



Final Status Survey Final Report Phase VI

**Appendix A16
Survey Unit Release Record
9539-0002, ISFSI Haul Road**

February 2007



CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
ISFSI HAUL ROAD (SOUTHERN SECTION)
SURVEY UNIT 9539-0002

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1. SURVEY UNIT DESCRIPTION

Survey Unit 9539-0002, which encompasses the southern portion of the access road to the Independent Spent Fuel Storage Installation (ISFSI) and the Southeast Landfill Area is designated as Final Status Survey (FSS) Class 2 and consists of approximately seven thousand two hundred ninety-three (7,293) square meters of open land and is located approximately three thousand two hundred two feet (3,202) feet from the reference coordinate system benchmark used at Haddam Neck Plant (HNP) (see Attachment 1).

The survey unit is an open land area located along the east shore of the Discharge Canal from the non-protected area southeast grounds of the site to the ISFSI vehicle barrier. The survey area is a narrow strip of land encompassing the access road and twenty-five (25) feet on both sides of the road. A minimal amount of brush and trees remain in the survey area. The area topography consists mostly of steep, rocky or vegetated hillsides. A majority of the trees have been cleared for the construction of the access road. The ISFSI access or "Haul" road crosses north to south through this survey unit.

The survey unit is bounded as follows: land Survey Unit 9539-0001 to the north (called north as oriented with the north to south flow of the Connecticut River), the Discharge Canal to the west and land Survey Unit 9532 to the east and to the south.

Work activities to support the ISFSI access road construction have occurred in this survey unit. These activities included tree and stump removal, silt fence installation, soil removal, grading and rock blasting. Grading the hillside has left some locations displaying a steeper incline than was previously the case. Rock shelves and outcroppings were located along the hillside, especially in the east and south. There are occasional voids along the access road where the grading process has stripped away underlying rock

The reference coordinates associated with this survey unit are E014 through E020 by S096 through S105 (refer to "*HNP License Termination Plan*" (LTP) Section 5.4.4). The reference coordinates provide the maximum dimensions of a rectangle containing this survey unit. Some areas contained in this rectangle may not be part of this survey unit. The boundary of the survey unit was defined using a Global Positioning System (GPS) based on the Connecticut State Plane System North American Datum (NAD) 1927.

2. CLASSIFICATION BASIS

The survey unit was classified in accordance with Procedure RPM 5.1-10, "*Survey Unit Classification*."

The "*Classification Basis Summary*" conducted for Survey Unit 9539-0002 consisted of:

- a) A review of the 10CFR50.75 (g) (1) database,

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- b) A review of the *"Initial Characterization Report"* and the *"Historic Site Assessment Supplement,"*
- c) Historic and current survey records review,
- d) Visual inspections and a "walk-down."

A review of the *"Initial and Supplemental Characterization Reports"* as well as the previous *"Classification Basis Summaries"* was performed. Survey Area 9539 was previously designated as Survey Area 9528. Survey Unit 9539-0002 is the southern portion of Survey Area 9539 and includes the former Survey Unit 9528-0004 and a portion of 9528-0003. Survey Area 9528 was initially designated as Class 3 during the development of the LTP. The source documents, the *"Connecticut Yankee Haddam Neck Characterization Report"* and *"Initial Classification for Survey Areas at Connecticut Yankee"*, were incorporated by reference in LTP revision 0.

The second source document justified a Class 2 designation for those areas for which there was historical evidence of contamination above the Derived Concentration Guideline Levels (DCGL), but for which recent surveys had shown that decontamination efforts had occurred and that the radiological conditions were expected to be below the DCGLs. Additional justification for a Class 2 designation based on survey and sampling data was provided as another reference to the LTP by the *"Haddam Neck Plant Historical Site Assessment Supplement"*.

The historical documents (e.g., the 10CFR50.75(g)(1) files) identify a number of events that may have impacted this survey unit. In the past, the public was granted access to this area for recreational purposes (e.g. hiking). Typical debris and litter (soda bottles, fishing line, etc.) were found in the area. From time to time, 55-gallon drum trash containers were positioned along the Canal Road to collect and control litter.

In December of 2001, scan surveys in an area along the road indicated the possible deposition of radioactive material in an unauthorized location (CR 01-0490). In March of 2002, investigative soil sampling was performed in the area where elevated scan results were observed. The soil sample results identified low-level plant-related radioactive material (Co-60). The presence of Co-60 was not expected as this area was previously identified as Survey Unit 9528-000, a Class 3 area (CR 02-0125).

Although measurement results were very low relative to the DCGL, soil containing the Cobalt-60 was removed from the area as a prudent measure. Approximately twenty-five (25) cubic meters of soil were removed for disposal as waste. Post excavation soil sample analysis results did not identify any remaining residual activity. Based on the findings of the survey and the subsequent remediation, Survey Unit 9528-0000 was reclassified as a Class 2 open land area. In accordance with the survey unit size limitations in the License Termination Plan (LTP), Survey Unit 9528-0000 was subdivided into three (3) new survey units designated as 9528-0002, 9528-0003 and 9528-0004.

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Low-level licensed material from the plant and the Offsite Material Recovery Program (OMRP) utilized the canal roads as a route to the Southeast Landfill and Material Storage areas. Sample data associated with the OMRP identified two (2) Hard-to-Detect (HTD) radionuclides meeting the accepted criteria for detection (i.e., a result greater than two (2) standard deviations uncertainty). However, the reported concentrations of Ni-63 and Fe-55 were a very low fraction of the applicable Base Case Derived Concentration Guideline Level (DCGL) for soil (<1%). Other radionuclides were not expected to be present in any significant percentage of their DCGL.

In July of 2002, Survey Units 9528-0002, 9528-0003 and 9528-0004 were subjected to FSS under Work Plan and Inspection Record (WP&IR) 24265-000-GEN-0002-00104-000. FSS consisted of surface soil samples and scan measurements. Scan surveys were performed with an Eberline E-600 using a SPA-3, 2"x2" sodium iodide detector.

Fifteen (15) surface soil samples were collected from each of the three (3) survey units contained within Survey Area 9528. During scanning, several areas were identified with slightly elevated readings, which prompted the collection of additional investigation soil samples from these areas. All samples were collected and analyzed by gamma spectroscopy by an approved off-site laboratory. Nine (9) of the forty-nine (49) total samples collected were analyzed for "Hard-to-Detect" (HTD) radionuclides. Cs-137 and Co-60 were the primary radionuclides detected in the sample population. No HTD radionuclides were positively identified. FSS results from 2002 demonstrated that all three (3) survey units were acceptable for unrestricted release. The sample analysis results from the 2002 FSS survey are provided in Table 1.

Table 1 – Sample Analysis Results from 2002 FSS Soil Samples

	Cs-137 (ρ Ci/g)	Co-60 (ρ Ci/g)
Minimum Value :	-2.02E-02	-1.37E+00
Maximum Value :	1.20E+00	6.31E-01
Mean :	2.59E-01	7.84E-03
Median :	1.04E-01	3.38E-03
Standard Deviation :	3.05E-01	2.19E-01

In 2006, a decision was made to reuse milled asphalt media by using the material to grade, build and repair the ISFSI haul road. The asphalt was a byproduct of demolition activities in various areas of the site. The material had been stock-piled awaiting disposal. Prior to introducing the material into the survey area, volumetric samples were taken and analyzed by gamma spectroscopy. Low levels of Cs-137 and Co-60 were detected. However, as the origin of the material was from impacted areas and the volumetric samples were not completely

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representative of all the material that was deposited, the previously performed FSS in Survey Area 9528 was invalidated. Survey Area 9528 was subsequently renamed as Survey Area 9539 to support the resurvey.

The FSS Engineer performed a visual inspection and walk-down during September 2006 to assess the physical condition of the survey unit, evaluate access points and travel paths and identify potentially hazardous conditions.

This survey area is affected by existing groundwater (reference CY memo ISC 06-024) which will be a source of dose from residual radioactivity, as discussed in Section 3 under the Data Quality Objectives.

Based upon a review of the historical information and the results of the Characterization Survey data, it was concluded that there was a low probability for residual radioactivity in concentrations greater than the DCGLs, justifying a final survey unit classification of Class 2 (refer to Section 3).

3. DATA QUALITY OBJECTIVES (DQO)

FSS design and planning used the Data Quality Objective (DQO) process as described by the LTP, Procedure RPM 5.1-11, *"Preparation of Final Status Survey Plan,"* and the *"Multi-Agency Radiation Survey and Site Investigation Manual"* (MARSSIM). A summary of the main features of the DQO process are provided herein.

The DQO process incorporated hypothesis testing and probabilistic sampling distributions to control decision errors during data analysis. Hypothesis testing is a process based on the scientific method that compares a baseline condition to an alternate condition. The baseline condition is technically known as the null hypothesis. Hypothesis testing rests on the premise that the null hypothesis is true and that sufficient evidence must be provided for rejection. In designing the survey plan, the underlying assumption, or null hypothesis was that residual activity in the survey unit exceeded the release criteria. Rejection of the null hypothesis would indicate that residual activity within the survey unit does not exceed the release criteria. Therefore, the survey unit would satisfy the primary objective of the FSS plan.

The primary objective of the FSS plan was to demonstrate that the level of residual radioactivity in Survey Unit 9539-0002 did not exceed the release criteria specified in the LTP and that the potential dose from residual radioactivity is As Low As Reasonably Achievable (ALARA).

A fundamental precursor to survey design is to establish a relationship between the release criteria and some measurable quantity. This is done through the development of DCGLs. The DCGLs represent average levels of radioactivity above background levels and are presented in terms of surface or mass activity concentrations. Chapter 6 of the LTP describes in detail the modeling used to develop the DCGLs for soil (called Base Case Soil DCGL), existing groundwater radioactivity and future groundwater radioactivity that will be contributed by building basements and footings.

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The DCGLs presented in Chapter 6 of the LTP were developed for exposures from three (3) components, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity. Equation 1 shows the mathematical relationship between the three (3) components and the total dose.

Equation 1

$$H_{\text{Total}} = H_{\text{Soil}} + H_{\text{ExistingGW}} + H_{\text{FutureGW}}$$

The total dose under the LTP criteria is twenty-five (25) mrem/yr TEDE from all three (3) components. The allowable total dose under the Connecticut Department of Environmental Protection (CTDEP) radiological remediation standard for CY is nineteen (19) mrem/yr TEDE. To satisfy both the LTP and CY CTDEP criteria, the dose from soil must be reduced when using the existing and future groundwater dose values discussed above.

CY memo ISC 06-024 addresses the impact of existing and future groundwater on specific survey areas at CY. Survey Area 9539 is not specifically addressed by this reference. However, CY memo ISC 06-024 does state that Survey Area 9528 is affected by existing groundwater and is not considered impacted by future groundwater radioactive contamination, as there are no concrete foundations or footings remaining within the groundwater saturated zone in the area.

Since Survey Area 9528 became Survey Unit 9539, the dose contribution from existing and future groundwater will impact Survey Area 9539 in the same manner as it did Survey Area 9528. Therefore the dose contribution from existing groundwater in Survey Unit 9539 is bounded by two (2) mrem/yr TEDE and the dose contribution from future groundwater, the third dose component, is zero (0) mrem/yr TEDE.

Equation 2

$$19 \text{ mrem/yr}_{\text{Total}} = 17 \text{ mrem/yr}_{\text{Soil}} + 2 \text{ mrem/yr}_{\text{Existing GW}} + 0 \text{ mrem/yr}_{\text{FutureGW}}$$

The allowable dose for soil in this survey unit is seventeen (17) mrem/yr TEDE as shown by Equation 2 above. The concentration of residual radioactivity resulting in seventeen (17) mrem/yr TEDE is designated as the Operational DCGL (DCGL_{op}), and has been established for the radionuclides of concern as provided in Table 2.

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Table 2 – Radionuclide Specific Base Case Soil DCGLs, Operational DCGLs and Required Minimum Detectable Concentrations (MDCs)

Radionuclide ⁽¹⁾	Base Case Soil DCGL (pC/g) ⁽²⁾	Operational DCGL (pC/g) ⁽³⁾	Required MDC (pC/g) ⁽⁴⁾
H-3	4.12E+02	2.80E+02	1.65E+01
C-14	5.66E+00	3.85E+00	2.26E-01
Mn-54	1.74E+01	1.18E+01	6.96E-01
Fe-55	2.74E+04	1.86E+04	1.10E+03
Co-60	3.81E+00	2.59E+00	1.52E-01
Ni-63	7.23E+02	4.92E+02	2.89E+01
Sr-90	1.55E+00	1.05E+00	6.20E-02
Nb-94	7.12E+00	4.84E+00	2.85E-01
Tc-99	1.26E+01	8.57E+00	5.04E-01
Ag-108m	7.14E+00	4.86E+00	2.86E-01
Cs-134	4.67E+00	3.18E+00	1.87E-01
Cs-137	7.91E+00	5.38E+00	3.16E-01
Eu-152	1.01E+01	6.87E+00	4.04E-01
Eu-154	9.29E+00	6.32E+00	3.72E-01
Eu-155	3.92E+02	2.67E+02	1.57E+01
Pu-238	2.96E+01	2.01E+01	1.18E+00
Pu-239/240	2.67E+01	1.82E+01	1.07E+00
Am-241 ⁽⁵⁾	2.58E+01	1.75E+01	1.03E+00
Pu-241	8.70E+02	5.92E+02	3.48E+01
Cm-243/244	2.90E+01	1.97E+01	1.16E+00

- (1) Bold indicates those radionuclides considered Hard to Detect (HTD)
- (2) The Base Case Soil DCGL(s) are specified by the LTP in Chapter 6 and are equivalent to twenty-five (25) mrem/yr TEDE
- (3) The Operational DCGL is equivalent to achieving seventeen (17) mrem/yr TEDE
- (4) The required MDC is equivalent to achieving one (1) mrem/yr TEDE
- (5) Americium-241 can be analyzed by gamma and alpha spectroscopy and is considered to be Easy to Detect (ETD). The preferred result is the alpha spectroscopy's when both analyses are performed

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Another important facet of the DQO process is to identify the radionuclides of concern and determine the concentration variability. Soil samples were collected in 2002 as part of the previous FSS to establish the radiological condition of Survey Unit 9539-0002. Cs-137 and Co-60 were the only two (2) gamma emitting radionuclides reported in concentrations with the potential for exceeding the screening criteria. No HTD radionuclides were positively identified. The previous FSS data were used for this survey design and are provided in Table 1.

Instrument DQOs included a verification of the ability of the survey instrument to detect the radiation(s) of interest relative to the DCGL. Survey instrument response checks were required prior to issue and after the instrument had been used. Control and accountability of survey instruments was required to assure the quality and prevent the loss of data.

As part of the DQOs applied to laboratory processes, analysis results were reported as actual calculated results. Results reported as less than Minimum Detectable Concentration (MDC) were not accepted for FSS. Sample report summaries included unique sample identification, analytical method, radionuclide, result, and uncertainty to two (2) standard deviations, laboratory data qualifiers, units, and the required and observed MDC.

4. SURVEY DESIGN

The level of effort associated with planning a survey is based on the complexity of the survey and nature of the hazards. Guidance for preparing FSS plans is provided in Procedure RPM 5.1-11, "*Preparation of Final Status Survey Plans*". The FSS plan uses an integrated sample design that combines scanning surveys and sampling which can be either random or biased.

The DQO process determined that both Cs-137 and Co-60 would be the radionuclides of concern in Survey Unit 9539-0002 (refer to Section 3). The characterization survey did not identify any HTD radionuclides of concern for this survey unit. Subsequently, surrogate DCGLs were not required for this survey unit via screening under LTP Section 5.4.7.2, "*Gross Activity DCGLs*". Other radionuclides that were positively identified in concentrations greater than the screening criteria during the performance of this FSS would be evaluated to ensure adequate survey design. Radionuclide screening or de-selection is a process where the dose contribution from an individual radionuclide or aggregates may be considered insignificant and eliminated from the FSS. The criteria for de-selection are concentrations less than 5% for individual radionuclides and less than 10% for aggregates.

The Elevated Measurement Comparison (EMC) did not apply to this survey unit since it is a Class 2 area and discrete, elevated areas of contamination were not expected.

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The Sign Test was selected as the non-parametric statistical test. The use of the Sign Test did not require the selection or use of a background reference area, which simplified survey design and implementation. This approach was conservative since it included background Cs-137 as part of the sample set.

The number of soil samples for FSS was determined in accordance with Procedure RPM 5.1-12, "*Determination of the Number of Surface Samples for Final Status Survey.*" The Lower Bound of the Gray Region (LBGR) was set in accordance with Procedure RPM 5.1-11 to 0.8 to maintain the relative shift (Δ/σ) in the range of 1 and 3. The resulting relative shift was 2.00. A Prospective Power Curve was generated using COMPASS, a software package developed under the sponsorship of the United States Nuclear Regulatory Commission (USNRC) for implementation of the MARSSIM in support of the decommissioning license termination rule (10CFR20, Subpart E). The result of the COMPASS computer run showed adequate power for the survey design. The survey design specified fifteen (15) surface soil samples for non-parametric statistical testing. Based upon a review of the historical information and Characterization Survey data, the acquisition of additional judgmental surface soil samples from within this survey unit was deemed unnecessary.

The grid pattern and locations of the soil samples were determined using Visual Sample Plan (VSP) in accordance with Procedure RPM 5.1-14, "*Identifying, and Marking Surface Sample Locations for Final Status Survey.*" Visual Sample Plan was created by Pacific Northwest National Laboratory (PNNL) for the United States Department of Energy. A systematic triangular grid pattern with a random starting point was selected for sample design, which is appropriate for a Class 2 area.

Sample locations were identified using AutoCAD-LT, a commercially available plotting software package with coordinates consistent with the Connecticut State Plane System. These coordinates were integrated with a GPS to locate sample locations in the field. Sample Measurement Locations for the design are listed with the GPS coordinates in Table 3.

Table 3 - Sample Measurement Locations with Associated GPS Coordinates

Designation	Northing	Easting
9539-0002-001F	235619.30	671337.09
9539-0002-002F	235619.30	671414.83
9539-0002-003F	235619.30	671492.57
9539-0002-004F	235619.30	671570.30
9539-0002-005F	235619.30	671648.04
9539-0002-006F	235619.30	671725.78

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Table 3 - (continued)

Designation	Northing	Easting
9539-0002-007F	235619.30	671803.52
9539-0002-008F	235619.30	671881.26
9539-0002-009F	235619.30	671959.00
9539-0002-010F	235619.30	672036.73
9539-0002-011F	235619.30	672114.47
9539-0002-012F	235551.97	672308.82
9520-0001-013F	235551.97	672386.56
9539-0002-014F	235551.97	672464.30
9539-0002-015F	235551.97	672542.03

Procedure RPM 5.1-11 specifies that 5% of the samples are required to be selected for HTD analysis. Two (2) soil samples, or about 10% of the number of samples that would be used for non-parametric statistical testing were randomly selected for HTD radionuclide analysis using the Microsoft Excel "RANDBETWEEN" function. Each sample was sent off-site for a full suite analysis of the HTD radionuclides specified in the LTP, Table 2-12, "*Radionuclides Potentially Present at Haddam Neck Plant*" and as provided in Table 2.

The implementation of quality control measures as referenced by Procedure RPM 5.1-24, "*Split Sample Assessment for Final Status Survey*," included the collection of one (1) soil sample for "split sample" analysis by the off-site laboratory. This location was selected randomly using the Microsoft Excel "RANDBETWEEN" function.

The LTP specifies a required scanning coverage of 10% to 100% for outdoor Class 2 areas. The fraction of scanning coverage was determined during the DQO process with the total amount and location(s) based on the likelihood of finding elevated activity during FSS. Based on the historical site assessment, the characterization data available, and the use of this survey unit, it was determined that scanning was required in three (3) separate areas. The total surface area to be scanned was approximately 25% of the survey unit. A map of the scan grid locations is provided in Attachment 1.

For this Class 2 survey unit, the "Investigation Level" for area scanning and soil sample measurement results are those levels specified in LTP, Table 5-8. Table 4 provides a synopsis of the survey design.

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Table 4 – Synopsis of the Survey Design

Feature	Design Criteria	Basis
Survey Unit Land Area	7,293 m ²	Based on AutoCAD-LT
Number of Measurements	15 (15 systematic grid)	Type 1 and Type 2 errors were 0.05, sigma was 0.10 pCi/g, the LBGR was set at 0.8 to maintain Relative Shift in the range of 1 and 3
Grid Spacing	23.67 m	Based on triangular grid
Operational DCGL	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	Administratively set to achieve seventeen (17) mrem/yr TEDE ⁽¹⁾
Soil Investigation Level	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	The Operational DCGL meets the LTP criteria for a Class 2 survey unit
Scan Survey Area Coverage	Approximately 25% of the area	The LTP requires >10% area coverage for Class 2 survey units
Scan Investigation Level	Detectable over background	Administratively set to achieve seventeen (17) mrem/yr TEDE ⁽¹⁾

(1) The allowable dose for soil in this survey unit is seventeen (17) mrem/yr TEDE as the bounding dose from existing and future groundwater has been established based on field data (reference CY memo ISC 06-024)

5. SURVEY IMPLEMENTATION

Final status survey field activities were conducted under Work Plan and Inspection Record (WP&IR) 2006-0048. The WP&IR package included a detailed FSS plan, job safety analysis, job planning checklist and related procedures for reference. Daily briefings were conducted to discuss the expectations for job performance and the safety aspects of the survey. The "Daily Survey Journal" was used to document field activities and other information pertaining to the FSS.

Three (3) scan areas were established that constituted approximately 25% of the surface area of Survey Unit 9539-0002. Grid lines, one meter wide, were painted on the ground of the scan area. A background survey was performed around the survey unit and it was determined that, using an Eberline E-600 with a SPA-3 sodium iodide detector, background ranged from 4,290 counts per minute (cpm) up to 9,070 cpm.

The scan areas were established and scanned for elevated readings (see Attachment 2 for all scan results). Scanning was performed with an Eberline E-600 using a SPA-3 sodium iodide detector. The E-600 was operated in the rate-meter mode and used with audio response. The probe was positioned as

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close to the ground as possible and was moved at a scan speed of about 0.5 meters per second. Approximately 25% of the survey unit was scanned.

Measurement locations were identified in North American Datum (NAD) 1927 coordinates using GPS coordinates; sample locations were identified and marked with a surveyor's flag or paint for identification. At each sample location, a one (1) meter radius around the sample flag or paint mark was scanned for elevated radiation levels.

Fifteen (15) surface soil samples were collected and packaged in accordance with Haddam Neck Plant (HNP) Procedure RPM 5.1-3, "*Collection of Sample Media for Final Status Survey*" and FSS design. Samples were controlled, transported, stored, and transferred to the off-site laboratory using Chain-of-Custody (COC) protocol in accordance with Procedure RPM 5.1-5, "*Chain of Custody for Final Status Survey Samples*."

Two (2) samples (9539-0002-009F and 9539-0002-010F) were randomly selected for HTD radionuclide analysis.

The implementation of survey specific quality control measures included the collection of one (1) sample (9539-0002-001F) for "split sample" analysis.

6. SURVEY RESULTS

All field survey activities were conducted between January 3, 2007 and January 4, 2007.

The sample locations identified in the FSS plan were scanned over approximately a one (1) meter radius for elevated radiation levels. Table 5 provides an overview of the scan results for sample measurement locations. Scan results for the entire survey unit are provided in Attachment 2.

Table 5 - Scan Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾⁽²⁾ (kcpm)	> Action Level
1	6.7	7.8	NO
2	7.7	7.1	YES
3	8.2	10.1	NO
4	7.9	8.7	NO
5	8.4	7.8	YES
6	9.2	9.3	NO
7	7.2	8.1	NO
8	7.0	7.6	NO

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Table 5 - (continued)

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾⁽²⁾ (kcpm)	> Action Level
9	7.4	7.5	NO
10	9.1	9.2	NO
11	9.4	9.7	NO
12	10.3	9.8	YES
13	6.5	7.2	NO
14	6.3	6.2	YES
15	5.3	6.2	NO

- (1) The action level is based on a measurement above ambient background in accordance with the FSS plan
- (2) The FSS plan requires movement of the sample measurement location to the area within the 1 meter radius yielding the response above the action level. Sample locations 9539-0002-002F, 9539-0002-005F, 9539-0002-012F and 9539-0002-014F were moved accordingly.

The scan areas, that comprised approximately 25% of the total surface area for the survey unit, were scanned for elevated radiation levels. The areas were scanned in accordance with the FSS plan on January 3, 2007 through January 4, 2007. Several elevated measurement locations were identified during scanning.

Table 6 provides an overview of the scan area survey. Complete scan results are provided in Attachment 2.

Table 6 - Scan Area Results

Scan Area	Scan Strips	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾ (kcpm)	Elevated Reading Identification	Investigation Sample
1 ⁽²⁾	1-15	13.0	10.4	Log # 06 from strip #2 on download #010407-1117 afternoon	9539-0002-016I
				Log # 13 from strip #4 download # 010407-1117 afternoon	9539-0002-017I

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Table 6 – (continued)

Scan Area	Scan Strips	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾ (kcpm)	Elevated Reading Identification	Investigation Sample
1	(continued)			Log # 19 from strip #6 download # 010407-1117 afternoon	9539-0002-018I
				Log # 02 from strip #1 download # 010407-1117 afternoon	9539-0002-019I
2 ⁽³⁾	1-11	9.1	9.7	None	None
3	1-11	11.8	10.4	Log # 02 from strip #1 download # 010307-1105 afternoon	9539-0002-020I

- (1) The action level is based on a measurement above ambient background.
- (2) Sample numbers 9539-0002-017I & 9539-0002-018I were collected within contiguous elevated areas that spanned several scan strips. The areas were evaluated for isotopic identification using the Exploranium® portable survey meter. The two (2) spectrums did not identify any plant derived radionuclides. The two (2) spectrums that were stored for measurements were identified as #54 and #55 and are included in the FSS package. Sample numbers 9539-0002-017I & 9539-0002-018I were collected within each elevated area at the location of the highest count rate measurement. The daily journal (01-04-2007) and the survey map for Scan Area #1 (01-04-2007) provide specific information about these elevated areas.
- (3) Scan area #2 was originally designed to contain eighteen (18) scan grids, however, scan grids 12-18 were not accessible and therefore were not surveyed.

The off-site laboratory employed for the radiological analyses of samples was General Engineering Laboratories, LLC. The laboratory analyzed the fifteen (15) samples collected for non-parametric statistical testing, the associated field split and the five (5) investigation samples using gamma spectroscopy. Gamma spectroscopy results identified some radionuclides meeting the accepted criteria for detection (i.e., a result greater than two (2) standard deviations uncertainty). However, Cs-137 and Co-60 were the only gamma-emitting radionuclides reported in concentrations exceeding the de-selection criteria.

Cs-137 was identified in seven (7) and Co-60 was identified in one (1) of the fifteen (15) samples collected for non-parametric statistical testing. The mean of the gamma spectroscopic analysis results for the sample population indicated that Cs-137 was present at levels lower than the concentrations of Cs-137 found in soil at off-site locations within the vicinity of the HNP as presented in the Health Physics TSD BCY-HP-0063. A summary of the fifteen (15) samples collected for non-parametric statistical testing results is provided in Table 7.

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Table 7 - Summary of Gamma Spectroscopy Results for Surface Soil Samples Comprising the Statistical Sample Population

Sample Number	Cs-137 pCi/g	Co-60 pCi/g
9539-0002-001F	2.14E-02	-2.42E-03
9539-0002-002F	3.15E-02	-7.03E-03
9539-0002-003F	3.16E-03	-1.30E-02
9539-0002-004F	5.38E-03	-4.10E-03
9539-0002-005F	1.90E-03	-4.58E-03
9539-0002-006F	1.35E-01	1.10E-02
9539-0002-007F	1.86E-02	-3.48E-03
9539-0002-008F	-8.30E-03	8.74E-03
9539-0002-009F	1.75E-02	9.91E-03
9539-0002-010F	2.37E-01	1.27E-02
9539-0002-011F	2.11E-01	-8.10E-04
9539-0002-012F	2.89E-02	1.58E-03
9539-0002-013F	-1.79E-02	1.49E-02
9539-0002-014F	1.06E-02	9.88E-03
9539-0002-015F	-6.27E-03	-4.35E-03

The off-site laboratory also processed two (2) samples for HTD analysis as required by the sample plan. The requested analyses included alpha spectroscopy, gas proportional counting, and liquid scintillation depending on the radionuclide and the measurement method. All analyses met the required MDC.

Ni-63 and Sr-90 were positively identified (i.e., a result greater than two (2) standard deviations uncertainty) in one (1) of the two (2) samples analyzed for HTD radionuclides. In accordance with LTP Section 5.4.7.2, "*Gross Activity DCGLs*", the criteria for de-selection of a radionuclide is a concentration that is less than 5% of the Operational DCGL for individual radionuclides and less than 10% of the Operational DCGLs for aggregates. For Ni-63, the Operational DCGL is 492 pCi/g to achieve a TEDE of seventeen (17) mrem/yr. For Sr-90, the Operational DCGL is 1.05 pCi/g to achieve a TEDE of seventeen (17) mrem/yr. The positive analytical result for Ni-63 and Sr-90 equated to 3% and 4.7% of their respective Operational DCGLs. Subsequently, both Ni-63 and Sr-90 were deselected as a radionuclides of concern for this survey unit.

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The “sum-of-fractions” or “unity rule” is the mathematical test used to evaluate compliance with radiological criteria for license termination when more than one radionuclide has been determined to be potentially present. The unity rule is:

Equation 3

$$\frac{C_1}{DCGL_1} + \frac{C_2}{DCGL_2} + \dots + \frac{C_n}{DCGL_n} \leq 1$$

Where: C_n = concentration of radionuclide n and
 $DCGL_n$ = DCGL of radionuclide n .

The results of the unity rule calculation for the radionuclides of concern in the statistical sample population for Survey Unit 9539-0002 are provided in Table 8 below.

**Table 8 – Results of Unity Calculation for Surface Soil Samples
Comprising the Statistical Sample Population**

Sample Number	Fraction of the Operational DCGL ⁽¹⁾⁽²⁾		Unity Fraction
	Cs-137	Co-60	
9539-0002-001F	0.00	-	0.00
9539-0002-002F	0.01	-	0.01
9539-0002-003F	-	-	-
9539-0002-004F	-	-	-
9539-0002-005F	-	-	-
9539-0002-006F	0.03	-	0.03
9539-0002-007F	0.00	-	0.00
9539-0002-008F	-	-	-
9539-0002-009F	0.00	-	0.00
9539-0002-010F	0.04	-	0.04
9539-0002-011F	0.04	-	0.04
9539-0002-012F	-	-	-
9539-0002-013F	-	0.01	0.01
9539-0002-014F	-	-	-
9539-0002-015F	-	-	-

(1) The Operational DCGL from Table 2 is 5.38 pCi/g for Cs-137 and 2.59 pCi/g for Co-60 to achieve seventeen (17) mrem/yr TEDE respectively.

(2) -indicates that the radionuclide was not positively detected in the sample

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7. QUALITY CONTROL

The off-site laboratory processed the split samples and performed gamma spectroscopy analysis. One (1) sample location was selected for analysis, which exceeds the 5% minimum required by the LTP. The data were evaluated using USNRC acceptance criteria specified in Inspection Procedure 84750 as detailed in HNP Procedure RPM 5.1-24, "*Split Sample Assessment for Final Status Survey*".

Cs-137 was not detected in sufficient quantities in the field split results at location 9539-0002-001 to evaluate in accordance with procedure. Evaluation using the reported results for naturally occurring Ra-226 resulted in acceptable agreement between the field-split results at these locations.

The sample analysis vendor, General Engineering Laboratories, LLC, maintains quality control and quality assurance plans as part of normal operation. Refer to Attachment 4 for data and data quality analysis results.

8. INVESTIGATIONS AND RESULTS

Five (5) investigative samples were collected from scan area 1 and scan area 3 at locations exhibiting elevated scan readings. The samples are denoted as shown in Table 6, with the sample results shown in Table 9 below.

Table 9 - Investigative Sample Results

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Unity Fraction ⁽¹⁾⁽²⁾
9539-0002-016I	-7.76E-03	-1.62E-04	-
9539-0002-017I	-7.02E-03	-2.48E-03	-
9539-0002-018I	3.68E-02	-6.32E-03	0.007
9539-0002-019I	1.87E-02	-2.63E-03	-
9539-0002-020I	1.85E-02	5.68E-04	0.003

(1) The Operational DCGL from Table 2 is 5.38 pCi/g for Cs-137 and 2.59 pCi/g for Co-60 to achieve seventeen (17) mrem/yr TEDE respectively.

(2) - indicates that the radionuclide was not positively detected in the sample

9. REMEDIATION AND RESULTS

Historically, no radiological remedial action as described by MARSSIM Section 5.4 was performed in this survey unit prior to or as a result of the FSS. Health Physics TSD BCY-HP-0078, "*ALARA Evaluation of Soil Remediation in Support of Final Status Survey*," determined that remediation beyond that required to meet the release criteria is unnecessary and that the remaining residual radioactivity in soil was ALARA.

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10. CHANGES FROM THE FINAL STATUS SURVEY PLAN

No changes were made to the FSS plan for this survey unit.

11. DATA QUALITY ASSESSMENT (DQA)

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, "*Data Quality Assessment*," for completeness and consistency. The sampling design had adequate power as indicated by the Retrospective Power Curve. The Sign Test was performed on the data and compared to the original assumptions of the DQOs. The evaluation of the Sign Test results demonstrates that the survey unit passes the unrestricted release criteria, thus, the null hypothesis is rejected.

Documentation was complete and legible. Surveys and sample collection were consistent with the DQOs and were sufficient to ensure that the survey unit was properly designated as Class 2.

The preliminary data review consisted of calculating basic statistical quantities (e.g., mean, median, standard deviation). The mean and median values are well below the Operational DCGL. Also, the retrospective power curve shows that a sufficient number of samples were collected to achieve the desired power. Therefore, the survey unit meets the unrestricted release criteria with adequate power as required by the DQOs. The basic statistical quantities for the statistical sample population are provided below in Table 10.

Table 10 – Basic Statistical Quantities for Cs-137 and Co-60 from the Final Status Survey

	Cs-137 pCi/g	Co-60 pCi/g
DCGL _{op} :	5.38E+00	2.59E+00
Minimum Value:	-1.79E-02	-1.30E-02
Maximum Value:	2.37E-01	1.49E-02
Mean:	4.60E-02	1.93E-03
Median:	1.75E-02	-8.10E-04
Standard Deviation:	8.05E-02	8.52E-03

For Cs-137, the range of the data, about three (3) standard deviations, was not a particularly large variation considering that the levels were essentially at existing environmental levels where such variation is to be expected. The difference between the mean and median was about 35% of the standard deviation which indicates some skewness in the data. The data was represented graphically through posting plots, a frequency plot, and a quantile plot. The frequency plot indicates positive skewness as confirmed by the calculated skew of 1.78 for Cs-137.

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Co-60, although included in the FSS plan for compliance purposes, was positively identified in only one (1) of the fifteen (15) samples collected for non-parametric statistical testing. Assessment of the basic statistical quantities and graphical representation of Co-60 was not considered useful given the limited number of data points to represent the distribution.

All data, assessments, and graphical representations are provided in Attachment 4.

12. ANOMALIES

No anomalies were noted.

13. CONCLUSION

Survey Unit 9539-0002 has met the final DQOs of the FSS plan. The ALARA criteria for soils as specified in Chapter 4 of the LTP were achieved. Elevated Measurement Comparison and remediation was not required.

All identified radionuclides of concern were used for statistical testing to determine the adequacy of the survey unit for FSS.

The sample data passed the Sign Test. The null hypothesis was rejected. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved. The survey unit is properly designated as Class 2.

The dose contribution from soil is 0.158 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

This survey area is affected by existing groundwater (reference CY memo ISC 06-024); therefore the dose contribution from existing groundwater is bounded at two (2) mrem/yr TEDE.

This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no underground structures, systems or components containing residual radioactive material within the groundwater saturated zone in the area (reference CY memo ISC 06-024); therefore, the dose contribution from future groundwater is zero (0) mrem/yr TEDE.

The average total dose from residual radioactivity in this survey unit, including exposures from the three (3) components as described in Section 3, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity, will not exceed 2.158 mrem/yr TEDE. Therefore, Survey Unit 9539-0002 is acceptable for unrestricted release.

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14. ATTACHMENTS

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Scan Results

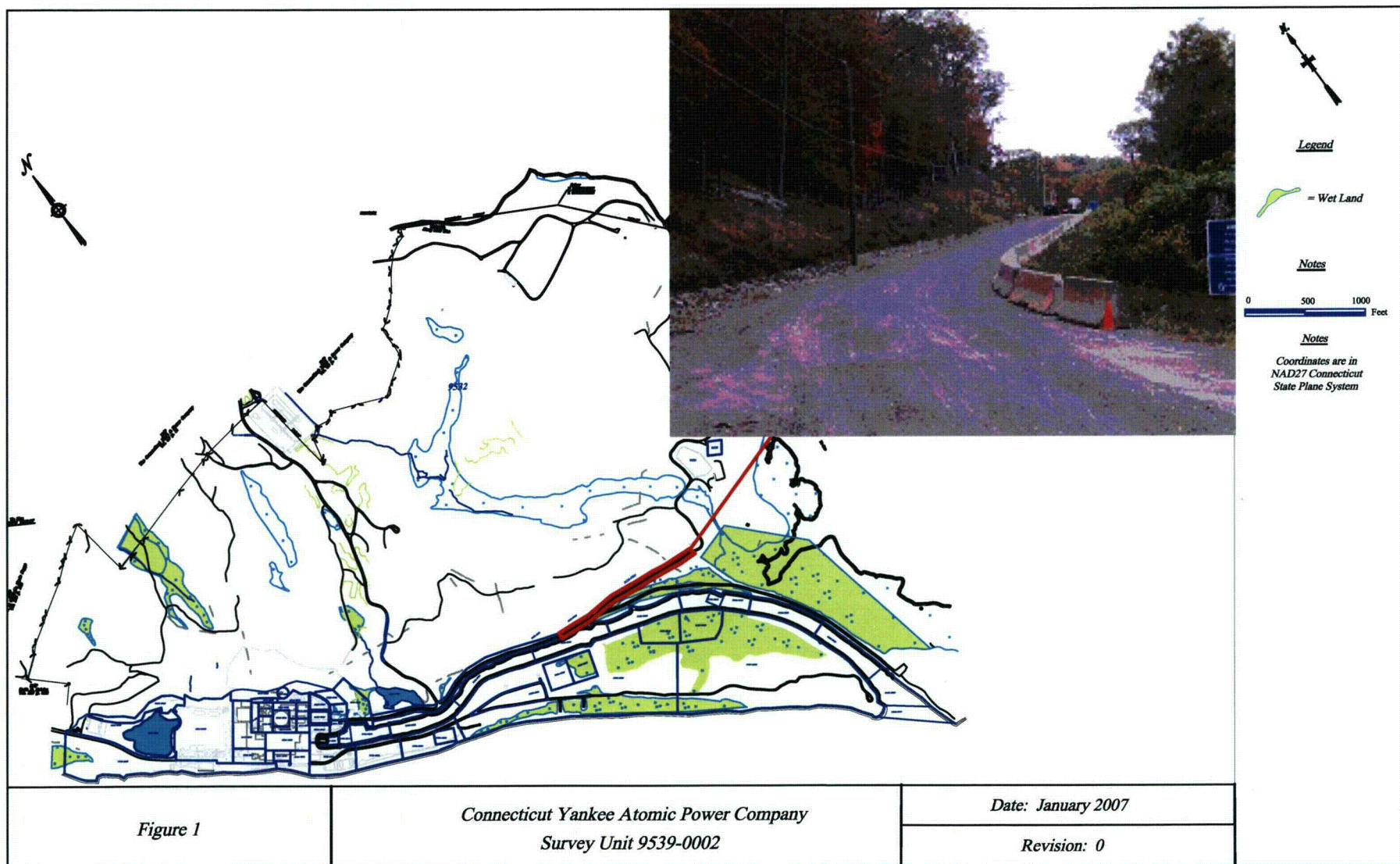
14.3 Attachment 3 – Laboratory Results

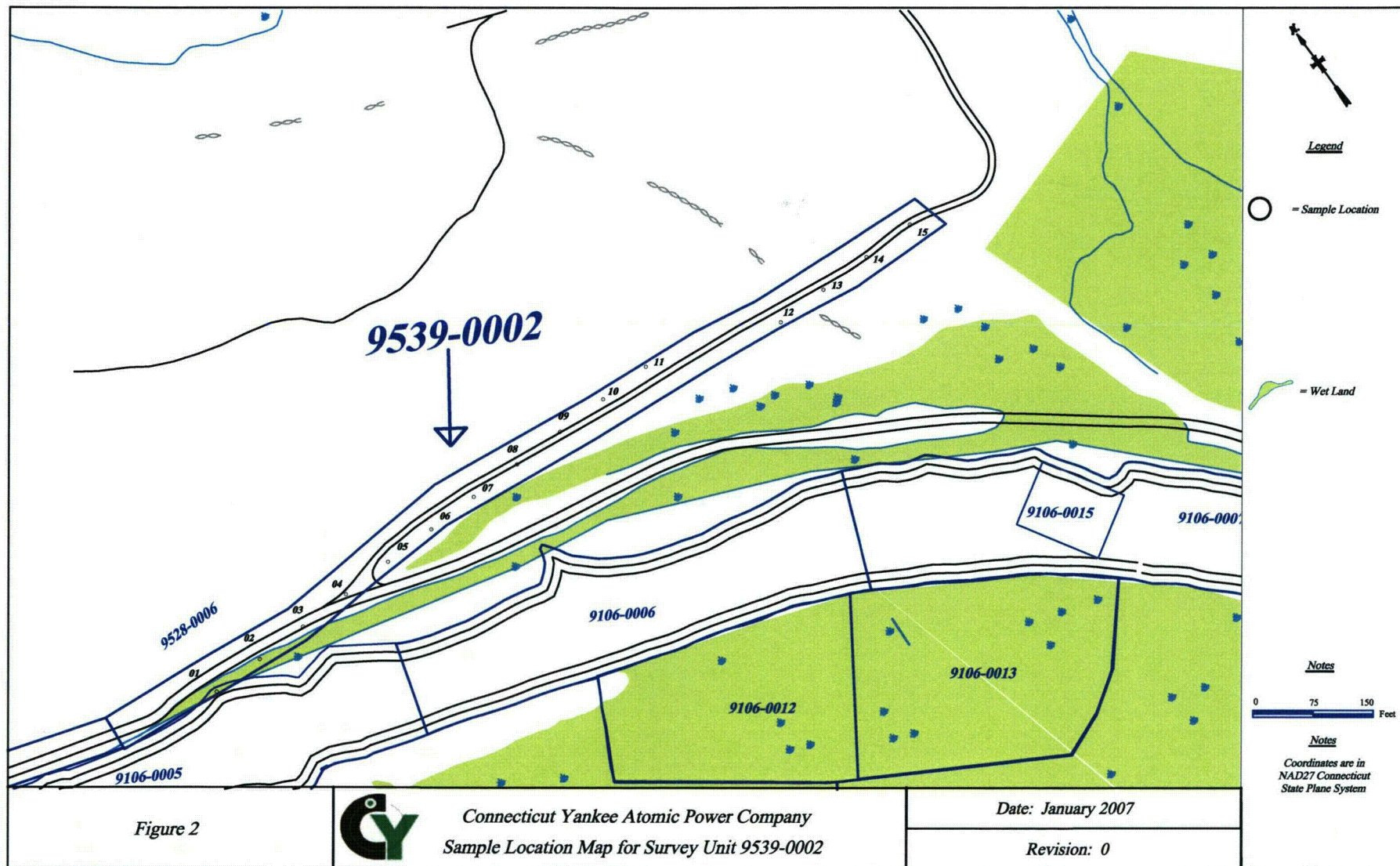
14.4 Attachment 4 – DQA Results

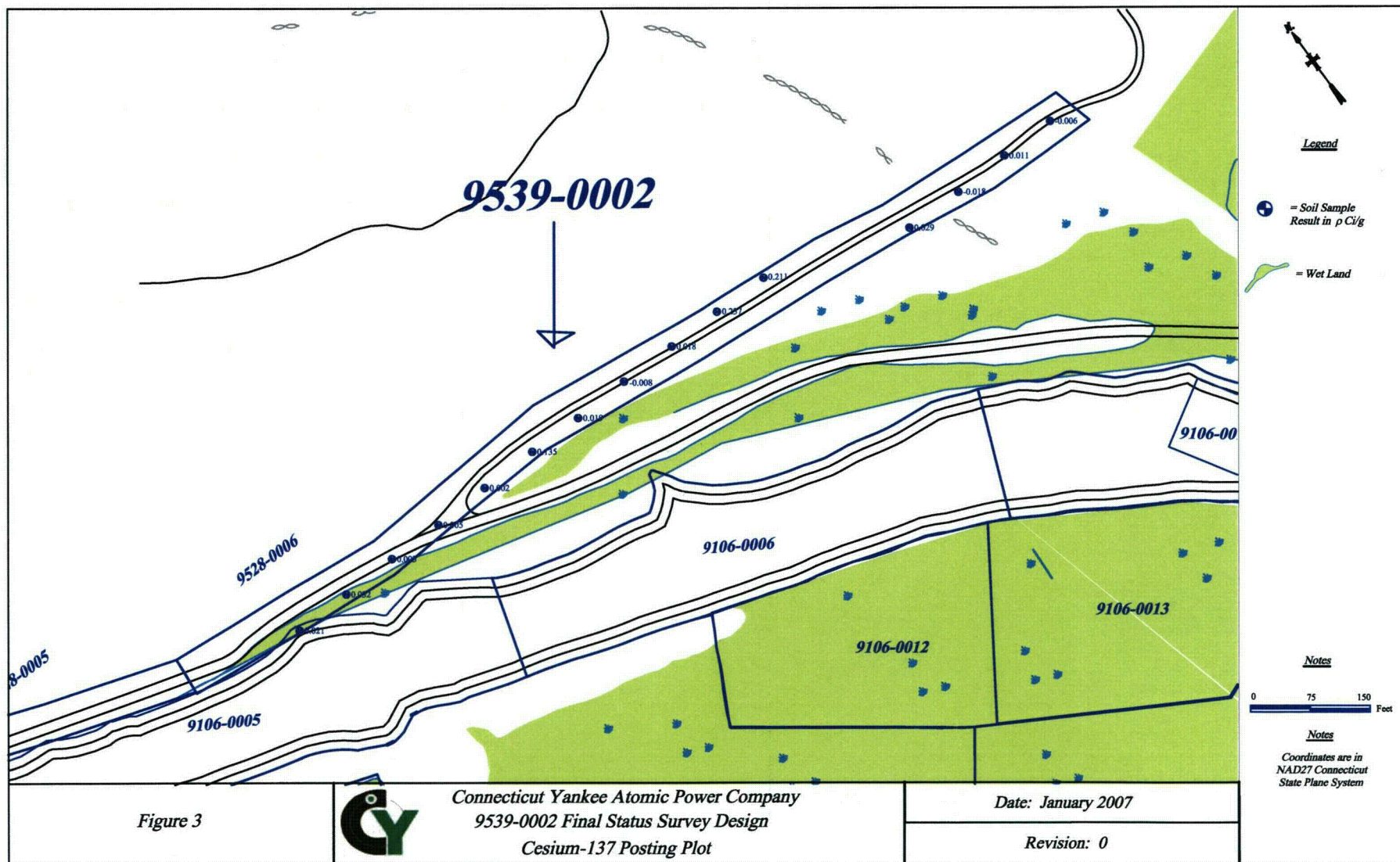
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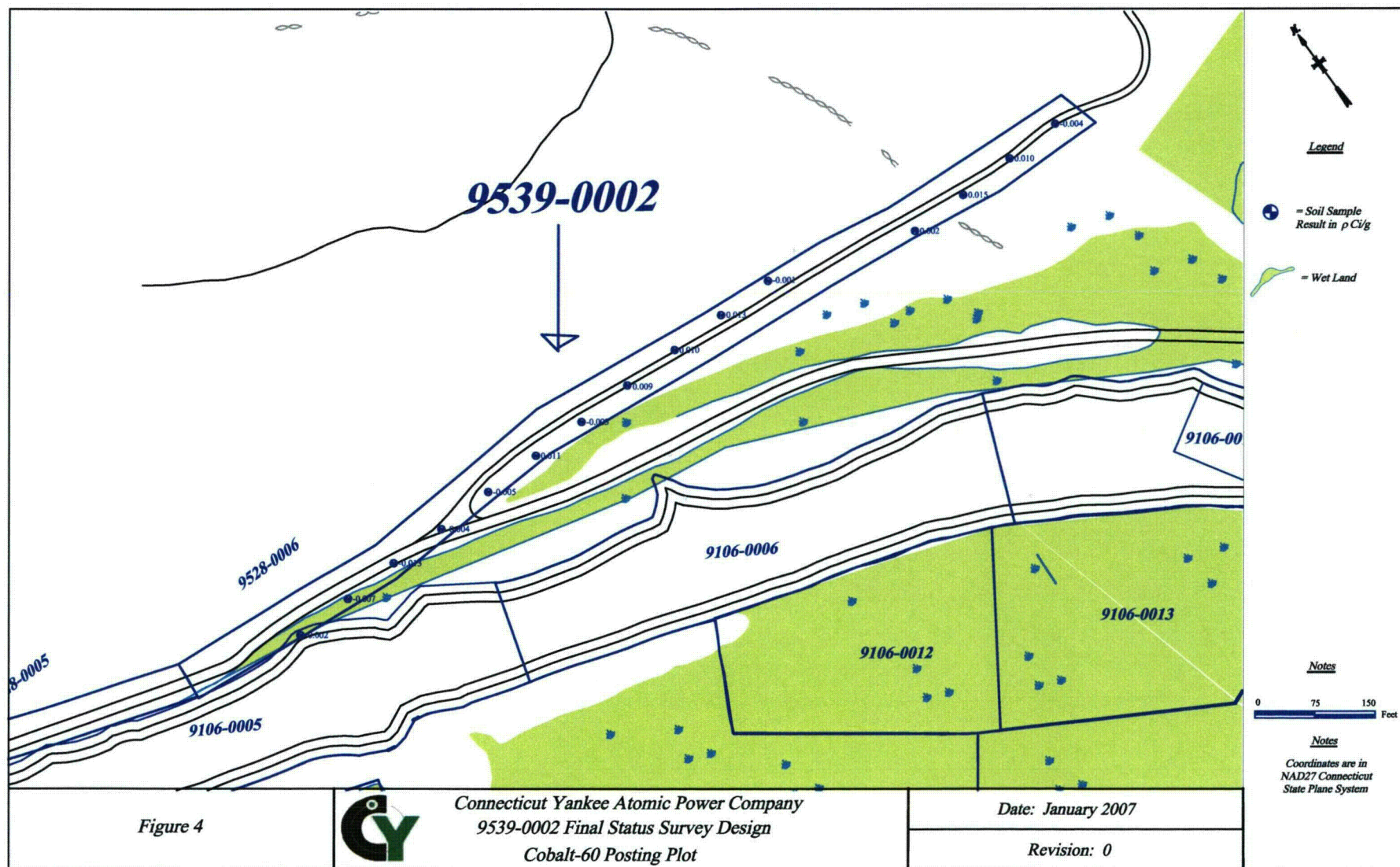
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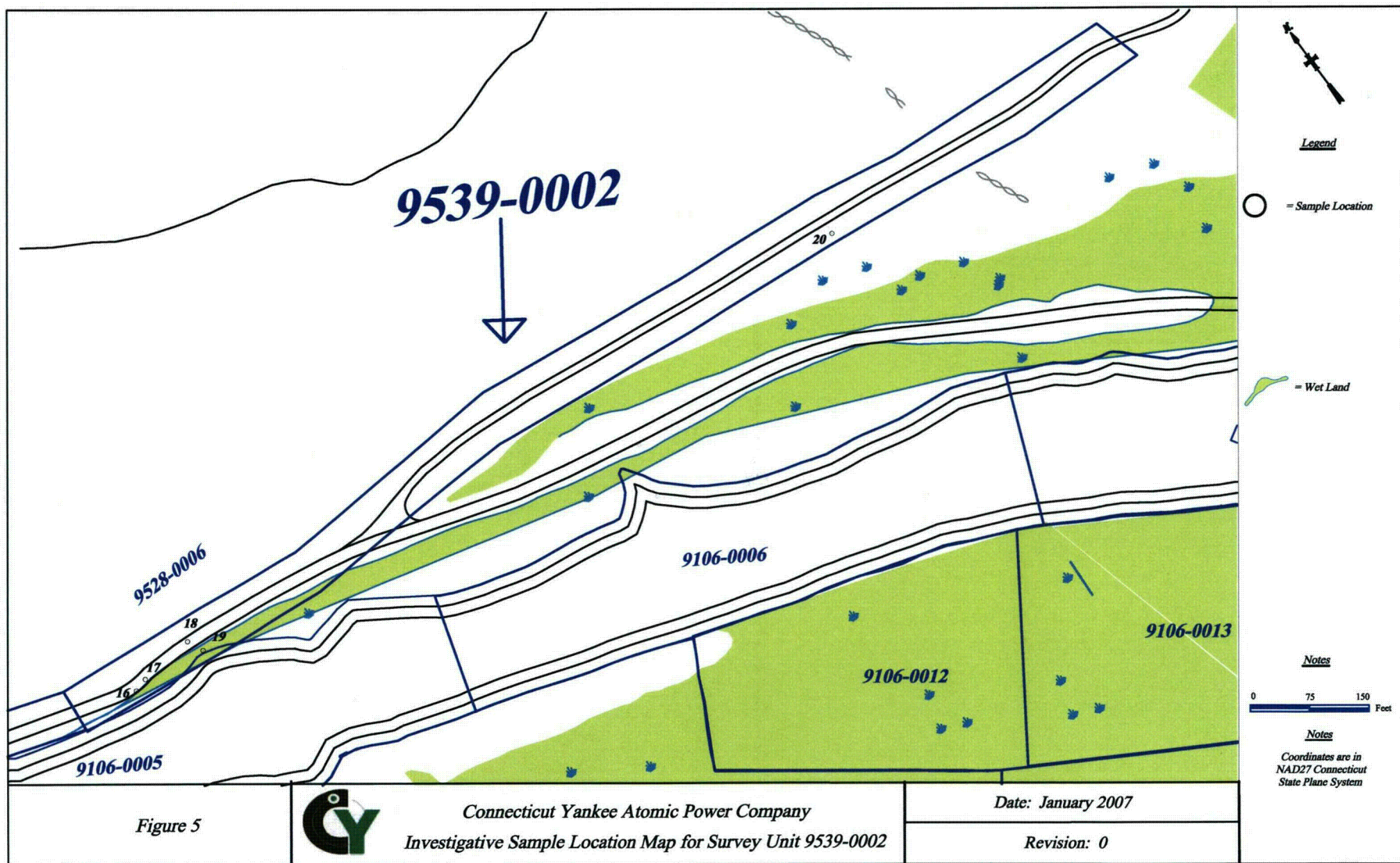
ATTACHMENT 1 (FIGURES)

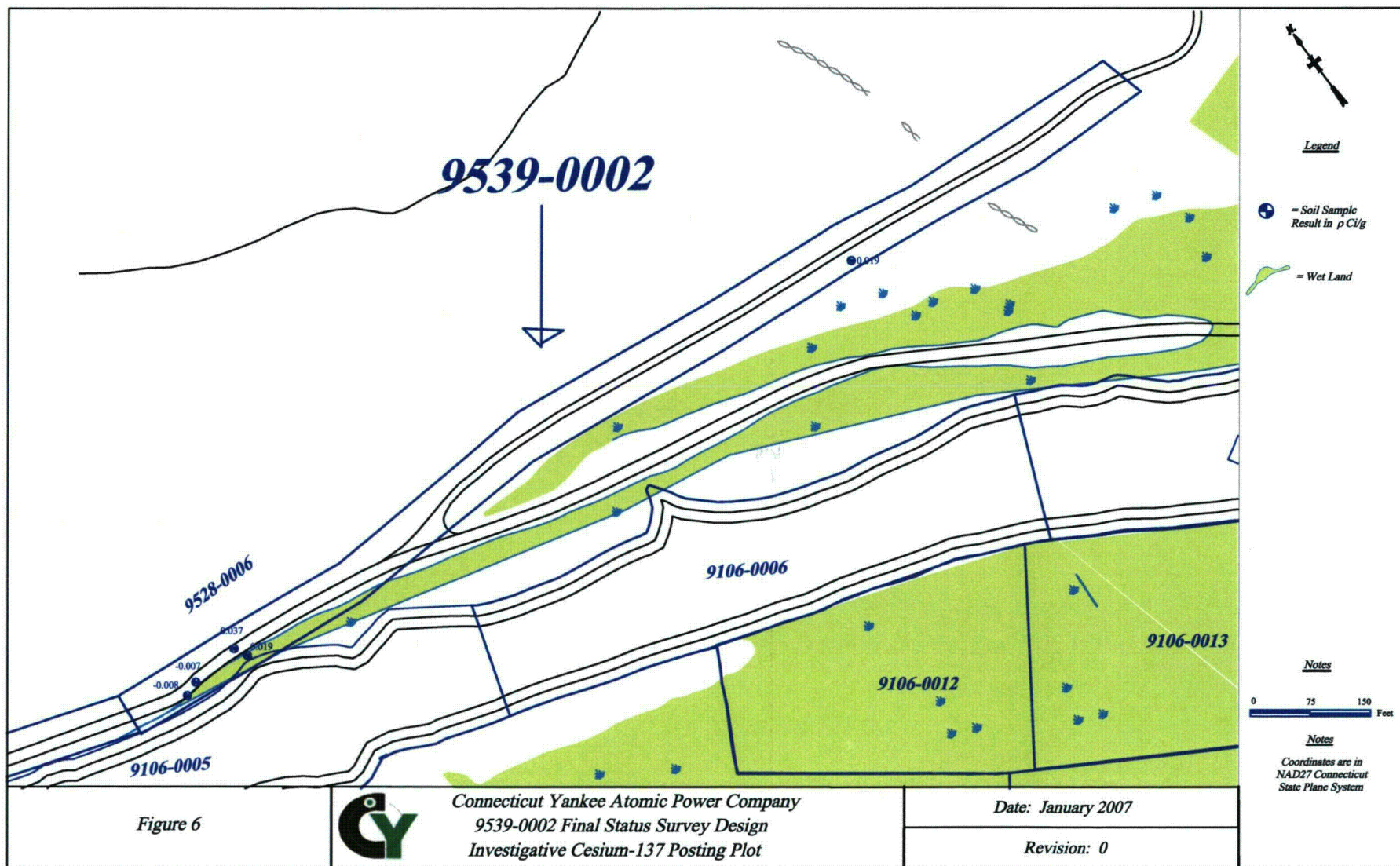


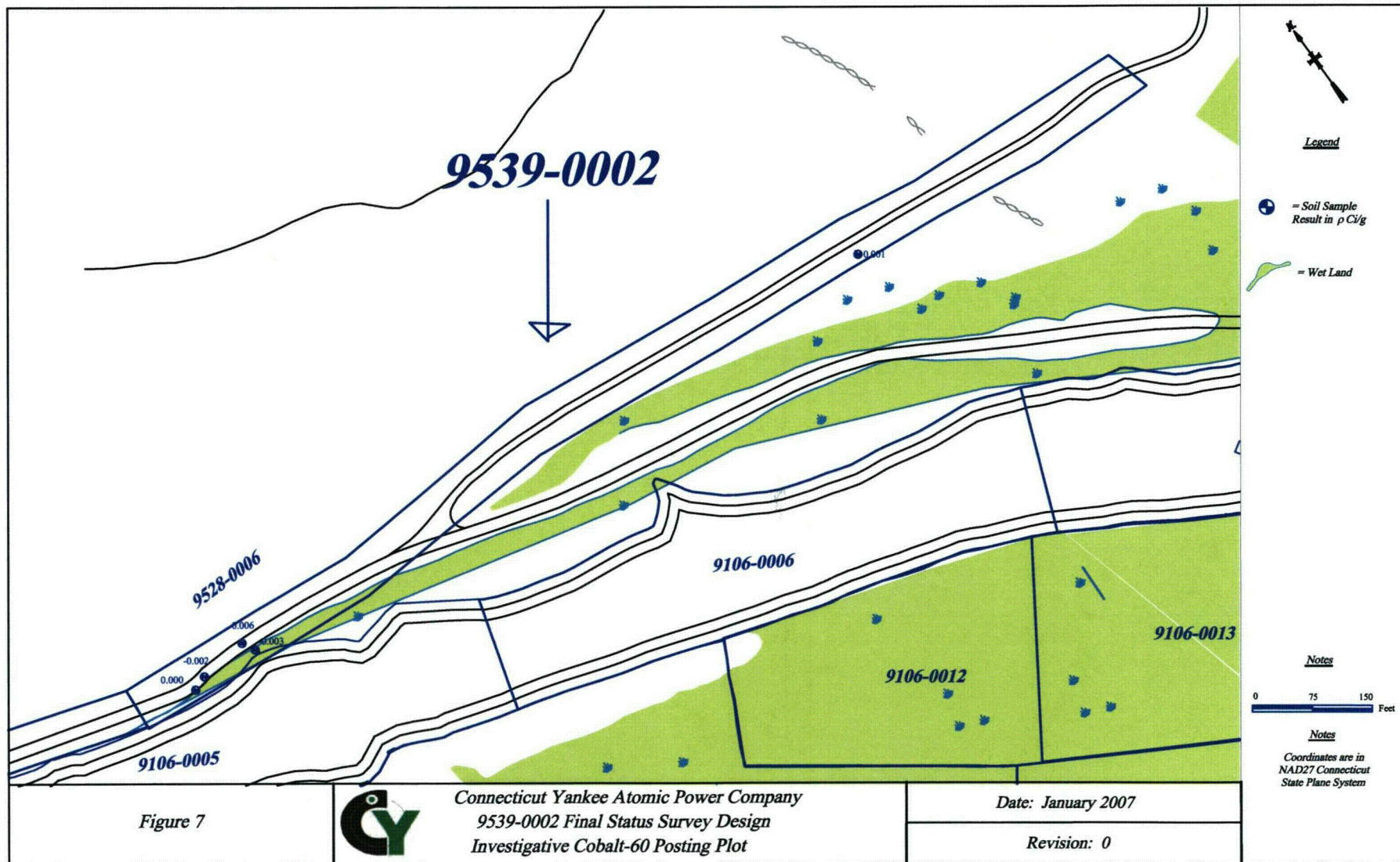












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ATTACHMENT 2 (SCAN RESULTS)

Survey Unit 9539-0002
Sample Location Scan Results

Sample Location Number	Type Reading	Log Number	Log Date	Log Time	Probe S/N	Log Mode	Channel Type	Reading (cpm)	E-600 S/N	Stored Bkg
9539-0002-001	BL	32	1/3/2007	11:01:00	1004	Ratemeter	Gamma	6.65E+03	1111	18067
	SL	33	1/3/2007	11:02:00	1004	Ratemeter	Gamma	6.66E+03	1111	18067
9539-0002-002	BL	34	1/3/2007	11:12:00	1004	Ratemeter	Gamma	6.84E+03	1111	18067
	SL	35	1/3/2007	11:13:00	1004	Ratemeter	Gamma	7.71E+03	1111	18067
9539-0002-003	BL	36	1/3/2007	13:09:00	1004	Ratemeter	Gamma	8.88E+03	1111	18067
	SL	37	1/3/2007	13:10:00	1004	Ratemeter	Gamma	8.15E+03	1111	18067
9539-0002-004	BL	38	1/3/2007	13:16:00	1004	Ratemeter	Gamma	7.54E+03	1111	18067
	SL	39	1/3/2007	13:17:00	1004	Ratemeter	Gamma	7.85E+03	1111	18067
9539-0002-005	BL	40	1/3/2007	13:23:00	1004	Ratemeter	Gamma	6.77E+03	1111	18067
	SL	41	1/3/2007	13:24:00	1004	Ratemeter	Gamma	8.43E+03	1111	18067
9539-0002-006	BL	42	1/3/2007	13:28:00	1004	Ratemeter	Gamma	8.13E+03	1111	18067
	SL	43	1/3/2007	13:30:00	1004	Ratemeter	Gamma	9.16E+03	1111	18067
9539-0002-007	BL	44	1/3/2007	13:38:00	1004	Ratemeter	Gamma	7.14E+03	1111	18067
	SL	45	1/3/2007	13:39:00	1004	Ratemeter	Gamma	7.15E+03	1111	18067
9539-0002-008	BL	46	1/3/2007	13:44:00	1004	Ratemeter	Gamma	6.70E+03	1111	18067
	SL	47	1/3/2007	13:44:00	1004	Ratemeter	Gamma	6.98E+03	1111	18067
9539-0002-009	BL	48	1/3/2007	13:49:00	1004	Ratemeter	Gamma	6.49E+03	1111	18067
	SL	49	1/3/2007	13:49:00	1004	Ratemeter	Gamma	7.42E+03	1111	18067
9539-0002-010	BL	50	1/3/2007	13:53:00	1004	Ratemeter	Gamma	8.02E+03	1111	18067
	SL	51	1/3/2007	13:54:00	1004	Ratemeter	Gamma	9.10E+03	1111	18067
9539-0002-011	BL	52	1/3/2007	13:58:00	1004	Ratemeter	Gamma	8.52E+03	1111	18067
	SL	53	1/3/2007	13:59:00	1004	Ratemeter	Gamma	9.40E+03	1111	18067
9539-0002-012	BL	54	1/3/2007	14:03:00	1004	Ratemeter	Gamma	8.82E+03	1111	18067
	SL	55	1/3/2007	14:04:00	1004	Ratemeter	Gamma	1.03E+04	1111	18067
9539-0002-013	BL	56	1/3/2007	14:11:00	1004	Ratemeter	Gamma	6.11E+03	1111	18067
	SL	57	1/3/2007	14:13:00	1004	Ratemeter	Gamma	6.45E+03	1111	18067
9539-0002-014	BL	58	1/3/2007	14:17:00	1004	Ratemeter	Gamma	5.18E+03	1111	18067
	SL	59	1/3/2007	14:18:00	1004	Ratemeter	Gamma	6.28E+03	1111	18067
9539-0002-015	BL	60	1/3/2007	14:19:00	1004	Ratemeter	Gamma	5.13E+03	1111	18067
	SL	61	1/3/2007	14:19:00	1004	Ratemeter	Gamma	5.30E+03	1111	18067

Survey Unit 9539-0002
Scan Area #01
Strip Scan Results

Scan Area	Strip Number	Type Reading	Log Number	Log Date	Log Time	Reading (cpm)	Action Level	>Action Level	E-600 S/N	Probe S/N
1	1	BC	1	1/4/2007	9:53:00	7.91E+03			1117	1008
		SC	4	1/4/2007	10:02:00	6.44E+03	9.18E+03	-	1117	1008
1	1	ER	2	1/4/2007	9:55:00	9.88E+03	9.18E+03	Yes	1117	1008
1	1	ER	3	1/4/2007	9:59:00	1.04E+04	9.18E+03	Yes	1117	1008
1	2	BC	5	1/4/2007	10:03:00	7.24E+03			1117	1008
		SC	8	1/4/2007	10:09:00	8.28E+03	8.46E+03	-	1117	1008
1	2	ER	6	1/4/2007	10:06:00	9.55E+03	8.46E+03	Yes	1117	1008
1	2	ER	7	1/4/2007	10:07:00	1.05E+04	8.46E+03	Yes	1117	1008
1	3	BC	9	1/4/2007	10:11:00	8.67E+03			1117	1008
		SC	11	1/4/2007	10:15:00	7.96E+03	1.00E+04	-	1117	1008
1	3	ER	10	1/4/2007	10:13:00	1.11E+04	1.00E+04	Yes	1117	1008
1	4	BC	12	1/4/2007	10:16:00	7.35E+03			1117	1008
		SC	15	1/4/2007	10:23:00	7.41E+03	8.57E+03	-	1117	1008
1	4	ER	13	1/4/2007	10:18:00	1.18E+04	8.57E+03	Yes	1117	1008
1	4	ER	14	1/4/2007	10:21:00	1.04E+04	8.57E+03	Yes	1117	1008
1	5	BC	16	1/4/2007	10:24:00	8.25E+03			1117	1008
		SC	18	1/4/2007	10:33:00	7.36E+03	9.55E+03	-	1117	1008
1	5	ER	17	1/4/2007	10:28:00	1.28E+04	9.55E+03	Yes	1117	1008
1	6	BC	19	1/4/2007	10:34:00	8.91E+03			1117	1008
		SC	21	1/4/2007	10:45:00	8.46E+03	1.03E+04	-	1117	1008
1	6	ER	20	1/4/2007	10:44:00	1.30E+04	1.03E+04	Yes	1117	1008
1	7	BC	22	1/4/2007	10:46:00	9.75E+03			1117	1008
		SC	24	1/4/2007	11:05:00	8.57E+03	1.12E+04	-	1117	1008
1	7	ER	23	1/4/2007	11:01:00	1.20E+04	1.12E+04	Yes	1117	1008
1	8	BC	25	1/4/2007	11:05:00	8.45E+03			1117	1008
		SC	27	1/4/2007	11:17:00	8.11E+03	9.76E+03	-	1117	1008
1	8	ER	26	1/4/2007	11:15:00	1.07E+04	9.76E+03	Yes	1117	1008
1	9	BC	28	1/4/2007	11:21:00	8.98E+03			1117	1008
		SC	29	1/4/2007	11:27:00	8.55E+03	1.03E+04	-	1117	1008
1	10	BC	30	1/4/2007	11:28:00	1.02E+04			1117	1008
		SC	31	1/4/2007	11:33:00	1.11E+04	1.16E+04	-	1117	1008
1	11	BC	32	1/4/2007	13:46:00	1.01E+04			1117	1008
		SC	33	1/4/2007	13:53:00	1.12E+04	1.15E+04	-	1117	1008
		BC	34	1/4/2007	13:54:00	1.11E+04			1117	1008

Survey Unit 9539-0002
Scan Area #01
Strip Scan Results

Scan Area	Strip Number	Type Reading	Log Number	Log Date	Log Time	Reading (cpm)	Action Level	>Action Level	E-600 S/N	Probe S/N
1	12	SC	35	1/4/2007	14:01:00	1.06E+04	1.26E+04	-	1117	1008
1	13	BC	36	1/4/2007	14:04:00	1.03E+04			1117	1008
		SC	37	1/4/2007	14:11:00	1.11E+04	1.17E+04	-	1117	1008
1	14	BC	38	1/4/2007	14:13:00	9.42E+03			1117	1008
		SC	39	1/4/2007	14:19:00	9.91E+03	1.08E+04	-	1117	1008
1	15	BC	40	1/4/2007	14:26:00	1.01E+04			1117	1008
		SC	41	1/4/2007	14:28:00	1.03E+04	1.15E+04	-	1117	1008

Survey Unit 9539-0002
Scan Area #2
Strip Scan Results

Scan Area	Strip Number	Type Reading	Log Number	Log Date	Log Time	Reading (cpm)	Action Level	>Action Level	E-600 S/N	Probe S/N
2	1	BC	1	1/3/2007	9:57:00	9.03E+03			1105	1009
		SC	3	1/3/2007	10:02:00	8.27E+03	1.04E+04	-	1105	1009
2	2	BC	24	1/3/2007	11:08:00	8.42E+03			1105	1009
		SC	25	1/3/2007	11:13:00	9.07E+03	9.73E+03	-	1105	1009
2	3	BC	26	1/3/2007	11:13:00	8.15E+03			1105	1009
		SC	27	1/3/2007	11:18:00	8.08E+03	9.44E+03	-	1105	1009
2	4	BC	28	1/3/2007	11:19:00	8.15E+03			1105	1009
		SC	29	1/3/2007	11:24:00	8.52E+03	9.44E+03	-	1105	1009
2	5	BC	30	1/3/2007	11:25:00	7.31E+03			1105	1009
		SC	31	1/3/2007	11:29:00	8.20E+03	8.53E+03	-	1105	1009
2	6	BC	32	1/3/2007	13:05:00	8.02E+03			1105	1009
		SC	33	1/3/2007	13:10:00	8.58E+03	9.30E+03	-	1105	1009
2	7	BC	34	1/3/2007	13:11:00	7.96E+03			1105	1009
		SC	35	1/3/2007	13:15:00	8.19E+03	9.23E+03	-	1105	1009
2	8	BC	36	1/3/2007	13:16:00	9.00E+03			1105	1009
		SC	37	1/3/2007	13:22:00	7.68E+03	1.04E+04	-	1105	1009
2	9	BC	38	1/3/2007	13:23:00	8.09E+03			1105	1009
		SC	39	1/3/2007	13:29:00	7.58E+03	9.37E+03	-	1105	1009
2	10	BC	40	1/3/2007	13:29:00	8.21E+03			1105	1009
		SC	41	1/3/2007	13:36:00	7.93E+03	9.50E+03	-	1105	1009
2	11	BC	42	1/3/2007	13:37:00	8.33E+03			1105	1009
		SC	43	1/3/2007	13:42:00	8.31E+03	9.63E+03	-	1105	1009
2	12	BC	44	1/3/2007	13:44:00	8.06E+03			1105	1009
		SC	45	1/3/2007	13:51:00	8.75E+03	9.34E+03	-	1105	1009

1

Survey Unit 9539-0002
Scan Area #3
Strip Scan Results

Scan Area	Strip Number	Type Reading	Log Number	Log Date	Log Time	Reading (cpm)	Action Level	>Action Level	E-600 S/N	Probe S/N
3	1	BC	1	1/3/2007	9:57:00	9.03E+03			1105	1009
		SC	3	1/3/2007	10:02:00	8.27E+03	1.04E+04	-	1105	1009
3	1	ER	2	1/3/2007	10:00:00	1.18E+04			1105	1009
3	2	BC	4	1/3/2007	10:03:00	7.95E+03			1105	1009
		SC	5	1/3/2007	10:05:00	9.05E+03	9.22E+03	-	1105	1009
3	3	BC	6	1/3/2007	10:06:00	8.91E+03			1105	1009
		SC	7	1/3/2007	10:09:00	8.58E+03	1.03E+04	-	1105	1009
3	4	BC	8	1/3/2007	10:09:00	9.02E+03			1105	1009
		SC	9	1/3/2007	10:12:00	9.32E+03	1.04E+04	-	1105	1009
3	5	BC	10	1/3/2007	10:13:00	8.38E+03			1105	1009
		SC	11	1/3/2007	10:15:00	8.94E+03	9.69E+03	-	1105	1009
3	6	BC	12	1/3/2007	10:16:00	9.36E+03			1105	1009
		SC	13	1/3/2007	10:19:00	8.22E+03	1.07E+04	-	1105	1009
3	7	BC	14	1/3/2007	10:20:00	8.91E+03			1105	1009
		SC	15	1/3/2007	10:23:00	8.26E+03	1.03E+04	-	1105	1009
3	8	BC	16	1/3/2007	10:24:00	9.07E+03			1105	1009
		SC	17	1/3/2007	10:27:00	8.31E+03	1.04E+04	-	1105	1009
3	9	BC	18	1/3/2007	10:28:00	7.93E+03			1105	1009
		SC	19	1/3/2007	10:32:00	8.29E+03	9.20E+03	-	1105	1009
3	10	BC	20	1/3/2007	10:32:00	8.23E+03			1105	1009
		SC	21	1/3/2007	10:35:00	7.98E+03	9.53E+03	-	1105	1009
3	11	BC	22	1/3/2007	10:36:00	8.53E+03			1105	1009
		SC	23	1/3/2007	10:38:00	7.41E+03	9.85E+03	-	1105	1009

ISFSI HAUL ROAD (SOUTHERN SECTION)

SURVEY UNIT 9539-0002

RELEASE RECORD

ATTACHMENT 3 (LABORATORY DATA)

General Narrative

**General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 178923
SDG: MSR#07-0036**

January 15, 2007

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on January 11, 2007 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

Sample Identification The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
178923001	9539-0002-001-F
178923002	9539-0002-001-FS
178923003	9539-0002-002-F
178923004	9539-0002-003-F
178923005	9539-0002-004-F
178923006	9539-0002-005-F
178923007	9539-0002-006-F
178923008	9539-0002-007-F
178923009	9539-0002-008-F
178923010	9539-0002-009-F
178923011	9539-0002-010-F
178923012	9539-0002-011-F
178923013	9539-0002-012-F
178923014	9539-0002-013-F
178923015	9539-0002-014-F
178923016	9539-0002-015-F
178923017	9539-0002-016-I
178923018	9539-0002-017-I
178923019	9539-0002-018-I
178923020	9539-0002-019-I
178923021	9539-0002-020-I

Items of Note

There are no items to note.

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

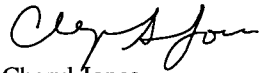
Analytical Request

Nineteen soil samples were analyzed for FSSGAM. Two soil samples were analyzed for FSSALL.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, Data Review Qualifier Definitions, and data from the following fractions: Radiochemistry.

I certify that this data package is in compliance with the SOW, 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 Laboratory Manager or a designee, as verified by the following signature.



Cheryl Jones
Project Manager

List of current GEL Certifications as of 15 January 2007

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

Chain of Custody and Supporting Documentation

Chain of Custody Form

No. 2007-00003

362 Injun Hollow Road, East Hampton, CT 06424
860-267-2556

Project Name: Haddam Neck Decommissioning						Analyses Requested						Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-3924						FSSGAM	FSSALL							Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones															
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. <input type="checkbox"/> 3 D.															
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code							Comment, Preservation	Lab Sample ID		
9539-0002-001-F	01/03/07	1102	TS	G	BP	X									
9539-0002-001-FS	01/03/07	1102	TS	G	BP	X									
9539-0002-002-F	01/03/07	1114	TS	G	BP	X									
9539-0002-003-F	01/03/07	1310	TS	G	BP	X									
9539-0002-004-F	01/03/07	1317	TS	G	BP	X									
9539-0002-005-F	01/03/07	1324	TS	G	BP	X									
9539-0002-006-F	01/03/07	1330	TS	G	BP	X									
9539-0002-007-F	01/03/07	1340	TS	G	BP	X									
9539-0002-008-F	01/03/07	1345	TS	G	BP	X									
9539-0002-009-F	01/03/07	1350	TS	G	BP		X								
9539-0002-010-F	01/03/07	1355	TS	G	BP		X								
NOTES: PO #: 002332 MSR #: 06-138T ^{MS} 07-0036 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA												Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other		Internal Container Temp.: 15 Deg. C Custody Sealed? Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By _____ Date/Time _____			2) Received By <u>[Signature]</u> Date/Time <u>1/11/07 9:30</u>									Bill of Lading # _____			
3) Relinquished By _____ Date/Time _____			4) Received By _____ Date/Time _____												

Figure 1. Sample Check-in List

Date/Time Received: 1/11/07 9:30
SDG#: MSR # 06-0034, MSR # 06-0036, MSR # 07-0035
Work Order Number: 178922, 178923, 178924
Shipping Container ID: See cont form Chain of Custody #: See cont form
1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 15°
5. Vermiculite/packing materials is: Wet ☐ Dry ☒
6. Number of samples in shipping container: 44
7. Sample holding times exceeded? Yes ☐ No ☒

8. Samples have:

☒ tape ☐ hazard labels
☐ custody seals ☒ appropriate sample labels

9. Samples are:

☒ in good condition ☐ leaking
☐ broken ☐ have air bubbles

10. Were any anomalies identified in sample receipt? Yes ☐ No ☒
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Jean Pellet Date: 1/11/07

Telephoned to: _____ On _____ By _____



SAMPLE RECEIPT & REVIEW FORM

PM use only

Client:	SDG/ARCOC/Work Order: 178922, 178923, 178924
Date Received:	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By:	<i>Amada Thomas</i>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method:				Circle Coolant # ice bags blue ice dry ice none other (describe)
3 Chain of custody documents included with shipment?				
4 Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?				Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)				
8 Samples received within holding time?				ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?				Sample ID's affected:
11 Number of containers received match number indicated on COC?				Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?				
14 Air Bill, Tracking #'s, & Additional Comments				
Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	X			Maximum Counts Observed*: 20 cpm
B PCB Regulated?	X			
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	X			Hazard Class Shipped: UN#:
D Regulated as a Foreign Soil?	X			
PM (or PMA) review of Hazard classification:				Initials <i>AT</i> Date: 1/11/07

SAMPLE RECEIPT & REVIEW FORM CONTINUATION FORM

Client: YANK

Date Received: 1/11/07

Client:	Tracking #	Date Received:	COC #
	7901 5528 4233		2007-00003
	42441		2007-00004
	7929 1323 4535		2006-00007
	4513		2007-00012
			2007-00001
			2007-00011
			2007-00005
			2007-00002

Data Review Qualifier Definitions

Table 1

Data Review Qualifier Definitions

Qualifier Explanation

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- B Metals-Either presence of analyte detected in the associated blank, or
MDL/IDL < sample value < PQL
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- d 5-day BOD-The 2:1 depletion requirement was not met for this sample
- E Organics-Concentration of the target analyte exceeds the instrument calibration range
- E Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- H Analytical holding time was exceeded
- h Preparation or preservation holding time was exceeded
- J Value is estimated
- N Metals-The Matrix spike sample recovery is not within specified control limits
- N Organics-Presumptive evidence based on mass spectral library search to make a tentative
identification of the analyte (TIC). Quantitation is based on nearest internal standard
response factor
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration
by 4X or more
- ND Analyte concentration is not detected above the reporting limit
- UI Gamma Spectroscopy-Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- Z Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
Work Order 178923**

Method/Analysis Information

Product:	Alphaspec Am241, Cm, Solid ALL FSS
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	601896
Prep Batch Number:	601632
Dry Soil Prep GL-RAD-A-021 Batch Number:	601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260242	Method Blank (MB)
1201260243	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260244	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260245	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

NCR Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Alphaspec Pu, Solid-ALL FSS
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	601897
Prep Batch Number:	601632
Dry Soil Prep GL-RAD-A-021 Batch Number:	601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260246	Method Blank (MB)
1201260247	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260248	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260249	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 1201260247 (9539-0001-001-F) was recounted due to poor resolution.

Miscellaneous Information:

NCR Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Pu241, Solid-ALL FSS
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	601898
Prep Batch Number:	601632
Dry Soil Prep GL-RAD-A-021 Batch Number:	601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260250	Method Blank (MB)
1201260251	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260252	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260253	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-035 REV# 8.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples, 1201260250 (MB), 1201260251 (9539-0001-001-F), 1201260252 (9539-0001-001-F) and 178923010 (9539-0002-009-F), were recounted due to quench.

Miscellaneous Information:

NCR Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	602159
Prep Batch Number:	601634

Sample ID	Client ID
178923021	9539-0002-020-I
1201260866	Method Blank (MB)
1201260867	178923021(9539-0002-020-I) Sample Duplicate (DUP)
1201260868	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 13.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178923021 (9539-0002-020-I).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

NCR Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to low abundance.	Bismuth-214	1201260866
		Cesium-134	178923021
			1201260867
		Lead-212	1201260866
		Potassium-40	1201260866
		Radium-226	1201260866

Method/Analysis Information

Product: Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived

Analytical Method: EML HASL 300, 4.5.2.3

Prep Method: Dry Soil Prep

Analytical Batch Number: 602161

Prep Batch Number: 601631

Sample ID	Client ID
178923001	9539-0002-001-F
178923002	9539-0002-001-FS
178923003	9539-0002-002-F
178923004	9539-0002-003-F
178923005	9539-0002-004-F
178923006	9539-0002-005-F
178923007	9539-0002-006-F
178923008	9539-0002-007-F
178923009	9539-0002-008-F
178923010	9539-0002-009-F
178923011	9539-0002-010-F
178923012	9539-0002-011-F
178923013	9539-0002-012-F
178923014	9539-0002-013-F
178923015	9539-0002-014-F
178923016	9539-0002-015-F
178923017	9539-0002-016-I
178923018	9539-0002-017-I
178923019	9539-0002-018-I
178923020	9539-0002-019-I
1201260869	Method Blank (MB)
1201260870	178923001(9539-0002-001-F) Sample Duplicate (DUP)
1201260871	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 13.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178923001 (9539-0002-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 178923018 (9539-0002-017-I) was recounted due to bad background.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

The sample and the duplicate 1201260870 (9539-0002-001-F) and 178923001 (9539-0002-001-F) for Bi-214, Ra-226, and Pb-214 did not meet the relative percent difference requirement, however they do meet the relative error ratio requirement with values of 2.88108 for Bi-214 and RA-226 and 1.76254 for Pb-214, respectively

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high counting uncertainty.	Europium-155	178923002
UI	Data rejected due to high peak-width.	Bismuth-212	178923013
		Potassium-40	178923001
UI	Data rejected due to low abundance.	Cesium-134	178923005
			178923006
			178923007
			178923008
			178923011
			178923014
			178923018
			178923019
		Europium-154	1201260869
		Thallium-208	178923001

Method/Analysis Information

Product: GFPC, Sr90, solid-ALL FSS
Analytical Method: EPA 905.0 Modified
Prep Method: Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method: Dry Soil Prep
Analytical Batch Number: 601901
Prep Batch Number: 601632
Dry Soil Prep GL-RAD-A-021 Batch Number: 601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260261	Method Blank (MB)
1201260262	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260263	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260264	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 10.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Sample 178923011 result is greater than the mda and tpu. Client gave permission to send.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Liquid Scint Tc99, Solid-ALL FSS
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number: 601908

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260283	Method Blank (MB)
1201260284	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260285	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260286	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-005 REV# 13.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

NCR Documentation

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Fe55, Solid-ALL FSS
Analytical Method:	DOE RESL Fe-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	602972
Prep Batch Number:	601632
Dry Soil Prep GL-RAD-A-021 Batch Number:	601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201262579	Method Blank (MB)
1201262580	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201262581	178924001(9539-0001-001-F) Matrix Spike (MS)
1201262582	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-040 REV# 3.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples were recounted due to low/high recovery. Samples were reprepared due to low/high carrier/tracer yield. Samples were reprepared due to low/high recovery.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Ni63, Solid-ALL FSS
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	601907
Prep Batch Number:	601632
Dry Soil Prep GL-RAD-A-021 Batch Number:	601631

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260279	Method Blank (MB)
1201260280	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260281	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260282	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-022 REV# 8.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	LSC, Tritium Dist, Solid - 3 pCi/g
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	601909

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260287	Method Blank (MB)
1201260288	178923010(9539-0002-009-F) Sample Duplicate (DUP)
1201260289	178923010(9539-0002-009-F) Matrix Spike (MS)
1201260290	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 13.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178923010 (9539-0002-009-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 1201260290 (LCS) was recounted due to analyst transcription error.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Liquid Scint C14, Solid All,FSS

Analytical Method: EPA EERF C-01 Modified

Analytical Batch Number: 601910

Sample ID	Client ID
178923010	9539-0002-009-F
178923011	9539-0002-010-F
1201260291	Method Blank (MB)
1201260292	178924001(9539-0001-001-F) Sample Duplicate (DUP)
1201260293	178924001(9539-0001-001-F) Matrix Spike (MS)
1201260294	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-003 REV# 8.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 178924001 (9539-0001-001-F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 1201260293 (9539-0001-001-F) was recounted due to spectral interference.

Miscellaneous Information:**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Certification Statement

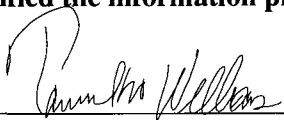
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer/Date: _____

 1/18/17

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report for

YANK001 Connecticut Yankee Atomic Power Co.

Client SDG: MSR#07-0036 GEL Work Order: 178923

The Qualifiers in this report are defined as follows:

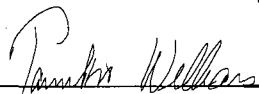
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.

Reviewed by



GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-001-F
Sample ID: 178923001
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 6.74%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.606	+/-0.150	0.052	+/-0.150	0.104	pCi/g					
Americium-241	U	-0.0295	+/-0.081	0.0672	+/-0.081	0.134	pCi/g					
Bismuth-212		0.291	+/-0.236	0.117	+/-0.236	0.233	pCi/g					
Bismuth-214		0.549	+/-0.0816	0.0286	+/-0.0816	0.0573	pCi/g					
Cesium-134	U	0.0207	+/-0.0394	0.0188	+/-0.0394	0.0376	pCi/g					
Cesium-137	U	0.0214	+/-0.0186	0.0174	+/-0.0186	0.0348	pCi/g					
Cobalt-60	U	-0.00242	+/-0.0195	0.0162	+/-0.0195	0.0324	pCi/g					
Europium-152	U	-0.0192	+/-0.0614	0.0411	+/-0.0614	0.0821	pCi/g					
Europium-154	U	-0.0208	+/-0.0611	0.0498	+/-0.0611	0.0996	pCi/g					
Europium-155	U	0.0271	+/-0.0583	0.0488	+/-0.0583	0.0975	pCi/g					
Lead-212		0.466	+/-0.063	0.0251	+/-0.063	0.0501	pCi/g					
Lead-214		0.541	+/-0.0832	0.0258	+/-0.0832	0.0516	pCi/g					
Manganese-54	U	-0.00575	+/-0.0193	0.0141	+/-0.0193	0.0282	pCi/g					
Niobium-94	U	0.00695	+/-0.0182	0.014	+/-0.0182	0.028	pCi/g					
Potassium-40	UI	0.00	+/-0.914	0.133	+/-0.914	0.266	pCi/g					
Radium-226		0.549	+/-0.0816	0.0286	+/-0.0816	0.0573	pCi/g					
Silver-108m	U	-0.00886	+/-0.0158	0.0135	+/-0.0158	0.0271	pCi/g					
Thallium-208	UI	0.00	+/-0.0353	0.0272	+/-0.0353	0.0544	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-001-F
Sample ID: 178923001

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
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** Analyte is a surrogate compound
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-001-FS
Sample ID: 178923002
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 6.07%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.549	+/-0.179	0.0652	+/-0.179	0.141	pCi/g						
Americium-241	U	0.133	+/-0.0803	0.0664	+/-0.0803	0.136	pCi/g						
Bismuth-212		0.670	+/-0.278	0.141	+/-0.278	0.301	pCi/g						
Bismuth-214		0.595	+/-0.106	0.0347	+/-0.106	0.0736	pCi/g						
Cesium-134	U	0.0214	+/-0.0356	0.0241	+/-0.0356	0.0511	pCi/g						
Cesium-137	U	0.0216	+/-0.0226	0.0182	+/-0.0226	0.039	pCi/g						
Cobalt-60	U	-0.016	+/-0.028	0.0183	+/-0.028	0.0405	pCi/g						
Europium-152	U	-0.0577	+/-0.0591	0.0486	+/-0.0591	0.102	pCi/g						
Europium-154	U	0.000702	+/-0.0648	0.0551	+/-0.0648	0.121	pCi/g						
Europium-155	UI	0.00	+/-0.125	0.0496	+/-0.125	0.102	pCi/g						
Lead-212		0.646	+/-0.0765	0.0321	+/-0.0765	0.0664	pCi/g						
Lead-214		0.654	+/-0.0987	0.0389	+/-0.0987	0.0813	pCi/g						
Manganese-54	U	-0.0118	+/-0.0227	0.018	+/-0.0227	0.0386	pCi/g						
Niobium-94	U	-0.00395	+/-0.0214	0.0177	+/-0.0214	0.0376	pCi/g						
Potassium-40		13.6	+/-1.23	0.177	+/-1.23	0.394	pCi/g						
Radium-226		0.595	+/-0.106	0.0347	+/-0.106	0.0736	pCi/g						
Silver-108m	U	-0.0164	+/-0.0188	0.0152	+/-0.0188	0.0322	pCi/g						
Thallium-208		0.224	+/-0.0405	0.0176	+/-0.0405	0.0374	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

Contact: East Hampton, Connecticut 06424
Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-001-FS
Sample ID: 178923002

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
-----------	-----------	--------	-------------	----	-----	-----	-------	----	---------	------	------	-------	---

- < Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-002-F
Sample ID: 178923003
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 8.59%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.780	+/-0.132	0.057	+/-0.132	0.123	pCi/g		MJH1	01/13/07	1048	602161
Americium-241	U	0.000146	+/-0.087	0.0733	+/-0.087	0.151	pCi/g					
Bismuth-212		0.508	+/-0.252	0.116	+/-0.252	0.250	pCi/g					
Bismuth-214		0.431	+/-0.0691	0.0293	+/-0.0691	0.0624	pCi/g					
Cesium-134	U	0.0418	+/-0.0401	0.0213	+/-0.0401	0.0451	pCi/g					
Cesium-137	U	0.0315	+/-0.0306	0.0157	+/-0.0306	0.0337	pCi/g					
Cobalt-60	U	-0.00703	+/-0.0182	0.0143	+/-0.0182	0.0319	pCi/g					
Europium-152	U	0.0238	+/-0.052	0.0465	+/-0.052	0.0972	pCi/g					
Europium-154	U	-0.00407	+/-0.0609	0.0504	+/-0.0609	0.110	pCi/g					
Europium-155	U	0.0776	+/-0.0556	0.0542	+/-0.0556	0.112	pCi/g					
Lead-212		0.597	+/-0.0501	0.0254	+/-0.0501	0.0527	pCi/g					
Lead-214		0.543	+/-0.0761	0.0314	+/-0.0761	0.0659	pCi/g					
Manganese-54	U	-0.0034	+/-0.0199	0.017	+/-0.0199	0.0363	pCi/g					
Niobium-94	U	0.0114	+/-0.018	0.0165	+/-0.018	0.035	pCi/g					
Potassium-40		13.9	+/-0.849	0.150	+/-0.849	0.334	pCi/g					
Radium-226		0.431	+/-0.0691	0.0293	+/-0.0691	0.0624	pCi/g					
Silver-108m	U	0.00896	+/-0.0174	0.0155	+/-0.0174	0.0326	pCi/g					
Thallium-208		0.225	+/-0.0437	0.0152	+/-0.0437	0.0324	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-002-F
Sample ID: 178923003

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

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Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-003-F
Sample ID: 178923004
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.49%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.578	+/-0.159	0.0676	+/-0.159	0.145	pCi/g		MJH1	01/13/07	1049	602161
Americium-241	U	0.014	+/-0.029	0.0271	+/-0.029	0.0559	pCi/g					
Bismuth-212	U	0.276	+/-0.311	0.158	+/-0.311	0.335	pCi/g					
Bismuth-214		0.440	+/-0.0944	0.0395	+/-0.0944	0.083	pCi/g					
Cesium-134	U	0.0216	+/-0.0283	0.0254	+/-0.0283	0.0536	pCi/g					
Cesium-137	U	0.00316	+/-0.0252	0.0221	+/-0.0252	0.0466	pCi/g					
Cobalt-60	U	-0.013	+/-0.0299	0.0204	+/-0.0299	0.0444	pCi/g					
Europium-152	U	-0.00945	+/-0.0547	0.047	+/-0.0547	0.0984	pCi/g					
Europium-154	U	0.0393	+/-0.0755	0.0672	+/-0.0755	0.144	pCi/g					
Europium-155	U	0.0768	+/-0.0636	0.0444	+/-0.0636	0.0917	pCi/g					
Lead-212		0.567	+/-0.0646	0.0344	+/-0.0646	0.0709	pCi/g					
Lead-214		0.561	+/-0.0913	0.0331	+/-0.0913	0.0694	pCi/g					
Manganese-54	U	-0.001	+/-0.0253	0.0213	+/-0.0253	0.0452	pCi/g					
Niobium-94	U	0.00143	+/-0.023	0.0199	+/-0.023	0.042	pCi/g					
Potassium-40		12.4	+/-0.948	0.184	+/-0.948	0.404	pCi/g					
Radium-226		0.440	+/-0.0944	0.0395	+/-0.0944	0.083	pCi/g					
Silver-108m	U	0.00371	+/-0.0179	0.0165	+/-0.0179	0.0347	pCi/g					
Thallium-208		0.244	+/-0.0458	0.0184	+/-0.0458	0.0389	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

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- ** Analyte is a surrogate compound

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Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-003-F
Sample ID: 178923004

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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- < Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

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Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-004-F
Sample ID: 178923005
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.01%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.597	+/-0.134	0.041	+/-0.134	0.0899	pCi/g						
Americium-241	U	-0.0411	+/-0.0445	0.0381	+/-0.0445	0.0793	pCi/g						
Bismuth-212		0.457	+/-0.244	0.103	+/-0.244	0.222	pCi/g						
Bismuth-214		0.392	+/-0.0712	0.0248	+/-0.0712	0.053	pCi/g						
Cesium-134	UI	0.00	+/-0.017	0.0178	+/-0.017	0.0378	pCi/g						
Cesium-137	U	0.00538	+/-0.017	0.0137	+/-0.017	0.0293	pCi/g						
Cobalt-60	U	-0.0041	+/-0.0173	0.0145	+/-0.0173	0.032	pCi/g						
Europium-152	U	-0.0319	+/-0.0387	0.0317	+/-0.0387	0.0672	pCi/g						
Europium-154	U	-0.0112	+/-0.0477	0.0402	+/-0.0477	0.0886	pCi/g						
Europium-155	U	0.0589	+/-0.0612	0.0324	+/-0.0612	0.0676	pCi/g						
Lead-212		0.499	+/-0.0614	0.0189	+/-0.0614	0.0395	pCi/g						
Lead-214		0.451	+/-0.0741	0.0241	+/-0.0741	0.0509	pCi/g						
Manganese-54	U	0.00781	+/-0.0154	0.0138	+/-0.0154	0.0298	pCi/g						
Niobium-94	U	0.00439	+/-0.0152	0.0136	+/-0.0152	0.0289	pCi/g						
Potassium-40		11.5	+/-1.04	0.125	+/-1.04	0.280	pCi/g						
Radium-226		0.392	+/-0.0712	0.0248	+/-0.0712	0.053	pCi/g						
Silver-108m	U	-0.002	+/-0.0135	0.0114	+/-0.0135	0.0243	pCi/g						
Thallium-208		0.174	+/-0.0439	0.0117	+/-0.0439	0.0252	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

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East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-004-F
Sample ID: 178923005

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-005-F
Sample ID: 178923006
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.76%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.21	+/-0.289	0.112	+/-0.289	0.223	pCi/g					
Americium-241	U	0.0631	+/-0.0512	0.0405	+/-0.0512	0.081	pCi/g					
Bismuth-212		0.821	+/-0.436	0.223	+/-0.436	0.445	pCi/g					
Bismuth-214		0.764	+/-0.148	0.0612	+/-0.148	0.122	pCi/g					
Cesium-134	UI	0.00	+/-0.0857	0.0434	+/-0.0857	0.0868	pCi/g					
Cesium-137	U	0.0019	+/-0.0363	0.0314	+/-0.0363	0.0628	pCi/g					
Cobalt-60	U	-0.00458	+/-0.0424	0.0345	+/-0.0424	0.069	pCi/g					
Europium-152	U	0.0404	+/-0.109	0.0732	+/-0.109	0.146	pCi/g					
Europium-154	U	0.0464	+/-0.133	0.114	+/-0.133	0.229	pCi/g					
Europium-155	U	0.0377	+/-0.0768	0.066	+/-0.0768	0.132	pCi/g					
Lead-212		1.16	+/-0.132	0.0382	+/-0.132	0.0763	pCi/g					
Lead-214		0.905	+/-0.144	0.0531	+/-0.144	0.106	pCi/g					
Manganese-54	U	0.0357	+/-0.0502	0.0312	+/-0.0502	0.0623	pCi/g					
Niobium-94	U	-0.000566	+/-0.033	0.0284	+/-0.033	0.0567	pCi/g					
Potassium-40		21.4	+/-1.75	0.253	+/-1.75	0.505	pCi/g					
Radium-226		0.764	+/-0.148	0.0612	+/-0.148	0.122	pCi/g					
Silver-108m	U	-0.0168	+/-0.0317	0.0259	+/-0.0317	0.0517	pCi/g					
Thallium-208		0.427	+/-0.0796	0.0301	+/-0.0796	0.0601	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

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Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-005-F
Sample ID: 178923006

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy---Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-006-F
Sample ID: 178923007
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 21.7%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.03	+/-0.116	0.0414	+/-0.116	0.0872	pCi/g					
Americium-241	U	0.000154	+/-0.0188	0.0157	+/-0.0188	0.032	pCi/g					
Bismuth-212		0.738	+/-0.209	0.0866	+/-0.209	0.182	pCi/g					
Bismuth-214		0.846	+/-0.0695	0.0226	+/-0.0695	0.047	pCi/g					
Cesium-134	UI	0.00	+/-0.0331	0.0171	+/-0.0331	0.0354	pCi/g					
Cesium-137		0.135	+/-0.0328	0.0131	+/-0.0328	0.0273	pCi/g					
Cobalt-60	U	0.011	+/-0.0166	0.0144	+/-0.0166	0.0305	pCi/g					
Europium-152	U	-0.017	+/-0.0372	0.030	+/-0.0372	0.0619	pCi/g					
Europium-154	U	-0.0247	+/-0.0498	0.040	+/-0.0498	0.0846	pCi/g					
Europium-155	U	0.0391	+/-0.0354	0.0248	+/-0.0354	0.0508	pCi/g					
Lead-212		1.06	+/-0.0443	0.0164	+/-0.0443	0.0336	pCi/g					
Lead-214		0.924	+/-0.0552	0.0216	+/-0.0552	0.0446	pCi/g					
Manganese-54	U	0.0245	+/-0.0196	0.0126	+/-0.0196	0.0264	pCi/g					
Niobium-94	U	0.00556	+/-0.013	0.011	+/-0.013	0.023	pCi/g					
Potassium-40		11.1	+/-0.620	0.104	+/-0.620	0.226	pCi/g					
Radium-226		0.846	+/-0.0695	0.0226	+/-0.0695	0.047	pCi/g					
Silver-108m	U	-0.00104	+/-0.0127	0.0109	+/-0.0127	0.0226	pCi/g					
Thallium-208		0.309	+/-0.0402	0.0122	+/-0.0402	0.0254	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

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Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-006-F
Sample ID: 178923007

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy—Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-007-F
Sample ID: 178923008
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 9.17%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.534	+/-0.0643	0.022	+/-0.0643	0.0456	pCi/g						
Americium-241	U	-0.017	+/-0.0301	0.0262	+/-0.0301	0.0533	pCi/g						
Bismuth-212		0.264	+/-0.0926	0.047	+/-0.0926	0.0974	pCi/g						
Bismuth-214		0.361	+/-0.0341	0.0123	+/-0.0341	0.0254	pCi/g						
Cesium-134	UI	0.00	+/-0.0178	0.00809	+/-0.0178	0.0167	pCi/g						
Cesium-137		0.0186	+/-0.0117	0.00665	+/-0.0117	0.0137	pCi/g						
Cobalt-60	U	-0.00348	+/-0.00721	0.00597	+/-0.00721	0.0126	pCi/g						
Europium-152	U	-0.00493	+/-0.0191	0.0171	+/-0.0191	0.035	pCi/g						
Europium-154	U	-0.00395	+/-0.0238	0.0202	+/-0.0238	0.0421	pCi/g						
Europium-155	U	0.0328	+/-0.0266	0.021	+/-0.0266	0.0427	pCi/g						
Lead-212		0.483	+/-0.0248	0.0101	+/-0.0248	0.0206	pCi/g						
Lead-214		0.395	+/-0.0331	0.0121	+/-0.0331	0.0249	pCi/g						
Manganese-54	U	0.000354	+/-0.00731	0.00633	+/-0.00731	0.0131	pCi/g						
Niobium-94	U	0.00224	+/-0.00665	0.00594	+/-0.00665	0.0123	pCi/g						
Potassium-40		10.4	+/-0.344	0.0553	+/-0.344	0.117	pCi/g						
Radium-226		0.361	+/-0.0341	0.0123	+/-0.0341	0.0254	pCi/g						
Silver-108m	U	0.00481	+/-0.00659	0.00596	+/-0.00659	0.0123	pCi/g						
Thallium-208		0.148	+/-0.0174	0.00594	+/-0.0174	0.0123	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-007-F
Sample ID: 178923008

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
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- < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy--Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-008-F
Sample ID: 178923009
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 4.73%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.466	+/-0.132	0.0537	+/-0.132	0.116	pCi/g		MJH1	01/15/07	0634	602161
Americium-241	U	0.0197	+/-0.0623	0.0566	+/-0.0623	0.118	pCi/g					
Bismuth-212	U	0.189	+/-0.193	0.105	+/-0.193	0.227	pCi/g					
Bismuth-214		0.333	+/-0.0769	0.0235	+/-0.0769	0.0507	pCi/g					
Cesium-134	U	0.0221	+/-0.0209	0.0163	+/-0.0209	0.0351	pCi/g					
Cesium-137	U	-0.0083	+/-0.0152	0.0127	+/-0.0152	0.0276	pCi/g					
Cobalt-60	U	0.00874	+/-0.0159	0.0135	+/-0.0159	0.0303	pCi/g					
Europium-152	U	0.0131	+/-0.0384	0.0345	+/-0.0384	0.073	pCi/g					
Europium-154	U	-0.0376	+/-0.0444	0.034	+/-0.0444	0.0772	pCi/g					
Europium-155	U	0.0243	+/-0.0393	0.0386	+/-0.0393	0.0802	pCi/g					
Lead-212		0.436	+/-0.0608	0.0215	+/-0.0608	0.0449	pCi/g					
Lead-214		0.316	+/-0.0622	0.0249	+/-0.0622	0.0528	pCi/g					
Manganese-54	U	-0.00613	+/-0.0151	0.0125	+/-0.0151	0.0273	pCi/g					
Niobium-94	U	-6.370E-05	+/-0.0136	0.012	+/-0.0136	0.0258	pCi/g					
Potassium-40		9.31	+/-0.970	0.126	+/-0.970	0.286	pCi/g					
Radium-226		0.333	+/-0.0769	0.0235	+/-0.0769	0.0507	pCi/g					
Silver-108m	U	-0.00544	+/-0.0128	0.0114	+/-0.0128	0.0245	pCi/g					
Thallium-208		0.144	+/-0.0359	0.012	+/-0.0359	0.026	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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Certificate of Analysis

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East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-008-F
Sample ID: 178923009

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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** Analyte is a surrogate compound
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-009-F
Sample ID: 178923010
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.21%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.0204	+/-0.0654	0.0677	+/-0.0654	0.213	pCi/g	MXA 1	01/12/07	1919	601896		
Curium-242	U	0.0297	+/-0.0583	0.00	+/-0.0584	0.0806	pCi/g						
Curium-243/244	U	0.00913	+/-0.0867	0.0677	+/-0.0867	0.213	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0127	+/-0.0547	0.0335	+/-0.0547	0.139	pCi/g	MXA 1	01/12/07	1614	601897		
Plutonium-239/240	U	0.00106	+/-0.0574	0.0474	+/-0.0574	0.166	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-1.74	+/-8.36	7.09	+/-8.36	14.8	pCi/g	MXA 1	01/16/07	0711	601898		
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.474	+/-0.140	0.053	+/-0.140	0.116	pCi/g	MJH1	01/15/07	0635	602161		
Americium-241	U	-0.0345	+/-0.104	0.0728	+/-0.104	0.152	pCi/g						
Bismuth-212		0.322	+/-0.166	0.106	+/-0.166	0.231	pCi/g						
Bismuth-214		0.279	+/-0.0618	0.0282	+/-0.0618	0.0604	pCi/g						
Cesium-134	U	0.0401	+/-0.0262	0.019	+/-0.0262	0.0408	pCi/g						
Cesium-137	U	0.0175	+/-0.0174	0.0165	+/-0.0174	0.0353	pCi/g						
Cobalt-60	U	0.00991	+/-0.0179	0.0148	+/-0.0179	0.0334	pCi/g						
Europium-152	U	0.0132	+/-0.0441	0.0388	+/-0.0441	0.0822	pCi/g						
Europium-154	U	0.000304	+/-0.0612	0.0522	+/-0.0612	0.115	pCi/g						
Europium-155	U	0.0587	+/-0.0881	0.0423	+/-0.0881	0.0881	pCi/g						
Lead-212		0.438	+/-0.0512	0.0226	+/-0.0512	0.0474	pCi/g						
Lead-214		0.365	+/-0.0752	0.0276	+/-0.0752	0.0585	pCi/g						
Manganese-54	U	0.0334	+/-0.0183	0.0182	+/-0.0183	0.0389	pCi/g						
Niobium-94	U	0.00076	+/-0.0159	0.0138	+/-0.0159	0.0296	pCi/g						
Potassium-40		9.39	+/-0.771	0.134	+/-0.771	0.305	pCi/g						
Radium-226		0.279	+/-0.0618	0.0282	+/-0.0618	0.0604	pCi/g						
Silver-108m	U	-0.0116	+/-0.0145	0.0123	+/-0.0145	0.0263	pCi/g						
Thallium-208		0.142	+/-0.0333	0.0136	+/-0.0333	0.0294	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.0185	+/-0.0246	0.0216	+/-0.0246	0.0458	pCi/g	KSD1	01/15/07	1802	601901		
Rad Liquid Scintillation Analysis													

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Certificate of Analysis

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Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-009-F
Sample ID: 178923010

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid – 3 pCi/g												
Tritium	U	0.425	+/-1.30	1.06	+/-1.30	2.28	pCi/g		MXP1	01/15/07	1356	601909
Liquid Scint C14, Solid All, FSS												
Carbon-14	U	-0.0537	+/-0.117	0.0994	+/-0.117	0.203	pCi/g		MXP1	01/15/07	1428	601910
Liquid Scint Fe55, Solid-ALL FSS												
Iron-55	U	3.64	+/-30.4	21.3	+/-30.4	45.0	pCi/g		MXP1	01/18/07	0745	602972
Liquid Scint Ni63, Solid-ALL FSS												
Nickel-63	U	14.6	+/-10.9	8.50	+/-10.9	17.9	pCi/g		KXR1	01/15/07	1003	601907
Liquid Scint Tc99, Solid-ALL FSS												
Technetium-99	U	0.129	+/-0.183	0.151	+/-0.183	0.308	pCi/g		MXP1	01/17/07	1035	601908

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	EML HASL 300, 4.5.2.3
5	EPA 905.0 Modified
6	EPA 906.0 Modified
7	EPA EERF C-01 Modified
8	DOE RESL Fe-1, Modified
9	DOE RESL Fe-1, Modified
10	DOE RESL Ni-1, Modified
11	DOE EML HASL-300, Tc-02-RC Modified
12	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	96	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	91	(15%-125%)
Plutonium-241	Liquid Scint Pu241, Solid-ALL FS	96	(25%-125%)

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Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-009-F
Sample ID: 178923010

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			96		(25%-125%)						
Strontium-90		GFPC, Sr90, solid-ALL FSS			84		(25%-125%)						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			84		(25%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			75		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			75		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			77		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			77		(15%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
 - ** Analyte is a surrogate compound
 - < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy--Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-010-F
Sample ID: 178923011
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 20.4%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.00451	+/-0.0954	0.0777	+/-0.0954	0.238	pCi/g		MXA	01/12/07	1919	601896	1
Curium-242	U	-0.0153	+/-0.066	0.0405	+/-0.0661	0.167	pCi/g						
Curium-243/244	U	0.0882	+/-0.156	0.0991	+/-0.156	0.281	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0517	+/-0.0638	0.0684	+/-0.0639	0.210	pCi/g		MXA	01/12/07	1614	601897	1
Plutonium-239/240	U	-0.168	+/-0.0834	0.123	+/-0.0849	0.319	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-1.53	+/-8.30	7.03	+/-8.30	14.7	pCi/g		MXA	01/15/07	2305	601898	1
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		1.06	+/-0.122	0.0462	+/-0.122	0.0973	pCi/g		MJH1	01/15/07	0635	602161	
Americium-241	U	0.0313	+/-0.101	0.0759	+/-0.101	0.156	pCi/g						
Bismuth-212		0.532	+/-0.217	0.103	+/-0.217	0.215	pCi/g						
Bismuth-214		0.878	+/-0.0793	0.0246	+/-0.0793	0.0511	pCi/g						
Cesium-134	UI	0.00	+/-0.0218	0.0176	+/-0.0218	0.0366	pCi/g						
Cesium-137		0.237	+/-0.0334	0.0135	+/-0.0334	0.0282	pCi/g						
Cobalt-60	U	0.0127	+/-0.0175	0.0153	+/-0.0175	0.0326	pCi/g						
Europium-152	U	-0.0286	+/-0.0415	0.0327	+/-0.0415	0.0676	pCi/g						
Europium-154	U	-0.0571	+/-0.0503	0.0381	+/-0.0503	0.0815	pCi/g						
Europium-155	U	0.0835	+/-0.0458	0.0418	+/-0.0458	0.0853	pCi/g						
Lead-212		1.11	+/-0.0518	0.0195	+/-0.0518	0.040	pCi/g						
Lead-214		1.03	+/-0.0817	0.0238	+/-0.0817	0.0492	pCi/g						
Manganese-54	U	0.0114	+/-0.0262	0.0121	+/-0.0262	0.0256	pCi/g						
Niobium-94	U	0.00953	+/-0.0146	0.0125	+/-0.0146	0.026	pCi/g						
Potassium-40		10.5	+/-0.675	0.119	+/-0.675	0.258	pCi/g						
Radium-226		0.878	+/-0.0793	0.0246	+/-0.0793	0.0511	pCi/g						
Silver-108m	U	0.0022	+/-0.0135	0.0117	+/-0.0135	0.0242	pCi/g						
Thallium-208		0.307	+/-0.0345	0.0126	+/-0.0345	0.0263	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90		0.0491	+/-0.0289	0.0217	+/-0.029	0.046	pCi/g		KSD1	01/15/07	1802	601901	

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
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Contact: East Hampton, Connecticut 06424
Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-010-F
Sample ID: 178923011

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Liquid Scintillation Analysis													
<i>LSC, Tritium Dist, Solid – 3 pCi/g</i>													
Tritium	U	-0.161	+/-1.28	1.09	+/-1.28	2.34	pCi/g		MXP1	01/15/07	1428	601909	
<i>Liquid Scint C14, Solid ALL, FSS</i>													
Carbon-14	U	-0.0103	+/-0.117	0.0981	+/-0.117	0.200	pCi/g		MXP1	01/15/07	1532	601910	
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	2.71	+/-25.1	17.7	+/-25.1	37.4	pCi/g		MXP1	01/18/07	0802	602972	
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	5.75	+/-10.1	8.22	+/-10.1	17.3	pCi/g		KXR1	01/15/07	1019	601907	
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.189	+/-0.261	0.216	+/-0.261	0.440	pCi/g		MXP1	01/17/07	1122	601908	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	EML HASL 300, 4.5.2.3
5	EPA 905.0 Modified
6	EPA 905.0 Modified
7	EPA 906.0 Modified
8	EPA EERF C-01 Modified
9	DOE RESL Fe-1, Modified
10	DOE RESL Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE EML HASL-300, Tc-02-RC Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	89	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	87	(15%-125%)

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Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-010-F
Sample ID: 178923011

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch	N
Plutonium-241		Liquid Scint Pu241, Solid-ALL FS			89		(25%-125%)					
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			89		(25%-125%)					
Strontium-90		GFPC, Sr90, solid-ALL FSS			82		(25%-125%)					
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			82		(25%-125%)					
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			79		(25%-125%)					
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			79		(25%-125%)					
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			53		(15%-125%)					
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			53		(15%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
 - ** Analyte is a surrogate compound
 - < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy--Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

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2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-011-F
Sample ID: 178923012
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 16.9%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.978	+/-0.207	0.0801	+/-0.207	0.174	pCi/g		MJH1	01/15/07	0635	602161
Americium-241	U	-0.00681	+/-0.0338	0.0299	+/-0.0338	0.0617	pCi/g					
Bismuth-212		1.06	+/-0.437	0.151	+/-0.437	0.327	pCi/g					
Bismuth-214		0.688	+/-0.125	0.0406	+/-0.125	0.0868	pCi/g					
Cesium-134	U	0.033	+/-0.031	0.0282	+/-0.031	0.0603	pCi/g					
Cesium-137		0.211	+/-0.0532	0.0211	+/-0.0532	0.0454	pCi/g					
Cobalt-60	U	-0.00081	+/-0.0248	0.0208	+/-0.0248	0.0468	pCi/g					
Europium-152	U	-0.00783	+/-0.0611	0.0532	+/-0.0611	0.112	pCi/g					
Europium-154	U	0.0586	+/-0.0491	0.0571	+/-0.0491	0.128	pCi/g					
Europium-155	U	0.0586	+/-0.0633	0.0526	+/-0.0633	0.109	pCi/g					
Lead-212		0.844	+/-0.072	0.0334	+/-0.072	0.0695	pCi/g					
Lead-214		0.769	+/-0.114	0.0412	+/-0.114	0.0868	pCi/g					
Manganese-54	U	0.0087	+/-0.0263	0.0225	+/-0.0263	0.0485	pCi/g					
Niobium-94	U	0.00804	+/-0.0241	0.0208	+/-0.0241	0.0445	pCi/g					
Potassium-40		11.0	+/-1.01	0.209	+/-1.01	0.471	pCi/g					
Radium-226		0.688	+/-0.125	0.0406	+/-0.125	0.0868	pCi/g					
Silver-108m	U	0.0136	+/-0.0229	0.0206	+/-0.0229	0.0435	pCi/g					
Thallium-208		0.288	+/-0.0579	0.0235	+/-0.0579	0.050	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-011-F
Sample ID: 178923012

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-012-F
Sample ID: 178923013
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 8%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.665	+/-0.155	0.0571	+/-0.155	0.124	pCi/g						
Americium-241	U	0.00252	+/-0.0893	0.0724	+/-0.0893	0.150	pCi/g						
Bismuth-212	UI	0.00	+/-0.226	0.106	+/-0.226	0.231	pCi/g						
Bismuth-214		0.546	+/-0.102	0.0281	+/-0.102	0.0601	pCi/g						
Cesium-134	U	0.023	+/-0.0261	0.020	+/-0.0261	0.0427	pCi/g						
Cesium-137	U	0.0289	+/-0.0379	0.0167	+/-0.0379	0.0358	pCi/g						
Cobalt-60	U	0.00158	+/-0.0192	0.0163	+/-0.0192	0.0362	pCi/g						
Europium-152	U	0.0277	+/-0.0437	0.0413	+/-0.0437	0.087	pCi/g						
Europium-154	U	-0.0701	+/-0.0793	0.0492	+/-0.0793	0.108	pCi/g						
Europium-155	U	0.0379	+/-0.0504	0.0487	+/-0.0504	0.101	pCi/g						
Lead-212		0.633	+/-0.0711	0.0213	+/-0.0711	0.0445	pCi/g						
Lead-214		0.672	+/-0.105	0.0286	+/-0.105	0.0603	pCi/g						
Manganese-54	U	0.0102	+/-0.0199	0.0183	+/-0.0199	0.039	pCi/g						
Niobium-94	U	0.015	+/-0.0161	0.0148	+/-0.0161	0.0317	pCi/g						
Potassium-40		10.1	+/-1.00	0.148	+/-1.00	0.333	pCi/g						
Radium-226		0.546	+/-0.102	0.0281	+/-0.102	0.0601	pCi/g						
Silver-108m	U	-0.00218	+/-0.0153	0.0135	+/-0.0153	0.0287	pCi/g						
Thallium-208		0.205	+/-0.049	0.015	+/-0.049	0.0321	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-012-F
Sample ID: 178923013

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-013-F
Sample ID: 178923014
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.41%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Notes
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.273	+/-0.124	0.0417	+/-0.124	0.0916	pCi/g						
Americium-241	U	-0.00658	+/-0.0538	0.0518	+/-0.0538	0.108	pCi/g						
Bismuth-212		0.341	+/-0.235	0.0871	+/-0.235	0.190	pCi/g						
Bismuth-214		0.237	+/-0.065	0.0222	+/-0.065	0.0478	pCi/g						
Cesium-134	UI	0.00	+/-0.0185	0.0154	+/-0.0185	0.0332	pCi/g						
Cesium-137	U	-0.0179	+/-0.0157	0.012	+/-0.0157	0.0259	pCi/g						
Cobalt-60	U	0.0149	+/-0.0142	0.0138	+/-0.0142	0.0308	pCi/g						
Europium-152	U	-0.0203	+/-0.0359	0.0316	+/-0.0359	0.0671	pCi/g						
Europium-154	U	0.0101	+/-0.048	0.0368	+/-0.048	0.0819	pCi/g						
Europium-155	U	-0.00922	+/-0.0369	0.0341	+/-0.0369	0.0711	pCi/g						
Lead-212		0.260	+/-0.0443	0.0185	+/-0.0443	0.0387	pCi/g						
Lead-214		0.217	+/-0.0594	0.0241	+/-0.0594	0.051	pCi/g						
Manganese-54	U	0.00467	+/-0.0137	0.0125	+/-0.0137	0.0272	pCi/g						
Niobium-94	U	-0.00674	+/-0.0138	0.0112	+/-0.0138	0.0242	pCi/g						
Potassium-40		6.03	+/-0.689	0.108	+/-0.689	0.246	pCi/g						
Radium-226		0.237	+/-0.065	0.0222	+/-0.065	0.0478	pCi/g						
Silver-108m	U	0.00552	+/-0.0135	0.0111	+/-0.0135	0.0238	pCi/g						
Thallium-208		0.0797	+/-0.034	0.0129	+/-0.034	0.0277	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

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- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-013-F
Sample ID: 178923014

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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- < Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-014-F
Sample ID: 178923015
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.42%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.335	+/-0.0928	0.0384	+/-0.0928	0.0828	pCi/g					
Americium-241	U	0.0071	+/-0.046	0.0429	+/-0.046	0.0891	pCi/g					
Bismuth-212	U	0.154	+/-0.161	0.0781	+/-0.161	0.168	pCi/g					
Bismuth-214		0.249	+/-0.059	0.0235	+/-0.059	0.0496	pCi/g					
Cesium-134	U	0.0221	+/-0.0229	0.0132	+/-0.0229	0.0281	pCi/g					
Cesium-137	U	0.0106	+/-0.0132	0.0114	+/-0.0132	0.0243	pCi/g					
Cobalt-60	U	0.00988	+/-0.032	0.012	+/-0.032	0.0261	pCi/g					
Europium-152	U	0.0179	+/-0.0342	0.0308	+/-0.0342	0.0647	pCi/g					
Europium-154	U	-0.0139	+/-0.0374	0.0303	+/-0.0374	0.0665	pCi/g					
Europium-155	U	0.00296	+/-0.0413	0.0369	+/-0.0413	0.0765	pCi/g					
Lead-212		0.376	+/-0.0427	0.0187	+/-0.0427	0.039	pCi/g					
Lead-214		0.304	+/-0.0554	0.0203	+/-0.0554	0.0429	pCi/g					
Manganese-54	U	-0.00686	+/-0.0143	0.0116	+/-0.0143	0.0249	pCi/g					
Niobium-94	U	0.00151	+/-0.0125	0.0109	+/-0.0125	0.0231	pCi/g					
Potassium-40		5.97	+/-0.515	0.0986	+/-0.515	0.219	pCi/g					
Radium-226		0.249	+/-0.059	0.0235	+/-0.059	0.0496	pCi/g					
Silver-108m	U	-0.00697	+/-0.0144	0.0102	+/-0.0144	0.0216	pCi/g					
Thallium-208		0.114	+/-0.0307	0.0117	+/-0.0307	0.0248	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-014-F
Sample ID: 178923015

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-015-F
Sample ID: 178923016
Matrix: TS
Collect Date: 03-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 8.31%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.462	+/-0.118	0.0533	+/-0.118	0.107	pCi/g					
Americium-241	U	-0.0192	+/-0.0703	0.056	+/-0.0703	0.112	pCi/g					
Bismuth-212		0.343	+/-0.239	0.110	+/-0.239	0.219	pCi/g					
Bismuth-214		0.295	+/-0.0594	0.0291	+/-0.0594	0.0582	pCi/g					
Cesium-134	U	0.0152	+/-0.0323	0.0175	+/-0.0323	0.035	pCi/g					
Cesium-137	U	-0.00627	+/-0.016	0.0131	+/-0.016	0.0262	pCi/g					
Cobalt-60	U	-0.00435	+/-0.0205	0.0169	+/-0.0205	0.0338	pCi/g					
Europium-152	U	0.0102	+/-0.0598	0.0413	+/-0.0598	0.0826	pCi/g					
Europium-154	U	-0.0104	+/-0.0608	0.0428	+/-0.0608	0.0855	pCi/g					
Europium-155	U	0.0175	+/-0.0477	0.0437	+/-0.0477	0.0872	pCi/g					
Lead-212		0.416	+/-0.058	0.0237	+/-0.058	0.0474	pCi/g					
Lead-214		0.320	+/-0.0727	0.0265	+/-0.0727	0.053	pCi/g					
Manganese-54	U	0.0201	+/-0.0319	0.0169	+/-0.0319	0.0337	pCi/g					
Niobium-94	U	0.00718	+/-0.0167	0.0147	+/-0.0167	0.0295	pCi/g					
Potassium-40		6.35	+/-0.703	0.143	+/-0.703	0.286	pCi/g					
Radium-226		0.295	+/-0.0594	0.0291	+/-0.0594	0.0582	pCi/g					
Silver-108m	U	-0.00287	+/-0.0156	0.0135	+/-0.0156	0.027	pCi/g					
Thallium-208		0.144	+/-0.0372	0.0144	+/-0.0372	0.0287	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

Contact: East Hampton, Connecticut 06424
Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-015-F
Sample ID: 178923016

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-016-I
Sample ID: 178923017
Matrix: TS
Collect Date: 05-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.65%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		1.11	+/-0.261	0.106	+/-0.261	0.212	pCi/g						
Americium-241	U	0.0615	+/-0.0475	0.0389	+/-0.0475	0.0778	pCi/g						
Bismuth-212		0.725	+/-0.424	0.231	+/-0.424	0.461	pCi/g						
Bismuth-214		1.04	+/-0.176	0.0515	+/-0.176	0.103	pCi/g						
Cesium-134	U	0.0673	+/-0.0435	0.0355	+/-0.0435	0.0709	pCi/g						
Cesium-137	U	-0.00776	+/-0.0355	0.0306	+/-0.0355	0.0612	pCi/g						
Cobalt-60	U	-0.000162	+/-0.0388	0.0322	+/-0.0388	0.0644	pCi/g						
Europium-152	U	-0.126	+/-0.0946	0.0644	+/-0.0946	0.129	pCi/g						
Europium-154	U	-0.0622	+/-0.145	0.0973	+/-0.145	0.194	pCi/g						
Europium-155	U	0.0578	+/-0.0702	0.0626	+/-0.0702	0.125	pCi/g						
Lead-212		1.07	+/-0.120	0.0354	+/-0.120	0.0707	pCi/g						
Lead-214		1.15	+/-0.153	0.0496	+/-0.153	0.0991	pCi/g						
Manganese-54	U	-0.0177	+/-0.0357	0.0296	+/-0.0357	0.0592	pCi/g						
Niobium-94	U	-0.0172	+/-0.0284	0.0236	+/-0.0284	0.0473	pCi/g						
Potassium-40		19.8	+/-1.47	0.237	+/-1.47	0.474	pCi/g						
Radium-226		1.04	+/-0.176	0.0515	+/-0.176	0.103	pCi/g						
Silver-108m	U	0.00535	+/-0.0281	0.0244	+/-0.0281	0.0488	pCi/g						
Thallium-208		0.373	+/-0.0714	0.0266	+/-0.0714	0.0531	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-016-I
Sample ID: 178923017

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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- < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy—Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-017-I
Sample ID: 178923018
Matrix: TS
Collect Date: 05-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.17%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.717	+/-0.0948	0.0388	+/-0.0948	0.0811	pCi/g						
Americium-241	U	0.0105	+/-0.0178	0.0157	+/-0.0178	0.032	pCi/g						
Bismuth-212		0.559	+/-0.158	0.0799	+/-0.158	0.167	pCi/g						
Bismuth-214		0.710	+/-0.055	0.020	+/-0.055	0.0415	pCi/g						
Cesium-134		0.0596	+/-0.0263	0.0143	+/-0.0263	0.0296	pCi/g						
Cesium-137	U	-0.00702	+/-0.0132	0.0112	+/-0.0132	0.0232	pCi/g						
Cobalt-60	U	-0.00248	+/-0.013	0.011	+/-0.013	0.0234	pCi/g						
Europium-152	U	-0.0462	+/-0.0285	0.0248	+/-0.0285	0.0511	pCi/g						
Europium-154	U	-0.0566	+/-0.0394	0.0307	+/-0.0394	0.0649	pCi/g						
Europium-155	U	0.0228	+/-0.0279	0.0265	+/-0.0279	0.054	pCi/g						
Lead-212		0.704	+/-0.0356	0.015	+/-0.0356	0.0307	pCi/g						
Lead-214		0.832	+/-0.0566	0.019	+/-0.0566	0.039	pCi/g						
Manganese-54	U	0.0209	+/-0.0107	0.0106	+/-0.0107	0.0221	pCi/g						
Niobium-94	U	0.00114	+/-0.0118	0.0103	+/-0.0118	0.0213	pCi/g						
Potassium-40		15.2	+/-0.566	0.0819	+/-0.566	0.177	pCi/g						
Radium-226		0.710	+/-0.055	0.020	+/-0.055	0.0415	pCi/g						
Silver-108m	U	0.000721	+/-0.00988	0.00895	+/-0.00988	0.0185	pCi/g						
Thallium-208		0.241	+/-0.0304	0.0102	+/-0.0304	0.0212	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3
2	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-017-I
Sample ID: 178923018

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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** Analyte is a surrogate compound
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy—Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-018-I
Sample ID: 178923019
Matrix: TS
Collect Date: 05-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 6.4%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.820	+/-0.206	0.0635	+/-0.206	0.135	pCi/g		MJH1	01/15/07	0649	602161
Americium-241	U	-0.0704	+/-0.0741	0.0675	+/-0.0741	0.138	pCi/g					
Bismuth-212		0.468	+/-0.221	0.138	+/-0.221	0.292	pCi/g					
Bismuth-214		0.998	+/-0.133	0.034	+/-0.133	0.0714	pCi/g					
Cesium-134	UI	0.00	+/-0.0271	0.0227	+/-0.0271	0.0477	pCi/g					
Cesium-137	U	0.0368	+/-0.030	0.0202	+/-0.030	0.0423	pCi/g					
Cobalt-60	U	-0.00632	+/-0.0256	0.0182	+/-0.0256	0.0395	pCi/g					
Europium-152	U	0.00528	+/-0.0652	0.0515	+/-0.0652	0.107	pCi/g					
Europium-154	U	0.00708	+/-0.0659	0.0573	+/-0.0659	0.123	pCi/g					
Europium-155	U	0.0474	+/-0.0742	0.0554	+/-0.0742	0.113	pCi/g					
Lead-212		0.867	+/-0.0884	0.0298	+/-0.0884	0.0613	pCi/g					
Lead-214		1.03	+/-0.121	0.0384	+/-0.121	0.0796	pCi/g					
Manganese-54	U	-0.0147	+/-0.0256	0.0176	+/-0.0256	0.0373	pCi/g					
Niobium-94	U	0.0191	+/-0.0183	0.0168	+/-0.0183	0.0353	pCi/g					
Potassium-40		20.3	+/-1.53	0.119	+/-1.53	0.269	pCi/g					
Radium-226		0.998	+/-0.133	0.034	+/-0.133	0.0714	pCi/g					
Silver-108m	U	0.00175	+/-0.0177	0.0159	+/-0.0177	0.0332	pCi/g					
Thallium-208		0.250	+/-0.0446	0.0173	+/-0.0446	0.0363	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-018-I
Sample ID: 178923019

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND Analyte concentration is not detected above the detection limit
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded
The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-019-I
Sample ID: 178923020
Matrix: TS
Collect Date: 05-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 5.28%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.588	+/-0.139	0.0444	+/-0.139	0.0966	pCi/g		MJH1	01/15/07	0650	602161
Americium-241	U	-0.122	+/-0.0831	0.0678	+/-0.0831	0.140	pCi/g					
Bismuth-212		0.503	+/-0.192	0.0948	+/-0.192	0.205	pCi/g					
Bismuth-214		0.402	+/-0.0753	0.0274	+/-0.0753	0.0582	pCi/g					
Cesium-134	U	0.0181	+/-0.0192	0.0181	+/-0.0192	0.0384	pCi/g					
Cesium-137	U	0.0187	+/-0.0236	0.0151	+/-0.0236	0.0322	pCi/g					
Cobalt-60	U	-0.00263	+/-0.0188	0.0155	+/-0.0188	0.034	pCi/g					
Europium-152	U	-0.0589	+/-0.0482	0.0399	+/-0.0482	0.0835	pCi/g					
Europium-154	U	0.091	+/-0.0707	0.0422	+/-0.0707	0.0925	pCi/g					
Europium-155	U	0.0149	+/-0.0498	0.0483	+/-0.0498	0.0995	pCi/g					
Lead-212		0.500	+/-0.0498	0.0366	+/-0.0498	0.075	pCi/g					
Lead-214		0.530	+/-0.0761	0.0309	+/-0.0761	0.0644	pCi/g					
Manganese-54	U	0.00381	+/-0.0169	0.0151	+/-0.0169	0.0321	pCi/g					
Niobium-94	U	0.00633	+/-0.0152	0.0139	+/-0.0152	0.0295	pCi/g					
Potassium-40		11.5	+/-0.766	0.117	+/-0.766	0.265	pCi/g					
Radium-226		0.402	+/-0.0753	0.0274	+/-0.0753	0.0582	pCi/g					
Silver-108m	U	-0.00411	+/-0.0167	0.0143	+/-0.0167	0.0301	pCi/g					
Thallium-208		0.172	+/-0.0353	0.0149	+/-0.0353	0.0315	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1139	601631

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-019-I
Sample ID: 178923020

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	A
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- < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy--Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-020-I
Sample ID: 178923021
Matrix: TS
Collect Date: 05-JAN-07
Receive Date: 11-JAN-07
Collector: Client
Moisture: 8.5%

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.470	+/-0.112	0.0282	+/-0.112	0.0599	pCi/g					
Americium-241	U	-1.790E-05	+/-0.0485	0.0386	+/-0.0485	0.0792	pCi/g					
Bismuth-212		0.270	+/-0.141	0.0745	+/-0.141	0.156	pCi/g					
Bismuth-214		0.324	+/-0.0574	0.0169	+/-0.0574	0.0354	pCi/g					
Cesium-134	UI	0.00	+/-0.0199	0.0115	+/-0.0199	0.0241	pCi/g					
Cesium-137	U	0.0185	+/-0.0166	0.00966	+/-0.0166	0.0202	pCi/g					
Cobalt-60	U	0.000568	+/-0.0102	0.00852	+/-0.0102	0.0184	pCi/g					
Europium-152	U	-0.00941	+/-0.0256	0.0229	+/-0.0256	0.0473	pCi/g					
Europium-154	U	0.0161	+/-0.0306	0.0269	+/-0.0306	0.0574	pCi/g					
Europium-155	U	0.0335	+/-0.0281	0.0269	+/-0.0281	0.055	pCi/g					
Lead-212		0.465	+/-0.0462	0.013	+/-0.0462	0.0267	pCi/g					
Lead-214		0.359	+/-0.0537	0.0158	+/-0.0537	0.0327	pCi/g					
Manganese-54	U	0.00492	+/-0.0118	0.00933	+/-0.0118	0.0196	pCi/g					
Niobium-94	U	0.000641	+/-0.0103	0.00876	+/-0.0103	0.0183	pCi/g					
Potassium-40		7.08	+/-0.627	0.0801	+/-0.627	0.174	pCi/g					
Radium-226		0.324	+/-0.0574	0.0169	+/-0.0574	0.0354	pCi/g					
Silver-108m	U	-0.00383	+/-0.00875	0.00759	+/-0.00875	0.0158	pCi/g					
Thallium-208		0.154	+/-0.0276	0.00844	+/-0.0276	0.0177	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	01/11/07	1154	601634

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:

The Qualifiers in this report are defined as follows :

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: January 18, 2007

Client Sample ID: 9539-0002-020-I
Sample ID: 178923021

Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
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- * A quality control analyte recovery is outside of specified acceptance criteria
 - ** Analyte is a surrogate compound
 - < Result is less than value reported
 - > Result is greater than value reported
 - A The TIC is a suspected aldol-condensation product
 - B Target analyte was detected in the associated blank
 - BD Results are either below the MDC or tracer recovery is low
 - C Analyte has been confirmed by GC/MS analysis
 - D Results are reported from a diluted aliquot of the sample
 - H Analytical holding time was exceeded
 - J Value is estimated
 - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
 - ND Analyte concentration is not detected above the detection limit
 - R Sample results are rejected
 - U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
 - UI Gamma Spectroscopy—Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
 - h Preparation or preservation holding time was exceeded
- The above sample is reported on a dry weight basis.

QUALITY CONTROL DATA

GEL LABORATORIES LLC

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QC Summary

Report Date: January 18, 2007

Page 1 of 12

Client : Connecticut Yankee Atomic Power
362 Injun Hollow Rd

Contact: East Hampton, Connecticut
Mr. Jack McCarthy

Workorder: 178923

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time					
Rad Alpha Spec																
Batch	601896															
QC1201260243	178924001	DUP														
Americium-241		U	0.00849	U	-0.0257	pCi/g	397	(0% - 100%)	AXA1	01/12/07	19:19					
		Uncert:	+/-0.111		+/-0.102											
		TPU:	+/-0.111		+/-0.102											
Curium-242		U	-0.0527	U	0.0116	pCi/g	313	(0% - 100%)								
		Uncert:	+/-0.0421		+/-0.0877											
		TPU:	+/-0.0426		+/-0.0877											
Curium-243/244		U	0.0126	U	0.0634	pCi/g	134	(0% - 100%)								
		Uncert:	+/-0.131		+/-0.166											
		TPU:	+/-0.131		+/-0.166											
QC1201260245	LCS															
Americium-241		13.1			15.2	pCi/g	116	(75%-125%)		01/13/07	08:21					
		Uncert:			+/-1.35											
		TPU:			+/-2.27											
Curium-242				U	0.00	pCi/g										
		Uncert:			+/-0.0615											
		TPU:			+/-0.0615											
Curium-243/244		15.8			16.3	pCi/g	103	(75%-125%)								
		Uncert:			+/-1.40											
		TPU:			+/-2.41											
QC1201260242	MB															
Americium-241				U	0.140	pCi/g										
		Uncert:			+/-0.171											
		TPU:			+/-0.172											
Curium-242				U	0.0477	pCi/g										
		Uncert:			+/-0.108											
		TPU:			+/-0.108											
Curium-243/244				U	-0.034	pCi/g										
		Uncert:			+/-0.0876											
		TPU:			+/-0.0877											
QC1201260244	178924001	MS														
Americium-241		13.1 U	0.00849		14.7	pCi/g	112	(75%-125%)		01/13/07	08:21					
		Uncert:	+/-0.111		+/-1.29											
		TPU:	+/-0.111		+/-2.17											
Curium-242		U	-0.0527	U	0.00	pCi/g										
		Uncert:	+/-0.0421		+/-0.0605											
		TPU:	+/-0.0426		+/-0.0605											
Curium-243/244		15.8 U	0.0126		16.0	pCi/g	101	(75%-125%)								
		Uncert:	+/-0.131		+/-1.35											
		TPU:	+/-0.131		+/-2.33											
Batch	601897															
QC1201260247	178924001	DUP														
Plutonium-238		U	0.00119	U	-0.0434	pCi/g	211	(0% - 100%)	AXA1	01/15/07	08:24					

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	601897										
Plutonium-239/240	U	Uncert:	+/-0.0649	+/-0.038	pCi/g	118	(0% - 100%)				
		TPU:	+/-0.0649	+/-0.0383							
			-0.0358	-0.139							
		Uncert:	+/-0.0314	+/-0.0982							
		TPU:	+/-0.0317	+/-0.0988							
QC1201260249	LCS										
Plutonium-238			U	0.0605	pCi/g		(75%-125%)			01/12/07	16:14
Plutonium-239/240	12.1	Uncert:		+/-0.104	pCi/g	98	(75%-125%)				
		TPU:		+/-0.105							
				11.9							
		Uncert:		+/-1.17							
		TPU:		+/-1.79							
QC1201260246	MB										
Plutonium-238			U	-0.0184	pCi/g					01/12/07	16:14
Plutonium-239/240		Uncert:		+/-0.0544	pCi/g						
		TPU:		+/-0.0544							
				0.0584							
		Uncert:		+/-0.0894							
		TPU:		+/-0.0897							
QC1201260248	178924001	MS									
Plutonium-238		U	0.00119	U	0.0835	pCi/g	(75%-125%)			01/12/07	16:14
Plutonium-239/240	12.1	Uncert:	+/-0.0649	+/-0.102	pCi/g	100	(75%-125%)				
		TPU:	+/-0.0649	+/-0.102							
			-0.0358	12.1							
		Uncert:	+/-0.0314	+/-1.09							
		TPU:	+/-0.0317	+/-1.73							
Batch	601898										
QC1201260251	178924001	DUP									
Plutonium-241		U	-9.26	U	-3.67	pCi/g	0	(0% - 100%)	MXA1	01/16/07	08:00
		Uncert:	+/-9.39		+/-8.83						
		TPU:	+/-9.39		+/-8.83						
QC1201260253	LCS										
Plutonium-241		140			128	pCi/g	92	(75%-125%)		01/16/07	00:43
		Uncert:			+/-12.8						
		TPU:			+/-18.1						
QC1201260250	MB										
Plutonium-241			U	-2.67	pCi/g					01/16/07	07:44
		Uncert:			+/-8.64						
		TPU:			+/-8.64						
QC1201260252	178924001	MS									
Plutonium-241		140	U	-9.26	152	pCi/g	108	(75%-125%)		01/16/07	08:16
		Uncert:		+/-9.39	+/-15.7						
		TPU:		+/-9.39	+/-22.3						
Rad Gamma Spec											
Batch	602159										
QC1201260867	178923021	DUP									
Actinium-228			0.470		0.412	pCi/g	13	(0% - 100%)	MJH1	01/15/07	18:31
		Uncert:	+/-0.112		+/-0.104						
					+/-0.104						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	602159										
Americium-241	TPU:	+/-0.112									
	U	-1.790E-05	U	-0.00479	pCi/g	199		(0% - 100%)			
	Uncert:	+/-0.0485		+/-0.0184							
Bismuth-212	TPU:	+/-0.0485		+/-0.0184							
		0.270		0.392	pCi/g	37		(0% - 100%)			
	Uncert:	+/-0.141		+/-0.254							
Bismuth-214	TPU:	+/-0.141		+/-0.254							
		0.324		0.330	pCi/g	2		(0% - 100%)			
	Uncert:	+/-0.0574		+/-0.0623							
Cesium-134	TPU:	+/-0.0574		+/-0.0623							
	UI	0.00	UI	0.00	pCi/g	42		(0% - 100%)			
	Uncert:	+/-0.0199		+/-0.0157							
Cesium-137	TPU:	+/-0.0199		+/-0.0157							
	U	0.0185	U	0.00344	pCi/g	137		(0% - 100%)			
	Uncert:	+/-0.0166		+/-0.0146							
Cobalt-60	TPU:	+/-0.0166		+/-0.0146							
	U	0.000568	U	0.00334	pCi/g	142		(0% - 100%)			
	Uncert:	+/-0.0102		+/-0.0153							
Europium-152	TPU:	+/-0.0102		+/-0.0153							
	U	-0.00941	U	-0.0217	pCi/g	79		(0% - 100%)			
	Uncert:	+/-0.0256		+/-0.0346							
Europium-154	TPU:	+/-0.0256		+/-0.0346							
	U	0.0161	U	-0.0145	pCi/g	3690		(0% - 100%)			
	Uncert:	+/-0.0306		+/-0.0467							
Europium-155	TPU:	+/-0.0306		+/-0.0467							
	U	0.0335	U	0.00826	pCi/g	121		(0% - 100%)			
	Uncert:	+/-0.0281		+/-0.0296							
Lead-212	TPU:	+/-0.0281		+/-0.0296							
		0.465		0.425	pCi/g	9		(0% - 100%)			
	Uncert:	+/-0.0462		+/-0.0349							
Lead-214	TPU:	+/-0.0462		+/-0.0349							
		0.359		0.305	pCi/g	16		(0% - 100%)			
	Uncert:	+/-0.0537		+/-0.0455							
Manganese-54	TPU:	+/-0.0537		+/-0.0455							
	U	0.00492	U	0.00257	pCi/g	63		(0% - 100%)			
	Uncert:	+/-0.0118		+/-0.0148							
Niobium-94	TPU:	+/-0.0118		+/-0.0148							
	U	0.000641	U	0.00442	pCi/g	149		(0% - 100%)			
	Uncert:	+/-0.0103		+/-0.0134							
Potassium-40	TPU:	+/-0.0103		+/-0.0134							
		7.08		7.71	pCi/g	9		(0% - 20%)			
	Uncert:	+/-0.627		+/-0.486							
Radium-226	TPU:	+/-0.627		+/-0.486							
		0.324		0.330	pCi/g	2		(0% - 100%)			
	Uncert:	+/-0.0574		+/-0.0623							
Silver-108m	TPU:	+/-0.0574		+/-0.0623							
	U	-0.00383	U	0.000361	pCi/g	242		(0% - 100%)			
	Uncert:	+/-0.00875		+/-0.0115							

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Rad Gamma Spec											
Batch	602159										
Thallium-208	TPU:	+/-0.00875		+/-0.0115							
		0.154		0.144	pCi/g	7		(0% - 100%)			
	Uncert:	+/-0.0276		+/-0.0329							
	TPU:	+/-0.0276		+/-0.0329							
QC1201260868	LCS										
Actinium-228			U	0.126	pCi/g					01/15/07	18:31
	Uncert:			+/-0.177							
	TPU:			+/-0.177							
Americium-241	23.4			24.7	pCi/g		106	(75%-125%)			
	Uncert:			+/-0.203							
	TPU:			+/-0.203							
Bismuth-212			U	-0.12	pCi/g						
	Uncert:			+/-0.296							
	TPU:			+/-0.296							
Bismuth-214			U	0.00592	pCi/g						
	Uncert:			+/-0.066							
	TPU:			+/-0.066							
Cesium-134			U	0.0198	pCi/g						
	Uncert:			+/-0.045							
	TPU:			+/-0.045							
Cesium-137	9.50			10.2	pCi/g		108	(75%-125%)			
	Uncert:			+/-0.160							
	TPU:			+/-0.160							
Cobalt-60	13.8			14.6	pCi/g		106	(75%-125%)			
	Uncert:			+/-0.218							
	TPU:			+/-0.218							
Europium-152			U	-0.0332	pCi/g						
	Uncert:			+/-0.0834							
	TPU:			+/-0.0834							
Europium-154			U	-0.00106	pCi/g						
	Uncert:			+/-0.0791							
	TPU:			+/-0.0791							
Europium-155			U	0.00685	pCi/g						
	Uncert:			+/-0.0603							
	TPU:			+/-0.0603							
Lead-212			U	0.00459	pCi/g						
	Uncert:			+/-0.0482							
	TPU:			+/-0.0482							
Lead-214			U	0.0952	pCi/g						
	Uncert:			+/-0.0608							
	TPU:			+/-0.0608							
Manganese-54			U	-0.0315	pCi/g						
	Uncert:			+/-0.0432							
	TPU:			+/-0.0432							
Niobium-94			U	-0.00549	pCi/g						
	Uncert:			+/-0.0342							
	TPU:			+/-0.0342							
Potassium-40			U	0.0853	pCi/g						

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	602159									
			Uncert:							
			TPU:							
Radium-226		U	0.00592	pCi/g			(75%-125%)			
			Uncert:							
			TPU:							
Silver-108m		U	0.0179	pCi/g						
			Uncert:							
			TPU:							
Thallium-208		U	0.0314	pCi/g						
			Uncert:							
			TPU:							
QC1201260866 MB										
Actinium-228		U	0.025	pCi/g					01/15/07	18:30
			Uncert:							
			TPU:							
Americium-241		U	-0.102	pCi/g						
			Uncert:							
			TPU:							
Bismuth-212		U	0.0447	pCi/g						
			Uncert:							
			TPU:							
Bismuth-214		UI	0.00	pCi/g						
			Uncert:							
			TPU:							
Cesium-134		U	0.00274	pCi/g						
			Uncert:							
			TPU:							
Cesium-137		U	0.00225	pCi/g						
			Uncert:							
			TPU:							
Cobalt-60		U	-0.00244	pCi/g						
			Uncert:							
			TPU:							
Europium-152		U	0.00949	pCi/g						
			Uncert:							
			TPU:							
Europium-154		U	-0.00214	pCi/g						
			Uncert:							
			TPU:							
Europium-155		U	-0.0128	pCi/g						
			Uncert:							
			TPU:							
Lead-212		UI	0.00	pCi/g						
			Uncert:							
			TPU:							
Lead-214		U	0.000666	pCi/g						
			Uncert:							
			TPU:							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	602159										
Manganese-54			U	0.00102	pCi/g						
	Uncert:			+/-0.00755							
	TPU:			+/-0.00755							
Niobium-94			U	0.00487	pCi/g						
	Uncert:			+/-0.00745							
	TPU:			+/-0.00745							
Potassium-40			UI	0.00	pCi/g						
	Uncert:			+/-0.0986							
	TPU:			+/-0.0986							
Radium-226			UI	0.00	pCi/g						
	Uncert:			+/-0.0176							
	TPU:			+/-0.0176							
Silver-108m			U	-0.0072	pCi/g						
	Uncert:			+/-0.00721							
	TPU:			+/-0.00721							
Thallium-208			U	0.00917	pCi/g						
	Uncert:			+/-0.0149							
	TPU:			+/-0.0149							
Batch	602161										
QC1201260870 178923001 DUP											
Actinium-228		0.606		0.557	pCi/g	9		(0% - 100%)	MJH1	01/15/07	06:53
	Uncert:	+/-0.150		+/-0.120							
	TPU:	+/-0.150		+/-0.120							
Americium-241	U	-0.0295	U	-0.0435	pCi/g	39		(0% - 100%)			
	Uncert:	+/-0.081		+/-0.0492							
	TPU:	+/-0.081		+/-0.0492							
Bismuth-212		0.291		0.294	pCi/g	1		(0% - 100%)			
	Uncert:	+/-0.236		+/-0.203							
	TPU:	+/-0.236		+/-0.203							
Bismuth-214		0.549		0.393	pCi/g	33		(0% - 100%)			
	Uncert:	+/-0.0816		+/-0.068							
	TPU:	+/-0.0816		+/-0.068							
Cesium-134	U	0.0207	U	0.00873	pCi/g	81		(0% - 100%)			
	Uncert:	+/-0.0394		+/-0.0253							
	TPU:	+/-0.0394		+/-0.0253							
Cesium-137	U	0.0214	U	0.00691	pCi/g	102		(0% - 100%)			
	Uncert:	+/-0.0186		+/-0.0162							
	TPU:	+/-0.0186		+/-0.0162							
Cobalt-60	U	-0.00242	U	-0.00706	pCi/g	98		(0% - 100%)			
	Uncert:	+/-0.0195		+/-0.0155							
	TPU:	+/-0.0195		+/-0.0155							
Europium-152	U	-0.0192	U	-0.00881	pCi/g	74		(0% - 100%)			
	Uncert:	+/-0.0614		+/-0.035							
	TPU:	+/-0.0614		+/-0.035							
Europium-154	U	-0.0208	U	0.0565	pCi/g	433		(0% - 100%)			
	Uncert:	+/-0.0611		+/-0.0631							
	TPU:	+/-0.0611		+/-0.0631							
Europium-155	U	0.0271	U	0.0209	pCi/g	26		(0% - 100%)			

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Rad Gamma Spec											
Batch	602161										
Lead-212		Uncert:		+/-0.0583							
		TPU:		+/-0.0583							
				0.466							
Lead-214		Uncert:		+/-0.063							
		TPU:		+/-0.063							
				0.541							
Manganese-54	U	Uncert:		+/-0.0832							
		TPU:		+/-0.0832							
				-0.00575							
Niobium-94	U	Uncert:		+/-0.0193							
		TPU:		+/-0.0193							
				0.00695							
Potassium-40	UI	Uncert:		+/-0.0182							
		TPU:		+/-0.0182							
				0.00							
Radium-226		Uncert:		+/-0.914							
		TPU:		+/-0.914							
				0.549							
Silver-108m	U	Uncert:		+/-0.0816							
		TPU:		+/-0.0816							
				-0.00886							
Thallium-208	UI	Uncert:		+/-0.0158							
		TPU:		+/-0.0158							
				0.00							
Actinium-228		Uncert:		+/-0.0353							
		TPU:		+/-0.0353							
				0.191							
Americium-241	23.4	Uncert:		+/-0.444							
		TPU:		+/-0.444							
				23.8							
Bismuth-212	U	Uncert:		+/-1.98							
		TPU:		+/-1.98							
				-0.0176							
Bismuth-214	U	Uncert:		+/-0.736							
		TPU:		+/-0.736							
				0.0982							
Cesium-134	U	Uncert:		+/-0.171							
		TPU:		+/-0.171							
				0.163							
Cesium-137	9.50	Uncert:		+/-0.170							
		TPU:		+/-0.170							
				9.86							
Cobalt-60	13.8	Uncert:		+/-0.875							
		TPU:		+/-0.875							
				14.8							
		Uncert:		+/-1.03							
		TPU:		+/-1.03							

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	602161									
Europium-152		U	-0.174	pCi/g						
	Uncert:		+/-0.233							
	TPU:		+/-0.233							
Europium-154		U	0.126	pCi/g						
	Uncert:		+/-0.233							
	TPU:		+/-0.233							
Europium-155		U	-0.128	pCi/g						
	Uncert:		+/-0.210							
	TPU:		+/-0.210							
Lead-212		U	0.119	pCi/g						
	Uncert:		+/-0.129							
	TPU:		+/-0.129							
Lead-214		U	0.119	pCi/g						
	Uncert:		+/-0.176							
	TPU:		+/-0.176							
Manganese-54		U	0.0245	pCi/g						
	Uncert:		+/-0.105							
	TPU:		+/-0.105							
Niobium-94		U	0.036	pCi/g						
	Uncert:		+/-0.0819							
	TPU:		+/-0.0819							
Potassium-40		U	0.541	pCi/g						
	Uncert:		+/-0.781							
	TPU:		+/-0.781							
Radium-226		U	0.0982	pCi/g			(75%-125%)			
	Uncert:		+/-0.171							
	TPU:		+/-0.171							
Silver-108m		U	0.0491	pCi/g						
	Uncert:		+/-0.101							
	TPU:		+/-0.101							
Thallium-208		U	0.0964	pCi/g						
	Uncert:		+/-0.148							
	TPU:		+/-0.148							
QC1201260869 MB										
Actinium-228		U	0.132	pCi/g					01/15/07	06:51
	Uncert:		+/-0.0638							
	TPU:		+/-0.0638							
Americium-241		U	0.0114	pCi/g						
	Uncert:		+/-0.019							
	TPU:		+/-0.019							
Bismuth-212		U	0.0113	pCi/g						
	Uncert:		+/-0.125							
	TPU:		+/-0.125							
Bismuth-214		U	0.0447	pCi/g						
	Uncert:		+/-0.0353							
	TPU:		+/-0.0353							
Cesium-134		U	0.0109	pCi/g						
	Uncert:		+/-0.0214							

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Rad Gamma Spec											
Batch	602161										
Cesium-137	TPU:			+/-0.0214							
			U	0.00587	pCi/g						
	Uncert:			+/-0.021							
Cobalt-60	TPU:			+/-0.021							
			U	-0.0146	pCi/g						
	Uncert:			+/-0.016							
Europium-152	TPU:			+/-0.016							
			U	-0.0136	pCi/g						
	Uncert:			+/-0.0398							
Europium-154	TPU:			+/-0.0398							
			UI	0.00	pCi/g						
	Uncert:			+/-0.0861							
Europium-155	TPU:			+/-0.0861							
			U	0.0114	pCi/g						
	Uncert:			+/-0.0335							
Lead-212	TPU:			+/-0.0335							
			U	0.0264	pCi/g						
	Uncert:			+/-0.0486							
Lead-214	TPU:			+/-0.0486							
			U	0.019	pCi/g						
	Uncert:			+/-0.0459							
Manganese-54	TPU:			+/-0.0459							
			U	-0.00254	pCi/g						
	Uncert:			+/-0.0179							
Niobium-94	TPU:			+/-0.0179							
			U	0.00615	pCi/g						
	Uncert:			+/-0.0157							
Potassium-40	TPU:			+/-0.0157							
			U	0.225	pCi/g						
	Uncert:			+/-0.183							
Radium-226	TPU:			+/-0.183							
			U	0.0447	pCi/g						
	Uncert:			+/-0.0353							
Silver-108m	TPU:			+/-0.0353							
			U	-0.0149	pCi/g						
	Uncert:			+/-0.0153							
Thallium-208	TPU:			+/-0.0153							
			U	0.00252	pCi/g						
	Uncert:			+/-0.0398							
	TPU:			+/-0.0398							
Rad Gas Flow											
Batch	601901										
QC1201260262	178924001	DUP									
Strontium-90			U	0.00386	U	0.0113	pCi/g	0	(0% - 100%) KSD1	01/15/07	22:58
			Uncert:	+/-0.0267		+/-0.0197					
			TPU:	+/-0.0267		+/-0.0197					
QC1201260264	LCS										
Strontium-90			1.85			2.01	pCi/g	109	(75%-125%)	01/15/07	18:32

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QC Summary

Workorder: 178923

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	601901										
		Uncert:		+/-0.194							
		TPU:		+/-0.232							
QC1201260261 MB											
Strontium-90			U	-0.00867	pCi/g					01/15/07	22:58
		Uncert:		+/-0.0196							
		TPU:		+/-0.0196							
QC1201260263 178924001 MS											
Strontium-90	1.86	U	0.00386	1.80	pCi/g		97	(75%-125%)		01/15/07	18:32
		Uncert:	+/-0.0267	+/-0.190							
		TPU:	+/-0.0267	+/-0.208							
Rad Liquid Scintillation											
Batch	601907										
QC1201260280 178924001 DUP											
Nickel-63		U	0.00	-4.81	pCi/g	0		(0% - 100%) KXR1		01/15/07	11:24
		Uncert:	+/-9.32	+/-8.79							
		TPU:	+/-9.32	+/-8.79							
QC1201260282 LCS											
Nickel-63	572			483	pCi/g		85	(75%-125%)		01/15/07	11:57
		Uncert:		+/-24.0							
		TPU:		+/-29.7							
QC1201260279 MB											
Nickel-63			U	-1.12	pCi/g					01/15/07	11:08
		Uncert:		+/-9.33							
		TPU:		+/-9.33							
QC1201260281 178924001 MS											
Nickel-63	572	U	0.00	530	pCi/g		93	(75%-125%)		01/15/07	11:41
		Uncert:	+/-9.32	+/-26.8							
		TPU:	+/-9.32	+/-33.0							
Batch	601908										
QC1201260284 178924001 DUP											
Technetium-99			0.387	U	0.311	pCi/g	22	(0% - 100%) MXP1		01/17/07	15:18
		Uncert:	+/-0.187	+/-0.193							
		TPU:	+/-0.188	+/-0.193							
QC1201260286 LCS											
Technetium-99	14.3			14.0	pCi/g		98	(75%-125%)		01/17/07	16:52
		Uncert:		+/-0.331							
		TPU:		+/-0.470							
QC1201260283 MB											
Technetium-99			U	-0.00407	pCi/g					01/17/07	14:31
		Uncert:		+/-0.154							
		TPU:		+/-0.154							
QC1201260285 178924001 MS											
Technetium-99	14.8		0.387	14.8	pCi/g		97	(75%-125%)		01/17/07	16:05
		Uncert:	+/-0.187	+/-0.370							
		TPU:	+/-0.188	+/-0.512							
Batch	601909										
QC1201260288 178923010 DUP											
Tritium		U	0.425	U	1.18	pCi/g	0	(0% - 100%) MXP1		01/15/07	17:06

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QC Summary

Workorder: 178923

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation											
Batch	601909										
		Uncert:	+/-1.30	+/-1.38							
		TPU:	+/-1.30	+/-1.38							
QC1201260290	LCS										
Tritium		8.17		6.75	pCi/g		83	(75%-125%)		01/15/07	18:10
		Uncert:		+/-1.04							
		TPU:		+/-1.05							
QC1201260287	MB										
Tritium			U	0.265	pCi/g					01/15/07	16:35
		Uncert:		+/-0.647							
		TPU:		+/-0.647							
QC1201260289	178923010	MS									
Tritium		8.31	U	0.425	pCi/g		91	(75%-125%)		01/15/07	17:38
		Uncert:		+/-1.30							
		TPU:		+/-1.30							
Batch	601910										
QC1201260292	178924001	DUP									
Carbon-14			U	-0.00673	U	-0.0176	pCi/g	0	(0% - 100%)	MXPI	01/15/07 20:52
		Uncert:		+/-0.119		+/-0.116					
		TPU:		+/-0.119		+/-0.116					
QC1201260294	LCS										
Carbon-14		7.16		7.18	pCi/g		100	(75%-125%)		01/15/07	23:00
		Uncert:		+/-0.216							
		TPU:		+/-0.243							
QC1201260291	MB										
Carbon-14			U	-0.0566	pCi/g					01/15/07	19:48
		Uncert:		+/-0.115							
		TPU:		+/-0.115							
QC1201260293	178924001	MS									
Carbon-14		15.8	U	-0.00673	pCi/g		94	(75%-125%)		01/16/07	08:43
		Uncert:		+/-0.119		+/-0.928					
		TPU:		+/-0.119		+/-0.957					
Batch	602972										
QC1201262580	178924001	DUP									
Iron-55			U	-17.2	U	-26.7	pCi/g	0	(0% - 100%)	MXPI	01/18/07 09:26
		Uncert:		+/-28.4		+/-23.0					
		TPU:		+/-28.4		+/-23.0					
QC1201262582	LCS										
Iron-55		799		795	pCi/g		100	(75%-125%)		01/18/07	09:59
		Uncert:		+/-66.3							
		TPU:		+/-87.8							
QC1201262579	MB										
Iron-55			U	31.7	pCi/g					01/18/07	09:09
		Uncert:		+/-37.6							
		TPU:		+/-37.7							
QC1201262581	178924001	MS									
Iron-55		624	U	-17.2	pCi/g		87	(75%-125%)		01/18/07	09:42
		Uncert:		+/-28.4		+/-48.4					
		TPU:		+/-28.4		+/-63.7					

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QC Summary

Workorder: 178923

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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Notes:

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

** Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

ISFSI HAUL ROAD (SOUTHERN SECTION)
SURVEY UNIT 9539-0002

RELEASE RECORD

ATTACHMENT 4 (DQA RESULTS)

ISFSI HAUL ROAD (SOUTHERN SECTION)
SURVEY UNIT 9539-0002

RELEASE RECORD

**ATTACHMENT 4A
(PRELIMINARY DATA REVIEW)**

ISFSI HAUL ROAD (SOUTH SECTION)
SURVEY UNIT 9539-0002

PRELIMINARY DATA ASSESSMENT

RELEASE RECORD
Attachment 4

Survey Unit: 9539-0002
Area Description ISFSI Haul Road (south section)
Classification 2
Survey Media Surface Soils
Type of Survey Final Status Survey
Number of Measurements 15 Static, 5 Investigative

**STATISTICS on TOTAL
POPULATION**

	Cs-137	Co-60
DCGL_{op} (pCi/g):	5.38E+00	2.59E+00
Minimum Value:	-1.79E-02	-1.60E-02
Maximum Value:	2.37E-01	1.49E-02
Mean:	3.67E-02	9.12E-05
Median:	1.85E-02	-2.42E-03
Standard Deviation:	6.96E-02	8.31E-03

**STATISTICS on NON-
PARAMETRIC POPULATION**

	Cs-137	Co-60
DCGL_{op} (pCi/g):	5.38E+00	2.59E+00
Minimum Value:	-1.79E-02	-1.30E-02
Maximum Value:	2.37E-01	1.49E-02
Mean:	4.60E-02	1.93E-03
Median:	1.75E-02	-8.10E-04
Standard Deviation:	8.05E-02	8.52E-03

Sample ID	GPS Coordinates		Cs-137				Co-60				Fraction of DCGL
			Result	2σ	MDA	Identified	Result	2σ	MDA	Identified	
	North	East	(pCi/g)		(pCi/g)		(pCi/g)		(pCi/g)		
9539-0002-001F	235619.30	671337.09	2.14E-02	0.019	3.48E-02	+	-2.42E-03	0.020	3.24E-02		0.003
9539-0002-002F	235619.30	671414.83	3.15E-02	0.031	3.37E-02	+	-7.03E-03	0.018	3.19E-02		0.003
9539-0002-003F	235619.30	671492.57	3.16E-03	0.025	4.66E-02		-1.30E-02	0.030	4.44E-02		-0.004
9539-0002-004F	235619.30	671570.30	5.38E-03	0.017	2.93E-02		-4.10E-03	0.017	3.20E-02		-0.001
9539-0002-005F	235619.30	671648.04	1.90E-03	0.036	6.28E-02		-4.58E-03	0.042	6.90E-02		-0.001

ISFSI HAUL ROAD (SOUTH SECTION)
SURVEY UNIT 9539-0002

PRELIMINARY DATA ASSESSMENT

RELEASE RECORD
Attachment 4

Sample ID	GPS Coordinates		Cs-137				Co-60				Fraction of DCGL
	North	East	Result (pCi/g)	2 σ	MDA (pCi/g)	Identified	Result (pCi/g)	2 σ	MDA (pCi/g)	Identified	
9539-0002-006F	235619.30	671725.78	1.35E-01	0.033	2.73E-02	+	1.10E-02	0.017	3.05E-02		0.029
9539-0002-007F	235619.30	671803.52	1.86E-02	0.012	1.37E-02	+	-3.48E-03	0.007	1.26E-02		0.002
9539-0002-008F	235619.30	671881.26	-8.30E-03	0.015	2.76E-02		8.74E-03	0.016	3.03E-02		0.002
9539-0002-009F	235619.30	671959.00	1.75E-02	0.017	3.53E-02	+	9.91E-03	0.018	3.34E-02		0.007
9539-0002-010F	235619.30	672036.73	2.37E-01	0.033	2.82E-02	+	1.27E-02	0.018	3.26E-02		0.049
9539-0002-011F	235619.30	672114.47	2.11E-01	0.053	4.54E-02	+	-8.10E-04	0.025	4.68E-02		0.039
9539-0002-012F	235551.97	672308.82	2.89E-02	0.038	3.58E-02		1.58E-03	0.019	3.62E-02		0.006
9539-0002-013F	235551.97	672386.56	-1.79E-02	0.016	2.59E-02		1.49E-02	0.014	3.08E-02	+	0.002
9539-0002-014F	235551.97	672464.30	1.06E-02	0.013	2.43E-02		9.88E-03	0.032	2.61E-02		0.006
9539-0002-015F	235551.97	672542.03	-6.27E-03	0.016	2.62E-02		-4.35E-03	0.021	3.38E-02		-0.003
9539-0002-001FS	235619.30	671337.09	2.16E-02	0.023	3.90E-02		-1.60E-02	0.028	4.05E-02		-0.002
9539-0002-016I	235636.80	671252.94	-7.76E-03	0.036	6.12E-02		-1.62E-04	0.039	6.44E-02		-0.002
9539-0002-017I	235641.32	671268.63	-7.02E-03	0.013	2.32E-02		-2.48E-03	0.013	2.34E-02		-0.002
9539-0002-018I	235646.11	671332.38	3.68E-02	0.030	4.23E-02	+	-6.32E-03	0.026	3.95E-02		0.004
9539-0002-019I	235627.59	671340.12	1.87E-02	0.024	3.22E-02		-2.63E-03	0.019	3.40E-02		0.002
9539-0002-020I	235570.76	672188.84	1.85E-02	0.017	2.02E-02	+	5.68E-04	0.010	1.84E-02		0.004

ISFSI HAUL ROAD (SOUTHERN SECTION)

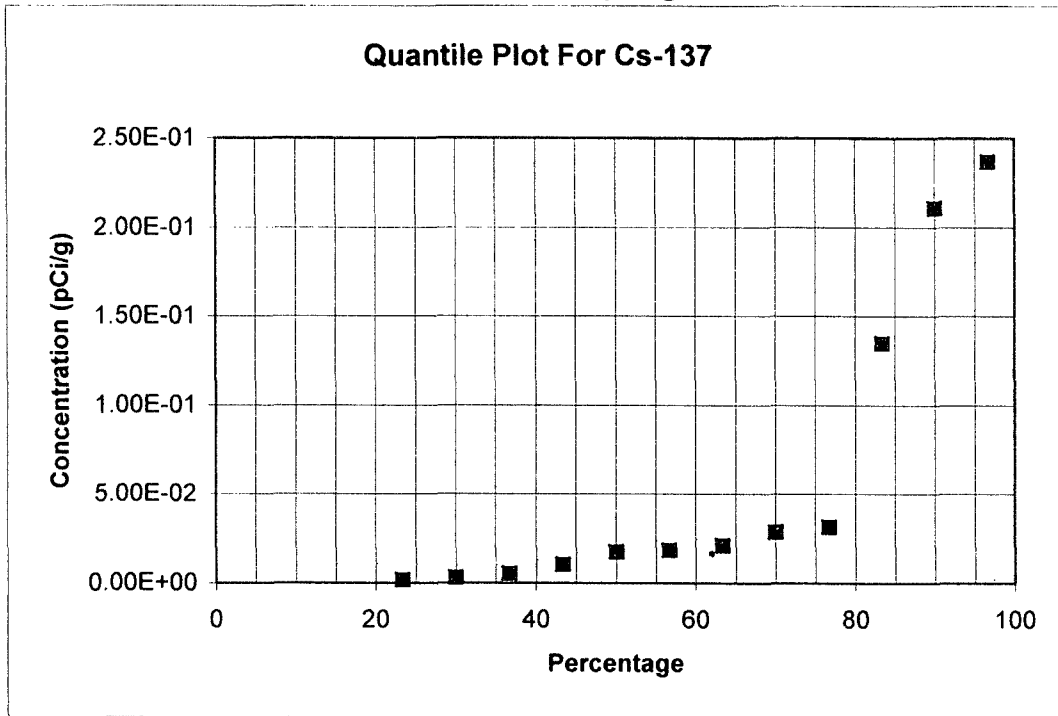
SURVEY UNIT 9539-0002

RELEASE RECORD


**ATTACHMENT 4B
(GRAPHICAL REPRESENTATION OF
DATA)**

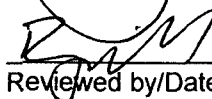
QUANTILE PLOT FOR CESIUM-137

Survey Unit: 9539-0002
 Survey Unit Name: ISFSI Haul Road (south section)
 Mean: 4.60E-02 pCi/g



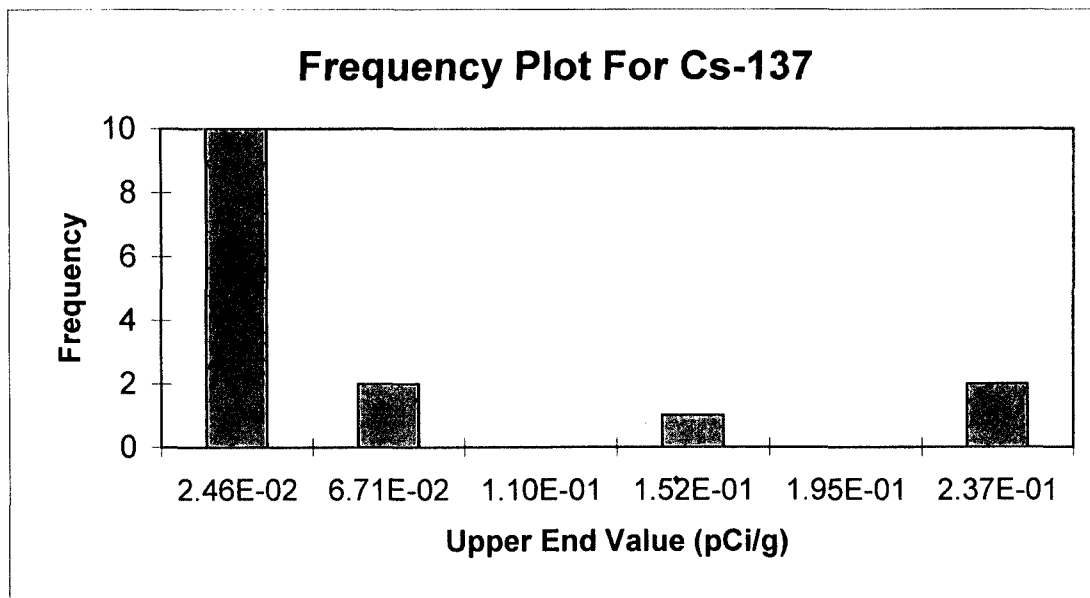
Cs-137	Rank	Percentage
-1.79E-02	1	3.3%
-8.30E-03	2	10.0%
-6.27E-03	3	16.7%
1.90E-03	4	23.3%
3.16E-03	5	30.0%
5.38E-03	6	36.7%
1.06E-02	7	43.3%
1.75E-02	8	50.0%
1.86E-02	9	56.7%
2.14E-02	10	63.3%
2.89E-02	11	70.0%
3.15E-02	12	76.7%
1.35E-01	13	83.3%
2.11E-01	14	90.0%
2.37E-01	15	96.7%

 D. WOZNIAK 1/24/07
 Submitted by/Date

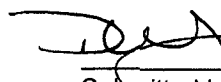
 R. Massey 1/24/07
 Reviewed by/Date

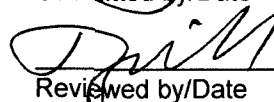
FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9539-0002
Survey Unit Name: ISFSI Haul Road (south section)
Mean: 4.60E-02 pCi/g



Upper End Value	Observation Frequency	Observation Frequency
2.46E-02	10	67%
6.71E-02	2	13%
1.10E-01	0	0%
1.52E-01	1	7%
1.95E-01	0	0%
2.37E-01	2	13%
Total:	15	100%


Submitted by/Date D. WOLKOWAK 1/24/07


Reviewed by/Date R. Masserill 1/24/07

ISFSI HAUL ROAD (SOUTHERN SECTION)
SURVEY UNIT 9539-0002

RELEASE RECORD

ATTACHMENT 4C (SIGN TEST)

Survey Area Number: 9539		Survey Unit Number: 0002		WPIR #: 2006-0048		
Survey Area Name: ISFSI Haul Road (south section)		Classification: 2		TYPE I (α error): 0.05		
N: 15						
Radionuclides:	1 st Radionuclide Cs-137	2 nd Radionuclide Co-60	3 rd Radionuclide	4 th Radionuclide		
DCGL:	5.38E+00	2.59E+00				
Results 1 st Radionuclide (pCi/g)	Results 2 nd Radionuclide (pCi/g)	Results 3 rd Radionuclide (pCi/g)	Results 4 th Radionuclide (pCi/g)	Weighted Sum (W _s)	1-W _s	Sign
2.14E-02	-2.42E-03			0.00	1.00	+1
3.15E-02	-7.03E-03			0.00	1.00	+1
3.16E-03	-1.30E-02			0.00	1.00	+1
5.38E-03	-4.10E-03			0.00	1.00	+1
1.90E-03	-4.58E-03			0.00	1.00	+1
1.35E-01	1.10E-02			0.03	0.97	+1
1.86E-02	-3.48E-03			0.00	1.00	+1
-8.30E-03	8.74E-03			0.00	1.00	+1
1.75E-02	9.91E-03			0.01	0.99	+1
2.37E-01	1.27E-02			0.05	0.95	+1
2.11E-01	-8.10E-04			0.04	0.96	+1
2.89E-02	1.58E-03			0.01	0.99	+1
-1.79E-02	1.49E-02			0.00	1.00	+1
1.06E-02	9.88E-03			0.01	0.99	+1
-6.27E-03	-4.35E-03			0.00	1.00	+1
Number of positive differences (S+)					15	

the Acceptance Criteria

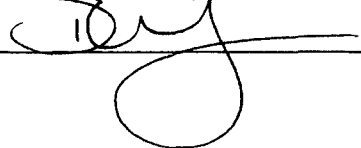
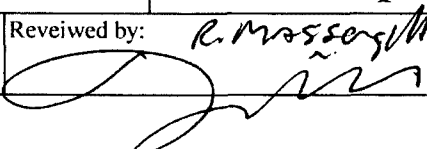
Date: 1/23/07

ISFSI HAUL ROAD (SOUTHERN SECTION)
SURVEY UNIT 9539-0002

RELEASE RECORD

ATTACHMENT 4D (QC SPLIT RESULTS)

Split Sample Assessment Form

Survey Area #:	9539	Survey Unit #	0002	Survey Unit Name:	ISFSI Haul Road (south section)															
Sample Plan or WPIR#:	2006-0048				SML#:	9539-0002-001														
Sample Description: Comparison of split samples collected from sample measurement location #1 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9539-0002-001F, the comparison sample was 9539-0002-001FS.																				
STANDARD					COMPARISON															
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)												
Ra-226	5.49E-01	0.041	13	0.6 - 1.66	5.95E-01	0.053	1.08	Y												
Comments/Corrective Actions: None					Table is provided to show acceptance criteria used to assess split samples. <table> <tr> <td><u>Resolution</u></td> <td><u>Agreement Range</u></td> </tr> <tr> <td>4 - 7</td> <td>0.5 - 2.0</td> </tr> <tr> <td>8 - 15</td> <td>0.6 - 1.66</td> </tr> <tr> <td>16 - 50</td> <td>0.75 - 1.33</td> </tr> <tr> <td>51 - 200</td> <td>0.80 - 1.25</td> </tr> <tr> <td>>200</td> <td>0.85 - 1.18</td> </tr> </table>				<u>Resolution</u>	<u>Agreement Range</u>	4 - 7	0.5 - 2.0	8 - 15	0.6 - 1.66	16 - 50	0.75 - 1.33	51 - 200	0.80 - 1.25	>200	0.85 - 1.18
<u>Resolution</u>	<u>Agreement Range</u>																			
4 - 7	0.5 - 2.0																			
8 - 15	0.6 - 1.66																			
16 - 50	0.75 - 1.33																			
51 - 200	0.80 - 1.25																			
>200	0.85 - 1.18																			
Performed by: D. Wojtkowiak	Date:	Reveiwed by:	Date:																	
	1/23/2007		1/23/07																	

ISFSI HAUL ROAD (SOUTHERN SECTION)

SURVEY UNIT 9539-0002

RELEASE RECORD

ATTACHMENT 4E
(COMPASS DQA WITH POWER CURVE)



DQA Surface Soil Report

Assessment Summary

Site:	9539		
Planner(s):	Wojo		
Survey Unit Name:	9539-0002		
Report Number:	1		
Survey Unit Samples:	15		
Reference Area Samples:	0		
Test Performed:	Sign	Test Result:	Not Performed
Judgmental Samples:	0	EMC Result:	Not Performed
Assessment Conclusion:	<i>Reject Null Hypothesis (Survey Unit PASSES)</i>		

Retrospective Power Curve

