.25E+01			pCi/g
05-05003-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	3.05E+02	8.50E+00	2.26E+01	6.21E-01	pCi/g
05-05003-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.05E-01	1.41E-01	1.41E-01	1.65E-01	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	6.68E+00	2.05E+00	2.10E+00	1.57E+00	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.76E+00	1.71E+00	1.72E+00	2.29E+00	pCi/g
05-05003-05	TRG	EC-VWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	3.00E+00	1.58E+00	1.59E+00	2.16E+00	pCi/g
05-05003-06	TRG	EC-VWV-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	4.37E+00	1.74E+00	1.76E+00	2.14E+00	pCi/g
05-05003-07	TRG	EC-VWV-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	3.77E+00	1.31E+00	1.34E+00	9.21E-01	pCi/g
05-05003-08	TRG	EC-VWV-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	3.92E+00	1.34E+00	1.36E+00	3.24E-01	pCi/g
05-05003-09	TRG	EC-VWV-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.75E+00	1.13E+00	1.14E+00	9.08E-01	pCi/g
05-05003-10	TRG	EC-VWV-010-W-1-1-0	04/28/05 14:05	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	7.86E+00	1.98E+00	2.05E+00	1.56E+00	pCi/g
05-05003-11	TRG	EC-VWV-011-F-1-1-0	04/28/05 15:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	3.01E+00	1.39E+00	1.41E+00	1.73E+00	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	6.20E+00	1.76E+00	1.81E+00	1.03E+00	pCi/g
05-05003-13	TRG	EC-VWV-002-F-1-1-0	04/27/05 09:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.93E+00	1.27E+00	1.28E+00	1.42E+00	pCi/g
05-05003-14	TRG	EC-VWV-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	4.27E+00	1.29E+00	1.32E+00	2.77E-01	pCi/g
05-05003-15	TRG	EC-VWV-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	2.63E+00	1.25E+00	1.26E+00	1.48E+00	pCi/g
05-05003-16	TRG	EC-VWV-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/4/2005	05-05003	Gross Alpha	LANL MLR-100 Modified	6.15E+00	1.66E+00	1.72E+00	1.14E+00	pCi/g
05-05003-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.40E+00			pCi/g
05-05003-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	2.52E+02	6.83E+00	1.36E+01	1.14E+00	pCi/g
05-05003-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	1.08E-01	3.50E-01	3.50E-01	6.07E-01	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	5.25E+00	2.01E+00	2.02E+00	2.96E+00	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.03E+00	2.00E+00	2.00E+00	3.19E+00	pCi/g
05-05003-05	TRG	EC-VWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	2.84E+00	1.83E+00	1.83E+00	2.92E+00	pCi/g
05-05003-06	TRG	EC-VWV-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	2.56E+00	1.88E+00	1.88E+00	3.05E+00	pCi/g
05-05003-07	TRG	EC-VWV-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.69E+00	1.95E+00	1.96E+00	3.06E+00	pCi/g
05-05003-08	TRG	EC-VWV-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.19E+00	1.95E+00	1.96E+00	3.10E+00	pCi/g
05-05003-09	TRG	EC-VWV-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.07E+00	1.89E+00	1.89E+00	3.01E+00	pCi/g
05-05003-10	TRG	EC-VWV-010-W-1-1-0	04/28/05 14:05	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.20E+00	2.18E+00	2.18E+00	3.52E+00	pCi/g
05-05003-11	TRG	EC-VWV-011-F-1-1-0	04/28/05 15:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	1.98E+00	1.94E+00	1.94E+00	3.22E+00	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.64E+00	2.30E+00	2.31E+00	3.71E+00	pCi/g
05-05003-13	TRG	EC-VWV-002-F-1-1-0	04/27/05 09:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	3.42E+00	1.79E+00	1.80E+00	2.79E+00	pCi/g
05-05003-14	TRG	EC-VWV-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	4.70E+00	1.82E+00	1.83E+00	2.68E+00	pCi/g
05-05003-15	TRG	EC-VWV-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	4.89E+00	1.94E+00	1.95E+00	2.90E+00	pCi/g
05-05003-16	TRG	EC-VWV-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/4/2005	05-05003	Gross Beta	LANL MLR-100 Modified	4.59E+00	1.92E+00	1.93E+00	2.89E+00	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample;MBL=Blank; DUP=Duplicate Sample; DO=Duplicate Original

**EBERLINE**  
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601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services				Report To:				Work Order Details:					
Final Report of Analysis				Joe Gross				05-05003					
				Weston Solutions				Purchase Order: 0047329					
				1309 Continental Drive, #M				Analysis Category: ENVIRONMENTAL					
				Abingdon, MD 21009				Sample Matrix: SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05003-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-05003-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-05003-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	1.29E+02	6.48E+00	6.91E+00	5.22E-01	pCi/g
05-05003-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	7.78E+01	6.93E+00	7.08E+00	4.61E-01	pCi/g
05-05003-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	3.47E-03	1.89E-02	1.89E-02	3.93E-02	pCi/g
05-05003-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	2.60E-03	2.36E-02	2.36E-02	4.55E-02	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	1.14E+00	1.52E-01	1.53E-01	1.80E-01	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	8.97E-01	1.22E-01	1.23E-01	1.07E-01	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	-3.01E-03	2.97E-02	2.97E-02	5.16E-02	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	3.76E-01	8.00E-02	8.03E-02	5.26E-02	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	6.54E+00	9.29E-01	9.37E-01	4.27E-01	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.06E+00	1.37E-01	1.38E-01	8.16E-02	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	8.54E-01	1.25E-01	1.26E-01	9.99E-02	pCi/g
05-05003-03	DUP	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	9.19E-01	1.42E-01	1.43E-01	1.39E-01	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	1.06E+00	1.61E-01	1.63E-01	1.53E-01	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	8.79E-01	1.21E-01	1.22E-01	9.61E-02	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	-1.70E-02	2.91E-02	2.91E-02	4.71E-02	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	3.62E-01	7.92E-02	7.95E-02	5.43E-02	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	6.16E+00	9.41E-01	9.48E-01	5.10E-01	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	9.49E-01	1.27E-01	1.28E-01	7.80E-02	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	1.02E+00	1.16E-01	1.18E-01	9.74E-02	pCi/g
05-05003-04	DO	EC-B3-001-W-1-1-0	04/28/05 15:30	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	8.92E-01	1.37E-01	1.38E-01	1.26E-01	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	8.84E-01	1.58E-01	1.59E-01	1.96E-01	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	4.86E-01	1.10E-01	1.10E-01	1.02E-01	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	6.00E-03	3.29E-02	3.29E-02	6.28E-02	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	6.76E-02	3.78E-02	3.78E-02	7.38E-02	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	6.68E+00	9.77E-01	9.85E-01	4.46E-01	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	8.89E-01	1.24E-01	1.25E-01	9.21E-02	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	5.61E-01	1.04E-01	1.04E-01	1.13E-01	pCi/g
05-05003-05	TRG	EC-WWV-005-F-1-1-0	04/28/05 11:15	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	6.92E-01	1.87E-01	1.88E-01	3.05E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis			Report To:					Work Order Details:						
			Joe Gross					SDG		05-05003				
			Weston Solutions					Purchase Order:		0047329				
			1309 Continental Drive, #M					Analysis Category:		ENVIRONMENTAL				
			Abingdon, MD 21009					Sample Matrix:		SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	8.77E-01	1.96E-01	1.97E-01	2.52E-01	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	6.89E-01	1.16E-01	1.17E-01	1.21E-01	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	-1.67E-02	4.29E-02	4.29E-02	7.42E-02	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	9.99E-02	6.53E-02	6.54E-02	7.13E-02	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	8.43E+00	1.45E+00	1.46E+00	6.97E-01	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.07E+00	1.43E-01	1.45E-01	9.64E-02	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	6.45E-01	1.21E-01	1.21E-01	1.30E-01	pCi/g	
05-05003-06	TRG	EC-WW-006-F-1-1-0	04/28/05 11:38	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	6.81E-01	1.63E-01	1.64E-01	1.85E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	1.26E+00	2.97E-01	2.98E-01	4.02E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	7.54E-01	1.98E-01	1.99E-01	1.76E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	-5.88E-02	7.07E-02	7.07E-02	1.14E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	3.75E-02	6.92E-02	6.92E-02	1.33E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	9.25E+00	1.85E+00	1.85E+00	8.69E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.15E+00	1.76E-01	1.77E-01	1.64E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	7.44E-01	2.41E-01	2.41E-01	2.27E-01	pCi/g	
05-05003-07	TRG	EC-WW-007-F-1-1-0	04/28/05 11:50	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	1.03E+00	2.43E-01	2.43E-01	2.96E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	1.35E+00	2.29E-01	2.30E-01	2.33E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	9.27E-01	1.65E-01	1.66E-01	1.29E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	1.32E-02	4.66E-02	4.66E-02	8.39E-02	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	2.03E-01	1.21E-01	1.21E-01	7.17E-02	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	1.24E+01	1.65E+00	1.66E+00	5.76E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.39E+00	1.68E-01	1.68E-01	1.19E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	1.02E+00	1.75E-01	1.76E-01	1.45E-01	pCi/g	
05-05003-08	TRG	EC-WW-008-F-1-1-0	04/28/05 13:15	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	1.39E+00	1.96E-01	1.98E-01	1.91E-01	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	8.86E-01	1.38E-01	1.39E-01	1.87E-01	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	6.23E-01	1.13E-01	1.14E-01	1.07E-01	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	1.87E-02	2.99E-02	2.99E-02	6.01E-02	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	1.35E-01	4.23E-02	4.24E-02	5.39E-02	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	7.69E+00	1.03E+00	1.04E+00	3.71E-01	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.01E+00	1.59E-01	1.60E-01	9.06E-02	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	6.29E-01	1.14E-01	1.15E-01	1.04E-01	pCi/g	
05-05003-09	TRG	EC-WW-009-F-1-1-0	04/28/05 13:25	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	6.07E-01	1.91E-01	1.91E-01	2.88E-01	pCi/g	

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample;MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


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Eberline Services Final Report of Analysis				Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				Work Order Details: 05-05003			
Report To:				SDG:				Purchase Order:			
Sample Date				Analysis Category:				ENVIRONMENTAL			
Receipt Date				Sample Matrix:				SO			
Lab ID	Sample Type	Client ID	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Actinium-228	LANL ER-130 Modified	2.31E+00	3.69E-01	3.72E-01	3.84E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Bismuth-214	LANL ER-130 Modified	1.21E+00	2.48E-01	2.49E-01	2.18E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Cobalt-60	LANL ER-130 Modified	-7.83E-02	6.97E-02	6.97E-02	1.07E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Cesium-137	LANL ER-130 Modified	2.34E-02	7.11E-02	7.11E-02	1.33E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Potassium-40	LANL ER-130 Modified	1.63E-01	2.25E+00	2.27E+00	8.82E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Lead-212	LANL ER-130 Modified	2.21E+00	3.12E-01	3.14E-01	1.75E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Lead-214	LANL ER-130 Modified	1.34E+00	2.11E-01	2.13E-01	2.33E-01	pCi/g
05-05003-10	TRG	EC-VW-010-W-1-1-0	04/28/05 14:05	05-05003	Thallium-208	LANL ER-130 Modified	1.41E+00	2.73E-01	2.74E-01	3.28E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Actinium-228	LANL ER-130 Modified	1.19E+00	2.93E-01	2.94E-01	3.50E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Bismuth-214	LANL ER-130 Modified	9.87E-01	1.93E-01	1.93E-01	1.86E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Cobalt-60	LANL ER-130 Modified	-1.09E-02	6.19E-02	6.19E-02	1.13E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Cesium-137	LANL ER-130 Modified	7.01E-02	6.66E-02	6.66E-02	1.18E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Potassium-40	LANL ER-130 Modified	8.13E+00	1.71E+00	1.72E+00	9.80E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Lead-212	LANL ER-130 Modified	1.24E+00	1.81E-01	1.82E-01	1.52E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Lead-214	LANL ER-130 Modified	8.75E-01	1.91E-01	1.91E-01	1.90E-01	pCi/g
05-05003-11	TRG	EC-VW-011-F-1-1-0	04/28/05 15:00	05-05003	Thallium-208	LANL ER-130 Modified	9.57E-01	2.36E-01	2.36E-01	2.76E-01	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Actinium-228	LANL ER-130 Modified	9.19E-01	1.65E-01	1.66E-01	2.34E-01	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Bismuth-214	LANL ER-130 Modified	7.21E-01	1.27E-01	1.27E-01	1.11E-01	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Cobalt-60	LANL ER-130 Modified	1.60E-02	3.55E-02	3.55E-02	6.16E-02	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Cesium-137	LANL ER-130 Modified	1.25E-01	6.63E-02	6.64E-02	6.06E-02	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Potassium-40	LANL ER-130 Modified	8.20E+00	1.23E+00	1.23E+00	4.61E-01	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Lead-212	LANL ER-130 Modified	1.01E+00	1.39E-01	1.40E-01	8.50E-02	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Lead-214	LANL ER-130 Modified	7.44E-01	1.07E-01	1.08E-01	1.12E-01	pCi/g
05-05003-12	TRG	STOCKPILE042905	04/29/05 12:00	05-05003	Thallium-208	LANL ER-130 Modified	8.47E-01	1.61E-01	1.61E-01	1.71E-01	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Actinium-228	LANL ER-130 Modified	6.33E-01	1.05E-01	1.06E-01	1.39E-01	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Bismuth-214	LANL ER-130 Modified	4.58E-01	7.05E-02	7.10E-02	6.55E-02	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Cobalt-60	LANL ER-130 Modified	-2.74E-03	2.20E-02	2.20E-02	4.11E-02	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Cesium-137	LANL ER-130 Modified	1.97E-03	2.65E-02	2.65E-02	4.21E-02	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Potassium-40	LANL ER-130 Modified	5.09E+00	7.56E-01	7.61E-01	3.16E-01	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Lead-212	LANL ER-130 Modified	6.69E-01	8.68E-02	9.76E-02	6.13E-02	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Lead-214	LANL ER-130 Modified	5.43E-01	8.78E-02	8.84E-02	7.38E-02	pCi/g
05-05003-13	TRG	EC-VW-002-F-1-1-0	04/27/05 09:00	05-05003	Thallium-208	LANL ER-130 Modified	5.21E-01	1.30E-01	1.31E-01	2.19E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:				05-05003					
				Purchase Order:				0047329					
				Analysis Category:				ENVIRONMENTAL					
				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	7.87E-01	1.77E-01	1.78E-01	2.10E-01	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	5.73E-01	1.24E-01	1.24E-01	1.26E-01	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	4.76E-03	4.49E-02	4.49E-02	8.23E-02	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	5.62E-01	1.03E-01	1.04E-01	6.28E-02	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	8.54E+00	1.40E+00	1.41E+00	6.20E-01	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	8.85E-01	1.20E-01	1.22E-01	9.22E-02	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	7.09E-01	1.30E-01	1.31E-01	1.28E-01	pCi/g
05-05003-14	TRG	EC-WW-003-F-1-1-0	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	6.90E-01	1.45E-01	1.45E-01	1.82E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	8.23E-01	2.20E-01	2.21E-01	2.79E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	6.28E-01	1.57E-01	1.57E-01	1.60E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	2.11E-02	4.99E-02	4.99E-02	9.91E-02	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	1.73E-01	9.42E-02	9.43E-02	8.88E-02	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	7.61E+00	1.48E+00	1.49E+00	7.65E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.01E+00	1.45E-01	1.46E-01	1.13E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	6.78E-01	1.42E-01	1.43E-01	1.55E-01	pCi/g
05-05003-15	TRG	EC-WW-003-F-1-1-1	04/27/05 15:15	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	7.39E-01	1.94E-01	1.94E-01	2.15E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Actinium-228	LANL ER-130 Modified	1.34E+00	2.28E-01	2.29E-01	2.51E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Bismuth-214	LANL ER-130 Modified	8.93E-01	1.50E-01	1.51E-01	1.34E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Cobalt-60	LANL ER-130 Modified	2.69E-03	3.85E-02	3.85E-02	6.81E-02	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Cesium-137	LANL ER-130 Modified	9.23E-02	7.23E-02	7.24E-02	6.91E-02	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Potassium-40	LANL ER-130 Modified	1.30E+01	1.56E+00	1.56E+00	5.42E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Lead-212	LANL ER-130 Modified	1.32E+00	1.57E-01	1.58E-01	1.14E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Lead-214	LANL ER-130 Modified	1.01E+00	1.51E-01	1.53E-01	1.28E-01	pCi/g
05-05003-16	TRG	EC-WW-004-W-1-1-0	04/27/05 16:00	5/2/2005	5/3/2005	05-05003	Thallium-208	LANL ER-130 Modified	1.11E+00	1.69E-01	1.70E-01	1.97E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



05-05003

# Chain of Custody Record



COC ID: line-02

Client DSHE

Site Name Bush River Rad Yard

W. O.

Lab Eberline Services

TAT 3 days

Contact Name Joe Gross

Contact Phone No. 410-612-5900

Lab Contact Mike McDougal

Lab Phone 865-481-0683

Gross AlphaBeta, Gamma Spec

Filtered Container Preservative

500-ml Poly COOL

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	Received By	Date / Time	Relinquished By	Received By	Date / Time	Received in good condition	Labels indicate Properly Preserved	Received within Holding Time
	EC-B3-001-W-1-1-0	S		N	4/28/2005 15:30						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-005-F-1-1-0	S		N	4/28/2005 11:15						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-006-F-1-1-0	S		N	4/28/2005 11:38						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-007-F-1-1-0	S		N	4/28/2005 11:50						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-008-F-1-1-0	S		N	4/28/2005 13:15						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-009-F-1-1-0	S		N	4/28/2005 13:25						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-010-W-1-1-0	S		N	4/28/2005 14:05						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-011-F-1-1-0	S		N	4/28/2005 15:00						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	STOCKPILE 42905	S		N	4/24/05 12:00						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-002-F-1-1-0	S		N	4/27/05 09:00						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-003-F-1-1-0	S		N	4/27/05 15:15						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-004-F-1-1-0	S		N	4/27/05 15:15						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	EC-WW-004-W-1-1-0	S		N	4/27/05 16:00						<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

RECEIVED  
MAY - 2 2005  
TMA Eberline  
JAK RIDGE LAB

Remarks/Comments 1. If Gross Beta results exceed background values by more than 3 std devs. analyze for Sr-90. 2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background. 3. Pulverize & homogenize sample.	Lab Use Only		COC Tape was present on outer package <input checked="" type="radio"/> N		Received in good condition <input checked="" type="radio"/> N	
	Temp of Cooler when Received, C		COC Tape was unbroken on outer package <input checked="" type="radio"/> N		Labels indicate Properly Preserved <input checked="" type="radio"/> N	
	1 2 3 4 5		COC Tape was present on sample <input checked="" type="radio"/> N		Received within Holding Time <input checked="" type="radio"/> N	
	Relinquished By <u>[Signature]</u>		Received By		Date / Time	
	Date / Time <u>4/27/05 16:00</u>		Date / Time <u>4/27/05 16:00</u>		Date / Time <u>4/27/05 16:00</u>	





# EBERLINE SERVICES

EBS-OR-22393

May 16, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

## CASE NARRATIVE Work Order # 05-05027-OR

### SAMPLE RECEIPT

This work order contains four soil samples received 05/09/05. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
EC-WW-012-W-1-1-0	05-05027-04	EC-WW-013-F-1-1-0	05-05027-06
EC-WW-012-W-1-1-1	05-05027-05	EC-WW-014-F-1-1-0	05-05027-07

### ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

### ANALYTICAL RESULTS

#### GROSS ALPHA/BETA

Samples demonstrated slightly positive results for Gross Alpha activity. Samples demonstrated background equivalent to slightly positive results for Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

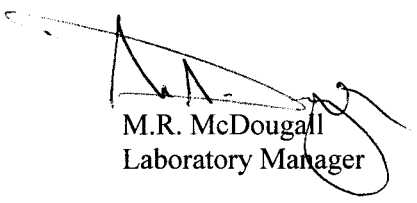
#### GAMMA SPECTROSCOPY

Samples demonstrated near background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Samples demonstrated non-detect equivalent to slightly positive results for Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Actinium-228 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Bismuth-214 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 5/16/2005



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-05027

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05027-01	LCS	KNOWN	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	2.94E+02	1.26E+01			pCi/g
05-05027-01	LCS	SPIKE	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	2.75E+02	7.90E+00	2.04E+01	5.95E-01	pCi/g
05-05027-02	MBL	BLANK	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	-2.08E-01	1.12E-01	1.13E-01	2.67E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	6.03E+00	1.16E+00	1.23E+00	5.91E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	2.27E+00	1.15E+00	1.22E+00	1.49E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	4.88E+00	1.12E+00	1.17E+00	1.00E+00	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	5.98E+00	1.30E+00	1.37E+00	1.24E+00	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Gross Alpha	LANL MLR-100 Modified	4.03E+00	9.70E-01	1.01E+00	6.04E-01	pCi/g
05-05027-01	LCS	KNOWN	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	2.48E+02	7.45E+00			pCi/g
05-05027-01	LCS	SPIKE	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	2.36E+02	6.45E+00	1.27E+01	1.02E+00	pCi/g
05-05027-02	MBL	BLANK	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	-9.14E-02	2.25E-01	2.25E-01	4.00E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	5.92E+00	1.35E+00	1.38E+00	1.88E+00	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	4.45E+00	1.36E+00	1.38E+00	2.04E+00	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	4.20E+00	1.33E+00	1.35E+00	2.00E+00	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	5.59E+00	1.65E+00	1.67E+00	2.51E+00	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Gross Beta	LANL MLR-100 Modified	3.48E+00	1.62E+00	1.63E+00	2.58E+00	pCi/g
05-05027-01	LCS	KNOWN	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-05027-01	LCS	KNOWN	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-05027-01	LCS	SPIKE	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	1.27E+02	6.94E+00	7.32E+00	1.01E+00	pCi/g
05-05027-01	LCS	SPIKE	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	7.58E+01	6.01E+00	6.17E+00	8.38E-01	pCi/g
05-05027-02	MBL	BLANK	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	2.56E-03	1.23E-02	1.23E-02	2.43E-02	pCi/g
05-05027-02	MBL	BLANK	05/09/05 00:00	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	4.36E-03	1.60E-02	1.60E-02	3.05E-02	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



# EBERLINE

SERVICES

Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: **05-05027**

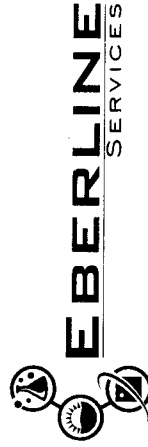
Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Actinium-228	LANL ER-130 Modified	1.39E+00	2.00E-01	2.02E-01	2.00E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.51E-01	1.52E-01	1.19E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	-9.70E-03	3.85E-02	3.85E-02	6.49E-02	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	8.59E-02	5.63E-02	5.63E-02	6.53E-02	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Potassium-40	LANL ER-130 Modified	1.30E+01	1.55E+00	1.57E+00	3.93E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Lead-212	LANL ER-130 Modified	1.36E+00	1.53E-01	1.55E-01	1.05E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Lead-214	LANL ER-130 Modified	9.53E-01	1.26E-01	1.27E-01	1.25E-01	pCi/g
05-05027-03	DUP	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Thallium-208	LANL ER-130 Modified	1.01E+00	1.56E-01	1.57E-01	1.81E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Actinium-228	LANL ER-130 Modified	1.27E+00	2.08E-01	2.09E-01	2.43E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Bismuth-214	LANL ER-130 Modified	7.69E-01	1.44E-01	1.44E-01	1.42E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	-8.95E-03	4.01E-02	4.01E-02	6.82E-02	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	4.70E-01	9.98E-02	1.00E-01	7.22E-02	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Potassium-40	LANL ER-130 Modified	1.23E+01	1.55E+00	1.57E+00	5.12E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Lead-212	LANL ER-130 Modified	1.41E+00	2.07E-01	2.09E-01	1.23E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Lead-214	LANL ER-130 Modified	6.44E-01	1.53E-01	1.53E-01	1.58E-01	pCi/g
05-05027-04	TRG	EC-WW-012-W-1-1-0	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Thallium-208	LANL ER-130 Modified	1.11E+00	1.81E-01	1.82E-01	2.01E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Actinium-228	LANL ER-130 Modified	1.25E+00	3.16E-01	3.17E-01	3.11E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Bismuth-214	LANL ER-130 Modified	6.38E-01	1.73E-01	1.73E-01	2.02E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	-3.37E-03	5.83E-02	5.83E-02	1.06E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	3.85E-01	1.09E-01	1.10E-01	9.66E-02	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Potassium-40	LANL ER-130 Modified	1.11E+01	1.83E+00	1.84E+00	7.56E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Lead-212	LANL ER-130 Modified	1.01E+00	1.60E-01	1.61E-01	1.41E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Lead-214	LANL ER-130 Modified	7.99E-01	1.70E-01	1.71E-01	1.67E-01	pCi/g
05-05027-05	TRG	EC-WW-012-W-1-1-1	05/05/05 14:45	5/9/2005	5/10/2005	05-05027	Thallium-208	LANL ER-130 Modified	1.02E+00	2.14E-01	2.14E-01	2.27E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG:		05-05027			
								Purchase Order:		0047329			
								Analysis Category:		ENVIRONMENTAL			
								Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Actinium-228	LANL ER-130 Modified	1.50E+00	2.02E-01	2.04E-01	2.10E-01	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Bismuth-214	LANL ER-130 Modified	7.69E-01	1.31E-01	1.32E-01	1.23E-01	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	1.12E-02	3.53E-02	3.53E-02	6.44E-02	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	8.91E-03	4.11E-02	4.11E-02	7.22E-02	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Potassium-40	LANL ER-130 Modified	1.29E+01	1.56E+00	1.58E+00	4.53E-01	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Lead-212	LANL ER-130 Modified	1.42E+00	1.57E-01	1.59E-01	1.05E-01	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Lead-214	LANL ER-130 Modified	9.85E-01	1.34E-01	1.35E-01	1.18E-01	pCi/g
05-05027-06	DO	EC-WW-013-F-1-1-0	05/05/05 14:55	5/9/2005	5/10/2005	05-05027	Thallium-208	LANL ER-130 Modified	1.17E+00	1.71E-01	1.72E-01	1.68E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Actinium-228	LANL ER-130 Modified	8.16E-01	2.33E-01	2.34E-01	3.05E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Bismuth-214	LANL ER-130 Modified	4.64E-01	1.42E-01	1.42E-01	1.74E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Cobalt-60	LANL ER-130 Modified	2.28E-02	5.22E-02	5.22E-02	1.04E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Cesium-137	LANL ER-130 Modified	1.31E-01	8.42E-02	8.42E-02	8.84E-02	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Potassium-40	LANL ER-130 Modified	8.01E+00	1.50E+00	1.50E+00	6.72E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Lead-212	LANL ER-130 Modified	8.02E-01	1.41E-01	1.41E-01	1.17E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Lead-214	LANL ER-130 Modified	6.26E-01	1.48E-01	1.49E-01	1.42E-01	pCi/g
05-05027-07	TRG	EC-WW-014-F-1-1-0	05/05/05 15:15	5/9/2005	5/10/2005	05-05027	Thallium-208	LANL ER-130 Modified	5.43E-01	1.63E-01	1.64E-01	2.10E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621









EBS-OR-21906

January 31, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-01091-OR

SAMPLE RECEIPT

This work order contains one water sample received 01/22/05 and one water sample relogged on 01/24/05. Both samples were analyzed for Tritium. One sample was also analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
Nels TW	05-01091-04	BC-B3-002-B-2-0-0	05-01091-05

ANALYTICAL METHODS

Tritium was performed by beta liquid scintillation using EPA Method 906.0 Modified. Gross Alpha/Beta was performed by gas-flow proportional counting using EPA Method 900.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

TRITIUM

Samples demonstrated non-detect equivalent results for Tritium activity. Results for the Tritium method blank demonstrated statistically non-detect equivalent activity. Results for the Tritium replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Tritium laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA/BETA

Sample demonstrated slightly positive results for Gross Alpha and Gross Beta activity. Most results demonstrated slightly high detection limits, greater than the CRDL; however, this was due to the use of a small sample aliquot for counting because of the positive sample nature and high Total Solids. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.



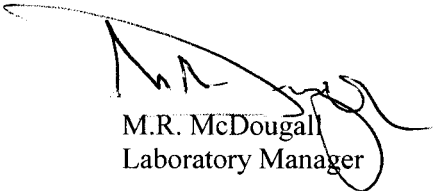
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY

Sample demonstrated non-detect equivalent results for Cobalt-60 activity. Sample demonstrated slightly positive results for Cesium-137 activity. Sample results demonstrated slightly high detection limits, greater than the CRDL; however, this was due to the positive sample nature. Results for the Cobalt-60 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable analytical technique limits. Results for the Cesium-137 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 1/31/2005



# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross				SDG:			05-01091						
Weston Solutions				Purchase Order:			0047329						
1309 Continental Drive, #M				Analysis Category:			ENVIRONMENTAL						
Abingdon, MD 21009				Sample Matrix:			WA						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-01091-01	LCS	KNOWN	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cobalt-60	EPA 901.1 Modified	1.96E+05	5.18E+03			pCi/l
05-01091-01	LCS	KNOWN	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cesium-137	EPA 901.1 Modified	1.19E+05	3.56E+03			pCi/l
05-01091-01	LCS	SPIKE	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cobalt-60	EPA 901.1 Modified	2.12E+05	1.02E+04	1.09E+04	6.19E+02	pCi/l
05-01091-01	LCS	SPIKE	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cesium-137	EPA 901.1 Modified	1.34E+05	1.55E+04	1.56E+04	4.92E+02	pCi/l
05-01091-02	MBL	BLANK	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cobalt-60	EPA 901.1 Modified	3.22E+00	6.95E+00	6.95E+00	1.38E+01	pCi/l
05-01091-02	MBL	BLANK	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Cesium-137	EPA 901.1 Modified	5.28E+00	6.86E+00	6.86E+00	1.36E+01	pCi/l
05-01091-03	DUP	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Cobalt-60	EPA 901.1 Modified	-3.32E+00	9.81E+00	9.81E+00	1.72E+01	pCi/l
05-01091-03	DUP	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Cesium-137	EPA 901.1 Modified	3.68E+02	4.83E+01	4.88E+01	1.71E+01	pCi/l
05-01091-05	DO	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Cobalt-60	EPA 901.1 Modified	-5.25E+00	8.88E+00	8.88E+00	1.49E+01	pCi/l
05-01091-05	DO	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Cesium-137	EPA 901.1 Modified	3.78E+02	4.88E+01	4.93E+01	1.89E+01	pCi/l
05-01091-01	LCS	KNOWN	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Alpha	EPA 900.0 Modified	2.93E+02	1.26E+01			pCi/l
05-01091-01	LCS	SPIKE	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Alpha	EPA 900.0 Modified	3.05E+02	4.21E+00	2.13E+01	2.39E-01	pCi/l
05-01091-02	MBL	BLANK	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Alpha	EPA 900.0 Modified	1.71E-01	1.58E-01	1.59E-01	2.47E-01	pCi/l
05-01091-03	DUP	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Gross Alpha	EPA 900.0 Modified	1.99E+01	5.94E+00	6.10E+00	5.31E+00	pCi/l
05-01091-05	DO	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Gross Alpha	EPA 900.0 Modified	2.14E+01	5.77E+00	5.95E+00	4.80E+00	pCi/l
05-01091-01	LCS	KNOWN	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Beta	EPA 900.0 Modified	2.49E+02	7.47E+00			pCi/l
05-01091-01	LCS	SPIKE	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Beta	EPA 900.0 Modified	2.50E+02	3.35E+00	1.21E+01	5.39E-01	pCi/l
05-01091-02	MBL	BLANK	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Gross Beta	EPA 900.0 Modified	-1.14E-01	3.35E-01	3.35E-01	5.96E-01	pCi/l
05-01091-03	DUP	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Gross Beta	EPA 900.0 Modified	5.61E+02	1.57E+01	3.04E+01	6.15E+00	pCi/l
05-01091-05	DO	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Gross Beta	EPA 900.0 Modified	5.06E+02	1.46E+01	2.77E+01	6.43E+00	pCi/l
05-01091-01	LCS	KNOWN	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	1.20E+04	4.32E+01			pCi/l
05-01091-01	LCS	SPIKE	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	1.29E+04	4.46E+02	1.43E+03	3.74E+02	pCi/l
05-01091-02	MBL	BLANK	01/24/05 00:00	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	0.00E+00	2.18E+02	0.00E+00	3.75E+02	pCi/l
05-01091-03	DUP	Nels TW	11/10/04 00:00	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	1.93E+02	2.34E+02	2.35E+02	3.93E+02	pCi/l
05-01091-04	DO	Nels TW	11/10/04 00:00	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	1.85E+02	2.24E+02	2.25E+02	3.76E+02	pCi/l
05-01091-05	TRG	BC-B3-002-B-2-0-0	01/21/05 13:55	1/22/2005	1/25/2005	05-01091	Tritium	EPA 906.0 Modified	0.00E+00	2.17E+02	0.00E+00	3.72E+02	pCi/l

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Jeff,

Please count this sample twice, 30 minutes each. This is a high priority sample from Weston, (Nels Johnson) and they need data AM Monday.

Due to Kim not being in this weekend, please use the following information

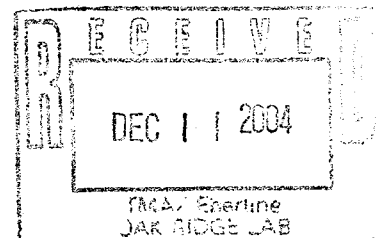
The WO # 04-12062

<u>Lab Fractions</u>	<u>Sample ID</u>	<u>Aliquot</u>	<u>Sample Date</u>
01	LCS	1.0	Now
02	Blank	1.0	Now
03	Nels TW	0.5	11/10/04
4 - 04	Nels TW	0.5	11/10/04

QC is required, however, the blank can also be a 30 minute count. The suspect radionuclide is Cs-137. STL got ~700 pCi/l

Thanks, Mike

Received by: mpmcconnell





COC ID: EC node 2/8

Client DSHESite Name Bush River Rad Yard

W. O.

Lab Eberline ServicesTAT 3 daysContact Name Joe GrossContact Phone No. 410-612-5900Lab Contact Mike McDougalLab Phone 865-481-0683

## Chain of Custody Record



Page 1 of 1

Site Name	Bush River Rad Yard	Contact Name	Joe Gross																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 12/30/04 10:18

RFW Batch Number: 0412L504

Client: EBERLINE-WSI Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE 1 TBLKSM TBLKSM BS TBLKSM BSD

Sample Information	RFW#: 001	04LVJC29-MB1	04LVJC29-MB1	04LVJC29-MB1
	Matrix: SOIL	SOIL	SOIL	SOIL
	D.F.: 1.00	1.00	1.00	1.00
	Units: UG/KG	UG/KG	UG/KG	UG/KG

Fluorobenzene	80	%	99	%	99	%	101	%
Gasoline Range Organics (GRO)	33	U	30	U	104	%	103	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 12/30/04 14:22

RFW Batch Number: 0412L504

Client: EBERLINE-WSI

Work Order: 11343623001

Page: 1

Cust ID: STOCKPILE 1 BLK BLK BS BLK BSD

Sample Information  
 RFW#: 001 04LE1543-MB1 04LE1543-MB1 04LE1543-MB1  
 Matrix: SOIL SOIL SOIL SOIL  
 D.F.: 1.00 1.00 1.00 1.00  
 Units: mg/kg mg/kg mg/kg mg/kg

p-Terphenyl	101	%	97	%	90	%	101	%
Diesel Range Organics	69		12.0	U	83	%	87	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 12/29/04 11:56

RFW Batch Number: 0412L504

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE 1		PBLKDR	PBLKDR BS	PBLKDR BSD
Sample Information	RFW#:	001	04LE1542-MB1	04LE1542-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL
D.F.:	20.0	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene	75 %	84 %	90 %	82 %
Decachlorobiphenyl	76 %	69 %	76 %	71 %
Alpha-BHC	33 U	1.7 U	96 %	71 %
Beta-BHC	33 U	1.7 U	88 %	64 %
Delta-BHC	33 U	1.7 U	96 %	67 %
gamma-BHC (Lindane)	33 U	1.7 U	96 %	72 %
Heptachlor	33 U	1.7 U	90 %	67 %
Aldrin	33 U	1.7 U	92 %	66 %
Heptachlor epoxide	33 U	1.7 U	89 %	65 %
Endosulfan I	33 U	1.7 U	79 %	62 %
Dieldrin	67 U	3.3 U	90 %	67 %
4,4'-DDE	67 U	3.3 U	86 %	64 %
Endrin	67 U	3.3 U	96 %	71 %
Endosulfan II	67 U	3.3 U	85 %	64 %
4,4'-DDD	67 U	3.3 U	78 %	58 %
Endosulfan sulfate	67 U	3.3 U	85 %	64 %
4,4'-DDT	67 U	3.3 U	86 %	64 %
Methoxychlor	330 U	17 U	78 %	62 %
Endrin ketone	67 U	3.3 U	87 %	68 %
Endrin aldehyde	67 U	3.3 U	82 %	63 %
alpha-Chlordane	33 U	1.7 U	80 %	59 %
gamma-Chlordane	33 U	1.7 U	89 %	65 %
Toxaphene	3300 U	170 U	170 U	170 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/28/04 13:20

RFW Batch Number: 0412L504

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE 1 PBLKDR PBLKDR BS PBLKDR BSD

Sample Information RFW#: 001 04LE1542-MB1 04LE1542-MB1 04LE1542-MB1  
Matrix: SOIL SOIL SOIL SOIL  
D.F.: 1.00 1.00 1.00 1.00  
Units: UG/KG UG/KG UG/KG UG/KG

Surrogate: Tetrachloro-m-xylene	83	%	73	%	77	%	82	%
Decachlorobiphenyl	86	%	82	%	88	%	93	%
Aroclor-1016	13	U	13	U	72	%	80	%
Aroclor-1221	13	U	13	U	13	U	13	U
Aroclor-1232	13	U	13	U	13	U	13	U
Aroclor-1242	13	U	13	U	13	U	13	U
Aroclor-1248	13	U	13	U	13	U	13	U
Aroclor-1254	13	U	13	U	13	U	13	U
Aroclor-1260	13	U	13	U	87	%	92	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



## Lionville Laboratory, Inc.

## INORGANICS DATA SUMMARY REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE 1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	8530	MG/KG	49.8	12.0
		Arsenic, Total	5.1	MG/KG	0.52	1.0
		Barium, Total	97.9	MG/KG	0.10	1.0
		Beryllium, Total	0.27	MG/KG	0.05	1.0
		Calcium, Total	4570	MG/KG	49.8	12.0
		Cadmium, Total	0.10 u	MG/KG	0.10	1.0
		Cobalt, Total	4.1	MG/KG	0.21	1.0
		Chromium, Total	55.9	MG/KG	0.21	1.0
		Copper, Total	14.5	MG/KG	0.21	1.0
		Iron, Total	13400	MG/KG	56.0	12.0
		Mercury, Total	0.06	MG/KG	0.02	1.0
		Potassium, Total	590	MG/KG	4.1	1.0
		Magnesium, Total	2560	MG/KG	2.6	1.0
		Manganese, Total	211	MG/KG	0.04	1.0
		Sodium, Total	134	MG/KG	20.7	1.0
		Nickel, Total	13.2	MG/KG	0.21	1.0
		Lead, Total	176	MG/KG	3.7	12.0
		Antimony, Total	0.45	MG/KG	0.31	1.0
		Selenium, Total	0.62 u	MG/KG	0.62	1.0
		Thallium, Total	0.62 u	MG/KG	0.62	1.0
		Vanadium, Total	38.5	MG/KG	0.15	1.0
		Zinc, Total	41.7	MG/KG	0.62	1.0
-002	SS-01-122204	Arsenic, Total	175	MG/KG	3.7	6.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0774-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	4.5	MG/KG	4.0	1.0
		Cadmium, Total	0.10 u	MG/KG	0.10	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	6.3	MG/KG	4.0	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Sodium, Total	20.0 u	MG/KG	20.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
BLANK1	04C0284-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0



## Lionville Laboratory, Inc.

## INORGANICS ACCURACY REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE 1	Silver, Total	4.6	0.10u	5.3	86.8	1.0
		Silver, Total MSD	4.8	0.10u	5.3	90.6	1.0
		Aluminum, Total	10700	8530	211	1007 *	12.0
		Aluminum, Total MSD	10300	8530	211	846.2*	12.0
		Arsenic, Total	191	5.1	211	88.2	1.0
		Arsenic, Total MSD	200	5.1	211	92.3	1.0
		Barium, Total	243	97.9	211	68.6	1.0
		Barium, Total MSD	252	97.9	211	73.3	1.0
		Beryllium, Total	5.1	0.27	5.3	91.1	1.0
		Beryllium, Total MSD	5.3	0.27	5.3	94.9	1.0
		Calcium, Total	6200	4570	2640	62.0	12.0
		Calcium, Total MSD	5740	4570	2640	44.4	12.0
		Cadmium, Total	4.7	0.10u	5.3	88.7	1.0
		Cadmium, Total MSD	5.0	0.10u	5.3	94.3	1.0
		Cobalt, Total	51.4	4.1	52.7	89.8	1.0
		Cobalt, Total MSD	54.6	4.1	52.7	95.8	1.0
		Chromium, Total	37.4	55.9	21.1	-88.	1.0
		Chromium, Total MSD	39.6	55.9	21.1	-77.	1.0
		Copper, Total	36.7	14.5	26.4	84.1	1.0
		Copper, Total MSD	41.4	14.5	26.4	101.9	1.0
		Iron, Total	13800	13400	106	374.1*	12.0
		Iron, Total MSD	13200	13400	106	-200. *	12.0
		Potassium, Total	3210	590	2640	99.5	1.0
		Potassium, Total MSD	3250	590	2640	100.8	1.0
		Magnesium, Total	5120	2560	2640	97.2	1.0
		Magnesium, Total MSD	5420	2560	2640	108.5	1.0
		Manganese, Total	261	211	52.7	93.9*	1.0
		Manganese, Total MSD	334	211	52.7	232.4*	1.0
		Sodium, Total	2610	134	2640	93.8	1.0
		Sodium, Total MSD	2690	134	2640	97.1	1.0
		Nickel, Total	62.6	13.2	52.7	93.7	1.0
		Nickel, Total MSD	69.8	13.2	52.7	107.4	1.0
		Lead, Total	78.2	176	52.7	-190.	12.0
		Lead, Total MSD	84.0	176	52.7	-180.	12.0
		Antimony, Total	22.3	0.45	52.7	41.5	1.0
		Antimony, Total MSD	24.1	0.45	52.7	44.9	1.0
		Selenium, Total	179	0.62u	211	85.0	1.0
		Selenium, Total MSD	185	0.62u	211	87.8	1.0
		Thallium, Total	194	0.62u	211	91.8	1.0
		Thallium, Total MSD	202	0.62u	211	95.5	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE 1	Vanadium, Total	72.8	38.5	52.7	65.1	1.0
		Vanadium, Total MSD	84.6	38.5	52.7	87.5	1.0
		Zinc, Total	91.1	41.7	52.7	93.7	1.0
		Zinc, Total MSD	94.8	41.7	52.7	100.8	1.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	STOCKPILE 1	Silver, Total	86.8	90.6	4.3
		Aluminum, Total	1007	846.2*	NC
		Arsenic, Total	88.2	92.3	4.6
		Barium, Total	68.6	73.3	6.6
		Beryllium, Total	91.1	94.9	4.1
		Calcium, Total	62.0	44.4	33.2
		Cadmium, Total	88.7	94.3	6.2
		Cobalt, Total	89.8	95.8	6.5
		Chromium, Total	-88.	-77.	-13.
		Copper, Total	84.1	101.9	19.1
		Iron, Total	374.1	-200. *	NC
		Potassium, Total	99.5	100.8	1.3
		Magnesium, Total	97.2	108.5	10.9
		Manganese, Total	93.9	232.4*	NC
		Sodium, Total	93.8	97.1	3.4
		Nickel, Total	93.7	107.4	13.6
		Lead, Total	-190.	-180.	-6.1
		Antimony, Total	41.5	44.9	7.9
		Selenium, Total	85.0	87.8	3.2
		Thallium, Total	91.8	95.5	4.0
		Vanadium, Total	65.1	87.5	29.4
		Zinc, Total	93.7	100.8	7.2



## Lionville Laboratory, Inc.

## INORGANICS PRECISION REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	STOCKPILE 1	Silver, Total	0.10u	0.10u	NC	1.0
		Aluminum, Total	8530	10500	20.4	12.0
		Arsenic, Total	5.1	3.5	37.2	1.0
		Barium, Total	97.9	70.5	32.5	1.0
		Beryllium, Total	0.27	0.50	58.6	1.0
		Calcium, Total	4570	15200	107.3	12.0
		Cadmium, Total	0.10u	0.10u	NC	1.0
		Cobalt, Total	4.1	4.1	0.00	1.0
		Chromium, Total	55.9	20.3	93.4	1.0
		Copper, Total	14.5	15.3	5.4	1.0
		Iron, Total	13400	12200	9.8	12.0
		Potassium, Total	590	765	25.8	1.0
		Magnesium, Total	2560	5150	67.2	1.0
		Manganese, Total	211	683	105.5	1.0
		Sodium, Total	134	486	113.9	1.0
		Nickel, Total	13.2	21.6	48.3	1.0
		Lead, Total	176	33.2	136.6	12.0
		Antimony, Total	0.45	0.49	9.7	1.0
		Selenium, Total	0.62u	0.63u	NC	1.0
		Thallium, Total	0.62u	0.63u	NC	1.0
		Vanadium, Total	38.5	35.0	9.5	1.0
		Zinc, Total	41.7	39.3	5.9	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/29/04

CLIENT: EBERLINE-WSI

LVL LOT #: 0412L504

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	SPIKED UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0774-LC1	Silver				
LCS1	04L0774-LC1	Silver, LCS	47.6	50.0	MG/KG	95.2
		Aluminum, LCS	482	500	MG/KG	96.5
		Arsenic, LCS	920	1000	MG/KG	92.0
		Barium, LCS	493	500	MG/KG	98.6
		Beryllium, LCS	23.5	25.0	MG/KG	94.0
		Calcium, LCS	2350	2500	MG/KG	93.9
		Cadmium, LCS	23.5	25.0	MG/KG	94.0
		Cobalt, LCS	241	250	MG/KG	96.2
		Chromium, LCS	48.6	50.0	MG/KG	97.2
		Copper, LCS	121	125	MG/KG	96.5
		Iron, LCS	483	500	MG/KG	96.6
		Potassium, LCS	2510	2500	MG/KG	100.4
		Magnesium, LCS	2350	2500	MG/KG	93.9
		Manganese, LCS	73.2	75.0	MG/KG	97.6
		Sodium, LCS	2420	2500	MG/KG	96.6
		Nickel, LCS	193	200	MG/KG	96.6
		Lead, LCS	239	250	MG/KG	95.6
		Antimony, LCS	285	300	MG/KG	94.9
		Selenium, LCS	869	1000	MG/KG	86.9
		Thallium, LCS	972	1000	MG/KG	97.2
		Vanadium, LCS	236	250	MG/KG	94.4
		Zinc, LCS	95.2	100	MG/KG	95.2
LCS1	04C0284-LC1	Mercury, LCS	6.4	6.2	MG/KG	103.0



Lionville Laboratory, Inc.

RFW Batch Number: 0502L757 Client: EBERLINE-WSI Work Order: 11343623001 Page: 1 Report Date: 02/10/05 08:59

Cust ID: STOCKPILE03 PBLKFW PBLKFW BS  
 Sample Information RFW#: 001 05LE0099-MB1 05LE0099-MB1  
 Matrix: SOIL SOIL SOIL  
 D.F.: 1.00 1.00 1.00  
 Units: UG/KG UG/KG UG/KG

Surrogate: Tetrachloro-m-xylene	79	%	91	%	95	%
Decachlorobiphenyl	86	%	81	%	98	%
Aroclor-1016	13	U	13	U	90	%
Aroclor-1221	13	U	13	U	13	U
Aroclor-1232	13	U	13	U	13	U
Aroclor-1242	13	U	13	U	13	U
Aroclor-1248	13	U	13	U	13	U
Aroclor-1254	13	U	13	U	13	U
Aroclor-1260	13	U	13	U	99	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Initiator: John Lach Batch: 0502L757 Parameter: All  
 Date: 2/16/05 Samples: All Matrix: Soil  
 Client: Eberline WSI Method: SW846/MCAWW/CPLI Prep Batch: 05LE0099

**1. Reason for SDR**

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other \_\_\_\_\_

**b. General Discrepancy**

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☒ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle) ...signature/date: \_\_\_\_\_

**c. Problem (Include all relevant specific results; attach data if necessary)**

Samples received 20 days past hold.

**2. Known or Probable Causes(s)**

**3. Discussion and Proposed Action**

Other Description:

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

Narrative

*[Signature]* 02.16.05

**4. Project Manager Instructions...signature/date:**

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☒ Include in Case Narrative  
☐ Client Contacted:  
☐ Date/Person \_\_\_\_\_  
☐ Add  
☐ Cancel

**5. Final Action...signature/date:**

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☒ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR  
☒ Initiator  
☐ Lab General Manager: M. Taylor  
☐ Project Mgr: Stone/Johnson/Haslett  
☐ Technical Mgr: Wesson/Daniels  
☒ QA (file): Alberts  
☐ Data Management: Feldman  
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR  
☐ Metals: Beegle  
☐ Inorganic: Perrone  
☐ GC/LC: Kiger  
☐ MS: Rychlak/Layman  
☐ Log-in: Melnic  
☐ Admin: Soos  
☐ Other: \_\_\_\_\_



Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 02/17/05 09:29

RFW Batch Number: 0502L757

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE03      TBLKTC      TBLKTC BS

Sample Information      RFW#: 001      05LVJ216-MB1      05LVJ216-MB1

Matrix: SOIL      SOIL      SOIL

D.F.: 1.00      1.00      1.00

Units: UG/KG      UG/KG      UG/KG

Fluorobenzene	96	%	108	%	110	%
Gasoline Range Organics (GRO)	33	U	30	U	126	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Initiator: John Lach  
 Date: 2/17/05  
 Client: Eberline VSI

Batch: 05024757  
 Samples: All  
 Method: SWB46/MCAWW/CLPI

Parameter: GRD  
 Matrix: Soil  
 Prep Batch: 05LUT216

**1. Reason for SDR**

**a. COC Discrepancy**

☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other \_\_\_\_\_

**b. General Discrepancy**

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle) ...signature/date: \_\_\_\_\_

**c. Problem (Include all relevant specific results; attach data if necessary)**

CCU prior to samples elevated @ 15.4% Limit 15%

**2. Known or Probable Causes(s)**

**3. Discussion and Proposed Action**

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

**Other Description:**

Narrative: re excursion does not indicate  
 a loss of ability to detect BRO. No hit  
 found in the sample.

**4. Project Manager Instructions...signature/date:**

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☒ Include in Case Narrative  
☐ Client Contacted:  
☐ Date/Person \_\_\_\_\_  
☐ Add  
☐ Cancel

02.17.05

**5. Final Action...signature/date:**

☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☐ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

**Other Explanation:**

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR  
☒ Initiator  
☒ Lab General Manager: M. Taylor  
☒ Project Mgr. Stone/Johnson/Haslett  
☒ Technical Mgr. Wesson/Daniels  
☒ QA (file): Alberts  
☐ Data Management: Feldman  
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR  
☐ Metals: Beegle  
☐ Inorganic: Perrone  
☐ GC/LC: Kiger  
☐ MS: Rychlak/Layman  
☐ Log-in: Melnic  
☐ Admin: Soos  
☐ Other: \_\_\_\_\_



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE03	Silver, Total	1.1	u MG/KG	1.1	1.0
		Aluminum, Total	11100	MG/KG	22.0	1.0
		Arsenic, Total	4.3	MG/KG	1.1	1.0
		Barium, Total	36.3	MG/KG	22.0	1.0
		Beryllium, Total	0.55	u MG/KG	0.55	1.0
		Calcium, Total	1850	MG/KG	550	1.0
		Cadmium, Total	0.55	u MG/KG	0.55	1.0
		Cobalt, Total	5.6	MG/KG	5.5	1.0
		Chromium, Total	21.9	MG/KG	1.1	1.0
		Copper, Total	13.1	MG/KG	2.8	1.0
		Iron, Total	16200	MG/KG	11.0	1.0
		Mercury, Total	0.04	u MG/KG	0.04	1.0
		Potassium, Total	651	MG/KG	550	1.0
		Magnesium, Total	1890	MG/KG	550	1.0
		Manganese, Total	142	MG/KG	1.7	1.0
		Sodium, Total	550	u MG/KG	550	1.0
		Nickel, Total	12.8	MG/KG	4.4	1.0
		Lead, Total	13.0	MG/KG	0.33	1.0
		Antimony, Total	1.1	u MG/KG	1.1	1.0
		Selenium, Total	0.55	u MG/KG	0.55	1.0
		Thallium, Total	1.1	u MG/KG	1.1	1.0
		Vanadium, Total	29.9	MG/KG	5.5	1.0
		Zinc, Total	34.0	MG/KG	2.2	1.0



## Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0076-MB1	Silver, Total	1.0	u MG/KG	1.0	1.0
		Aluminum, Total	20.0	u MG/KG	20.0	1.0
		Arsenic, Total	1.0	u MG/KG	1.0	1.0
		Barium, Total	20.0	u MG/KG	20.0	1.0
		Beryllium, Total	0.50	u MG/KG	0.50	1.0
		Calcium, Total	500	u MG/KG	500	1.0
		Cadmium, Total	0.50	u MG/KG	0.50	1.0
		Cobalt, Total	5.0	u MG/KG	5.0	1.0
		Chromium, Total	1.0	u MG/KG	1.0	1.0
		Copper, Total	2.5	u MG/KG	2.5	1.0
		Iron, Total	10.0	u MG/KG	10.0	1.0
		Potassium, Total	500	u MG/KG	500	1.0
		Magnesium, Total	500	u MG/KG	500	1.0
		Manganese, Total	1.5	u MG/KG	1.5	1.0
		Sodium, Total	500	u MG/KG	500	1.0
		Nickel, Total	4.0	u MG/KG	4.0	1.0
		Lead, Total	0.30	u MG/KG	0.30	1.0
		Antimony, Total	1.0	u MG/KG	1.0	1.0
		Selenium, Total	0.50	u MG/KG	0.50	1.0
		Thallium, Total	1.0	u MG/KG	1.0	1.0
		Vanadium, Total	5.0	u MG/KG	5.0	1.0
		Zinc, Total	2.0	u MG/KG	2.0	1.0
BLANK1	05C0028-MB1	Mercury, Total	0.02	u MG/KG	0.02	1.0



## Lionville Laboratory, Inc.

## INORGANICS ACCURACY REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE03	Silver, Total	5.0	1.1 u	5.5	90.9	1.0
		Silver, Total MSD	5.3	1.1 u	5.8	91.4	1.0
		Aluminum, Total	13800	11100	220	1196 *	1.0
		Aluminum, Total MSD	13100	11100	231	874.1*	1.0
		Arsenic, Total	200	4.3	220	89.2	1.0
		Arsenic, Total MSD	214	4.3	231	90.7	1.0
		Barium, Total	231	36.3	220	88.4	1.0
		Barium, Total MSD	250	36.3	231	92.5	1.0
		Beryllium, Total	5.7	0.55u	5.5	103.6	1.0
		Beryllium, Total MSD	6.0	0.55u	5.8	103.4	1.0
		Calcium, Total	4610	1850	2750	100.6	1.0
		Calcium, Total MSD	5000	1850	2880	109.5	1.0
		Cadmium, Total	5.4	0.55u	5.5	98.2	1.0
		Cadmium, Total MSD	5.7	0.55u	5.8	98.3	1.0
		Cobalt, Total	58.5	5.6	55.0	96.2	1.0
		Cobalt, Total MSD	61.6	5.6	57.6	97.2	1.0
		Chromium, Total	44.7	21.9	22.0	103.6	1.0
		Chromium, Total MSD	48.8	21.9	23.1	116.4	1.0
		Copper, Total	40.5	13.1	27.5	99.6	1.0
		Copper, Total MSD	41.7	13.1	28.8	99.3	1.0
		Iron, Total	18300	16200	110	1886 *	1.0
		Iron, Total MSD	17200	16200	115	901.5*	1.0
		Mercury, Total	0.24	0.04u	0.18	129.9	1.0
		Mercury, Total MSD	0.25	0.04u	0.17	151.2	1.0
		Potassium, Total	3450	651	2750	101.8	1.0
		Potassium, Total MSD	3570	651	2880	101.4	1.0
		Magnesium, Total	4560	1890	2750	97.2	1.0
		Magnesium, Total MSD	5000	1890	2880	108.1	1.0
		Manganese, Total	210	142	55.0	123.6	1.0
		Manganese, Total MSD	195	142	57.6	91.7	1.0
		Sodium, Total	2710	550 u	2750	98.5	1.0
		Sodium, Total MSD	2860	550 u	2880	99.4	1.0
		Nickel, Total	64.0	12.8	55.0	93.1	1.0
		Nickel, Total MSD	68.0	12.8	57.6	95.8	1.0
		Lead, Total	64.0	13.0	55.0	92.7	1.0
		Lead, Total MSD	66.6	13.0	57.6	93.1	1.0
		Antimony, Total	35.2	1.1 u	55.0	64.0	1.0
		Antimony, Total MSD	33.4	1.1 u	57.6	58.0	1.0
		Selenium, Total	192	0.55u	220	87.1	1.0
		Selenium, Total MSD	206	0.55u	231	89.3	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	STOCKPILE03	Thallium, Total	191	1.1 u	220	86.9	1.0
		Thallium, Total MSD	204	1.1 u	231	88.7	1.0
		Vanadium, Total	85.6	29.9	55.0	101.3	1.0
		Vanadium, Total MSD	85.3	29.9	57.6	96.2	1.0
		Zinc, Total	85.8	34.0	55.0	94.2	1.0
		Zinc, Total MSD	88.3	34.0	57.6	94.3	1.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		
			%RECOV	%RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	STOCKPILE03	Silver, Total	90.9	91.4	0.52
		Aluminum, Total	1196	874.1*	NC
		Arsenic, Total	89.2	90.7	1.7
		Barium, Total	88.4	92.5	4.6
		Beryllium, Total	103.6	103.4	0.18
		Calcium, Total	100.6	109.5	8.4
		Cadmium, Total	98.2	98.3	0.096
		Cobalt, Total	96.2	97.2	1.1
		Chromium, Total	103.6	116.4	11.6
		Copper, Total	99.6	99.3	0.33
		Iron, Total	1886	901.5*	NC
		Mercury, Total	129.9	151.2	15.2
		Potassium, Total	101.8	101.4	0.37
		Magnesium, Total	97.2	108.1	10.6
		Manganese, Total	123.6	91.7	29.7
		Sodium, Total	98.5	99.4	0.86
		Nickel, Total	93.1	95.8	2.9
		Lead, Total	92.7	93.1	0.35
		Antimony, Total	64.0	58.0	9.9
		Selenium, Total	87.1	89.3	2.4
		Thallium, Total	86.9	88.7	2.1
		Vanadium, Total	101.3	96.2	5.2
		Zinc, Total	94.2	94.3	0.094



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
=====	=====	=====	=====	=====	=====	=====
-001REP	STOCKPILE03	Silver, Total	1.1 u	1.1 u	NC	1.0
		Aluminum, Total	11100	11200	0.39	1.0
		Arsenic, Total	4.3	4.5	4.5	1.0
		Barium, Total	36.3	37.9	4.3	1.0
		Beryllium, Total	0.55u	0.54u	NC	1.0
		Calcium, Total	1850	2470	28.7	1.0
		Cadmium, Total	0.55u	0.54u	NC	1.0
		Cobalt, Total	5.6	6.0	6.9	1.0
		Chromium, Total	21.9	20.7	5.6	1.0
		Copper, Total	13.1	14.3	8.8	1.0
		Iron, Total	16200	16800	3.6	1.0
		Mercury, Total	0.04u	0.04	NC	1.0
		Potassium, Total	651	733	11.9	1.0
		Magnesium, Total	1890	1950	3.5	1.0
		Manganese, Total	142	162	13.0	1.0
		Sodium, Total	550 u	544 u	NC	1.0
		Nickel, Total	12.8	12.3	4.0	1.0
		Lead, Total	13.0	14.0	7.4	1.0
		Antimony, Total	1.1 u	1.1 u	NC	1.0
		Selenium, Total	0.55u	0.54u	NC	1.0
		Thallium, Total	1.1 u	1.1 u	NC	1.0
		Vanadium, Total	29.9	30.8	3.0	1.0
		Zinc, Total	34.0	34.4	1.2	1.0



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/14/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0502L757

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0076-LC1	Silver, LCS	49.2	50.0	MG/KG	98.4
		Aluminum, LCS	501	500	MG/KG	100.2
		Arsenic, LCS	950	1000	MG/KG	95.0
		Barium, LCS	487	500	MG/KG	97.4
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Calcium, LCS	2510	2500	MG/KG	100.3
		Cadmium, LCS	24.8	25.0	MG/KG	99.2
		Cobalt, LCS	253	250	MG/KG	101.3
		Chromium, LCS	50.9	50.0	MG/KG	101.8
		Copper, LCS	126	125	MG/KG	100.6
		Iron, LCS	507	500	MG/KG	101.4
		Potassium, LCS	2510	2500	MG/KG	100.3
		Magnesium, LCS	2470	2500	MG/KG	98.9
		Manganese, LCS	76.6	75.0	MG/KG	102.1
		Sodium, LCS	2380	2500	MG/KG	95.4
		Nickel, LCS	200	200	MG/KG	100.2
		Lead, LCS	248	250	MG/KG	99.0
		Antimony, LCS	290	300	MG/KG	96.8
		Selenium, LCS	922	1000	MG/KG	92.2
		Thallium, LCS	965	1000	MG/KG	96.5
		Vanadium, LCS	247	250	MG/KG	99.0
		Zinc, LCS	98.2	100	MG/KG	98.2
LCS1	05C0028-LC1	Mercury, LCS	6.5	6.2	MG/KG	105.2



Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 02/14/05 10:50

RFW Batch Number: 0502L757

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE03 PBLKFW PBLKFW BS

Sample Information RFW#: 001 05LE0099-MB1 05LE0099-MB1

Matrix: SOIL SOIL SOIL

D.F.: 20.0 1.00 1.00

Units: UG/KG UG/KG UG/KG

Surrogate:	Tetrachloro-m-xylene	D	%	84	%	68	%
	Decachlorobiphenyl	D	%	88	%	80	%
Alpha-BHC		33	U	1.7	U	84	%
Beta-BHC		33	U	1.7	U	80	%
Delta-BHC		33	U	1.7	U	87	%
gamma-BHC (Lindane)		33	U	1.7	U	82	%
Heptachlor		33	U	1.7	U	82	%
Aldrin		33	U	1.7	U	85	%
Heptachlor epoxide		33	U	1.7	U	85	%
Endosulfan I		33	U	1.7	U	96	%
Dieldrin		67	U	3.3	U	86	%
4,4'-DDE		67	U	3.3	U	92	%
Endrin		67	U	3.3	U	165	*
Endosulfan II		67	U	3.3	U	88	%
4,4'-DDD		67	U	3.3	U	86	%
Endosulfan sulfate		67	U	3.3	U	89	%
4,4'-DDT		67	U	3.3	U	84	%
Methoxychlor		330	U	17	U	83	%
Endrin ketone		67	U	3.3	U	84	%
Endrin aldehyde		67	U	3.3	U	74	%
alpha-Chlordane		33	U	1.7	U	85	%
gamma-Chlordane		33	U	1.7	U	85	%
Toxaphene		3300	U	170	U	170	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Initiator: M. McBrally  
Date: 2/14/05  
Client: ISIL/INE-L&E

Batch: 05026757  
Samples: BS  
Method: SW846/MCAWW/CLPI

Parameter: 060814  
Matrix: Soil  
Prep Batch: 05LE0099

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note\*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

c. Problem (Include all relevant specific results; attach data if necessary)

- BS recovery for Indran <sup>was</sup> ~~was~~ <sup>was</sup> ~~was~~ out of acceptance criteria @ 165% (range - 60-150%).
- CCUs were high for BS for DDE and Endosulfen I. Does not affect ability to detect presence of compounds.
- No HTRs in sample; No impact on data.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description:

- ☐ Re-log
- ☐ Entire Batch
- ☐ Following Samples: \_\_\_\_\_
- ☐ Re-leach
- ☐ Re-extract
- ☐ Re-digest
- ☐ Revise EDD
- ☐ Change Test Code to \_\_\_\_\_
- ☐ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: \_\_\_\_\_

- ☒ Concur with Proposed Action
- ☐ Disagree with Proposed Action; See Instruction
- ☒ Include in Case Narrative
- ☒ Client Contacted: DDC Forwarded by Data
- Date/Person WMA/02.14.05
- ☐ Add
- ☐ Cancel

5. Final Action...signature/date: \_\_\_\_\_

Other Explanation:

- ☐ Verified re-[log][leach][extract][digest][analysis] (circle)
- ☐ Included in Case Narrative
- ☐ Hard Copy COC Revised
- ☐ Electronic COC Revised
- ☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR

- ☒ Initiator
- ☒ Lab General Manager: M. Taylor
- ☒ Project Mgr: Stone/Johnson/Haslett
- ☒ Technical Mgr: Wesson/Daniels
- ☒ QA (file): Alberts
- ☐ Data Management: Feldman
- ☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR

- ☐ Metals: Beegle
- ☐ Inorganic: Perrone
- ☐ GC/LC: Kiger
- ☐ MS: Rychlak/Layman
- ☐ Log-in: Melnic
- ☐ Admin: Soos
- ☐ Other: \_\_\_\_\_



Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 02/10/05 11:29

RFW Batch Number: 0502L757

Client: EBERLINE-WSI Work Order: 11343623001 Page: 1

Cust ID: STOCKPILE03		STOCKPILE03	STOCKPILE03	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	05LE0100-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	10.0	10.0	10.0	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg
<hr/>					
p-Terphenyl		52 %	61 %	68 %	91 %
=====fl=====		=====fl=====	=====fl=====	=====fl=====	=====fl=====
Diesel Range Organics		0.023	59 %	53 %	0.0120 U 68 %
<hr/>					

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC





EBS-OR-21991

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-02033-OR

SAMPLE RECEIPT

This work order contains one soil sample received 2/7/2005. This sample was analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
STOCKPILE03	05-02033-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Sample demonstrated near background equivalent to only slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Sample demonstrated background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity and non-detect equivalent results for Cobalt-60 and Cesium-137 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cesium-137 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

*C. Searcy 2/17/05*

for  
M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
**Weston Solutions**  
**1309 Continental Drive, #1M**  
**Abingdon, MD 21009**

Report To:

Work Order Details:

**SDG: 05-02033**  
**Purchase Order: 0047329**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-02033-01	LCS	KNOWN	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Alpha	LANL MLR-100 Modified	2.97E+02	1.28E+01			pCi/g
05-02033-01	LCS	SPIKE	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Alpha	LANL MLR-100 Modified	3.24E+02	8.86E+00	2.39E+01	7.92E-01	pCi/g
05-02033-02	MBL	BLANK	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Alpha	LANL MLR-100 Modified	1.11E-01	1.17E-01	1.17E-01	1.90E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Gross Alpha	LANL MLR-100 Modified	2.26E+00	9.03E-01	9.16E-01	1.18E+00	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Gross Alpha	LANL MLR-100 Modified	4.24E+00	1.08E+00	1.11E+00	9.55E-01	pCi/g
05-02033-01	LCS	KNOWN	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Beta	LANL MLR-100 Modified	2.52E+02	7.56E+00			pCi/g
05-02033-01	LCS	SPIKE	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Beta	LANL MLR-100 Modified	2.65E+02	7.02E+00	1.42E+01	1.01E+00	pCi/g
05-02033-02	MBL	BLANK	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Gross Beta	LANL MLR-100 Modified	4.29E-01	2.43E-01	2.44E-01	3.88E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Gross Beta	LANL MLR-100 Modified	2.84E+00	1.26E+00	1.27E+00	1.98E+00	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Gross Beta	LANL MLR-100 Modified	2.69E+00	1.38E+00	1.39E+00	2.19E+00	pCi/g
05-02033-01	LCS	KNOWN	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-02033-01	LCS	KNOWN	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-02033-01	LCS	SPIKE	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cobalt-60	LANL ER-130 Modified	1.30E+02	7.08E+00	7.48E+00	9.97E-01	pCi/g
05-02033-01	LCS	SPIKE	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cesium-137	LANL ER-130 Modified	7.65E+01	6.06E+00	6.23E+00	8.97E-01	pCi/g
05-02033-02	MBL	BLANK	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cobalt-60	LANL ER-130 Modified	1.10E-02	2.44E-02	2.44E-02	5.50E-02	pCi/g
05-02033-02	MBL	BLANK	02/07/05 00:00	2/7/2005	2/8/2005	05-02033	Cesium-137	LANL ER-130 Modified	-1.51E-02	2.41E-02	2.41E-02	4.16E-02	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Actinium-228	LANL ER-130 Modified	1.07E+00	1.82E-01	1.83E-01	1.92E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Bismuth-214	LANL ER-130 Modified	7.50E-01	1.38E-01	1.38E-01	1.01E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Cobalt-60	LANL ER-130 Modified	3.47E-03	3.37E-02	3.37E-02	6.12E-02	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Cesium-137	LANL ER-130 Modified	1.69E-02	3.24E-02	3.24E-02	6.05E-02	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Potassium-40	LANL ER-130 Modified	8.25E+00	1.16E+00	1.17E+00	3.76E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Lead-212	LANL ER-130 Modified	1.02E+00	1.21E-01	1.23E-01	8.45E-02	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Lead-214	LANL ER-130 Modified	7.42E-01	1.13E-01	1.14E-01	1.07E-01	pCi/g
05-02033-03	DUP	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Thallium-208	LANL ER-130 Modified	8.88E-01	1.50E-01	1.51E-01	1.51E-01	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Actinium-228	LANL ER-130 Modified	1.27E+00	2.22E-01	2.24E-01	4.35E-01	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Bismuth-214	LANL ER-130 Modified	7.00E-01	1.25E-01	1.25E-01	1.04E-01	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Cobalt-60	LANL ER-130 Modified	8.36E-03	3.38E-02	3.38E-02	6.23E-02	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Cesium-137	LANL ER-130 Modified	3.13E-02	3.80E-02	3.80E-02	7.12E-02	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Potassium-40	LANL ER-130 Modified	8.01E+00	1.14E+00	1.14E+00	4.31E-01	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Lead-212	LANL ER-130 Modified	7.67E-01	8.40E-01	8.40E-01	9.42E-02	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Lead-214	LANL ER-130 Modified	8.15E-01	1.02E-01	1.03E-01	1.01E-01	pCi/g
05-02033-04	DO	STOCKPILE03	01/04/05 14:00	2/7/2005	2/8/2005	05-02033	Thallium-208	LANL ER-130 Modified	9.72E-01	1.53E-01	1.54E-01	1.58E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







Lionville Laboratory, Inc.

Volatiles by GC/MS, TCLP Leachate

Report Date: 04/07/05 09:12

Client: EBERLINE-WSI

Work Order: 11343623001

Page: 1a

RFW Batch Number: 0503L100

Cust ID: SS-41-032905 SS-41-032905 VBLKNO VBLKNO BS LCHBLK

-01

RFW#:

002

002 MS

05LVX060-MB1

05LVX060-MB1

05LTV014-LB1

Sample Information

Matrix:

WATER

WATER

WATER

D.F.:

5.00

5.00

2.00

Units:

MG/L

MG/L

MG/L

Surrogate	Toluene-d8	115 *	%	106	%	108	%	113	%	110	%
Recovery	Bromofluorobenzene	108	%	105	%	104	%	114	%	108	%
	1,2-Dichloroethane-d4	96	%	103	%	92	%	102	%	100	%
	Vinyl Chloride	0.050	U	111	%	0.010	U	107	%	0.020	U
	1,1-Dichloroethene	0.025	U	112	%	0.005	U	118	%	0.010	U
	Chloroform	0.025	U	96	%	0.005	U	99	%	0.010	U
	1,2-Dichloroethane	0.025	U	98	%	0.005	U	98	%	0.010	U
	2-Butanone	0.050	U	109	%	0.010	U	87	%	0.020	U
	Carbon Tetrachloride	0.025	U	101	%	0.005	U	111	%	0.010	U
	Trichloroethene	0.089		100	%	0.005	U	111	%	0.010	U
	Benzene	0.025	U	103	%	0.005	U	102	%	0.010	U
	Tetrachloroethene	0.025	U	106	%	0.005	U	117	%	0.010	U
	Chlorobenzene	0.025	U	109	%	0.005	U	111	%	0.010	U

\*= Outside of EPA CLP QC limits.



Lionville Laboratory, Inc.

PCBs by GC

Report Date: 04/04/05 16:03

RFW Batch Number: 0503L100

Client: EBERLINE-WSI Work Order: 11343623001 Page: 1

Cust ID: SS-41-032905 SS-41-032905 SS-41-032905 PBLKII PBLKII BS PBLKII BSD  
 -01 -01 -01  
 RFW#: 001 001 MS 001 MSD 05LE0245-MB1 05LE0245-MB1 05LE0245-MB1  
 Matrix: SOIL SOIL SOIL SOIL SOIL SOIL SOIL  
 D.F.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
 Units: UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG

Surrogate:	Tetrachloro-m-xylene	68	%	78	%	84	%	78	%	90	%	106	%
	Decachlorobiphenyl	90	%	95	%	101	%	87	%	98	%	109	%
Aroclor-1016		33	U	82	%	96	%	13	U	93	%	103	%
Aroclor-1221		33	U	49	U	49	U	13	U	13	U	13	U
Aroclor-1232		33	U	49	U	49	U	13	U	13	U	13	U
Aroclor-1242		33	U	49	U	49	U	13	U	13	U	13	U
Aroclor-1248		33	U	49	U	49	U	13	U	13	U	13	U
Aroclor-1254		33	U	49	U	49	U	13	U	13	U	13	U
Aroclor-1260		110		93	%	105	%	13	U	95	%	107	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC





EBS-OR-22248

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE

Work Order# 05-04053-OR

SAMPLE RECEIPT

This work order contains six soil samples received 4/11/2005. These samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
BC-B3-001-FFS2-1-0-0	05-04053-04	BC-B3-006-WN-1-0-0	05-04053-07
BC-B3-001-FP3-1-0-0	05-04053-05	BC-B3-013-WE-1-0-0	05-04053-08
BC-B3-002-FP3-1-0-0	05-04053-06	BC-B3-015-WW-1-0-0	05-04053-09

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Samples demonstrated background equivalent to slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

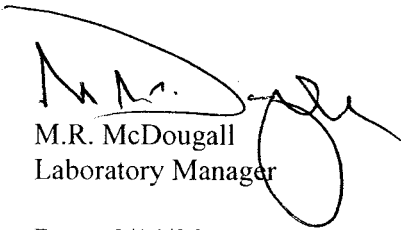
GAMMA SPECTROSCOPY

Samples demonstrated non-detect equivalent results for Cobalt-60 activity, non-detect equivalent to slightly positive results for Cesium-137 activity, and background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cobalt-60 and Cesium-137 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				Analyte				SDG: 05-04053					
								Purchase Order: 0047329					
								Analysis Category: ENVIRONMENTAL					
								Sample Matrix: SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Method	Result	CU	TPU	MDA	Report Units	
05-04053-01	LCS	KNOWN	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	2.91E+02	1.25E+01			pCi/g	
05-04053-01	LCS	SPIKE	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	2.89E+02	8.07E+00	2.14E+01	5.44E-01	pCi/g	
05-04053-02	MBL	BLANK	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	-3.25E-02	9.74E-02	9.74E-02	2.04E-01	pCi/g	
05-04053-03	DUP	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	1.26E+00	7.61E-01	7.66E-01	1.05E+00	pCi/g	
05-04053-04	DO	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	6.60E-01	7.46E-01	7.48E-01	1.23E+00	pCi/g	
05-04053-05	TRG	BC-B3-001-FP3-1-0-0	04/08/05 13:30	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	1.35E+00	7.12E-01	7.18E-01	9.35E-01	pCi/g	
05-04053-06	TRG	BC-B3-002-FP3-1-0-0	04/08/05 14:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	7.00E-01	6.86E-01	6.87E-01	1.10E+00	pCi/g	
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	3.83E+00	1.13E+00	1.16E+00	1.34E+00	pCi/g	
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	1.69E+00	6.90E-01	7.00E-01	6.51E-01	pCi/g	
05-04053-09	TRG	BC-B3-015-WW-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	LANL MLR-100 Modified	3.81E+00	1.04E+00	1.07E+00	1.13E+00	pCi/g	
05-04053-01	LCS	KNOWN	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	2.46E+02	7.38E+00			pCi/g	
05-04053-01	LCS	SPIKE	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	2.45E+02	6.56E+00	1.31E+01	1.05E+00	pCi/g	
05-04053-02	MBL	BLANK	04/11/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	1.16E-01	2.71E-01	2.71E-01	4.62E-01	pCi/g	
05-04053-03	DUP	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	4.06E+00	1.54E+00	1.56E+00	2.39E+00	pCi/g	
05-04053-04	DO	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	2.94E+00	1.46E+00	1.47E+00	2.34E+00	pCi/g	
05-04053-05	TRG	BC-B3-001-FP3-1-0-0	04/08/05 13:30	4/11/2005	4/13/2005	05-04053	Gross Beta	5.92E-02	1.42E+00	1.42E+00	2.47E+00	pCi/g	
05-04053-06	TRG	BC-B3-002-FP3-1-0-0	04/08/05 14:00	4/11/2005	4/13/2005	05-04053	Gross Beta	1.62E+00	1.44E+00	1.45E+00	2.39E+00	pCi/g	
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	2.73E+00	1.34E+00	1.35E+00	2.14E+00	pCi/g	
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	2.32E+00	1.31E+00	1.31E+00	2.10E+00	pCi/g	
05-04053-09	TRG	BC-B3-015-WW-1-0-0	04/07/05 00:00	4/11/2005	4/13/2005	05-04053	Gross Beta	4.01E+00	1.28E+00	1.30E+00	1.92E+00	pCi/g	

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross				SDG:			05-04053						
Weston Solutions				Purchase Order:			0047329						
1309 Continental Drive, #M				Analysis Category:			ENVIRONMENTAL						
Abingdon, MD 21009				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04053-01	LCS	KNOWN	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-04053-01	LCS	KNOWN	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-04053-01	LCS	SPIKE	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	1.26E+02	6.87E+00	7.26E+00	1.02E+00	pCi/g
05-04053-01	LCS	SPIKE	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	7.52E+01	5.97E+00	6.13E+00	8.69E-01	pCi/g
05-04053-02	MBL	BLANK	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	5.97E-03	1.61E-02	1.61E-02	3.17E-02	pCi/g
05-04053-02	MBL	BLANK	04/11/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	-2.50E-03	1.27E-02	1.27E-02	2.30E-02	pCi/g
05-04053-03	DUP	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	-9.54E-03	2.86E-02	2.86E-02	5.19E-02	pCi/g
05-04053-03	DUP	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	3.48E+00	3.25E-01	3.31E-01	6.17E-02	pCi/g
05-04053-04	DO	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	-9.46E-03	2.93E-02	2.93E-02	5.33E-02	pCi/g
05-04053-04	DO	BC-B3-001-FFS2-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	3.65E+00	3.38E-01	3.45E-01	5.22E-02	pCi/g
05-04053-05	TRG	BC-B3-001-FP3-1-0-0	04/08/05 13:30	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	1.90E-02	1.89E-02	1.89E-02	3.99E-02	pCi/g
05-04053-05	TRG	BC-B3-001-FP3-1-0-0	04/08/05 13:30	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	2.47E-01	5.31E-02	5.33E-02	3.54E-02	pCi/g
05-04053-06	TRG	BC-B3-002-FP3-1-0-0	04/08/05 14:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	1.88E-03	1.69E-02	1.69E-02	3.28E-02	pCi/g
05-04053-06	TRG	BC-B3-002-FP3-1-0-0	04/08/05 14:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	3.15E-01	6.05E-02	6.08E-02	3.56E-02	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Actinium-228	LANL ER-130 Modified	1.21E+00	2.12E-01	2.13E-01	2.89E-01	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Bismuth-214	LANL ER-130 Modified	7.11E-01	1.48E-01	1.49E-01	1.40E-01	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	-3.53E-03	4.81E-02	4.81E-02	8.69E-02	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	4.05E-02	4.97E-02	4.97E-02	9.45E-02	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Potassium-40	LANL ER-130 Modified	1.07E+01	1.56E+00	1.57E+00	5.71E-01	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Lead-212	LANL ER-130 Modified	1.25E+00	1.54E-01	1.56E-01	1.18E-01	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Lead-214	LANL ER-130 Modified	7.88E-01	1.40E-01	1.41E-01	1.44E-01	pCi/g
05-04053-07	TRG	BC-B3-006-WN-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Thallium-208	LANL ER-130 Modified	8.95E-01	1.86E-01	1.87E-01	2.20E-01	pCi/g

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
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**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				SDG: 05-04053  Purchase Order: 0047329  Analysis Category: ENVIRONMENTAL  Sample Matrix: SO									
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	4.15E-03	2.62E-02	2.62E-02	4.97E-02	pCi/g
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	1.01E+00	1.39E-01	1.40E-01	5.63E-02	pCi/g
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Potassium-40	LANL ER-130 Modified	1.45E+00	5.00E-01	5.01E-01	4.18E-01	pCi/g
05-04053-08	TRG	BC-B3-013-WE-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Lead-212	LANL ER-130 Modified	2.53E-01	1.02E-01	1.02E-01	7.00E-02	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Actinium-228	LANL ER-130 Modified	1.07E+00	2.00E-01	2.01E-01	1.96E-01	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Bismuth-214	LANL ER-130 Modified	8.73E-01	1.38E-01	1.39E-01	1.13E-01	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cobalt-60	LANL ER-130 Modified	8.29E-03	3.80E-02	3.80E-02	6.79E-02	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Cesium-137	LANL ER-130 Modified	-1.54E-03	3.81E-02	3.81E-02	6.61E-02	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Potassium-40	LANL ER-130 Modified	1.11E+01	1.41E+00	1.42E+00	4.66E-01	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Lead-212	LANL ER-130 Modified	1.19E+00	1.35E-01	1.37E-01	9.95E-02	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Lead-214	LANL ER-130 Modified	9.16E-01	1.35E-01	1.36E-01	1.22E-01	pCi/g
05-04053-09	TRG	BC-B3-015-WWV-1-0-0	04/07/05 00:00	4/11/2005	4/12/2005	05-04053	Thallium-208	LANL ER-130 Modified	1.19E+00	1.62E-01	1.64E-01	1.48E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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EBS-OR-22261

April 19, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-04093-OR

SAMPLE RECEIPT

This work order contains seventeen soil samples received 04/16/05. These samples were analyzed by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
BC-B3-001-FP-2-1-0	05-04093-04	BC-B3-021-FP-1-1-0	05-04093-13
BC-B3-002-FP-2-1-0	05-04093-05	BC-B3-022-FP-1-0-0	05-04093-14
BC-B3-018-W-1-1-0	05-04093-06	BC-B3-022-FP-1-1-0	05-04093-15
BC-B3-018-W-1-1-1	05-04093-07	BC-B3-023-WS-1-1-0	05-04093-16
BC-B3-019-FP-1-0-0	05-04093-08	BC-B3-024-W-1-1-0	05-04093-17
BC-B3-019-FP-1-1-0	05-04093-09	BC-B3-025-W-1-1-0	05-04093-18
BC-B3-020-FP-1-0-0	05-04093-10	BC-B3-026-W-1-1-0	05-04093-19
BC-B3-020-FP1-1-1-0	05-04093-11	BC-B3-027-W-1-1-0	05-04093-20
BC-B3-021-FP-1-0-0	05-04093-12		

ANALYTICAL METHODS

Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.

Samples demonstrated background equivalent to only slightly positive results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Thallium-208 and Thorium-234 activity. Samples demonstrated non-detect equivalent results for Cobalt-60 activity. Samples demonstrated non-detect equivalent to slightly positive results for Cesium-137 activity. Samples demonstrated background equivalent to slightly positive results for Lead-214 activity. Cobalt-60 results were reported from the gamma spectroscopy "non-identified" nuclides report and should be qualified as non-detect. Cesium-137 results for sample fractions -06, -09, -11, -13, -18 and -20 (Client IDs: BC-B3-018-W-1-1-0, BC-B3-019-FP-1-1-0, BC-B3-020-FP1-1-1-0, BC-B3-021-FP-1-1-0, BC-B3-025-W-1-1-0, and BC-B3-027-W -1-1-0, respectively) were reported from the gamma spectroscopy "non-identified" nuclides report and should be qualified as



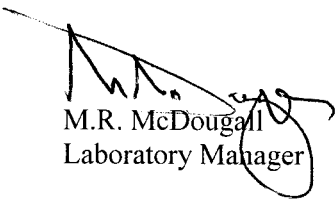
## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY CONTINUED

non-detect. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Bismuth-214, Potassium-40 and Lead-212 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 4/19/2005



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

05-04093

Purchase Order:

0047329

Analysis Category:

ENVIRONMENTAL

Sample Matrix:

SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04093-01	LCS	KNOWN	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-04093-01	LCS	KNOWN	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-04093-01	LCS	SPIKE	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	1.24E+02	6.78E+00	7.15E+00	9.72E-01	pCi/g
05-04093-01	LCS	SPIKE	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	7.33E+01	5.81E+00	5.97E+00	8.41E-01	pCi/g
05-04093-02	MBL	BLANK	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	3.39E-05	2.54E-02	2.54E-02	5.16E-02	pCi/g
05-04093-02	MBL	BLANK	04/16/05 00:00	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	-5.95E-03	2.76E-02	2.76E-02	5.30E-02	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	1.89E-01	5.83E-02	5.84E-02	8.27E-02	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	-9.78E-03	2.51E-02	2.51E-02	4.22E-02	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	3.96E-01	6.93E-02	6.96E-02	3.07E-02	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	2.04E+00	5.52E-01	5.53E-01	3.35E-01	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	2.60E-01	5.55E-02	5.57E-02	6.34E-02	pCi/g
05-04093-03	DUP	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	2.53E-01	7.19E-02	7.20E-02	6.86E-02	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	1.73E-01	6.83E-02	6.84E-02	7.72E-02	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	1.51E-02	2.48E-02	2.48E-02	4.82E-02	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	3.95E-01	7.05E-02	7.09E-02	3.90E-02	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	2.06E+00	5.87E-01	5.88E-01	3.08E-01	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	2.73E-01	5.83E-02	5.86E-02	6.24E-02	pCi/g
05-04093-04	DO	BC-B3-001-FP-2-1-0	04/15/05 15:20	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	1.97E-01	8.28E-02	8.29E-02	1.21E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	6.61E-01	2.14E-01	2.14E-01	2.54E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	5.08E-01	1.68E-01	1.68E-01	2.77E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	7.89E-03	4.24E-02	4.24E-02	7.41E-02	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	1.66E+00	2.26E-01	2.28E-01	8.31E-02	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	6.32E+00	1.18E+00	1.19E+00	2.84E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	6.30E-01	1.19E-01	1.19E-01	1.19E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	5.60E-01	1.43E-01	1.44E-01	1.44E-01	pCi/g
05-04093-05	TRG	BC-B3-002-FP-2-1-0	04/15/05 15:00	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	5.17E-01	1.59E-01	1.59E-01	2.05E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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## Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621







# Eberline Services

## Final Report of Analysis

Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
				Joe Gross				SDG:		05-04093			
				Weston Solutions				Purchase Order:		0047329			
				1309 Continental Drive, #M				Analysis Category:		ENVIRONMENTAL			
				Abingdon, MD 21009				Sample Matrix:		SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	7.28E-01	1.45E-01	1.45E-01	1.81E-01	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	6.15E-01	1.06E-01	1.06E-01	9.18E-02	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	2.79E-02	2.95E-02	2.95E-02	5.99E-02	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	7.02E-04	3.14E-02	3.14E-02	5.47E-02	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	6.70E+00	9.16E-01	9.25E-01	3.98E-01	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	7.45E-01	1.10E-01	1.11E-01	9.06E-02	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	5.79E-01	1.15E-01	1.15E-01	1.11E-01	pCi/g
05-04093-09	TRG	BC-B3-019-FP-1-1-0	04/15/05 13:45	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	7.00E-01	1.13E-01	1.14E-01	1.34E-01	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	4.58E-01	1.19E-01	1.19E-01	1.47E-01	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	3.79E-01	7.66E-02	7.69E-02	9.43E-02	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	2.68E-03	2.75E-02	2.75E-02	4.97E-02	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	1.16E-01	4.63E-02	4.63E-02	4.88E-02	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	4.70E+00	8.17E-01	8.22E-01	3.45E-01	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	5.76E-01	8.35E-02	8.42E-02	6.87E-02	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	3.78E-01	9.34E-02	9.36E-02	8.65E-02	pCi/g
05-04093-10	TRG	BC-B3-020-FP-1-0-0	04/15/05 14:05	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	4.15E-01	1.04E-01	1.05E-01	1.25E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	9.13E-01	2.04E-01	2.05E-01	3.05E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	7.41E-01	1.72E-01	1.73E-01	1.38E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	3.57E-02	4.84E-02	4.84E-02	9.39E-02	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	5.77E-02	5.26E-02	5.26E-02	1.03E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	8.97E+00	1.50E+00	1.51E+00	8.74E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	9.05E-01	1.36E-01	1.37E-01	1.16E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	6.88E-01	1.73E-01	1.73E-01	1.37E-01	pCi/g
05-04093-11	TRG	BC-B3-020FP1-1-1-0	04/15/05 14:10	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	7.60E-01	1.84E-01	1.84E-01	2.22E-01	pCi/g
05-04093-12	TRG	BC-B3-021-FP-1-0-0	04/15/05 14:15	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	8.88E-03	4.39E-02	4.39E-02	8.79E-02	pCi/g
05-04093-12	TRG	BC-B3-021-FP-1-0-0	04/15/05 14:15	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	-4.14E-03	4.21E-02	4.21E-02	8.00E-02	pCi/g
05-04093-12	TRG	BC-B3-021-FP-1-0-0	04/15/05 14:15	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	2.59E+00	9.29E-01	9.31E-01	6.95E-01	pCi/g
05-04093-12	TRG	BC-B3-021-FP-1-0-0	04/15/05 14:15	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	3.30E-01	1.09E-01	1.09E-01	1.08E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-04093

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	8.16E-01	1.50E-01	1.51E-01	1.70E-01	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	6.75E-01	1.11E-01	1.11E-01	9.46E-02	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	7.15E-03	2.68E-02	2.68E-02	5.20E-02	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	9.02E-02	5.42E-02	5.42E-02	5.23E-02	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	6.25E+00	9.19E-01	9.26E-01	3.94E-01	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	7.15E-01	1.09E-01	1.10E-01	8.72E-02	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	5.80E-01	1.16E-01	1.16E-01	1.06E-01	pCi/g
05-04093-13	TRG	BC-B3-021-FP-1-1-0	04/15/05 14:20	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	7.00E-01	1.19E-01	1.20E-01	1.08E-01	pCi/g
05-04093-14	TRG	BC-B3-022-FP-1-0-0	04/15/05 14:40	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	-5.90E-03	1.73E-02	1.73E-02	3.01E-02	pCi/g
05-04093-14	TRG	BC-B3-022-FP-1-0-0	04/15/05 14:40	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	9.70E-01	1.31E-01	1.32E-01	3.90E-02	pCi/g
05-04093-14	TRG	BC-B3-022-FP-1-0-0	04/15/05 14:40	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	8.83E-01	3.36E-01	3.36E-01	2.91E-01	pCi/g
05-04093-15	TRG	BC-B3-022-FP-1-1-0	04/15/05 14:46	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	5.59E-03	2.92E-02	2.92E-02	5.80E-02	pCi/g
05-04093-15	TRG	BC-B3-022-FP-1-1-0	04/15/05 14:46	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	7.79E-01	1.28E-01	1.28E-01	5.75E-02	pCi/g
05-04093-15	TRG	BC-B3-022-FP-1-1-0	04/15/05 14:46	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	2.30E-01	8.89E-02	8.90E-02	7.45E-02	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	1.03E+00	3.01E-01	3.02E-01	3.49E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	8.62E-01	2.22E-01	2.23E-01	2.31E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	-2.49E-02	6.00E-02	6.00E-02	1.05E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	9.98E-02	7.39E-02	7.39E-02	1.04E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	1.11E+01	1.91E+00	1.92E+00	8.83E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	1.27E+00	1.91E-01	1.93E-01	1.50E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	8.25E-01	2.11E-01	2.12E-01	2.03E-01	pCi/g
05-04093-16	TRG	BC-B3-023-WS-1-1-0	04/15/05 13:15	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	9.80E-01	2.16E-01	2.17E-01	2.59E-01	pCi/g

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# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-04093

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	1.09E+00	1.89E-01	1.90E-01	1.99E-01	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	7.48E-01	1.27E-01	1.28E-01	1.14E-01	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	1.25E-03	3.22E-02	3.22E-02	5.97E-02	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	7.77E-02	5.98E-02	5.98E-02	5.74E-02	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	1.06E+01	1.32E+00	1.33E+00	4.32E-01	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	1.12E+00	1.37E-01	1.39E-01	9.59E-02	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	8.36E-01	1.27E-01	1.28E-01	1.22E-01	pCi/g
05-04093-17	TRG	BC-B3-024-W-1-1-0	04/15/05 13:25	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	1.12E+00	1.52E-01	1.54E-01	1.60E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	1.30E+00	1.90E-01	1.92E-01	2.17E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	8.14E-01	1.31E-01	1.32E-01	1.29E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	1.15E-02	3.55E-02	3.55E-02	6.48E-02	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	1.29E-02	3.90E-02	3.90E-02	6.93E-02	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	1.10E+01	1.38E+00	1.39E+00	5.55E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	1.21E+00	1.37E-01	1.38E-01	1.02E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	8.18E-01	1.32E-01	1.33E-01	1.23E-01	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Thorium-234	LANL ER-130 Modified	3.66E+00	1.49E+00	1.49E+00	1.39E+00	pCi/g
05-04093-18	TRG	BC-B3-025-W-1-1-0	04/15/05 14:00	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	1.03E+00	1.67E-01	1.68E-01	1.72E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	1.23E+00	2.29E-01	2.30E-01	2.33E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	7.68E-01	1.65E-01	1.65E-01	1.61E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	-2.28E-02	5.13E-02	5.13E-02	8.78E-02	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	1.45E-01	6.66E-02	6.67E-02	8.51E-02	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	9.59E+00	1.48E+00	1.47E+00	6.61E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	1.33E+00	1.73E-01	1.75E-01	1.22E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	7.85E-01	1.56E-01	1.57E-01	1.56E-01	pCi/g
05-04093-19	TRG	BC-B3-026-W-1-1-0	04/15/05 14:30	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	1.01E+00	1.85E-01	1.86E-01	2.07E-01	pCi/g

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Eberline Services Final Report of Analysis				Report To:			Work Order Details:						
Joe Gross				SDG:			05-04093						
Weston Solutions				Purchase Order:			0047329						
1309 Continental Drive, #M				Analysis Category:			ENVIRONMENTAL						
Abingdon, MD 21009				Sample Matrix:			SO						
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Actinium-228	LANL ER-130 Modified	1.12E+00	1.58E-01	1.59E-01	1.87E-01	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Bismuth-214	LANL ER-130 Modified	6.81E-01	1.29E-01	1.29E-01	1.06E-01	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Cobalt-60	LANL ER-130 Modified	-1.33E-02	3.35E-02	3.35E-02	5.93E-02	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Cesium-137	LANL ER-130 Modified	-3.03E-02	3.41E-02	3.41E-02	5.43E-02	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Potassium-40	LANL ER-130 Modified	1.09E+01	1.28E+00	1.29E+00	4.21E-01	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Lead-212	LANL ER-130 Modified	1.36E+00	1.93E-01	1.95E-01	9.92E-02	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Lead-214	LANL ER-130 Modified	8.27E-01	1.11E-01	1.12E-01	1.07E-01	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Thorium-234	LANL ER-130 Modified	3.22E+00	1.27E+00	1.27E+00	1.29E+00	pCi/g
05-04093-20	TRG	BC-B3-027-W-1-1-0	04/15/05 13:48	4/16/2005	4/18/2005	05-04093	Thallium-208	LANL ER-130 Modified	8.94E-01	1.48E-01	1.48E-01	1.73E-01	pCi/g

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05-04093

COC ID: 2364con\_md2

# Chain of Custody Record



Client DSHE

Site Name Bush River Rad Yard

W. O.

Lab Eberline Services

TAT 2day

Contact Name Joe Gross

Contact Phone No. 410-612-5900

Lab Contact Mike McDougal

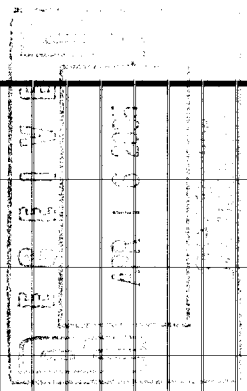
Lab Phone 865-481-0683

*\* Priority*

Gross  
AlphaBeta,Gam  
ma Spec, Arsenic

Filtered  
Container  
Preservative

Lab ID	Sample ID	Matrix	PID	MS/MSD	Date-Time Collected	1-L Poly	COOL
	BC-B3-001-FP-2-1-0	S		N	4/15/2005 15:20	1	
	BC-B3-002-FP-2-1-0	S		N	4/15/2005 15:00	1	
	BC-B3-018-W-1-1-0	S		N	4/15/2005 13:00	1	
	BC-B3-018-W-1-1-1	S		N	4/15/2005 13:00	1	← Standard TAT →
	BC-B3-019-FP-1-0-0	S		N	4/15/2005 13:40	1	
	BC-B3-019-FP-1-1-0	S		N	4/15/2005 13:45	1	
	BC-B3-020-FP-1-0-0	S		N	4/15/2005 14:05	1	
	BC-B3-020-FP-1-1-0	S		N	4/15/2005 14:10	1	
	BC-B3-021-FP-1-0-0	S		N	4/15/2005 14:15	1	
	BC-B3-021-FP-1-1-0	S		N	4/15/2005 14:20	1	
	BC-B3-022-FP-1-0-0	S		N	4/15/2005 14:40	1	
	BC-B3-022-FP-1-1-0	S		N	4/15/2005 14:46	1	
	BC-B3-023-WS-1-1-0	S		N	4/15/2005 13:15	1	
	BC-B3-024-W-1-1-0	S		N	4/15/2005 13:25	1	
	BC-B3-025-W-1-1-0	S		N	4/15/2005 14:00	1	
	BC-B3-026-W-1-1-0	S		N	4/15/2005 14:30	1	
	BC-B3-027-W-1-1-0	S		N	4/15/2005 13:48	1	



Remarks/Comments 1. If Gross Beta results exceed background values by more than 3 std devs, analyze for Sr-90. 2. Analyze Gamma Spec for Co-60 and Cs-137. Report all isotopes above background. 3. Pulverize & homogenize sample. 4. 2 Day TAT all samples except Pu-B3-018-W-1-1-1 5. No No samples needed.	Lab Use Only		COC Tape was present on outer package <input checked="" type="radio"/> N		Received in good condition <input checked="" type="radio"/> N		
	Temp of Cooler when Received, C		COC Tape was unbroken on outer package <input checked="" type="radio"/> N		Labels indicate Properly Preserved <input checked="" type="radio"/> N		
	1 2 3 4 5		COC Tape was present on sample <input checked="" type="radio"/> N		Received within Holding Time <input checked="" type="radio"/> N		
	Relinquished By <u>Bush River</u>		Date / Time <u>4/15/05 16:00</u>		Relinquished By <u>Mike McDougal</u>		Date / Time <u>4/16/05</u>







Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 05/05/05 08:21

RFW Batch Number: 0504L363

Client: EBERLINE-WSI

Work Order: 11343623001 Page: 1

Cust ID: DS-WW-001-C- DS-WW-001-C- DS-WW-001-C- PBLKKF PBLKKF BS  
 1-1-0 001 MS 001 MSD 05LE0340-MB1 05LE0340-MB1  
 SOIL SOIL SOIL  
 1.00 1.00 1.00  
 UG/KG UG/KG UG/KG  
 Units:

Surrogate:	Decachlorobiphenyl	96	%	81	%	84	%	101	%	90	%
	Tetrachloro-m-xylene	62	%	50	%	52	%	88	%	88	%
Alpha-BHC		6.1	U	58	*	57	*	5.0	U	101	%
Beta-BHC		6.1	U	52	%	51	%	5.0	U	84	%
Delta-BHC		6.1	U	63	%	63	%	5.0	U	100	%
gamma-BHC (Lindane)		6.1	U	61	%	61	%	5.0	U	99	%
Heptachlor		6.1	U	65	%	65	%	5.0	U	93	%
Aldrin		6.1	U	67	%	67	%	5.0	U	96	%
Heptachlor epoxide		6.1	U	74	%	76	%	5.0	U	94	%
Endosulfan I		6.1	U	76	%	76	%	5.0	U	93	%
Dieldrin		6.1	U	83	%	83	%	5.0	U	98	%
4,4'-DDE		12	U	91	%	101	%	10	U	98	%
Endrin		12	U	88	%	89	%	10	U	99	%
Endosulfan II		12	U	82	%	82	%	10	U	95	%
4,4'-DDD		12	U	94	%	103	%	10	U	93	%
Endosulfan sulfate		12	U	88	%	90	%	10	U	93	%
4,4'-DDT		12	U	91	%	94	%	10	U	99	%
Methoxychlor		61	U	90	%	89	%	50	U	96	%
Endrin ketone		12	U	88	%	89	%	10	U	96	%
Endrin aldehyde		12	U	82	%	87	%	10	U	87	%
alpha-Chlordane		6.1	U	83	%	81	%	5.0	U	93	%
gamma-Chlordane		6.1	U	73	%	72	%	5.0	U	94	%
Toxaphene		610	U	610	U	610	U	500	U	500	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/05/05 08:24

RFW Batch Number: 0504L363

Client: EBERLINE-WSI

Work Order: 11343623001

Page: 1

Cust ID: DS-WW-001-C- 1-1-0 001 DS-WW-001-C- 1-1-0 001 MS 001 MSD 05LE0340-MB1 05LE0340-MB1 PBLKKF BS  
 RFW#: 001  
 Matrix: SOIL  
 D.F.: 1.00  
 Units: UG/KG

Surrogate:	Tetrachloro-m-xylene	67	%	65	%	67	%	80	%	84	%
	Decachlorobiphenyl	86	%	88	%	89	%	80	%	85	%
		120	U	62	%	65	%	100	U	70	%
Aroclor-1016		120	U	120	U	120	U	100	U	100	U
Aroclor-1221		120	U	120	U	120	U	100	U	100	U
Aroclor-1232		120	U	120	U	120	U	100	U	100	U
Aroclor-1242		120	U	120	U	120	U	100	U	100	U
Aroclor-1248		120	U	120	U	120	U	100	U	100	U
Aroclor-1254		120	U	120	U	120	U	100	U	100	U
Aroclor-1260		120	U	94	%	89	%	100	U	73	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



Initiator: M. McNally Batch: 05046363 Parameter: 060814  
 Date: 5/5/05 Samples: MS, MSD Matrix: Soil  
 Client: EXALITE - WJ Method: SWB46/MCAWW/CLP/ Prep Batch: 05LE0340

- 1. Reason for SDR**
- a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other \_\_\_\_\_
- b. General Discrepancy
- ☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

**c. Problem (Include all relevant specific results; attach data if necessary)**

- MS, MSD were low for recovery of Alpha-Bite @ 58% for MS and @ 57% for MSD.  
 (Range: 60-130).  
 - BS was OIL, BLANK was CLEAN.  
 - No HITS in SAMPLES.

**2. Known or Probable Causes(s)**

**3. Discussion and Proposed Action** Other Description: \_\_\_\_\_

- ☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

*[Handwritten signature]*  
 05.05.05

**4. Project Manager Instructions...signature/date: \_\_\_\_\_**

- ☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☒ Include in Case Narrative  
☒ Client Contacted:  
 Date/Person Brockway Barrett / 05.05.05  
☐ Add Phone MESSAGE  
☐ Cancel

**5. Final Action...signature/date: \_\_\_\_\_** Other Explanation: \_\_\_\_\_

- ☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☐ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
<input checked="" type="checkbox"/>	X Initiator	<input type="checkbox"/>	Metals: Beegle
<input checked="" type="checkbox"/>	X Lab General Manager: M. Taylor	<input type="checkbox"/>	Inorganic: Perrone
<input checked="" type="checkbox"/>	X Project Mgr. Stone/Johnson <u>(Haslett)</u>	<input type="checkbox"/>	GC/LC: Kiger
<input checked="" type="checkbox"/>	X Technical Mgr. Wesson/Daniels	<input type="checkbox"/>	MS: Rychlak/Layman
<input checked="" type="checkbox"/>	X QA (file): Alberts	<input type="checkbox"/>	Log-in: Melnic
<input type="checkbox"/>	Data Management: Feldman	<input type="checkbox"/>	Admin: Soos
<input type="checkbox"/>	Sample Prep: Beegle/Kiger	<input type="checkbox"/>	Other: _____







## Lionville Laboratory, Inc.

## INORGANICS DATA SUMMARY REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	DS-WW-001-042505	Silver, Total	0.50 u	UG/L	0.50	1.0
		Aluminum, Total	26500	UG/L	9.4	1.0
		Arsenic, Total	34.4	UG/L	2.9	1.0
		Barium, Total	143	UG/L	0.20	1.0
		Beryllium, Total	0.98	UG/L	0.10	1.0
		Calcium, Total	40400	UG/L	7.8	1.0
		Cadmium, Total	1.3	UG/L	0.40	1.0
		Cobalt, Total	14.7	UG/L	0.70	1.0
		Chromium, Total	43.3	UG/L	0.40	1.0
		Copper, Total	44.5	UG/L	0.50	1.0
		Iron, Total	44600	UG/L	8.4	1.0
		Mercury, Total	0.27	UG/L	0.10	1.0
		Potassium, Total	8880	UG/L	8.4	1.0
		Magnesium, Total	20400	UG/L	5.7	1.0
		Manganese, Total	476	UG/L	0.20	1.0
		Sodium, Total	14800	UG/L	1.5	1.0
		Nickel, Total	43.6	UG/L	1.0	1.0
		Lead, Total	72.8	UG/L	1.9	1.0
		Antimony, Total	2.2 u	UG/L	2.2	1.0
		Selenium, Total	5.1	UG/L	4.0	1.0
		Thallium, Total	6.5 u	UG/L	6.5	1.0
		Vanadium, Total	56.1	UG/L	0.60	1.0
		Zinc, Total	1420	UG/L	0.50	1.0



Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	05L0241-MB1	Silver, Total	0.50 u	UG/L	0.50	1.0
		Aluminum, Total	36.3	UG/L	9.4	1.0
		Arsenic, Total	2.9 u	UG/L	2.9	1.0
		Barium, Total	0.39	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	92.9	UG/L	7.8	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	0.40 u	UG/L	0.40	1.0
		Copper, Total	0.50 u	UG/L	0.50	1.0
		Iron, Total	8.4 u	UG/L	8.4	1.0
		Potassium, Total	36.9	UG/L	8.4	1.0
		Magnesium, Total	5.7 u	UG/L	5.7	1.0
		Manganese, Total	0.36	UG/L	0.20	1.0
		Sodium, Total	19.4	UG/L	1.5	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Antimony, Total	2.2 u	UG/L	2.2	1.0
		Selenium, Total	4.0 u	UG/L	4.0	1.0
		Thallium, Total	6.5 u	UG/L	6.5	1.0
		Vanadium, Total	0.68	UG/L	0.60	1.0
		Zinc, Total	20.6	UG/L	0.50	1.0
BLANK1	05C0099-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0



## Lionville Laboratory, Inc.

## INORGANICS ACCURACY REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	DS-WW-001-042505	Silver, Total	46.4	0.50u	50.0	92.8	1.0
		Silver, Total MSD	45.7	0.50u	50.0	91.4	1.0
		Aluminum, Total	36900	26500	2000	522.7*	1.0
		Aluminum, Total MSD	34400	26500	2000	393.8*	1.0
		Arsenic, Total	1940	34.4	2000	95.1	1.0
		Arsenic, Total MSD	1910	34.4	2000	93.8	1.0
		Barium, Total	2040	143	2000	95.0	1.0
		Barium, Total MSD	2000	143	2000	92.9	1.0
		Beryllium, Total	48.4	0.98	50.0	94.8	1.0
		Beryllium, Total MSD	47.4	0.98	50.0	92.8	1.0
		Calcium, Total	64800	40400	25000	97.5	1.0
		Calcium, Total MSD	63300	40400	25000	91.5	1.0
		Cadmium, Total	47.9	1.3	50.0	93.2	1.0
		Cadmium, Total MSD	47.2	1.3	50.0	91.8	1.0
		Cobalt, Total	483	14.7	500	93.7	1.0
		Cobalt, Total MSD	474	14.7	500	91.8	1.0
		Chromium, Total	236	43.3	200	96.6	1.0
		Chromium, Total MSD	230	43.3	200	93.4	1.0
		Copper, Total	280	44.5	250	94.1	1.0
		Copper, Total MSD	274	44.5	250	91.9	1.0
		Iron, Total	47200	44600	1000	264.9*	1.0
		Iron, Total MSD	45800	44600	1000	118.7*	1.0
		Mercury, Total	1.0	0.27	1.0	75.5	1.0
		Potassium, Total	34600	8880	25000	102.9	1.0
		Potassium, Total MSD	34600	8880	25000	102.8	1.0
		Magnesium, Total	44900	20400	25000	97.7	1.0
		Magnesium, Total MSD	43700	20400	25000	93.1	1.0
		Manganese, Total	965	476	500	97.8	1.0
		Manganese, Total MSD	941	476	500	92.9	1.0
		Sodium, Total	38000	14800	25000	92.7	1.0
		Sodium, Total MSD	37100	14800	25000	89.3	1.0
		Nickel, Total	521	43.6	500	95.5	1.0
		Nickel, Total MSD	510	43.6	500	93.4	1.0
		Lead, Total	547	72.8	500	94.9	1.0
		Lead, Total MSD	534	72.8	500	92.3	1.0
		Antimony, Total	455	2.2 u	500	91.0	1.0
		Antimony, Total MSD	446	2.2 u	500	89.1	1.0
		Selenium, Total	1890	5.1	2000	94.1	1.0
		Selenium, Total MSD	1860	5.1	2000	92.6	1.0
		Thallium, Total	1900	6.5 u	2000	94.9	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-001	DS-WW-001-042505	Thallium, Total MSD	1880	6.5 u	2000	94.1	1.0
		Vanadium, Total	521	56.1	500	93.0	1.0
		Vanadium, Total MSD	507	56.1	500	90.3	1.0
		Zinc, Total	1920	1420	500	100.1	1.0
		Zinc, Total MSD	1870	1420	500	91.0	1.0



Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		
			%RECOV	%RECOV	%DIFF
=====	=====	=====	=====	=====	=====
-001	DS-WW-001-042505	Silver, Total	92.8	91.4	1.5
		Aluminum, Total	522.7	393.8*	NC
		Arsenic, Total	95.1	93.8	1.3
		Barium, Total	95.0	92.9	2.2
		Beryllium, Total	94.8	92.8	2.1
		Calcium, Total	97.5	91.5	6.4
		Cadmium, Total	93.2	91.8	1.5
		Cobalt, Total	93.7	91.8	2.1
		Chromium, Total	96.6	93.4	3.4
		Copper, Total	94.1	91.9	2.4
		Iron, Total	264.9	118.7*	NC
		Potassium, Total	102.9	102.8	0.12
		Magnesium, Total	97.7	93.1	4.8
		Manganese, Total	97.8	92.9	5.1
		Sodium, Total	92.7	89.3	3.7
		Nickel, Total	95.5	93.4	2.3
		Lead, Total	94.9	92.3	2.8
		Antimony, Total	91.0	89.1	2.1
		Selenium, Total	94.1	92.6	1.6
		Thallium, Total	94.9	94.1	0.86
		Vanadium, Total	93.0	90.3	3.0
		Zinc, Total	100.1	91.0	9.5



Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL		DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD	
=====	=====	=====	=====	=====	=====
-001REP	DS-WW-001-042505	Silver, Total	0.50u	0.50u	NC
		Aluminum, Total	26500	24900	6.0
		Arsenic, Total	34.4	34.9	1.4
		Barium, Total	143	139	2.5
		Beryllium, Total	0.98	0.97	1.0
		Calcium, Total	40400	40700	0.77
		Cadmium, Total	1.3	1.3	0.00
		Cobalt, Total	14.7	14.0	4.9
		Chromium, Total	43.3	43.8	1.1
		Copper, Total	44.5	45.6	2.4
		Iron, Total	44600	44600	0.006
		Mercury, Total	0.27	0.24	13.3
		Potassium, Total	8880	8680	2.4
		Magnesium, Total	20400	20400	0.24
		Manganese, Total	476	476	0.15
		Sodium, Total	14800	14800	0.14
		Nickel, Total	43.6	43.1	1.2
		Lead, Total	72.8	72.5	0.41
		Antimony, Total	2.2 u	3.4	NC
		Selenium, Total	5.1	5.9	14.5
		Thallium, Total	6.5 u	6.5 u	NC
		Vanadium, Total	56.1	54.5	2.9
		Zinc, Total	1420	1420	0.48



Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/10/05

CLIENT: EBERLINE-WSI

LVL LOT #: 0504L313

WORK ORDER: 11343-623-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
=====	=====	=====	=====	=====	=====	=====
LCS1	05L0241-LC1	Silver, LCS	497	500	UG/L	99.4
		Aluminum, LCS	5140	5000	UG/L	102.8
		Arsenic, LCS	9880	10000	UG/L	98.8
		Barium, LCS	4950	5000	UG/L	99.1
		Beryllium, LCS	249	250	UG/L	99.5
		Calcium, LCS	25100	25000	UG/L	100.6
		Cadmium, LCS	250	250	UG/L	100.2
		Cobalt, LCS	2520	2500	UG/L	100.8
		Chromium, LCS	503	500	UG/L	100.6
		Copper, LCS	1230	1250	UG/L	98.7
		Iron, LCS	5030	5000	UG/L	100.5
		Potassium, LCS	25300	25000	UG/L	101.2
		Magnesium, LCS	25100	25000	UG/L	100.4
		Manganese, LCS	759	750	UG/L	101.3
		Sodium, LCS	24300	25000	UG/L	97.3
		Nickel, LCS	2020	2000	UG/L	101.2
		Lead, LCS	2530	2500	UG/L	101.2
		Antimony, LCS	3000	3000	UG/L	100.0
		Selenium, LCS	10000	10000	UG/L	100.4
		Thallium, LCS	10000	10000	UG/L	100.2
		Vanadium, LCS	2430	2500	UG/L	97.4
		Zinc, LCS	1020	1000	UG/L	102.1
LCS1	05C0099-LC1	Mercury, LCS	5.0	5.0	UG/L	101.0





**EBERLINE**  
SERVICES

EBS-OR-22360

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-05004-OR

SAMPLE RECEIPT

This work order contains one water sample relogged 5/2/2005 at the request of the client. This sample was analyzed for Total Strontium and Isotopic Uranium.

<u>CLIENT ID</u>	<u>LAB ID</u>
DS-WW-001-042505	05-05004-04

ANALYTICAL METHODS

Total Strontium was analyzed using EIChroM Method SRW01 Modified. Isotopic Uranium was analyzed using Method EML U-02 Modified.

ANALYTICAL RESULTS

ISOTOPIC URANIUM

Sample demonstrated slightly positive results for Uranium-234 and Uranium-238 activity and background equivalent results for Uranium-235 activity. Chemical recovery was acceptable for all samples. Results for the Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated background equivalent activity. Results for the Uranium-234, Uranium-235 and Uranium-238 replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery. Results for the Uranium-235 laboratory control sample demonstrated a high percent recovery; however, normalized difference was within acceptable limits for the analytical technique.

TOTAL STRONTIUM

Sample demonstrated non-detect equivalent results for Total Strontium activity. Chemical recovery was acceptable for all samples. Results for the Total Strontium method blank demonstrated non-detect equivalent activity. Results for the Total Strontium replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable limits for the analytical technique. Results for the Total Strontium laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Work Order Details:

SDG: 05-05004

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: WA

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05004-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Total Strontium	EiChrom SRW01 Modified	4.85E+01	2.77E-01			pCi/l
05-05004-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Total Strontium	EiChrom SRW01 Modified	4.47E+01	2.58E+00	5.37E+00	1.17E+00	pCi/l
05-05004-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Total Strontium	EiChrom SRW01 Modified	-3.52E-02	2.49E-01	2.49E-01	4.36E-01	pCi/l
05-05004-03	DUP	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Total Strontium	EiChrom SRW01 Modified	5.59E-01	1.45E+00	1.46E+00	2.48E+00	pCi/l
05-05004-04	DO	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Total Strontium	EiChrom SRW01 Modified	-7.39E-01	1.40E+00	1.40E+00	2.47E+00	pCi/l
05-05004-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-234	EML U-02 Modified	7.90E+00	2.84E-01			pCi/l
05-05004-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-234	EML U-02 Modified	8.30E+00	1.48E+00	1.57E+00	7.85E-02	pCi/l
05-05004-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-234	EML U-02 Modified	1.04E-01	8.21E-02	8.23E-02	7.03E-02	pCi/l
05-05004-03	DUP	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-234	EML U-02 Modified	2.81E+00	1.13E+00	1.14E+00	5.13E-01	pCi/l
05-05004-04	DO	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-234	EML U-02 Modified	1.65E+00	8.21E-01	8.28E-01	5.38E-01	pCi/l
05-05004-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-235	EML U-02 Modified	3.58E-01	1.29E-02			pCi/l
05-05004-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-235	EML U-02 Modified	5.16E-01	2.24E-01	2.27E-01	1.14E-01	pCi/l
05-05004-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-235	EML U-02 Modified	0.00E+00	0.00E+00	0.00E+00	5.08E-02	pCi/l
05-05004-03	DUP	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-235	EML U-02 Modified	1.54E-01	3.40E-01	3.40E-01	7.64E-01	pCi/l
05-05004-04	DO	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-235	EML U-02 Modified	2.20E-01	3.13E-01	3.14E-01	2.98E-01	pCi/l
05-05004-01	LCS	KNOWN	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-238	EML U-02 Modified	7.70E+00	2.77E-01			pCi/l
05-05004-01	LCS	SPIKE	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-238	EML U-02 Modified	8.39E+00	1.49E+00	1.59E+00	9.16E-02	pCi/l
05-05004-02	MBL	BLANK	05/02/05 00:00	5/2/2005	5/4/2005	05-05004	Uranium-238	EML U-02 Modified	1.23E-02	4.49E-02	4.49E-02	1.18E-01	pCi/l
05-05004-03	DUP	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-238	EML U-02 Modified	4.79E+00	1.55E+00	1.58E+00	4.36E-01	pCi/l
05-05004-04	DO	DS-WW-001-042505	04/25/05 14:00	5/2/2005	5/4/2005	05-05004	Uranium-238	EML U-02 Modified	6.28E+00	1.79E+00	1.83E+00	4.82E-01	pCi/l

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Company Name:  
Weston Solutions, Inc.  
Abingdon Office

Point of Contact:  
Extended Document

Project No.

Phone: 410.616.9592  
Project Name:  
Radford

Sample Storage Location:

Purchase Order:

Page 1 of 1

Report #:

Date

Time

Soil

Water

Sample Identification  
19 Characters

4/25/05

1100

x

DB-WN-001-042505

Chain of Custody Record

05-05004

05-041375205

IC443

Weston  
MANAGERS  
DESIGNERS/CONSULTANTS  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009  
Telephone: (410) 612-5900  
Fax: (410) 612-5901

Report Deliverables:  
Hardcopy & EDD (all data package)  
DUE TO CLIENT: 30 days from sample receipt

Lab  
Accession  
Number

Remarks

Sampled by: (Signature)  
Relinquished by: (Signature)

Date/Time  
4/25/05 1100

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Date/Time

Sample Shipped by: (Circle)  
Red EX Puro.  
Hand Carried  
Other:

Airbill Number:  
847966046756

Cooler Temp.

C

pH:

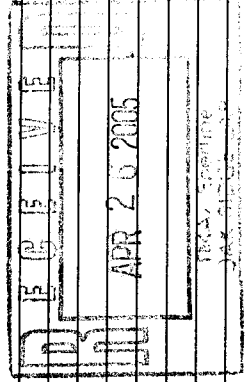
Yes

No

Comments:

NOTE: Please indicate method number for analyses requested. This will help clarify any questions with laboratory techniques.

Shaded Areas for Lab Use Only







EBS-OR-22449

May 24, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-05080-OR

SAMPLE RECEIPT

This work order contains one soil sample received 05/18/05. This sample was analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-WW-SUMP5-INLET	05-05080-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Sample demonstrated slightly positive results for Gross Alpha and Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Sample demonstrated near background equivalent results for Actinium-228, Bismuth-214, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Sample demonstrated only slightly positive results for Cesium-137 activity. Sample demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cesium-137, Potassium-40 and Lead-212 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 5/24/2005



Eberline Services Final Report of Analysis				Report To:				Work Order Details:								
Joe Gross Weston Solutions 1309 Continental Drive, #M Abingdon, MD 21009				Sample Date Receipt Date Analysis Date Batch ID Analyte				SDG:	05-05080							
								Purchase Order:				0047329				
								Analysis Category:				ENVIRONMENTAL				
								Sample Matrix:				SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units			
05-05080-01	LCS	KNOWN	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g			
05-05080-01	LCS	SPIKE	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Alpha	LANL MLR-100 Modified	2.82E+02	8.09E+00	2.09E+01	5.62E-01	pCi/g			
05-05080-02	MBL	BLANK	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Alpha	LANL MLR-100 Modified	9.99E-03	1.19E-01	1.19E-01	2.24E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/19/2005	05-05080	Gross Alpha	LANL MLR-100 Modified	3.37E+00	9.80E-01	1.01E+00	1.06E+00	pCi/g			
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/19/2005	05-05080	Gross Alpha	LANL MLR-100 Modified	4.80E+00	1.15E+00	1.20E+00	1.12E+00	pCi/g			
05-05080-01	LCS	KNOWN	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g			
05-05080-01	LCS	SPIKE	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Beta	LANL MLR-100 Modified	2.52E+02	6.77E+00	1.36E+01	1.21E+00	pCi/g			
05-05080-02	MBL	BLANK	05/19/05 00:00	5/18/2005	5/19/2005	05-05080	Gross Beta	LANL MLR-100 Modified	-2.49E-01	2.61E-01	2.61E-01	4.71E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/19/2005	05-05080	Gross Beta	LANL MLR-100 Modified	2.21E+00	1.32E+00	1.32E+00	2.13E+00	pCi/g			
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/19/2005	05-05080	Gross Beta	LANL MLR-100 Modified	4.40E+00	1.41E+00	1.42E+00	2.13E+00	pCi/g			
05-05080-01	LCS	KNOWN	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g			
05-05080-01	LCS	KNOWN	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g			
05-05080-01	LCS	SPIKE	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cobalt-60	LANL ER-130 Modified	1.31E+02	6.97E+00	7.38E+00	5.58E-01	pCi/g			
05-05080-01	LCS	SPIKE	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cesium-137	LANL ER-130 Modified	7.89E+01	8.32E+00	8.45E+00	4.94E-01	pCi/g			
05-05080-02	MBL	BLANK	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cobalt-60	LANL ER-130 Modified	-5.98E-03	1.38E-02	1.38E-02	2.42E-02	pCi/g			
05-05080-02	MBL	BLANK	05/19/05 00:00	5/18/2005	5/20/2005	05-05080	Cesium-137	LANL ER-130 Modified	2.47E-03	1.33E-02	1.33E-02	2.54E-02	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Actinium-228	LANL ER-130 Modified	8.96E-01	1.40E-01	1.41E-01	1.96E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Bismuth-214	LANL ER-130 Modified	5.97E-01	1.21E-01	1.22E-01	1.11E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Cobalt-60	LANL ER-130 Modified	-1.15E-02	3.25E-02	3.25E-02	5.50E-02	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Cesium-137	LANL ER-130 Modified	3.10E-01	7.28E-02	7.30E-02	5.85E-02	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Potassium-40	LANL ER-130 Modified	9.03E+00	1.25E+00	1.26E+00	4.02E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Lead-212	LANL ER-130 Modified	9.35E-01	1.18E-01	1.19E-01	9.02E-02	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Lead-214	LANL ER-130 Modified	7.10E-01	1.10E-01	1.11E-01	1.14E-01	pCi/g			
05-05080-03	DUP	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Thallium-208	LANL ER-130 Modified	8.96E-01	2.17E-01	2.18E-01	3.14E-01	pCi/g			

CU=Counting Uncertainty;TPU=Total Propagated Uncertainty;MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original


**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis														Report To:				Work Order Details:			
Joe Gross														SDG:				05-05080			
Weston Solutions														Purchase Order:				0047329			
1309 Continental Drive, #M														Analysis Category:				ENVIRONMENTAL			
Abingdon, MD 21009														Sample Matrix:				SO			
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Actinium-228	LANL ER-130 Modified	8.99E-01	1.74E-01	1.75E-01	1.73E-01	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Bismuth-214	LANL ER-130 Modified	7.62E-01	1.27E-01	1.28E-01	1.04E-01	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Cobalt-60	LANL ER-130 Modified	1.68E-02	3.54E-02	3.54E-02	6.55E-02	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Cesium-137	LANL ER-130 Modified	3.39E-01	7.42E-02	7.44E-02	5.89E-02	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Potassium-40	LANL ER-130 Modified	9.56E+00	1.25E+00	1.26E+00	4.34E-01	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Lead-212	LANL ER-130 Modified	1.03E+00	1.23E-01	1.24E-01	8.69E-02	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Lead-214	LANL ER-130 Modified	6.98E-01	1.01E-01	1.01E-01	1.12E-01	pCi/g								
05-05080-04	DO	EC-WW-SUMP5-INLET	05/17/05 15:30	5/18/2005	5/20/2005	05-05080	Thallium-208	LANL ER-130 Modified	6.94E-01	1.27E-01	1.28E-01	1.49E-01	pCi/g								

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



[illegible]





EBS-OR-22448

May 24, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive Suite M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order # 05-05076-OR

SAMPLE RECEIPT

This work order contains one soil sample received 05/18/05. This sample was analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
EC-WW-SUMP5-OUTLET	05-05076-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas flow proportional counting using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

GROSS ALPHA/BETA

Sample demonstrated slightly positive results for Gross Alpha activity. Sample demonstrated background equivalent results for Gross Beta activity. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha and Gross Beta replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

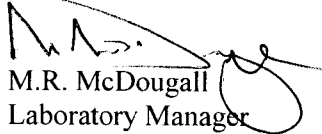
GAMMA SPECTROSCOPY

Sample demonstrated near background equivalent results for Actinium-228, Bismuth-214, Cesium-137, Potassium-40, Lead-212, Lead-214 and Thallium-208 activity. Sample demonstrated non-detect equivalent results for Cobalt-60 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cesium-137 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.



CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

  
M.R. McDougall  
Laboratory Manager

Date: 5/24/2005



# Eberline Services

## Final Report of Analysis

Joe Gross

Weston Solutions

1309 Continental Drive, #M

Abingdon, MD 21009

Report To:

Work Order Details:

SDG: 05-05076

Purchase Order: 0047329

Analysis Category: ENVIRONMENTAL

Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05076-01	LCS	KNOWN	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Alpha	LANL MLR-100 Modified	2.93E+02	1.26E+01			pCi/g
05-05076-01	LCS	SPIKE	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Alpha	LANL MLR-100 Modified	3.02E+02	8.39E+00	2.23E+01	6.93E-01	pCi/g
05-05076-02	MBL	BLANK	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Alpha	LANL MLR-100 Modified	-6.13E-02	8.50E-02	8.51E-02	1.93E-01	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Gross Alpha	LANL MLR-100 Modified	4.11E+00	1.08E+00	1.12E+00	9.80E-01	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Gross Alpha	LANL MLR-100 Modified	4.16E+00	1.13E+00	1.17E+00	1.18E+00	pCi/g
05-05076-01	LCS	KNOWN	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Beta	LANL MLR-100 Modified	2.47E+02	7.42E+00			pCi/g
05-05076-01	LCS	SPIKE	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Beta	LANL MLR-100 Modified	2.56E+02	6.83E+00	1.37E+01	1.22E+00	pCi/g
05-05076-02	MBL	BLANK	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Gross Beta	LANL MLR-100 Modified	2.20E-01	2.17E-01	2.18E-01	3.61E-01	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Gross Beta	LANL MLR-100 Modified	3.06E+00	1.32E+00	1.33E+00	2.08E+00	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Gross Beta	LANL MLR-100 Modified	2.71E+00	1.48E+00	1.48E+00	2.37E+00	pCi/g
05-05076-01	LCS	KNOWN	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cobalt-60	LANL ER-130 Modified	1.27E+02	3.37E+00			pCi/g
05-05076-01	LCS	KNOWN	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cesium-137	LANL ER-130 Modified	7.71E+01	2.31E+00			pCi/g
05-05076-01	LCS	SPIKE	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cobalt-60	LANL ER-130 Modified	1.28E+02	6.45E+00	6.87E+00	5.32E-01	pCi/g
05-05076-01	LCS	SPIKE	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cesium-137	LANL ER-130 Modified	7.77E+01	6.92E+00	7.07E+00	4.73E-01	pCi/g
05-05076-02	MBL	BLANK	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cobalt-60	LANL ER-130 Modified	3.68E-02	3.21E-02	3.21E-02	7.10E-02	pCi/g
05-05076-02	MBL	BLANK	05/18/05 00:00	5/18/2005	5/19/2005	05-05076	Cesium-137	LANL ER-130 Modified	1.42E-02	2.94E-02	2.94E-02	6.10E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Actinium-228	LANL ER-130 Modified	6.51E-01	1.43E-01	1.43E-01	1.50E-01	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Bismuth-214	LANL ER-130 Modified	5.28E-01	1.03E-01	1.03E-01	8.62E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Cobalt-60	LANL ER-130 Modified	1.12E-02	3.17E-02	3.17E-02	5.82E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Cesium-137	LANL ER-130 Modified	3.45E-01	1.00E-01	1.00E-01	4.79E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Potassium-40	LANL ER-130 Modified	6.10E+00	9.32E-01	9.39E-01	4.09E-01	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Lead-212	LANL ER-130 Modified	7.25E-01	9.55E-02	9.65E-02	7.86E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Lead-214	LANL ER-130 Modified	5.04E-01	9.97E-02	1.00E-01	9.78E-02	pCi/g
05-05076-03	DUP	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Thallium-208	LANL ER-130 Modified	5.38E-01	1.15E-01	1.15E-01	1.54E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Eberline Services Final Report of Analysis				Report To:				Work Order Details:					
Joe Gross				SDG:				05-05076					
Weston Solutions				Purchase Order:				0047329					
1309 Continental Drive, #M				Analysis Category:				ENVIRONMENTAL					
Abingdon, MD 21009				Sample Matrix:				SO					
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Actinium-228	LANL ER-130 Modified	7.59E-01	1.57E-01	1.57E-01	1.91E-01	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Bismuth-214	LANL ER-130 Modified	5.42E-01	1.01E-01	1.02E-01	8.78E-02	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Cobalt-60	LANL ER-130 Modified	2.42E-02	2.68E-02	2.68E-02	5.38E-02	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Cesium-137	LANL ER-130 Modified	2.72E-01	7.10E-02	7.12E-02	4.84E-02	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Potassium-40	LANL ER-130 Modified	6.55E+00	9.71E-01	9.78E-01	4.43E-01	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Lead-212	LANL ER-130 Modified	6.78E-01	9.53E-02	9.62E-02	7.84E-02	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Lead-214	LANL ER-130 Modified	4.80E-01	9.50E-02	9.54E-02	1.00E-01	pCi/g
05-05076-04	DO	EC-WW-SUMPS-OUTLET	05/17/05 16:00	5/18/2005	5/19/2005	05-05076	Thallium-208	LANL ER-130 Modified	5.95E-01	1.81E-01	1.81E-01	2.55E-01	pCi/g

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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EBS-OR-22247

February 14, 2005

Joe Gross  
Weston Solutions, Inc.  
1309 Continental Drive #M  
Abingdon, MD 21009

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

CASE NARRATIVE  
Work Order# 05-04061-OR

SAMPLE RECEIPT

This work order contains one water sample received 4/13/2005. This sample was analyzed for Gross Alpha/Beta, Tritium and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>
2364-Water-041205-01	05-04061-04

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas-flow proportional counting using EPA Method 900.0 Modified. Tritium was performed by beta liquid scintillation using EPA Method 906.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

TRITIUM

Sample demonstrated non-detect equivalent results for Tritium activity. Results for the Tritium method blank demonstrated non-detect equivalent activity. Results for the Tritium replicate demonstrated a high relative percent difference; however, normalized difference was within acceptable analytical technique limits. Results for the Tritium laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA/BETA

Sample demonstrated slightly positive results for Gross Alpha and Gross Beta activity. Sample demonstrated a high Total Solids content requiring the use of a small sample aliquot in order to obtain acceptable mass for counting. Mass was still slightly high for the aliquot used; however, it was within the range for self-absorption correction. This caused high detection limits and counting uncertainties. Gross Beta results appeared to correlate well with summation activity for Potassium-40 and Cesium-137 by Gamma Spectroscopy. Results for the Gross Alpha and Gross Beta method blank demonstrated background equivalent activity. Results for the Gross Alpha replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta replicate demonstrated a high relative percent difference and normalized difference. Results for the Gross Alpha and Gross Beta laboratory control sample demonstrated an acceptable percent recovery.



## ANALYTICAL RESULTS CONTINUED

### GAMMA SPECTROSCOPY

Sample demonstrated slightly positive results for Cesium-137 and Potassium-40 activity. Detection limits were slightly high due to the need for a quick turnaround time. However, results were greater than the detection limits. Results for the Cesium-137 method blank demonstrated non-detect equivalent activity. Results for the Cesium-137 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

### CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall  
Laboratory Manager

Date: 2/14/05



# Eberline Services

## Final Report of Analysis

**Joe Gross**  
Weston Solutions  
1309 Continental Drive, #M  
Abingdon, MD 21009

Work Order Details:

**SDG:**  
Purchase Order: 0047329  
Analysis Category: ENVIRONMENTAL  
Sample Matrix: WA

05-04061

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	TPU	MDA	Report Units
05-04061-01	LCS	KNOWN	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Alpha	EPA 900.0 Modified	2.88E+02	1.24E+01			pc/l
05-04061-01	LCS	SPIKE	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Alpha	EPA 900.0 Modified	2.94E+02	8.13E+00	2.17E+01	5.44E-01	pc/l
05-04061-02	MBL	BLANK	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Alpha	EPA 900.0 Modified	0.00E+00	2.42E-01	0.00E+00	5.75E-01	pc/l
05-04061-03	DUP	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Gross Alpha	EPA 900.0 Modified	5.14E+01	3.17E+01	3.19E+01	3.46E+01	pc/l
05-04061-04	DO	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Gross Alpha	EPA 900.0 Modified	5.59E+01	3.50E+01	3.52E+01	4.31E+01	pc/l
05-04061-01	LCS	KNOWN	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Beta	EPA 900.0 Modified	2.44E+02	7.32E+00			pc/l
05-04061-01	LCS	SPIKE	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Beta	EPA 900.0 Modified	2.42E+02	6.53E+00	1.30E+01	1.05E+00	pc/l
05-04061-02	MBL	BLANK	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Gross Beta	EPA 900.0 Modified	2.14E-01	5.85E-01	5.85E-01	1.04E+00	pc/l
05-04061-03	DUP	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Gross Beta	EPA 900.0 Modified	5.82E+02	4.54E+01	5.29E+01	2.29E+01	pc/l
05-04061-04	DO	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Gross Beta	EPA 900.0 Modified	4.12E+02	4.03E+01	4.46E+01	2.85E+01	pc/l
05-04061-01	LCS	KNOWN	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Tritium	EPA 906.0 Modified	1.16E+04	4.18E+01			pc/l
05-04061-01	LCS	SPIKE	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Tritium	EPA 906.0 Modified	9.75E+03	5.76E+02	1.18E+03	5.73E+02	pc/l
05-04061-02	MBL	BLANK	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Tritium	EPA 906.0 Modified	-1.44E+02	3.44E+02	3.44E+02	6.02E+02	pc/l
05-04061-03	DUP	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Tritium	EPA 906.0 Modified	5.48E+02	3.53E+02	3.57E+02	5.77E+02	pc/l
05-04061-04	DO	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Tritium	EPA 906.0 Modified	1.42E+02	3.40E+02	3.40E+02	5.78E+02	pc/l
05-04061-01	LCS	KNOWN	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Cobalt-60	EPA 901.1 Modified	1.96E+05	5.18E+03			pc/l
05-04061-01	LCS	KNOWN	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Cesium-137	EPA 901.1 Modified	1.19E+05	3.56E+03			pc/l
05-04061-01	LCS	SPIKE	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Cobalt-60	EPA 901.1 Modified	1.96E+05	1.01E+04	1.07E+04	1.19E+03	pc/l
05-04061-01	LCS	SPIKE	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Cesium-137	EPA 901.1 Modified	1.19E+05	9.05E+03	9.31E+03	8.89E+02	pc/l
05-04061-02	MBL	BLANK	04/13/05 00:00	4/13/2005	4/13/2005	05-04061	Cesium-137	EPA 901.1 Modified	9.25E+00	1.81E+01	1.81E+01	3.77E+01	pc/l
05-04061-03	DUP	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Cesium-137	EPA 901.1 Modified	1.79E+02	3.97E+01	3.99E+01	2.16E+01	pc/l
05-04061-03	DUP	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Potassium-40	EPA 901.1 Modified	2.05E+02	2.29E+02	2.29E+02	2.03E+02	pc/l
05-04061-04	DO	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Cesium-137	EPA 901.1 Modified	1.95E+02	4.04E+01	4.06E+01	2.03E+01	pc/l
05-04061-04	DO	2364-Water-041205-01	04/12/05 12:00	4/13/2005	4/13/2005	05-04061	Potassium-40	EPA 901.1 Modified	2.42E+02	1.96E+02	1.96E+02	1.68E+02	pc/l

CU=Counting Uncertainty; TPU=Total Propagated Uncertainty; MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original



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Oak Ridge, TN 37830  
(865) 481-0683 Phone

№ 1851

1851



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[illegible]



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## **APPENDIX C**

### **LANDFILL DISPOSAL RECORDS**

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**Status**

ID: W4QVAA-5047-0010

Status: DISPOSAL COMPLETE

Date Generated: 16-Feb-2005

AEC Approved: 16-Feb-2005

IEC Approved: 16-Feb-2005

Fund Cite:

- ☐ Non-reusable product  
☐ Posted, but not taken from Freebies List nor sold by DRMO

Activity: DSHE  
Generator: ZAKAI, MANSOOR  
Phone: 5-2157  
e-mail: mansoor.zakai@usag.apg.army.mil

Office: CONTRACTOR  
Generator Site: IRP  
Building: E4430  
Location: E4430  
Phone: 436-1827

Receiving Site: 5110  
Manager: SCHORR, STUART  
Phone: 410-436-8425  
e-mail: stuart.schorr@usag.apg.army.mil

**Analysis**

ID: 4306-019

Nomenclature: Bush River Rad Yard Construction Debris

Status: IEC APPROVED

**Containers**

Form Code: B307 - METAL SCALE, FILINGS, OR SCRAP

Container		Packaging			Storage			Disposal						
Barcode	HITS ID	Pack	Cntr Type	Wgt (lbs)	Type	Building	Location	Description	CLIN	Cost	Manifest ID	Line #	Shipped	Disposed
HM000152464		NC	CM	18000	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073740	1A	10-Feb-2005	11-Feb-2005
HM000152465		NC	CM	33140	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2485.5	Z0073741	1A	14-Feb-2005	15-Feb-2005

**Comments**

Generator: TID is for Paul Harvey  
Comments:

AEC  
Comments:

IEC  
Comments:



**Status**

ID: 4306-019  
Nomenclature: **Bush River Rad Yard Construction Debris**  
Status: **IEC APPROVED**  
Date Generated: **01-Nov-2004**

Information From: ☐ Label  
☐ MSDS  
☒ Generator Knowledge  
☐ Lab Analysis

Activity: **DSHE**  
Generator: **HARVEY, PAUL**  
Phone: **436-1827**  
e-mail: **paul.harvey@usag.apg.army.mil**

Office: **CONTRACTOR**  
Generator Site: **IRP**  
Building: **E4430**  
Location: **E4430**  
Phone: **436-1827**

**Physical**

State: **Solid**  
Corrosive: **NA**  
Flashpoint:  
Layers: **Single**  
UHC's Present:  
Color:

**Hazards**

State Process: **A61 - SUPERFUND REMEDIAL ACTION**

General Properties:

☐ Oxidizer ☐ PCBs ☐ Flammable Solid ☐ Air Reactive ☐ Water Reactive  
☐ Cyanide Bearing ☐ Sulfide Bearing ☐ Explosive ☐ Radioactive

EPA Codes:

Code	Description	CAS
NR	NON-REGULATED WASTE	

**Chemicals**

Name	CAS	Min	Max	Units
CONSTRUCTION DEBRIS (CONCRETE, METAL, WOOD)		100	100	%

**Comments**

Generator  
Comments:

AEC  
Comments:

IEC  
Comments:



**Status**

ID: W4QVAA-4306-0025  
 Status: **DISPOSAL COMPLETE**  
 Date Generated: 01-Nov-2004  
 AEC Approved: 01-Nov-2004  
 IEC Approved: 01-Nov-2004

Fund Cite: **Bush River Area**

- ☒ Non-reusable product  
☐ Posted, but not taken from Freebies List nor sold by DRMO

Activity: **DSHE**  
 Generator: **HARVEY, PAUL**  
 Phone: **436-1827**  
 e-mail: **paul.harvey@usag.apg.army.mil**

Office: **CONTRACTOR**  
 Generator Site: **IRP**  
 Building: **E4430**  
 Location: **E4430**  
 Phone: **436-1827**

Receiving Site: **5110**  
 Manager: **SCHORR, STUART**  
 Phone: **410-436-8425**  
 e-mail: **stuart.schorr@usag.apg.army.mil**

**Analysis**

ID: 4306-019  
 Nomenclature: **Bush River Rad Yard Construction Debris**  
 Status: **IEC APPROVED**

**Containers**

Form Code: **B307 - METAL SCALE, FILINGS, OR SCRAP**

Container		Packaging			Storage				Disposal					
Barcode	HITS ID	Pack	Cntr Type	Wgt (lbs)	Type	Building	Location	Description	CLIN	Cost	Manifest ID	Line #	Shipped	Disposed
HM000162001		NC	CM	4860	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073708	1A	29-Oct-2004	04-Nov-2004
HM000162002		NC	CM	17400	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073710	1A	03-Nov-2004	04-Nov-2004
HM000162003		NC	CM	10500	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073711	1A	05-Nov-2004	07-Nov-2004
HM000162004		NC	CM	6480	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073712	1A	05-Nov-2004	08-Nov-2004
HM000162005		NC	CM	3720	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073713	1A	09-Nov-2004	11-Nov-2004
HM000162006		NC	CM	27060	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073714	1A	09-Nov-2004	11-Nov-2004
HM000162007		NC	CM	15500	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073715	1A	10-Nov-2004	11-Nov-2004
HM000162008		NC	CM	8900	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073716	1A	10-Nov-2004	15-Nov-2004
HM000162009		NC	CM	5800	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073717	1A	12-Nov-2004	15-Nov-2004
HM000162010		NC	CM	10020	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073718	1A	12-Nov-2004	15-Nov-2004
HM000162011		NC	CM	3520	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073719	1A	12-Nov-2004	15-Nov-2004
HM000162012		NC	CM	12960	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073720	1A	22-Nov-2004	23-Nov-2004
HM000162013		NC	CM	5220	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073735	1A	23-Nov-2004	24-Nov-2004
HM000162014		NC	CM	26060	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073736	1A	30-Nov-2004	01-Dec-2004
HM000162015		NC	CM	16460	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073737	1A	06-Dec-2004	07-Dec-2004
HM000162016		NC	CM	26060	DC	OFFSITE	NYD049836679	MODEL CITY - ONYX ENV	216AC	2250	Z0073738	1A	09-Dec-2004	10-Dec-2004

**Comments**

Generator  
 Comments:

AEC  
 Comments:

IEC  
 Comments:



**Status**

ID: 4306-019

Nomenclature: Bush River Rad Yard Construction Debris

Status: IEC APPROVED

Date Generated: 01-Nov-2004

Information From: ☐ Label  
☐ MSDS  
☒ Generator Knowledge  
☐ Lab Analysis

Activity: DSHE  
Generator: HARVEY, PAUL  
Phone: 436-1827  
e-mail: paul.harvey@usag.apg.army.mil

Office: CONTRACTOR  
Generator Site: IRP  
Building: E4430  
Location: E4430  
Phone: 436-1827

**Physical**

State: Solid  
Corrosive: NA  
Flashpoint:  
Layers: Single  
UHC's Present:  
Color:

**Hazards**

State Process: A61 - SUPERFUND REMEDIAL ACTION

General Properties:

☐ Oxidizer ☐ PCBs ☐ Flammable Solid ☐ Air Reactive ☐ Water Reactive  
☐ Cyanide Bearing ☐ Sulfide Bearing ☐ Explosive ☐ Radioactive ☐

EPA Codes:

Code	Description	CAS
NR	NON-REGULATED WASTE	

**Chemicals**

Name	CAS	Min	Max	Units
CONSTRUCTION DEBRIS (CONCRETE, METAL, WOOD)		100	100	%

**Comments**

Generator  
Comments:

AEC  
Comments:

IEC  
Comments:





**ENVIROCARE OF UTAH, INC.**  
**THE SAFE ALTERNATIVE**

## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0001	Class A	02/09/05 11:30:26	9034-02-0002	Class A	02/09/05 11:25:11
9034-02-0004	Class A	02/09/05 09:20:29			

Representing 15,290.10 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

David J. Cronshaw  
David Cronshaw  
Director of LLRW Operations

2/10/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, INC.**

**THE SAFE ALTERNATIVE**

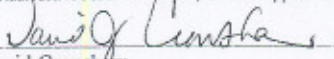
## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

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<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0003	Class A	02/04/05 14:44:50	9034-02-0005	Class A	02/04/05 14:44:51
9034-02-0006	Class A	02/04/05 14:44:51	9034-02-0007	Class A	02/04/05 14:44:51
9034-02-0008	Class A	02/04/05 14:44:51	9034-02-0009	Class A	02/04/05 14:44:51
9034-02-0010	Class A	02/04/05 14:44:51			

Representing 14,059.80 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
David Cronshaw  
Director of LLRW Operations

2/7/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, INC.**

**THE SAFE ALTERNATIVE**

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US ARMY, Watertown

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<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0011	Class A	02/16/05 13:46:59	9034-02-0012	Class A	02/16/05 13:47:16
9034-02-0013	Class A	02/16/05 13:47:30	9034-02-0014	Class A	02/16/05 13:47:43

Representing 7,809.60 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

David Cronshaw  
David Cronshaw  
Director of LLRW Operations

2/17/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**

**THE SAFE ALTERNATIVE**

## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0015	Class A	03/16/05 11:50:05	9034-02-0016	Class A	03/16/05 11:50:23
9034-02-0017	Class A	03/16/05 11:50:29	9034-02-0018	Class A	03/16/05 11:50:37
9034-02-0019	Class A	03/16/05 11:50:45			

Representing, 9,795.40 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

*David Croshaw*  
David Croshaw  
Director of LLRW Operation

3-21-05  
Date

605 N. 5600 W. Salt Lake City, Utah 84116 Telephone (801) 512-1330





**ENVIROCARE OF UTAH, LLC.**

**THE SAFE ALTERNATIVE**

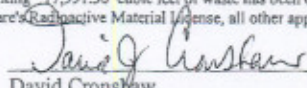
## **CERTIFICATE OF DISPOSAL**

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0020	Class A	04/06/05 09:38:26	9034-02-0021	Class A	04/06/05 09:38:26
9034-02-0022	Class A	04/06/05 09:38:26	9034-02-0023	Class A	04/06/05 09:38:26
9034-02-0024	Class A	04/06/05 09:38:26	9034-02-0025	Class A	04/06/05 09:38:26
9034-02-0026	Class A	04/06/05 09:38:26	9034-02-0027	Class A	04/06/05 09:38:26
9034-02-0028	Class A	04/06/05 09:37:36			

Representing 17,991.30 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
David Cronshaw  
Director of LLRW Operations

4/18/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**  
**THE SAFE ALTERNATIVE**

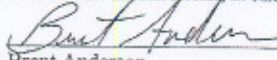
## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0029	Class A	04/27/05 16:07:03	9034-02-0030	Class A	04/27/05 16:07:03
9034-02-0031	Class A	04/27/05 16:07:03			

Representing 6,076.30 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson  
Director of LLRW Operations

5/2/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**  
**THE SAFE ALTERNATIVE**

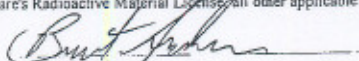
## CERTIFICATE OF DISPOSAL

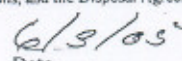
US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0033	Class A	06/01/05 08:09:22	9034-02-0034	Class A	06/01/05 08:09:22

Representing 3,876.70 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson  
Director of LLRW Operations

  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**

**THE SAFE ALTERNATIVE**

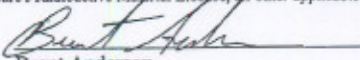
## **CERTIFICATE OF DISPOSAL**

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0032	Class A	06/07/05 11:37:54	9034-02-0035	Class A	06/07/05 11:37:54
9034-02-0036	Class A	06/07/05 11:37:54	9034-02-0037	Class A	06/07/05 11:37:54
9034-02-0038	Class A	06/07/05 11:37:54	9034-02-0039	Class A	06/07/05 11:37:54
9034-02-0040	Class A	06/07/05 11:37:54			

Representing 14,773.00 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson  
Director of LLRW Operations

6/8/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**

**THE SAFE ALTERNATIVE**

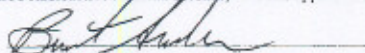
## **CERTIFICATE OF DISPOSAL**

US ARMY, Watertown

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<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0041	Class A	06/13/05 11:35:05	9034-02-0042	Class A	06/13/05 17:42:06
9034-02-0043	Class A	06/13/05 11:35:15			

Representing 6,306.90 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson  
Director of LLRW Operations

6/15/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**  
**THE SAFE ALTERNATIVE**

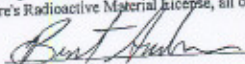
## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

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<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0045	Class A	08/15/05 07:31:03			

Representing 1,883.40 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material license, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson  
Director of LLRW Operations

8/17/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330





**ENVIROCARE OF UTAH, LLC.**

**THE SAFE ALTERNATIVE**

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US ARMY, Watertown

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<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-01-0077	Class A	06/29/05 13:33:19	9034-02-0044	Class A	06/29/05 13:33:19

Representing 11,330.00 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to Envirocare's Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.



Brent Anderson  
Director of LLRW Operations

7/5/05  
Date

605 N. 5600 W, Salt Lake City, Utah 84116 Telephone (801) 532-1330



## CERTIFICATE OF DISPOSAL

US ARMY, Watertown

This Certificate acknowledges that the following manifested shipments:

<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>	<u>Shipment</u>	<u>Disposal Location</u>	<u>Date</u>
9034-02-0054	Class A	01/11/07 10:49:06	9034-02-0055	Class A	01/11/07 10:49:24
9034-02-0056	Class A	01/11/07 10:49:24	9034-02-0057	Class A	01/11/07 10:49:06
9034-02-0058	Class A	01/11/07 10:49:06	9034-02-0059	Class A	01/11/07 10:49:24
9034-02-0060	Class A	01/11/07 10:49:06			

Representing 27,675.00 cubic feet of waste has been disposed of at the above listed Disposal Facility. Disposal is subject to EnergySolutions' Radioactive Material License, all other applicable licenses, permits and regulations, and the Disposal Agreement.

  
Brent Anderson

Director of LLRW Operations

1-16-07  
Date