



Final Status Survey Final Report Phase VII

**Appendix A10
Survey Unit Release Record
9312-0008, 115 kV West Side GW
Treatment Facility (Former
Radiologically Controlled Area)**

May 2007



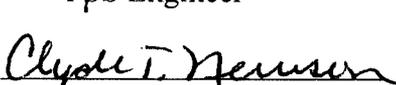
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FINAL STATUS SURVEY RELEASE RECORD
115KV WEST SIDE GW TREATMENT FACILITY
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0008

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1. SURVEY UNIT DESCRIPTION

Survey Unit 9312-0008 (115kV West Side GW Treatment Facility) is designated as Final Status Survey (FSS) Class 1 and consists of approximately one thousand three hundred fifty-one (1,351) square meters of open land and is located approximately one thousand six hundred eight six (1,686) feet to the southeast of the site reference coordinate system benchmark used at Haddam Neck Plant (HNP) (see Attachment 1). The survey unit is bounded as follows: land Survey Unit 9312-0003 to the north (called north as oriented with the north to south flow of the Connecticut River), land Survey Unit 9306-0000 to the west, land Survey Area 9522 to the south, and land Survey Unit 9312-0007 to the east. As a result of demolition and remediation activities, the area topography is mostly flat and de-vegetated. The survey unit has a moderate slope running from east to west.

The reference coordinates associated with this survey unit are E009 through E011 by S069 through S072 (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 9312-0008 consisted of:

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

A review of the "*Initial and Supplemental Characterization Reports*" as well as the previous "*Classification Basis Summaries*" was performed. 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.

During plant operation, Survey Unit 9312-0008 was the location of significant reactor support structures and systems, primarily the southwestern quadrant of the 115kV Switchyard. The 115 kV Switchyard was situated outside the former Radiologically Controlled Area (RCA) just south of the Containment building.

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This area included two Station Service Transformers and the 115 kV Tie Breaker. Also, Bus 12 was located at the southwest corner of the yard. In addition to these, there were several other transformers with associated power lines that extended beyond the switchyard area.

A review of the historical documentation indicated a significant number of operational events that may have impacted Survey Unit 9312-0008. Operational events were considered to be spills and leakage from contaminated systems. These events would have had the most impact on the radiological condition of subsurface structures and footers; and the underlying soil and bedrock prior to system and structural decontamination and demolition. Some of the major events are summarized as follows;

- The De-mineralized Water Storage Tank (DWST) and the Condensate Storage Tank (CST) were located in adjacent Survey Unit 9312-0003 to the north of Survey Unit 9312-0008. Even though these tanks were designed to normally contain only non-radioactive water, there was a documented history of radiologically contaminated water occasionally being introduced into these systems. Events that have contributed to the introduction of contaminated water into these tanks were steam generator tube failures and misalignment of valves. Historical surveys in the vicinity of these tanks did not indicate any contamination of the surrounding soils. During April of 1999, a shallow monitoring well and a deep monitoring well located to the west of the DWST location produced samples that showed positive results for tritium.
- In February of 1989 there was a release of radioactive liquid from the Spent Fuel Building drainpipe that resulted in distribution of plant related radioactivity to the drain trench located in the 115 kV Switchyard, the storm drain system components and soils at the storm drain outfall. Remediation of the plant related radioactivity associated with this event resulted in decontamination of the drain trench, the storm drain system and removal of a significant volume of soil.
- A hot particle was discovered during a routine survey of the area adjacent to the 115 kV Switchyard on June 9, 1977. The contaminant was removed and a resurvey of the entire area and the equipment removed from the area indicated no detectable activity. Gamma spectrometry of the speck indicated it to be Co-60.
- A routine survey of the RCA boundary on February 24, 1989, alerted Radiation Protection personnel to the presence of exposure rates as high as 160 mr/hr at the switchyard trench. The source of contamination was discovered to be a fifty (50) gallon discharge of radioactive liquid into an uncontrolled drain from the Spent Fuel Building. The discharge occurred following filtration of sludge removed from the containment sump. The drain discharged the liquid into the trench at the southeast corner of the 115 kV Switchyard and subsequently into the leach field east of the discharge canal. Identified contaminated soil in the trench area was remediated.

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- During an annual survey performed on August 1, 1995, radioactive particles were found in and around the switchyard area. Some of the particles were embedded in the pavement around the switchyard. Gamma spectrometry of dirt samples collected from the switchyard identified Co-60 and Cs-137. The contaminated soil in the switchyard and portions of pavement were removed.

Major demolition and remediation activities began in 2002. All systems and components located inside this survey unit were removed and building structural surfaces were decontaminated to ensure contamination levels were acceptable for controlled demolition. Confirmatory radiological surveys were performed throughout the demolition process. All above grade structures were then demolished to grade.

Outside of the Containment shell, extensive soil remediation was performed in Survey Area 9312. A large excavation was created to the north of the Containment that was designated as Excavation #2. This excavation included the area in the vicinity of the Refueling Waster Storage Tank and the Primary Auxiliary Building (PAB) corridor. A second large excavation, designated as Excavation #1 was located over the PAB footprint. A third excavation, designated as Excavation #3 was located in the area between the Containment Building and Spent Fuel Building (SFB). Soil was excavated and removed as adjacent structures were demolished. This process continued until bedrock was exposed. Subsurface structures and footings that remained following demolition and excavation include the Containment Mat, the Cable Vault wall, the Service Building east wall, a remnant of the PAB northwest wall, the Waste Disposal Building footing and miscellaneous fragments of footings and slabs on the bedrock. As with the Containment basement shell, all excavations were backfilled with clean fill following the performance of a radiological assessment. No above grade structures currently reside within Survey Unit 9312-0008.

In Survey Area 9312, post-remediation soil samples were taken from the as-left surface soils under two (2) Survey and Sampling Work Plans, SSWP-06-08-000 and SSWP-06-12-001. Thirty-five (35) post remediation surface soil samples were collected from the various locations within Survey Area 9312. All samples were collected and analyzed by gamma spectroscopy by an approved off-site laboratory. Ten (10) of the thirty-five (35) post remediation samples collected were analyzed for the full suite of "Hard-to-Detect" (HTD) radionuclides specified in the LTP, Table 2-12, "*Radionuclides Potentially Present at Haddam Neck Plant*" and as provided in Table 3. Statistical quantities (mean, median and standard deviation) from the 2006 post-remediation survey conducted under SSWP-06-08-000 and SSWP-06-12-001 are provided in Table 1.

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Table 1 – Basic Statistical Quantities for Cs-137 and Co-60 from the 2006 Post Remediation Survey

	Cs-137 (pCi/g)	Co-60 (pCi/g)
Minimum Value :	1.32E-02	-5.00E-02
Maximum Value :	1.70E+00	1.43E+00
Mean :	2.38E-01	1.08E-01
Median :	1.65E-01	1.46E-02
Standard Deviation :	3.10E-01	2.76E-01

A review of this sample data shows Cs-137 and Co-60 to be the primary radionuclides of concern, which both isotopes reported at fairly low concentrations. The sample population as a whole was evaluated to assess the distribution of the detected radionuclides. The radionuclide distribution percentage for each sample in the population was calculated by dividing the concentration of each detected radionuclide by the total activity concentration in the sample, expressing the abundance of the specific nuclide in the sample compared against the total activity. The mean radionuclide distribution was then calculated by taking the average of the individual sample distribution fractions. The results are provided in Table 2.

Table 2 – Distribution Fraction for Detectable Radionuclides in Soil Sample Population

Detected Radionuclide	Distribution Fraction
Cs-137	0.689
Co-60	0.311

No HTD radionuclides were positively identified in concentrations meeting the accepted criteria for detection (i.e., a result greater than two (2) standard deviations uncertainty). Radionuclide screening or de-selection is a process where 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. While Sr-90 was not identified in the soil characterization results, it was decided to include Sr-90 as a radionuclide of concern for this survey unit as Sr-90 was prevalent in the soils prior to remediation. Therefore, all volumetric soil samples taken as part of the survey design for this survey unit were subjected to direct analysis for Sr-90.

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

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This survey area is affected by existing and future 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 the identification of radioactive material above the Derived Concentration Guideline Levels (DCGLs), and the need for radiological remediation, it was concluded that there was some probability for residual radioactivity in concentrations greater than the DCGLs, justifying a final survey unit classification of Class 1 (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.

The primary objective of the FSS plan was to demonstrate that the level of residual radioactivity in Survey Unit 9312-0008 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.

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.

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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 Total Effective Dose Equivalent (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.

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

This survey unit is considered impacted by future groundwater radioactive contamination, as there are underground foundations containing residual radioactive material within the groundwater saturated zone in the area (reference CY memo ISC 06-024). The dose contribution from future groundwater, the third dose component, is bounded by two (2) mrem/yr TEDE.

Equation 2

$$19 \text{ mrem/yr}_{\text{Total}} = 15 \text{ mrem/yr}_{\text{Soil}} + 2 \text{ mrem/yr}_{\text{Existing GW}} + 2 \text{ mrem/yr}_{\text{FutureGW}}$$

The allowable dose for soil in this survey unit is fifteen (15) mrem/yr TEDE as shown by Equation 2 above. The concentration of residual radioactivity resulting in fifteen (15) mrem/yr TEDE is designated as the Operational DCGL (DCGL_{op}), and has been established for the radionuclides of concern as provided in Table 3.

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Table 3 – 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	2.47E+02	1.65E+01
C-14	5.66E+00	3.40E+00	2.26E-01
Mn-54	1.74E+01	1.04E+01	6.96E-01
Fe-55	2.74E+04	1.64E+04	1.10E+03
Co-60	3.81E+00	2.29E+00	1.52E-01
Ni-63	7.23E+02	4.34E+02	2.89E+01
Sr-90	1.55E+00	9.30E-01	6.20E-02
Nb-94	7.12E+00	4.27E+00	2.85E-01
Tc-99	1.26E+01	7.56E+00	5.04E-01
Ag-108m	7.14E+00	4.28E+00	2.86E-01
Cs-134	4.67E+00	2.80E+00	1.87E-01
Cs-137	7.91E+00	4.75E+00	3.16E-01
Eu-152	1.01E+01	6.06E+00	4.04E-01
Eu-154	9.29E+00	5.57E+00	3.72E-01
Eu-155	3.92E+02	2.35E+02	1.57E+01
Pu-238	2.96E+01	1.78E+01	1.18E+00
Pu-239/240	2.67E+01	1.60E+01	1.07E+00
Am-241 ⁽⁵⁾	2.58E+01	1.55E+01	1.03E+00
Pu-241	8.70E+02	5.22E+02	3.48E+01
Cm-243/244	2.90E+01	1.74E+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 fifteen (15) 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 2006 to establish the radiological condition of Survey Unit 9312-0008 for FSS. Cs-137 and Co-60 were the two (2) gamma emitting radionuclides reported in concentrations with the potential for exceeding the release criteria. Sr-90 was included as a radionuclide of concern due to its prevalence in the soil prior to remediation. The characterization data were used for the 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 Cs-137, Co-60 and Sr-90 would be the radionuclides of concern in Survey Unit 9312-0008 (refer to Section 3). The characterization survey did not include any other additional HTD radionuclides of concern for this survey unit. As Sr-90 concentrations were determined by direct analysis, surrogate DCGLs were not required as part of the survey design 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.

As the survey unit is classified as a Class 1 surface soils area, and discrete, elevated areas of contamination was possible, the application of the Elevated Measurement Comparison (EMC) remained an option.

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.

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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 0.73 to achieve a relative shift (Δ/σ) in the range of 1 and 3. The resulting adjusted relative shift was 2.0. 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 1 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 4.

Table 4 - Sample Measurement Locations with Associated GPS Coordinates

Designation	Northing	Easting
9312-0008-001F	236475.90	668844.00
9312-0008-002F	236475.90	668877.34
9312-0008-003F	236447.02	668827.33
9312-0008-004F	236447.02	668860.67
9312-0008-005F	236447.02	668894.01
9312-0008-006F	236447.02	668927.35
9312-0008-007F	236418.15	668810.66
9312-0008-008F	236418.15	668844.00

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9312-0008-009F	236418.15	668877.34
9312-0008-010F	236418.15	668910.68
9312-0008-011F	236389.28	668827.33
9312-0008-012F	236389.28	668860.67
9312-0008-013F	236389.28	668894.01
9312-0008-014F	236360.40	668844.00
9312-0008-015F	236360.40	668877.34

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 3.

The LTP requires a minimum of 5% of the samples taken for non-parametric statistical testing be selected for QC evaluation. 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 100% for outdoor Class 1 areas.

For this Class 1 survey unit, the "Investigation Level" for area scanning and soil sample measurement results are those levels specified in LTP, Table 5-8. Table 5 provides a synopsis of the survey design.

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Table 5 – Synopsis of the Survey Design		
Feature	Design Criteria	Basis
Survey Unit Land Area	1,351 m ²	Based on AutoCAD-LT
Number of Measurements	15 (15 systematic grid)	Type 1 and Type 2 errors were 0.05, sigma was 0.14 pCi/g, the LBGR was set at 0.73 to achieve a Relative Shift in the range of 1 and 3
Grid Spacing	10.14 m	Based on triangular grid
Operational DCGL	4.75 pCi/g Cs-137 2.29 pCi/g Co-60	Administratively set to achieve fifteen (15) mrem/yr TEDE ⁽¹⁾
Soil Investigation Level	4.75 pCi/g Cs-137 2.29 pCi/g Co-60	The Operational DCGL meets the LTP criteria for a Class 1 survey unit
Scan Survey Area Coverage	Approximately 100% of the area	The LTP requires 100% area coverage for Class 1 survey units
Scan Investigation Level	An instrument response greater than the Scan MDC(DCGL _{EMC}) of 2,810 cpm plus ambient background	Based upon a Minimum Detectable Count Rate (MDCR) of 2,020 cpm and a corresponding MDC _{scan} of 13.92 pCi/g Cs-137 and 3.23 pCi/g Co-60

(1) The allowable dose for soil in this survey unit is fifteen (15) 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) 2006-0047. 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.

A single scan area was established that constituted approximately 100% of the surface area of Survey Unit 9312-0008. Grid lines, one (1) 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 5,910 counts per minute (cpm) up to 11,600 cpm.

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The scan area was 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 close to the ground as possible and was moved at a scan speed of about 0.5 meters per second. Approximately 100% 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 circle was established 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 (9312-0008-006F and 9312-0008-011F) were randomly selected for HTD radionuclide analysis.

The implementation of survey specific quality control measures included the collection of one (1) sample (9312-0008-003F) for "split sample" analysis.

6. SURVEY RESULTS

All field survey activities were conducted between January 24, 2007 and January 25, 2007.

The sample locations identified in the FSS plan were scanned over approximately a one (1) meter radius for elevated radiation levels. Table 6 provides an overview of the scan results for sample measurement locations. Scan results are provided in Attachment 2.

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Table 6 - Scan Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾ (kcpm)	> Action Level
1	7.06	9.55	NO
2	7.91	9.68	NO
3	7.02	9.41	NO
4	6.88	9.96	NO
5	7.21	10.82	NO
6	7.58	10.88	NO
7	7.51	10.20	NO
8	8.30	10.64	NO
9	6.40	10.44	NO
10	7.49	9.78	NO
11	7.17	10.58	NO
12	7.17	10.25	NO
13	7.08	10.01	NO
14	8.67	11.27	NO
15	10.80	13.11	NO

(1) The action level is based on a measurement in accordance with the FSS plan (MDC(DCGL_{EMC}) of 2,810 cpm plus ambient background)

The scan area, that comprised approximately 100% of the total surface area for the survey unit, were scanned for elevated radiation levels. The area was scanned in accordance with the FSS plan on January 24, 2007 through January 25, 2007.

Forty-four (44) scan strips were initially established in this survey unit. Several elevated measurement locations were identified during scanning. Table 7 provides an overview of the scan area survey. Scan results are provided in Attachment 2.

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Table 7 - Scan Area Results

Scan Strips	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾ (kcpm)	Elevated Reading Identification ⁽²⁾	Investigation Sample
1 thru 10	8.45	10.53	None	None
11 thru 20	9.07	10.52	None	None
21 thru 30	9.83	11.66	None	None
31 thru 40	14.4	12.61	9312-08-ER-00-31-1	9312-0008-016I
			9312-08-ER-00-32-1	9312-0008-017I
			9312-08-ER-00-35-1	9312-0008-018I
41 thru 44	10.7	12.19	None	None

- (1) The action level is based on a measurement in accordance with the FSS plan (MDC(DCGL_{EMC}) of 2,810 cpm plus ambient background)
- (2) ER is an abbreviation associated with the barcodes used in the field where ER stands for Elevated Reading.

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 splits and the three (3) investigation samples using gamma spectroscopy. Gamma spectroscopy analysis was performed to the required MDCs. 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 was the only gamma-emitting radionuclide reported in any appreciable concentration.

Cs-137 was identified in five (5) of the fifteen (15) samples collected for non-parametric statistical testing. Co-60 was not positively identified in any sample from the statistical sample population. The mean of the gamma spectroscopic analysis results for the sample population indicated that Cs-137 was present at levels slightly lower than expected environmental levels for Cs-137 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 8.

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Table 8 - Summary of Gamma Spectroscopy Results for Surface Soil Samples Comprising the Statistical Sample Population

Sample Number	Cs-137 pCi/g
9312-0008-001F	1.88E-02
9312-0008-002F	1.70E-02
9312-0008-003F	1.27E-02
9312-0008-004F	0.00E+00
9312-0008-005F	2.10E-03
9312-0008-006F	5.37E-03
9312-0008-007F	2.14E-02
9312-0008-008F	2.10E-02
9312-0008-009F	8.38E-02
9312-0008-010F	3.41E-02
9312-0008-011F	3.45E-02
9312-0008-012F	-3.17E-03
9312-0008-013F	2.20E-02
9312-0008-014F	1.40E-02
9312-0008-015F	3.34E-03

In addition to Cs-137 and Co-60, Sr-90 was also identified during the DQO process as a radionuclide of concern. Subsequently, all samples were subjected to analysis by gas proportional counting for Sr-90. All analyses met the required minimum MDC.

Sr-90 was positively identified (i.e., a result greater than two (2) standard deviations uncertainty) in three (3) of the fifteen (15) samples collected for non-parametric statistical testing. The results of the Sr-90 analysis for the statistical sample population are provided below in Table 9.

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**Table 9 - Summary of Sr-90 Analysis Results for Surface Soil Samples
Comprising the Statistical Sample Population**

Sample Number	Sr-90 pCi/g
9312-0008-001F	2.35E-02
9312-0008-002F	2.96E-01
9312-0008-003F	3.08E-02
9312-0008-004F	-4.36E-03
9312-0008-005F	5.33E-03
9312-0008-006F	3.56E-03
9312-0008-007F	3.95E-03
9312-0008-008F	1.44E-02
9312-0008-009F	-1.70E-03
9312-0008-010F	-5.00E-03
9312-0008-011F	4.26E-03
9312-0008-012F	1.38E-02
9312-0008-013F	9.52E-03
9312-0008-014F	3.92E-03
9312-0008-015F	4.41E-02

In addition to Sr-90, the off-site laboratory also processed, as required by the sample plan, two (2) samples for the full suite of HTD radionuclides as specified in LTP, Table 2-12, "*Radionuclides Potentially Present at Haddam Neck Plant*" and as provided in Table 3. The requested analyses included alpha spectroscopy, gas proportional counting, and liquid scintillation depending on the radionuclide and the measurement method. All analyses performed met the required minimum MDC.

H-3 was the only HTD other than Sr-90, which by analysis, met the criteria for detection (i.e., a result greater than two standard deviations uncertainty). The highest result for H-3 was at less than 1% of the DCGL_{op} for H-3. Therefore, H-3 will not be considered in the final dose determination for this survey unit. As previously stated in Section 4 of this report, 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.

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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 combination of the fractions of each detected radionuclide against their respective Operational DCGL must be less than or equal to one (1). 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 9312-0008 are provided in Table 10 below.

**Table 10 – Results of Unity Calculation for Surface Soil Samples
Comprising the Statistical Sample Population⁽¹⁾⁽²⁾⁽³⁾**

Sample Number	Fraction of the Operational DCGL		Unity
	Cs-137	Sr-90	
9312-0008-001F	-	-	-
9312-0008-002F	0.004	0.318	0.322
9312-0008-003F	-	0.033	0.033
9312-0008-004F	-	-	-
9312-0008-005F	-	-	-
9312-0008-006F	-	-	-
9312-0008-007F	0.005	-	0.005
9312-0008-008F	-	-	-
9312-0008-009F	0.018	-	0.018
9312-0008-010F	0.007	-	0.007
9312-0008-011F	0.007	-	0.007
9312-0008-012F	-	-	-
9312-0008-013F	-	-	-

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**Table 10 – Results of Unity Calculation for Surface Soil Samples
Comprising the Statistical Sample Population⁽¹⁾⁽²⁾⁽³⁾**

Sample Number	Fraction of the Operational DCGL		Unity
	Cs-137	Sr-90	
9312-0008-014F	-	-	-
9312-0008-015F	-	0.047	0.047

- (1) “-“ indicate that the radionuclide was not positively detected in the sample
- (2) Although listed as a radionuclide of concern, Co-60 was not positively detected in any of the samples comprising the statistical sample population
- (3) The Operational DCGL from Table 2 is 4.75 pCi/g for Cs-137 and 0.93 pCi/g for Sr-90 to achieve fifteen (15) mrem/yr TEDE respectively.

7. QUALITY CONTROL

The off-site laboratory processed the split samples and performed gamma spectroscopy analysis. One 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 quantity in the field split results at location 9312-0008-003F to evaluate in accordance with procedure. Evaluation using the reported results for naturally occurring K-40 resulted in acceptable agreement between the field-split results at this location.

The sample analysis vendor, General Engineering Laboratories, LLC, maintains quality control and quality assurance plans as part of normal operation. Refer to Attachments 3 and 4 for data and data quality analysis results

8. INVESTIGATIONS AND RESULTS

Three (3) investigative surface soil samples were collected from scan areas exhibiting elevated scan readings. These confirmatory soil samples were analyzed for Cs-137, Co-60 and Sr-90 in accordance with the DQOs used during the survey design. Investigative Sample designations are listed with the GPS coordinates in Table 11.

**Table 11 - Investigative Sample Designations with Associated GPS
Coordinates**

Designation	Northing	Easting
9312-0008-016-I	236358.70	668868.21
9312-0008-017-I	236354.14	668865.13
9312-0008-018-I	236430.44	668940.73

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The samples are denoted as shown in Table 7, with the sample results shown in Table 12 below.

Sample Number	Cs-137 ρCi/g	Co-60 ρCi/g	Sr-90 ρCi/g	Unity Fraction⁽¹⁾
9312-0008-016-I	4.91E-02	7.91E-02	4.99E-02	0.099
9312-0008-017-I	4.21E-02	-8.17E-03	1.89E-02	0.009
9312-0008-018-I	3.86E-02	-1.15E-02	4.54E-03	-

(1) The Operational DCGL from Table 2 is 4.75 ρCi/g for Cs-137, 2.29 ρCi/g for Co-60 and 0.93 ρCi/g for Sr-90 to achieve fifteen (15) mrem/yr TEDE respectively.

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

Cs-137 was positively identified in two (2), Co-60 was positively identified in one (1) and Sr-90 was positively identified in one (1) of the three (3) investigative samples taken. All samples results were less than the Operational DCGL for each respective radionuclide and less than the unity value of one (1) when combined.

9. REMEDIATION AND RESULTS

Radiological remedial action as described by MARSSIM Section 5.4 was performed in this survey unit prior to FSS. All excavations were characterized and backfilled with “clean” fill prior to performing FSS. In the area where remediation occurred, the ground area is comprised of barren dirt with no vegetation, and the soils have been graded relatively flat to the corresponding elevation of the adjacent survey units. The results for Cs-137 following remediation were well below the Operational DCGL provided in Table 3. 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.

10. CHANGES FROM THE FINAL STATUS SURVEY PLAN

No changes were made to the FSS plan.

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.

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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 1.

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 13.

Table 13 – Basic Statistical Quantities for Cs-137, Co-60 and Sr-90 from the Final Status Survey

	Cs-137 pCi/g	Co-60 pCi/g	Sr-90 pCi/g
DCGL _{op} :	4.75E+00	2.29E+00	9.30E-01
Minimum Value:	-3.17E-03	-2.21E-02	-5.00E-03
Maximum Value:	8.38E-02	6.56E-03	2.96E-01
Mean:	1.91E-02	-4.45E-03	2.95E-02
Median:	1.70E-02	-3.88E-03	5.33E-03
Standard Deviation:	2.13E-02	8.32E-03	7.50E-02

The range of the data, about four (4) standard deviations for Cs-137 and Sr-90, was not a particularly large variation. The difference between the mean and median was about 3% to 10% 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 a slight positive skewness as confirmed by the calculated skew of 2.13 for Cs-137 and 3.67 for Sr-90.

Co-60, although included in the FSS plan for compliance purposes, was not positively identified in any 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 non-existent number of actual data points to represent the distribution.

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

12. ANOMALIES

No anomalies were noted.

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13. CONCLUSION

Survey Unit 9312-0008 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 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 1.

The dose contribution from soil is 0.54 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 considered impacted by future groundwater radioactive contamination, as there are underground foundations containing residual radioactive material within the groundwater saturated zone in the area (reference CY memo ISC 06-024). The dose contribution from future groundwater, the third dose component, is bounded by two (2) 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 4.54 mrem/yr TEDE. Therefore, Survey Unit 9312-0008 is acceptable for unrestricted release.

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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ATTACHMENT 1 (FIGURES)

Revision 0

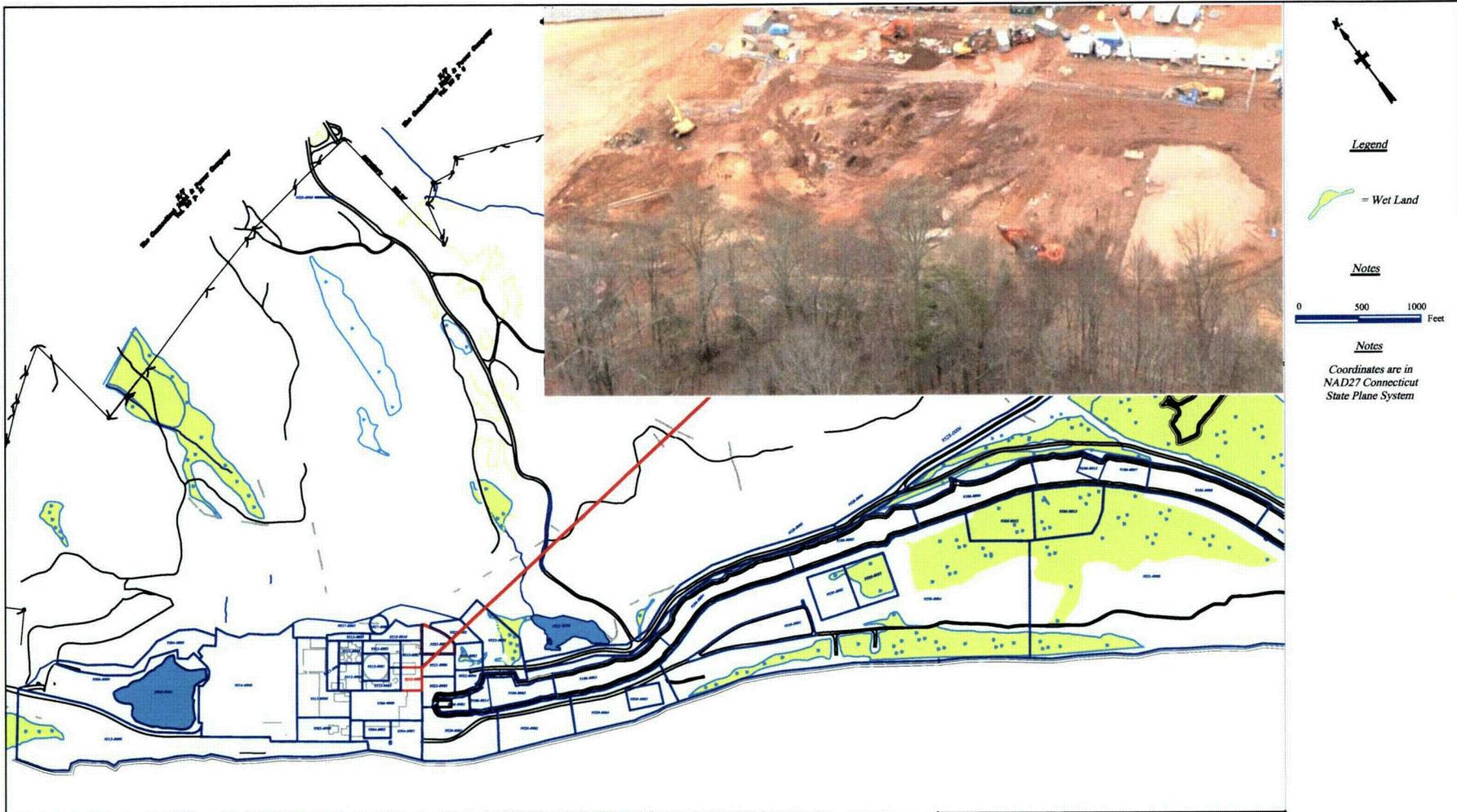
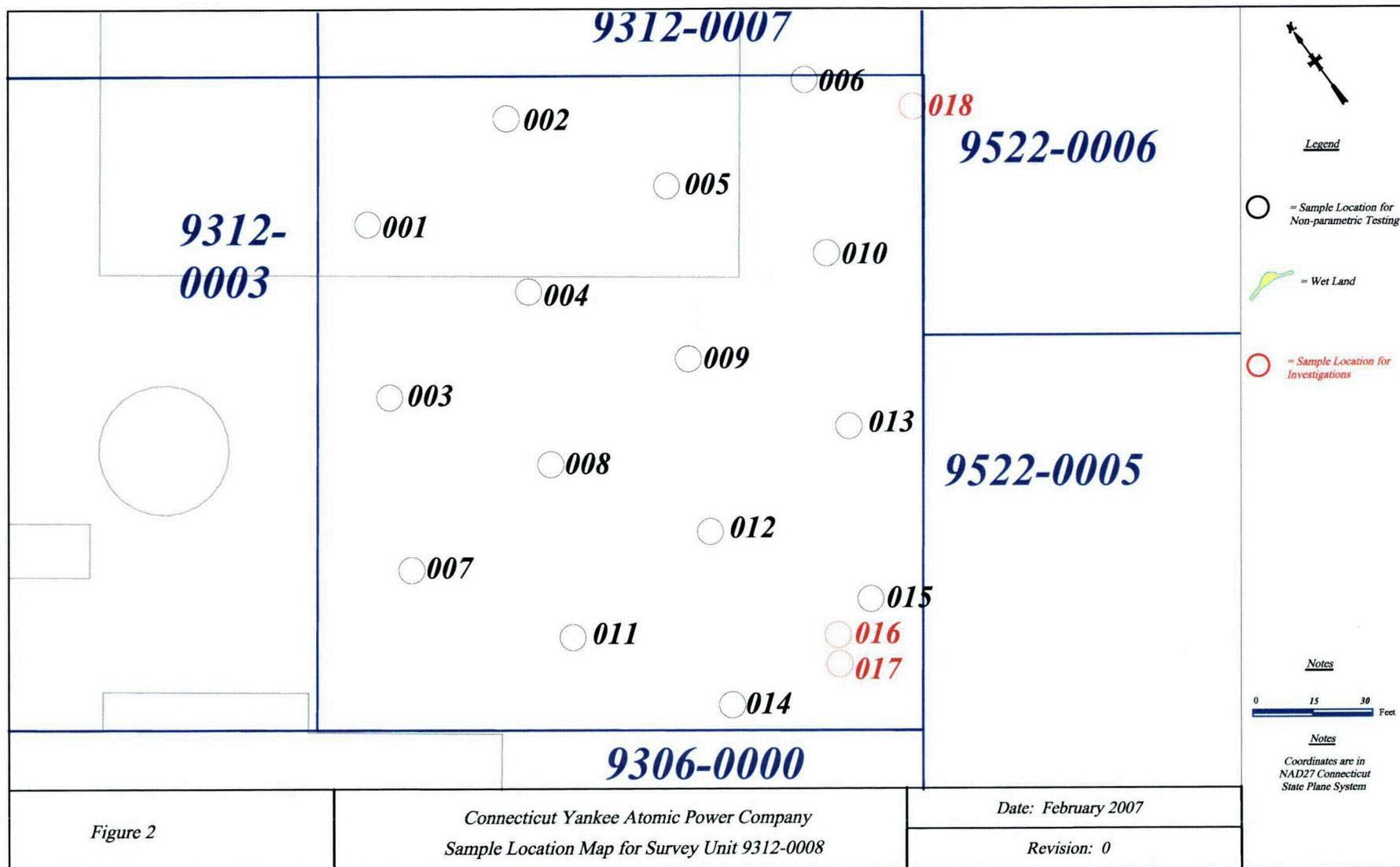


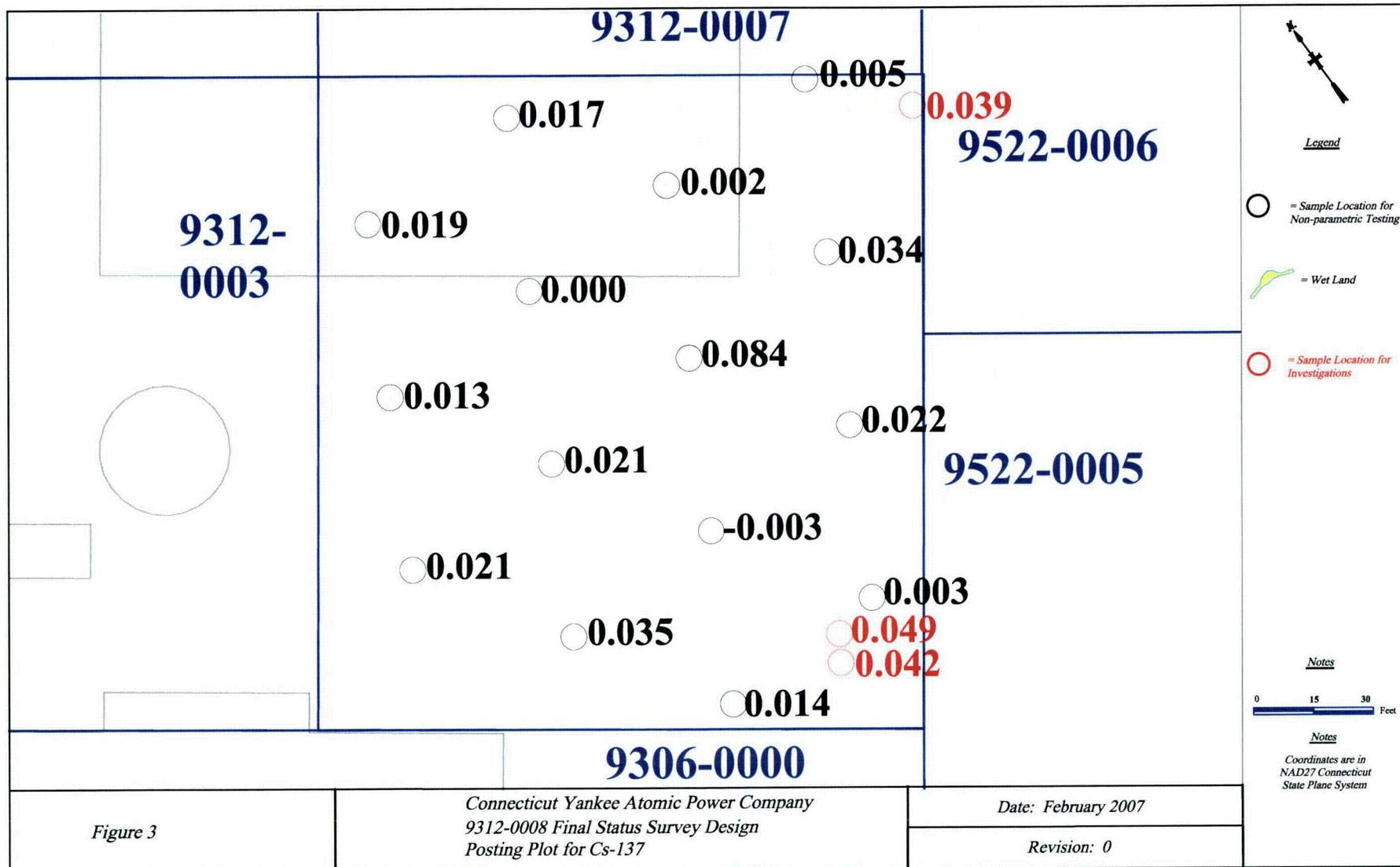
Figure 1

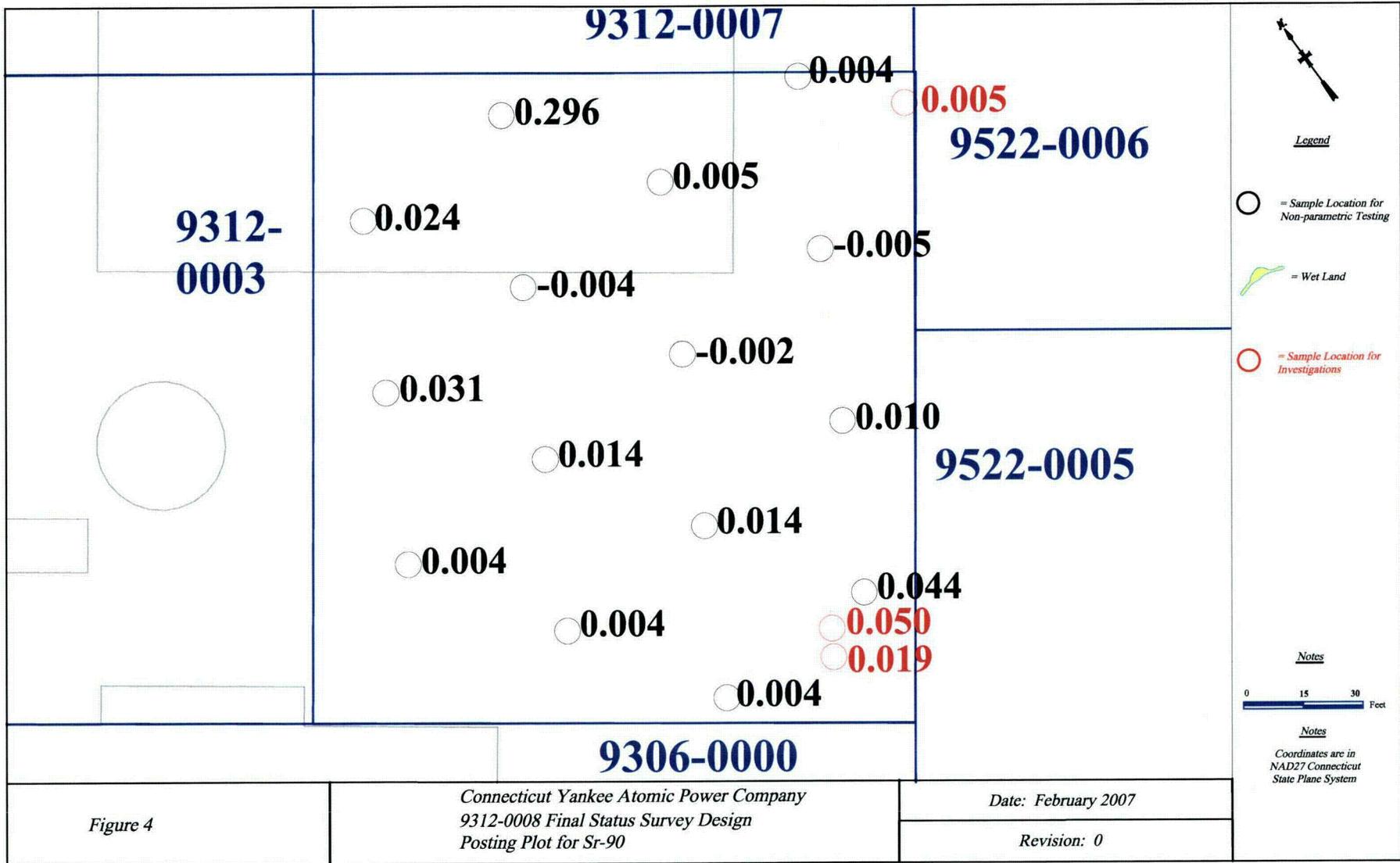
Connecticut Yankee Atomic Power Company
Survey Unit 9312-0008

Date: February 2007

Revision: 0







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ATTACHMENT 2 (SCAN RESULTS)

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**Scan Survey Results
Sample Location Scans**

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	Probe S/N	E-600 S/N
9312-08-BL-00-01-0	1/24/2007	13:12:00	6.74E+03			1114	1014
9312-08-SL-00-01-0	1/24/2007	13:13:00	7.06E+03	9.55E+03		1114	1014
9312-08-BL-00-02-0	1/24/2007	13:14:00	6.87E+03			1114	1014
9312-08-SL-00-02-0	1/24/2007	13:15:00	7.91E+03	9.68E+03		1114	1014
9312-08-BL-00-03-0	1/24/2007	13:17:00	6.60E+03			1114	1014
9312-08-SL-00-03-0	1/24/2007	13:18:00	7.02E+03	9.41E+03		1114	1014
9312-08-BL-00-04-0	1/24/2007	13:20:00	7.15E+03			1114	1014
9312-08-SL-00-04-0	1/24/2007	13:21:00	6.88E+03	9.96E+03		1114	1014
9312-08-BL-00-05-0	1/24/2007	13:21:00	8.01E+03			1114	1014
9312-08-SL-00-05-0	1/24/2007	13:22:00	7.21E+03	1.08E+04		1114	1014
9312-08-BL-00-06-0	1/24/2007	13:23:00	8.07E+03			1114	1014
9312-08-SL-00-06-0	1/24/2007	13:23:00	7.58E+03	1.09E+04		1114	1014
9312-08-BL-00-07-0	1/24/2007	13:25:00	7.39E+03			1114	1014
9312-08-SL-00-07-0	1/24/2007	13:25:00	7.51E+03	1.02E+04		1114	1014
9312-08-BL-00-08-0	1/24/2007	13:26:00	7.83E+03			1114	1014
9312-08-SL-00-08-0	1/24/2007	13:27:00	8.30E+03	1.06E+04		1114	1014
9312-08-BL-00-09-0	1/24/2007	13:28:00	7.63E+03			1114	1014
9312-08-SL-00-09-0	1/24/2007	13:29:00	6.40E+03	1.04E+04		1114	1014
9312-08-BL-00-10-0	1/24/2007	13:29:00	6.97E+03			1114	1014
9312-08-SL-00-10-0	1/24/2007	13:30:00	7.49E+03	9.78E+03		1114	1014
9312-08-BL-00-11-0	1/24/2007	13:31:00	7.77E+03			1114	1014
9312-08-SL-00-11-0	1/24/2007	13:34:00	7.17E+03	1.06E+04		1114	1014
9312-08-BL-00-12-0	1/24/2007	13:34:00	7.44E+03			1114	1014
9312-08-SL-00-12-0	1/24/2007	13:35:00	7.17E+03	1.03E+04		1114	1014
9312-08-BL-00-13-0	1/24/2007	13:36:00	7.20E+03			1114	1014
9312-08-SL-00-13-0	1/24/2007	13:37:00	7.08E+03	1.00E+04		1114	1014
9312-08-BL-00-14-0	1/24/2007	13:38:00	8.46E+03			1114	1014
9312-08-SL-00-14-0	1/24/2007	13:38:00	8.67E+03	1.13E+04		1114	1014
9312-08-BL-00-15-0	1/24/2007	13:39:00	1.03E+04			1114	1014
9312-08-SL-00-15-0	1/24/2007	13:39:00	1.08E+04	1.31E+04		1114	1014

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-08-BC-00-01-0	1/24/2007	9:40:00	7.72E+03			1112	1013
9312-08-SC-00-01-0	1/24/2007	9:47:00	5.95E+03	1.05E+04		1112	1013
9312-08-BC-00-02-0	1/24/2007	9:48:00	6.74E+03			1112	1013
9312-08-SC-00-02-0	1/24/2007	9:51:00	8.45E+03	9.55E+03		1112	1013
9312-08-BC-00-03-0	1/24/2007	9:51:00	7.63E+03			1112	1013
9312-08-SC-00-03-0	1/24/2007	9:53:00	5.73E+03	1.04E+04		1112	1013
9312-08-BC-00-04-0	1/24/2007	9:55:00	6.89E+03			1112	1013
9312-08-SC-00-04-0	1/24/2007	9:57:00	7.61E+03	9.70E+03		1112	1013
9312-08-BC-00-05-0	1/24/2007	9:57:00	7.19E+03			1112	1013
9312-08-SC-00-05-0	1/24/2007	9:59:00	6.65E+03	1.00E+04		1112	1013
9312-08-BC-00-06-0	1/24/2007	10:00:00	6.32E+03			1112	1013
9312-08-SC-00-06-0	1/24/2007	10:03:00	6.25E+03	9.13E+03		1112	1013
9312-08-BC-00-07-0	1/24/2007	10:03:00	6.09E+03			1112	1013
9312-08-SC-00-07-0	1/24/2007	10:06:00	6.86E+03	8.90E+03		1112	1013
9312-08-BC-00-08-0	1/24/2007	10:09:00	5.91E+03			1112	1013
9312-08-SC-00-08-0	1/24/2007	10:11:00	6.27E+03	8.72E+03		1112	1013
9312-08-BC-00-09-0	1/24/2007	10:12:00	6.75E+03			1112	1013
9312-08-SC-00-09-0	1/24/2007	10:15:00	6.84E+03	9.56E+03		1112	1013
9312-08-BC-00-10-0	1/24/2007	10:17:00	6.78E+03			1112	1013
9312-08-SC-00-10-0	1/24/2007	10:20:00	6.61E+03	9.59E+03		1112	1013
9312-08-BC-00-11-0	1/24/2007	10:21:00	7.15E+03			1112	1013
9312-08-SC-00-11-0	1/24/2007	10:23:00	7.33E+03	9.96E+03		1112	1013
9312-08-BC-00-12-0	1/24/2007	10:24:00	6.37E+03			1112	1013
9312-08-SC-00-12-0	1/24/2007	10:26:00	7.08E+03	9.18E+03		1112	1013
9312-08-BC-00-13-0	1/24/2007	10:26:00	7.21E+03			1112	1013
9312-08-SC-00-13-0	1/24/2007	10:28:00	7.11E+03	1.00E+04		1112	1013
9312-08-BC-00-14-0	1/24/2007	10:29:00	6.23E+03			1112	1013
9312-08-SC-00-14-0	1/24/2007	10:32:00	6.92E+03	9.04E+03		1112	1013
9312-08-BC-00-15-0	1/24/2007	10:32:00	6.71E+03			1112	1013
9312-08-SC-00-15-0	1/24/2007	10:35:00	6.28E+03	9.52E+03		1112	1013
9312-08-BC-00-16-0	1/24/2007	10:35:00	6.45E+03			1112	1013
9312-08-SC-00-16-0	1/24/2007	10:38:00	6.06E+03	9.26E+03		1112	1013
9312-08-BC-00-17-0	1/24/2007	9:37:00	7.71E+03			1114	1014
9312-08-SC-00-17-0	1/24/2007	9:39:00	9.07E+03	1.05E+04		1114	1014
9312-08-BC-00-18-0	1/24/2007	9:39:00	7.32E+03			1114	1014
9312-08-SC-00-18-0	1/24/2007	9:42:00	8.01E+03	1.01E+04		1114	1014
9312-08-BC-00-19-0	1/24/2007	9:43:00	7.28E+03			1114	1014
9312-08-SC-00-19-0	1/24/2007	9:45:00	8.49E+03	1.01E+04		1114	1014
9312-08-BC-00-20-0	1/24/2007	9:45:00	7.48E+03			1114	1014
9312-08-SC-00-20-0	1/24/2007	9:47:00	8.34E+03	1.03E+04		1114	1014
9312-08-BC-00-21-0	1/24/2007	9:48:00	7.49E+03			1114	1014

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-08-SC-00-21-0	1/24/2007	9:51:00	8.47E+03	1.03E+04		1114	1014
9312-08-BC-00-22-0	1/24/2007	9:51:00	8.02E+03			1114	1014
9312-08-SC-00-22-0	1/24/2007	9:50:00	8.41E+03	1.08E+04		1114	1014
9312-08-BC-00-23-0	1/24/2007	9:54:00	7.96E+03			1114	1014
9312-08-SC-00-23-0	1/24/2007	9:57:00	8.11E+03	1.08E+04		1114	1014
9312-08-BC-00-24-0	1/24/2007	9:58:00	8.38E+03			1114	1014
9312-08-SC-00-24-0	1/24/2007	10:00:00	7.73E+03	1.12E+04		1114	1014
9312-08-BC-00-25-0	1/24/2007	10:02:00	7.89E+03			1114	1014
9312-08-SC-00-25-0	1/24/2007	10:05:00	7.71E+03	1.07E+04		1114	1014
9312-08-BC-00-26-0	1/24/2007	10:05:00	8.72E+03			1114	1014
9312-08-SC-00-26-0	1/24/2007	10:10:00	9.83E+03	1.15E+04		1114	1014
9312-08-BC-00-27-0	1/24/2007	10:11:00	8.85E+03			1114	1014
9312-08-SC-00-27-0	1/24/2007	10:13:00	8.32E+03	1.17E+04		1114	1014
9312-08-BC-00-28-0	1/24/2007	10:14:00	8.52E+03			1114	1014
9312-08-SC-00-28-0	1/24/2007	10:15:00	7.86E+03	1.13E+04		1114	1014
9312-08-BC-00-29-0	1/24/2007	10:16:00	8.41E+03			1114	1014
9312-08-SC-00-29-0	1/24/2007	10:23:00	7.82E+03	1.12E+04		1114	1014
9312-08-BC-00-30-0	1/24/2007	10:24:00	8.62E+03			1114	1014
9312-08-SC-00-30-0	1/24/2007	10:27:00	8.51E+03	1.14E+04		1114	1014
9312-08-BC-00-31-0	1/24/2007	10:28:00	9.44E+03			1114	1014
9312-08-SC-00-31-0	1/24/2007	10:38:00	8.99E+03	1.23E+04		1114	1014
9312-08-ER-00-31-1	1/24/2007	13:41:00	1.39E+04	1.23E+04	+	1114	1014
9312-08-BC-00-32-0	1/24/2007	10:38:00	9.36E+03			1114	1014
9312-08-SC-00-32-0	1/24/2007	10:40:00	9.41E+03	1.22E+04		1114	1014
9312-08-ER-00-32-1	1/24/2007	13:42:00	1.34E+04	1.22E+04	+	1114	1014
9312-08-BC-00-33-0	1/24/2007	10:41:00	8.67E+03			1114	1014
9312-08-SC-00-33-0	1/24/2007	10:44:00	1.01E+04	1.15E+04		1114	1014
9312-08-BC-00-34-0	1/24/2007	10:45:00	1.02E+04			1114	1014
9312-08-SC-00-34-0	1/24/2007	10:46:00	9.30E+03	1.30E+04		1114	1014
9312-08-BC-00-35-0	1/24/2007	10:47:00	9.80E+03			1114	1014
9312-08-SC-00-35-0	1/24/2007	10:52:00	1.15E+04	1.26E+04		1114	1014
9312-08-ER-00-35-1	1/24/2007	13:43:00	1.44E+04	1.26E+04	+	1114	1014
9312-08-BC-00-36-0	1/24/2007	10:53:00	1.16E+04			1114	1014
9312-08-SC-00-36-0	1/24/2007	10:55:00	1.04E+04	1.44E+04		1114	1014
9312-08-BC-00-37-0	1/25/2007	7:36:00	8.44E+03			1112	1013
9312-08-SC-00-37-0	1/25/2007	7:37:00	7.85E+03	1.13E+04		1112	1013
9312-08-BC-00-38-0	1/25/2007	7:38:00	9.80E+03			1112	1013
9312-08-SC-00-38-0	1/25/2007	7:39:00	9.07E+03	1.26E+04		1112	1013
9312-08-BC-00-39-0	1/25/2007	7:39:00	1.12E+04			1112	1013
9312-08-SC-00-39-0	1/25/2007	7:41:00	1.27E+04	1.40E+04		1112	1013
9312-08-BC-00-40-0	1/25/2007	7:41:00	1.05E+04			1112	1013

Survey Unit 9312-0008**Scan Survey Results
Scan Strip Scans**

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-08-SC-00-40-0	1/25/2007	7:43:00	1.21E+04	1.33E+04		1112	1013
9312-08-BC-00-41-0	1/25/2007	7:44:00	9.38E+03			1112	1013
9312-08-SC-00-41-0	1/25/2007	7:45:00	8.32E+03	1.22E+04		1112	1013
9312-08-BC-00-42-0	1/25/2007	7:46:00	8.66E+03			1112	1013
9312-08-SC-00-42-0	1/25/2007	7:47:00	7.59E+03	1.15E+04		1112	1013
9312-08-BC-00-43-0	1/25/2007	7:48:00	9.07E+03			1112	1013
9312-08-SC-00-43-0	1/25/2007	7:49:00	8.85E+03	1.19E+04		1112	1013
9312-08-BC-00-44-0	1/25/2007	7:50:00	9.37E+03			1112	1013
9312-08-SC-00-44-0	1/25/2007	7:51:00	1.07E+04	1.22E+04		1112	1013

15KV WEST SIDE GW TREATMENT FACILITY
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0008

RELEASE RECORD

ATTACHMENT 3 (LABORATORY DATA)

General Narrative

**General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 179837
SDG: MSR#07-0055**

February 2, 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 30, 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>
179837001	9312-0008-006F
179837002	9312-0008-011F
179837003	9312-0008-001F
179837004	9312-0008-002F
179837005	9312-0008-003F
179837006	9312-0008-003FS
179837007	9312-0008-004F
179837008	9312-0008-005F
179837009	9312-0008-007F
179837010	9312-0008-008F
179837011	9312-0008-009F
179837012	9312-0008-010F
179837013	9312-0008-012F
179837014	9312-0008-013F
179837015	9312-0008-014F
179837016	9312-0008-015F
179837017	9312-0008-016-I
179837018	9312-0008-017-I
179837019	9312-0008-018-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

Seventeen soil samples were analyzed for FSSGAM and Strontium-90. 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 31 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**

Connecticut Yankee Atomic Power Company 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						Chain of Custody Form				No. 2007-00029			
Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested				Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-3924						FSSGAM & Sr-90	FSSALL					Comments:	
Analytical Lab (Name, City, State): General Engineering Laboratories 2040 Savage Road Charleston, SC 29407 ATT: Cheryl Jones (843-556-8171)												179837	
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 15 D. <input checked="" type="checkbox"/> 7 D. Other:													
Sample Designation	Date	Time							Comment, Preservation	Lab Sample ID			
9312-0008-011F ✓	01-24-07	1336	TS	G	BP		X						
9312-0008-012F ✓	01-24-07	1338	TS	G	BP	X							
9312-0008-013F ✓	01-24-07	1340	TS	G	BP	X							
9312-0008-014F ✓	01-24-07	1342	TS	G	BP	X							
9312-0008-015F ✓	01-24-07	1343	TS	G	BP	X							
9312-0008-016-I	01-24-07	1345	TS	G	BP	X							
9312-0008-017-I	01-24-07	1346	TS	G	BP	X							
9312-0008-018-I ✓	01-24-07	1347	TS	G	BP	X							
NOTES: PO #: 002332 MSR #: 07-0055 <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.: 7° 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: <i>[Signature]</i>			Date/Time: 1/29/07 1400			2) Received By: <i>[Signature]</i>			Date/Time: 1.30.07 0930				
3) Relinquished By:			Date/Time:			4) Received By:			Date/Time:				
5) Relinquished By:			Date/Time:			6) Received By:			Date/Time:				
Bill of Lading #													

7

Figure 1. Sample Check-in List

Date/Time Received: 01.30.07 @ 0930

SDG#: MSR # 07-0054 , MSR # 07-0055

Work Order Number: 179836 , 179837

Shipping Container ID: 798595435030 @ 7°C Chain of Custody # 2007-00026 / 2007-00028
1142 8462 @ 8°C 25 29

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 7°C / 8°C
5. Vermiculite/packing materials is: Wet Dry
6. Number of samples in shipping container: 16 = *5030 / 19 = *8462
7. Sample holding times exceeded? Yes No

8. Samples have:	
<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input checked="" type="checkbox"/> appropriate sample labels
9. Samples are:	
<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

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

Sample Custodian/Laboratory: C. David HEC Date: 1.30.07

Telephoned to: _____ On _____ By _____

Subject: [Fwd: Soil samples]
From: Cheryl Jones <cj@gel.com>
Date: Mon, 29 Jan 2007 15:51:31 -0500
To: Amanda Rasco <ama01354@gel.com>

----- Original Message -----
Subject: Soil samples
Date: Mon, 29 Jan 2007 15:42:54 -0500
From: Arthur L. Hammond <Hammond@CYAPCO.com>
To: Cheryl Jones <cj@gel.com>

Cheryl,

We are sending 35 samples to GEL today under two MSRs. MSRs 07-0054 and 07-0055. The requested TAT for the samples is 7 days. The requested analyses is FSSGAM and Sr-90 on all the samples and FSSALL on four (4) of the samples, see attached COCs. It is acceptable to use the traced/untraced Tc-99 process for these samples.

Thank you,

Arthur

--

~~~~~  
Cheryl A. Jones  
Project Manager/PM Team Leader  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
Direct: 843.769.7388  
Main: 843.556.8171 x 4243  
Fax: 843.766.1178  
E-mail: [cj@gel.com](mailto:cj@gel.com)  
Web: [www.gel.com](http://www.gel.com)

SCAN6974\_000.pdf | **Content-Type:** application/octet-stream  
| **Content-Encoding:** base64

# **Data Review Qualifier Definitions**

## 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<br>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<br>identification of the analyte (TIC). Quantitation is based on nearest internal standard<br>response factor |
| N/A       | Spike recovery limits do not apply. Sample concentration exceeds spike concentration<br>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 179837**

**Method/Analysis Information**

|                                          |                                           |
|------------------------------------------|-------------------------------------------|
| <b>Product:</b>                          | <b>Alphaspec Am241, Cm, Solid ALL FSS</b> |
| 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:                 | 606029                                    |
| Prep Batch Number:                       | 606004                                    |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 606002                                    |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201269930       | Method Blank (MB)                                |
| 1201269931       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201269932       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201269933       | 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: 179836001 (9312-0007-002F).

**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**

|                                          |                                     |
|------------------------------------------|-------------------------------------|
| <b>Product:</b>                          | <b>Alphaspec Pu, Solid-ALL FSS</b>  |
| 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:                 | 606031                              |
| Prep Batch Number:                       | 606004                              |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 606002                              |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201269935       | Method Blank (MB)                                |
| 1201269936       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201269937       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201269938       | 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: 179836001 (9312-0007-002F).

##### **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**

|                                          |                                          |
|------------------------------------------|------------------------------------------|
| <b>Product:</b>                          | <b>Liquid Scint Pu241, Solid-ALL FSS</b> |
| 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:                 | 606032                                   |
| Prep Batch Number:                       | 606004                                   |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 606002                                   |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201269939       | Method Blank (MB)                                |
| 1201269940       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201269941       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201269942       | 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: 179836001 (9312-0007-002F).

#### **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 1201269940 (9312-0007-002F) was recounted due to low quench number.

### **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**

|                          |                                                              |
|--------------------------|--------------------------------------------------------------|
| <b>Product:</b>          | <b>Gamma,Solid-FSS GAM &amp; ALL FSS 226 Ingrowth Waived</b> |
| Analytical Method:       | EML HASL 300, 4.5.2.3                                        |
| Prep Method:             | Dry Soil Prep                                                |
| Analytical Batch Number: | 606830                                                       |
| Prep Batch Number:       | 606002                                                       |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 179837003        | 9312-0008-001F                                   |
| 179837004        | 9312-0008-002F                                   |
| 179837005        | 9312-0008-003F                                   |
| 179837006        | 9312-0008-003FS                                  |
| 179837007        | 9312-0008-004F                                   |
| 179837008        | 9312-0008-005F                                   |
| 179837009        | 9312-0008-007F                                   |
| 179837010        | 9312-0008-008F                                   |
| 179837011        | 9312-0008-009F                                   |
| 179837012        | 9312-0008-010F                                   |
| 179837013        | 9312-0008-012F                                   |
| 179837014        | 9312-0008-013F                                   |
| 179837015        | 9312-0008-014F                                   |
| 179837016        | 9312-0008-015F                                   |
| 179837017        | 9312-0008-016-I                                  |
| 179837018        | 9312-0008-017-I                                  |
| 179837019        | 9312-0008-018-I                                  |
| 1201271730       | Method Blank (MB)                                |
| 1201271731       | 179837001(9312-0008-006F) Sample Duplicate (DUP) |
| 1201271732       | 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: 179837001 (9312-0008-006F).

**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. The following NCR was generated for this SDG: NCR 404699 was generated due to Failed RPD for DUP. 1. The relative percent difference in sample 179837001 (dup 1201271731) did not meet the duplication criteria for Bi-214 and Ra-226. 1. The nuclides that do not meet are naturally occurring and all other samples meet the duplication criteria. Reporting results.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

| <b>Qualifier</b> | <b>Reason</b>                         | <b>Analyte</b> | <b>Sample</b> |
|------------------|---------------------------------------|----------------|---------------|
| UI               | Data rejected due to high peak-width. | Cesium-137     | 179837007     |
| UI               | Data rejected due to interference.    | Manganese-54   | 179837016     |
| UI               | Data rejected due to low abundance.   | Actinium-228   | 179837006     |
|                  |                                       | Cesium-134     | 179837001     |
|                  |                                       |                | 179837008     |
|                  |                                       |                | 179837012     |
|                  |                                       |                | 179837013     |
|                  |                                       |                | 179837016     |
|                  |                                       |                | 179837017     |
|                  |                                       |                | 179837019     |
|                  |                                       | Europium-155   | 179837005     |
|                  |                                       | Niobium-94     | 179837010     |
|                  |                                       | Thallium-208   | 179837015     |
| UI               | Data rejected due to no valid peak.   | Americium-241  | 179837013     |
|                  |                                       | Potassium-40   | 1201271730    |

**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: 606160

Prep Batch Number: 606004

Dry Soil Prep GL-RAD-A-021 Batch Number: 606002

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 179837003        | 9312-0008-001F                                   |
| 179837004        | 9312-0008-002F                                   |
| 179837005        | 9312-0008-003F                                   |
| 179837006        | 9312-0008-003FS                                  |
| 179837007        | 9312-0008-004F                                   |
| 179837008        | 9312-0008-005F                                   |
| 179837009        | 9312-0008-007F                                   |
| 179837010        | 9312-0008-008F                                   |
| 179837011        | 9312-0008-009F                                   |
| 179837012        | 9312-0008-010F                                   |
| 179837013        | 9312-0008-012F                                   |
| 179837014        | 9312-0008-013F                                   |
| 179837015        | 9312-0008-014F                                   |
| 179837016        | 9312-0008-015F                                   |
| 179837017        | 9312-0008-016-I                                  |
| 179837018        | 9312-0008-017-I                                  |
| 179837019        | 9312-0008-018-I                                  |
| 1201270175       | Method Blank (MB)                                |
| 1201270176       | 179837001(9312-0008-006F) Sample Duplicate (DUP) |
| 1201270177       | 179837001(9312-0008-006F) Matrix Spike (MS)      |
| 1201270178       | 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: 179837001 (9312-0008-006F).

**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**

Additional comments were not required for this sample set.

**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:** 606162

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201270179       | Method Blank (MB)                                |
| 1201270180       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201270181       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201270182       | 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: 179836001 (9312-0007-002F).

**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**

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| <b>Product:</b>                          | <b>Liquid Scint Fe55, Solid-ALL FSS</b> |
| 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:                 | 606165                                  |
| Prep Batch Number:                       | 606004                                  |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 606002                                  |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201270187       | Method Blank (MB)                                |
| 1201270188       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201270189       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201270190       | 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 volumes in this batch.

**Designated QC**

The following sample was used for QC: 179836001 (9312-0007-002F).

**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.

**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**

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| <b>Product:</b>                          | <b>Liquid Scint Ni63, Solid-ALL FSS</b> |
| 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:                 | 606163                                  |
| Prep Batch Number:                       | 606004                                  |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 606002                                  |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201270183       | Method Blank (MB)                                |
| 1201270184       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201270185       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201270186       | 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: 179836001 (9312-0007-002F).

#### **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:** 606167

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201270195       | Method Blank (MB)                                |
| 1201270196       | 179837001(9312-0008-006F) Sample Duplicate (DUP) |
| 1201270197       | 179837001(9312-0008-006F) Matrix Spike (MS)      |
| 1201270198       | 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: 179837001 (9312-0008-006F).

**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 C14, Solid All,FSS

Analytical Method: EPA EERF C-01 Modified

Analytical Batch Number: 606166

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 179837001        | 9312-0008-006F                                   |
| 179837002        | 9312-0008-011F                                   |
| 1201270191       | Method Blank (MB)                                |
| 1201270192       | 179836001(9312-0007-002F) Sample Duplicate (DUP) |
| 1201270193       | 179836001(9312-0007-002F) Matrix Spike (MS)      |
| 1201270194       | 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: 179836001 (9312-0007-002F).

**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.

**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:                     Pamela Wilkins 2/12/07

**COMPANY - WIDE NONCONFORMANCE REPORT**

|                                                                                                                                      |                                                 |                                                                                                                                  |                             |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Mo.Day Yr.</b><br>06-FEB-07                                                                                                       | <b>Division:</b><br>Radiochemistry              | <b>Quality Criteria:</b><br>SOP                                                                                                  | <b>Type:</b><br>Process     |
| <b>Instrument Type:</b><br>GAMMA SPECTROMETER                                                                                        | <b>Test / Method:</b><br>EML HASL 300, 4.5.2.3  | <b>Matrix Type:</b><br>Solid                                                                                                     | <b>Client Code:</b><br>YANK |
| <b>Batch ID:</b><br>606830                                                                                                           | <b>Sample Numbers:</b><br>179837001, 1201271731 |                                                                                                                                  |                             |
| <b>Potentially affected work order(s)(SDG): 179837(MSR#07-0055)</b>                                                                  |                                                 |                                                                                                                                  |                             |
| <b>Application Issues:</b><br>Failed RPD for DUP                                                                                     |                                                 |                                                                                                                                  |                             |
| <b>Specification and Requirements</b>                                                                                                |                                                 | <b>NRG Disposition:</b>                                                                                                          |                             |
| <b>Nonconformance Description:</b>                                                                                                   |                                                 |                                                                                                                                  |                             |
| 1. The relative percent difference in sample 179837001 (dup 1201271731) did not meet the duplication criteria for Bi-214 and Ra-226. |                                                 | 1. The nuclides that do not meet are naturally occurring and all other samples meet the duplication criteria. Reporting results. |                             |

**Originator's Name:**  
 Jimmy Hartley      06-FEB-07

**Data Validator/Group Leader:**  
 Heather Anderson      06-FEB-07

**Quality Review:**

**Director:**

# 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#07-0055 GEL Work Order: 179837

**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: February 6, 2007

|                   |                |             |           |
|-------------------|----------------|-------------|-----------|
| Client Sample ID: | 9312-0008-006F | Project:    | YANK01204 |
| Sample ID:        | 179837001      | Client ID:  | YANK001   |
| Matrix:           | TS             | Vol. Recv.: |           |
| Collect Date:     | 24-JAN-07      |             |           |
| Receive Date:     | 30-JAN-07      |             |           |
| Collector:        | Client         |             |           |
| Moisture:         | 7.04%          |             |           |

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  | N |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|---|
| <b>Rad Alpha Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Alphaspec Am241, Cm, Solid ALL FSS</i>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Americium-241                                          | U         | -0.00588 | +/-0.0667   | 0.0601 | +/-0.0667 | 0.201  | pCi/g |    | DXH2    | 02/01/07 | 0743 | 606029 |   |
| Curium-242                                             | U         | 0.0323   | +/-0.0908   | 0.0557 | +/-0.0909 | 0.195  | pCi/g |    |         |          |      |        |   |
| Curium-243/244                                         | U         | -0.0264  | +/-0.0963   | 0.0931 | +/-0.0964 | 0.267  | pCi/g |    |         |          |      |        |   |
| <i>Alphaspec Pu, Solid-ALL FSS</i>                     |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Plutonium-238                                          | U         | -0.0998  | +/-0.124    | 0.143  | +/-0.125  | 0.383  | pCi/g |    | DXH2    | 01/31/07 | 1554 | 606031 |   |
| Plutonium-239/240                                      | U         | 0.0813   | +/-0.124    | 0.0554 | +/-0.125  | 0.207  | pCi/g |    |         |          |      |        |   |
| <i>Liquid Scint Pu241, Solid-ALL FSS</i>               |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Plutonium-241                                          | U         | 2.26     | +/-7.19     | 5.92   | +/-7.19   | 12.5   | pCi/g |    | DXH2    | 02/01/07 | 0951 | 606032 |   |
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Actinium-228                                           |           | 0.587    | +/-0.146    | 0.0619 | +/-0.146  | 0.124  | pCi/g |    | MJH1    | 02/05/07 | 0802 | 606830 |   |
| Americium-241                                          | U         | 0.0353   | +/-0.0842   | 0.0725 | +/-0.0842 | 0.145  | pCi/g |    |         |          |      |        |   |
| Bismuth-212                                            |           | 0.283    | +/-0.205    | 0.121  | +/-0.205  | 0.242  | pCi/g |    |         |          |      |        |   |
| Bismuth-214                                            |           | 0.564    | +/-0.0926   | 0.0263 | +/-0.0926 | 0.0526 | pCi/g |    |         |          |      |        |   |
| Cesium-134                                             | UI        | 0.00     | +/-0.0223   | 0.0205 | +/-0.0223 | 0.041  | pCi/g |    |         |          |      |        |   |
| Cesium-137                                             | U         | 0.00537  | +/-0.0187   | 0.0164 | +/-0.0187 | 0.0328 | pCi/g |    |         |          |      |        |   |
| Cobalt-60                                              | U         | -0.013   | +/-0.0185   | 0.014  | +/-0.0185 | 0.0281 | pCi/g |    |         |          |      |        |   |
| Europium-152                                           | U         | 0.0071   | +/-0.0593   | 0.0446 | +/-0.0593 | 0.0891 | pCi/g |    |         |          |      |        |   |
| Europium-154                                           | U         | 0.0232   | +/-0.0607   | 0.0534 | +/-0.0607 | 0.107  | pCi/g |    |         |          |      |        |   |
| Europium-155                                           | U         | -0.0124  | +/-0.0549   | 0.0488 | +/-0.0549 | 0.0976 | pCi/g |    |         |          |      |        |   |
| Lead-212                                               |           | 0.564    | +/-0.0677   | 0.0246 | +/-0.0677 | 0.0492 | pCi/g |    |         |          |      |        |   |
| Lead-214                                               |           | 0.503    | +/-0.080    | 0.0328 | +/-0.080  | 0.0655 | pCi/g |    |         |          |      |        |   |
| Manganese-54                                           | U         | -0.00293 | +/-0.0178   | 0.0155 | +/-0.0178 | 0.0309 | pCi/g |    |         |          |      |        |   |
| Niobium-94                                             | U         | 0.00658  | +/-0.0164   | 0.0145 | +/-0.0164 | 0.029  | pCi/g |    |         |          |      |        |   |
| Potassium-40                                           |           | 8.96     | +/-0.985    | 0.141  | +/-0.985  | 0.281  | pCi/g |    |         |          |      |        |   |
| Radium-226                                             |           | 0.564    | +/-0.0926   | 0.0263 | +/-0.0926 | 0.0526 | pCi/g |    |         |          |      |        |   |
| Silver-108m                                            | U         | 0.00437  | +/-0.0169   | 0.0153 | +/-0.0169 | 0.0305 | pCi/g |    |         |          |      |        |   |
| Thallium-208                                           |           | 0.159    | +/-0.0453   | 0.0169 | +/-0.0453 | 0.0337 | pCi/g |    |         |          |      |        |   |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Strontium-90                                           | U         | 0.00356  | +/-0.0207   | 0.0169 | +/-0.0207 | 0.0391 | pCi/g |    | KSD1    | 02/02/07 | 1824 | 606160 |   |
| <b>Rad Liquid Scintillation Analysis</b>               |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>LSC, Tritium Dist, Solid - 3 pCi/g</i>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Tritium                                                | U         | 0.452    | +/-0.306    | 0.452  | +/-0.306  | 1.02   | pCi/g |    | AXD2    | 02/01/07 | 0235 | 606167 |   |

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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: February 6, 2007

Client Sample ID: 9312-0008-006F  
Sample ID: 179837001

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

| Parameter                                | Qualifier | Result  | Uncertainty | LC     | TPU       | MDA   | Units | DF | Analyst | Date     | Time | Batch  |
|------------------------------------------|-----------|---------|-------------|--------|-----------|-------|-------|----|---------|----------|------|--------|
| <b>Rad Liquid Scintillation Analysis</b> |           |         |             |        |           |       |       |    |         |          |      |        |
| <i>Liquid Scint C14, Solid All, FSS</i>  |           |         |             |        |           |       |       |    |         |          |      |        |
| Carbon-14                                | U         | -0.0461 | +/-0.0748   | 0.0648 | +/-0.0748 | 0.136 | pCi/g |    | AXD2    | 01/31/07 | 1805 | 606166 |
| <i>Liquid Scint Fe55, Solid-ALL FSS</i>  |           |         |             |        |           |       |       |    |         |          |      |        |
| Iron-55                                  | U         | 13.3    | +/-59.5     | 38.5   | +/-59.5   | 80.4  | pCi/g |    | MXP1    | 02/03/07 | 1028 | 606165 |
| <i>Liquid Scint Ni63, Solid-ALL FSS</i>  |           |         |             |        |           |       |       |    |         |          |      |        |
| Nickel-63                                | U         | -5.24   | +/-11.8     | 10.1   | +/-11.8   | 20.8  | pCi/g |    | MXP1    | 02/01/07 | 1537 | 606163 |
| <i>Liquid Scint Tc99, Solid-ALL FSS</i>  |           |         |             |        |           |       |       |    |         |          |      |        |
| Technetium-99                            | U         | 0.114   | +/-0.180    | 0.146  | +/-0.180  | 0.308 | pCi/g |    | KXR1    | 02/04/07 | 2236 | 606162 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**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 |

| Surrogate/Tracer recovery | Test                             | Recovery % | Acceptable Limits |
|---------------------------|----------------------------------|------------|-------------------|
| Americium-243             | Alphaspec Am241, Cm, Solid ALL   | 91         | (15%-125%)        |
| Plutonium-242             | Alphaspec Pu, Solid-ALL FSS      | 88         | (15%-125%)        |
| Plutonium-242             | Liquid Scint Pu241, Solid-ALL FS | 83         | (25%-125%)        |
| Strontium-90              | GFPC, Sr90, solid-ALL FSS        | 64         | (25%-125%)        |
| Carrier/Tracer Recovery   | GFPC, Sr90, solid-ALL FSS        | 64         | (25%-125%)        |
| Iron-59                   | Liquid Scint Fe55, Solid-ALL FS  | 70         | (15%-125%)        |

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

Report Date: February 6, 2007

Client Sample ID: 9312-0008-006F  
Sample ID: 179837001

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

| Parameter               | Qualifier | Result                          | Uncertainty | LC | TPU | MDA | Units      | DF | Analyst | Date | Time | Batch | Method |
|-------------------------|-----------|---------------------------------|-------------|----|-----|-----|------------|----|---------|------|------|-------|--------|
| Nickel-63               |           | Liquid Scint Ni63, Solid-ALL FS |             |    | 83  |     | (25%-125%) |    |         |      |      |       |        |
| Carrier/Tracer Recovery |           | Liquid Scint Ni63, Solid-ALL FS |             |    | 83  |     | (25%-125%) |    |         |      |      |       |        |
| Technetium-99           |           | Liquid Scint Tc99, Solid-ALL FS |             |    | 72  |     | (15%-125%) |    |         |      |      |       |        |
| Carrier/Tracer Recovery |           | Liquid Scint Tc99, Solid-ALL FS |             |    | 72  |     | (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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-011F  
Sample ID: 179837002  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 7.66%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  | N |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|---|
| <b>Rad Alpha Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Alphaspec Am241, Cm, Solid ALL FSS</i>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Americium-241                                          | U         | -0.00578 | +/-0.019    | 0.0269 | +/-0.019  | 0.135  | pCi/g |    | DXH2    | 02/01/07 | 0743 | 606029 |   |
| Curium-242                                             | U         | 0.031    | +/-0.0608   | 0.00   | +/-0.061  | 0.0841 | pCi/g |    |         |          |      |        |   |
| Curium-243/244                                         | U         | 0.0156   | +/-0.062    | 0.038  | +/-0.0621 | 0.157  | pCi/g |    |         |          |      |        |   |
| <i>Alphaspec Pu, Solid-ALL FSS</i>                     |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Plutonium-238                                          | U         | 0.0473   | +/-0.0886   | 0.0395 | +/-0.0888 | 0.163  | pCi/g |    | DXH2    | 01/31/07 | 1554 | 606031 |   |
| Plutonium-239/240                                      | U         | -0.0298  | +/-0.0292   | 0.0558 | +/-0.0295 | 0.196  | pCi/g |    |         |          |      |        |   |
| <i>Liquid Scint Pu241, Solid-ALL FSS</i>               |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Plutonium-241                                          | U         | -6.94    | +/-6.22     | 5.60   | +/-6.22   | 11.8   | pCi/g |    | DXH2    | 02/01/07 | 1007 | 606032 |   |
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Actinium-228                                           |           | 0.541    | +/-0.154    | 0.0531 | +/-0.154  | 0.106  | pCi/g |    | MJH1    | 02/05/07 | 0802 | 606830 |   |
| Americium-241                                          | U         | -0.0164  | +/-0.0981   | 0.0809 | +/-0.0981 | 0.162  | pCi/g |    |         |          |      |        |   |
| Bismuth-212                                            |           | 0.502    | +/-0.235    | 0.125  | +/-0.235  | 0.250  | pCi/g |    |         |          |      |        |   |
| Bismuth-214                                            |           | 0.460    | +/-0.0912   | 0.0319 | +/-0.0912 | 0.0637 | pCi/g |    |         |          |      |        |   |
| Cesium-134                                             | U         | 0.0346   | +/-0.0224   | 0.0218 | +/-0.0224 | 0.0435 | pCi/g |    |         |          |      |        |   |
| Cesium-137                                             |           | 0.0345   | +/-0.031    | 0.0172 | +/-0.031  | 0.0343 | pCi/g |    |         |          |      |        |   |
| Cobalt-60                                              | U         | -0.0044  | +/-0.0221   | 0.0181 | +/-0.0221 | 0.0361 | pCi/g |    |         |          |      |        |   |
| Europium-152                                           | U         | -0.00798 | +/-0.055    | 0.0425 | +/-0.055  | 0.0849 | pCi/g |    |         |          |      |        |   |
| Europium-154                                           | U         | -0.0512  | +/-0.0716   | 0.0557 | +/-0.0716 | 0.111  | pCi/g |    |         |          |      |        |   |
| Europium-155                                           | U         | 0.00199  | +/-0.0565   | 0.0518 | +/-0.0565 | 0.104  | pCi/g |    |         |          |      |        |   |
| Lead-212                                               |           | 0.454    | +/-0.0597   | 0.0257 | +/-0.0597 | 0.0514 | pCi/g |    |         |          |      |        |   |
| Lead-214                                               |           | 0.450    | +/-0.0817   | 0.0299 | +/-0.0817 | 0.0598 | pCi/g |    |         |          |      |        |   |
| Manganese-54                                           | U         | 0.0283   | +/-0.0197   | 0.0179 | +/-0.0197 | 0.0359 | pCi/g |    |         |          |      |        |   |
| Niobium-94                                             | U         | -0.0017  | +/-0.0183   | 0.0155 | +/-0.0183 | 0.0309 | pCi/g |    |         |          |      |        |   |
| Potassium-40                                           |           | 9.49     | +/-0.971    | 0.136  | +/-0.971  | 0.272  | pCi/g |    |         |          |      |        |   |
| Radium-226                                             |           | 0.460    | +/-0.0912   | 0.0319 | +/-0.0912 | 0.0637 | pCi/g |    |         |          |      |        |   |
| Silver-108m                                            | U         | 0.00117  | +/-0.0169   | 0.015  | +/-0.0169 | 0.0299 | pCi/g |    |         |          |      |        |   |
| Thallium-208                                           |           | 0.166    | +/-0.0439   | 0.0171 | +/-0.0439 | 0.0342 | pCi/g |    |         |          |      |        |   |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Strontium-90                                           | U         | 0.00426  | +/-0.018    | 0.0145 | +/-0.018  | 0.0338 | pCi/g |    | KSD1    | 02/02/07 | 1824 | 606160 |   |
| <b>Rad Liquid Scintillation Analysis</b>               |           |          |             |        |           |        |       |    |         |          |      |        |   |
| <i>LSC, Tritium Dist, Solid - 3 pCi/g</i>              |           |          |             |        |           |        |       |    |         |          |      |        |   |
| Tritium                                                | U         | -0.193   | +/-0.264    | 0.458  | +/-0.264  | 1.04   | pCi/g |    | AXD2    | 02/01/07 | 0308 | 606167 |   |

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Address : 362 Injun Hollow Rd

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

Report Date: February 6, 2007

Client Sample ID: 9312-0008-011F  
Sample ID: 179837002

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

| Parameter                                | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA   | Units | DF | Analyst | Date     | Time | Batch  |
|------------------------------------------|-----------|----------|-------------|--------|-----------|-------|-------|----|---------|----------|------|--------|
| <b>Rad Liquid Scintillation Analysis</b> |           |          |             |        |           |       |       |    |         |          |      |        |
| <i>Liquid Scint C14, Solid All, FSS</i>  |           |          |             |        |           |       |       |    |         |          |      |        |
| Carbon-14                                | U         | -0.00628 | +/-0.0775   | 0.0653 | +/-0.0775 | 0.137 | pCi/g |    | AXD2    | 01/31/07 | 1908 | 606166 |
| <i>Liquid Scint Fe55, Solid-ALL FSS</i>  |           |          |             |        |           |       |       |    |         |          |      |        |
| Iron-55                                  | U         | -9.34    | +/-59.2     | 38.8   | +/-59.2   | 80.9  | pCi/g |    | MXP1    | 02/03/07 | 1045 | 606165 |
| <i>Liquid Scint Ni63, Solid-ALL FSS</i>  |           |          |             |        |           |       |       |    |         |          |      |        |
| Nickel-63                                | U         | -1.68    | +/-10.4     | 8.78   | +/-10.4   | 18.2  | pCi/g |    | MXP1    | 02/01/07 | 1554 | 606163 |
| <i>Liquid Scint Tc99, Solid-ALL FSS</i>  |           |          |             |        |           |       |       |    |         |          |      |        |
| Technetium-99                            | U         | 0.0186   | +/-0.200    | 0.167  | +/-0.200  | 0.353 | pCi/g |    | KXR1    | 02/04/07 | 2253 | 606162 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**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 |

| Surrogate/Tracer recovery | Test                             | Recovery% | Acceptable Limits |
|---------------------------|----------------------------------|-----------|-------------------|
| Americium-243             | Alphaspec Am241, Cm, Solid ALL   | 86        | (15%-125%)        |
| Plutonium-242             | Alphaspec Pu, Solid-ALL FSS      | 89        | (15%-125%)        |
| Plutonium-242             | Liquid Scint Pu241, Solid-ALL FS | 86        | (25%-125%)        |
| Strontium-90              | GFPC, Sr90, solid-ALL FSS        | 78        | (25%-125%)        |
| Carrier/Tracer Recovery   | GFPC, Sr90, solid-ALL FSS        | 78        | (25%-125%)        |
| Iron-59                   | Liquid Scint Fe55, Solid-ALL FS  | 73        | (15%-125%)        |

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

Report Date: February 6, 2007

Client Sample ID: 9312-0008-011F  
Sample ID: 179837002

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

| Parameter               | Qualifier | Result                          | Uncertainty | LC | TPU | MDA | Units      | DF | Analyst | Date | Time | Batch | M |  |
|-------------------------|-----------|---------------------------------|-------------|----|-----|-----|------------|----|---------|------|------|-------|---|--|
| Nickel-63               |           | Liquid Scint Ni63, Solid-ALL FS |             |    | 91  |     | (25%-125%) |    |         |      |      |       |   |  |
| Carrier/Tracer Recovery |           | Liquid Scint Ni63, Solid-ALL FS |             |    | 91  |     | (25%-125%) |    |         |      |      |       |   |  |
| Technetium-99           |           | Liquid Scint Tc99, Solid-ALL FS |             |    | 63  |     | (15%-125%) |    |         |      |      |       |   |  |
| Carrier/Tracer Recovery |           | Liquid Scint Tc99, Solid-ALL FS |             |    | 63  |     | (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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-001F  
Sample ID: 179837003  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 7.7%

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

| Parameter                                              | Qualifier | Result  | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|---------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |         |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |         |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |         |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.542   | +/-0.145    | 0.0541 | +/-0.145  | 0.108  | pCi/g |    | MJH1    | 02/05/07 | 0802 | 606830 |
| Americium-241                                          | U         | 0.105   | +/-0.0908   | 0.0785 | +/-0.0908 | 0.157  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.483   | +/-0.323    | 0.130  | +/-0.323  | 0.260  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.339   | +/-0.0939   | 0.0334 | +/-0.0939 | 0.0667 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0316  | +/-0.0336   | 0.0229 | +/-0.0336 | 0.0458 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.0188  | +/-0.0237   | 0.0196 | +/-0.0237 | 0.0392 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.007  | +/-0.0217   | 0.0175 | +/-0.0217 | 0.0349 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.0227 | +/-0.0653   | 0.0463 | +/-0.0653 | 0.0926 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0651 | +/-0.061    | 0.0442 | +/-0.061  | 0.0883 | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | -0.0163 | +/-0.0563   | 0.0503 | +/-0.0563 | 0.101  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.513   | +/-0.0649   | 0.0241 | +/-0.0649 | 0.0481 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.438   | +/-0.0821   | 0.0296 | +/-0.0821 | 0.0592 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.00882 | +/-0.0197   | 0.0178 | +/-0.0197 | 0.0356 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.00493 | +/-0.0188   | 0.0162 | +/-0.0188 | 0.0324 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.26    | +/-1.01     | 0.144  | +/-1.01   | 0.289  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.339   | +/-0.0939   | 0.0334 | +/-0.0939 | 0.0667 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.0058  | +/-0.0219   | 0.015  | +/-0.0219 | 0.0301 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.161   | +/-0.0458   | 0.0161 | +/-0.0458 | 0.0322 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |         |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |         |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.0235  | +/-0.024    | 0.0174 | +/-0.024  | 0.0397 | pCi/g |    | KSD1    | 02/02/07 | 1824 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

# 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: February 6, 2007

Client Sample ID: 9312-0008-001F  
Sample ID: 179837003

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU | MDA              | Units | DF | Analyst | Date | Time | Batch | N |
|----------------------------------|-----------|---------------------------|-------------|----|-----|------------------|-------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    |     | <b>Recovery%</b> |       |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    |     | 76               |       |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    |     | 76               |       |    |         |      |      |       |   |

### 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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-002F  
Sample ID: 179837004  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 7.79%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.600    | +/-0.140    | 0.0462 | +/-0.140  | 0.0923 | pCi/g |    | MJH1    | 02/05/07 | 0803 | 606830 |
| Americium-241                                          | U         | -0.022   | +/-0.108    | 0.0887 | +/-0.108  | 0.177  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.567    | +/-0.171    | 0.0965 | +/-0.171  | 0.193  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.419    | +/-0.0701   | 0.0238 | +/-0.0701 | 0.0475 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0245   | +/-0.026    | 0.0163 | +/-0.026  | 0.0325 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.017    | +/-0.017    | 0.0153 | +/-0.017  | 0.0305 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.00364 | +/-0.0157   | 0.0129 | +/-0.0157 | 0.0258 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.00902 | +/-0.0515   | 0.0347 | +/-0.0515 | 0.0693 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | 0.0169   | +/-0.051    | 0.0441 | +/-0.051  | 0.0882 | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0247   | +/-0.046    | 0.0427 | +/-0.046  | 0.0853 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.523    | +/-0.0589   | 0.0197 | +/-0.0589 | 0.0394 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.537    | +/-0.0773   | 0.0242 | +/-0.0773 | 0.0483 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | -0.00546 | +/-0.0149   | 0.0128 | +/-0.0149 | 0.0255 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.0145   | +/-0.0142   | 0.0127 | +/-0.0142 | 0.0255 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.40     | +/-0.838    | 0.139  | +/-0.838  | 0.277  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.419    | +/-0.0701   | 0.0238 | +/-0.0701 | 0.0475 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.00824  | +/-0.0142   | 0.0128 | +/-0.0142 | 0.0256 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.178    | +/-0.0339   | 0.012  | +/-0.0339 | 0.0239 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           |           | 0.296    | +/-0.0502   | 0.0175 | +/-0.0507 | 0.0405 | pCi/g |    | KSD1    | 02/02/07 | 1824 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-002F  
Sample ID: 179837004

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU               | MDA | Units                    | DF | Analyst | Date | Time | Batch | M |
|----------------------------------|-------------|---------------------------|-------------|----|-------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery %</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 66                |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 66                |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-003F  
Sample ID: 179837005  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 5.88%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.634    | +/-0.187    | 0.0807 | +/-0.187  | 0.161  | pCi/g |    | MJH1    | 02/05/07 | 0803 | 606830 |
| Americium-241                                          | U         | 0.0347   | +/-0.0434   | 0.0368 | +/-0.0434 | 0.0736 | pCi/g |    |         |          |      |        |
| Bismuth-212                                            | U         | 0.359    | +/-0.334    | 0.196  | +/-0.334  | 0.391  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.394    | +/-0.107    | 0.0426 | +/-0.107  | 0.0851 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0558   | +/-0.0376   | 0.0292 | +/-0.0376 | 0.0584 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.0127   | +/-0.0303   | 0.0265 | +/-0.0303 | 0.053  | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | 0.00405  | +/-0.0363   | 0.0255 | +/-0.0363 | 0.0509 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | 0.020    | +/-0.0782   | 0.0586 | +/-0.0782 | 0.117  | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0152  | +/-0.0866   | 0.0717 | +/-0.0866 | 0.143  | pCi/g |    |         |          |      |        |
| Europium-155                                           | UI        | 0.00     | +/-0.0798   | 0.0576 | +/-0.0798 | 0.115  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.637    | +/-0.0833   | 0.0325 | +/-0.0833 | 0.065  | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.475    | +/-0.105    | 0.0444 | +/-0.105  | 0.0887 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.00746  | +/-0.0278   | 0.0247 | +/-0.0278 | 0.0494 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | -0.0155  | +/-0.027    | 0.022  | +/-0.027  | 0.0439 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.77     | +/-1.05     | 0.234  | +/-1.05   | 0.468  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.394    | +/-0.107    | 0.0426 | +/-0.107  | 0.0851 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.00676 | +/-0.0259   | 0.0212 | +/-0.0259 | 0.0423 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.189    | +/-0.0523   | 0.0235 | +/-0.0523 | 0.0469 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.0308   | +/-0.0249   | 0.0173 | +/-0.0249 | 0.0396 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-003F      Project: YANK01204  
Sample ID: 179837005      Client ID: YANK001  
Vol. Recv.:

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU               | MDA                      | Units | DF | Analyst | Date | Time | Batch |
|----------------------------------|-------------|---------------------------|-------------|----|-------------------|--------------------------|-------|----|---------|------|------|-------|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery %</b> | <b>Acceptable Limits</b> |       |    |         |      |      |       |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 74                | (25%-125%)               |       |    |         |      |      |       |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 74                | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-003FS  
Sample ID: 179837006  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 5.98%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           | UI        | 0.00     | +/-0.148    | 0.111  | +/-0.148  | 0.221  | pCi/g |    | MJH1    | 02/05/07 | 0809 | 606830 |
| Americium-241                                          | U         | 0.0525   | +/-0.0625   | 0.0524 | +/-0.0625 | 0.105  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            | U         | 0.236    | +/-0.152    | 0.146  | +/-0.152  | 0.292  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.359    | +/-0.0802   | 0.0302 | +/-0.0802 | 0.0604 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0125   | +/-0.0367   | 0.0198 | +/-0.0367 | 0.0396 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.0208   | +/-0.018    | 0.0153 | +/-0.018  | 0.0306 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.0119  | +/-0.0188   | 0.0144 | +/-0.0188 | 0.0287 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.00052 | +/-0.0545   | 0.0418 | +/-0.0545 | 0.0836 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0374  | +/-0.0643   | 0.0412 | +/-0.0643 | 0.0823 | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0202   | +/-0.0495   | 0.045  | +/-0.0495 | 0.0899 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.536    | +/-0.0657   | 0.0238 | +/-0.0657 | 0.0477 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.438    | +/-0.078    | 0.0301 | +/-0.078  | 0.0601 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.0022   | +/-0.0179   | 0.0158 | +/-0.0179 | 0.0315 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.00114  | +/-0.0207   | 0.0158 | +/-0.0207 | 0.0316 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.67     | +/-0.906    | 0.127  | +/-0.906  | 0.253  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.359    | +/-0.0802   | 0.0302 | +/-0.0802 | 0.0604 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.00644  | +/-0.0153   | 0.0137 | +/-0.0153 | 0.0275 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.161    | +/-0.040    | 0.015  | +/-0.040  | 0.0301 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.0083   | +/-0.023    | 0.0181 | +/-0.023  | 0.0422 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

# 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: February 6, 2007

Client Sample ID: 9312-0008-003FS  
Sample ID: 179837006

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU               | MDA | Units                    | DF | Analyst | Date | Time | Batch | N |
|----------------------------------|-----------|---------------------------|-------------|----|-------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery %</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 62                |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 62                |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-004F  
Sample ID: 179837007  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 6.43%

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

| Parameter                                              | Qualifier | Result    | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|-----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |           |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.629     | +/-0.133    | 0.0459 | +/-0.133  | 0.0917 | pCi/g |    | MJH1    | 02/05/07 | 0813 | 606830 |
| Americium-241                                          | U         | 0.0388    | +/-0.0618   | 0.0532 | +/-0.0618 | 0.106  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.299     | +/-0.218    | 0.124  | +/-0.218  | 0.247  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.454     | +/-0.0766   | 0.0273 | +/-0.0766 | 0.0545 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0217    | +/-0.0167   | 0.0177 | +/-0.0167 | 0.0353 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | UI        | 0.00      | +/-0.0323   | 0.016  | +/-0.0323 | 0.032  | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | 0.00104   | +/-0.0186   | 0.0157 | +/-0.0186 | 0.0314 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | 0.016     | +/-0.0497   | 0.0379 | +/-0.0497 | 0.0758 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0214   | +/-0.0583   | 0.0473 | +/-0.0583 | 0.0946 | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0588    | +/-0.0535   | 0.0457 | +/-0.0535 | 0.0914 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.522     | +/-0.0596   | 0.0228 | +/-0.0596 | 0.0455 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.444     | +/-0.0734   | 0.0271 | +/-0.0734 | 0.0542 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.00805   | +/-0.0189   | 0.0151 | +/-0.0189 | 0.0301 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | -0.000442 | +/-0.0166   | 0.0141 | +/-0.0166 | 0.0282 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 10.1      | +/-0.922    | 0.131  | +/-0.922  | 0.262  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.454     | +/-0.0766   | 0.0273 | +/-0.0766 | 0.0545 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.000805  | +/-0.0146   | 0.013  | +/-0.0146 | 0.0259 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.109     | +/-0.0349   | 0.0155 | +/-0.0349 | 0.0311 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |           |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | -0.00436  | +/-0.0168   | 0.0147 | +/-0.0168 | 0.034  | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-004F  
Sample ID: 179837007

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | N |
|----------------------------------|-----------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 78               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 78               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-005F  
Sample ID: 179837008  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 5.92%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.478    | +/-0.105    | 0.0394 | +/-0.105  | 0.0788 | pCi/g |    | MJH1    | 02/05/07 | 0814 | 606830 |
| Americium-241                                          | U         | 0.0172   | +/-0.0668   | 0.0557 | +/-0.0668 | 0.111  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.249    | +/-0.185    | 0.0893 | +/-0.185  | 0.179  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.431    | +/-0.0763   | 0.0245 | +/-0.0763 | 0.049  | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI        | 0.00     | +/-0.0164   | 0.016  | +/-0.0164 | 0.0319 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.0021   | +/-0.0151   | 0.0129 | +/-0.0151 | 0.0259 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.00692 | +/-0.017    | 0.0114 | +/-0.017  | 0.0228 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.035   | +/-0.0534   | 0.0342 | +/-0.0534 | 0.0684 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0264  | +/-0.0534   | 0.0359 | +/-0.0534 | 0.0717 | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | -0.0174  | +/-0.0495   | 0.0445 | +/-0.0495 | 0.0889 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.508    | +/-0.0578   | 0.0201 | +/-0.0578 | 0.0402 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.441    | +/-0.0672   | 0.0251 | +/-0.0672 | 0.0501 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | -0.00746 | +/-0.0141   | 0.0119 | +/-0.0141 | 0.0237 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.0193   | +/-0.0145   | 0.0132 | +/-0.0145 | 0.0264 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.09     | +/-0.805    | 0.120  | +/-0.805  | 0.240  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.431    | +/-0.0763   | 0.0245 | +/-0.0763 | 0.049  | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.00777 | +/-0.013    | 0.0111 | +/-0.013  | 0.0221 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.126    | +/-0.0283   | 0.0113 | +/-0.0283 | 0.0227 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.00533  | +/-0.0238   | 0.0195 | +/-0.0238 | 0.0431 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-005F  
Sample ID: 179837008

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | M |
|----------------------------------|-----------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 70               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 70               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-007F  
Sample ID: 179837009  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-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  |
|--------------------------------------------------------|-----------|-----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |           |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.602     | +/-0.146    | 0.0474 | +/-0.146  | 0.0947 | pCi/g |    | MJH1    | 02/05/07 | 0820 | 606830 |
| Americium-241                                          | U         | -0.0339   | +/-0.0624   | 0.0502 | +/-0.0624 | 0.100  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.460     | +/-0.262    | 0.115  | +/-0.262  | 0.230  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.459     | +/-0.0759   | 0.0254 | +/-0.0759 | 0.0508 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0308    | +/-0.0277   | 0.0202 | +/-0.0277 | 0.0403 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.0214    | +/-0.020    | 0.0183 | +/-0.020  | 0.0367 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.013    | +/-0.0181   | 0.0136 | +/-0.0181 | 0.0273 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.0163   | +/-0.0602   | 0.0399 | +/-0.0602 | 0.0797 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | 0.0308    | +/-0.0617   | 0.0546 | +/-0.0617 | 0.109  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | -0.00595  | +/-0.0475   | 0.0432 | +/-0.0475 | 0.0863 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.522     | +/-0.0644   | 0.0236 | +/-0.0644 | 0.0471 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.526     | +/-0.0863   | 0.030  | +/-0.0863 | 0.060  | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | -0.000609 | +/-0.0184   | 0.0161 | +/-0.0184 | 0.0321 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | -0.00403  | +/-0.0177   | 0.0148 | +/-0.0177 | 0.0295 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.11      | +/-0.880    | 0.154  | +/-0.880  | 0.308  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.459     | +/-0.0759   | 0.0254 | +/-0.0759 | 0.0508 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.00351  | +/-0.0164   | 0.0142 | +/-0.0164 | 0.0284 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.181     | +/-0.039    | 0.0152 | +/-0.039  | 0.0303 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |           |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |           |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.00395   | +/-0.0227   | 0.0185 | +/-0.0227 | 0.0427 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

# 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: February 6, 2007

Client Sample ID: 9312-0008-007F  
Sample ID: 179837009

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | M |
|----------------------------------|-----------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 67               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 67               |     | (25%-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 For General Chemistry and Organic analysis the 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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Contact: Mr. Jack McCarthy  
Project: Soils PO# 002332

Report Date: February 6, 2007

Client Sample ID: 9312-0008-008F  
Sample ID: 179837010  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 5.4%

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

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

### Rad Gamma Spec Analysis

*Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth  
Waived*

|               |    |          |           |        |           |        |       |  |      |          |      |        |
|---------------|----|----------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|
| Actinium-228  |    | 0.543    | +/-0.146  | 0.0651 | +/-0.146  | 0.130  | pCi/g |  | MJH1 | 02/05/07 | 0820 | 606830 |
| Americium-241 | U  | 0.0298   | +/-0.0282 | 0.0244 | +/-0.0282 | 0.0488 | pCi/g |  |      |          |      |        |
| Bismuth-212   | U  | 0.141    | +/-0.271  | 0.135  | +/-0.271  | 0.270  | pCi/g |  |      |          |      |        |
| Bismuth-214   |    | 0.375    | +/-0.0799 | 0.0291 | +/-0.0799 | 0.0582 | pCi/g |  |      |          |      |        |
| Cesium-134    | U  | -0.0112  | +/-0.0234 | 0.0198 | +/-0.0234 | 0.0395 | pCi/g |  |      |          |      |        |
| Cesium-137    | U  | 0.021    | +/-0.0267 | 0.0133 | +/-0.0267 | 0.0267 | pCi/g |  |      |          |      |        |
| Cobalt-60     | U  | 0.00109  | +/-0.0214 | 0.018  | +/-0.0214 | 0.0361 | pCi/g |  |      |          |      |        |
| Europium-152  | U  | 0.0175   | +/-0.0662 | 0.0421 | +/-0.0662 | 0.0841 | pCi/g |  |      |          |      |        |
| Europium-154  | U  | -0.0135  | +/-0.0691 | 0.0571 | +/-0.0691 | 0.114  | pCi/g |  |      |          |      |        |
| Europium-155  | U  | -0.0252  | +/-0.0412 | 0.0366 | +/-0.0412 | 0.0732 | pCi/g |  |      |          |      |        |
| Lead-212      |    | 0.490    | +/-0.0682 | 0.0225 | +/-0.0682 | 0.0451 | pCi/g |  |      |          |      |        |
| Lead-214      |    | 0.511    | +/-0.0945 | 0.0308 | +/-0.0945 | 0.0616 | pCi/g |  |      |          |      |        |
| Manganese-54  | U  | 0.00531  | +/-0.0204 | 0.0182 | +/-0.0204 | 0.0363 | pCi/g |  |      |          |      |        |
| Niobium-94    | UI | 0.00     | +/-0.0316 | 0.0185 | +/-0.0316 | 0.037  | pCi/g |  |      |          |      |        |
| Potassium-40  |    | 9.43     | +/-0.946  | 0.0728 | +/-0.946  | 0.145  | pCi/g |  |      |          |      |        |
| Radium-226    |    | 0.375    | +/-0.0799 | 0.0291 | +/-0.0799 | 0.0582 | pCi/g |  |      |          |      |        |
| Silver-108m   | U  | -0.00012 | +/-0.0177 | 0.0136 | +/-0.0177 | 0.0271 | pCi/g |  |      |          |      |        |
| Thallium-208  |    | 0.177    | +/-0.0398 | 0.015  | +/-0.0398 | 0.0299 | pCi/g |  |      |          |      |        |

### Rad Gas Flow Proportional Counting

*GFPC, Sr90, solid-ALL FSS*

|              |   |        |          |        |          |        |       |  |      |          |      |        |
|--------------|---|--------|----------|--------|----------|--------|-------|--|------|----------|------|--------|
| Strontium-90 | U | 0.0144 | +/-0.021 | 0.0159 | +/-0.021 | 0.0363 | pCi/g |  | KSD1 | 02/02/07 | 1825 | 606160 |
|--------------|---|--------|----------|--------|----------|--------|-------|--|------|----------|------|--------|

### The following Prep Methods were performed

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

### The following Analytical Methods were performed

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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Project: Soils PO# 002332

Report Date: February 6, 2007

Client Sample ID: 9312–0008–008F  
Sample ID: 179837010

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time Batch | M |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------------|---|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |            |   |
| Strontium–90                     |             | GFPC, Sr90, solid–ALL FSS |             |    | 75               |     | (25%–125%)               |    |         |      |            |   |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid–ALL FSS |             |    | 75               |     | (25%–125%)               |    |         |      |            |   |

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

Report Date: February 6, 2007

Client Sample ID: 9312-0008-009F  
Sample ID: 179837011  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 6.5%

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

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

**Rad Gamma Spec Analysis**

*Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth  
Waived*

|               |   |          |           |        |           |        |       |  |      |          |      |        |
|---------------|---|----------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|
| Actinium-228  |   | 0.515    | +/-0.121  | 0.0424 | +/-0.121  | 0.0847 | pCi/g |  | MJH1 | 02/05/07 | 0821 | 606830 |
| Americium-241 | U | -0.0941  | +/-0.107  | 0.0846 | +/-0.107  | 0.169  | pCi/g |  |      |          |      |        |
| Bismuth-212   |   | 0.488    | +/-0.227  | 0.092  | +/-0.227  | 0.184  | pCi/g |  |      |          |      |        |
| Bismuth-214   |   | 0.398    | +/-0.077  | 0.0266 | +/-0.077  | 0.0532 | pCi/g |  |      |          |      |        |
| Cesium-134    | U | 0.0173   | +/-0.0224 | 0.0155 | +/-0.0224 | 0.0309 | pCi/g |  |      |          |      |        |
| Cesium-137    | U | 0.00838  | +/-0.015  | 0.0133 | +/-0.015  | 0.0267 | pCi/g |  |      |          |      |        |
| Cobalt-60     | U | 0.00517  | +/-0.0137 | 0.012  | +/-0.0137 | 0.024  | pCi/g |  |      |          |      |        |
| Europium-152  | U | 0.0188   | +/-0.0512 | 0.0363 | +/-0.0512 | 0.0725 | pCi/g |  |      |          |      |        |
| Europium-154  | U | -0.015   | +/-0.0486 | 0.0399 | +/-0.0486 | 0.0797 | pCi/g |  |      |          |      |        |
| Europium-155  | U | -0.012   | +/-0.0525 | 0.0478 | +/-0.0525 | 0.0954 | pCi/g |  |      |          |      |        |
| Lead-212      |   | 0.475    | +/-0.0569 | 0.0224 | +/-0.0569 | 0.0448 | pCi/g |  |      |          |      |        |
| Lead-214      |   | 0.459    | +/-0.0756 | 0.0243 | +/-0.0756 | 0.0486 | pCi/g |  |      |          |      |        |
| Manganese-54  | U | -0.00876 | +/-0.0141 | 0.0118 | +/-0.0141 | 0.0235 | pCi/g |  |      |          |      |        |
| Niobium-94    | U | -0.0071  | +/-0.0139 | 0.0114 | +/-0.0139 | 0.0227 | pCi/g |  |      |          |      |        |
| Potassium-40  |   | 9.88     | +/-0.841  | 0.105  | +/-0.841  | 0.211  | pCi/g |  |      |          |      |        |
| Radium-226    |   | 0.398    | +/-0.077  | 0.0266 | +/-0.077  | 0.0532 | pCi/g |  |      |          |      |        |
| Silver-108m   | U | -0.00232 | +/-0.0127 | 0.0111 | +/-0.0127 | 0.0222 | pCi/g |  |      |          |      |        |
| Thallium-208  |   | 0.125    | +/-0.0362 | 0.0124 | +/-0.0362 | 0.0248 | pCi/g |  |      |          |      |        |

**Rad Gas Flow Proportional Counting**

*GFPC, Sr90, solid-ALL FSS*

|              |   |         |           |        |           |        |       |  |      |          |      |        |
|--------------|---|---------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|
| Strontium-90 | U | -0.0017 | +/-0.0216 | 0.0184 | +/-0.0216 | 0.0425 | pCi/g |  | KSD1 | 02/02/07 | 1825 | 606160 |
|--------------|---|---------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

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Report Date: February 6, 2007

Client Sample ID: 9312-0008-009F  
Sample ID: 179837011

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | M |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 63               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 63               |     | (25%-125%)               |    |         |      |      |       |   |

### Notes:

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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 For General Chemistry and Organic analysis the 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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Contact: Mr. Jack McCarthy  
Project: Soils PO# 002332

Report Date: February 6, 2007

Client Sample ID: 9312-0008-010F  
Sample ID: 179837012  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 7.51%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.558    | +/-0.138    | 0.0564 | +/-0.138  | 0.113  | pCi/g |    | MJH1    | 02/05/07 | 0821 | 606830 |
| Americium-241                                          | U         | 0.0477   | +/-0.0758   | 0.0633 | +/-0.0758 | 0.127  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.509    | +/-0.304    | 0.121  | +/-0.304  | 0.243  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.445    | +/-0.084    | 0.0361 | +/-0.084  | 0.0722 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI        | 0.00     | +/-0.0227   | 0.0209 | +/-0.0227 | 0.0418 | pCi/g |    |         |          |      |        |
| Cesium-137                                             |           | 0.0341   | +/-0.0236   | 0.0166 | +/-0.0236 | 0.0331 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.00388 | +/-0.0205   | 0.0169 | +/-0.0205 | 0.0338 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.00455 | +/-0.0673   | 0.0452 | +/-0.0673 | 0.0904 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | 0.011    | +/-0.0616   | 0.0532 | +/-0.0616 | 0.106  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0304   | +/-0.0635   | 0.048  | +/-0.0635 | 0.096  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.587    | +/-0.0716   | 0.0249 | +/-0.0716 | 0.0497 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.453    | +/-0.0841   | 0.0342 | +/-0.0841 | 0.0684 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.0127   | +/-0.0197   | 0.0181 | +/-0.0197 | 0.0361 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | -0.00184 | +/-0.0181   | 0.0152 | +/-0.0181 | 0.0305 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.86     | +/-0.959    | 0.128  | +/-0.959  | 0.255  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.445    | +/-0.084    | 0.0361 | +/-0.084  | 0.0722 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.00512  | +/-0.0166   | 0.0148 | +/-0.0166 | 0.0297 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.164    | +/-0.0397   | 0.0161 | +/-0.0397 | 0.0321 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | -0.005   | +/-0.0187   | 0.0164 | +/-0.0187 | 0.0376 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery % | Acceptable Limits |
|---------------------------|------|------------|-------------------|
|---------------------------|------|------------|-------------------|

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Project: YANK01204  
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Vol. Recv.:

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|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|-------|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |       |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-125%)               |    |         |      |      |       |       |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-125%)               |    |         |      |      |       |       |

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  - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
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Report Date: February 6, 2007

Client Sample ID: 9312-0008-012F  
Sample ID: 179837013  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 8.11%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.443    | +/-0.126    | 0.0608 | +/-0.126  | 0.122  | pCi/g |    | MJH1    | 02/05/07 | 0822 | 606830 |
| Americium-241                                          | UI        | 0.00     | +/-0.0781   | 0.0435 | +/-0.0781 | 0.0869 | pCi/g |    |         |          |      |        |
| Bismuth-212                                            | U         | 0.201    | +/-0.182    | 0.137  | +/-0.182  | 0.274  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.411    | +/-0.088    | 0.0334 | +/-0.088  | 0.0668 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI        | 0.00     | +/-0.0343   | 0.0223 | +/-0.0343 | 0.0445 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | -0.00317 | +/-0.0211   | 0.0178 | +/-0.0211 | 0.0357 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | 0.00656  | +/-0.0186   | 0.0163 | +/-0.0186 | 0.0326 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.00572 | +/-0.0629   | 0.0488 | +/-0.0629 | 0.0975 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | 0.00908  | +/-0.0712   | 0.0524 | +/-0.0712 | 0.105  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | -0.0478  | +/-0.0541   | 0.046  | +/-0.0541 | 0.0919 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.490    | +/-0.0623   | 0.028  | +/-0.0623 | 0.056  | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.462    | +/-0.0865   | 0.0339 | +/-0.0865 | 0.0677 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.00564  | +/-0.0194   | 0.0173 | +/-0.0194 | 0.0346 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.00625  | +/-0.0185   | 0.016  | +/-0.0185 | 0.0321 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 10.2     | +/-0.970    | 0.143  | +/-0.970  | 0.286  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.411    | +/-0.088    | 0.0334 | +/-0.088  | 0.0668 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.00275  | +/-0.0194   | 0.0166 | +/-0.0194 | 0.0331 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.148    | +/-0.0387   | 0.0172 | +/-0.0387 | 0.0344 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.0138   | +/-0.0228   | 0.0174 | +/-0.0228 | 0.0398 | pCi/g |    | KSD1    | 02/02/07 | 1825 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

# 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: February 6, 2007

Client Sample ID: 9312-0008-012F  
Sample ID: 179837013

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | M |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 64               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 64               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-013F  
Sample ID: 179837014  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 7.45%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.546    | +/-0.209    | 0.0801 | +/-0.209  | 0.160  | pCi/g |    | MJH1    | 02/05/07 | 0830 | 606830 |
| Americium-241                                          | U         | -0.0464  | +/-0.0329   | 0.0284 | +/-0.0329 | 0.0569 | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.347    | +/-0.271    | 0.149  | +/-0.271  | 0.298  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.516    | +/-0.112    | 0.039  | +/-0.112  | 0.078  | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0179   | +/-0.0303   | 0.0276 | +/-0.0303 | 0.0553 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.022    | +/-0.027    | 0.0252 | +/-0.027  | 0.0504 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.0221  | +/-0.028    | 0.0205 | +/-0.028  | 0.041  | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | 0.0215   | +/-0.0721   | 0.0499 | +/-0.0721 | 0.0997 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.00577 | +/-0.0849   | 0.0706 | +/-0.0849 | 0.141  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.013    | +/-0.046    | 0.0454 | +/-0.046  | 0.0908 | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.515    | +/-0.0721   | 0.0267 | +/-0.0721 | 0.0534 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.461    | +/-0.0998   | 0.0358 | +/-0.0998 | 0.0716 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | -0.00498 | +/-0.0283   | 0.0242 | +/-0.0283 | 0.0483 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.00882  | +/-0.024    | 0.0208 | +/-0.024  | 0.0416 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.81     | +/-0.954    | 0.185  | +/-0.954  | 0.370  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.516    | +/-0.112    | 0.039  | +/-0.112  | 0.078  | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | 0.0147   | +/-0.0227   | 0.0182 | +/-0.0227 | 0.0364 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.187    | +/-0.0473   | 0.0201 | +/-0.0473 | 0.0402 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.00952  | +/-0.0174   | 0.0132 | +/-0.0174 | 0.0309 | pCi/g |    | KSD1    | 02/02/07 | 1826 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery % | Acceptable Limits |
|---------------------------|------|------------|-------------------|
|---------------------------|------|------------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-013F  
Sample ID: 179837014

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | N |  |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|--|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |  |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-125%)               |    |         |      |      |       |   |  |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-014F  
Sample ID: 179837015  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 6.59%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 0.487    | +/-0.156    | 0.0601 | +/-0.156  | 0.120  | pCi/g |    | MJH1    | 02/05/07 | 0926 | 606830 |
| Americium-241                                          | U         | 0.0405   | +/-0.0918   | 0.0771 | +/-0.0918 | 0.154  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.481    | +/-0.317    | 0.128  | +/-0.317  | 0.255  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.463    | +/-0.0808   | 0.0308 | +/-0.0808 | 0.0616 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | U         | 0.0331   | +/-0.0249   | 0.0206 | +/-0.0249 | 0.0411 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.014    | +/-0.0222   | 0.0198 | +/-0.0222 | 0.0397 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | -0.014   | +/-0.0306   | 0.0199 | +/-0.0306 | 0.0399 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.0425  | +/-0.0581   | 0.0444 | +/-0.0581 | 0.0887 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0101  | +/-0.0716   | 0.0593 | +/-0.0716 | 0.119  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0595   | +/-0.0546   | 0.0525 | +/-0.0546 | 0.105  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.499    | +/-0.0695   | 0.0256 | +/-0.0695 | 0.0513 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 0.458    | +/-0.0956   | 0.0333 | +/-0.0956 | 0.0666 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.0172   | +/-0.0281   | 0.0194 | +/-0.0281 | 0.0387 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.0143   | +/-0.0191   | 0.0172 | +/-0.0191 | 0.0343 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 9.78     | +/-1.07     | 0.137  | +/-1.07   | 0.273  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.463    | +/-0.0808   | 0.0308 | +/-0.0808 | 0.0616 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.00416 | +/-0.0188   | 0.014  | +/-0.0188 | 0.0279 | pCi/g |    |         |          |      |        |
| Thallium-208                                           | UI        | 0.00     | +/-0.046    | 0.0334 | +/-0.046  | 0.0668 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U         | 0.00392  | +/-0.0226   | 0.0184 | +/-0.0226 | 0.0425 | pCi/g |    | KSD1    | 02/02/07 | 1826 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-014F  
Sample ID: 179837015

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

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | Method |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|--------|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |        |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 67               |     | (25%-125%)               |    |         |      |      |       |        |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 67               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-015F  
Sample ID: 179837016  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 10.5%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 1.06     | +/-0.204    | 0.0615 | +/-0.204  | 0.123  | pCi/g |    | MJH1    | 02/05/07 | 1109 | 606830 |
| Americium-241                                          | U         | 0.192    | +/-0.117    | 0.0998 | +/-0.117  | 0.200  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.719    | +/-0.313    | 0.161  | +/-0.313  | 0.321  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 0.895    | +/-0.131    | 0.0398 | +/-0.131  | 0.0795 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI        | 0.00     | +/-0.0465   | 0.0263 | +/-0.0465 | 0.0526 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U         | 0.022    | +/-0.0276   | 0.0242 | +/-0.0276 | 0.0484 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U         | 0.00334  | +/-0.0263   | 0.0223 | +/-0.0263 | 0.0445 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | -0.00826 | +/-0.0757   | 0.0576 | +/-0.0757 | 0.115  | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | -0.0645  | +/-0.0843   | 0.065  | +/-0.0843 | 0.130  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | -0.00643 | +/-0.0742   | 0.0659 | +/-0.0742 | 0.132  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 0.899    | +/-0.101    | 0.0332 | +/-0.101  | 0.0664 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 1.05     | +/-0.145    | 0.0409 | +/-0.145  | 0.0818 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | UI        | 0.00     | +/-0.0341   | 0.0209 | +/-0.0341 | 0.0418 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | 0.0178   | +/-0.0233   | 0.0206 | +/-0.0233 | 0.0411 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 15.5     | +/-1.38     | 0.187  | +/-1.38   | 0.374  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 0.895    | +/-0.131    | 0.0398 | +/-0.131  | 0.0795 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.0183  | +/-0.0221   | 0.0182 | +/-0.0221 | 0.0363 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.276    | +/-0.0606   | 0.0221 | +/-0.0606 | 0.0443 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           |           | 0.0441   | +/-0.0256   | 0.0181 | +/-0.0256 | 0.0395 | pCi/g |    | KSD1    | 02/02/07 | 1826 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|



# 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: February 6, 2007

Client Sample ID: 9312-0008-016-I  
Sample ID: 179837017  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 10.2%

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

| Parameter                                              | Qualifier | Result   | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|-----------|----------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |           |          |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |           | 1.25     | +/-0.223    | 0.0656 | +/-0.223  | 0.131  | pCi/g |    | MJH1    | 02/05/07 | 1109 | 606830 |
| Americium-241                                          | U         | 0.0454   | +/-0.109    | 0.0905 | +/-0.109  | 0.181  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |           | 0.869    | +/-0.268    | 0.131  | +/-0.268  | 0.261  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |           | 1.24     | +/-0.150    | 0.0319 | +/-0.150  | 0.0637 | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI        | 0.00     | +/-0.0387   | 0.0252 | +/-0.0387 | 0.0503 | pCi/g |    |         |          |      |        |
| Cesium-137                                             |           | 0.0491   | +/-0.0343   | 0.018  | +/-0.0343 | 0.0361 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              |           | 0.0791   | +/-0.0449   | 0.0177 | +/-0.0449 | 0.0355 | pCi/g |    |         |          |      |        |
| Europium-152                                           | U         | 0.056    | +/-0.0598   | 0.0483 | +/-0.0598 | 0.0966 | pCi/g |    |         |          |      |        |
| Europium-154                                           | U         | 0.0675   | +/-0.0743   | 0.0583 | +/-0.0743 | 0.117  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U         | 0.0671   | +/-0.0755   | 0.0563 | +/-0.0755 | 0.112  | pCi/g |    |         |          |      |        |
| Lead-212                                               |           | 1.14     | +/-0.104    | 0.0275 | +/-0.104  | 0.0549 | pCi/g |    |         |          |      |        |
| Lead-214                                               |           | 1.35     | +/-0.139    | 0.0321 | +/-0.139  | 0.0641 | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U         | 0.0252   | +/-0.0244   | 0.0189 | +/-0.0244 | 0.0377 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U         | -0.00185 | +/-0.0205   | 0.0172 | +/-0.0205 | 0.0344 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |           | 19.4     | +/-1.53     | 0.170  | +/-1.53   | 0.340  | pCi/g |    |         |          |      |        |
| Radium-226                                             |           | 1.24     | +/-0.150    | 0.0319 | +/-0.150  | 0.0637 | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U         | -0.0167  | +/-0.0212   | 0.0153 | +/-0.0212 | 0.0306 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |           | 0.409    | +/-0.0587   | 0.0163 | +/-0.0587 | 0.0327 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |          |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |           |          |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           |           | 0.0499   | +/-0.0246   | 0.0167 | +/-0.0246 | 0.0366 | pCi/g |    | KSD1    | 02/02/07 | 1826 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-016-I      Project: YANK01204  
Sample ID: 179837017      Client ID: YANK001  
Vol. Recv.:

| Parameter                        | Qualifier   | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | N |
|----------------------------------|-------------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> | <b>Test</b> |                           |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |             | GFPC, Sr90, solid-ALL FSS |             |    | 76               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007

Client Sample ID: 9312-0008-017-I  
Sample ID: 179837018  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 11.4%

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

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

### Rad Gamma Spec Analysis

*Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth*

*Waived*

|               |   |          |           |        |           |        |       |  |      |          |      |        |
|---------------|---|----------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|
| Actinium-228  |   | 1.27     | +/-0.220  | 0.0624 | +/-0.220  | 0.125  | pCi/g |  | MJH1 | 02/05/07 | 1110 | 606830 |
| Americium-241 | U | 0.0346   | +/-0.112  | 0.0924 | +/-0.112  | 0.185  | pCi/g |  |      |          |      |        |
| Bismuth-212   |   | 0.664    | +/-0.251  | 0.139  | +/-0.251  | 0.278  | pCi/g |  |      |          |      |        |
| Bismuth-214   |   | 1.20     | +/-0.148  | 0.0326 | +/-0.148  | 0.0652 | pCi/g |  |      |          |      |        |
| Cesium-134    | U | 0.0358   | +/-0.0343 | 0.0228 | +/-0.0343 | 0.0456 | pCi/g |  |      |          |      |        |
| Cesium-137    |   | 0.0421   | +/-0.0307 | 0.0205 | +/-0.0307 | 0.041  | pCi/g |  |      |          |      |        |
| Cobalt-60     | U | -0.00817 | +/-0.0243 | 0.0198 | +/-0.0243 | 0.0395 | pCi/g |  |      |          |      |        |
| Europium-152  | U | -0.0174  | +/-0.0698 | 0.0502 | +/-0.0698 | 0.100  | pCi/g |  |      |          |      |        |
| Europium-154  | U | -0.0316  | +/-0.0771 | 0.0628 | +/-0.0771 | 0.126  | pCi/g |  |      |          |      |        |
| Europium-155  | U | 0.0497   | +/-0.0681 | 0.0625 | +/-0.0681 | 0.125  | pCi/g |  |      |          |      |        |
| Lead-212      |   | 1.23     | +/-0.112  | 0.0299 | +/-0.112  | 0.0598 | pCi/g |  |      |          |      |        |
| Lead-214      |   | 1.41     | +/-0.148  | 0.037  | +/-0.148  | 0.0739 | pCi/g |  |      |          |      |        |
| Manganese-54  | U | 0.014    | +/-0.023  | 0.0188 | +/-0.023  | 0.0376 | pCi/g |  |      |          |      |        |
| Niobium-94    | U | 0.017    | +/-0.0205 | 0.0181 | +/-0.0205 | 0.0362 | pCi/g |  |      |          |      |        |
| Potassium-40  |   | 19.3     | +/-1.59   | 0.152  | +/-1.59   | 0.303  | pCi/g |  |      |          |      |        |
| Radium-226    |   | 1.20     | +/-0.148  | 0.0326 | +/-0.148  | 0.0652 | pCi/g |  |      |          |      |        |
| Silver-108m   | U | 0.000814 | +/-0.0188 | 0.0165 | +/-0.0188 | 0.0329 | pCi/g |  |      |          |      |        |
| Thallium-208  |   | 0.395    | +/-0.0595 | 0.0175 | +/-0.0595 | 0.035  | pCi/g |  |      |          |      |        |

### Rad Gas Flow Proportional Counting

*GFPC, Sr90, solid-ALL FSS*

|              |   |        |           |        |           |        |       |  |      |          |      |        |
|--------------|---|--------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|
| Strontium-90 | U | 0.0189 | +/-0.0239 | 0.0178 | +/-0.0239 | 0.0405 | pCi/g |  | KSD1 | 02/02/07 | 1826 | 606160 |
|--------------|---|--------|-----------|--------|-----------|--------|-------|--|------|----------|------|--------|

### The following Prep Methods were performed

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

### The following Analytical Methods were performed

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery % | Acceptable Limits |
|---------------------------|------|------------|-------------------|
|---------------------------|------|------------|-------------------|

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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: February 6, 2007

Client Sample ID: 9312-0008-017-I  
Sample ID: 179837018

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | NA |
|----------------------------------|-----------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|----|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |    |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 75               |     | (25%-125%)               |    |         |      |      |       |    |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 75               |     | (25%-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 For General Chemistry and Organic analysis the 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  
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East Hampton, Connecticut 06424  
Contact: Mr. Jack McCarthy  
Project: Soils PO# 002332

Report Date: February 6, 2007

Client Sample ID: 9312-0008-018-I  
Sample ID: 179837019  
Matrix: TS  
Collect Date: 24-JAN-07  
Receive Date: 30-JAN-07  
Collector: Client  
Moisture: 12.8%

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

| Parameter                                              | Qualifier  | Result  | Uncertainty | LC     | TPU       | MDA    | Units | DF | Analyst | Date     | Time | Batch  |
|--------------------------------------------------------|------------|---------|-------------|--------|-----------|--------|-------|----|---------|----------|------|--------|
| <b>Rad Gamma Spec Analysis</b>                         |            |         |             |        |           |        |       |    |         |          |      |        |
| <i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i> |            |         |             |        |           |        |       |    |         |          |      |        |
| <i>Waived</i>                                          |            |         |             |        |           |        |       |    |         |          |      |        |
| Actinium-228                                           |            | 1.02    | +/-0.267    | 0.0975 | +/-0.267  | 0.195  | pCi/g |    | MJH1    | 02/05/07 | 1110 | 606830 |
| Americium-241                                          | U          | 0.0887  | +/-0.058    | 0.0495 | +/-0.058  | 0.099  | pCi/g |    |         |          |      |        |
| Bismuth-212                                            |            | 0.993   | +/-0.446    | 0.214  | +/-0.446  | 0.427  | pCi/g |    |         |          |      |        |
| Bismuth-214                                            |            | 1.26    | +/-0.190    | 0.0559 | +/-0.190  | 0.112  | pCi/g |    |         |          |      |        |
| Cesium-134                                             | UI         | 0.00    | +/-0.0662   | 0.0379 | +/-0.0662 | 0.0757 | pCi/g |    |         |          |      |        |
| Cesium-137                                             | U          | 0.0386  | +/-0.046    | 0.031  | +/-0.046  | 0.0619 | pCi/g |    |         |          |      |        |
| Cobalt-60                                              | U          | -0.0115 | +/-0.0347   | 0.0265 | +/-0.0347 | 0.053  | pCi/g |    |         |          |      |        |
| Europium-152                                           | U          | -0.0297 | +/-0.094    | 0.0714 | +/-0.094  | 0.143  | pCi/g |    |         |          |      |        |
| Europium-154                                           | U          | 0.00484 | +/-0.114    | 0.0958 | +/-0.114  | 0.191  | pCi/g |    |         |          |      |        |
| Europium-155                                           | U          | 0.139   | +/-0.107    | 0.0712 | +/-0.107  | 0.142  | pCi/g |    |         |          |      |        |
| Lead-212                                               |            | 1.24    | +/-0.139    | 0.0405 | +/-0.139  | 0.0809 | pCi/g |    |         |          |      |        |
| Lead-214                                               |            | 1.35    | +/-0.170    | 0.0555 | +/-0.170  | 0.111  | pCi/g |    |         |          |      |        |
| Manganese-54                                           | U-0.000934 |         | +/-0.0344   | 0.030  | +/-0.0344 | 0.0599 | pCi/g |    |         |          |      |        |
| Niobium-94                                             | U          | 0.0147  | +/-0.031    | 0.0269 | +/-0.031  | 0.0538 | pCi/g |    |         |          |      |        |
| Potassium-40                                           |            | 18.4    | +/-1.58     | 0.224  | +/-1.58   | 0.448  | pCi/g |    |         |          |      |        |
| Radium-226                                             |            | 1.26    | +/-0.190    | 0.0559 | +/-0.190  | 0.112  | pCi/g |    |         |          |      |        |
| Silver-108m                                            | U-0.000654 |         | +/-0.0283   | 0.0248 | +/-0.0283 | 0.0496 | pCi/g |    |         |          |      |        |
| Thallium-208                                           |            | 0.414   | +/-0.075    | 0.0271 | +/-0.075  | 0.0541 | pCi/g |    |         |          |      |        |
| <b>Rad Gas Flow Proportional Counting</b>              |            |         |             |        |           |        |       |    |         |          |      |        |
| <i>GFPC, Sr90, solid-ALL FSS</i>                       |            |         |             |        |           |        |       |    |         |          |      |        |
| Strontium-90                                           | U          | 0.00454 | +/-0.0211   | 0.017  | +/-0.0211 | 0.0397 | pCi/g |    | KSD1    | 02/02/07 | 1826 | 606160 |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | JMB1    | 01/30/07 | 1121 | 606002     |

**The following Analytical Methods were performed**

| Method | Description           |
|--------|-----------------------|
| 1      | EML HASL 300, 4.5.2.3 |
| 2      | EPA 905.0 Modified    |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|------|-----------|-------------------|
|---------------------------|------|-----------|-------------------|

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

Report Date: February 6, 2007

Client Sample ID: 9312-0008-018-I  
Sample ID: 179837019

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

| Parameter                        | Qualifier | Result                    | Uncertainty | LC | TPU              | MDA | Units                    | DF | Analyst | Date | Time | Batch | N |
|----------------------------------|-----------|---------------------------|-------------|----|------------------|-----|--------------------------|----|---------|------|------|-------|---|
| <b>Surrogate/Tracer recovery</b> |           | <b>Test</b>               |             |    | <b>Recovery%</b> |     | <b>Acceptable Limits</b> |    |         |      |      |       |   |
| Strontium-90                     |           | GFPC, Sr90, solid-ALL FSS |             |    | 62               |     | (25%-125%)               |    |         |      |      |       |   |
| Carrier/Tracer Recovery          |           | GFPC, Sr90, solid-ALL FSS |             |    | 62               |     | (25%-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 For General Chemistry and Organic analysis the 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: February 6, 2007  
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Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Vorkorder: 179837

| Sample Name           | NOM       | Sample | Qual              | QC     | Units     | RPD%  | REC%  | Range          | Anlst       | Date     | Time           |
|-----------------------|-----------|--------|-------------------|--------|-----------|-------|-------|----------------|-------------|----------|----------------|
| <b>Rad Alpha Spec</b> |           |        |                   |        |           |       |       |                |             |          |                |
| atch                  | 606029    |        |                   |        |           |       |       |                |             |          |                |
| QC1201269931          | 179836001 | DUP    |                   |        |           |       |       |                |             |          |                |
| Mercurium-241         |           | U      | 0.0303            | U      | -0.0117   | pCi/g | 452   | (0% - 100%)    | DXH2        | 02/01/07 | 07:43          |
|                       |           |        | Uncert: +/-0.158  |        | +/-0.0702 |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.158     |        | +/-0.0702 |       |       |                |             |          |                |
| Uranium-242           |           | U      | -0.0361           | U      | 0.00126   | pCi/g | 214   | (0% - 100%)    |             |          |                |
|                       |           |        | Uncert: +/-0.0751 |        | +/-0.0685 |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.0752    |        | +/-0.0685 |       |       |                |             |          |                |
| Uranium-243/244       |           | U      | -0.0502           | U      | 0.125     | pCi/g | 468   | (0% - 100%)    |             |          |                |
|                       |           |        | Uncert: +/-0.164  |        | +/-0.165  |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.164     |        | +/-0.165  |       |       |                |             |          |                |
| QC1201269933          | LCS       |        |                   |        |           |       |       |                |             |          |                |
| Mercurium-241         |           |        | 13.0              |        | 12.7      | pCi/g |       | 98 (75%-125%)  |             |          |                |
|                       |           |        | Uncert: +/-1.17   |        | +/-2.02   |       |       |                |             |          |                |
|                       |           |        | TPU: +/-2.02      |        |           |       |       |                |             |          |                |
| Uranium-242           |           |        |                   | U      | -0.0203   | pCi/g |       |                |             |          |                |
|                       |           |        | Uncert: +/-0.023  |        | +/-0.0231 |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.0231    |        |           |       |       |                |             |          |                |
| Uranium-243/244       |           |        | 15.6              |        | 14.8      | pCi/g |       | 95 (75%-125%)  |             |          |                |
|                       |           |        | Uncert: +/-1.26   |        | +/-2.30   |       |       |                |             |          |                |
|                       |           |        | TPU: +/-2.30      |        |           |       |       |                |             |          |                |
| QC1201269930          | MB        |        |                   |        |           |       |       |                |             |          |                |
| Mercurium-241         |           |        |                   | U      | 0.0301    | pCi/g |       |                |             |          |                |
|                       |           |        | Uncert: +/-0.058  |        | +/-0.0582 |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.0582    |        |           |       |       |                |             |          |                |
| Uranium-242           |           |        |                   | U      | -0.00707  | pCi/g |       |                |             |          |                |
|                       |           |        | Uncert: +/-0.0594 |        | +/-0.0594 |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.0594    |        |           |       |       |                |             |          |                |
| Uranium-243/244       |           |        |                   | U      | 0.103     | pCi/g |       |                |             |          |                |
|                       |           |        | Uncert: +/-0.116  |        | +/-0.117  |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.117     |        |           |       |       |                |             |          |                |
| QC1201269932          | 179836001 | MS     |                   |        |           |       |       |                |             |          |                |
| Mercurium-241         |           |        | 14.0              | U      | 0.0303    | pCi/g |       | 93 (75%-125%)  |             |          |                |
|                       |           |        | Uncert: +/-0.158  |        | +/-1.35   |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.158     |        | +/-2.22   |       |       |                |             |          |                |
| Uranium-242           |           |        |                   | U      | -0.0361   | pCi/g |       |                |             |          |                |
|                       |           |        | Uncert: +/-0.0751 |        | +/-0.138  |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.0752    |        | +/-0.138  |       |       |                |             |          |                |
| Uranium-243/244       |           |        | 16.8              | U      | -0.0502   | pCi/g |       | 107 (75%-125%) |             |          |                |
|                       |           |        | Uncert: +/-0.164  |        | +/-1.59   |       |       |                |             |          |                |
|                       |           |        | TPU: +/-0.164     |        | +/-2.90   |       |       |                |             |          |                |
| atch                  | 606031    |        |                   |        |           |       |       |                |             |          |                |
| QC1201269936          | 179836001 | DUP    |                   |        |           |       |       |                |             |          |                |
| Uranium-238           |           |        | U                 | 0.0727 | U         | 0.130 | pCi/g | 57             | (0% - 100%) | DXH2     | 01/31/07 15:54 |

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## QC Summary

Vorkorder: 179837

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| armname              | NOM       | Sample  | Qual | QC        | Units     | RPD%      | REC%  | Range       | Anlst       | Date           | Time           |
|----------------------|-----------|---------|------|-----------|-----------|-----------|-------|-------------|-------------|----------------|----------------|
| <b>ad Alpha Spec</b> |           |         |      |           |           |           |       |             |             |                |                |
| atch                 | 606031    |         |      |           |           |           |       |             |             |                |                |
|                      |           | Uncert: |      | +/-0.0998 |           |           |       |             |             |                |                |
|                      |           | TPU:    |      | +/-0.100  |           |           |       |             |             |                |                |
| lutonium-239/240     |           | U       | 0.00 | U         | -0.0516   | pCi/g     | 200   | (0% - 100%) |             |                |                |
|                      |           | Uncert: |      | +/-0.0566 |           |           |       |             |             |                |                |
|                      |           | TPU:    |      | +/-0.0566 |           |           |       |             |             |                |                |
| QC1201269938         | LCS       |         |      |           |           |           |       |             |             |                |                |
| lutonium-238         |           |         |      | U         | 0.0519    | pCi/g     |       | (75%-125%)  |             |                |                |
|                      |           | Uncert: |      |           | +/-0.226  |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-0.226  |           |       |             |             |                |                |
| lutonium-239/240     |           | 12.9    |      |           | 12.7      | pCi/g     | 98    | (75%-125%)  |             |                |                |
|                      |           | Uncert: |      |           | +/-1.25   |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-1.95   |           |       |             |             |                |                |
| QC1201269935         | MB        |         |      |           |           |           |       |             |             |                |                |
| lutonium-238         |           |         |      | U         | 0.0132    | pCi/g     |       |             |             |                |                |
|                      |           | Uncert: |      |           | +/-0.143  |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-0.143  |           |       |             |             |                |                |
| lutonium-239/240     |           |         |      | U         | -0.0224   | pCi/g     |       |             |             |                |                |
|                      |           | Uncert: |      |           | +/-0.0767 |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-0.0767 |           |       |             |             |                |                |
| QC1201269937         | 179836001 | MS      |      |           |           |           |       |             |             |                |                |
| lutonium-238         |           |         | U    | 0.0727    | U         | -0.014    | pCi/g | (75%-125%)  |             |                |                |
|                      |           | Uncert: |      | +/-0.0998 |           | +/-0.0723 |       |             |             |                |                |
|                      |           | TPU:    |      | +/-0.100  |           | +/-0.0723 |       |             |             |                |                |
| lutonium-239/240     |           | 13.9    | U    | 0.00      | 13.5      | pCi/g     | 97    | (75%-125%)  |             |                |                |
|                      |           | Uncert: |      | +/-0.0566 |           | +/-1.29   |       |             |             |                |                |
|                      |           | TPU:    |      | +/-0.0566 |           | +/-2.03   |       |             |             |                |                |
| atch                 | 606032    |         |      |           |           |           |       |             |             |                |                |
| QC1201269940         | 179836001 | DUP     |      |           |           |           |       |             |             |                |                |
| lutonium-241         |           |         | U    | -3.0      | U         | -3.33     | pCi/g | 0           | (0% - 100%) | DXH2           | 02/02/07 08:14 |
|                      |           | Uncert: |      | +/-6.37   |           | +/-7.09   |       |             |             |                |                |
|                      |           | TPU:    |      | +/-6.37   |           | +/-7.09   |       |             |             |                |                |
| QC1201269942         | LCS       |         |      |           |           |           |       |             |             |                |                |
| lutonium-241         |           | 140     |      |           | 108       | pCi/g     | 77    | (75%-125%)  |             | 02/01/07 11:12 |                |
|                      |           | Uncert: |      |           | +/-11.6   |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-15.7   |           |       |             |             |                |                |
| QC1201269939         | MB        |         |      |           |           |           |       |             |             |                |                |
| lutonium-241         |           |         |      | U         | -3.23     | pCi/g     |       |             |             | 02/01/07 10:24 |                |
|                      |           | Uncert: |      |           | +/-6.45   |           |       |             |             |                |                |
|                      |           | TPU:    |      |           | +/-6.45   |           |       |             |             |                |                |
| QC1201269941         | 179836001 | MS      |      |           |           |           |       |             |             |                |                |
| lutonium-241         |           | 142     | U    | -3.0      | 138       | pCi/g     | 97    | (75%-125%)  |             | 02/01/07 10:56 |                |
|                      |           | Uncert: |      | +/-6.37   |           | +/-13.9   |       |             |             |                |                |
|                      |           | TPU:    |      | +/-6.37   |           | +/-19.8   |       |             |             |                |                |
| <b>ad Gamma Spec</b> |           |         |      |           |           |           |       |             |             |                |                |
| atch                 | 606830    |         |      |           |           |           |       |             |             |                |                |
| QC1201271731         | 179837001 | DUP     |      |           |           |           |       |             |             |                |                |
| actinium-228         |           | 0.587   |      |           | 0.511     | pCi/g     | 14    | (0% - 100%) | MJH1        | 02/05/07 14:54 |                |
|                      |           | Uncert: |      | +/-0.146  |           | +/-0.176  |       |             |             |                |                |
|                      |           |         |      |           | +/-0.176  |           |       |             |             |                |                |

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## QC Summary

Vorkorder: 179837

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| armname        | NOM | Sample  | Qual | QC        | Units     | RPD%  | REC% | Range       | Anlst | Date | Time |
|----------------|-----|---------|------|-----------|-----------|-------|------|-------------|-------|------|------|
| ad Gamma Spec  |     |         |      |           |           |       |      |             |       |      |      |
| atch 606830    |     |         |      |           |           |       |      |             |       |      |      |
| Americium-241  |     | TPU:    |      | +/-0.146  |           |       |      |             |       |      |      |
|                | U   |         | U    | 0.0353    | -0.0187   | pCi/g | 654  | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0842 | +/-0.0861 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0842 | +/-0.0861 |       |      |             |       |      |      |
| Bismuth-212    |     |         |      | 0.283     | 0.439     | pCi/g | 43   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.205  | +/-0.247  |       |      |             |       |      |      |
| Bismuth-214    |     | TPU:    |      | +/-0.205  | +/-0.247  |       |      |             |       |      |      |
|                |     |         |      | 0.564     | 0.365     | pCi/g | 43   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0926 | +/-0.0778 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0926 | +/-0.0778 |       |      |             |       |      |      |
| Cesium-134     | UI  |         | U    | 0.00      | 0.0186    | pCi/g | 91   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0223 | +/-0.0403 |       |      |             |       |      |      |
| Cesium-137     |     | TPU:    |      | +/-0.0223 | +/-0.0403 |       |      |             |       |      |      |
|                | U   |         | U    | 0.00537   | 0.0121    | pCi/g | 77   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0187 | +/-0.0188 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0187 | +/-0.0188 |       |      |             |       |      |      |
| Cobalt-60      |     |         | U    | -0.013    | -0.00172  | pCi/g | 153  | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0185 | +/-0.019  |       |      |             |       |      |      |
| Europium-152   |     | TPU:    |      | +/-0.0185 | +/-0.019  |       |      |             |       |      |      |
|                | U   |         | U    | 0.0071    | -0.0197   | pCi/g | 425  | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0593 | +/-0.0561 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0593 | +/-0.0561 |       |      |             |       |      |      |
| Europium-154   |     |         | U    | 0.0232    | 0.0364    | pCi/g | 45   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0607 | +/-0.0609 |       |      |             |       |      |      |
| Europium-155   |     | TPU:    |      | +/-0.0607 | +/-0.0609 |       |      |             |       |      |      |
|                | U   |         | U    | -0.0124   | 0.0483    | pCi/g | 338  | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0549 | +/-0.0526 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0549 | +/-0.0526 |       |      |             |       |      |      |
| Gadolinium-212 |     |         |      | 0.564     | 0.483     | pCi/g | 16   | (0%-20%)    |       |      |      |
|                |     | Uncert: |      | +/-0.0677 | +/-0.0634 |       |      |             |       |      |      |
| Gadolinium-214 |     | TPU:    |      | +/-0.0677 | +/-0.0634 |       |      |             |       |      |      |
|                |     |         |      | 0.503     | 0.447     | pCi/g | 12   | (0%-20%)    |       |      |      |
|                |     | Uncert: |      | +/-0.080  | +/-0.0782 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.080  | +/-0.0782 |       |      |             |       |      |      |
| Gallium-54     |     |         | U    | -0.00293  | -0.00155  | pCi/g | 62   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0178 | +/-0.0163 |       |      |             |       |      |      |
| Lithium-94     |     | TPU:    |      | +/-0.0178 | +/-0.0163 |       |      |             |       |      |      |
|                | U   |         | U    | 0.00658   | 0.00792   | pCi/g | 19   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0164 | +/-0.0162 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0164 | +/-0.0162 |       |      |             |       |      |      |
| Potassium-40   |     |         |      | 8.96      | 9.47      | pCi/g | 6    | (0% - 20%)  |       |      |      |
|                |     | Uncert: |      | +/-0.985  | +/-0.923  |       |      |             |       |      |      |
| Radium-226     |     | TPU:    |      | +/-0.985  | +/-0.923  |       |      |             |       |      |      |
|                |     |         |      | 0.564     | 0.365     | pCi/g | 43   | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0926 | +/-0.0778 |       |      |             |       |      |      |
|                |     | TPU:    |      | +/-0.0926 | +/-0.0778 |       |      |             |       |      |      |
| Silver-108m    |     |         | U    | 0.00437   | -0.0064   | pCi/g | 1060 | (0% - 100%) |       |      |      |
|                |     | Uncert: |      | +/-0.0169 | +/-0.0163 |       |      |             |       |      |      |

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## QC Summary

Vorkorder: 179837

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| armname        | NOM     | Sample Qual | QC        | Units | RPD% | REC% | Range       | Anlst | Date     | Time  |
|----------------|---------|-------------|-----------|-------|------|------|-------------|-------|----------|-------|
| ad Gamma Spec  |         |             |           |       |      |      |             |       |          |       |
| atch           | 606830  |             |           |       |      |      |             |       |          |       |
|                | TPU:    | +/-0.0169   | +/-0.0163 |       |      |      |             |       |          |       |
| hassium-208    |         | 0.159       | 0.185     | pCi/g | 16   |      | (0% - 100%) |       |          |       |
|                | Uncert: | +/-0.0453   | +/-0.0404 |       |      |      |             |       |          |       |
|                | TPU:    | +/-0.0453   | +/-0.0404 |       |      |      |             |       |          |       |
| QC1201271732   | LCS     |             |           |       |      |      |             |       |          |       |
| actinium-228   |         |             | U 0.00856 | pCi/g |      |      |             |       | 02/05/07 | 14:54 |
|                | Uncert: |             | +/-0.651  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.651  |       |      |      |             |       |          |       |
| americium-241  | 23.4    |             | 25.8      | pCi/g |      | 111  | (75%-125%)  |       |          |       |
|                | Uncert: |             | +/-2.96   |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-2.96   |       |      |      |             |       |          |       |
| bismuth-212    |         |             | U 0.394   | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.992  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.992  |       |      |      |             |       |          |       |
| bismuth-214    |         |             | U 0.186   | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.229  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.229  |       |      |      |             |       |          |       |
| cesium-134     |         |             | U 0.031   | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.142  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.142  |       |      |      |             |       |          |       |
| cesium-137     | 9.48    |             | 9.92      | pCi/g |      | 105  | (75%-125%)  |       |          |       |
|                | Uncert: |             | +/-0.882  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.882  |       |      |      |             |       |          |       |
| cobalt-60      | 13.7    |             | 14.4      | pCi/g |      | 105  | (75%-125%)  |       |          |       |
|                | Uncert: |             | +/-1.13   |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-1.13   |       |      |      |             |       |          |       |
| europium-152   |         |             | U -0.195  | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.314  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.314  |       |      |      |             |       |          |       |
| europium-154   |         |             | U 0.294   | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.268  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.268  |       |      |      |             |       |          |       |
| europium-155   |         |             | U -0.158  | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.310  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.310  |       |      |      |             |       |          |       |
| gadolinium-212 |         |             | U -0.0813 | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.165  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.165  |       |      |      |             |       |          |       |
| gadolinium-214 |         |             | U -0.0832 | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.217  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.217  |       |      |      |             |       |          |       |
| manganese-54   |         |             | U 0.103   | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.138  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.138  |       |      |      |             |       |          |       |
| niobium-94     |         |             | U 0.0763  | pCi/g |      |      |             |       |          |       |
|                | Uncert: |             | +/-0.118  |       |      |      |             |       |          |       |
|                | TPU:    |             | +/-0.118  |       |      |      |             |       |          |       |
| potassium-40   |         |             | U 0.346   | pCi/g |      |      |             |       |          |       |

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## QC Summary

Vorkorder: 179837

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| armname         | NOM    | Sample Qual | QC       | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|-----------------|--------|-------------|----------|-------|------|------|------------|-------|----------|-------|
| ad Gamma Spec   |        |             |          |       |      |      |            |       |          |       |
| atch            | 606830 |             |          |       |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| adium-226       |        | U           | 0.186    | pCi/g |      |      | (75%-125%) |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| ilver-108m      |        | U           | 0.0349   | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| hassium-208     |        | U           | 0.0328   | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| QC1201271730 MB |        |             |          |       |      |      |            |       |          |       |
| actinium-228    |        | U           | 0.0204   | pCi/g |      |      |            |       | 02/05/07 | 14:53 |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| mericium-241    |        | U           | 0.00915  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| ismuth-212      |        | U           | -0.0217  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| ismuth-214      |        | U           | -0.0281  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| esium-134       |        | U           | 0.00327  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| esium-137       |        | U           | 0.000285 | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| obalt-60        |        | U           | -0.00754 | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| uropium-152     |        | U           | 0.00973  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| uropium-154     |        | U           | 0.0125   | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| uropium-155     |        | U           | -0.0186  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| ead-212         |        | U           | 0.035    | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |
| ead-214         |        | U           | 0.00104  | pCi/g |      |      |            |       |          |       |
|                 |        |             | Uncert:  |       |      |      |            |       |          |       |
|                 |        |             | TPU:     |       |      |      |            |       |          |       |

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## QC Summary

Vorkorder: 179837

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| armname                        | NOM       | Sample Qual | QC        | Units     | RPD%      | REC%  | Range | Anlst       | Date | Time           |
|--------------------------------|-----------|-------------|-----------|-----------|-----------|-------|-------|-------------|------|----------------|
| <b>ad Gamma Spec</b>           |           |             |           |           |           |       |       |             |      |                |
| atch                           | 606830    |             |           |           |           |       |       |             |      |                |
| Manganese-54                   |           | U           | -0.0023   | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.0124 |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0124 |           |           |       |       |             |      |                |
| Biobium-94                     |           | U           | 0.0152    | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.0123 |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0123 |           |           |       |       |             |      |                |
| Potassium-40                   |           | UI          | 0.00      | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.193  |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.193  |           |           |       |       |             |      |                |
| Radium-226                     |           | U           | -0.0281   | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.0308 |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0308 |           |           |       |       |             |      |                |
| Silver-108m                    |           | U           | 0.000938  | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.0105 |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0105 |           |           |       |       |             |      |                |
| Thallium-208                   |           | U           | -0.0101   | pCi/g     |           |       |       |             |      |                |
|                                |           | Uncert:     | +/-0.0144 |           |           |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0144 |           |           |       |       |             |      |                |
| <b>ad Gas Flow</b>             |           |             |           |           |           |       |       |             |      |                |
| atch                           | 606160    |             |           |           |           |       |       |             |      |                |
| QC1201270176                   | 179837001 | DUP         |           |           |           |       |       |             |      |                |
| Strontium-90                   |           | U           | 0.00356   | U         | 0.00805   | pCi/g | 0     | (0% - 100%) | KSD1 | 02/02/07 18:24 |
|                                |           | Uncert:     | +/-0.0207 |           | +/-0.0206 |       |       |             |      |                |
|                                |           | TPU:        | +/-0.0207 |           | +/-0.0206 |       |       |             |      |                |
| QC1201270178                   | LCS       |             |           |           |           |       |       |             |      |                |
| Strontium-90                   |           | 1.50        |           |           | 1.51      | pCi/g | 101   | (75%-125%)  |      | 02/02/07 18:24 |
|                                |           | Uncert:     |           |           | +/-0.112  |       |       |             |      |                |
|                                |           | TPU:        |           |           | +/-0.121  |       |       |             |      |                |
| QC1201270175                   | MB        |             |           |           |           |       |       |             |      |                |
| Strontium-90                   |           |             |           | U         | -0.00234  | pCi/g |       |             |      | 02/02/07 18:24 |
|                                |           | Uncert:     |           |           | +/-0.0156 |       |       |             |      |                |
|                                |           | TPU:        |           |           | +/-0.0156 |       |       |             |      |                |
| QC1201270177                   | 179837001 | MS          |           |           |           |       |       |             |      |                |
| Strontium-90                   |           | 2.74        | U         | 0.00356   | 2.77      | pCi/g | 101   | (75%-125%)  |      | 02/02/07 18:24 |
|                                |           | Uncert:     |           | +/-0.0207 | +/-0.199  |       |       |             |      |                |
|                                |           | TPU:        |           | +/-0.0207 | +/-0.216  |       |       |             |      |                |
| <b>ad Liquid Scintillation</b> |           |             |           |           |           |       |       |             |      |                |
| atch                           | 606162    |             |           |           |           |       |       |             |      |                |
| QC1201270180                   | 179836001 | DUP         |           |           |           |       |       |             |      |                |
| Technetium-99                  |           | U           | -0.157    | U         | -0.0277   | pCi/g | 0     | (0% - 100%) | KXR1 | 02/04/07 23:28 |
|                                |           | Uncert:     | +/-0.168  |           | +/-0.173  |       |       |             |      |                |
|                                |           | TPU:        | +/-0.168  |           | +/-0.173  |       |       |             |      |                |
| QC1201270182                   | LCS       |             |           |           |           |       |       |             |      |                |
| Technetium-99                  |           | 13.1        |           |           | 13.0      | pCi/g | 99    | (75%-125%)  |      | 02/05/07 00:03 |
|                                |           | Uncert:     |           |           | +/-0.533  |       |       |             |      |                |
|                                |           | TPU:        |           |           | +/-0.622  |       |       |             |      |                |
| QC1201270179                   | MB        |             |           |           |           |       |       |             |      |                |
| Technetium-99                  |           |             |           | U         | 0.158     | pCi/g |       |             |      | 02/04/07 23:11 |

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## QC Summary

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| armname                        | NOM           | Sample Qual | QC        | Units     | RPD%      | REC%  | Range              | Anlst | Date     | Time     |
|--------------------------------|---------------|-------------|-----------|-----------|-----------|-------|--------------------|-------|----------|----------|
| <b>ad Liquid Scintillation</b> |               |             |           |           |           |       |                    |       |          |          |
| atch                           | 606162        |             |           |           |           |       |                    |       |          |          |
|                                |               |             | Uncert:   |           |           |       |                    |       |          | +/-0.165 |
|                                |               |             | TPU:      |           |           |       |                    |       |          | +/-0.165 |
| QC1201270181                   | 179836001 MS  |             |           |           |           |       |                    |       |          |          |
| Technetium-99                  |               | 12.5 U      | -0.157    |           | 11.0      | pCi/g | 88 (75%-125%)      |       | 02/04/07 | 23:46    |
|                                |               |             | Uncert:   | +/-0.168  | +/-0.498  |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-0.168  | +/-0.568  |       |                    |       |          |          |
| atch                           | 606163        |             |           |           |           |       |                    |       |          |          |
| QC1201270184                   | 179836001 DUP |             |           |           |           |       |                    |       |          |          |
| Nickel-63                      |               | U           | -9.21 U   |           | 5.27      | pCi/g | 0 (0% - 100%) MXP1 |       | 02/01/07 | 16:26    |
|                                |               |             | Uncert:   | +/-11.8   | +/-10.9   |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-11.8   | +/-10.9   |       |                    |       |          |          |
| QC1201270186                   | LCS           |             |           |           |           |       |                    |       |          |          |
| Nickel-63                      |               |             | 563       |           | 508       | pCi/g | 90 (75%-125%)      |       | 02/01/07 | 16:59    |
|                                |               |             | Uncert:   |           | +/-21.7   |       |                    |       |          |          |
|                                |               |             | TPU:      |           | +/-28.4   |       |                    |       |          |          |
| QC1201270183                   | MB            |             |           |           |           |       |                    |       |          |          |
| Nickel-63                      |               |             |           | U         | -3.09     | pCi/g |                    |       | 02/01/07 | 16:10    |
|                                |               |             | Uncert:   |           | +/-10.3   |       |                    |       |          |          |
|                                |               |             | TPU:      |           | +/-10.3   |       |                    |       |          |          |
| QC1201270185                   | 179836001 MS  |             |           |           |           |       |                    |       |          |          |
| Nickel-63                      |               | 567 U       | -9.21     |           | 554       | pCi/g | 98 (75%-125%)      |       | 02/01/07 | 16:43    |
|                                |               |             | Uncert:   | +/-11.8   | +/-29.4   |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-11.8   | +/-35.6   |       |                    |       |          |          |
| atch                           | 606165        |             |           |           |           |       |                    |       |          |          |
| QC1201270188                   | 179836001 DUP |             |           |           |           |       |                    |       |          |          |
| Iron-55                        |               | U           | 19.0 U    |           | 18.9      | pCi/g | 0 (0% - 100%) MXP1 |       | 02/03/07 | 11:33    |
|                                |               |             | Uncert:   | +/-62.6   | +/-69.3   |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-62.6   | +/-69.3   |       |                    |       |          |          |
| QC1201270190                   | LCS           |             |           |           |           |       |                    |       |          |          |
| Iron-55                        |               | 1190        |           |           | 1150      | pCi/g | 96 (75%-125%)      |       | 02/03/07 | 11:50    |
|                                |               |             | Uncert:   |           | +/-92.4   |       |                    |       |          |          |
|                                |               |             | TPU:      |           | +/-113    |       |                    |       |          |          |
| QC1201270187                   | MB            |             |           |           |           |       |                    |       |          |          |
| Iron-55                        |               |             |           | U         | 18.3      | pCi/g |                    |       | 02/03/07 | 11:01    |
|                                |               |             | Uncert:   |           | +/-53.3   |       |                    |       |          |          |
|                                |               |             | TPU:      |           | +/-53.3   |       |                    |       |          |          |
| QC1201270189                   | 179836001 MS  |             |           |           |           |       |                    |       |          |          |
| Iron-55                        |               | 1200 U      | 19.0      |           | 1160      | pCi/g | 96 (75%-125%)      |       | 02/03/07 | 11:17    |
|                                |               |             | Uncert:   | +/-62.6   | +/-90.9   |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-62.6   | +/-111    |       |                    |       |          |          |
| atch                           | 606166        |             |           |           |           |       |                    |       |          |          |
| QC1201270192                   | 179836001 DUP |             |           |           |           |       |                    |       |          |          |
| Carbon-14                      |               | U           | -0.0109 U |           | -0.0517   | pCi/g | 0 (0% - 100%) AXD2 |       | 01/31/07 | 21:13    |
|                                |               |             | Uncert:   | +/-0.0671 | +/-0.0701 |       |                    |       |          |          |
|                                |               |             | TPU:      | +/-0.0671 | +/-0.0701 |       |                    |       |          |          |
| QC1201270194                   | LCS           |             |           |           |           |       |                    |       |          |          |
| Carbon-14                      |               | 6.65        |           |           | 6.54      | pCi/g | 98 (75%-125%)      |       | 01/31/07 | 22:33    |
|                                |               |             | Uncert:   |           | +/-0.434  |       |                    |       |          |          |
|                                |               |             | TPU:      |           | +/-0.446  |       |                    |       |          |          |

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## QC Summary

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| armname                         | NOM       | Sample Qual | QC                | Units    | RPD%  | REC%  | Range      | Anlst       | Date     | Time           |
|---------------------------------|-----------|-------------|-------------------|----------|-------|-------|------------|-------------|----------|----------------|
| <b>Rad Liquid Scintillation</b> |           |             |                   |          |       |       |            |             |          |                |
| atch                            | 606166    |             |                   |          |       |       |            |             |          |                |
| QC1201270191                    | MB        |             |                   |          |       |       |            |             |          |                |
| Carbon-14                       |           | U           | -0.0597           | pCi/g    |       |       |            |             | 01/31/07 | 20:10          |
|                                 |           |             | Uncert: +/-0.0694 |          |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.0694    |          |       |       |            |             |          |                |
| QC1201270193                    | 179836001 | MS          |                   |          |       |       |            |             |          |                |
| Carbon-14                       |           | 7.19 U      | -0.0109           | 6.92     | pCi/g | 96    | (75%-125%) |             | 01/31/07 | 22:15          |
|                                 |           |             | Uncert: +/-0.0671 | +/-0.479 |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.0671    | +/-0.491 |       |       |            |             |          |                |
| atch                            | 606167    |             |                   |          |       |       |            |             |          |                |
| QC1201270196                    | 179837001 | DUP         |                   |          |       |       |            |             |          |                |
| Strontium                       |           | U           | 0.452             | U        | 0.369 | pCi/g | 0          | (0% - 100%) | AXD2     | 02/01/07 04:13 |
|                                 |           |             | Uncert: +/-0.306  | +/-0.341 |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.306     | +/-0.341 |       |       |            |             |          |                |
| QC1201270198                    | LCS       |             |                   |          |       |       |            |             |          |                |
| Strontium                       |           | 6.39        |                   | 6.14     | pCi/g | 96    | (75%-125%) |             | 02/01/07 | 05:03          |
|                                 |           |             | Uncert: +/-0.510  | +/-0.513 |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.513     |          |       |       |            |             |          |                |
| QC1201270195                    | MB        |             |                   |          |       |       |            |             |          |                |
| Strontium                       |           |             | U                 | 0.0228   | pCi/g |       |            |             | 02/01/07 | 03:40          |
|                                 |           |             | Uncert: +/-0.133  | +/-0.133 |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.133     |          |       |       |            |             |          |                |
| QC1201270197                    | 179837001 | MS          |                   |          |       |       |            |             |          |                |
| Strontium                       |           | 6.48 U      | 0.452             | 5.16     | pCi/g | 80    | (75%-125%) |             | 02/01/07 | 04:46          |
|                                 |           |             | Uncert: +/-0.306  | +/-0.813 |       |       |            |             |          |                |
|                                 |           |             | TPU: +/-0.306     | +/-0.814 |       |       |            |             |          |                |

**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 For General Chemistry and Organic analysis the 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  
Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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## QC Summary

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| armname | NOM | Sample Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------|-----|-------------|----|-------|------|------|-------|-------|------|------|
| X       |     |             |    |       |      |      |       |       |      |      |
| Y       |     |             |    |       |      |      |       |       |      |      |
| ^       |     |             |    |       |      |      |       |       |      |      |
| h       |     |             |    |       |      |      |       |       |      |      |

/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.

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

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**ATTACHMENT 4 (DQA RESULTS)**

Revision 0

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

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

Revision 0

115kV WEST SIDE GW TREATMENT FACILITY  
SURVEY UNIT 9312-0008

RELEASE RECORD  
Attachment 4

**Survey Unit:** 9312-0008  
**Area Description:** 115kV West Side GW Treatment Facility  
**Classification:** 1  
**Survey Media:** Surface Soils  
**Type of Survey:** Final Status Survey  
**Number of Measurements:** 15 Static, 3 Investigative

| STATISTICS on TOTAL POPULATION    |           |           |           | STATISTICS on NON-PARAMETRIC POPULATION |           |           |           |
|-----------------------------------|-----------|-----------|-----------|-----------------------------------------|-----------|-----------|-----------|
|                                   | Cs-137    | Co-60     | Sr-90     |                                         | Cs-137    | Co-60     | Sr-90     |
| <b>DCGL<sub>op</sub> (pCi/g):</b> | 4.75E+00  | 2.29E+00  | 9.30E-01  | <b>DCGL<sub>op</sub> (pCi/g):</b>       | 4.75E+00  | 2.29E+00  | 9.30E-01  |
| <b>Minimum Value:</b>             | -3.17E-03 | -2.21E-02 | -5.00E-03 | <b>Minimum Value:</b>                   | -3.17E-03 | -2.21E-02 | -5.00E-03 |
| <b>Maximum Value:</b>             | 8.38E-02  | 7.91E-02  | 2.96E-01  | <b>Maximum Value:</b>                   | 8.38E-02  | 6.56E-03  | 2.96E-01  |
| <b>Mean:</b>                      | 2.30E-02  | -1.01E-03 | 2.76E-02  | <b>Mean:</b>                            | 1.91E-02  | -4.45E-03 | 2.95E-02  |
| <b>Median:</b>                    | 2.08E-02  | -4.40E-03 | 8.30E-03  | <b>Median:</b>                          | 1.70E-02  | -3.88E-03 | 5.33E-03  |
| <b>Standard Deviation:</b>        | 2.09E-02  | 2.09E-02  | 6.67E-02  | <b>Standard Deviation:</b>              | 2.13E-02  | 8.32E-03  | 7.50E-02  |

| Sample ID      | GPS Coordinates |           | Cs-137   |       |          |            | Co-60     |       |          |            | Sr-90     |       |          |            | Fraction of DCGL |
|----------------|-----------------|-----------|----------|-------|----------|------------|-----------|-------|----------|------------|-----------|-------|----------|------------|------------------|
|                |                 |           | Result   | 2σ    | MDA      | Identified | Result    | 2σ    | MDA      | Identified | Result    | 2σ    | MDA      | Identified |                  |
|                | North           | East      | (pCi/g)  |       | (pCi/g)  |            | (pCi/g)   |       | (pCi/g)  |            | (pCi/g)   |       | (pCi/g)  |            |                  |
| 9312-0008-001F | 236475.90       | 668844.00 | 1.88E-02 | 0.024 | 2.37E-02 |            | -7.00E-03 | 0.022 | 3.49E-02 |            | 2.35E-02  | 0.024 | 3.97E-02 |            | 0.026            |
| 9312-0008-002F | 236475.90       | 668877.34 | 1.70E-02 | 0.017 | 3.05E-02 | +          | -3.64E-03 | 0.016 | 2.58E-02 |            | 2.96E-01  | 0.050 | 4.05E-02 | +          | 0.320            |
| 9312-0008-003F | 236447.02       | 668827.33 | 1.27E-02 | 0.030 | 5.30E-02 |            | 4.05E-03  | 0.036 | 5.09E-02 |            | 3.08E-02  | 0.025 | 3.96E-02 | +          | 0.038            |
| 9312-0008-004F | 236447.02       | 668860.67 | 0.00E+00 | 0.032 | 3.20E-02 |            | 1.04E-03  | 0.019 | 3.14E-02 |            | -4.36E-03 | 0.017 | 3.40E-02 |            | -0.004           |
| 9312-0008-005F | 236447.02       | 668894.01 | 2.10E-03 | 0.015 | 2.59E-02 |            | -6.92E-03 | 0.017 | 2.28E-02 |            | 5.33E-03  | 0.024 | 4.31E-02 |            | 0.003            |
| 9312-0008-006F | 236447.02       | 668927.35 | 5.37E-03 | 0.019 | 3.28E-02 |            | -1.30E-02 | 0.019 | 2.81E-02 |            | 3.56E-03  | 0.021 | 3.91E-02 |            | -0.001           |
| 9312-0008-007F | 236418.15       | 668810.66 | 2.14E-02 | 0.020 | 3.67E-02 | +          | -1.30E-02 | 0.018 | 2.73E-02 |            | 3.95E-03  | 0.023 | 4.27E-02 |            | 0.003            |
| 9312-0008-008F | 236418.15       | 668844.00 | 2.10E-02 | 0.027 | 2.67E-02 |            | 1.09E-03  | 0.021 | 3.61E-02 |            | 1.44E-02  | 0.021 | 3.63E-02 |            | 0.020            |
| 9312-0008-009F | 236418.15       | 668877.34 | 8.38E-02 | 0.015 | 2.67E-02 | +          | 5.17E-03  | 0.014 | 2.40E-02 |            | -1.70E-03 | 0.022 | 4.25E-02 |            | 0.018            |
| 9312-0008-010F | 236418.15       | 668910.68 | 3.41E-02 | 0.024 | 3.31E-02 | +          | -3.88E-03 | 0.021 | 3.38E-02 |            | -5.00E-03 | 0.019 | 3.76E-02 |            | 0.000            |

115kV WEST SIDE GW TREATMENT FACILITY  
SURVEY UNIT 9312-0008

RELEASE RECORD  
Attachment 4

| Sample ID       | GPS Coordinates |           | Cs-137    |            |          |            | Co-60     |            |          |            | Sr-90    |            |          |            | Fraction of DCGL |
|-----------------|-----------------|-----------|-----------|------------|----------|------------|-----------|------------|----------|------------|----------|------------|----------|------------|------------------|
|                 |                 |           | Result    | 2 $\sigma$ | MDA      | Identified | Result    | 2 $\sigma$ | MDA      | Identified | Result   | 2 $\sigma$ | MDA      | Identified |                  |
|                 |                 |           | (pCi/g)   |            | (pCi/g)  |            | (pCi/g)   | (pCi/g)    |          |            | (pCi/g)  | (pCi/g)    |          |            |                  |
| North           | East            |           |           |            |          |            |           |            |          |            |          |            |          |            |                  |
| 9312-0008-011F  | 236389.28       | 668827.33 | 3.45E-02  | 0.031      | 3.43E-02 | +          | -4.40E-03 | 0.022      | 2.21E-02 |            | 4.26E-03 | 0.018      | 3.38E-02 |            | 0.010            |
| 9312-0008-012F  | 236389.28       | 668860.67 | -3.17E-03 | 0.021      | 3.57E-02 |            | 6.56E-03  | 0.019      | 3.26E-02 |            | 1.38E-02 | 0.023      | 3.98E-02 |            | 0.017            |
| 9312-0008-013F  | 236389.28       | 668894.01 | 2.20E-02  | 0.027      | 5.04E-02 |            | -2.21E-02 | 0.028      | 4.10E-02 |            | 9.52E-03 | 0.017      | 3.09E-02 |            | 0.005            |
| 9312-0008-014F  | 236360.40       | 668844.00 | 1.40E-02  | 0.022      | 3.97E-02 |            | -1.40E-02 | 0.031      | 3.99E-02 |            | 3.92E-03 | 0.023      | 4.25E-02 |            | 0.001            |
| 9312-0008-015F  | 236360.40       | 668877.34 | 3.34E-03  | 0.026      | 4.45E-02 |            | 3.34E-03  | 0.026      | 4.45E-02 |            | 4.41E-02 | 0.026      | 3.95E-02 | +          | 0.050            |
| 9312-0008-003FS | 236447.02       | 668827.33 | 2.08E-02  | 0.018      | 3.06E-02 | +          | -1.19E-02 | 0.019      | 2.87E-02 |            | 8.30E-03 | 0.023      | 4.22E-02 |            | 0.008            |
| 9312-0008-016-I | 236358.70       | 668868.21 | 4.91E-02  | 0.034      | 3.61E-02 | +          | 7.91E-02  | 0.045      | 3.55E-02 | +          | 4.99E-02 | 0.025      | 3.66E-02 | +          | 0.099            |
| 9312-0008-017-I | 236354.14       | 668865.13 | 4.21E-02  | 0.031      | 4.10E-02 | +          | -8.17E-03 | 0.024      | 3.95E-02 |            | 1.89E-02 | 0.024      | 4.05E-02 |            | 0.026            |
| 9312-0008-018-I | 236430.44       | 668940.73 | 3.86E-02  | 0.046      | 6.19E-02 |            | -1.15E-02 | 0.035      | 5.30E-02 |            | 4.54E-03 | 0.021      | 3.97E-02 |            | 0.008            |

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

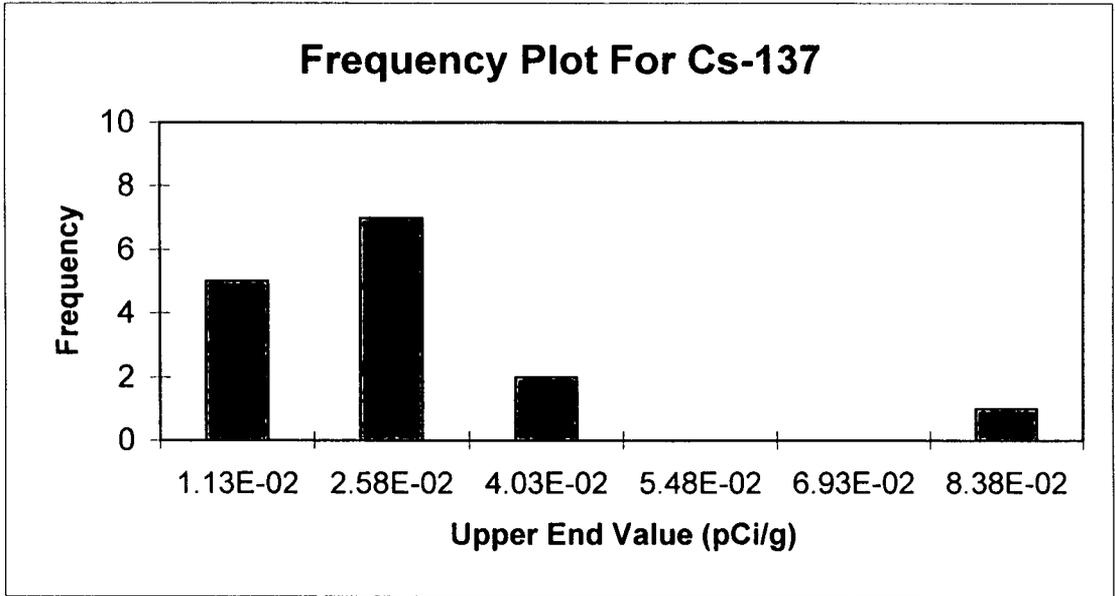
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**ATTACHMENT 4B  
(GRAPHICAL REPRESENTATION OF  
DATA)**

Revision 0

FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9312-0008  
 Survey Unit Name: 115kV West Side GW Treatment Facility  
 Mean: 1.91E-02 pCi/g

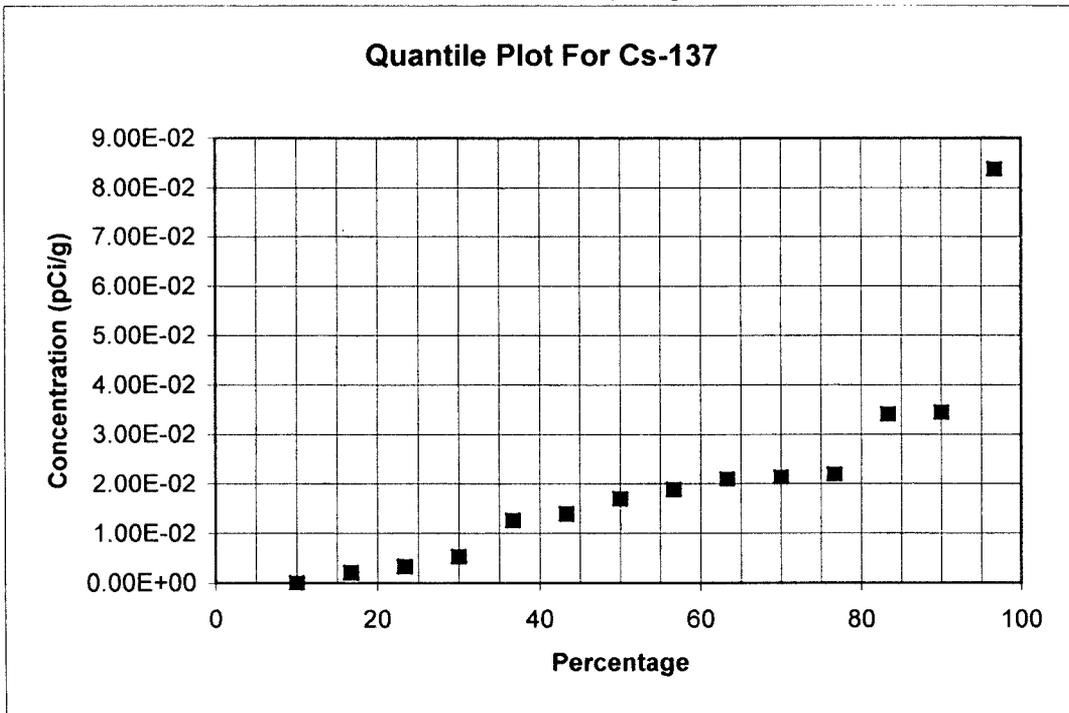


| Upper End Value | Observation Frequency | Observation Frequency |
|-----------------|-----------------------|-----------------------|
| 1.13E-02        | 5                     | 33%                   |
| 2.58E-02        | 7                     | 47%                   |
| 4.03E-02        | 2                     | 13%                   |
| 5.48E-02        | 0                     | 0%                    |
| 6.93E-02        | 0                     | 0%                    |
| 8.38E-02        | 1                     | 7%                    |
| Total:          | 15                    | 100%                  |

*[Signature]*  
 Submitted by/Date D. WOSTKOWIAK, 2/27/07  
*[Signature]*  
 Reviewed by/Date P. WASSERLITZ, 2-27-07

QUANTILE PLOT FOR CESIUM-137

Survey Unit: 9312-0008  
 Survey Unit Name: 115kV West Side GW Treatment Facility  
 Mean: 1.91E-02 pCi/g

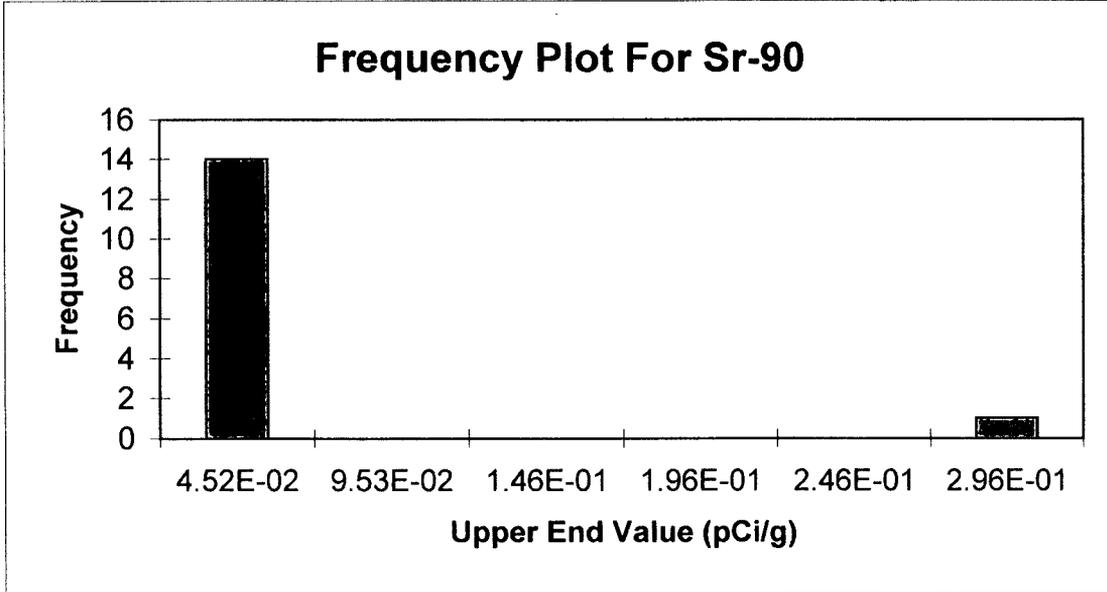


| Cs-137    | Rank | Percentage |
|-----------|------|------------|
| -3.17E-03 | 1    | 3.3%       |
| 0.00E+00  | 2    | 10.0%      |
| 2.10E-03  | 3    | 16.7%      |
| 3.34E-03  | 4    | 23.3%      |
| 5.37E-03  | 5    | 30.0%      |
| 1.27E-02  | 6    | 36.7%      |
| 1.40E-02  | 7    | 43.3%      |
| 1.70E-02  | 8    | 50.0%      |
| 1.88E-02  | 9    | 56.7%      |
| 2.10E-02  | 10   | 63.3%      |
| 2.14E-02  | 11   | 70.0%      |
| 2.20E-02  | 12   | 76.7%      |
| 3.41E-02  | 13   | 83.3%      |
| 3.45E-02  | 14   | 90.0%      |
| 8.38E-02  | 15   | 96.7%      |

*[Signature]*  
 Submitted by/Date D. WATKOWIAK 2/27/07  
*[Signature]*  
 Reviewed by/Date R. MASE-SP 2-27-07

FREQUENCY PLOT FOR STRONTIUM-90

Survey Unit: 9312-0008  
 Survey Unit Name: 115kV West Side GW Treatment Facility  
 Mean: 2.95E-02 pCi/g

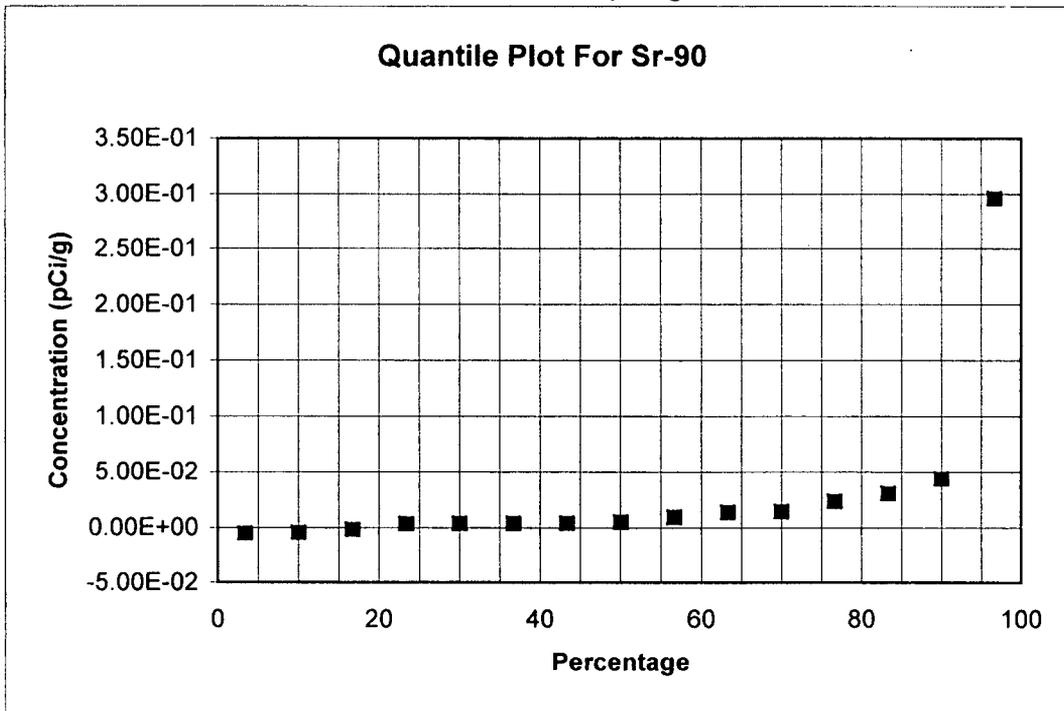


| Upper End Value | Observation Frequency | Observation Frequency |
|-----------------|-----------------------|-----------------------|
| 4.52E-02        | 14                    | 93%                   |
| 9.53E-02        | 0                     | 0%                    |
| 1.46E-01        | 0                     | 0%                    |
| 1.96E-01        | 0                     | 0%                    |
| 2.46E-01        | 0                     | 0%                    |
| 2.96E-01        | 1                     | 7%                    |
| <b>Total:</b>   | <b>15</b>             | <b>100%</b>           |

*[Signature]* D. WATKOWIAK 2/27/07  
 Submitted by/Date  
*[Signature]*  
 R. MASSERILL 2-27-07  
 Reviewed by/Date

QUANTILE PLOT FOR STRONTIUM-90

Survey Unit: 9312-0008  
 Survey Unit Name: 115kV West Side GW Treatment Facility  
 Mean: 2.95E-02 pCi/g



| Sr-90     | Rank | Percentage |
|-----------|------|------------|
| -5.00E-03 | 1    | 3.3%       |
| -4.36E-03 | 2    | 10.0%      |
| -1.70E-03 | 3    | 16.7%      |
| 3.56E-03  | 4    | 23.3%      |
| 3.92E-03  | 5    | 30.0%      |
| 3.95E-03  | 6    | 36.7%      |
| 4.26E-03  | 7    | 43.3%      |
| 5.33E-03  | 8    | 50.0%      |
| 9.52E-03  | 9    | 56.7%      |
| 1.38E-02  | 10   | 63.3%      |
| 1.44E-02  | 11   | 70.0%      |
| 2.35E-02  | 12   | 76.7%      |
| 3.08E-02  | 13   | 83.3%      |
| 4.41E-02  | 14   | 90.0%      |
| 2.96E-01  | 15   | 96.7%      |

*D. Woltkowiak*  
 Submitted by/Date 2/27/07  
*R. Masseri*  
 Reviewed by/Date 2-27-07

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

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**ATTACHMENT 4C (SIGN TEST)**

Revision 0

**Sign Test Calculation Sheet for Multiple Radionuclides**

| Survey Area Number: 9312                                   |                                                    | Survey Unit Number: 0008                           |                                                    | WPIR #: N/A                       |                  |      |
|------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|-----------------------------------|------------------|------|
| Survey Area Name: 115kV West Side<br>GW Treatment Facility |                                                    | Classification: 1                                  | TYPE I (α error): 0.05                             | N: 16                             |                  |      |
| Radionuclides:                                             | 1 <sup>st</sup> Radionuclide<br>Cs-137             | 2 <sup>nd</sup> Radionuclide<br>Co-60              | 3 <sup>rd</sup> Radionuclide<br>Sr-90              | 4 <sup>th</sup> Radionuclide      |                  |      |
| DCGL:                                                      | 4.75E+00                                           | 2.29E+00                                           | 9.30E-01                                           |                                   |                  |      |
| Results 1 <sup>st</sup><br>Radionuclide<br>(pCi/g)         | Results 2 <sup>nd</sup><br>Radionuclide<br>(pCi/g) | Results 3 <sup>rd</sup><br>Radionuclide<br>(pCi/g) | Results 4 <sup>th</sup><br>Radionuclide<br>(pCi/g) | Weighted Sum<br>(W <sub>s</sub> ) | 1-W <sub>s</sub> | Sign |
| 1.88E-02                                                   | -7.00E-03                                          | 2.35E-02                                           |                                                    | 0.03                              | 0.97             | +1   |
| 1.70E-02                                                   | -3.64E-03                                          | 2.96E-01                                           |                                                    | 0.32                              | 0.68             | +1   |
| 1.27E-02                                                   | 4.05E-03                                           | 3.08E-02                                           |                                                    | 0.04                              | 0.96             | +1   |
| 0.00E+00                                                   | 1.04E-03                                           | -4.36E-03                                          |                                                    | 0.00                              | 1.00             | +1   |
| 2.10E-03                                                   | -6.92E-03                                          | 5.33E-03                                           |                                                    | 0.00                              | 1.00             | +1   |
| 5.37E-03                                                   | -1.30E-02                                          | 3.56E-03                                           |                                                    | 0.00                              | 1.00             | +1   |
| 2.14E-02                                                   | -1.30E-02                                          | 3.95E-03                                           |                                                    | 0.00                              | 1.00             | +1   |
| 2.10E-02                                                   | 1.09E-03                                           | 1.44E-02                                           |                                                    | 0.02                              | 0.98             | +1   |
| 8.38E-02                                                   | 5.17E-03                                           | -1.70E-03                                          |                                                    | 0.02                              | 0.98             | +1   |
| 3.41E-02                                                   | -3.88E-03                                          | -5.00E-03                                          |                                                    | 0.00                              | 1.00             | +1   |
| 3.45E-02                                                   | -4.40E-03                                          | 4.26E-03                                           |                                                    | 0.01                              | 0.99             | +1   |
| -3.17E-03                                                  | 6.56E-03                                           | 1.38E-02                                           |                                                    | 0.02                              | 0.98             | +1   |
| 2.20E-02                                                   | -2.21E-02                                          | 9.52E-03                                           |                                                    | 0.01                              | 0.99             | +1   |
| 1.40E-02                                                   | -1.40E-02                                          | 3.92E-03                                           |                                                    | 0.00                              | 1.00             | +1   |
| 3.34E-03                                                   | 3.34E-03                                           | 4.41E-02                                           |                                                    | 0.05                              | 0.95             | +1   |
|                                                            |                                                    |                                                    |                                                    |                                   |                  |      |
|                                                            |                                                    |                                                    |                                                    |                                   |                  |      |
| Number of positive differences (S+)                        |                                                    |                                                    |                                                    |                                   |                  | 15   |

Critical Value 11

Survey Unit Meets the Acceptance Criteria

Performed by:

David Wojtkowiak

Date:

2/23/2007

Independent Review by:

R. MASSERELLI

Date:

2/27/2007

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

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**ATTACHMENT 4D (QC SPLIT RESULTS)**

Revision 0

**Split Sample Assessment Form**

|                     |                     |                                                         |
|---------------------|---------------------|---------------------------------------------------------|
| Survey Area #: 9312 | Survey Unit #: 0008 | Survey Unit Name: 115kV West Side GW Treatment Facility |
|---------------------|---------------------|---------------------------------------------------------|

|                           |                     |
|---------------------------|---------------------|
| Sample Plan or WPIR#: N/A | SML#: 9312-0008-003 |
|---------------------------|---------------------|

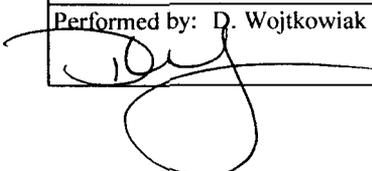
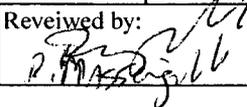
Sample Description: Comparison of split samples collected from sample measurement location #3 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9312-0008-003F, the comparison sample was 9312-0008-003FS.

| STANDARD     |                |                |            |                 | COMPARISON     |                |                  |                  |
|--------------|----------------|----------------|------------|-----------------|----------------|----------------|------------------|------------------|
| Radionuclide | Activity Value | Standard Error | Resolution | Agreement Range | Activity Value | Standard Error | Comparison Ratio | Acceptable (Y/N) |
| K-40         | 9.77E+00       | 0.525          | 19         | 0.75 - 1.33     | 9.67E+00       | 0.453          | 0.99             | Y                |
|              |                |                |            |                 |                |                |                  |                  |
|              |                |                |            |                 |                |                |                  |                  |
|              |                |                |            |                 |                |                |                  |                  |
|              |                |                |            |                 |                |                |                  |                  |
|              |                |                |            |                 |                |                |                  |                  |

Comments/Corrective Actions: Cs-137 was not detected in sufficient quantities in the field split results at location 9312-0008-003F to evaluate in accordance with procedure. Evaluation using the reported results for K-40 resulted in acceptable agreement between the field-split results at these locations.. Since K-40 was found to be present at an acceptable level of agreement, no further action is warranted.

Table is provided to show acceptance criteria used to assess split samples.

| Resolution | Agreement Range |
|------------|-----------------|
| 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<br> | Date: 2/15/2007 | Reviewed by:  | Date: 2-27-07 |
|--------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------|---------------|

15KV WEST SIDE GW TREATMENT FACILITY  
(FORMER RADIOLOGICALLY CONTROLLED AREA)  
SURVEY UNIT 9312-0008

RELEASE RECORD

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**ATTACHMENT 4E  
(COMPASS POWER CURVE)**

Revision 0



# DQA Surface Soil Report

## Assessment Summary

|                         |                                                           |              |               |
|-------------------------|-----------------------------------------------------------|--------------|---------------|
| Site:                   | 9312                                                      |              |               |
| Planner(s):             | Wojo                                                      |              |               |
| Survey Unit Name:       | 9312-0008                                                 |              |               |
| 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:  | <b><i>Reject Null Hypothesis (Survey Unit PASSES)</i></b> |              |               |

## Retrospective Power Curve

