



Final Status Survey Final Report Phase VII

Appendix A8

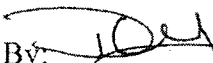
Survey Unit Release Record

**9312-0006, Primary Auxiliary Building
(PAB) (Former Radiologically Controlled
Area)**

May 2007



CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

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1. SURVEY UNIT DESCRIPTION

Survey Unit 9312-0006 (Primary Auxiliary Building) is designated as Final Status Survey (FSS) Class 1 and consists of approximately one thousand seven hundred fifty-four (1,754) square meters of open land and is located approximately one thousand three hundred forty-seven (1,347) 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 9312-0004 to the north (called north as oriented with the north to south flow of the Connecticut River), land Survey Unit 9306-0000 and land Survey Unit 9313-0000 to the west, land Survey Unit 9312-0001 and land Survey Unit 9312-0003 to the south, and land Survey Unit 9312-0005 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 E008 through E011 by S065 through S067 (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 9312-0006 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.

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During plant operation, Survey Unit 9312-0006 was the location of significant reactor support structures and systems, primarily the Primary Auxiliary Building (PAB). The PAB was a concrete structure designed to house systems containing radioactive materials. The building was designed to contain and control leakage occurring during routine operations as well as unusual conditions. With the exception of various service water, gas and air systems, the majority of the systems within the PAB were radiologically contaminated. The PAB also contained highly contaminated pipe trenches and pump pit areas. The lower level of the PAB under the boron recovery equipment was contaminated due to past spills involving evaporator bottoms. Contamination levels in several of these systems were high enough to create high radiation areas in their vicinity. Most of the cubicles that contained major systems were posted as "Contaminated Areas" identifying the presence of loose radioactive contamination in these areas. Radiological surveys performed during facility operations indicated substantial levels of beta/gamma and alpha contamination.

Historically, leaks were found at the junction between the steam generator blow down line and the service water discharge line beneath the floor of the PAB drumming room. On at least one occasion, a leak resulted in contamination of the soil beneath the drumming room floor.

A review of the Historical Site Assessment and Supplement, as well as, other historical documents (e.g., the 10CFR50.75(g)(1) files) indicated a significant number of operational events have impacted Survey Unit 9312-0006. 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;

- Diaphragm rupture, valve failure and gasket leakage from components associated with the Refueling Water Storage Tank (RWST) resulted in documented spills of radioactive liquid into the alleyway between the Containment structure and the PAB in November 1973, February 1976, December 1976, February 1978 and January 1979.
- A frozen degassifier line in February 1979 caused the rupture of the diaphragm disc and led to leakage of reactor cavity water into the main stack drain and subsequently onto the surrounding area in the PAB alleyway, onto the ground, into the storm drains and subsequently the discharge canal.
- In July of 1979, contaminated water was released onto the stack and surrounding area from the PAB ventilation system. The stack surface was cleaned and painted and the ducts from the blowdown line to the stack were replaced in September 1979.

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- A series of events in September 1979 resulted in the release of steam generator contents into the stack. The steam condensed in the stack ductwork and subsequently leaked 50 to 75 gallons of contaminated water onto the alleyway. Smear surveys indicated contamination levels from 5k to 10k dpm at the perimeter of the leak. Cs-134 and Cs-137 were identified in the water. All of the liquid was removed and the area was decontaminated.
- The degassifier rupture diaphragm actuated in December 1979 and vented gaseous contents up the stack and liquid contents near the base of the stack. The impacted areas and systems were storm sewers, roof drain lines, stack, stack duct and drain lines and the PAB roof. All impacted areas were remediated.

Major demolition and remediation activities began in 2002. All radioactive systems and components located inside the PAB 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. The structural concrete of the PAB was then demolished to grade.

Outside of the structure, remediation was performed on the soils surrounding the PAB. 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 significant volume of contaminated soil that exhibited direct exposure rates was removed prior to commencing soil sampling for isotopic analysis. Soil samples taken in this area to support remediation continued to exhibit detectable concentrations of Cs-137, Co-60 and Sr-90. The soils in all of these areas were remediated to bedrock and the excavations were backfilled following the performance of radiological assessments. No above grade structures currently reside within Survey Unit 9312-0006.

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, with 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 9312-0006 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 9312-0006 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 9312-0006 (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, four (4) judgmental samples were taken in this survey area. One (1) judgmental location was situated at the northeast corner of the survey unit, one (1) judgmental sample was taken in the southeast corner of the survey unit in the vicinity of the former location of the RWST, one (1) judgmental sample was taken in the southwest corner of the survey unit at the former location of the PAB Drumming Room and one (1) judgmental sample was taken in the northwest corner of the survey unit.

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
9312-0006-001F	236695.21	668582.76
9312-0006-002F	236695.21	668620.89
9312-0006-003F	236662.19	668563.70
9312-0006-004F	236662.19	668601.83
9312-0006-005F	236662.19	668639.96
9312-0006-006F	236662.19	668678.09

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Table 4 - (continued)		
Designation	Northing	Easting
9312-0006-007F	236629.17	668544.63
9312-0006-008F	236629.17	668582.76
9312-0006-009F	236629.17	668620.89
9312-0006-010F	236629.17	668659.02
9312-0006-011F	236596.15	668563.70
9312-0006-012F	236596.15	668601.83
9312-0006-013F	236596.15	668639.96
9312-0006-014F	236563.13	668582.76
9312-0006-015F	236563.13	668620.89
9312-0006-016B ⁽¹⁾	236716.60	668603.43
9312-0006-017B ⁽¹⁾	236676.30	668657.84
9312-0006-018B ⁽¹⁾	236548.47	668611.18
9312-0006-019B ⁽¹⁾	236607.06	668523.70

(1) B = biased – indicates judgmental sample location

Procedure RPM 5.1-11 specifies that 5% of the samples are required to be selected for HTD analysis. Three (3) soil samples, or about 20% 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	1,754 m ²	Based on AutoCAD-LT
Number of Measurements	19 (15 systematic grid) (4 Judgmental)	Type 1 and Type 2 errors were 0.05, sigma was 0.14 ρCi/g, the LBGR was set at 0.73 to achieve a Relative Shift in the range of 1 and 3
Grid Spacing	38.16 m	Based on triangular grid
Operational DCGL	4.75 ρCi/g Cs-137 2.29 ρCi/g Co-60	Administratively set to achieve fifteen (15) mrem/yr TEDE ⁽¹⁾
Soil Investigation Level	4.75 ρCi/g Cs-137 2.29 ρCi/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 ρCi/g Cs-137 and 3.23 ρCi/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 a Final Status Survey Plan (FSSP). The FSSP package included a detailed survey 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 9312-0006. 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 6,110 counts per minute (cpm) up to 11,500 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.

Nineteen (19) 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.*"

Three (3) samples (9312-0006-001F, 9312-0006-007F and 9312-0006-012F) were randomly selected for HTD radionuclide analysis.

The implementation of survey specific quality control measures included the collection of one (1) sample (9312-0006-013F) for "split sample" analysis.

6. SURVEY RESULTS

All field survey activities were conducted between March 7, 2007 and March 8, 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	7.67	10.59	NO
2	7.52	9.54	NO
3	9.19	11.31	NO
4	7.44	10.21	NO
5	6.75	10.82	NO
6	7.03	9.76	NO
7	7.25	10.69	NO
8	6.91	9.64	NO
9	7.55	9.59	NO
10	6.94	8.92	NO
11	8.82	11.16	NO
12	7.79	10.23	NO
13	6.53	10.20	NO
14	10.80	12.39	NO
15	7.69	10.05	NO
16 ⁽¹⁾	8.32	10.80	NO
17 ⁽¹⁾	6.24	10.08	NO
18 ⁽¹⁾	9.86	11.80	NO
19 ⁽¹⁾	11.20	14.31	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)

(2) Indicates judgmental sample locations (biased)

The scan area, that comprised approximately 100% of the total surface area for the survey unit, was scanned for elevated radiation levels. The area was scanned in accordance with the FSS plan on March 7, 2007 and March 8, 2007.

Forty-four (44) scan strips were initially established in this survey unit. There were no elevated measurements 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	11.70	13.71	None	None
11 thru 20	8.11	11.59	None	None
21 thru 30	8.60	11.10	None	None
31 thru 40	9.14	11.79	None	None
41 thru 44	9.41	10.39	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 four (4) judgmental 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 four (4) 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
9312-0006-001F	5.86E-03
9312-0006-002F	-1.37E-02
9312-0006-003F	-2.27E-02
9312-0006-004F	3.19E-02
9312-0006-005F	2.17E-02
9312-0006-006F	-2.09E-02
9312-0006-007F	1.87E-02
9312-0006-008F	6.32E-03
9312-0006-009F	2.79E-03
9312-0006-010F	8.25E-03
9312-0006-011F	2.88E-02
9312-0006-012F	1.64E-02
9312-0006-013F	2.18E-02
9312-0006-014F	1.95E-02
9312-0006-015F	2.65E-02

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 four (4) 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
9312-0006-001F	1.13E-02
9312-0006-002F	1.07E-02
9312-0006-003F	2.66E-03
9312-0006-004F	1.63E-03
9312-0006-005F	1.27E-02
9312-0006-006F	2.26E-02
9312-0006-007F	-3.23E-02
9312-0006-008F	3.29E-02
9312-0006-009F	1.24E-02
9312-0006-010F	1.09E-02
9312-0006-011F	2.95E-02
9312-0006-012F	-7.77E-03
9312-0006-013F	2.47E-02
9312-0006-014F	1.11E-02
9312-0006-015F	7.56E-03

In addition to Sr-90, the off-site laboratory also processed, as required by the sample plan, three (3) 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 9312-0006 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	
9312-0006-001F	-	-	-
9312-0006-002F	-	-	-
9312-0006-003F	-	-	-
9312-0006-004F	0.007	-	0.007
9312-0006-005F	-	-	-
9312-0006-006F	-	0.024	0.024
9312-0006-007F	-	-	-
9312-0006-008F	-	0.035	0.035
9312-0006-009F	-	-	-
9312-0006-010F	-	-	-
9312-0006-011F	0.006	0.032	0.038
9312-0006-012F	-	-	-
9312-0006-013F	0.005	0.027	0.031

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Table 10 – (continued)

Sample Number	Fraction of the Operational DCGL		Unity
	Cs-137	Sr-90	
9312-0006-014F	-	-	-
9312-0006-015F	0.006	-	0.006

- (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 $\mu\text{Ci/g}$ for Cs-137 and 0.93 $\mu\text{Ci/g}$ for Sr-90 to achieve fifteen (15) mrem/yr TEDE respectively.

In addition to the non-parametric statistical sample population, four (4) judgmental surface soil samples were taken at biased locations. These locations were selected by the FSS Engineer based upon a review of the historical site assessment for this area and previous survey results. These judgmental soil samples were analyzed for Cs-137, Co-60 and Sr-90 in accordance with the DQOs used during the survey design. The samples are denoted as shown in Table 4, with the sample results shown in Table 11 below.

Table 12 - Judgmental Sample Results⁽²⁾

Sample Number	Cs-137 $\mu\text{Ci/g}$	Co-60 $\mu\text{Ci/g}$	Sr-90 $\mu\text{Ci/g}$	Unity Fraction (1)
9312-0006-016-B	1.09E-02	-1.98E-03	-1.33E-02	-0.013
9312-0006-017-B	2.22E-02	-3.50E-03	-1.41E-02	-0.012
9312-0006-018-B	1.07E-01	1.02E-01	3.40E-02	0.104
9312-0006-019-B	0.00E+00	4.41E-03	2.59E-03	0.005

- (1) The Operational DCGL from Table 2 is 4.75 $\mu\text{Ci/g}$ for Cs-137, 2.29 $\mu\text{Ci/g}$ for Co-60 and 0.93 $\mu\text{Ci/g}$ for Sr-90 to achieve fifteen (15) mrem/yr TEDE respectively.
- (2) “-“ indicate that the radionuclide was not positively detected in the sample

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*”.

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Cs-137 was not detected in sufficient quantity in the field split results at location 9312-0006-013FS 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

There were no investigations performed for this survey

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.

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.

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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:	-2.27E-02	-1.77E-02	-3.23E-02
Maximum Value:	3.19E-02	1.86E-02	3.29E-02
Mean:	1.01E-02	1.94E-03	1.00E-02
Median:	1.64E-02	3.58E-03	1.11E-02
Standard Deviation:	1.74E-02	1.02E-02	1.59E-02

The range of the data, about four (4) standard deviations for Cs-137 and Sr-90, was not a particularly large variation. The data was represented graphically through posting plots, a frequency plot, and a quantile plot. The frequency plot indicates a slight negative skewness as confirmed by the calculated skew of -0.82 for Cs-137 and -1.19 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.

13. CONCLUSION

Survey Unit 9312-0006 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 0.21 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

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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 4.21 mrem/yr TEDE. Therefore, Survey Unit 9312-0006 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)

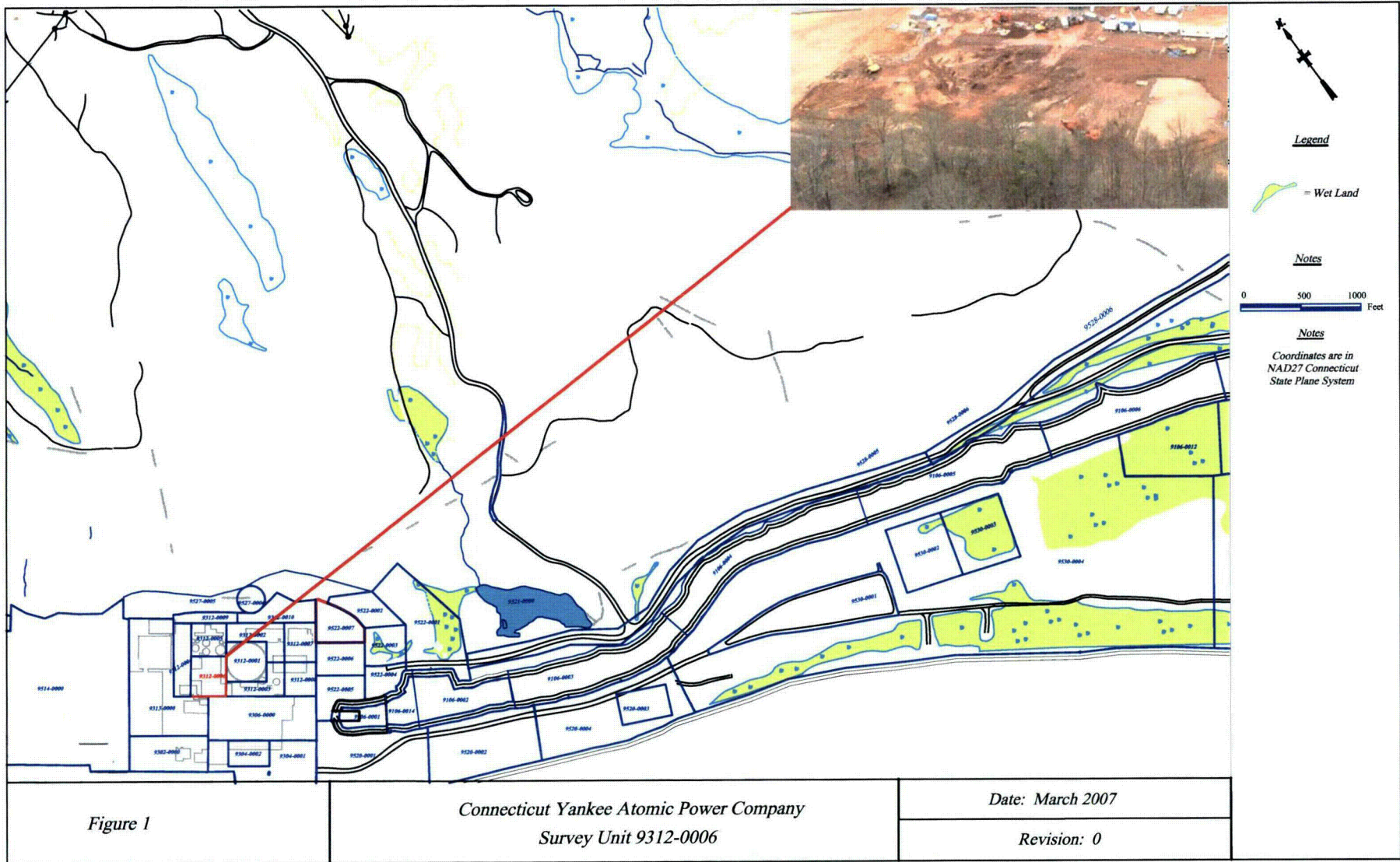


Figure 1

Connecticut Yankee Atomic Power Company
Survey Unit 9312-0006

Date: March 2007

Revision: 0

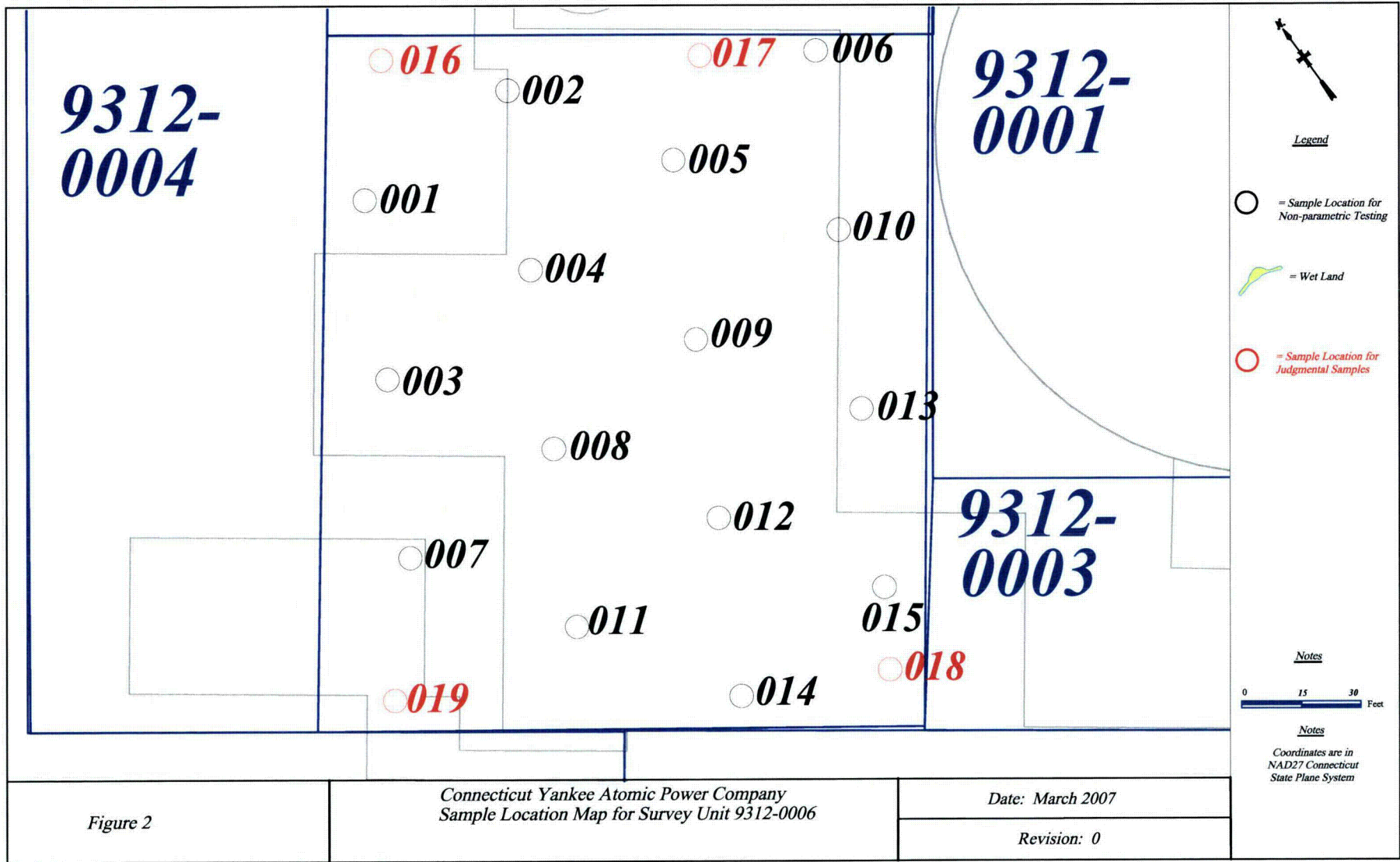


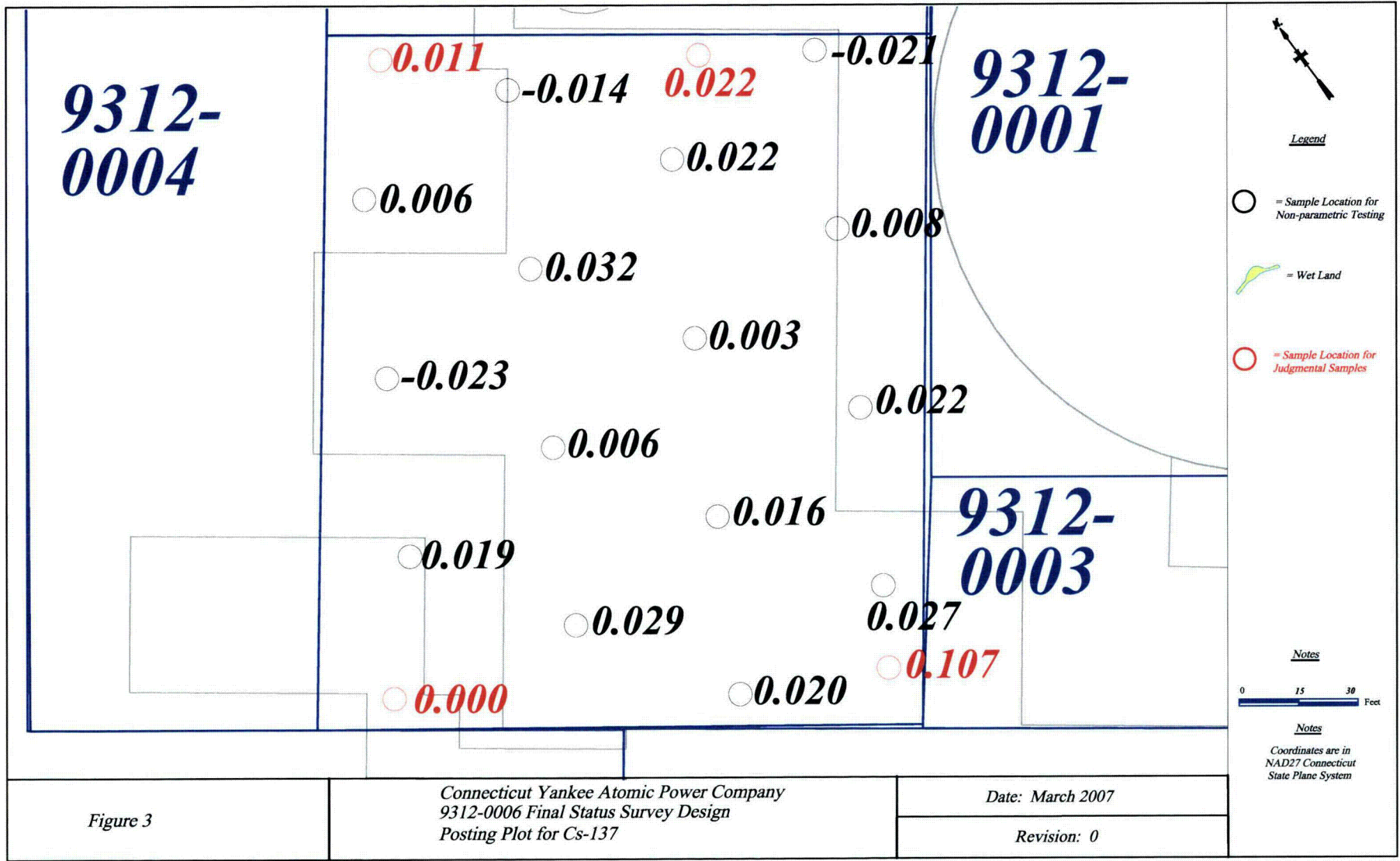
Figure 2

Connecticut Yankee Atomic Power Company
 Sample Location Map for Survey Unit 9312-0006

Date: March 2007

Revision: 0

Notes
 0 15 30 Feet
Notes
 Coordinates are in
 NAD27 Connecticut
 State Plane System



9312-0004

9312-0001

9312-0003

○ **0.011**

○ -0.014

○ **0.022**

○ -0.021

○ 0.006

○ 0.022

○ 0.008

○ 0.032

○ 0.003

○ -0.023

○ 0.022

○ 0.006

○ 0.016

○ 0.019

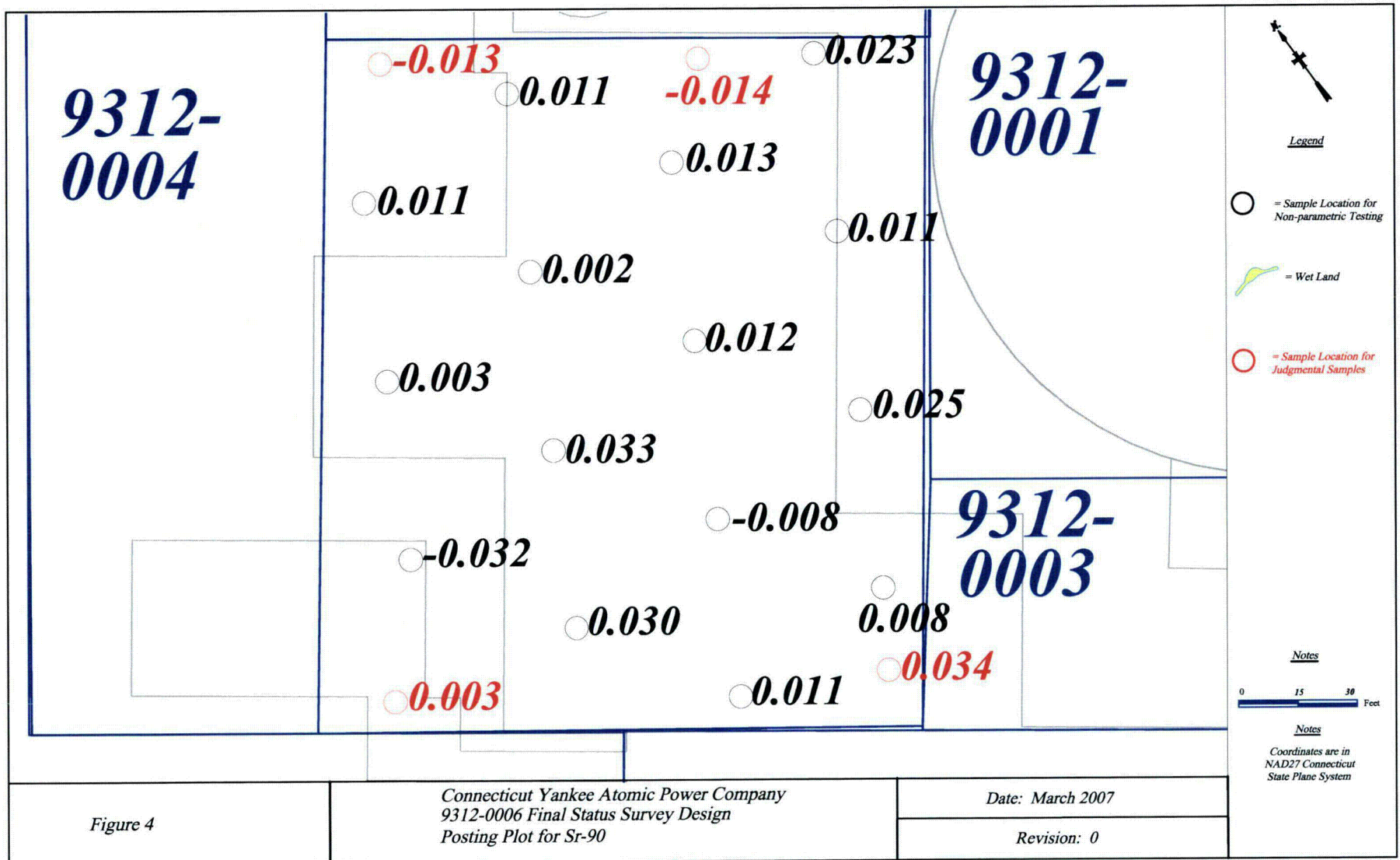
○ 0.027

○ 0.029

○ **0.000**

○ 0.020

○ **0.107**



9312-0004

9312-0001

9312-0003

-0.013

0.011

-0.014

0.023

0.011

0.013

0.002

0.011

0.003

0.012

0.025

0.033

-0.008

-0.032

0.030

0.008

0.003

0.011

0.034

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ATTACHMENT 2 (SCAN RESULTS)

Survey Unit 9312-0006

**Scan Survey Results
Sample Location Scans**

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-06-BL-00-01-0	3/7/2007	8:26:00	7.78E+03			1117	1008
9312-06-SL-00-01-0	3/7/2007	8:26:00	7.67E+03	1.06E+04		1117	1008
9312-06-BL-00-02-0	3/7/2007	8:27:00	6.73E+03			1117	1008
9312-06-SL-00-02-0	3/7/2007	8:28:00	7.52E+03	9.54E+03		1117	1008
9312-06-BL-00-03-0	3/7/2007	8:29:00	8.50E+03			1117	1008
9312-06-SL-00-03-0	3/7/2007	8:30:00	9.19E+03	1.13E+04		1117	1008
9312-06-BL-00-04-0	3/7/2007	8:30:00	7.40E+03			1117	1008
9312-06-SL-00-04-0	3/7/2007	8:31:00	7.44E+03	1.02E+04		1117	1008
9312-06-BL-00-05-0	3/7/2007	8:31:00	8.01E+03			1117	1008
9312-06-SL-00-05-0	3/7/2007	8:33:00	6.75E+03	1.08E+04		1117	1008
9312-06-BL-00-06-0	3/7/2007	8:33:00	6.95E+03			1117	1008
9312-06-SL-00-06-0	3/7/2007	8:34:00	7.03E+03	9.76E+03		1117	1008
9312-06-BL-00-07-0	3/7/2007	8:36:00	7.88E+03			1117	1008
9312-06-SL-00-07-0	3/7/2007	8:37:00	7.25E+03	1.07E+04		1117	1008
9312-06-BL-00-08-0	3/7/2007	8:38:00	6.83E+03			1117	1008
9312-06-SL-00-08-0	3/7/2007	8:39:00	6.91E+03	9.64E+03		1117	1008
9312-06-BL-00-09-0	3/7/2007	8:40:00	6.78E+03			1117	1008
9312-06-SL-00-09-0	3/7/2007	8:40:00	7.55E+03	9.59E+03		1117	1008
9312-06-BL-00-10-0	3/7/2007	10:32:00	6.11E+03			1117	1008
9312-06-SL-00-10-0	3/7/2007	10:34:00	6.94E+03	8.92E+03		1117	1008
9312-06-BL-00-11-0	3/7/2007	8:41:00	8.35E+03			1117	1008
9312-06-SL-00-11-0	3/7/2007	8:42:00	8.82E+03	1.12E+04		1117	1008
9312-06-BL-00-12-0	3/7/2007	8:43:00	7.42E+03			1117	1008
9312-06-SL-00-12-0	3/7/2007	8:44:00	7.79E+03	1.02E+04		1117	1008
9312-06-BL-00-13-0	3/7/2007	10:35:00	7.39E+03			1117	1008
9312-06-SL-00-13-0	3/7/2007	10:36:00	6.53E+03	1.02E+04		1117	1008
9312-06-BL-00-14-0	3/7/2007	8:45:00	9.58E+03			1117	1008
9312-06-SL-00-14-0	3/7/2007	8:46:00	1.08E+04	1.24E+04		1117	1008
9312-06-BL-00-15-0	3/7/2007	10:37:00	7.24E+03			1117	1008
9312-06-SL-00-15-0	3/7/2007	10:38:00	7.69E+03	1.01E+04		1117	1008
9312-06-BL-00-16-0	3/7/2007	8:49:00	7.99E+03			1117	1008
9312-06-SL-00-16-0	3/7/2007	8:51:00	8.32E+03	1.08E+04		1117	1008
9312-06-BL-00-17-0	3/7/2007	8:51:00	7.27E+03			1117	1008
9312-06-SL-00-17-0	3/7/2007	8:53:00	6.24E+03	1.01E+04		1117	1008
9312-06-BL-00-18-0	3/7/2007	8:47:00	8.99E+03			1117	1008
9312-06-SL-00-18-0	3/7/2007	8:48:00	9.86E+03	1.18E+04		1117	1008
9312-06-BL-00-19-0	3/7/2007	8:54:00	1.15E+04			1117	1008
9312-06-SL-00-19-0	3/7/2007	8:55:00	1.12E+04	1.43E+04		1117	1008

Survey Unit 9312-0006

**Scan Survey Results
Scan Strip Scans**

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-06-BC-00-01-0	3/7/2007	13:54:00	1.00E+04			1111	1004
9312-06-SC-00-01-0	3/7/2007	13:56:00	9.11E+03	1.28E+04		1111	1004
9312-06-BC-00-02-0	3/7/2007	13:57:00	8.92E+03			1111	1004
9312-06-SC-00-02-0	3/7/2007	13:59:00	1.04E+04	1.17E+04		1111	1004
9312-06-BC-00-03-0	3/7/2007	14:00:00	1.09E+04			1111	1004
9312-06-SC-00-03-0	3/7/2007	14:01:00	9.26E+03	1.37E+04		1111	1004
9312-06-BC-00-04-0	3/7/2007	14:02:00	8.76E+03			1111	1004
9312-06-SC-00-04-0	3/7/2007	14:04:00	1.06E+04	1.16E+04		1111	1004
9312-06-BC-00-05-0	3/7/2007	14:04:00	1.04E+04			1111	1004
9312-06-SC-00-05-0	3/7/2007	14:07:00	9.80E+03	1.32E+04		1111	1004
9312-06-BC-00-06-0	3/7/2007	14:07:00	9.52E+03			1111	1004
9312-06-SC-00-06-0	3/7/2007	14:10:00	1.17E+04	1.23E+04		1111	1004
9312-06-BC-00-07-0	3/7/2007	14:10:00	9.81E+03			1111	1004
9312-06-SC-00-07-0	3/7/2007	14:11:00	9.02E+03	1.26E+04		1111	1004
9312-06-BC-00-08-0	3/7/2007	14:12:00	8.29E+03			1111	1004
9312-06-SC-00-08-0	3/7/2007	14:15:00	1.01E+04	1.11E+04		1111	1004
9312-06-BC-00-09-0	3/7/2007	14:16:00	8.37E+03			1111	1004
9312-06-SC-00-09-0	3/7/2007	14:18:00	8.02E+03	1.12E+04		1111	1004
9312-06-BC-00-10-0	3/7/2007	14:18:00	7.92E+03			1111	1004
9312-06-SC-00-10-0	3/7/2007	14:21:00	9.45E+03	1.07E+04		1111	1004
9312-06-BC-00-11-0	3/7/2007	14:22:00	8.78E+03			1111	1004
9312-06-SC-00-11-0	3/7/2007	14:25:00	8.07E+03	1.16E+04		1111	1004
9312-06-BC-00-12-0	3/7/2007	14:27:00	6.88E+03			1111	1004
9312-06-SC-00-12-0	3/7/2007	14:31:00	7.94E+03	9.69E+03		1111	1004
9312-06-BC-00-13-0	3/7/2007	14:32:00	7.13E+03			1111	1004
9312-06-SC-00-13-0	3/7/2007	14:35:00	7.00E+03	9.94E+03		1111	1004
9312-06-BC-00-14-0	3/7/2007	14:35:00	6.29E+03			1111	1004
9312-06-SC-00-14-0	3/7/2007	14:38:00	7.74E+03	9.10E+03		1111	1004
9312-06-BC-00-15-0	3/7/2007	14:38:00	7.48E+03			1111	1004
9312-06-SC-00-15-0	3/7/2007	14:42:00	7.77E+03	1.03E+04		1111	1004
9312-06-BC-00-16-0	3/7/2007	14:42:00	7.44E+03			1111	1004
9312-06-SC-00-16-0	3/7/2007	14:45:00	6.26E+03	1.03E+04		1111	1004
9312-06-BC-00-17-0	3/8/2007	7:12:00	6.40E+03			1111	1004
9312-06-SC-00-17-0	3/8/2007	7:14:00	7.54E+03	9.21E+03		1111	1004
9312-06-BC-00-18-0	3/8/2007	7:15:00	6.96E+03			1111	1004
9312-06-SC-00-18-0	3/8/2007	7:17:00	7.31E+03	9.77E+03		1111	1004
9312-06-BC-00-19-0	3/8/2007	7:18:00	7.05E+03			1111	1004
9312-06-SC-00-19-0	3/8/2007	7:20:00	7.43E+03	9.86E+03		1111	1004

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-06-BC-00-20-0	3/8/2007	7:21:00	6.75E+03			1111	1004
9312-06-SC-00-20-0	3/8/2007	7:23:00	8.11E+03	9.56E+03		1111	1004
9312-06-BC-00-21-0	3/8/2007	7:24:00	7.78E+03			1111	1004
9312-06-BC-00-21-0	3/8/2007	7:27:00	6.97E+03	1.06E+04		1111	1004
9312-06-BC-00-22-0	3/8/2007	7:28:00	6.86E+03			1111	1004
9312-06-SC-00-22-0	3/8/2007	7:29:00	7.28E+03	9.67E+03		1111	1004
9312-06-BC-00-23-0	3/8/2007	7:30:00	7.21E+03			1111	1004
9312-06-SC-00-23-0	3/8/2007	7:32:00	6.41E+03	1.00E+04		1111	1004
9312-06-BC-00-24-0	3/8/2007	7:32:00	7.44E+03			1111	1004
9312-06-SC-00-24-0	3/8/2007	7:34:00	8.13E+03	1.03E+04		1111	1004
9312-06-BC-00-25-0	3/8/2007	7:34:00	7.61E+03			1111	1004
9312-06-SC-00-25-0	3/8/2007	7:36:00	6.46E+03	1.04E+04		1111	1004
9312-06-BC-00-26-0	3/8/2007	7:36:00	7.76E+03			1111	1004
9312-06-SC-00-26-0	3/8/2007	7:38:00	8.06E+03	1.06E+04		1111	1004
9312-06-BC-00-27-0	3/8/2007	7:39:00	7.71E+03			1111	1004
9312-06-SC-00-27-0	3/8/2007	7:40:00	7.27E+03	1.05E+04		1111	1004
9312-06-BC-00-28-0	3/8/2007	7:40:00	6.72E+03			1111	1004
9312-06-SC-00-28-0	3/8/2007	7:42:00	8.60E+03	9.53E+03		1111	1004
9312-06-BC-00-29-0	3/8/2007	7:43:00	8.29E+03			1111	1004
9312-06-SC-00-29-0	3/8/2007	7:45:00	7.13E+03	1.11E+04		1111	1004
9312-06-BC-00-30-0	3/8/2007	7:45:00	7.13E+03			1111	1004
9312-06-SC-00-30-0	3/8/2007	7:47:00	7.38E+03	9.94E+03		1111	1004
9312-06-BC-00-31-0	3/8/2007	7:13:00	8.36E+03			1107	1007
9312-06-SC-00-31-0	3/8/2007	7:15:00	7.76E+03	1.12E+04		1107	1007
9312-06-BC-00-32-0	3/8/2007	7:16:00	7.95E+03			1107	1007
9312-06-SC-00-32-0	3/8/2007	7:18:00	8.46E+03	1.08E+04		1107	1007
9312-06-BC-00-33-0	3/8/2007	7:19:00	8.02E+03			1107	1007
9312-06-SC-00-33-0	3/8/2007	7:22:00	8.40E+03	1.08E+04		1107	1007
9312-06-BC-00-34-0	3/8/2007	7:22:00	8.22E+03			1107	1007
9312-06-SC-00-34-0	3/8/2007	7:25:00	8.61E+03	1.10E+04		1107	1007
9312-06-BC-00-35-0	3/8/2007	7:26:00	8.75E+03			1107	1007
9312-06-SC-00-35-0	3/8/2007	7:29:00	9.14E+03	1.16E+04		1107	1007
9312-06-BC-00-36-0	3/8/2007	7:30:00	7.31E+03			1107	1007
9312-06-SC-00-36-0	3/8/2007	7:32:00	8.89E+03	1.01E+04		1107	1007
9312-06-BC-00-37-0	3/8/2007	7:35:00	8.41E+03			1107	1007
9312-06-SC-00-37-0	3/8/2007	7:38:00	7.45E+03	1.12E+04		1107	1007
9312-06-BC-00-38-0	3/8/2007	7:39:00	7.74E+03			1107	1007
9312-06-SC-00-38-0	3/8/2007	7:44:00	8.48E+03	1.06E+04		1107	1007
9312-06-BC-00-39-0	3/8/2007	7:45:00	8.98E+03			1107	1007
9312-06-SC-00-39-0	3/8/2007	7:48:00	7.93E+03	1.18E+04		1107	1007

Survey Unit 9312-0006**Scan Survey Results
Scan Strip Scans**

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-06-BC-00-40-0	3/8/2007	7:50:00	7.54E+03			1107	1007
9312-06-SC-00-40-0	3/8/2007	7:54:00	7.76E+03	1.04E+04		1107	1007
9312-06-BC-00-41-0	3/8/2007	7:55:00	7.58E+03			1107	1007
9312-06-SC-00-41-0	3/8/2007	7:59:00	7.61E+03	1.04E+04		1107	1007
9312-06-BC-00-42-0	3/8/2007	8:00:00	7.48E+03			1107	1007
9312-06-SC-00-42-0	3/8/2007	8:02:00	9.41E+03	1.03E+04		1107	1007
9312-06-BC-00-43-0	3/8/2007	8:03:00	7.29E+03			1107	1007
9312-06-SC-00-43-0	3/8/2007	8:05:00	8.07E+03	1.01E+04		1107	1007
9312-06-BC-00-44-0	3/8/2007	8:05:00	7.21E+03			1107	1007
9312-06-SC-00-44-0	3/8/2007	8:08:00	8.01E+03	1.00E+04		1107	1007

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

ATTACHMENT 3 (LABORATORY DATA)

General Narrative

**General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 182052
SDG: MSR#07-00109**

March 12, 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 March 09, 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>
182052001	9312-0006-001F
182052002	9312-0006-002F
182052003	9312-0006-003F
182052004	9312-0006-004F
182052005	9312-0006-005F
182052006	9312-0006-006F
182052007	9312-0006-007F
182052008	9312-0006-008F
182052009	9312-0006-009F
182052010	9312-0006-010F
182052011	9312-0006-011F
182052012	9312-0006-012F
182052013	9312-0006-013F
182052014	9312-0006-013FS
182052015	9312-0006-014F
182052016	9312-0006-015F
182052017	9312-0006-016B
182052018	9312-0006-017B
182052019	9312-0006-018B
182052020	9312-0006-019B

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.

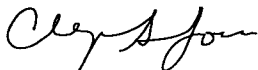
Analytical Request

Seventeen soil samples were analyzed for FSSGAM and Strontium-90. Three 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 12 March 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. 2007-00073

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: <div style="text-align: right; font-size: 1.2em;">182052%</div>	
Analytical Lab (Name, City, State): General Engineering Laboratories 2040 Savage Road Charleston, SC 29407 ATT: Cheryl Jones (843-556-8171)														
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			
9312-0006-001F	3/7/07	1134	TS	G	BP		X							
9312-0006-002F	3/7/07	1132	TS	G	BP	X								
9312-0006-003F	3/7/07	1137	TS	G	BP	X								
9312-0006-004F	3/7/07	1135	TS	G	BP	X								
9312-0006-005F	3/7/07	1123	TS	G	BP	X								
9312-0006-006F	3/7/07	1121	TS	G	BP	X								
9312-0006-007F	3/7/07	1140	TS	G	BP		X							
9312-0006-008F	3/7/07	1112	TS	G	BP	X								
9312-0006-009F	3/7/07	1115	TS	G	BP	X								
9312-0006-010F	3/7/07	1117	TS	G	BP	X								
9312-0006-011F	3/7/07	1109	TS	G	BP	X								
NOTES: PO #: 002332 MSR #: 07-00109 <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.: <u>12</u> Deg. C Custody Sealed? <input checked="" type="checkbox"/> Y N Custody Seal Intact? <input checked="" type="checkbox"/> Y N		
1) Relinquished By Date/Time <u>3/8/07 0930</u>			2) Received By Date/Time <u>3/9/07 9:00</u>			Bill of Lading # _____								
3) Relinquished By _____ Date/Time _____			4) Received By _____ Date/Time _____											
5) Relinquished By _____ Date/Time _____			6) Received By _____ Date/Time _____											

Connecticut Yankee Atomic Power Company

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

Chain of Custody Form

No. 2007-00074

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)													1820521.	
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 15 D. <input checked="" type="checkbox"/> 7 D. Other:													Comment, Preservation	Lab Sample ID
Sample Designation	Date	Time												
9312-0006-012F	3/7/07	1059	TS	G	BP		X							
9312-0006-013F	3/7/07	1105	TS	G	BP	X								
9312-0006-013FS	3/7/07	1105	TS	G	BP	X								
9312-0006-014F	3/7/07	1100	TS	G	BP	X								
9312-0006-015F	3/7/07	1041	TS	G	BP	X								
9312-0006-016B	3/7/07	1128	TS	G	BP	X								
9312-0006-017B	3/7/07	1125	TS	G	BP	X								
9312-0006-018B	3/7/07	1051	TS	G	BP	X								
9312-0006-019B	3/7/07	1142	TS	G	BP	X								
NOTES: PO #: 002332 MSR #: 07-00109 <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.: <u>12</u> Deg. C Custody Sealed? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Custody Seal Intact? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
1) Relinquished By <i>[Signature]</i>			Date/Time <u>3/8/07 09:35</u>			2) Received By <i>[Signature]</i>			Date/Time <u>3/9/07 9:20</u>			Bill of Lading #		
3) Relinquished By			Date/Time			4) Received By			Date/Time					
5) Relinquished By			Date/Time			6) Received By			Date/Time					

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Figure 1. Sample Check-in List

Date/Time Received: 3/9/07 9:00

SDG#: MSP#07-00109

Work Order Number: 182052

Shipping Container ID: See GEL Sample Receipt Chain of Custody #: 2007-00073, 2007-00074

- 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 See GEL sample Receipt
- 5. Vermiculite/packing materials is: Wet Dry
- 6. Number of samples in shipping container: 20
- 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: Jean-Louis Date: 3/9/07

Telephoned to: _____ On _____ By _____



SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>VANK</u>	SDG/ARCO/Work Order: <u>182052</u>
Date Received: <u>3/9/07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): <i>Clyde</i>
Received By: <u>JP</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.				Circle Coolant # ice bags blue.ice dry ice none other describe)
3 Chain of custody documents included with shipment?				
4 Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?				Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)				
8 Samples received within holding time?				Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?				Sample ID's affected:
11 Number of containers received match number indicated on COC?				Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?				
14 Air Bill ,Tracking #'s, & Additional Comments				<u>FedEx 790688401709-12°</u> <u>790688401710-12°</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	X			Maximum Counts Observed*: <u>20 CPM</u>
B PCB Regulated?	X			
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	X			Hazard Class Shipped: UN#:
D Regulated as a Foreign Soil?	X			

PM (or PMA) review of Hazard classification: 9 Initials PAJ Date: 3/9/07

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

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
Work Order 182052**

Method/Analysis Information

Product:	Alphaspec Am241, Cm, Solid ALL FSS
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	616519
Prep Batch Number:	616148
Dry Soil Prep GL-RAD-A-021 Batch Number:	616146

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201294131	Method Blank (MB)
1201294132	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201294133	182052001(9312-0006-001F) Matrix Spike (MS)
1201294134	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: 182052001 (9312-0006-001F).

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 re-prepped due to low/high carrier/tracer yield.

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

The Am-241 blank result is greater than the MDA, but less than the detection limit.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec Pu, Solid-ALL FSS
Analytical Method: DOE EML HASL-300, Pu-11-RC Modified
Prep Method: Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method: Dry Soil Prep
Analytical Batch Number: 616521
Prep Batch Number: 616148
Dry Soil Prep GL-RAD-A-021 Batch Number: 616146

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201294135	Method Blank (MB)
1201294136	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201294137	182052001(9312-0006-001F) Matrix Spike (MS)
1201294138	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: 182052001 (9312-0006-001F).

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 repped due to low/high carrier/tracer yield.

Miscellaneous Information:

NCR Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Pu241, Solid-ALL FSS
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	616524
Prep Batch Number:	616148
Dry Soil Prep GL-RAD-A-021 Batch Number:	616146

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201294139	Method Blank (MB)
1201294140	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201294141	182052001(9312-0006-001F) Matrix Spike (MS)
1201294142	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# 9.

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: 182052001 (9312-0006-001F).

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 182052007 (9312-0006-007F) was recounted due to a peak shift. Samples were reprepared due to low/high carrier/tracer yield. The batch was recounted due to the quench number being outside the calibration range.

Miscellaneous Information:

NCR Documentation

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	616173
Prep Batch Number:	616146

Sample ID	Client ID
182052001	9312-0006-001F
182052002	9312-0006-002F
182052003	9312-0006-003F
182052004	9312-0006-004F
182052005	9312-0006-005F
182052006	9312-0006-006F
182052007	9312-0006-007F
182052008	9312-0006-008F
182052009	9312-0006-009F
182052010	9312-0006-010F
182052011	9312-0006-011F
182052012	9312-0006-012F
182052013	9312-0006-013F
182052014	9312-0006-013FS
182052015	9312-0006-014F
182052016	9312-0006-015F
182052017	9312-0006-016B
182052018	9312-0006-017B
182052019	9312-0006-018B
182052020	9312-0006-019B
1201293220	Method Blank (MB)
1201293221	182052009(9312-0006-009F) Sample Duplicate (DUP)
1201293222	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: 182052009 (9312-0006-009F).

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 1201293222 (LCS) was 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

The duplicate and the sample, 1201293221 (9312-0006-009F) and 182052009 (9312-0006-009F), did not meet the relative percent difference requirement for Bi-214 and Ra-226, however they do meet the relative error ratio requirement with a value of 2.69633.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to low abundance.	Cesium-134	182052003
			182052005
			182052006
			182052008
UI	Data rejected due to no valid peak.	Cesium-137	182052020

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: 616272
Prep Batch Number: 616148
Dry Soil Prep GL-RAD-A-021 Batch Number: 616146

Sample ID	Client ID
182052001	9312-0006-001F
182052002	9312-0006-002F
182052003	9312-0006-003F
182052004	9312-0006-004F
182052005	9312-0006-005F
182052006	9312-0006-006F
182052007	9312-0006-007F
182052008	9312-0006-008F
182052009	9312-0006-009F
182052010	9312-0006-010F
182052011	9312-0006-011F
182052012	9312-0006-012F
182052013	9312-0006-013F
182052014	9312-0006-013FS
182052015	9312-0006-014F
182052016	9312-0006-015F
182052017	9312-0006-016B
182052018	9312-0006-017B
182052019	9312-0006-018B
182052020	9312-0006-019B
1201293467	Method Blank (MB)
1201293468	182052008(9312-0006-008F) Sample Duplicate (DUP)
1201293469	182052008(9312-0006-008F) Matrix Spike (MS)
1201293470	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# 11.

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: 182052008 (9312-0006-008F).

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: 616197

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201293268	Method Blank (MB)
1201293269	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201293270	182052001(9312-0006-001F) Matrix Spike (MS)
1201293271	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 volumes in this batch.

Designated QC

The following sample was used for QC: 182052001 (9312-0006-001F).

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 a suspected blank false positive. Samples 1201293268 (MB), 1201293269 (9312-0006-001F), 182052001 (9312-0006-001F), 182052007 (9312-0006-007F) and 182052012 (9312-0006-012F) were recounted due to high MDAs.

Miscellaneous Information:

NCR Documentation

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Fe55, Solid-ALL FSS
Analytical Method:	DOE RESL Fe-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	616193
Prep Batch Number:	616148
Dry Soil Prep GL-RAD-A-021 Batch Number:	616146

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201293256	Method Blank (MB)
1201293257	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201293258	182052001(9312-0006-001F) Matrix Spike (MS)
1201293259	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories

LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-040 REV# 3.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 182052001 (9312-0006-001F).

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 Ni63, Solid-ALL FSS

Analytical Method: DOE RESL Ni-1, Modified

Prep Method: Ash Soil Prep

Dry Soil Prep GL-RAD-A-021 Method: Dry Soil Prep

Analytical Batch Number: 616195

Prep Batch Number: 616148

Dry Soil Prep GL-RAD-A-021 Batch Number: 616146

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201293260	Method Blank (MB)
1201293261	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201293262	182052001(9312-0006-001F) Matrix Spike (MS)
1201293263	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: 182052001 (9312-0006-001F).

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: 616201

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201293276	Method Blank (MB)
1201293277	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201293278	182052001(9312-0006-001F) Matrix Spike (MS)
1201293279	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: 182052001 (9312-0006-001F).

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: 616202

Sample ID	Client ID
182052001	9312-0006-001F
182052007	9312-0006-007F
182052012	9312-0006-012F
1201293280	Method Blank (MB)
1201293281	182052001(9312-0006-001F) Sample Duplicate (DUP)
1201293282	182052001(9312-0006-001F) Matrix Spike (MS)
1201293283	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: 182052001 (9312-0006-001F).

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.

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#07-00109 GEL Work Order: 182052

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: March 16, 2007

Client Sample ID:	9312-0006-001F	Project:	YANK01204
Sample ID:	182052001	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	07-MAR-07		
Receive Date:	09-MAR-07		
Collector:	Client		
Moisture:	6.42%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Notes
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0471	+/-0.107	0.0651	+/-0.107	0.210	pCi/g		BXL1	03/12/07	2339	616519	
Curium-242	U	0.00121	+/-0.066	0.0545	+/-0.066	0.191	pCi/g						
Curium-243/244	U	-0.077	+/-0.0792	0.103	+/-0.0799	0.286	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0466	+/-0.0409	0.078	+/-0.0413	0.261	pCi/g		BXL1	03/12/07	2339	616521	
Plutonium-239/240	U	0.0513	+/-0.141	0.0923	+/-0.141	0.290	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-0.715	+/-6.59	5.57	+/-6.59	11.9	pCi/g		BXL1	03/15/07	1055	616524	
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.694	+/-0.159	0.0521	+/-0.159	0.104	pCi/g		MJH1	03/12/07	1325	616173	
Americium-241	U	0.0423	+/-0.0804	0.0709	+/-0.0804	0.142	pCi/g						
Bismuth-212		0.349	+/-0.215	0.117	+/-0.215	0.234	pCi/g						
Bismuth-214		0.357	+/-0.0841	0.0292	+/-0.0841	0.0583	pCi/g						
Cesium-134	U	0.0142	+/-0.019	0.0179	+/-0.019	0.0357	pCi/g						
Cesium-137	U	0.00586	+/-0.0184	0.0163	+/-0.0184	0.0326	pCi/g						
Cobalt-60	U	0.00358	+/-0.0191	0.0165	+/-0.0191	0.033	pCi/g						
Europium-152	U	0.0459	+/-0.0693	0.0411	+/-0.0693	0.0821	pCi/g						
Europium-154	U	0.0238	+/-0.0621	0.0548	+/-0.0621	0.109	pCi/g						
Europium-155	U	0.00111	+/-0.0533	0.0505	+/-0.0533	0.101	pCi/g						
Lead-212		0.556	+/-0.0669	0.0244	+/-0.0669	0.0487	pCi/g						
Lead-214		0.492	+/-0.0848	0.0282	+/-0.0848	0.0563	pCi/g						
Manganese-54	U	0.0173	+/-0.0171	0.0163	+/-0.0171	0.0325	pCi/g						
Niobium-94	U	-0.00774	+/-0.018	0.0127	+/-0.018	0.0254	pCi/g						
Potassium-40		9.99	+/-0.968	0.144	+/-0.968	0.287	pCi/g						
Radium-226		0.357	+/-0.0841	0.0292	+/-0.0841	0.0583	pCi/g						
Silver-108m	U	0.0119	+/-0.0156	0.0147	+/-0.0156	0.0294	pCi/g						
Thallium-208		0.188	+/-0.0361	0.0147	+/-0.0361	0.0294	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0113	+/-0.0182	0.0136	+/-0.0182	0.0319	pCi/g		KSD1	03/13/07	1253	616272	
Rad Liquid Scintillation Analysis													
<i>LSC, Tritium Dist, Solid - 3 pCi/g</i>													
Tritium	U	-0.225	+/-1.00	0.852	+/-1.00	1.79	pCi/g		AXD2	03/12/07	1642	616201	

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-001F
Sample ID: 182052001

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>Liquid Scint C14, Solid All, FSS</i>												
Carbon-14	U	0.0071	+/-0.0875	0.0733	+/-0.0875	0.150	pCi/g		AXD2	03/13/07	0624	616202
<i>Liquid Scint Fe55, Solid-ALL FSS</i>												
Iron-55	U	41.1	+/-43.8	27.9	+/-43.9	59.3	pCi/g		MXP1	03/14/07	1130	616193
<i>Liquid Scint Ni63, Solid-ALL FSS</i>												
Nickel-63	U	3.86	+/-8.80	7.21	+/-8.80	15.1	pCi/g		MXP1	03/13/07	1803	616195
<i>Liquid Scint Tc99, Solid-ALL FSS</i>												
Technetium-99	U	0.0737	+/-0.210	0.175	+/-0.210	0.359	pCi/g		MXP1	03/15/07	1653	616197

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	82	(15%-125%)

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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: March 16, 2007

Client Sample ID: 9312-0006-001F
Sample ID: 182052001

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Plutonium-242 Tracer		Alphaspec Pu, Solid-ALL FSS			73		(15%-125%)					
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			82		(25%-125%)					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			85		(25%-125%)					
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			62		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			92		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			94		(15%-125%)					

Notes:

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 - 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: March 16, 2007

Client Sample ID: 9312-0006-002F
Sample ID: 182052002
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 5.68%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth

Waived

Actinium-228		0.526	+/-0.168	0.0596	+/-0.168	0.119	pCi/g		MJH1	03/12/07	1324	616173
Americium-241	U	-0.0144	+/-0.0914	0.0764	+/-0.0914	0.153	pCi/g					
Bismuth-212		0.306	+/-0.283	0.132	+/-0.283	0.263	pCi/g					
Bismuth-214		0.447	+/-0.0803	0.0358	+/-0.0803	0.0715	pCi/g					
Cesium-134	U	0.0196	+/-0.0212	0.0198	+/-0.0212	0.0396	pCi/g					
Cesium-137	U	-0.0137	+/-0.0221	0.0183	+/-0.0221	0.0367	pCi/g					
Cobalt-60	U	-0.0108	+/-0.0202	0.0158	+/-0.0202	0.0315	pCi/g					
Europium-152	U	-0.034	+/-0.0608	0.0475	+/-0.0608	0.0949	pCi/g					
Europium-154	U	0.0197	+/-0.0649	0.0574	+/-0.0649	0.115	pCi/g					
Europium-155	U	0.051	+/-0.0554	0.052	+/-0.0554	0.104	pCi/g					
Lead-212		0.551	+/-0.0698	0.027	+/-0.0698	0.054	pCi/g					
Lead-214		0.439	+/-0.0912	0.037	+/-0.0912	0.0739	pCi/g					
Manganese-54	U	0.00177	+/-0.0201	0.0173	+/-0.0201	0.0347	pCi/g					
Niobium-94	U	0.00844	+/-0.0188	0.017	+/-0.0188	0.0339	pCi/g					
Potassium-40		8.84	+/-0.999	0.174	+/-0.999	0.347	pCi/g					
Radium-226		0.447	+/-0.0803	0.0358	+/-0.0803	0.0715	pCi/g					
Silver-108m	U	0.00516	+/-0.0186	0.0164	+/-0.0186	0.0327	pCi/g					
Thallium-208		0.159	+/-0.041	0.0165	+/-0.041	0.0329	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	0.0107	+/-0.0178	0.0133	+/-0.0178	0.0313	pCi/g		KSD1	03/13/07	1253	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-002F
Sample ID: 182052002

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				87		(25%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
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 - 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
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 - ND Analyte concentration is not detected above the detection limit
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 - 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
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- 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: March 16, 2007

Client Sample ID: 9312-0006-003F
Sample ID: 182052003
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 7.91%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

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

Actinium-228		0.597	+/-0.204	0.062	+/-0.204	0.124	pCi/g		MJH1	03/12/07	1325	616173
Americium-241	U	0.0368	+/-0.116	0.0961	+/-0.116	0.192	pCi/g					
Bismuth-212		0.432	+/-0.226	0.134	+/-0.226	0.267	pCi/g					
Bismuth-214		0.555	+/-0.101	0.0335	+/-0.101	0.0669	pCi/g					
Cesium-134	UI	0.00	+/-0.0368	0.0262	+/-0.0368	0.0525	pCi/g					
Cesium-137	U	-0.0227	+/-0.0243	0.0184	+/-0.0243	0.0368	pCi/g					
Cobalt-60	U	0.000377	+/-0.0212	0.0178	+/-0.0212	0.0355	pCi/g					
Europium-152	U	-0.0562	+/-0.0715	0.0486	+/-0.0715	0.0971	pCi/g					
Europium-154	U	0.00557	+/-0.0769	0.0651	+/-0.0769	0.130	pCi/g					
Europium-155	U	0.0253	+/-0.0653	0.0598	+/-0.0653	0.120	pCi/g					
Lead-212		0.736	+/-0.082	0.0297	+/-0.082	0.0594	pCi/g					
Lead-214		0.529	+/-0.0956	0.0354	+/-0.0956	0.0707	pCi/g					
Manganese-54	U	0.0127	+/-0.0217	0.0198	+/-0.0217	0.0395	pCi/g					
Niobium-94	U	-0.0167	+/-0.0209	0.0164	+/-0.0209	0.0327	pCi/g					
Potassium-40		12.3	+/-1.19	0.122	+/-1.19	0.245	pCi/g					
Radium-226		0.555	+/-0.101	0.0335	+/-0.101	0.0669	pCi/g					
Silver-108m	U	0.00183	+/-0.0179	0.0158	+/-0.0179	0.0315	pCi/g					
Thallium-208		0.243	+/-0.0478	0.0177	+/-0.0478	0.0354	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	0.00266	+/-0.0226	0.0186	+/-0.0226	0.0424	pCi/g		KSD1	03/13/07	1253	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-003F
Sample ID: 182052003

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				83		(25%-125%)					

Notes:

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- 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: March 16, 2007

Client Sample ID: 9312-0006-004F
Sample ID: 182052004
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 7.2%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.632	+/-0.151	0.0532	+/-0.151	0.106	pCi/g		MJH1	03/12/07	1326	616173
Americium-241	U	-0.0586	+/-0.0952	0.0766	+/-0.0952	0.153	pCi/g					
Bismuth-212		0.480	+/-0.296	0.125	+/-0.296	0.250	pCi/g					
Bismuth-214		0.450	+/-0.0908	0.0288	+/-0.0908	0.0576	pCi/g					
Cesium-134	U	0.0246	+/-0.016	0.0192	+/-0.016	0.0384	pCi/g					
Cesium-137		0.0319	+/-0.0246	0.0158	+/-0.0246	0.0316	pCi/g					
Cobalt-60	U	0.0186	+/-0.0212	0.0195	+/-0.0212	0.039	pCi/g					
Europium-152	U	-0.00928	+/-0.0595	0.0433	+/-0.0595	0.0865	pCi/g					
Europium-154	U	0.0526	+/-0.0642	0.0584	+/-0.0642	0.117	pCi/g					
Europium-155	U	0.0193	+/-0.0556	0.0515	+/-0.0556	0.103	pCi/g					
Lead-212		0.558	+/-0.0687	0.026	+/-0.0687	0.052	pCi/g					
Lead-214		0.464	+/-0.0849	0.0317	+/-0.0849	0.0634	pCi/g					
Manganese-54	U	-0.0175	+/-0.0192	0.0156	+/-0.0192	0.0311	pCi/g					
Niobium-94	U	0.00866	+/-0.0184	0.0162	+/-0.0184	0.0323	pCi/g					
Potassium-40		9.99	+/-1.01	0.150	+/-1.01	0.301	pCi/g					
Radium-226		0.450	+/-0.0908	0.0288	+/-0.0908	0.0576	pCi/g					
Silver-108m	U	0.0091	+/-0.0159	0.0145	+/-0.0159	0.0291	pCi/g					
Thallium-208		0.213	+/-0.041	0.0164	+/-0.041	0.0329	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.00163	+/-0.0154	0.0127	+/-0.0154	0.0299	pCi/g		KSD1	03/13/07	1253	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-004F
Sample ID: 182052004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				91		(25%-125%)					

Notes:

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- 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: March 16, 2007

Client Sample ID: 9312-0006-005F
Sample ID: 182052005
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 5.55%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.536	+/-0.155	0.0467	+/-0.155	0.0933	pCi/g		MJH1	03/12/07	1326	616173
Americium-241	U	0.0457	+/-0.0498	0.052	+/-0.0498	0.104	pCi/g					
Bismuth-212		0.357	+/-0.239	0.118	+/-0.239	0.235	pCi/g					
Bismuth-214		0.355	+/-0.0727	0.0304	+/-0.0727	0.0608	pCi/g					
Cesium-134	UI	0.00	+/-0.0226	0.0185	+/-0.0226	0.0371	pCi/g					
Cesium-137	U	0.0217	+/-0.0381	0.0158	+/-0.0381	0.0316	pCi/g					
Cobalt-60	U	-0.00529	+/-0.0191	0.0154	+/-0.0191	0.0309	pCi/g					
Europium-152	U	-0.00908	+/-0.0602	0.0405	+/-0.0602	0.0809	pCi/g					
Europium-154	U	0.00964	+/-0.0593	0.0509	+/-0.0593	0.102	pCi/g					
Europium-155	U	0.00916	+/-0.0472	0.0435	+/-0.0472	0.087	pCi/g					
Lead-212		0.499	+/-0.0601	0.0217	+/-0.0601	0.0434	pCi/g					
Lead-214		0.425	+/-0.0803	0.030	+/-0.0803	0.0599	pCi/g					
Manganese-54	U	0.0044	+/-0.0188	0.0167	+/-0.0188	0.0335	pCi/g					
Niobium-94	U	-0.00488	+/-0.0166	0.0138	+/-0.0166	0.0276	pCi/g					
Potassium-40		9.68	+/-0.906	0.124	+/-0.906	0.248	pCi/g					
Radium-226		0.355	+/-0.0727	0.0304	+/-0.0727	0.0608	pCi/g					
Silver-108m	U	-0.00655	+/-0.0164	0.0141	+/-0.0164	0.0281	pCi/g					
Thallium-208		0.184	+/-0.0364	0.0148	+/-0.0364	0.0296	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.0127	+/-0.023	0.0179	+/-0.023	0.0404	pCi/g		KSD1	03/13/07	1316	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-005F Project: YANK01204
 Sample ID: 182052005 Client ID: YANK001
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits				
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			84		(25%-125%)				

Notes:

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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-006F
Sample ID: 182052006
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 7.47%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

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

Actinium-228		0.496	+/-0.161	0.0624	+/-0.161	0.125	pCi/g		MJH1	03/12/07	1327	616173
Americium-241	U	0.0943	+/-0.0989	0.0652	+/-0.0989	0.130	pCi/g					
Bismuth-212		0.484	+/-0.230	0.126	+/-0.230	0.252	pCi/g					
Bismuth-214		0.453	+/-0.0811	0.0314	+/-0.0811	0.0627	pCi/g					
Cesium-134	UI	0.00	+/-0.0363	0.0212	+/-0.0363	0.0424	pCi/g					
Cesium-137	U	-0.0209	+/-0.0225	0.0173	+/-0.0225	0.0346	pCi/g					
Cobalt-60	U	0.012	+/-0.0198	0.0181	+/-0.0198	0.0362	pCi/g					
Europium-152	U	-0.0072	+/-0.0607	0.0425	+/-0.0607	0.085	pCi/g					
Europium-154	U	-0.0217	+/-0.0641	0.0488	+/-0.0641	0.0975	pCi/g					
Europium-155	U	-0.0217	+/-0.0521	0.0485	+/-0.0521	0.0969	pCi/g					
Lead-212		0.529	+/-0.0649	0.0245	+/-0.0649	0.049	pCi/g					
Lead-214		0.467	+/-0.0949	0.0339	+/-0.0949	0.0678	pCi/g					
Manganese-54	U	-0.00993	+/-0.0335	0.0152	+/-0.0335	0.0304	pCi/g					
Niobium-94	U	0.0124	+/-0.0171	0.0157	+/-0.0171	0.0314	pCi/g					
Potassium-40		8.91	+/-0.982	0.153	+/-0.982	0.306	pCi/g					
Radium-226		0.453	+/-0.0811	0.0314	+/-0.0811	0.0627	pCi/g					
Silver-108m	U	0.000398	+/-0.0155	0.0133	+/-0.0155	0.0265	pCi/g					
Thallium-208		0.168	+/-0.0439	0.0148	+/-0.0439	0.0297	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	0.0226	+/-0.0204	0.0141	+/-0.0204	0.0328	pCi/g		KSD1	03/13/07	1253	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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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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: March 16, 2007

Client Sample ID: 9312-0006-006F
Sample ID: 182052006

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			85		(25%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

- ** 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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-007F
Sample ID: 182052007
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 4.91%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
Rad Alpha Spec Analysis												
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>												
Americium-241	U	0.116	+/-0.166	0.0906	+/-0.167	0.278	pCi/g		BXL1	03/12/07	2339	616519
Curium-242	U	0.0381	+/-0.107	0.0657	+/-0.107	0.231	pCi/g					
Curium-243/244	U	-0.0314	+/-0.115	0.111	+/-0.115	0.319	pCi/g					
<i>Alphaspec Pu, Solid-ALL FSS</i>												
Plutonium-238	U	0.0546	+/-0.187	0.142	+/-0.187	0.368	pCi/g		BXL1	03/12/07	2339	616521
Plutonium-239/240	U	0.0793	+/-0.127	0.0681	+/-0.127	0.220	pCi/g					
<i>Liquid Scint Pu241, Solid-ALL FSS</i>												
Plutonium-241	U	-3.54	+/-5.94	5.20	+/-5.94	11.1	pCi/g		BXL1	03/15/07	1111	616524
Rad Gamma Spec Analysis												
<i>Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.589	+/-0.146	0.0623	+/-0.146	0.125	pCi/g		MJH1	03/12/07	1327	616173
Americium-241	U	0.0556	+/-0.0352	0.0319	+/-0.0352	0.0638	pCi/g					
Bismuth-212		0.354	+/-0.302	0.168	+/-0.302	0.335	pCi/g					
Bismuth-214		0.516	+/-0.104	0.0376	+/-0.104	0.0752	pCi/g					
Cesium-134	U	0.0145	+/-0.0303	0.0243	+/-0.0303	0.0486	pCi/g					
Cesium-137	U	0.0187	+/-0.0258	0.0236	+/-0.0258	0.0471	pCi/g					
Cobalt-60	U	0.00986	+/-0.0243	0.0217	+/-0.0243	0.0433	pCi/g					
Europium-152	U	-0.0115	+/-0.0745	0.0506	+/-0.0745	0.101	pCi/g					
Europium-154	U	-0.00871	+/-0.0788	0.0659	+/-0.0788	0.132	pCi/g					
Europium-155	U	0.0911	+/-0.0754	0.0475	+/-0.0754	0.0949	pCi/g					
Lead-212		0.623	+/-0.086	0.0265	+/-0.086	0.053	pCi/g					
Lead-214		0.552	+/-0.105	0.0367	+/-0.105	0.0734	pCi/g					
Manganese-54	U	0.00202	+/-0.0229	0.0204	+/-0.0229	0.0407	pCi/g					
Niobium-94	U	-0.008	+/-0.0209	0.0172	+/-0.0209	0.0344	pCi/g					
Potassium-40		10.9	+/-1.11	0.164	+/-1.11	0.329	pCi/g					
Radium-226		0.516	+/-0.104	0.0376	+/-0.104	0.0752	pCi/g					
Silver-108m	U	-0.00215	+/-0.0191	0.0169	+/-0.0191	0.0338	pCi/g					
Thallium-208		0.133	+/-0.0521	0.0187	+/-0.0521	0.0373	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	-0.0323	+/-0.0163	0.0185	+/-0.0163	0.0423	pCi/g		KSD1	03/13/07	1254	616272
Rad Liquid Scintillation Analysis												
<i>LSC, Tritium Dist, Solid - 3 pCi/g</i>												
Tritium	U	-0.376	+/-1.01	0.868	+/-1.01	1.82	pCi/g		AXD2	03/12/07	1743	616201

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Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-007F
Sample ID: 182052007

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>Liquid Scint C14, Solid All, FSS</i>												
Carbon-14	U	0.0223	+/-0.0892	0.0744	+/-0.0892	0.152	pCi/g		AXD2	03/13/07	0727	616202
<i>Liquid Scint Fe55, Solid-ALL FSS</i>												
Iron-55	U	25.6	+/-42.7	27.5	+/-42.8	58.3	pCi/g		MXP1	03/14/07	1146	616193
<i>Liquid Scint Ni63, Solid-ALL FSS</i>												
Nickel-63	U	-6.5	+/-7.85	6.89	+/-7.85	14.5	pCi/g		MXP1	03/13/07	1819	616195
<i>Liquid Scint Tc99, Solid-ALL FSS</i>												
Technetium-99	U	0.0883	+/-0.222	0.184	+/-0.222	0.379	pCi/g		MXP1	03/15/07	1724	616197

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	76	(15%-125%)

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Address : 362 Injun Hollow Rd

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-007F
Sample ID: 182052007

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Plutonium-242 Tracer		Alphaspec Pu, Solid-ALL FSS			89		(15%-125%)					
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			88		(25%-125%)					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			78		(25%-125%)					
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			70		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			96		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			89		(15%-125%)					

Notes:

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 - 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: March 16, 2007

Client Sample ID: 9312-0006-008F
Sample ID: 182052008
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 4.69%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.495	+/-0.132	0.0482	+/-0.132	0.0964	pCi/g		MJH1	03/12/07	1328	616173
Americium-241	U	0.00795	+/-0.0606	0.0521	+/-0.0606	0.104	pCi/g					
Bismuth-212		0.368	+/-0.253	0.107	+/-0.253	0.213	pCi/g					
Bismuth-214		0.417	+/-0.0766	0.0276	+/-0.0766	0.0551	pCi/g					
Cesium-134	UI	0.00	+/-0.0235	0.0176	+/-0.0235	0.0351	pCi/g					
Cesium-137	U	0.00632	+/-0.0179	0.0159	+/-0.0179	0.0318	pCi/g					
Cobalt-60	U	-0.0177	+/-0.018	0.0134	+/-0.018	0.0267	pCi/g					
Europium-152	U	0.0172	+/-0.0538	0.0386	+/-0.0538	0.0772	pCi/g					
Europium-154	U	-0.000819	+/-0.0496	0.042	+/-0.0496	0.0839	pCi/g					
Europium-155	U	0.0583	+/-0.0475	0.0463	+/-0.0475	0.0925	pCi/g					
Lead-212		0.545	+/-0.0599	0.0209	+/-0.0599	0.0418	pCi/g					
Lead-214		0.480	+/-0.0741	0.0264	+/-0.0741	0.0528	pCi/g					
Manganese-54	U	0.0124	+/-0.0161	0.015	+/-0.0161	0.030	pCi/g					
Niobium-94	U	-0.00742	+/-0.016	0.0132	+/-0.016	0.0264	pCi/g					
Potassium-40		10.5	+/-0.946	0.0981	+/-0.946	0.196	pCi/g					
Radium-226		0.417	+/-0.0766	0.0276	+/-0.0766	0.0551	pCi/g					
Silver-108m	U	-0.00243	+/-0.0147	0.0131	+/-0.0147	0.0261	pCi/g					
Thallium-208		0.152	+/-0.0371	0.0146	+/-0.0371	0.0292	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.0329	+/-0.0257	0.0175	+/-0.0257	0.0403	pCi/g		KSD1	03/13/07	1254	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-008F
Sample ID: 182052008

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALE	FSS			76		(25%-125%)					

Notes:

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

The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-009F
Sample ID: 182052009
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: .242%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.645	+/-0.113	0.0315	+/-0.113	0.0629	pCi/g		MJH1	03/12/07	1330	616173
Americium-241	U	0.0231	+/-0.0654	0.0564	+/-0.0654	0.113	pCi/g					
Bismuth-212		0.408	+/-0.167	0.0653	+/-0.167	0.131	pCi/g					
Bismuth-214		0.390	+/-0.0599	0.0182	+/-0.0599	0.0365	pCi/g					
Cesium-134	U	0.0173	+/-0.0196	0.0114	+/-0.0196	0.0228	pCi/g					
Cesium-137	U	0.00279	+/-0.0126	0.0095	+/-0.0126	0.019	pCi/g					
Cobalt-60	U	-0.00377	+/-0.0112	0.00948	+/-0.0112	0.019	pCi/g					
Europium-152	U	-0.00585	+/-0.0323	0.0244	+/-0.0323	0.0489	pCi/g					
Europium-154	U	0.00207	+/-0.0381	0.0285	+/-0.0381	0.0569	pCi/g					
Europium-155	U	0.0141	+/-0.0355	0.0326	+/-0.0355	0.0651	pCi/g					
Lead-212		0.584	+/-0.0558	0.0146	+/-0.0558	0.0292	pCi/g					
Lead-214		0.505	+/-0.0595	0.018	+/-0.0595	0.036	pCi/g					
Manganese-54	U	0.0152	+/-0.013	0.00833	+/-0.013	0.0167	pCi/g					
Niobium-94	U	-0.000354	+/-0.00983	0.0084	+/-0.00983	0.0168	pCi/g					
Potassium-40		11.0	+/-0.785	0.0864	+/-0.785	0.173	pCi/g					
Radium-226		0.390	+/-0.0599	0.0182	+/-0.0599	0.0365	pCi/g					
Silver-108m	U	-0.00639	+/-0.00999	0.00755	+/-0.00999	0.0151	pCi/g					
Thallium-208		0.177	+/-0.0295	0.00824	+/-0.0295	0.0165	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.0124	+/-0.0206	0.0158	+/-0.0206	0.0359	pCi/g		KSD1	03/13/07	1317	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-009F
Sample ID: 182052009

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				85		(25%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

- ** 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
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- 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
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- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-010F
Sample ID: 182052010
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 4.51%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.538	+/-0.136	0.050	+/-0.136	0.100	pCi/g		MJH1	03/12/07	1330	616173
Americium-241	U	-0.0621	+/-0.0745	0.0611	+/-0.0745	0.122	pCi/g					
Bismuth-212		0.366	+/-0.219	0.111	+/-0.219	0.222	pCi/g					
Bismuth-214		0.421	+/-0.0854	0.0263	+/-0.0854	0.0525	pCi/g					
Cesium-134	U	0.0319	+/-0.0252	0.0183	+/-0.0252	0.0366	pCi/g					
Cesium-137	U	0.00825	+/-0.0188	0.0154	+/-0.0188	0.0308	pCi/g					
Cobalt-60	U	-0.0107	+/-0.0181	0.0144	+/-0.0181	0.0287	pCi/g					
Europium-152	U	-0.0392	+/-0.0604	0.0396	+/-0.0604	0.0792	pCi/g					
Europium-154	U	-0.0316	+/-0.0573	0.0465	+/-0.0573	0.093	pCi/g					
Europium-155	U	-0.0311	+/-0.0493	0.044	+/-0.0493	0.0879	pCi/g					
Lead-212		0.554	+/-0.0643	0.0227	+/-0.0643	0.0454	pCi/g					
Lead-214		0.413	+/-0.0741	0.0286	+/-0.0741	0.0572	pCi/g					
Manganese-54	U	0.0177	+/-0.0172	0.0159	+/-0.0172	0.0318	pCi/g					
Niobium-94	U	0.00419	+/-0.0186	0.0143	+/-0.0186	0.0285	pCi/g					
Potassium-40		9.13	+/-0.888	0.131	+/-0.888	0.262	pCi/g					
Radium-226		0.421	+/-0.0854	0.0263	+/-0.0854	0.0525	pCi/g					
Silver-108m	U	0.0103	+/-0.0147	0.0138	+/-0.0147	0.0277	pCi/g					
Thallium-208		0.164	+/-0.0334	0.0152	+/-0.0334	0.0304	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.0109	+/-0.0207	0.016	+/-0.0207	0.0367	pCi/g		KSD1	03/13/07	1254	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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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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: March 16, 2007

Client Sample ID: 9312-0006-010F
Sample ID: 182052010

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits				
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			84		(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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Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID:	9312-0006-011F	Project:	YANK01204
Sample ID:	182052011	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	07-MAR-07		
Receive Date:	09-MAR-07		
Collector:	Client		
Moisture:	5.99%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
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Rad Gamma Spec Analysis

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

Actinium-228		0.827	+/-0.182	0.0526	+/-0.182	0.105	pCi/g		MJH1	03/12/07	1331	616173
Americium-241	U	-0.017	+/-0.0605	0.0511	+/-0.0605	0.102	pCi/g					
Bismuth-212		0.570	+/-0.442	0.125	+/-0.442	0.251	pCi/g					
Bismuth-214		0.505	+/-0.0878	0.0326	+/-0.0878	0.0651	pCi/g					
Cesium-134	U	0.0402	+/-0.0238	0.0218	+/-0.0238	0.0437	pCi/g					
Cesium-137	U	0.0288	+/-0.0236	0.0194	+/-0.0236	0.0389	pCi/g					
Cobalt-60	U	0.00696	+/-0.0168	0.0149	+/-0.0168	0.0298	pCi/g					
Europium-152	U	-0.0191	+/-0.0608	0.0473	+/-0.0608	0.0946	pCi/g					
Europium-154	U	-0.0148	+/-0.0548	0.0452	+/-0.0548	0.0904	pCi/g					
Europium-155	U	-0.00722	+/-0.0523	0.0489	+/-0.0523	0.0978	pCi/g					
Lead-212		0.760	+/-0.0782	0.024	+/-0.0782	0.048	pCi/g					
Lead-214		0.581	+/-0.089	0.0345	+/-0.089	0.0689	pCi/g					
Manganese-54	U	0.024	+/-0.0186	0.0177	+/-0.0186	0.0355	pCi/g					
Niobium-94	U	0.00261	+/-0.0183	0.0159	+/-0.0183	0.0318	pCi/g					
Potassium-40		11.9	+/-1.03	0.137	+/-1.03	0.273	pCi/g					
Radium-226		0.505	+/-0.0878	0.0326	+/-0.0878	0.0651	pCi/g					
Silver-108m	U	-0.0208	+/-0.0203	0.0152	+/-0.0203	0.0304	pCi/g					
Thallium-208		0.195	+/-0.044	0.0155	+/-0.044	0.031	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	0.0295	+/-0.0218	0.0141	+/-0.0218	0.0333	pCi/g		KSD1	03/13/07	1254	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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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Certificate of Analysis

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-011F
Sample ID: 182052011

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			76		(25%-125%)					

Notes:

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- 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: March 16, 2007

Client Sample ID: 9312-0006-012F
Sample ID: 182052012
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 4.17%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
Rad Alpha Spec Analysis												
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>												
Americium-241	U	-0.0426	+/-0.0596	0.0366	+/-0.0597	0.151	pCi/g		BXL1	03/12/07	2339	616519
Curium-242	U	0.0295	+/-0.0579	0.00	+/-0.058	0.0801	pCi/g					
Curium-243/244	U	0.00115	+/-0.0626	0.0517	+/-0.0626	0.181	pCi/g					
<i>Alphaspec Pu, Solid-ALL FSS</i>												
Plutonium-238	U	-0.0316	+/-0.0916	0.0912	+/-0.0917	0.259	pCi/g		BXL1	03/12/07	2339	616521
Plutonium-239/240	U	0.0226	+/-0.0836	0.0566	+/-0.0836	0.190	pCi/g					
<i>Liquid Scint Pu241, Solid-ALL FSS</i>												
Plutonium-241	U	-3.12	+/-5.58	4.87	+/-5.58	10.4	pCi/g		BXL1	03/15/07	1127	616524
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.432	+/-0.238	0.106	+/-0.238	0.211	pCi/g		MJH1	03/12/07	1332	616173
Americium-241	U	0.018	+/-0.0419	0.0347	+/-0.0419	0.0693	pCi/g					
Bismuth-212		0.571	+/-0.366	0.194	+/-0.366	0.389	pCi/g					
Bismuth-214		0.533	+/-0.150	0.0453	+/-0.150	0.0905	pCi/g					
Cesium-134	U	0.0223	+/-0.0335	0.0314	+/-0.0335	0.0627	pCi/g					
Cesium-137	U	0.0164	+/-0.0341	0.0314	+/-0.0341	0.0628	pCi/g					
Cobalt-60	U	-0.000875	+/-0.0348	0.029	+/-0.0348	0.058	pCi/g					
Europium-152	U	0.0247	+/-0.0851	0.0637	+/-0.0851	0.127	pCi/g					
Europium-154	U	-0.0524	+/-0.124	0.0802	+/-0.124	0.160	pCi/g					
Europium-155	U	0.0132	+/-0.0622	0.0563	+/-0.0622	0.113	pCi/g					
Lead-212		0.471	+/-0.105	0.0397	+/-0.105	0.0793	pCi/g					
Lead-214		0.548	+/-0.106	0.0449	+/-0.106	0.0897	pCi/g					
Manganese-54	U	0.00336	+/-0.0318	0.028	+/-0.0318	0.0559	pCi/g					
Niobium-94	U	0.00974	+/-0.0307	0.026	+/-0.0307	0.052	pCi/g					
Potassium-40		9.12	+/-1.25	0.282	+/-1.25	0.564	pCi/g					
Radium-226		0.533	+/-0.150	0.0453	+/-0.150	0.0905	pCi/g					
Silver-108m	U	-0.0118	+/-0.025	0.0209	+/-0.025	0.0417	pCi/g					
Thallium-208		0.183	+/-0.0517	0.0226	+/-0.0517	0.0451	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	-0.00777	+/-0.0225	0.0199	+/-0.0225	0.0457	pCi/g		KSD1	03/13/07	1254	616272
Rad Liquid Scintillation Analysis												
<i>LSC, Tritium Dist, Solid - 3 pCi/g</i>												
Tritium	U	1.10	+/-1.09	0.869	+/-1.09	1.82	pCi/g		AXD2	03/12/07	1845	616201

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Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-012F
Sample ID: 182052012

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>Liquid Scint C14, Solid All, FSS</i>												
Carbon-14	U	0.0523	+/-0.0859	0.071	+/-0.0859	0.145	pCi/g		AXD2	03/13/07	0829	616202
<i>Liquid Scint Fe55, Solid-ALL FSS</i>												
Iron-55		54.8	+/-41.3	25.7	+/-41.5	54.4	pCi/g		MXP1	03/14/07	1202	616193
<i>Liquid Scint Ni63, Solid-ALL FSS</i>												
Nickel-63	U	-4.39	+/-8.40	7.25	+/-8.40	15.2	pCi/g		MXP1	03/13/07	1835	616195
<i>Liquid Scint Tc99, Solid-ALL FSS</i>												
Technetium-99	U	0.148	+/-0.222	0.183	+/-0.222	0.376	pCi/g		MXP1	03/15/07	1756	616197

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	94	(15%-125%)

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Project: Soils PO# 002332

Report Date: March 16, 2007

Client Sample ID: 9312-0006-012F
Sample ID: 182052012

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Plutonium-242 Tracer		Alphaspec Pu, Solid-ALL FSS			96		(15%-125%)					
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			95		(25%-125%)					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			74		(25%-125%)					
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			72		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			93		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			90		(15%-125%)					

Notes:

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 - 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: March 16, 2007

Client Sample ID: 9312-0006-013F
Sample ID: 182052013
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 7.15%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.619	+/-0.146	0.0467	+/-0.146	0.0933	pCi/g		MJH1	03/12/07	1332	616173
Americium-241	U	0.0639	+/-0.0654	0.0545	+/-0.0654	0.109	pCi/g					
Bismuth-212		0.433	+/-0.178	0.0923	+/-0.178	0.185	pCi/g					
Bismuth-214		0.464	+/-0.0759	0.0267	+/-0.0759	0.0533	pCi/g					
Cesium-134	U	0.0141	+/-0.0177	0.0157	+/-0.0177	0.0313	pCi/g					
Cesium-137	U	0.0218	+/-0.0217	0.0129	+/-0.0217	0.0258	pCi/g					
Cobalt-60	U	0.0123	+/-0.0166	0.015	+/-0.0166	0.030	pCi/g					
Europium-152	U	0.0233	+/-0.0724	0.0385	+/-0.0724	0.0769	pCi/g					
Europium-154	U	-0.0308	+/-0.0515	0.0423	+/-0.0515	0.0845	pCi/g					
Europium-155	U	0.014	+/-0.0469	0.0438	+/-0.0469	0.0876	pCi/g					
Lead-212		0.582	+/-0.0624	0.0216	+/-0.0624	0.0432	pCi/g					
Lead-214		0.492	+/-0.0784	0.0252	+/-0.0784	0.0503	pCi/g					
Manganese-54	U	-0.00639	+/-0.0167	0.0135	+/-0.0167	0.0269	pCi/g					
Niobium-94	U	0.00635	+/-0.0142	0.0125	+/-0.0142	0.025	pCi/g					
Potassium-40		11.0	+/-0.955	0.116	+/-0.955	0.232	pCi/g					
Radium-226		0.464	+/-0.0759	0.0267	+/-0.0759	0.0533	pCi/g					
Silver-108m	U	0.00305	+/-0.0139	0.0121	+/-0.0139	0.0242	pCi/g					
Thallium-208		0.190	+/-0.0361	0.0131	+/-0.0361	0.0262	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.0247	+/-0.024	0.0168	+/-0.024	0.0392	pCi/g		KSD1	03/13/07	1254	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-013F
 Sample ID: 182052013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits				
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			74		(25%-125%)				

Notes:

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- 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
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- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-013FS
Sample ID: 182052014
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 6.82%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

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

Actinium-228		0.579	+/-0.141	0.0589	+/-0.141	0.118	pCi/g		MJH1	03/12/07	1709	616173
Americium-241	U	-0.0068	+/-0.124	0.102	+/-0.124	0.204	pCi/g					
Bismuth-212	U	0.258	+/-0.287	0.133	+/-0.287	0.265	pCi/g					
Bismuth-214		0.470	+/-0.0946	0.0307	+/-0.0946	0.0614	pCi/g					
Cesium-134	U	0.0292	+/-0.0239	0.0228	+/-0.0239	0.0455	pCi/g					
Cesium-137	U	0.013	+/-0.0228	0.0203	+/-0.0228	0.0405	pCi/g					
Cobalt-60	U	0.0131	+/-0.0217	0.0195	+/-0.0217	0.0391	pCi/g					
Europium-152	U	-0.0567	+/-0.0675	0.0458	+/-0.0675	0.0915	pCi/g					
Europium-154	U	0.0198	+/-0.0677	0.0589	+/-0.0677	0.118	pCi/g					
Europium-155	U	0.0765	+/-0.0644	0.0611	+/-0.0644	0.122	pCi/g					
Lead-212		0.586	+/-0.0713	0.0283	+/-0.0713	0.0565	pCi/g					
Lead-214		0.527	+/-0.097	0.0349	+/-0.097	0.0697	pCi/g					
Manganese-54	U	-0.00531	+/-0.0231	0.0169	+/-0.0231	0.0338	pCi/g					
Niobium-94	U	0.0112	+/-0.0198	0.0175	+/-0.0198	0.0351	pCi/g					
Potassium-40		10.2	+/-1.12	0.134	+/-1.12	0.269	pCi/g					
Radium-226		0.470	+/-0.0946	0.0307	+/-0.0946	0.0614	pCi/g					
Silver-108m	U	-0.00924	+/-0.0183	0.0156	+/-0.0183	0.0311	pCi/g					
Thallium-208		0.199	+/-0.0402	0.0157	+/-0.0402	0.0314	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U2.570E-05	+/-0.0161	0.0135	+/-0.0161	0.0316	pCi/g		KSD1	03/13/07	1254	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-013FS
Sample ID: 182052014

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits				
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			85		(25%-125%)				

Notes:

The Qualifiers in this report are defined as follows :

- ** 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: March 16, 2007

Client Sample ID: 9312-0006-014F
Sample ID: 182052015
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 2.71%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

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

Actinium-228		0.963	+/-0.227	0.070	+/-0.227	0.140	pCi/g		MJH1	03/12/07	1709	616173
Americium-241	U	0.0728	+/-0.113	0.0953	+/-0.113	0.191	pCi/g					
Bismuth-212		0.697	+/-0.347	0.149	+/-0.347	0.298	pCi/g					
Bismuth-214		0.913	+/-0.136	0.0389	+/-0.136	0.0778	pCi/g					
Cesium-134	U	0.0343	+/-0.0288	0.0251	+/-0.0288	0.0502	pCi/g					
Cesium-137	U	0.0195	+/-0.024	0.0208	+/-0.024	0.0416	pCi/g					
Cobalt-60	U	0.00932	+/-0.0282	0.0244	+/-0.0282	0.0487	pCi/g					
Europium-152	U	0.0413	+/-0.0804	0.0571	+/-0.0804	0.114	pCi/g					
Europium-154	U	-0.00118	+/-0.0784	0.0658	+/-0.0784	0.132	pCi/g					
Europium-155	U	0.0246	+/-0.069	0.0632	+/-0.069	0.126	pCi/g					
Lead-212		0.814	+/-0.101	0.0447	+/-0.101	0.0894	pCi/g					
Lead-214		1.06	+/-0.133	0.0388	+/-0.133	0.0775	pCi/g					
Manganese-54	U	0.0203	+/-0.0227	0.021	+/-0.0227	0.0419	pCi/g					
Niobium-94	U	-0.00245	+/-0.0216	0.0181	+/-0.0216	0.0362	pCi/g					
Potassium-40		14.8	+/-1.33	0.171	+/-1.33	0.342	pCi/g					
Radium-226		0.913	+/-0.136	0.0389	+/-0.136	0.0778	pCi/g					
Silver-108m	U	0.00187	+/-0.0209	0.0184	+/-0.0209	0.0369	pCi/g					
Thallium-208		0.295	+/-0.053	0.0189	+/-0.053	0.0378	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	0.0111	+/-0.0223	0.0174	+/-0.0224	0.0398	pCi/g		KSD1	03/13/07	1254	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-014F
Sample ID: 182052015

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			83		(25%-125%)					

Notes:

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- 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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-015F
Sample ID: 182052016
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 5.71%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.660	+/-0.172	0.0619	+/-0.172	0.124	pCi/g		MJH1	03/12/07	1710	616173
Americium-241	U	0.0116	+/-0.0926	0.0863	+/-0.0926	0.173	pCi/g					
Bismuth-212		0.659	+/-0.238	0.0835	+/-0.238	0.167	pCi/g					
Bismuth-214		0.567	+/-0.105	0.0353	+/-0.105	0.0705	pCi/g					
Cesium-134	U	0.0127	+/-0.0242	0.0212	+/-0.0242	0.0424	pCi/g					
Cesium-137	U	0.0265	+/-0.0257	0.0204	+/-0.0257	0.0408	pCi/g					
Cobalt-60	U	0.00525	+/-0.0228	0.0199	+/-0.0228	0.0398	pCi/g					
Europium-152	U	0.0317	+/-0.0631	0.0506	+/-0.0631	0.101	pCi/g					
Europium-154	U	-0.0296	+/-0.073	0.0591	+/-0.073	0.118	pCi/g					
Europium-155	U	0.0898	+/-0.0717	0.0516	+/-0.0717	0.103	pCi/g					
Lead-212		0.596	+/-0.0767	0.0309	+/-0.0767	0.0617	pCi/g					
Lead-214		0.559	+/-0.0973	0.0362	+/-0.0973	0.0723	pCi/g					
Manganese-54	U	-0.00767	+/-0.0213	0.0174	+/-0.0213	0.0348	pCi/g					
Niobium-94	U	0.00546	+/-0.0199	0.0176	+/-0.0199	0.0352	pCi/g					
Potassium-40		10.7	+/-1.14	0.170	+/-1.14	0.341	pCi/g					
Radium-226		0.567	+/-0.105	0.0353	+/-0.105	0.0705	pCi/g					
Silver-108m	U	-0.0103	+/-0.020	0.0164	+/-0.020	0.0328	pCi/g					
Thallium-208		0.200	+/-0.0443	0.0194	+/-0.0443	0.0387	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.00756	+/-0.0216	0.0171	+/-0.0216	0.0396	pCi/g		KSD1	03/13/07	1254	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-015F
Sample ID: 182052016

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

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

Notes:

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- 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: March 16, 2007

Client Sample ID: 9312-0006-016B
Sample ID: 182052017
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 5.31%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.605	+/-0.173	0.0501	+/-0.173	0.100	pCi/g		MJH1	03/12/07	1710	616173
Americium-241	U	0.0507	+/-0.206	0.0828	+/-0.206	0.165	pCi/g					
Bismuth-212		0.407	+/-0.288	0.132	+/-0.288	0.264	pCi/g					
Bismuth-214		0.463	+/-0.0854	0.0291	+/-0.0854	0.0581	pCi/g					
Cesium-134	U	0.0408	+/-0.0304	0.0211	+/-0.0304	0.0422	pCi/g					
Cesium-137	U	0.0109	+/-0.0252	0.0154	+/-0.0252	0.0308	pCi/g					
Cobalt-60	U	-0.00198	+/-0.0205	0.0171	+/-0.0205	0.0343	pCi/g					
Europium-152	U	-0.0158	+/-0.0557	0.0407	+/-0.0557	0.0814	pCi/g					
Europium-154	U	-0.0169	+/-0.0709	0.0496	+/-0.0709	0.0991	pCi/g					
Europium-155	U	0.0198	+/-0.055	0.0523	+/-0.055	0.105	pCi/g					
Lead-212		0.605	+/-0.0686	0.0244	+/-0.0686	0.0488	pCi/g					
Lead-214		0.488	+/-0.0796	0.0308	+/-0.0796	0.0616	pCi/g					
Manganese-54	U	-0.0145	+/-0.0221	0.0155	+/-0.0221	0.0311	pCi/g					
Niobium-94	U	-0.00611	+/-0.0168	0.014	+/-0.0168	0.0279	pCi/g					
Potassium-40		10.3	+/-1.02	0.151	+/-1.02	0.301	pCi/g					
Radium-226		0.463	+/-0.0854	0.0291	+/-0.0854	0.0581	pCi/g					
Silver-108m	U	-0.00366	+/-0.0157	0.0139	+/-0.0157	0.0278	pCi/g					
Thallium-208		0.164	+/-0.0435	0.0151	+/-0.0435	0.0302	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	-0.0133	+/-0.0157	0.0153	+/-0.0157	0.0355	pCi/g		KSD1	03/13/07	1255	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-016B
Sample ID: 182052017

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Surrogate/Tracer recovery	Test				Recovery %		Acceptable Limits						
Strontium Carrier	GFPC, Sr90, solid-ALL	FSS			80		(25%-125%)						

Notes:

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- < Result is less than value reported
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- A The TIC is a suspected aldol-condensation product
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- 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
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- 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

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

Report Date: March 16, 2007

Client Sample ID: 9312-0006-017B
Sample ID: 182052018
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: .557%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
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Rad Gamma Spec Analysis

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

Actinium-228		0.609	+/-0.144	0.045	+/-0.144	0.0899	pCi/g		MJH1	03/12/07	1711	616173
Americium-241	U	0.0548	+/-0.080	0.0712	+/-0.080	0.142	pCi/g					
Bismuth-212		0.417	+/-0.192	0.120	+/-0.192	0.240	pCi/g					
Bismuth-214		0.427	+/-0.0777	0.0277	+/-0.0777	0.0553	pCi/g					
Cesium-134	U	0.0348	+/-0.0206	0.0178	+/-0.0206	0.0357	pCi/g					
Cesium-137	U	0.0222	+/-0.0187	0.0175	+/-0.0187	0.035	pCi/g					
Cobalt-60	U	-0.0035	+/-0.0175	0.0145	+/-0.0175	0.029	pCi/g					
Europium-152	U	0.0187	+/-0.0495	0.0386	+/-0.0495	0.0771	pCi/g					
Europium-154	U	0.0202	+/-0.0543	0.048	+/-0.0543	0.0959	pCi/g					
Europium-155	U	0.0421	+/-0.0508	0.0494	+/-0.0508	0.0987	pCi/g					
Lead-212		0.490	+/-0.064	0.0237	+/-0.064	0.0474	pCi/g					
Lead-214		0.450	+/-0.0812	0.0284	+/-0.0812	0.0568	pCi/g					
Manganese-54	U	-0.00463	+/-0.0175	0.0153	+/-0.0175	0.0305	pCi/g					
Niobium-94	U	-3.900E-05	+/-0.0169	0.0146	+/-0.0169	0.0292	pCi/g					
Potassium-40		10.1	+/-0.954	0.130	+/-0.954	0.261	pCi/g					
Radium-226		0.427	+/-0.0777	0.0277	+/-0.0777	0.0553	pCi/g					
Silver-108m	U	-0.012	+/-0.0147	0.0125	+/-0.0147	0.025	pCi/g					
Thallium-208		0.181	+/-0.0359	0.0146	+/-0.0359	0.0291	pCi/g					

Rad Gas Flow Proportional Counting

GFPC, Sr90, solid-ALL FSS

Strontium-90	U	-0.0141	+/-0.0253	0.0218	+/-0.0253	0.0454	pCi/g		KSD1	03/13/07	1317	616272
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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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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: March 16, 2007

Client Sample ID: 9312-0006-017B
Sample ID: 182052018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				70		(25%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

- ** 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: March 16, 2007

Client Sample ID: 9312-0006-018B
Sample ID: 182052019
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 0%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.953	+/-0.203	0.0733	+/-0.203	0.147	pCi/g		MJH1	03/12/07	1711	616173
Americium-241	U	0.0327	+/-0.0873	0.0716	+/-0.0873	0.143	pCi/g					
Bismuth-212		0.837	+/-0.291	0.162	+/-0.291	0.325	pCi/g					
Bismuth-214		1.18	+/-0.154	0.0375	+/-0.154	0.075	pCi/g					
Cesium-134	U	0.0502	+/-0.0401	0.0278	+/-0.0401	0.0556	pCi/g					
Cesium-137		0.107	+/-0.0413	0.0173	+/-0.0413	0.0345	pCi/g					
Cobalt-60		0.102	+/-0.0501	0.0237	+/-0.0501	0.0474	pCi/g					
Europium-152	U	-0.0175	+/-0.0784	0.0559	+/-0.0784	0.112	pCi/g					
Europium-154	U	0.103	+/-0.0917	0.0585	+/-0.0917	0.117	pCi/g					
Europium-155	U	0.0421	+/-0.0661	0.0601	+/-0.0661	0.120	pCi/g					
Lead-212		1.11	+/-0.110	0.0295	+/-0.110	0.059	pCi/g					
Lead-214		1.19	+/-0.148	0.040	+/-0.148	0.080	pCi/g					
Manganese-54	U	0.00432	+/-0.0244	0.0214	+/-0.0244	0.0428	pCi/g					
Niobium-94	U	0.00755	+/-0.0247	0.0212	+/-0.0247	0.0423	pCi/g					
Potassium-40		18.0	+/-1.46	0.143	+/-1.46	0.285	pCi/g					
Radium-226		1.18	+/-0.154	0.0375	+/-0.154	0.075	pCi/g					
Silver-108m	U	0.00526	+/-0.0212	0.0187	+/-0.0212	0.0373	pCi/g					
Thallium-208		0.336	+/-0.0599	0.0201	+/-0.0599	0.0402	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.034	+/-0.026	0.0176	+/-0.026	0.0406	pCi/g		KSD1	03/13/07	1255	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-018B
Sample ID: 182052019

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery%		Acceptable Limits				
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				77		(25%-125%)				

Notes:

The Qualifiers in this report are defined as follows :

- ** Analyte is a surrogate compound
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- A The TIC is a suspected aldol-condensation product
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- 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: March 16, 2007

Client Sample ID: 9312-0006-019B
Sample ID: 182052020
Matrix: TS
Collect Date: 07-MAR-07
Receive Date: 09-MAR-07
Collector: Client
Moisture: 6.85%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.27	+/-0.270	0.0787	+/-0.270	0.157	pCi/g		MJH1	03/12/07	1711	616173
Americium-241	U	0.0945	+/-0.136	0.0969	+/-0.136	0.194	pCi/g					
Bismuth-212		1.20	+/-0.353	0.156	+/-0.353	0.313	pCi/g					
Bismuth-214		1.22	+/-0.167	0.0413	+/-0.167	0.0826	pCi/g					
Cesium-134	U	0.0513	+/-0.0303	0.0283	+/-0.0303	0.0566	pCi/g					
Cesium-137	UI	0.00	+/-0.0352	0.0224	+/-0.0352	0.0449	pCi/g					
Cobalt-60	U	0.00441	+/-0.0308	0.023	+/-0.0308	0.0459	pCi/g					
Europium-152	U	-0.00562	+/-0.085	0.0633	+/-0.085	0.127	pCi/g					
Europium-154	U	-0.0438	+/-0.0839	0.0681	+/-0.0839	0.136	pCi/g					
Europium-155	U	0.0177	+/-0.0749	0.0692	+/-0.0749	0.138	pCi/g					
Lead-212		1.25	+/-0.122	0.0353	+/-0.122	0.0705	pCi/g					
Lead-214		1.28	+/-0.155	0.0442	+/-0.155	0.0884	pCi/g					
Manganese-54	U	0.0236	+/-0.0359	0.0231	+/-0.0359	0.0461	pCi/g					
Niobium-94	U	0.00295	+/-0.0232	0.0201	+/-0.0232	0.0401	pCi/g					
Potassium-40		19.8	+/-1.69	0.198	+/-1.69	0.396	pCi/g					
Radium-226		1.22	+/-0.167	0.0413	+/-0.167	0.0826	pCi/g					
Silver-108m	U	0.0152	+/-0.0232	0.0203	+/-0.0232	0.0406	pCi/g					
Thallium-208		0.353	+/-0.0598	0.0231	+/-0.0598	0.0462	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.00259	+/-0.0219	0.0181	+/-0.0219	0.0401	pCi/g		KSD1	03/13/07	1317	616272

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/09/07	1116	616146

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: March 16, 2007

Client Sample ID: 9312-0006-019B
Sample ID: 182052020

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch
Surrogate/Tracer recovery	Test				Recovery %	Acceptable Limits					
Strontium Carrier	GFPC, Sr90, solid-ALL FSS				74	(25%-125%)					

Notes:

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- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
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- 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

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

QC Summary

Report Date: March 16, 2007
Page 1 of 9

Client : Connecticut Yankee Atomic Power
362 Injun Hollow Rd

Contact: East Hampton, Connecticut
Mr. Jack McCarthy

Workorder: 182052

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	616519										
QC1201294132	182052001 DUP										
Americium-241	U	0.0471	U	0.128	pCi/g	92		(0% - 100%)	BXL1	03/12/07	23:39
	Uncert:	+/-0.107		+/-0.150							
	TPU:	+/-0.107		+/-0.151							
Curium-242	U	0.00121	U	0.0196	pCi/g	177		(0% - 100%)			
	Uncert:	+/-0.066		+/-0.078							
	TPU:	+/-0.066		+/-0.078							
Curium-243/244	U	-0.077	U	0.094	pCi/g	2010		(0% - 100%)			
	Uncert:	+/-0.0792		+/-0.150							
	TPU:	+/-0.0799		+/-0.151							
QC1201294134	LCS										
Americium-241		13.1		12.5	pCi/g		95	(75%-125%)			
	Uncert:			+/-1.29							
	TPU:			+/-2.02							
Curium-242			U	0.00278	pCi/g						
	Uncert:			+/-0.107							
	TPU:			+/-0.107							
Curium-243/244		15.7		14.7	pCi/g		94	(75%-125%)			
	Uncert:			+/-1.40							
	TPU:			+/-2.30							
QC1201294131	MB										
Americium-241				0.261	pCi/g						
	Uncert:			+/-0.176							
	TPU:			+/-0.179							
Curium-242			U	0.0205	pCi/g						
	Uncert:			+/-0.0543							
	TPU:			+/-0.0544							
Curium-243/244			U	-0.0429	pCi/g						
	Uncert:			+/-0.089							
	TPU:			+/-0.0892							
QC1201294133	182052001 MS										
Americium-241	U	0.0471		13.5	pCi/g		103	(75%-125%)			
	Uncert:	+/-0.107		+/-1.38							
	TPU:	+/-0.107		+/-2.19							
Curium-242	U	0.00121	U	-0.0272	pCi/g						
	Uncert:	+/-0.066		+/-0.0307							
	TPU:	+/-0.066		+/-0.0309							
Curium-243/244	U	-0.077		16.0	pCi/g		102	(75%-125%)			
	Uncert:	+/-0.0792		+/-1.51							
	TPU:	+/-0.0799		+/-2.52							
Batch	616521										
QC1201294136	182052001 DUP										
Plutonium-238	U	-0.0466	U	0.0208	pCi/g	522		(0% - 100%)	BXL1	03/12/07	23:39

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QC Summary

Workorder: 182052

Page 2 of 9

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec										
Batch	616521									
Plutonium-239/240		U	0.0513	U	pCi/g	2860	(0% - 100%)			
	Uncert:		+/-0.0409							
	TPU:		+/-0.0413							
	Uncert:		+/-0.141							
	TPU:		+/-0.141							
QC1201294138	LCS			U	pCi/g		(75%-125%)		03/12/07	23:39
Plutonium-238			0.0604							
	Uncert:		+/-0.104							
	TPU:		+/-0.105							
Plutonium-239/240	13.0		13.7		pCi/g	105	(75%-125%)			
	Uncert:		+/-1.25							
	TPU:		+/-2.01							
QC1201294135	MB			U	pCi/g				03/12/07	23:39
Plutonium-238			-0.00136							
	Uncert:		+/-0.166							
	TPU:		+/-0.166							
Plutonium-239/240		U	0.00272		pCi/g					
	Uncert:		+/-0.104							
	TPU:		+/-0.104							
QC1201294137	182052001	MS		U	pCi/g		(75%-125%)		03/12/07	23:39
Plutonium-238			-0.0466							
	Uncert:		+/-0.0409							
	TPU:		+/-0.0413							
Plutonium-239/240	13.0	U	0.0513		pCi/g	108	(75%-125%)			
	Uncert:		+/-0.141							
	TPU:		+/-0.141							
Batch	616524									
QC1201294140	182052001	DUP		U	pCi/g	0	(0% - 100%)	BXL1	03/15/07	11:59
Plutonium-241			-0.715							
	Uncert:		+/-6.59							
	TPU:		+/-6.59							
QC1201294142	LCS				pCi/g	92	(75%-125%)		03/15/07	12:32
Plutonium-241	139		128							
	Uncert:		+/-11.7							
	TPU:		+/-17.3							
QC1201294139	MB			U	pCi/g				03/15/07	11:43
Plutonium-241			-2.28							
	Uncert:		+/-6.25							
	TPU:		+/-6.25							
QC1201294141	182052001	MS		U	pCi/g	85	(75%-125%)		03/15/07	12:16
Plutonium-241	139		118							
	Uncert:		+/-6.59							
	TPU:		+/-6.59							
Rad Gamma Spec										
Batch	616173									
QC1201293221	182052009	DUP			pCi/g	14	(0% - 100%)	MJH1	03/12/07	17:12
Actinium-228			0.645							
	Uncert:		+/-0.113							
			0.563							
			+/-0.142							
			+/-0.142							

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	616173										
Americium-241		TPU:	+/-0.113								
	U		0.0231	U	0.00732	pCi/g	104	(0% - 100%)			
		Uncert:	+/-0.0654		+/-0.0304						
Bismuth-212		TPU:	+/-0.0654		+/-0.0304						
			0.408		0.519	pCi/g	24	(0% - 100%)			
		Uncert:	+/-0.167		+/-0.269						
Bismuth-214		TPU:	+/-0.167		+/-0.269						
			0.390		0.544	pCi/g	33	(0% - 100%)			
		Uncert:	+/-0.0599		+/-0.0938						
Cesium-134		TPU:	+/-0.0599		+/-0.0938						
	U		0.0173	U	0.0344	pCi/g	66	(0% - 100%)			
		Uncert:	+/-0.0196		+/-0.025						
Cesium-137		TPU:	+/-0.0196		+/-0.025						
	U		0.00279	U	-0.0109	pCi/g	337	(0% - 100%)			
		Uncert:	+/-0.0126		+/-0.0208						
Cobalt-60		TPU:	+/-0.0126		+/-0.0208						
	U		-0.00377	U	-0.00854	pCi/g	78	(0% - 100%)			
		Uncert:	+/-0.0112		+/-0.0212						
Europium-152		TPU:	+/-0.0112		+/-0.0212						
	U		-0.00585	U	0.0325	pCi/g	288	(0% - 100%)			
		Uncert:	+/-0.0323		+/-0.0567						
Europium-154		TPU:	+/-0.0323		+/-0.0567						
	U		0.00207	U	0.0128	pCi/g	144	(0% - 100%)			
		Uncert:	+/-0.0381		+/-0.056						
Europium-155		TPU:	+/-0.0381		+/-0.056						
	U		0.0141	U	-0.0251	pCi/g	716	(0% - 100%)			
		Uncert:	+/-0.0355		+/-0.0436						
Lead-212		TPU:	+/-0.0355		+/-0.0436						
			0.584		0.625	pCi/g	7	(0% - 20%)			
		Uncert:	+/-0.0558		+/-0.0802						
Lead-214		TPU:	+/-0.0558		+/-0.0802						
			0.505		0.472	pCi/g	7	(0%-20%)			
		Uncert:	+/-0.0595		+/-0.0832						
Manganese-54		TPU:	+/-0.0595		+/-0.0832						
	U		0.0152	U	0.0103	pCi/g	38	(0% - 100%)			
		Uncert:	+/-0.013		+/-0.0194						
Niobium-94		TPU:	+/-0.013		+/-0.0194						
	U		-0.000354	U	-0.0111	pCi/g	188	(0% - 100%)			
		Uncert:	+/-0.00983		+/-0.0181						
Potassium-40		TPU:	+/-0.00983		+/-0.0181						
			11.0		10.5	pCi/g	4	(0% - 20%)			
		Uncert:	+/-0.785		+/-1.00						
Radium-226		TPU:	+/-0.785		+/-1.00						
			0.390		0.544	pCi/g	33	(0% - 100%)			
		Uncert:	+/-0.0599		+/-0.0938						
Silver-108m		TPU:	+/-0.0599		+/-0.0938						
	U		-0.00639	U	0.00705	pCi/g	4110	(0% - 100%)			
		Uncert:	+/-0.00999		+/-0.0165						

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch 616173										
Thallium-208		TPU: +/-0.00999	+/-0.0165							
		0.177	0.201	pCi/g	12		(0% - 100%)			
		Uncert: +/-0.0295	+/-0.044							
		TPU: +/-0.0295	+/-0.044							
QC1201293222 LCS										
Actinium-228			U 0.342	pCi/g					03/13/07	14:57
		Uncert: +/-0.417	+/-0.417							
		TPU: +/-0.417	+/-0.417							
Americium-241	23.4		26.1	pCi/g		112	(75%-125%)			
		Uncert: +/-2.42	+/-2.42							
		TPU: +/-2.42	+/-2.42							
Bismuth-212			U -0.0358	pCi/g						
		Uncert: +/-0.688	+/-0.688							
		TPU: +/-0.688	+/-0.688							
Bismuth-214			U 0.118	pCi/g						
		Uncert: +/-0.169	+/-0.169							
		TPU: +/-0.169	+/-0.169							
Cesium-134			U -0.00567	pCi/g						
		Uncert: +/-0.110	+/-0.110							
		TPU: +/-0.110	+/-0.110							
Cesium-137	9.46		10.1	pCi/g		107	(75%-125%)			
		Uncert: +/-0.938	+/-0.938							
		TPU: +/-0.938	+/-0.938							
Cobalt-60	13.5		14.5	pCi/g		107	(75%-125%)			
		Uncert: +/-0.955	+/-0.955							
		TPU: +/-0.955	+/-0.955							
Europium-152			U 0.0149	pCi/g						
		Uncert: +/-0.225	+/-0.225							
		TPU: +/-0.225	+/-0.225							
Europium-154			U -0.0892	pCi/g						
		Uncert: +/-0.206	+/-0.206							
		TPU: +/-0.206	+/-0.206							
Europium-155			U 0.0586	pCi/g						
		Uncert: +/-0.223	+/-0.223							
		TPU: +/-0.223	+/-0.223							
Lead-212			0.223	pCi/g						
		Uncert: +/-0.170	+/-0.170							
		TPU: +/-0.170	+/-0.170							
Lead-214			U -0.0456	pCi/g						
		Uncert: +/-0.161	+/-0.161							
		TPU: +/-0.161	+/-0.161							
Manganese-54			U 0.0136	pCi/g						
		Uncert: +/-0.0984	+/-0.0984							
		TPU: +/-0.0984	+/-0.0984							
Niobium-94			U 0.0513	pCi/g						
		Uncert: +/-0.0811	+/-0.0811							
		TPU: +/-0.0811	+/-0.0811							
Potassium-40			U 0.184	pCi/g						

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	616173									
Radium-226		U	0.118	pCi/g			(75%-.125%)			
	Uncert:		+/-0.681							
	TPU:		+/-0.681							
Silver-108m		U	-0.00312	pCi/g						
	Uncert:		+/-0.169							
	TPU:		+/-0.169							
Thallium-208		U	-0.0493	pCi/g						
	Uncert:		+/-0.0888							
	TPU:		+/-0.0888							
	Uncert:		+/-0.0827							
	TPU:		+/-0.0827							
QC1201293220 MB Actinium-228		U	0.051	pCi/g					03/12/07	17:12
	Uncert:		+/-0.0435							
	TPU:		+/-0.0435							
Americium-241		U	0.00975	pCi/g						
	Uncert:		+/-0.0307							
	TPU:		+/-0.0307							
Bismuth-212		U	0.0124	pCi/g						
	Uncert:		+/-0.076							
	TPU:		+/-0.076							
Bismuth-214		U	0.00929	pCi/g						
	Uncert:		+/-0.0235							
	TPU:		+/-0.0235							
Cesium-134		U	0.00193	pCi/g						
	Uncert:		+/-0.0113							
	TPU:		+/-0.0113							
Cesium-137		U	0.00333	pCi/g						
	Uncert:		+/-0.0134							
	TPU:		+/-0.0134							
Cobalt-60		U	0.000576	pCi/g						
	Uncert:		+/-0.0123							
	TPU:		+/-0.0123							
Europium-152		U	0.000986	pCi/g						
	Uncert:		+/-0.0276							
	TPU:		+/-0.0276							
Europium-154		U	-0.00532	pCi/g						
	Uncert:		+/-0.0309							
	TPU:		+/-0.0309							
Europium-155		U	-0.0203	pCi/g						
	Uncert:		+/-0.0258							
	TPU:		+/-0.0258							
Lead-212		U	0.00742	pCi/g						
	Uncert:		+/-0.0291							
	TPU:		+/-0.0291							
Lead-214		U	-0.00443	pCi/g						
	Uncert:		+/-0.0241							
	TPU:		+/-0.0241							

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	616173									
Manganese-54		U	-0.000142	pCi/g						
	Uncert:		+/-0.0101							
	TPU:		+/-0.0101							
Niobium-94		U	-0.00436	pCi/g						
	Uncert:		+/-0.010							
	TPU:		+/-0.010							
Potassium-40		U	0.183	pCi/g						
	Uncert:		+/-0.151							
	TPU:		+/-0.151							
Radium-226		U	0.00929	pCi/g						
	Uncert:		+/-0.0235							
	TPU:		+/-0.0235							
Silver-108m		U	0.0051	pCi/g						
	Uncert:		+/-0.00959							
	TPU:		+/-0.00959							
Thallium-208		U	-0.00821	pCi/g						
	Uncert:		+/-0.0142							
	TPU:		+/-0.0142							
Rad Gas Flow										
Batch	616272									
QC1201293468	182052008	DUP								
Strontium-90		U	0.0329	pCi/g	0		(0% - 100%)	KSD1	03/13/07	15:01
	Uncert:		+/-0.0257							
	TPU:		+/-0.0257							
QC1201293470	LCS									
Strontium-90			1.44	pCi/g		102	(75%-125%)		03/13/07	15:01
	Uncert:									
	TPU:									
QC1201293467	MB									
Strontium-90		U	0.0268	pCi/g					03/13/07	15:01
	Uncert:		+/-0.0211							
	TPU:		+/-0.0211							
QC1201293469	182052008	MS								
Strontium-90		U	5.55	pCi/g		98	(75%-125%)		03/13/07	15:01
	Uncert:		+/-0.0257							
	TPU:		+/-0.0257							
Rad Liquid Scintillation										
Batch	616193									
QC1201293257	182052001	DUP								
Iron-55		U	41.1	pCi/g	0		(0% - 100%)	MXP1	03/14/07	12:35
	Uncert:		+/-43.8							
	TPU:		+/-43.9							
QC1201293259	LCS									
Iron-55			1240	pCi/g		87	(75%-125%)		03/14/07	13:07
	Uncert:									
	TPU:									
QC1201293256	MB									
Iron-55		U	32.1	pCi/g					03/14/07	12:19

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation										
Batch	616193									
			Uncert:							+/-44.2
			TPU:							+/-44.3
QC1201293258	182052001	MS								
Iron-55			1250 U	41.1		943	pCi/g	76 (75%-125%)		03/14/07 12:51
			Uncert:	+/-43.8		+/-73.6				
			TPU:	+/-43.9		+/-95.5				
Batch	616195									
QC1201293261	182052001	DUP								
Nickel-63			U	3.86 U		-1.18	pCi/g	0 (0% - 100%) MXP1		03/13/07 19:07
			Uncert:	+/-8.80		+/-8.11				
			TPU:	+/-8.80		+/-8.11				
QC1201293263	LCS									
Nickel-63			576			493	pCi/g	86 (75%-125%)		03/13/07 19:39
			Uncert:			+/-22.1				
			TPU:			+/-28.4				
QC1201293260	MB									
Nickel-63			U			1.12	pCi/g			03/13/07 18:51
			Uncert:			+/-8.10				
			TPU:			+/-8.10				
QC1201293262	182052001	MS								
Nickel-63			576 U	3.86		482	pCi/g	84 (75%-125%)		03/13/07 19:23
			Uncert:	+/-8.80		+/-22.1				
			TPU:	+/-8.80		+/-28.2				
Batch	616197									
QC1201293269	182052001	DUP								
Technetium-99			U	0.0737 U		0.137	pCi/g	0 (0% - 100%) MXP1		03/15/07 19:00
			Uncert:	+/-0.210		+/-0.217				
			TPU:	+/-0.210		+/-0.217				
QC1201293271	LCS									
Technetium-99			20.1			18.3	pCi/g	91 (75%-125%)		03/15/07 12:54
			Uncert:			+/-0.760				
			TPU:			+/-0.889				
QC1201293268	MB									
Technetium-99			U			0.306	pCi/g			03/15/07 18:28
			Uncert:			+/-0.249				
			TPU:			+/-0.250				
QC1201293270	182052001	MS								
Technetium-99			20.1 U	0.0737		16.2	pCi/g	81 (75%-125%)		03/15/07 12:37
			Uncert:	+/-0.210		+/-0.773				
			TPU:	+/-0.210		+/-0.876				
Batch	616201									
QC1201293277	182052001	DUP								
Tritium			U	-0.225 U		-0.981	pCi/g	0 (0% - 100%) AXD2		03/12/07 20:47
			Uncert:	+/-1.00		+/-1.00				
			TPU:	+/-1.00		+/-1.00				
QC1201293279	LCS									
Tritium			11.2			9.29	pCi/g	83 (75%-125%)		03/12/07 22:05
			Uncert:			+/-2.55				
			TPU:			+/-2.55				

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation										
Batch	616201									
QC1201293276	MB									
Tritium			U	-0.862	pCi/g					03/12/07 19:46
				Uncert: +/-0.964						
				TPU: +/-0.964						
QC1201293278	182052001 MS									
Tritium		11.5 U	-0.225	9.74	pCi/g	85	(75%-125%)			03/12/07 21:49
			Uncert: +/-1.00	+/-2.56						
			TPU: +/-1.00	+/-2.57						
Batch	616202									
QC1201293281	182052001 DUP									
Carbon-14			U	0.0071	U	0.0332	pCi/g	0	(0% - 100%) AXD2	03/13/07 10:34
				Uncert: +/-0.0875		+/-0.0861				
				TPU: +/-0.0875		+/-0.0861				
QC1201293283	LCS									
Carbon-14		6.59		6.53	pCi/g	99	(75%-125%)			03/13/07 12:39
				Uncert: +/-0.189						
				TPU: +/-0.214						
QC1201293280	MB									
Carbon-14			U	0.0791	pCi/g					03/13/07 09:32
				Uncert: +/-0.0866						
				TPU: +/-0.0866						
QC1201293282	182052001 MS									
Carbon-14		7.15 U	0.0071	7.02	pCi/g	98	(75%-125%)			03/13/07 11:37
			Uncert: +/-0.0875	+/-0.205						
			TPU: +/-0.0875	+/-0.232						

Notes:

The Qualifiers in this report are defined as follows:

- ** 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
- QC Samples were not spiked with this compound

GEL LABORATORIES LLC

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QC Summary

Workorder: 182052

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Y										
^										
h										

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

** Indicates analyte is a surrogate compound.

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

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

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

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

ATTACHMENT 4 (DQA RESULTS)

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

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

Revision 0

RCA - PRIMARY AUXILIARY BUILDING (PAB)
SURVEY UNIT 9312-0006

RELEASE RECORD
Attachment 4

Survey Unit: 9312-0006
Area Description: Radiologically Controlled Area – Primary Auxiliary Building (PAB)
Classification: 1
Survey Media: Surface Soils
Type of Survey: Final Status Survey
Number of Measurements: 15 Static, 4 Judgmental

STATISTICS on TOTAL POPULATION				STATISTICS on NON-PARAMETRIC POPULATION			
	Cs-137	Co-60	Sr-90		Cs-137	Co-60	Sr-90
DCGL _{op} (pCi/g):	4.75E+00	2.29E+00	9.30E-01	DCGL _{op} (pCi/g):	4.75E+00	2.29E+00	9.30E-01
Minimum Value:	-2.27E-02	-1.77E-02	-3.23E-02	Minimum Value:	-2.27E-02	-1.77E-02	-3.23E-02
Maximum Value:	1.07E-01	1.02E-01	3.40E-02	Maximum Value:	3.19E-02	1.86E-02	3.29E-02
Mean:	1.52E-02	7.16E-03	7.99E-03	Mean:	1.01E-02	1.94E-03	1.00E-02
Median:	1.47E-02	4.00E-03	1.08E-02	Median:	1.64E-02	3.58E-03	1.11E-02
Standard Deviation:	2.65E-02	2.42E-02	1.67E-02	Standard Deviation:	1.74E-02	1.02E-02	1.59E-02

Sample ID	GPS Coordinates		Cs-137				Co-60				Sr-90				Fraction of DCGL
	North	East	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	
9312-0006-001F	236695.21	668582.76	5.86E-03	0.018	3.26E-02		3.58E-03	0.019	3.30E-02		1.13E-02	0.018	3.19E-02		0.015
9312-0006-002F	236695.21	668620.89	-1.37E-02	0.022	3.67E-02		-1.08E-02	0.020	3.15E-02		1.07E-02	0.018	3.13E-02		0.004
9312-0006-003F	236662.19	668563.70	-2.27E-02	0.024	3.68E-02		3.77E-04	0.021	3.55E-02		2.66E-03	0.023	4.24E-02		-0.002
9312-0006-004F	236662.19	668601.83	3.19E-02	0.025	1.36E-02	+	1.86E-02	0.021	3.90E-02		1.63E-03	0.015	2.99E-02		0.017
9312-0006-005F	236662.19	668639.96	2.17E-02	0.038	3.16E-02		-5.29E-03	0.019	3.09E-02		1.27E-02	0.023	4.04E-02		0.016
9312-0006-006F	236662.19	668678.09	-2.09E-02	0.023	3.46E-02		1.20E-02	0.020	3.62E-02		2.26E-02	0.020	3.28E-02	+	0.025
9312-0006-007F	236629.17	668544.63	1.87E-02	0.026	4.71E-02		9.86E-03	0.024	4.33E-02		-3.23E-02	0.016	4.23E-02		-0.026
9312-0006-008F	236629.17	668582.76	6.32E-03	0.018	3.18E-02		-1.77E-02	0.018	2.67E-02		3.29E-02	0.026	4.03E-02	+	0.029
9312-0006-009F	236629.17	668620.89	2.79E-03	0.013	1.90E-02		-3.77E-03	0.011	1.90E-02		1.24E-02	0.021	3.59E-02		0.012
9312-0006-010F	236629.17	668659.02	8.25E-03	0.019	3.08E-02		-1.07E-02	0.018	2.87E-02		1.09E-02	0.021	3.67E-02		0.009
9312-0006-011F	236596.15	668563.70	2.88E-02	0.024	3.89E-02	+	6.96E-03	0.017	2.98E-02		2.95E-02	0.022	3.33E-02	+	0.041
9312-0006-012F	236596.15	668601.83	1.64E-02	0.034	6.28E-02		-8.75E-04	0.035	5.80E-02		-7.77E-03	0.023	4.57E-02		-0.005

RCA - PRIMARY AUXILIARY BUILDING (PAB)
SURVEY UNIT 9312-0006

RELEASE RECORD
Attachment 4

Sample ID	GPS Coordinates		Cs-137				Co-60				Sr-90				Fraction of DCGL
			Result (pCi/g)	2σ	MDA (pCi/g)	Identified	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	
	North	East													
9312-0006-013F	236596.15	668639.96	2.18E-02	0.022	2.58E-02	+	1.23E-02	0.017	3.00E-02		2.47E-02	0.024	3.92E-02	+	0.037
9312-0006-014F	236563.13	668582.76	1.95E-02	0.024	4.16E-02		9.32E-03	0.028	4.87E-02		1.11E-02	0.022	3.98E-02		0.020
9312-0006-015F	236563.13	668620.89	2.65E-02	0.026	4.08E-02	+	5.25E-03	0.023	3.98E-02		7.56E-03	0.022	3.96E-02		0.016
9312-0006-013FS	236596.15	668639.96	1.30E-02	0.023	4.05E-02		1.31E-02	0.022	3.91E-02		2.57E-05	0.016	3.16E-02		0.008
9312-0006-016-B	236716.60	668603.43	1.09E-02	0.025	3.08E-02		-1.98E-03	0.021	3.43E-02		-1.33E-02	0.016	3.55E-02		-0.013
9312-0006-017-B	236676.30	668657.84	2.22E-02	0.019	3.50E-02	+	-3.50E-03	0.018	2.90E-02		-1.41E-02	0.025	4.54E-02		-0.012
9312-0006-018-B	236548.47	668611.18	1.07E-01	0.041	3.45E-02	+	1.02E-01	0.041	3.45E-02	+	3.40E-02	0.026	4.06E-02	+	0.104
9312-0006-019-B	236607.06	668523.70	0.00E+00	0.035	4.49E-02		4.41E-03	0.031	4.59E-02		2.59E-03	0.022	4.01E-02		0.005

OTHER RADIONUCLIDES

Sample ID	Isotope	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	DCGL _{op} (pCi/g)	Fraction of DCGL
9312-0006-001F	Mn-54	1.73E-02	0.017	3.25E-02	+	1.0E+01	0.002
9312-0006-004F	Cs-134	2.46E-02	0.016	3.84E-02	+	2.8E+00	0.009
9312-0006-007F	Eu-155	9.11E-02	0.075	9.49E-02	+	2.4E+02	0.000
9312-0006-008F	Eu-155	5.83E-02	0.048	9.25E-02	+	2.4E+02	0.000
9312-0006-009F	Mn-54	1.52E-02	0.013	1.67E-02	+	1.0E+01	0.001
9312-0006-012F	H-3	1.10E+00	1.090	1.82E+00	+	2.5E+02	0.004
9312-0006-012F	Fe-55	5.48E+01	41.300	5.44E+01	+	1.6E+04	0.003
9312-0006-014F	Cs-134	3.43E-02	0.029	5.02E-02	+	2.8E+00	0.012
9312-0006-015F	Eu-155	8.98E-02	0.072	1.03E-01	+	2.4E+02	0.000
9312-0006-016B	Cs-134	4.08E-02	0.030	4.22E-02	+	2.8E+00	0.015
9312-0006-017B	Cs-134	3.48E-02	0.021	3.57E-02	+	2.8E+00	0.012
9312-0006-018B	Cs-134	5.02E-02	0.040	5.56E-02	+	2.8E+00	0.018
9312-0006-018F	Eu-154	1.03E-01	0.092	1.17E-01	+	5.6E+00	0.018
9312-0006-019B	Cs-134	5.13E-02	0.030	5.66E-02	+	2.8E+00	0.018

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

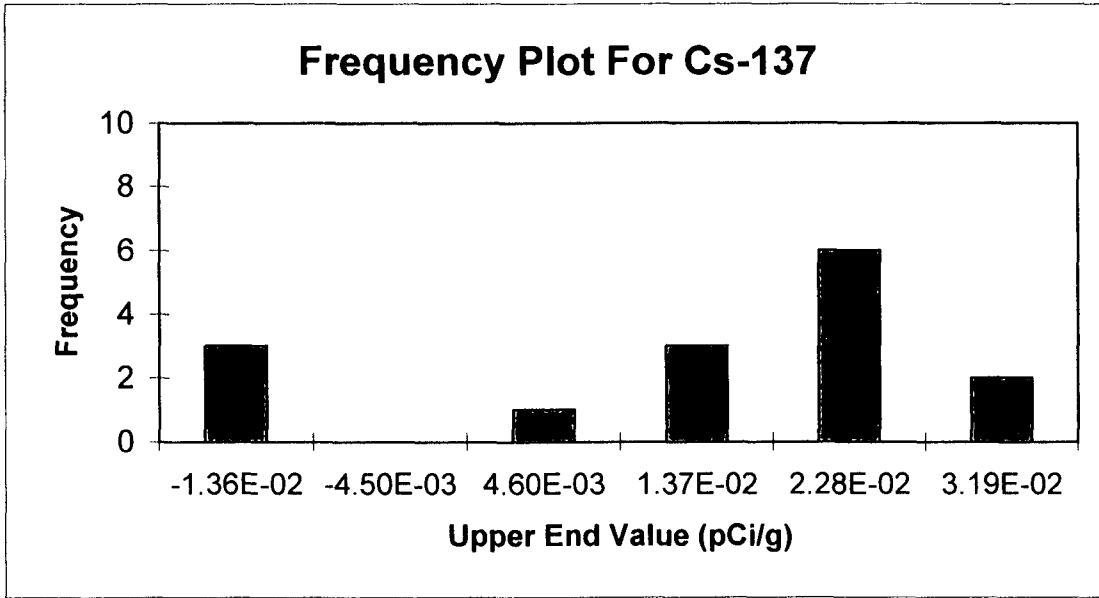
RELEASE RECORD

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

Revision 0

FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9312-0006
 Survey Unit Name: RCA - Primary Auxiliary Building (PAB)
 Mean: 1.01E-02 pCi/g



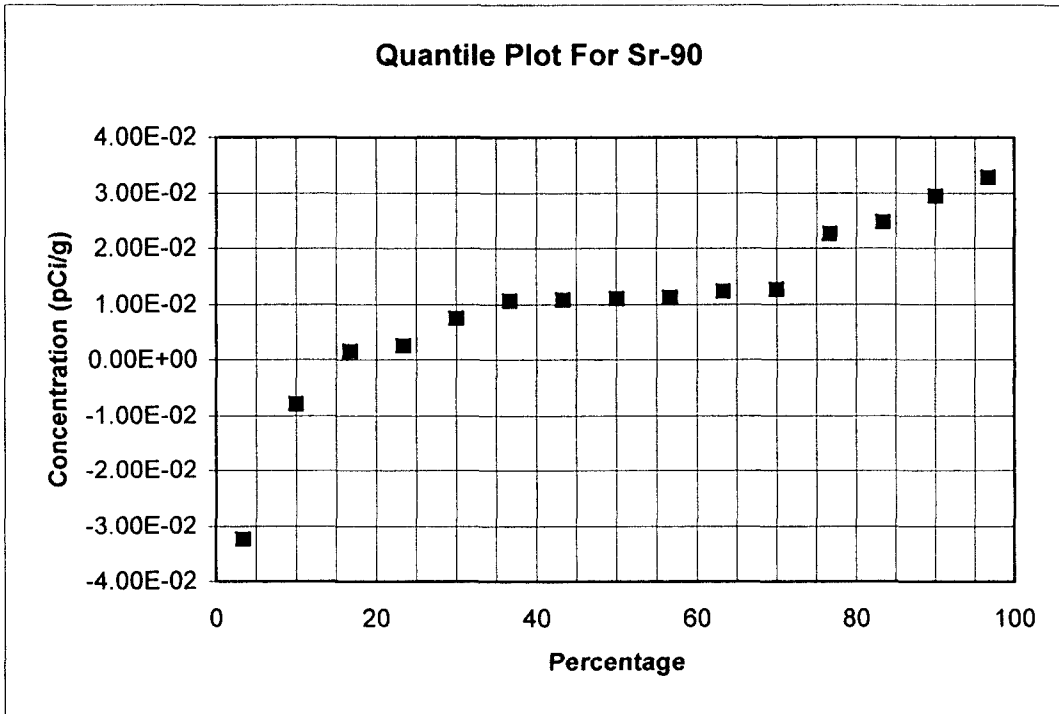
Upper End Value	Observation Frequency	Observation Frequency
-1.36E-02	3	20%
-4.50E-03	0	0%
4.60E-03	1	7%
1.37E-02	3	20%
2.28E-02	6	40%
3.19E-02	2	13%
Total:	15	100%

D. Wójtkowiak 3/20/07
 Submitted by/Date

Act. J. J. 3/21/07
 Reviewed by/Date

QUANTILE PLOT FOR STRONTIUM-90

Survey Unit: 9312-0006
 Survey Unit Name: RCA - Primary Auxiliary Building (PAB)
 Mean: 1.00E-02 $\mu\text{Ci/g}$



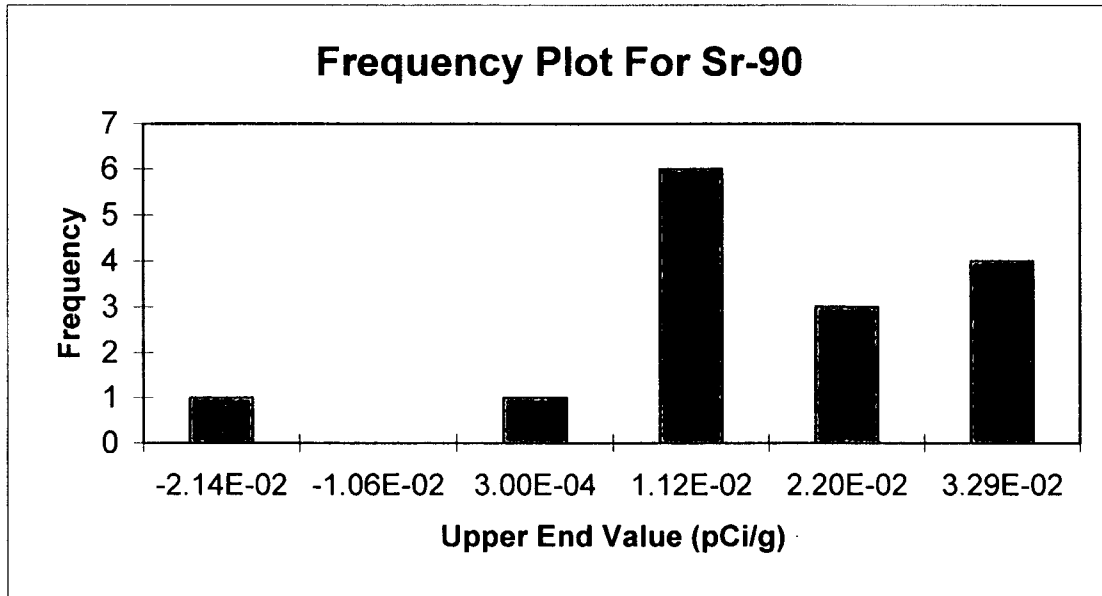
Sr-90	Rank	Percentage
-3.23E-02	1	3.3%
-7.77E-03	2	10.0%
1.63E-03	3	16.7%
2.66E-03	4	23.3%
7.56E-03	5	30.0%
1.07E-02	6	36.7%
1.09E-02	7	43.3%
1.11E-02	8	50.0%
1.13E-02	9	56.7%
1.24E-02	10	63.3%
1.27E-02	11	70.0%
2.26E-02	12	76.7%
2.47E-02	13	83.3%
2.95E-02	14	90.0%
3.29E-02	15	96.7%

D. Wajtkowiak 3/20/07
 Submitted by/Date


ADW/H 3/21/07
 Reviewed by/Date

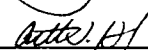
FREQUENCY PLOT FOR STRONTIUM-90

Survey Unit: 9312-0006
 Survey Unit Name: RCA - Primary Auxiliary Building (PAB)
 Mean: 1.00E-02 pCi/g



Upper End Value	Observation Frequency	Observation Frequency
-2.14E-02	1	7%
-1.06E-02	0	0%
3.00E-04	1	7%
1.12E-02	6	40%
2.20E-02	3	20%
3.29E-02	4	27%
Total:	15	100%

 D. WOLKOWIAK 3/20/07
 Submitted by/Date

 3/21/07
 Reviewed by/Date

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

ATTACHMENT 4C (SIGN TEST)

Sign Test Calculation Sheet for Multiple Radionuclides

Survey Area Number: 9312		Survey Unit Number: 0006		WPIR #: N/A		
Survey Area Name: Primary Auxiliary Building (PAB)		Classification: 1	TYPE I (α error): 0.05	N: 15		
Radionuclides:	1 st Radionuclide Cs-137	2 nd Radionuclide Co-60	3 rd Radionuclide Sr-90	4 th Radionuclide		
DCGL:	4.75E+00	2.29E+00	9.30E-01			
Results 1 st Radionuclide (pCi/g)	Results 2 nd Radionuclide (pCi/g)	Results 3 rd Radionuclide (pCi/g)	Results 4 th Radionuclide (pCi/g)	Weighted Sum (W _s)	1-W _s	Sign
5.86E-03	3.58E-03	1.13E-02		0.01	0.99	+1
-1.37E-02	-1.08E-02	1.07E-02		0.00	1.00	+1
-2.27E-02	3.77E-04	2.66E-03		0.00	1.00	+1
3.19E-02	1.86E-02	1.63E-03		0.02	0.98	+1
2.17E-02	-5.29E-03	1.27E-02		0.02	0.98	+1
-2.09E-02	1.20E-02	2.26E-02		0.03	0.97	+1
1.87E-02	9.86E-03	-3.23E-02		-0.03	1.03	+1
6.32E-03	-1.77E-02	3.29E-02		0.03	0.97	+1
2.79E-03	-3.77E-03	1.24E-02		0.01	0.99	+1
8.25E-03	-1.07E-02	1.09E-02		0.01	0.99	+1
2.88E-02	6.96E-03	2.95E-02		0.04	0.96	+1
1.64E-02	-8.75E-04	-7.77E-03		-0.01	1.01	+1
2.18E-02	1.23E-02	2.47E-02		0.04	0.96	+1
1.95E-02	9.32E-03	1.11E-02		0.02	0.98	+1
2.65E-02	5.25E-03	7.56E-03		0.02	0.98	+1
Number of positive differences (S+)						15

Critical Value 11

Survey Unit Meets the Acceptance Criteria

Performed by: David Wojtkowiak

Date: 3/20/2007

Independent Review by: [Signature]

Date: 3/21/07

PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

ATTACHMENT 4D (QC SPLIT RESULTS)

Split Sample Assessment Form

Survey Area #: 9312	Survey Unit #: 0006	Survey Unit Name: RCA - Primary Auxiliary Building (PAB)
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Sample Plan or WPIR#: N/A	SML#: 9312-0006-013
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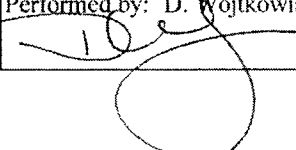
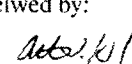
Sample Description: Comparison of split samples collected from sample measurement location #13 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9312-0006-013F, the comparison sample was 9312-0006-013FS.

STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
K-40	1.10E+01	0.478	23	0.75 - 1.33	1.02E+01	0.560	0.93	Y

Comments/Corrective Actions: Cs-137 was not detected in sufficient quantities in the field split results at location 9312-0006-013FS 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.

<u>Resolution</u>	<u>Agreement Range</u>
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

Performed by: D. Wojtkowiak 	Date: 3/20/2007	Received by: 	Date: 3/21/07
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PRIMARY AUXILIARY BUILDING (PAB)
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0006

RELEASE RECORD

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

Revision 0



DQA Surface Soil Report

Assessment Summary

Site:	9312		
Planner(s):	Wojo		
Survey Unit Name:	9312-0006		
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:	Reject Null Hypothesis (Survey Unit PASSES)		

Retrospective Power Curve

