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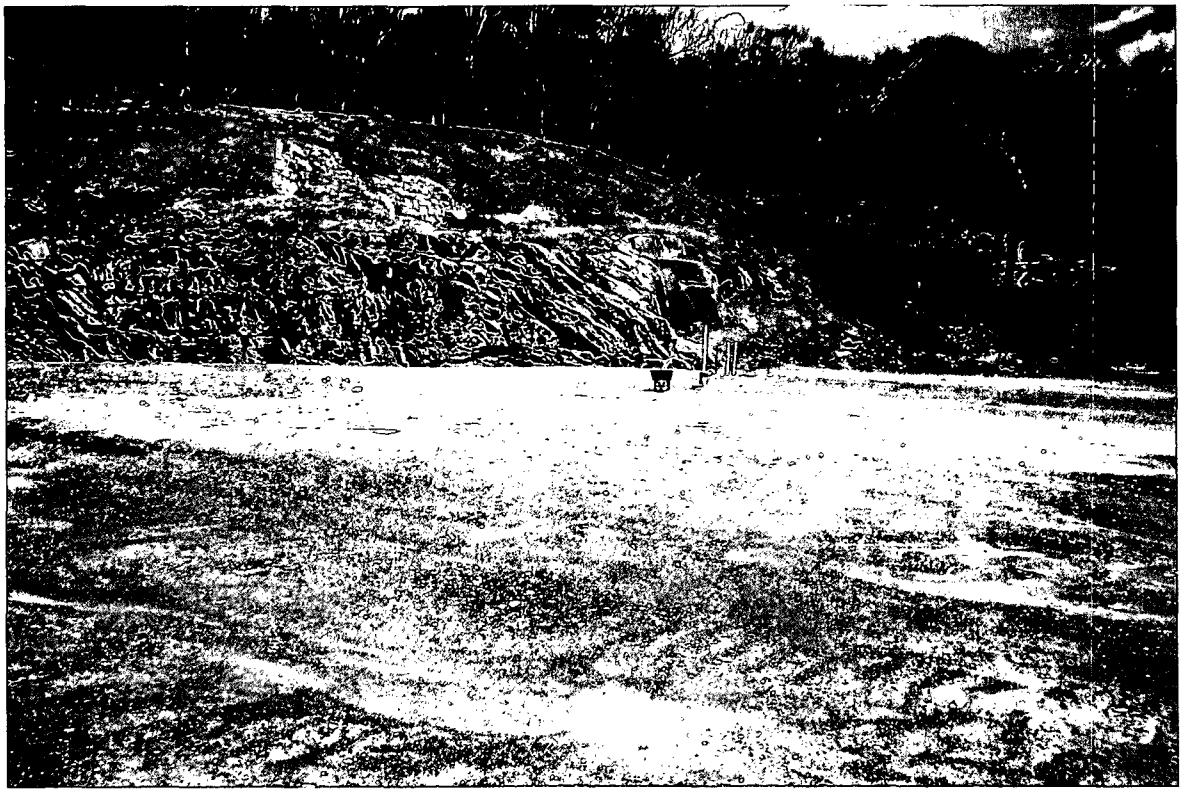

Final Status Survey
Final Report Phase VII

Appendix A5
Survey Unit Release Record
9312-0003, Southwest 115Kv Swithyard
(Former Radiologically Controlled Area)

May 2007

CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
SOUTHWEST 115 KV SWITCHYARD
(FORMER RADIOLOGICALLY CONTROLLED AREA)
SURVEY UNIT 9312-0003

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Revision 0

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1. SURVEY UNIT DESCRIPTION

Survey Unit 9312-0003 (Southwest 115 kV Switchyard) is designated as Final Status Survey (FSS) Class 1 and consists of approximately one thousand four hundred eighty-six (1,486) square meters of open land and is located approximately one thousand four hundred seventy-seven feet (1,477 ft) to the southeast of the site benchmark (Northing: 237370.20, Easting: 667394.57) associated with 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 9312-0006 and land Survey Unit 9312-0001 to the north (called north as oriented with the north to south flow of the Connecticut River), land Survey Unit 9312-0001 and land Survey Unit 9312-0002 to the east, land Survey Unit 9312-0008 to the south, and land Survey Unit 9306-0000 to the west. 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 S068 through S070 (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 9312-0003 consisted of:

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

b) A review of the *"Initial Characterization Report"* and the *"Historic Site Assessment Supplement,"*

c) Historic and current survey records review,

d) Visual inspections and a "walkdown."

A review of the *"Initial and Supplemental Characterization Reports"* as well as the previous *"Classification Basis Summaries"* was performed. The source documents, the "*Connecticut Yankee Haddam Neck Characterization Report*" and "*Initial Classification for Survey Areas at Connecticut Yankee*", were incorporated by reference in LTP, Revision 0.

During plant operation, Survey Unit 9312-0003 was the location of significant reactor support structures and systems, including the southwestern corner of the Primary Auxiliary Building (PAB), the Feed Water/Steam Penetration Building (FW/STM), the Shutdown Auxiliary Feed Pump House, the De-mineralized Water Storage Tank (DWST), the Condensate Storage Tank (CST) and the northwestern quadrant of the 115kV Switchyard.

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.

The FW/STM Penetration Building or "Terry Turbine Building" was located directly to the west of the Containment Building location. The building had three basic levels. The lower level room contained auxiliary Feedwater pumps and piping, the middle level room contained the main steam dump valves and the upper level rooms housed the main steam stop valves. An outside catwalk that connected this building to the Service Building was located directly above Main Steam and Feedwater piping. The upper level also served as the alternate access HP control point to the Containment Building during decommissioning. The FW/STM Penetration Building was maintained free of loose radioactive contamination during facility operation. Periodic radiological surveys were routinely performed to substantiate this radiological condition.

The Electric Shutdown Auxiliary Feed Pump House contained the Electric Shutdown Auxiliary Feed Pump and all above grade DWST piping. The building was an independent structure with outer aluminum siding, inner sheetrock walls, slightly tapered sheet metal roof, asphalt floor, a building exhaust ventilation and a concrete support base beneath the pump. No significant radiological events were identified regarding this building.

The 115 kV Switchyard (#111) was situated outside the RCA just south of the Containment building. This area included two Station Service Transformers (# 204 & #205) and the 115 kV Tie Breaker (#218). Also, Bus 12 (#120) was located at the SW corner of the yard. In addition, there were several other transformers with associated power lines that extended beyond the switchyard area.

The DWST and CST were also designated as Tank "TK-25-1A" and Tank "TK-25-1B" respectively. The DWST and the CST was located to the southwest of the Containment Building in the northwest corner of the 115 kV Switchyard. Even though these tanks were designed to normally contain only non-radioactive water, there was a documented history of radiologically contaminated water occasionally being introduced into these systems. Events that may have contributed to the introduction of contaminated water into these tanks were steam generator tube failures and misalignment of valves. Historical surveys performed in the vicinity of these tanks did not indicate any significant levels of radioactive contamination. During April 1999, a shallow monitoring well and a deep monitoring well on the west side of the DWST produced samples that showed positive results for tritium.

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 9312-0003. 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;

- A hot particle was discovered during a routine survey of the area adjacent to the 115 kV Switchyard in June 1977. The contaminant was removed and a resurvey of the entire area as well as equipment removed from the area indicated no remaining detectable activity.
- In February of 1989, there was a release of radioactive liquid from the Spent Fuel Building drainpipe that resulted in distribution of plant related radioactivity to the drain trench located in the 115 kV Switchyard, the storm drain system components and soils at the storm drain outfall. Remediation of the plant related radioactivity associated with this event resulted in decontamination of the drain trench, the storm drain system and removal of a significant volume of soil.
- During an annual survey performed in August of 1995, radioactive particles were found in and around the switchyard area. Some of the particles were embedded in the pavement around the switchyard. Gamma spectrometry of dirt samples collected from the switchyard identified Co-60 and Cs-137. Loose contamination, was discovered under the switchyard fence. The contaminated soil in the switchyard and portions of pavement 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 and FW/STM Penetration Building was then demolished to grade. The Electric Shutdown Auxiliary Feed Pump House, the DWST, the CST and the concrete base pads for all three (3) structures were completely demolished and removed. No above grade structures currently reside within Survey Unit 9312-0003.

Outside of the structures, remediation was performed on the soils surrounding the PAB. The excavation around the PAB footing was designated as Excavation #2; the excavation around the FW/STM Penetration Building was designated as Excavation #6 and the excavation adjacent to the Containment Building in the east section of the survey unit was designated as Excavation #3. Remediation was successfully performed in these areas by the excavation of all affected soils to the beginning of the saturated zone or to bedrock. As with other excavations, the area was backfilled following the performance of a radiological assessment.

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.

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

	Cs-137 (ρCi/g)	Co-60 (ρCi/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 is 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 March 2007 to assess the physical condition of the survey unit, evaluate access points, travel paths and identify potentially hazardous conditions.

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 9312-0003 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.

Equation 1

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

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.

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 radionucldies 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

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 9312-0003 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 it's 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 9312-0003 (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.

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, three (3) judgmental samples were taken in this survey area. One (1) judgmental surface soil sample was taken at the east quadrant of the survey unit in the vicinity of former Excavation 3, one (1) judgmental sample was taken in the northwest corner of the survey unit in the vicinity of the PAB excavation and one (1) judgmental sample was taken in the vicinity of the former location of the DWST.

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
9312-0003-001F	236545.81	668643.81
9312-0003-002F	236545.81	668678.94
9312-0003-003F	236515.39	668661.38
9312-0003-004F	236515.39	668696.51
9312-0003-005F	236515.39	668801.90
9312-0003-006F	236515.39	668837.03

Table 4 - (continued)

Designation	Northing	Easting
9312-0003-007F	236484.96	668678.94
9312-0003-008F	236484.96	668714.07
9312-0003-009F	236484.96	668749.21
9312-0003-010F	236484.96	668784.34
9312-0003-011F	236484.96	668819.47
9312-0003-012F	236454.54	668731.64
9312-0003-013F	236454.54	668766.77
9312-0003-014F	236454.54	668801.90
9312-0003-015F	236424.11	668784.34
9312-0003-016B(1)	236553.97	668630.24
9312-0003-017B(1)	236522.69	668819.13
9312-0003-018B(1)	236492.21	668744.15

(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.

Table 5 – Synopsis of the Survey Design		
Feature	**Design Criteria**	**Basis**
Survey Unit Land Area	1,486 m^2	Based on AutoCAD-LT
Number of Measurements	18 (15 systematic grid) (3 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	10.73 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 2,000 cpm plus ambient background	Per BCY-HP-0239 Revision #0

(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 9312-0003. 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 7,770 counts per minute (cpm) up to 12,500 cpm.

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.

Eighteen (18) 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 (9312-0003-002F, 9312-0003-012F and 9312-0003-015F) were randomly selected for HTD radionuclide analysis.

The implementation of survey specific quality control measures included the collection of one (1) sample (9312-0003-009F) for "split sample" analysis.

6. SURVEY RESULTS

All field survey activities were conducted between March 27, 2007 and March 30, 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.

Table 6 - Scan Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level (1) (kcpm)	> Action Level
1	10.30	10.99	NO
2	10.80	12.40	NO
3	9.19	11.44	NO
4	9.88	11.61	NO

Table 6 - (continued)

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level [1] (kcpm)	> Action Level
5	10.70	10.95	NO
6	12.30	14.50	NO
7	10.50	12.90	NO
8	8.47	10.79	NO
9	10.30	11.73	NO
10	10.50	11.75	NO
11	11.20	12.10	NO
12	10.40	12.10	NO
13	10.20	11.22	NO
14	10.90	11.68	NO
15	8.78	10.32	NO
16[2]	10.60	11.80	NO
17[2]	10.30	12.90	NO
18[2]	10.20	11.27	NO

(1) The action level is based on a measurement in accordance with the FSS plan (MDC($DCGL_{EMC}$) of 2,000 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 30, 2007.

Thirty-eight (38) 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.

Table 7 - Scan Area Results

Scan Strips	Highest Logged Reading (kcpm)	Action Level (1) (kcpm)	Elevated Reading Identification (2)	Investigation Sample
1 thru 10	10.60	11.20	None	None
11 thru 20	11.10	12.10	None	None
21 thru 30	11.10	11.64	None	None
31 thru 38	11.70	12.20	None	None

(1) The action level is based on a measurement in accordance with the FSS plan (MDC($DCGL_{EMC}$) of 2,000 cpm plus ambient background)

The off-site laboratory employed for the radiological analyses of samples was General Engineering Laboratories, LLC. The laboratory analyzed the fifteen (15) samples collected for non-parametric statistical testing, the associated field splits and the three (3) 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, no gamma emitting radionuclide was reported in any concentration greater than its respective MDC.

Cs-137 and Co-60 were not positively identified in any of the fifteen (15) samples collected for non-parametric statistical testing. A summary of the reported Cs-137 values for the fifteen (15) samples collected for non-parametric statistical testing are provided in Table 8.

Table 8 - Summary of Gamma Spectroscopy Results for Cs-137 in Surface Soil Samples Comprising the Statistical Sample Population (1)

Sample Number	Cs-137 pCi/g
9312-0003-001F	-6.38E-02
9312-0003-002F	-1.90E-03
9312-0003-003F	-1.28E-02
9312-0003-004F	1.19E-02
9312-0003-005F	-9.37E-03
9312-0003-006F	-3.58E-03
9312-0003-007F	-1.38E-02

9312-0003-008F	2.25E-02
9312-0003-009F	-8.06E-04
9312-0003-010F	1.21E-02
9312-0003-011F	-3.38E-02
9312-0003-012F	-6.57E-02
9312-0003-013F	-6.68E-02
9312-0003-014F	-5.37E-02
9312-0003-015F	-3.55E-02

(1) The Operational DCGL from Table 3 is 4.75 ρCi/g for Cs-137 to achieve fifteen (15) mrem/yr TEDE

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 only one (1) of the fifteen (15) samples collected for non-parametric statistical testing. Sr-90 was observed in sample 9312-0003-007F at a concentration of 3.65E-02 ρCi/g or 4.1% of the Operational DCGL for Sr-90 of 9.30E-01 ρCi/g.

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. No other HTD radionuclides were detected.

In addition to the non-parametric statistical sample population, three (3) 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. No radionuclides of concern were positively identified in any of these samples.

7. QUALITY CONTROL

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

Cs-137 was not detected in sufficient quantity in the field split results at location 9312-0003-009FS 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 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

Cs-137 and Co-60 were not positively detected in any of the samples collected for non-parametric statistical testing. Subsequently, a statistical analysis of the data sets for any of these radionuclides would provide no useful information.

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 9.

Table 9 – 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:	-6.68E-02	-2.21E-02	-1.38E-02
Maximum Value:	2.25E-02	1.78E-02	3.65E-02
Mean:	-2.10E-02	1.61E-03	3.46E-03
Median:	-1.28E-02	4.24E-03	1.08E-03
Standard Deviation:	3.02E-02	1.10E-02	1.30E-02

Cs-137 and Co-60 were not positively detected in any of the samples collected for non-parametric statistical testing. Sr-90 was positively identified in only one (1) of the samples collected for non-parametric statistical testing. Subsequently, a statistical analysis of the data sets for any of these radionuclides would provide no useful information. All data, assessments, and graphical representations are provided in Attachment 4.

12. ANOMALIES

No anomalies were noted.

13. CONCLUSION

Survey Unit 9312-0003 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 positively 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 0.07 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

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

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

The average total dose from residual radioactivity in this survey unit, including exposures from the three (3) components as described in Section 3, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity will not exceed 4.07 mrem/yr TEDE. Therefore, Survey Unit 9312-0003 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

ATTACHMENT 1 (FIGURES)

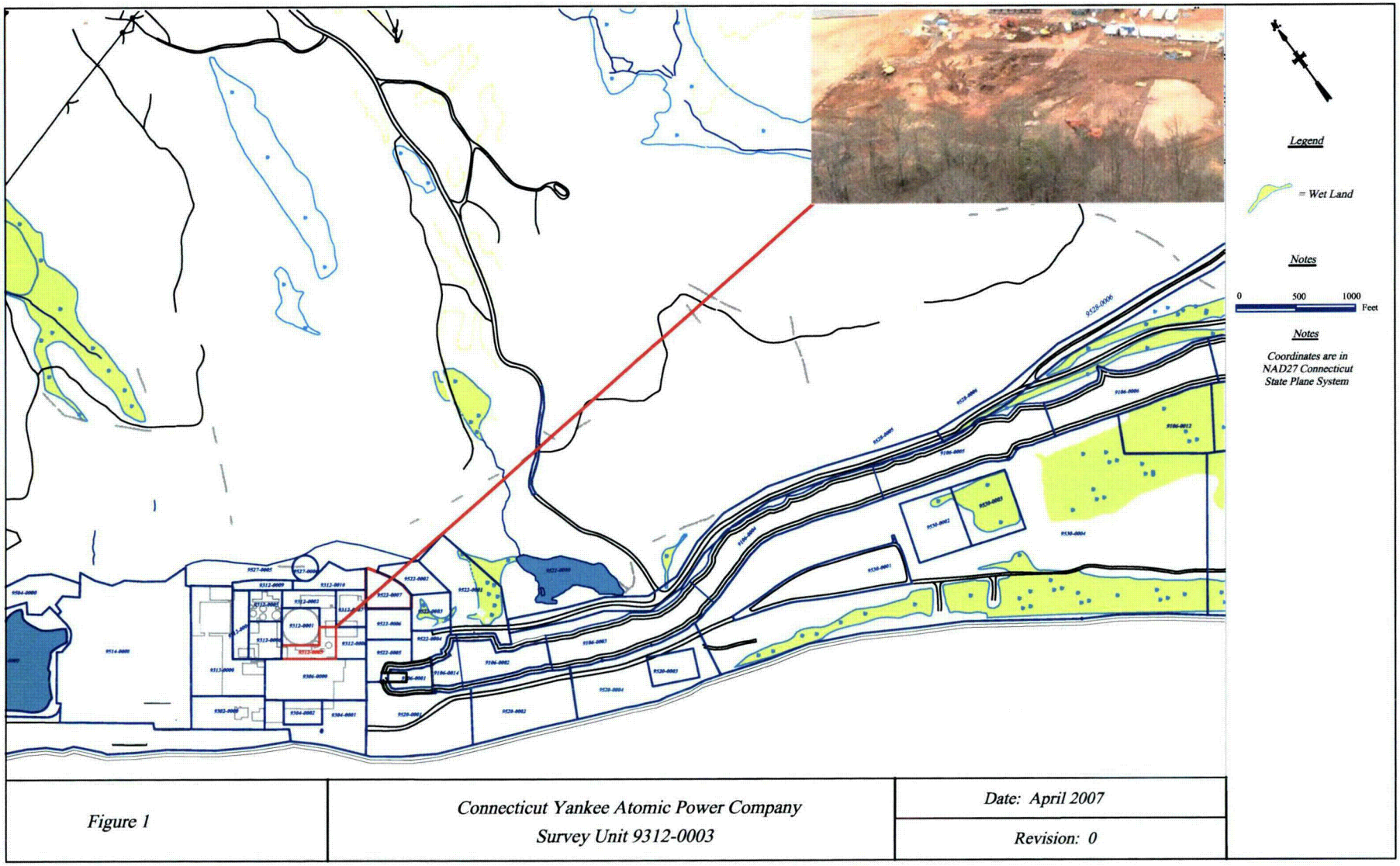

Figure 1	*Connecticut Yankee Atomic Power Company* *Survey Unit 9312-0003*	*Date: April 2007* *Revision: 0*

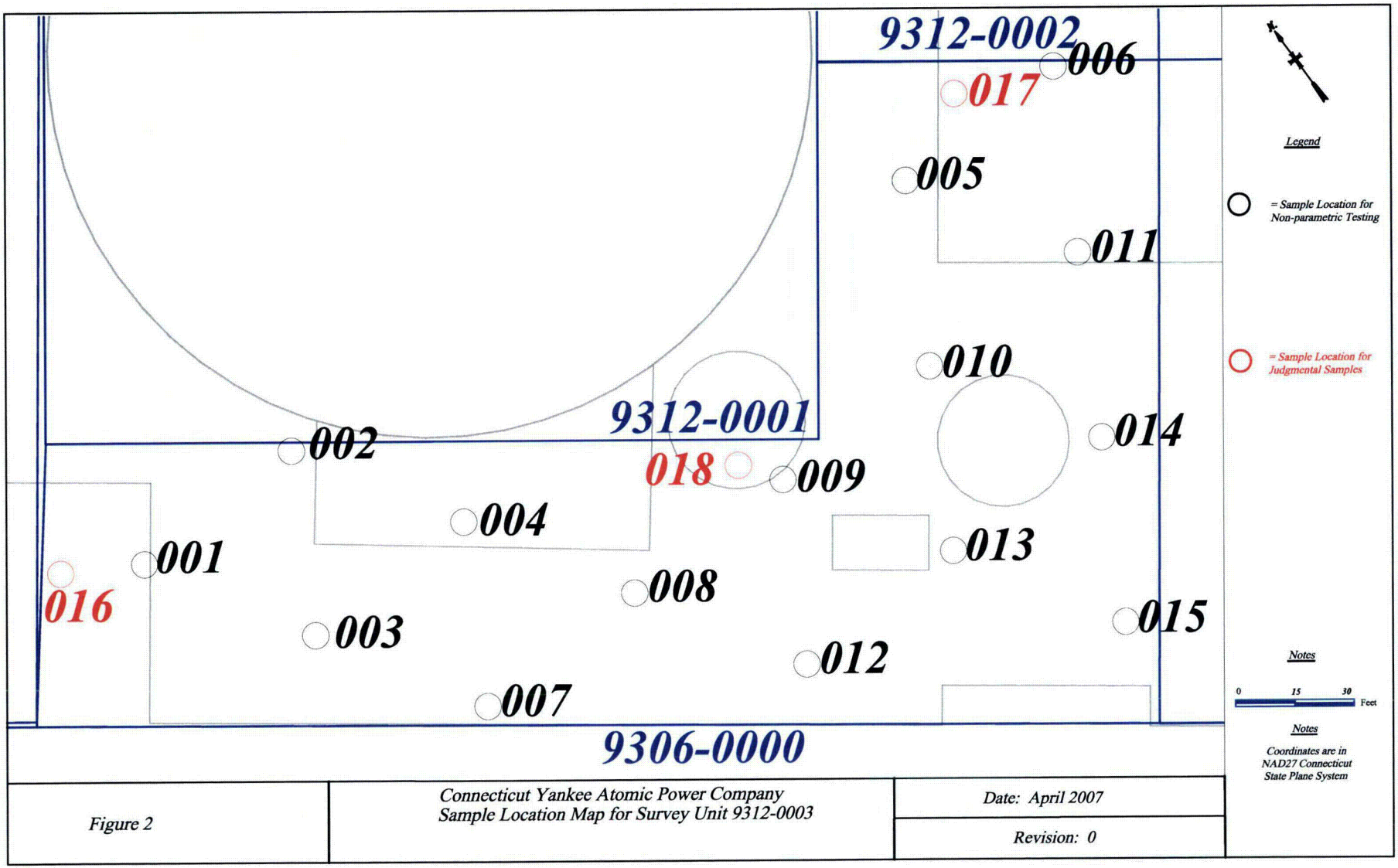

Figure 2	*Connecticut Yankee Atomic Power Company* *Sample Location Map for Survey Unit 9312-0003*	*Date: April 2007* *Revision: 0*

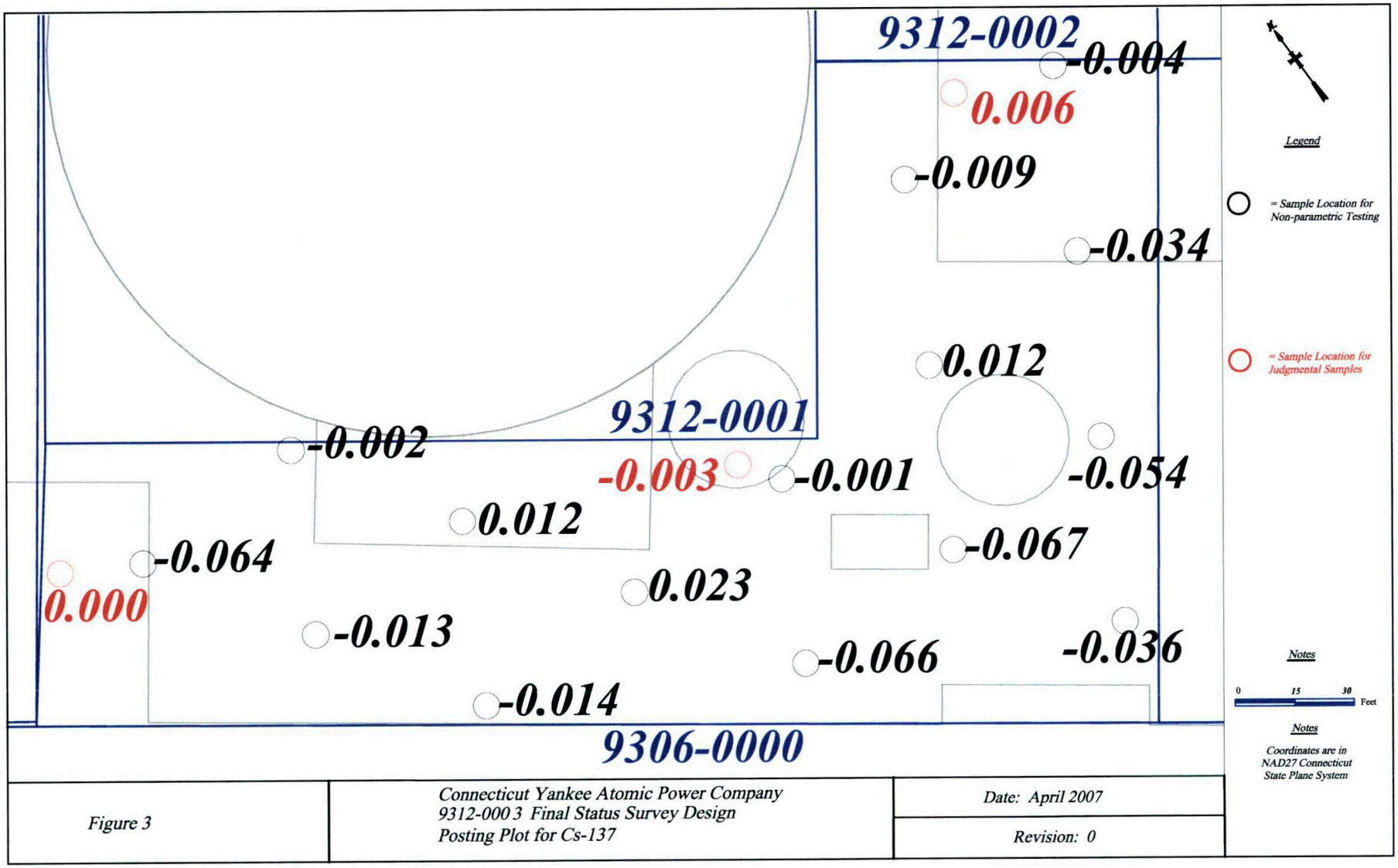

Figure 3	Connecticut Yankee Atomic Power Company 9312-000 3 Final Status Survey Design Posting Plot for Cs-137	Date: April 2007 Revision: 0

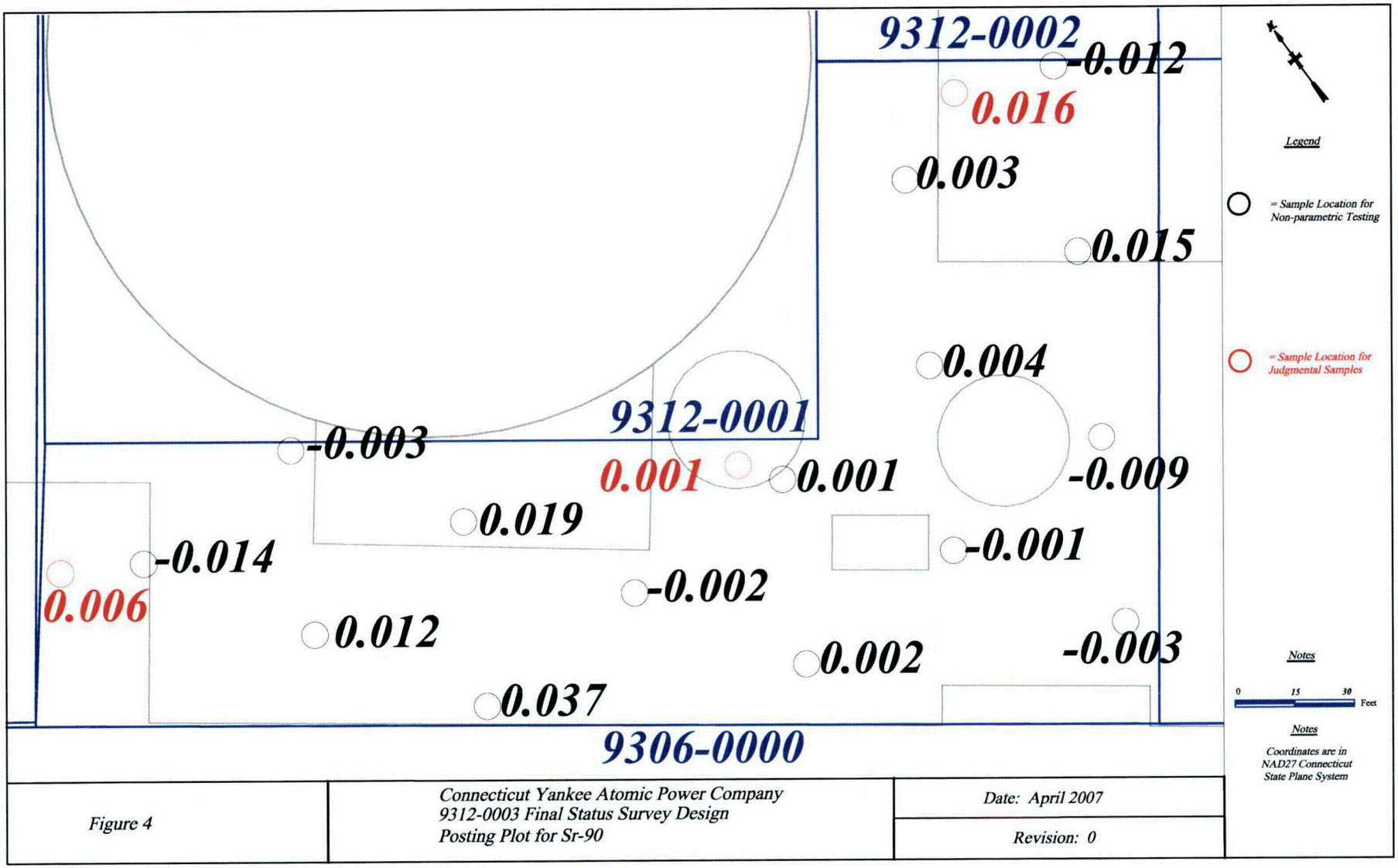

Figure 4	Connecticut Yankee Atomic Power Company 9312-0003 Final Status Survey Design Posting Plot for Sr-90	Date: April 2007 Revision: 0

ATTACHMENT 2 (SCAN RESULTS)

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-03-BL-00-01-0	3/27/2007	8:33:00	8.99E+03			1107	1007
9312-03-SL-00-01-0	3/27/2007	8:34:00	1.03E+04	1.10E+04		1107	1007
9312-03-BL-00-02-0	3/27/2007	8:35:00	1.04E+04			1107	1007
9312-03-SL-00-02-0	3/27/2007	8:36:00	1.08E+04	1.24E+04		1107	1007
9312-03-BL-00-03-0	3/27/2007	8:37:00	9.44E+03			1107	1007
9312-03-SL-00-03-0	3/27/2007	8:37:00	9.19E+03	1.14E+04		1107	1007
9312-03-BL-00-04-0	3/27/2007	8:38:00	9.61E+03			1107	1007
9312-03-SL-00-04-0	3/27/2007	8:39:00	9.88E+03	1.16E+04		1107	1007
9312-03-BL-00-05-0	3/27/2007	8:40:00	8.95E+03			1107	1007
9312-03-SL-00-05-0	3/27/2007	8:41:00	1.07E+04	1.10E+04		1107	1007
9312-03-BL-00-06-0	3/27/2007	8:43:00	1.25E+04			1107	1007
9312-03-SL-00-06-0	3/27/2007	8:44:00	1.23E+04	1.45E+04		1107	1007
9312-03-BL-00-07-0	3/27/2007	8:46:00	1.09E+04			1107	1007
9312-03-SL-00-07-0	3/27/2007	8:46:00	1.05E+04	1.29E+04		1107	1007
9312-03-BL-00-08-0	3/27/2007	8:47:00	8.79E+03			1107	1007
9312-03-SL-00-08-0	3/27/2007	8:48:00	8.47E+03	1.08E+04		1107	1007
9312-03-BL-00-09-0	3/27/2007	8:49:00	9.73E+03			1107	1007
9312-03-SL-00-09-0	3/27/2007	8:49:00	1.03E+04	1.17E+04		1107	1007
9312-03-BL-00-10-0	3/27/2007	8:50:00	9.75E+03			1107	1007
9312-03-SL-00-10-0	3/27/2007	8:50:00	1.05E+04	1.18E+04		1107	1007
9312-03-BL-00-11-0	3/27/2007	8:52:00	1.01E+04			1107	1007
9312-03-SL-00-11-0	3/27/2007	8:52:00	1.12E+04	1.21E+04		1107	1007
9312-03-BL-00-12-0	3/27/2007	8:53:00	1.01E+04			1107	1007
9312-03-SL-00-12-0	3/27/2007	8:54:00	1.04E+04	1.21E+04		1107	1007
9312-03-BL-00-13-0	3/27/2007	8:54:00	9.22E+03			1107	1007
9312-03-SL-00-13-0	3/27/2007	8:55:00	1.02E+04	1.12E+04		1107	1007
9312-03-BL-00-14-0	3/27/2007	8:56:00	9.68E+03			1107	1007
9312-03-SL-00-14-0	3/27/2007	8:56:00	1.09E+04	1.17E+04		1107	1007
9312-03-BL-00-15-0	3/27/2007	8:57:00	8.32E+03			1107	1007
9312-03-SL-00-15-0	3/27/2007	8:58:00	8.78E+03	1.03E+04		1107	1007
9312-03-BL-00-16-0	3/27/2007	9:00:00	9.80E+03			1107	1007
9312-03-SL-00-16-0	3/27/2007	9:00:00	1.06E+04	1.18E+04		1107	1007
9312-03-BL-00-17-0	3/27/2007	9:02:00	1.09E+04			1107	1007
9312-03-SL-00-17-0	3/27/2007	9:03:00	1.03E+04	1.29E+04		1107	1007
9312-03-BL-00-18-0	3/27/2007	9:04:00	9.27E+03			1107	1007
9312-03-SL-00-18-0	3/27/2007	9:04:00	1.02E+04	1.13E+04		1107	1007

Survey Location	Log Date	Log Time	Reading	Alarm Level	>Alarm Level	E-600 S/N	Probe S/N
9312-03-BC-00-01-0	3/30/2007	7:34:00	1.04E+04			1107	1007
9312-03-SC-00-01-0	3/30/2007	7:38:00	1.02E+04	1.24E+04		1107	1007
9312-03-BC-00-02-0	3/30/2007	7:38:00	9.33E+03			1107	1007
9312-03-SC-00-02-0	3/30/2007	7:43:00	9.84E+03	1.13E+04		1107	1007
9312-03-BC-00-03-0	3/30/2007	7:43:00	9.28E+03			1107	1007
9312-03-SC-00-03-0	3/30/2007	7:48:00	1.03E+04	1.13E+04		1107	1007
9312-03-BC-00-04-0	3/30/2007	7:48:00	9.15E+03			1107	1007
9312-03-SC-00-04-0	3/30/2007	7:53:00	9.86E+03	1.12E+04		1107	1007
9312-03-BC-00-05-0	3/30/2007	7:54:00	9.20E+03			1107	1007
9312-03-SC-00-05-0	3/30/2007	7:57:00	1.06E+04	1.12E+04		1107	1007
9312-03-BC-00-06-0	3/30/2007	7:58:00	9.42E+03			1107	1007
9312-03-SC-00-06-0	3/30/2007	8:03:00	9.88E+03	1.14E+04		1107	1007
9312-03-BC-00-07-0	3/30/2007	8:04:00	9.30E+03			1107	1007
9312-03-SC-00-07-0	3/30/2007	8:07:00	9.27E+03	1.13E+04		1107	1007
9312-03-BC-00-08-0	3/30/2007	8:07:00	8.88E+03			1107	1007
9312-03-SC-00-08-0	3/30/2007	8:10:00	1.04E+04	1.09E+04		1107	1007
9312-03-BC-00-09-0	3/30/2007	7:33:00	9.03E+03			1111	1004
9312-03-SC-00-09-0	3/30/2007	7:45:00	8.04E+03	1.10E+04		1111	1004
9312-03-BC-00-10-0	3/30/2007	7:47:00	8.21E+03			1111	1004
9312-03-SC-00-10-0	3/30/2007	7:53:00	8.52E+03	1.02E+04		1111	1004
9312-03-BC-00-11-0	3/30/2007	7:55:00	8.42E+03			1111	1004
9312-03-SC-00-11-0	3/30/2007	8:00:00	8.28E+03	1.04E+04		1111	1004
9312-03-BC-00-12-0	3/30/2007	8:01:00	8.88E+03			1111	1004
9312-03-SC-00-12-0	3/30/2007	8:06:00	8.87E+03	1.09E+04		1111	1004
9312-03-BC-00-13-0	3/30/2007	8:07:00	8.89E+03			1111	1004
9312-03-SC-00-13-0	3/30/2007	8:12:00	8.45E+03	1.09E+04		1111	1004
9312-03-BC-00-14-0	3/30/2007	8:13:00	7.78E+03			1111	1004
9312-03-SC-00-14-0	3/30/2007	8:17:00	8.63E+03	9.78E+03		1111	1004
9312-03-BC-00-15-0	3/30/2007	8:18:00	8.23E+03			1111	1004
9312-03-SC-00-15-0	3/30/2007	8:23:00	7.38E+03	1.02E+04		1111	1004
9312-03-BC-00-16-0	3/30/2007	8:23:00	7.77E+03			1111	1004
9312-03-SC-00-16-0	3/30/2007	8:28:00	8.84E+03	9.77E+03		1111	1004
9312-03-BC-00-17-0	3/30/2007	9:46:00	1.05E+04			1107	1007
9312-03-SC-00-17-0	3/30/2007	9:50:00	1.00E+04	1.25E+04		1107	1007
9312-03-BC-00-18-0	3/30/2007	9:51:00	9.78E+03			1107	1007
9312-03-SC-00-18-0	3/30/2007	9:53:00	1.08E+04	1.18E+04		1107	1007
9312-03-BC-00-19-0	3/30/2007	9:54:00	9.84E+03			1107	1007
9312-03-SC-00-19-0	3/30/2007	9:56:00	1.01E+04	1.18E+04		1107	1007
9312-03-BC-00-20-0	3/30/2007	9:57:00	1.01E+04			1107	1007
9312-03-SC-00-20-0	3/30/2007	10:00:00	1.11E+04	1.21E+04		1107	1007
9312-03-BC-00-21-0	3/30/2007	10:01:00	9.64E+03			1107	1007
9312-03-SC-00-21-0	3/30/2007	10:04:00	1.11E+04	1.16E+04		1107	1007
9312-03-BC-00-22-0	3/30/2007	10:04:00	9.81E+03			1107	1007
9312-03-SC-00-22-0	3/30/2007	10:08:00	1.04E+04	1.18E+04		1107	1007

9312-03-BC-00-23-0	3/30/2007	10:10:00	9.39E+03		1107	1007
9312-03-SC-00-23-0	3/30/2007	10:12:00	9.76E+03	1.14E+04	1107	1007
9312-03-BC-00-24-0	3/30/2007	10:13:00	1.00E+04		1107	1007
9312-03-SC-00-24-0	3/30/2007	10:16:00	1.03E+04	1.20E+04	1107	1007
9312-03-BC-00-25-0	3/30/2007	10:17:00	9.12E+03		1107	1007
9312-03-SC-00-25-0	3/30/2007	10:20:00	1.03E+04	1.11E+04	1107	1007
9312-03-BC-00-26-0	3/30/2007	10:21:00	9.46E+03		1107	1007
9312-03-SC-00-26-0	3/30/2007	10:26:00	1.09E+04	1.15E+04	1107	1007
9312-03-BC-00-27-0	3/30/2007	9:46:00	8.59E+03		1111	1004
9312-03-SC-00-27-0	3/30/2007	9:49:00	1.04E+04	1.06E+04	1111	1004
9312-03-BC-00-28-0	3/30/2007	9:50:00	1.07E+04		1111	1004
9312-03-SC-00-28-0	3/30/2007	9:52:00	1.03E+04	1.27E+04	1111	1004
9312-03-BC-00-29-0	3/30/2007	9:53:00	9.95E+03		1111	1004
9312-03-SC-00-29-0	3/30/2007	9:56:00	1.04E+04	1.20E+04	1111	1004
9312-03-BC-00-30-0	3/30/2007	9:57:00	1.04E+04		1111	1004
9312-03-SC-00-30-0	3/30/2007	9:59:00	9.95E+03	1.24E+04	1111	1004
9312-03-BC-00-31-0	3/30/2007	10:01:00	1.01E+04		1111	1004
9312-03-SC-00-31-0	3/30/2007	10:03:00	1.15E+04	1.21E+04	1111	1004
9312-03-BC-00-32-0	3/30/2007	10:03:00	1.06E+04		1111	1004
9312-03-SC-00-32-0	3/30/2007	10:05:00	1.05E+04	1.26E+04	1111	1004
9312-03-BC-00-33-0	3/30/2007	10:09:00	8.15E+03		1111	1004
9312-03-SC-00-33-0	3/30/2007	10:14:00	9.43E+03	1.02E+04	1111	1004
9312-03-BC-00-34-0	3/30/2007	10:15:00	1.02E+04		1111	1004
9312-03-SC-00-34-0	3/30/2007	10:16:00	1.17E+04	1.22E+04	1111	1004
9312-03-BC-00-35-0	3/30/2007	10:17:00	1.09E+04		1111	1004
9312-03-SC-00-35-0	3/30/2007	10:19:00	9.16E+03	1.29E+04	1111	1004
9312-03-BC-00-36-0	3/30/2007	10:20:00	9.22E+03		1111	1004
9312-03-SC-00-36-0	3/30/2007	10:23:00	8.57E+03	1.12E+04	1111	1004
9312-03-BC-00-37-0	3/30/2007	10:25:00	7.89E+03		1111	1004
9312-03-SC-00-37-0	3/30/2007	10:27:00	8.97E+03	9.89E+03	1111	1004
9312-03-BC-00-38-0	3/30/2007	10:28:00	9.38E+03		1111	1004
9312-03-SC-00-38-0	3/30/2007	10:29:00	9.94E+03	1.14E+04	1111	1004

ATTACHMENT 3 (LABORATORY DATA)

General Narrative

General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 183255
SDG: MSR#07-0131

April 04, 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 29, 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:

Laboratory Identification	Sample Description
183255001	9312-0003-001F
183255002	9312-0003-002F
183255003	9312-0003-003F
183255004	9312-0003-004F
183255005	9312-0003-005F
183255006	9312-0003-006F
183255007	9312-0003-007F
183255008	9312-0003-008F
183255009	9312-0003-009F
183255010	9312-0003-009FS
183255011	9312-0003-010F
183255012	9312-0003-011F
183255013	9312-0003-012F
183255014	9312-0003-013F
183255015	9312-0003-014F
183255016	9312-0003-015F
183255017	9312-0003-016B
183255018	9312-0003-017B
183255019	9312-0003-018B

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

Sixteen 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 04 April 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. 2007-00089

Project Name: Haddam Neck Decommissioning

Contact Name & Phone:
Jack McCarthy 860-267-3924

Analytical Lab (Name, City, State):
General Engineering Laboratories
2040 Savage Road
Charleston, SC 29407
ATT: Cheryl Jones (843-556-8171)

Priority: ☐ 30 D. ☐ 15 D. ☒ 7 D.
Other:

Lab Use Only
Comments:
183255

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- &Type Code	Analyses Requested: FSSGAM & Sr-90	Analyses Requested: FSSALL	Comment, Preservation	Lab Sample ID
9312-0003-001F	3/27/07	0836	TS	G	BP	X			
9312-0003-002F	3/27/07	0838	TS	G	BP		X		
9312-0003-003F	3/27/07	0840	TS	G	BP	X			
9312-0003-004F	3/27/07	0841	TS	G	BP	X			
9312-0003-005F	3/27/07	0842	TS	G	BP	X			
9312-0003-006F	3/27/07	0844	TS	G	BP	X			
9312-0003-007F	3/27/07	0847	TS	G	BP	X			
9312-0003-008F	3/27/07	0849	TS	G	BP	X			
9312-0003-009F	3/27/07	0850	TS	G	BP	X			
9312-0003-009FS	3/27/07	0850	TS	G	BP	X			
9312-0003-010F	3/27/07	0851	TS	G	BP	X			

NOTES: PO #: 002332 MSR #: 07-0131 ☒ LTP QA ☐ Radwaste QA ☐ Non QA

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other

Bill of Lading #

Internal Container Temp.: ____ Deg. C

Custody Sealed?
Custody Seal Intact?
Y ☐ N ☐

1) Relinquished By [signature] Date/Time 3/28/07 1405	2) Received By [signature] Date/Time 3/29/07 9:30
3) Relinquished By Date/Time	4) Received By Date/Time
5) Relinquished By Date/Time	6) Received By Date/Time

6

Connecticut Yankee Atomic Power Company

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

Chain of Custody Form

No. 2007-00090

Project Name: Haddam Neck Decommissioning

Contact Name & Phone:
Jack McCarthy 860-267-3924

Analytical Lab (Name, City, State):
General Engineering Laboratories
2040 Savage Road
Charleston, SC 29407
ATT: Cheryl Jones (843-556-8171)

Priority: ☐ 30 D. ☐ 15 D. ☒ 7 D.
Other:

Lab Use Only

Comments:

183255

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- &Type Code	Analyses Requested: FSSGAM & Sr-90	Analyses Requested: FSSALL	Comment, Preservation	Lab Sample ID
9312-0003-011F	3/27/07	0853	TS	G	BP	X			
9312-0003-012F	3/27/07	0855	TS	G	BP		X		
9312-0003-013F	3/27/07	0856	TS	G	BP	X			
9312-0003-014F	3/27/07	0857	TS	G	BP	X			
9312-0003-015F	3/27/07	0900	TS	G	BP		X		
9312-0003-016B	3/27/07	0903	TS	G	BP	X			
9312-0003-017B	3/27/07	0903	TS	G	BP	X			
9312-0003-018B	3/27/07	0905	TS	G	BP	X			

NOTES: PO #: 002332 MSR #: 07-0131 ☒ LTP QA ☐ Radwaste QA ☐ Non QA

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other

Bill of Lading #

Internal Container Temp.: ____ Deg. C

Custody Sealed? Custody Seal Intact?

Y ☐ N ☐

1) Relinquished By	Date/Time	2) Received By	Date/Time
[signature]	3/28/07 1405	[signature]	3/29/07 9:30
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

7

Jones

Figure 1. Sample Check-in List

Date/Time Received: 3/29/07 9:30.

SDG#: MSR#07-0129, 0130, 0131

Work Order Number: 183245, 183243, 183255

Shipping Container ID: See GEL SRR Chain of Custody # See cont. form

1. Custody Seals on shipping container intact? Yes [X] No [ ]
2. Custody Seals dated and signed? Yes [X] No [ ]
3. Chain-of-Custody record present? Yes [X] No [ ]
4. Cooler temperature See GEL SRR
5. Vermiculite/packing materials is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 79
7. Sample holding times exceeded? Yes [ ] No [X]

8. Samples have:
   - [X] tape
   - [ ] hazard labels
   - [X] custody seals
   - [X] appropriate sample labels

9. Samples are:
   - [X] in good condition
   - [ ] leaking
   - [ ] broken
   - [ ] have air bubbles

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

Sample Custodian/Laboratory: [signature] Date: 3/29/07

Telephoned to: On By

1500

SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: VANK	**SDG/ARCOC/Work Order:** 183243, 183245, 183255
Date Received: 3/29/07	**PM(A) Review (ensure non-conforming items are resolved prior to signing):**
Received By: JP	

	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	FedEx 790212159620 -23° 7916 5926 8130 -20° 7929 5789 5532 -18° 7916 5926 8140 -20° 7929 5789 5543 -19°			

	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*: 20cpm
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 CAV Date: 3/29/07

SAMPLE RECEIPT & REVIEW FORM
CONTINUATION FORM

Client: YANK **Date Received:** 3/29/07 **Page** 1 **of** 1

COC #
2007-00090
2007-00089
2007-00100
2007-00103
2007-00091
2007-00092
2007-00102
2007-00101
2007-00099

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 183255

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:	621107
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305240	Method Blank (MB)
1201305241	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201305242	183245006(9312-0001-005F) Matrix Spike (MS)
1201305243	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# 15.

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: 183245006 (9312-0001-005F).

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 183255013 (9312-0003-012F) and 183255016 (9312-0003-015F) were recounted due to a suspected false positive.

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:	622105
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201307488	Method Blank (MB)
1201307489	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201307490	183245006(9312-0001-005F) Matrix Spike (MS)
1201307491	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 volume in this batch.

Designated QC
The following sample was used for QC: 183245006 (9312-0001-005F).

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 183255002 (9312-0003-002F), 183255013 (9312-0003-012F) and 183255016 (9312-0003-015F) were reprepped 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:	**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:	622351
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201308034	Method Blank (MB)
1201308035	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201308036	183245006(9312-0001-005F) Matrix Spike (MS)
1201308037	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# 15.

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: 183245006 (9312-0001-005F).

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 reprepped 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:	**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:	621154
Prep Batch Number:	621103

Sample ID	Client ID
183255001	9312-0003-001F
183255002	9312-0003-002F
183255003	9312-0003-003F
183255004	9312-0003-004F
183255005	9312-0003-005F
183255006	9312-0003-006F
183255007	9312-0003-007F
183255008	9312-0003-008F
183255009	9312-0003-009F
183255010	9312-0003-009FS
183255011	9312-0003-010F
183255012	9312-0003-011F
183255013	9312-0003-012F
183255014	9312-0003-013F
183255015	9312-0003-014F
183255016	9312-0003-015F
183255017	9312-0003-016B
183255018	9312-0003-017B
183255019	9312-0003-018B
1201305361	Method Blank (MB)
1201305362	183255001(9312-0003-001F) Sample Duplicate (DUP)
1201305363	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# 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: 183255001 (9312-0003-001F).

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

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high counting uncertainty.	Cesium-137	183255017
UI	Data rejected due to interference.	Cesium-134	183255004
		Europium-155	183255010
UI	Data rejected due to low abundance.	Americium-241	183255006
		Bismuth-214	183255011
		Cesium-134	183255002
			183255003
			183255007
			183255009
			183255016
			183255018

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:	621124
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255001	9312-0003-001F
183255002	9312-0003-002F
183255003	9312-0003-003F
183255004	9312-0003-004F
183255005	9312-0003-005F
183255006	9312-0003-006F
183255007	9312-0003-007F
183255008	9312-0003-008F
183255009	9312-0003-009F
183255010	9312-0003-009FS
183255011	9312-0003-010F
183255012	9312-0003-011F
183255013	9312-0003-012F
183255014	9312-0003-013F
183255015	9312-0003-014F
183255016	9312-0003-015F
183255017	9312-0003-016B
183255018	9312-0003-017B
183255019	9312-0003-018B
1201305277	Method Blank (MB)
1201305278	183255001(9312-0003-001F) Sample Duplicate (DUP)
1201305279	183255001(9312-0003-001F) Matrix Spike (MS)
1201305280	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: 183255001 (9312-0003-001F).

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 183255002 (9312-0003-002F) and 183255008 (9312-0003-008F) were recounted due to a negative result greater than three times the error.

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:	621139

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305310	Method Blank (MB)
1201305311	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201305312	183245006(9312-0001-005F) Matrix Spike (MS)
1201305313	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# 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: 183245006 (9312-0001-005F).

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 1201305312 (9312-0001-005F) 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
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:	621136
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305300	Method Blank (MB)
1201305301	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201305302	183245006(9312-0001-005F) Matrix Spike (MS)
1201305303	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# 4.

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: 183245006 (9312-0001-005F).

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:	621137
Prep Batch Number:	621104
Dry Soil Prep GL-RAD-A-021 Batch Number:	621103

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305304	Method Blank (MB)
1201305305	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201305306	183245006(9312-0001-005F) Matrix Spike (MS)
1201305307	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: 183245006 (9312-0001-005F).

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:	621141

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305316	Method Blank (MB)
1201305317	183255002(9312-0003-002F) Sample Duplicate (DUP)
1201305318	183255002(9312-0003-002F) Matrix Spike (MS)
1201305319	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# 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: 183255002 (9312-0003-002F).

QC Information
All of the QC samples met the required acceptance limits.

Technical Information:

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

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Liquid Scint C14, Solid All,FSS**
Analytical Method:	EPA EERF C-01 Modified
Analytical Batch Number:	621144

Sample ID	Client ID
183255002	9312-0003-002F
183255013	9312-0003-012F
183255016	9312-0003-015F
1201305324	Method Blank (MB)
1201305325	183245006(9312-0001-005F) Sample Duplicate (DUP)
1201305326	183245006(9312-0001-005F) Matrix Spike (MS)
1201305327	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# 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 volume in this batch.

Designated QC
The following sample was used for QC: 183245006 (9312-0001-005F).

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 1201305324 (MB), 1201305325 (9312-0001-005F), 1201305326 (9312-0001-005F) and 1201305327 (LCS) were recounted due to detector error.

Miscellaneous Information:

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

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Certification Statement

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

Review Validation:

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

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

Reviewer/Date: Pamela Willis 4/5/07

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#07-0131 GEL Work Order: 183255

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–001F	Project:	YANK01204
Sample ID:	183255001	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	4.44%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.954	+/–0.263	0.0982	+/–0.263	0.196	pCi/g		MJH1	03/30/07	0956	621154	
Americium–241	U	–0.0315	+/–0.0533	0.0422	+/–0.0533	0.0843	pCi/g						
Bismuth–212		0.762	+/–0.469	0.225	+/–0.469	0.450	pCi/g						
Bismuth–214		0.600	+/–0.134	0.0511	+/–0.134	0.102	pCi/g						
Cesium–134	U	0.0404	+/–0.0352	0.0327	+/–0.0352	0.0654	pCi/g						
Cesium–137	U	–0.0638	+/–0.0378	0.0266	+/–0.0378	0.0532	pCi/g						
Cobalt–60	U	0.00635	+/–0.0381	0.0322	+/–0.0381	0.0644	pCi/g						
Europium–152	U	–0.107	+/–0.0919	0.065	+/–0.0919	0.130	pCi/g						
Europium–154	U	–0.03	+/–0.0926	0.0751	+/–0.0926	0.150	pCi/g						
Europium–155	U	0.0313	+/–0.0747	0.0678	+/–0.0747	0.136	pCi/g						
Lead–212		0.909	+/–0.110	0.0372	+/–0.110	0.0744	pCi/g						
Lead–214		0.596	+/–0.126	0.0518	+/–0.126	0.104	pCi/g						
Manganese–54	U	–0.0134	+/–0.031	0.0261	+/–0.031	0.0523	pCi/g						
Niobium–94	U	0.000192	+/–0.0307	0.0259	+/–0.0307	0.0517	pCi/g						
Potassium–40		13.9	+/–1.41	0.269	+/–1.41	0.538	pCi/g						
Radium–226		0.600	+/–0.134	0.0511	+/–0.134	0.102	pCi/g						
Silver–108m	U	–0.00202	+/–0.0285	0.0247	+/–0.0285	0.0494	pCi/g						
Thallium–208		0.273	+/–0.0629	0.0269	+/–0.0629	0.0538	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	–0.0138	+/–0.0138	0.0143	+/–0.0138	0.0342	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

The following Analytical Methods were performed

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

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–001F
Sample ID: 183255001
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst Date	Time Batch	N
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
< 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.

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-002F	Project:	YANK01204
Sample ID:	183255002	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	1.67%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	0.0413	+/-0.0745	0.00	+/-0.0747	0.0948	pCi/g		GXR1	04/03/07	0933	621107	
Curium-242	U	-0.00866	+/-0.017	0.0324	+/-0.017	0.163	pCi/g						
Curium-243/244	U	0.035	+/-0.0686	0.00	+/-0.0688	0.0948	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	0.0525	+/-0.151	0.108	+/-0.151	0.302	pCi/g		GXR1	04/04/07	2258	622351	
Plutonium-239/240	U	-0.0231	+/-0.068	0.0498	+/-0.068	0.186	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	-7.9	+/-9.03	7.94	+/-9.03	16.7	pCi/g		BXL1	04/05/07	1427	622105	
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.904	+/-0.252	0.0797	+/-0.252	0.159	pCi/g		MJH1	03/30/07	1029	621154	
Americium-241	U	0.0484	+/-0.0416	0.0346	+/-0.0416	0.0691	pCi/g						
Bismuth-212		0.772	+/-0.446	0.189	+/-0.446	0.378	pCi/g						
Bismuth-214		0.789	+/-0.157	0.0422	+/-0.157	0.0842	pCi/g						
Cesium-134	UI	0.00	+/-0.0557	0.036	+/-0.0557	0.072	pCi/g						
Cesium-137	U	-0.0019	+/-0.0276	0.0242	+/-0.0276	0.0483	pCi/g						
Cobalt-60	U	0.00619	+/-0.0364	0.031	+/-0.0364	0.0619	pCi/g						
Europium-152	U	-0.0244	+/-0.0844	0.0592	+/-0.0844	0.118	pCi/g						
Europium-154	U	-0.079	+/-0.104	0.0796	+/-0.104	0.159	pCi/g						
Europium-155	U	0.0096	+/-0.0606	0.054	+/-0.0606	0.108	pCi/g						
Lead-212		0.922	+/-0.105	0.0318	+/-0.105	0.0635	pCi/g						
Lead-214		0.613	+/-0.111	0.0434	+/-0.111	0.0868	pCi/g						
Manganese-54	U	0.00286	+/-0.0315	0.0275	+/-0.0315	0.0549	pCi/g						
Niobium-94	U	0.00346	+/-0.025	0.0222	+/-0.025	0.0443	pCi/g						
Potassium-40		15.5	+/-1.37	0.134	+/-1.37	0.267	pCi/g						
Radium-226		0.789	+/-0.157	0.0422	+/-0.157	0.0842	pCi/g						
Silver-108m	U	-0.0222	+/-0.0228	0.0183	+/-0.0228	0.0367	pCi/g						
Thallium-208		0.341	+/-0.0697	0.0229	+/-0.0697	0.0457	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	-0.00255	+/-0.017	0.0147	+/-0.017	0.035	pCi/g		KSD1	04/03/07	2009	621124	
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid – 3 pCi/g													
Tritium	U	-0.106	+/-1.06	0.896	+/-1.06	1.88	pCi/g		AXD2	03/31/07	1450	621141	

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd
East Hampton, Connecticut 06424
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312-0003-002F
Sample ID: 183255002
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid All,FSS													
Carbon-14	U	-0.0392	+/-0.0887	0.0754	+/-0.0887	0.154	pCi/g		AXD2	03/30/07	2053	621144	
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	-0.217	+/-34.3	24.7	+/-34.3	52.0	pCi/g		MXP1	04/02/07	2113	621136	
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	-7.84	+/-9.73	8.51	+/-9.73	17.8	pCi/g		MXP1	04/02/07	1621	621137	
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	-0.134	+/-0.231	0.197	+/-0.231	0.403	pCi/g		MXP1	04/03/07	1349	621139	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	74	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	94	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid-ALL FS	74	(25%-125%)
Strontium Carrier	GFPC, Sr90, solid-ALL FSS	75	(25%-125%)
			(15%-125%)

GEL LABORATORIES LLC
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Certificate of Analysis

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

East Hampton, Connecticut 06424 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–002F Project: YANK01204
Sample ID: 183255002 Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst Date	Time	Batch	N
Iron–59 Tracer		Liquid Scint Fe55, Solid–ALL FS			56							
Nickel Carrier		Liquid Scint Ni63, Solid–ALL FS			79		(25%–125%)					
Technetium–99m Tracer		Liquid Scint Tc99, Solid–ALL FS			84		(15%–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.

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-003F	Project:	YANK01204
Sample ID:	183255003	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	5.55%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.929	+/-0.177	0.0606	+/-0.177	0.121	pCi/g		MJH1	03/30/07	1111	621154	
Americium-241	U	0.00981	+/-0.0783	0.0634	+/-0.0783	0.127	pCi/g						
Bismuth-212		0.372	+/-0.289	0.153	+/-0.289	0.307	pCi/g						
Bismuth-214		0.495	+/-0.0961	0.0378	+/-0.0961	0.0756	pCi/g						
Cesium-134	UI	0.00	+/-0.0438	0.0253	+/-0.0438	0.0505	pCi/g						
Cesium-137	U	-0.0128	+/-0.0233	0.0188	+/-0.0233	0.0376	pCi/g						
Cobalt-60	U	0.00183	+/-0.0245	0.0206	+/-0.0245	0.0411	pCi/g						
Europium-152	U	-0.0352	+/-0.0702	0.0486	+/-0.0702	0.097	pCi/g						
Europium-154	U	0.0186	+/-0.0736	0.0632	+/-0.0736	0.126	pCi/g						
Europium-155	U	0.00145	+/-0.0575	0.0513	+/-0.0575	0.103	pCi/g						
Lead-212		0.886	+/-0.0917	0.0275	+/-0.0917	0.055	pCi/g						
Lead-214		0.691	+/-0.107	0.0359	+/-0.107	0.0718	pCi/g						
Manganese-54	U	0.0292	+/-0.0253	0.0182	+/-0.0253	0.0363	pCi/g						
Niobium-94	U	0.0273	+/-0.0284	0.0174	+/-0.0284	0.0347	pCi/g						
Potassium-40		14.8	+/-1.31	0.177	+/-1.31	0.353	pCi/g						
Radium-226		0.495	+/-0.0961	0.0378	+/-0.0961	0.0756	pCi/g						
Silver-108m	U	0.018	+/-0.0192	0.0176	+/-0.0192	0.0352	pCi/g						
Thallium-208		0.303	+/-0.0556	0.0175	+/-0.0556	0.0349	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	0.012	+/-0.0239	0.0184	+/-0.0239	0.0426	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–003F
Sample ID: 183255003

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

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

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
< 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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-004F	Project:	YANK01204
Sample ID:	183255004	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	4.01%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.923	+/-0.217	0.0736	+/-0.217	0.147	pCi/g		MJH1	03/30/07	1112	621154	
Americium-241	U	0.00282	+/-0.109	0.0853	+/-0.109	0.171	pCi/g						
Bismuth-212		0.930	+/-0.346	0.150	+/-0.346	0.300	pCi/g						
Bismuth-214		0.712	+/-0.123	0.0375	+/-0.123	0.0749	pCi/g						
Cesium-134	UI	0.00	+/-0.0434	0.0223	+/-0.0434	0.0447	pCi/g						
Cesium-137	U	0.0119	+/-0.0247	0.022	+/-0.0247	0.044	pCi/g						
Cobalt-60	U	-0.0221	+/-0.0243	0.0184	+/-0.0243	0.0367	pCi/g						
Europium-152	U	0.00808	+/-0.0666	0.0554	+/-0.0666	0.111	pCi/g						
Europium-154	U	-0.0212	+/-0.0826	0.0656	+/-0.0826	0.131	pCi/g						
Europium-155	U	0.0786	+/-0.0682	0.0647	+/-0.0682	0.129	pCi/g						
Lead-212		0.907	+/-0.0967	0.0314	+/-0.0967	0.0627	pCi/g						
Lead-214		0.695	+/-0.107	0.0368	+/-0.107	0.0735	pCi/g						
Manganese-54	U	0.016	+/-0.0243	0.0216	+/-0.0243	0.0431	pCi/g						
Niobium-94	U	0.000341	+/-0.0215	0.0185	+/-0.0215	0.0369	pCi/g						
Potassium-40		16.0	+/-1.47	0.176	+/-1.47	0.351	pCi/g						
Radium-226		0.712	+/-0.123	0.0375	+/-0.123	0.0749	pCi/g						
Silver-108m	U	-0.00412	+/-0.0244	0.0176	+/-0.0244	0.0351	pCi/g						
Thallium-208		0.276	+/-0.0552	0.0198	+/-0.0552	0.0396	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	0.0191	+/-0.025	0.018	+/-0.025	0.0427	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–004F
Sample ID: 183255004
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	66	(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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–005F	Project:	YANK01204
Sample ID:	183255005	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	5.9%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		1.12	+/–0.211	0.0602	+/–0.211	0.120	pCi/g		MJH1	03/30/07	1112	621154	
Americium–241	U	0.061	+/–0.0796	0.0641	+/–0.0796	0.128	pCi/g						
Bismuth–212		0.657	+/–0.266	0.137	+/–0.266	0.274	pCi/g						
Bismuth–214		0.660	+/–0.107	0.0352	+/–0.107	0.0704	pCi/g						
Cesium–134	U	0.0338	+/–0.0258	0.0242	+/–0.0258	0.0484	pCi/g						
Cesium–137	U	–0.00937	+/–0.0243	0.0198	+/–0.0243	0.0396	pCi/g						
Cobalt–60	U	0.0178	+/–0.0239	0.0217	+/–0.0239	0.0433	pCi/g						
Europium–152	U	0.0223	+/–0.0771	0.0563	+/–0.0771	0.112	pCi/g						
Europium–154	U	–0.0995	+/–0.0775	0.0564	+/–0.0775	0.113	pCi/g						
Europium–155	U	0.0629	+/–0.0581	0.0571	+/–0.0581	0.114	pCi/g						
Lead–212		0.973	+/–0.0991	0.0303	+/–0.0991	0.0605	pCi/g						
Lead–214		0.713	+/–0.104	0.0366	+/–0.104	0.0731	pCi/g						
Manganese–54	U	0.00653	+/–0.0234	0.0207	+/–0.0234	0.0413	pCi/g						
Niobium–94	U	–0.0183	+/–0.0208	0.0161	+/–0.0208	0.0322	pCi/g						
Potassium–40		15.8	+/–1.34	0.158	+/–1.34	0.316	pCi/g						
Radium–226		0.660	+/–0.107	0.0352	+/–0.107	0.0704	pCi/g						
Silver–108m	U	–0.00229	+/–0.0201	0.0172	+/–0.0201	0.0344	pCi/g						
Thallium–208		0.275	+/–0.0543	0.0187	+/–0.0543	0.0375	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00325	+/–0.0182	0.0147	+/–0.0182	0.0353	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–005F
Sample ID: 183255005
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	71	(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-006F	Project:	YANK01204
Sample ID:	183255006	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	8.85%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth													
Waived													
Actinium-228		1.48	+/-0.315	0.102	+/-0.315	0.204	pCi/g		MJH1	03/30/07	1113	621154	
Americium-241	UI	0.00	+/-0.053	0.0449	+/-0.053	0.0898	pCi/g						
Bismuth-212		0.690	+/-0.483	0.221	+/-0.483	0.441	pCi/g						
Bismuth-214		1.14	+/-0.177	0.0477	+/-0.177	0.0953	pCi/g						
Cesium-134	U	0.0784	+/-0.0501	0.0395	+/-0.0501	0.079	pCi/g						
Cesium-137	U	-0.00358	+/-0.0352	0.0292	+/-0.0352	0.0584	pCi/g						
Cobalt-60	U	-0.00286	+/-0.0402	0.0331	+/-0.0402	0.0662	pCi/g						
Europium-152	U	-0.0825	+/-0.0853	0.0655	+/-0.0853	0.131	pCi/g						
Europium-154	U	0.0845	+/-0.118	0.106	+/-0.118	0.211	pCi/g						
Europium-155	U	0.0216	+/-0.0796	0.0708	+/-0.0796	0.142	pCi/g						
Lead-212		1.36	+/-0.168	0.0416	+/-0.168	0.0832	pCi/g						
Lead-214		1.28	+/-0.179	0.0492	+/-0.179	0.0983	pCi/g						
Manganese-54	U	0.00518	+/-0.0331	0.0289	+/-0.0331	0.0577	pCi/g						
Niobium-94	U	0.0254	+/-0.0318	0.0282	+/-0.0318	0.0564	pCi/g						
Potassium-40		20.4	+/-1.93	0.199	+/-1.93	0.398	pCi/g						
Radium-226		1.14	+/-0.177	0.0477	+/-0.177	0.0953	pCi/g						
Silver-108m	U	2.240E-05	+/-0.0294	0.0253	+/-0.0294	0.0506	pCi/g						
Thallium-208		0.446	+/-0.0799	0.0259	+/-0.0799	0.0518	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	-0.0119	+/-0.0171	0.0167	+/-0.0171	0.0401	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–006F
Sample ID: 183255006

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

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	62	(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-007F	Project:	YANK01204
Sample ID:	183255007	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	3.54%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.937	+/-0.213	0.0624	+/-0.213	0.125	pCi/g		MJH1	03/30/07	1113	621154	
Americium-241	U	-0.0184	+/-0.0761	0.0618	+/-0.0761	0.124	pCi/g						
Bismuth-212		0.734	+/-0.260	0.138	+/-0.260	0.277	pCi/g						
Bismuth-214		0.654	+/-0.106	0.0346	+/-0.106	0.0692	pCi/g						
Cesium-134	UI	0.00	+/-0.0317	0.0248	+/-0.0317	0.0496	pCi/g						
Cesium-137	U	-0.0138	+/-0.0202	0.0162	+/-0.0202	0.0324	pCi/g						
Cobalt-60	U	0.0106	+/-0.0219	0.0193	+/-0.0219	0.0386	pCi/g						
Europium-152	U	0.0704	+/-0.0663	0.0494	+/-0.0663	0.0987	pCi/g						
Europium-154	U	-0.0111	+/-0.0723	0.060	+/-0.0723	0.120	pCi/g						
Europium-155	U	0.0498	+/-0.0591	0.055	+/-0.0591	0.110	pCi/g						
Lead-212		0.980	+/-0.0959	0.0256	+/-0.0959	0.0511	pCi/g						
Lead-214		0.745	+/-0.103	0.0327	+/-0.103	0.0653	pCi/g						
Manganese-54	U	0.0105	+/-0.0218	0.0196	+/-0.0218	0.0391	pCi/g						
Niobium-94	U	-0.00842	+/-0.0202	0.0165	+/-0.0202	0.0331	pCi/g						
Potassium-40		15.6	+/-1.37	0.181	+/-1.37	0.361	pCi/g						
Radium-226		0.654	+/-0.106	0.0346	+/-0.106	0.0692	pCi/g						
Silver-108m	U	0.00703	+/-0.0178	0.016	+/-0.0178	0.0319	pCi/g						
Thallium-208		0.281	+/-0.0543	0.0182	+/-0.0543	0.0364	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	0.0365	+/-0.0268	0.0177	+/-0.0269	0.0413	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–007F
Sample ID: 183255007
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	72	(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–008F	Project:	YANK01204
Sample ID:	183255008	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	2.6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.668	+/–0.265	0.100	+/–0.265	0.201	pCi/g		MJH1	03/30/07	1114	621154	
Americium–241	U	–0.0114	+/–0.0464	0.0393	+/–0.0464	0.0786	pCi/g						
Bismuth–212		0.480	+/–0.349	0.212	+/–0.349	0.423	pCi/g						
Bismuth–214		0.589	+/–0.142	0.046	+/–0.142	0.092	pCi/g						
Cesium–134	U	0.0743	+/–0.0488	0.0388	+/–0.0488	0.0776	pCi/g						
Cesium–137	U	0.0225	+/–0.0433	0.0267	+/–0.0433	0.0534	pCi/g						
Cobalt–60	U	–0.00712	+/–0.0345	0.0277	+/–0.0345	0.0553	pCi/g						
Europium–152	U	–0.0499	+/–0.0729	0.0597	+/–0.0729	0.119	pCi/g						
Europium–154	U	–0.0241	+/–0.101	0.0807	+/–0.101	0.161	pCi/g						
Europium–155	U	0.0389	+/–0.0674	0.062	+/–0.0674	0.124	pCi/g						
Lead–212		0.862	+/–0.108	0.0317	+/–0.108	0.0633	pCi/g						
Lead–214		0.596	+/–0.127	0.0454	+/–0.127	0.0907	pCi/g						
Manganese–54	U	–0.0167	+/–0.0317	0.0262	+/–0.0317	0.0524	pCi/g						
Niobium–94	U	–0.0021	+/–0.0351	0.0294	+/–0.0351	0.0587	pCi/g						
Potassium–40		13.3	+/–1.41	0.165	+/–1.41	0.331	pCi/g						
Radium–226		0.589	+/–0.142	0.046	+/–0.142	0.092	pCi/g						
Silver–108m	U	–0.00541	+/–0.0256	0.0221	+/–0.0256	0.0442	pCi/g						
Thallium–208		0.242	+/–0.0705	0.0253	+/–0.0705	0.0505	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	–0.0016	+/–0.0162	0.0139	+/–0.0162	0.0328	pCi/g		KSD1	04/03/07	2009	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

The following Analytical Methods were performed

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

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd
East Hampton, Connecticut 06424
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–008F
Sample ID: 183255008
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	72	(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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–009F	Project:	YANK01204
Sample ID:	183255009	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	2.64%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.792	+/–0.179	0.0601	+/–0.179	0.120	pCi/g		MJH1	03/30/07	1114	621154	
Americium–241	U	–0.0223	+/–0.0913	0.0733	+/–0.0913	0.147	pCi/g						
Bismuth–212		0.552	+/–0.296	0.135	+/–0.296	0.269	pCi/g						
Bismuth–214		0.600	+/–0.110	0.0336	+/–0.110	0.0672	pCi/g						
Cesium–134	UI	0.00	+/–0.0277	0.0217	+/–0.0277	0.0434	pCi/g						
Cesium–137	U	–0.000806	+/–0.0224	0.0192	+/–0.0224	0.0383	pCi/g						
Cobalt–60	U	0.00492	+/–0.0236	0.0205	+/–0.0236	0.0409	pCi/g						
Europium–152	U	–0.0239	+/–0.0964	0.0487	+/–0.0964	0.0973	pCi/g						
Europium–154	U	0.0297	+/–0.0682	0.0606	+/–0.0682	0.121	pCi/g						
Europium–155	U	–0.000475	+/–0.0587	0.0529	+/–0.0587	0.106	pCi/g						
Lead–212		0.818	+/–0.0877	0.0266	+/–0.0877	0.0531	pCi/g						
Lead–214		0.551	+/–0.110	0.0318	+/–0.110	0.0635	pCi/g						
Manganese–54	U	0.00269	+/–0.0223	0.0189	+/–0.0223	0.0379	pCi/g						
Niobium–94	U	–0.0084	+/–0.0185	0.0151	+/–0.0185	0.0303	pCi/g						
Potassium–40		12.6	+/–1.25	0.156	+/–1.25	0.312	pCi/g						
Radium–226		0.600	+/–0.110	0.0336	+/–0.110	0.0672	pCi/g						
Silver–108m	U	–0.0118	+/–0.0192	0.0163	+/–0.0192	0.0325	pCi/g						
Thallium–208		0.284	+/–0.0489	0.0165	+/–0.0489	0.033	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00108	+/–0.017	0.0141	+/–0.017	0.0336	pCi/g		KSD1	04/03/07	1539	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–009F
Sample ID: 183255009

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

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	78	(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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East Hampton, Connecticut 06424 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–009FS	Project:	YANK01204
Sample ID:	183255010	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	7.39%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.817	+/–0.173	0.0713	+/–0.173	0.143	pCi/g		MJH1	03/30/07	1116	621154	
Americium–241	U	0.0738	+/–0.0674	0.0579	+/–0.0674	0.116	pCi/g						
Bismuth–212		0.793	+/–0.291	0.163	+/–0.291	0.326	pCi/g						
Bismuth–214		0.524	+/–0.102	0.0354	+/–0.102	0.0708	pCi/g						
Cesium–134	U	0.0431	+/–0.0553	0.0255	+/–0.0553	0.051	pCi/g						
Cesium–137	U	–0.0109	+/–0.0216	0.0177	+/–0.0216	0.0353	pCi/g						
Cobalt–60	U	0.00501	+/–0.0225	0.0193	+/–0.0225	0.0386	pCi/g						
Europium–152	U	0.0755	+/–0.0723	0.0568	+/–0.0723	0.114	pCi/g						
Europium–154	U	–0.00294	+/–0.0621	0.0508	+/–0.0621	0.102	pCi/g						
Europium–155	UI	0.00	+/–0.0904	0.0531	+/–0.0904	0.106	pCi/g						
Lead–212		0.806	+/–0.0876	0.0296	+/–0.0876	0.0592	pCi/g						
Lead–214		0.612	+/–0.101	0.0363	+/–0.101	0.0725	pCi/g						
Manganese–54	U	0.00878	+/–0.0219	0.0196	+/–0.0219	0.0392	pCi/g						
Niobium–94	U	–0.0182	+/–0.0215	0.0172	+/–0.0215	0.0343	pCi/g						
Potassium–40		13.7	+/–1.20	0.134	+/–1.20	0.268	pCi/g						
Radium–226		0.524	+/–0.102	0.0354	+/–0.102	0.0708	pCi/g						
Silver–108m	U	–0.0161	+/–0.023	0.018	+/–0.023	0.036	pCi/g						
Thallium–208		0.234	+/–0.0457	0.0193	+/–0.0457	0.0387	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	–0.0109	+/–0.017	0.0161	+/–0.017	0.0378	pCi/g		KSD1	04/03/07	1540	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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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Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–009FS
Sample ID: 183255010

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

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	71	(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–010F	Project:	YANK01204
Sample ID:	183255011	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	6.68%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		1.18	+/–0.297	0.0923	+/–0.297	0.185	pCi/g		MJH1	03/30/07	1201	621154	
Americium–241	U	0.0123	+/–0.0642	0.039	+/–0.0642	0.0779	pCi/g						
Bismuth–212		0.781	+/–0.398	0.210	+/–0.398	0.420	pCi/g						
Bismuth–214	UI	0.00	+/–0.153	0.110	+/–0.153	0.219	pCi/g						
Cesium–134	U	0.0659	+/–0.0632	0.035	+/–0.0632	0.070	pCi/g						
Cesium–137	U	0.0121	+/–0.0333	0.0292	+/–0.0333	0.0583	pCi/g						
Cobalt–60	U	0.016	+/–0.0317	0.0284	+/–0.0317	0.0568	pCi/g						
Europium–152	U	0.0165	+/–0.0831	0.0685	+/–0.0831	0.137	pCi/g						
Europium–154	U	0.0265	+/–0.103	0.0893	+/–0.103	0.179	pCi/g						
Europium–155	U	0.0755	+/–0.0708	0.0662	+/–0.0708	0.132	pCi/g						
Lead–212		1.03	+/–0.141	0.0379	+/–0.141	0.0757	pCi/g						
Lead–214		0.702	+/–0.131	0.0507	+/–0.131	0.101	pCi/g						
Manganese–54	U	0.00503	+/–0.0362	0.0277	+/–0.0362	0.0554	pCi/g						
Niobium–94	U	–0.000884	+/–0.0297	0.025	+/–0.0297	0.0501	pCi/g						
Potassium–40		15.9	+/–1.55	0.225	+/–1.55	0.450	pCi/g						
Radium–226		0.702	+/–0.153	0.0511	+/–0.153	0.102	pCi/g						
Silver–108m	U	–0.00111	+/–0.0282	0.0247	+/–0.0282	0.0494	pCi/g						
Thallium–208		0.282	+/–0.0766	0.0267	+/–0.0766	0.0533	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00406	+/–0.0199	0.0161	+/–0.0199	0.0377	pCi/g		KSD1	04/03/07	1540	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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

Report Date: April 5, 2007

Client Sample ID: 9312–0003–010F
Sample ID: 183255011

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

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	77	(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: April 5, 2007

Client Sample ID:	9312-0003-011F	Project:	YANK01204
Sample ID:	183255012	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	8.28%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.885	+/-0.255	0.124	+/-0.255	0.247	pCi/g		MJH1	03/30/07	1302	621154	
Americium-241	U	-0.00153	+/-0.0604	0.0501	+/-0.0604	0.100	pCi/g						
Bismuth-212		0.875	+/-0.414	0.235	+/-0.414	0.469	pCi/g						
Bismuth-214		0.776	+/-0.151	0.052	+/-0.151	0.104	pCi/g						
Cesium-134	U	0.075	+/-0.0735	0.0402	+/-0.0735	0.0803	pCi/g						
Cesium-137	U	-0.0338	+/-0.0423	0.0332	+/-0.0423	0.0664	pCi/g						
Cobalt-60	U	-0.00428	+/-0.0421	0.035	+/-0.0421	0.0699	pCi/g						
Europium-152	U	0.082	+/-0.101	0.0836	+/-0.101	0.167	pCi/g						
Europium-154	U	0.0326	+/-0.118	0.102	+/-0.118	0.204	pCi/g						
Europium-155	U	0.0633	+/-0.113	0.069	+/-0.113	0.138	pCi/g						
Lead-212		0.918	+/-0.116	0.045	+/-0.116	0.0899	pCi/g						
Lead-214		0.707	+/-0.128	0.0546	+/-0.128	0.109	pCi/g						
Manganese-54	U	-0.0258	+/-0.0437	0.0309	+/-0.0437	0.0617	pCi/g						
Niobium-94	U	-0.000172	+/-0.0349	0.0296	+/-0.0349	0.0591	pCi/g						
Potassium-40		15.8	+/-1.57	0.272	+/-1.57	0.543	pCi/g						
Radium-226		0.776	+/-0.151	0.052	+/-0.151	0.104	pCi/g						
Silver-108m	U	-0.00841	+/-0.0315	0.0273	+/-0.0315	0.0547	pCi/g						
Thallium-208		0.323	+/-0.0777	0.0328	+/-0.0777	0.0655	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	0.0154	+/-0.0243	0.0186	+/-0.0243	0.0422	pCi/g		KSD1	04/03/07	1540	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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

Report Date: April 5, 2007

Client Sample ID: 9312–0003–011F
Sample ID: 183255012

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	72	(25%–125%)

Notes:

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< Result is less than value reported
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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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–012F	Project:	YANK01204
Sample ID:	183255013	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	4.46%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium–241	U	–0.0109	+/–0.0377	0.0452	+/–0.0377	0.187	pCi/g		GXR1	04/04/07	0820	621107	
Curium–242	U	0.0473	+/–0.107	0.0574	+/–0.107	0.215	pCi/g						
Curium–243/244	U	0.0827	+/–0.147	0.0846	+/–0.147	0.266	pCi/g						
Alphaspec Pu, Solid–ALL FSS													
Plutonium–238	U	0.029	+/–0.0568	0.00	+/–0.0569	0.0785	pCi/g		GXR1	04/04/07	2258	622351	
Plutonium–239/240	U	0.0151	+/–0.060	0.0368	+/–0.060	0.152	pCi/g						
Liquid Scint Pu241, Solid–ALL FSS													
Plutonium–241	U	0.662	+/–7.96	6.65	+/–7.96	14.0	pCi/g		BXL1	04/05/07	1443	622105	
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.912	+/–0.232	0.0725	+/–0.232	0.145	pCi/g		MJH1	04/02/07	1537	621154	
Americium–241	U	0.0854	+/–0.0941	0.0807	+/–0.0941	0.161	pCi/g						
Bismuth–212		0.562	+/–0.348	0.182	+/–0.348	0.364	pCi/g						
Bismuth–214		0.581	+/–0.113	0.0403	+/–0.113	0.0805	pCi/g						
Cesium–134	U	0.0442	+/–0.042	0.0259	+/–0.042	0.0517	pCi/g						
Cesium–137	U	–0.0657	+/–0.0312	0.023	+/–0.0312	0.046	pCi/g						
Cobalt–60	U	–0.0155	+/–0.0262	0.0203	+/–0.0262	0.0407	pCi/g						
Europium–152	U	–0.0093	+/–0.0944	0.0636	+/–0.0944	0.127	pCi/g						
Europium–154	U	0.00388	+/–0.0776	0.0653	+/–0.0776	0.131	pCi/g						
Europium–155	U	0.0747	+/–0.0842	0.0763	+/–0.0842	0.153	pCi/g						
Lead–212		0.843	+/–0.101	0.0361	+/–0.101	0.0722	pCi/g						
Lead–214		0.632	+/–0.128	0.0465	+/–0.128	0.093	pCi/g						
Manganese–54	U	–0.0132	+/–0.0259	0.0217	+/–0.0259	0.0434	pCi/g						
Niobium–94	U	–0.000829	+/–0.0244	0.0206	+/–0.0244	0.0411	pCi/g						
Potassium–40		14.6	+/–1.30	0.188	+/–1.30	0.376	pCi/g						
Radium–226		0.581	+/–0.113	0.0403	+/–0.113	0.0805	pCi/g						
Silver–108m	U	0.0117	+/–0.0243	0.0218	+/–0.0243	0.0437	pCi/g						
Thallium–208		0.276	+/–0.0579	0.021	+/–0.0579	0.0419	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00198	+/–0.0238	0.0197	+/–0.0238	0.0447	pCi/g		KSD1	04/03/07	1540	621124	
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid – 3 pCi/g													
Tritium	U	–0.81	+/–0.917	0.807	+/–0.917	1.69	pCi/g		AXD2	03/31/07	1551	621141	

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Certificate of Analysis

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Address : 362 Injun Hollow Rd
East Hampton, Connecticut 06424
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Report Date: April 5, 2007

Client Sample ID: 9312-0003-012F
Sample ID: 183255013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid All,FSS													
Carbon-14	U	-0.0161	+/-0.0882	0.0744	+/-0.0882	0.152	pCi/g		AXD2	03/30/07	2156	621144	
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	1.33	+/-33.6	23.8	+/-33.6	50.0	pCi/g		MXP1	04/02/07	2130	621136	
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	-5.59	+/-9.25	8.01	+/-9.25	16.8	pCi/g		MXP1	04/02/07	1637	621137	
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	-0.148	+/-0.224	0.191	+/-0.224	0.391	pCi/g		MXP1	04/03/07	1421	621139	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	03/29/07	1057	621103

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	EML HASL 300, 4.5.2.3
8	EPA 905.0 Modified
9	EPA 906.0 Modified
10	EPA EERF C-01 Modified
11	DOE RESL Fe-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	86	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	87	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid-ALL FS	87	(25%-125%)
Strontium Carrier	GFPC, Sr90, solid-ALL FSS	70	(25%-125%)
			(15%-125%)

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Certificate of Analysis

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Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–012F
Sample ID: 183255013
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst Date	Time Batch	N
Iron–59 Tracer		Liquid Scint Fe55, Solid–ALL FS			65						
Nickel Carrier		Liquid Scint Ni63, Solid–ALL FS			81		(25%–125%)				
Technetium–99m Tracer		Liquid Scint Tc99, Solid–ALL FS			86		(15%–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

East Hampton, Connecticut 06424 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–013F	Project:	YANK01204
Sample ID:	183255014	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	2.82%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.708	+/–0.198	0.0712	+/–0.198	0.142	pCi/g		MJH1	04/02/07	1842	621154	
Americium–241	U	0.0742	+/–0.0899	0.0784	+/–0.0899	0.157	pCi/g						
Bismuth–212		0.593	+/–0.291	0.148	+/–0.291	0.297	pCi/g						
Bismuth–214		0.655	+/–0.123	0.0359	+/–0.123	0.0718	pCi/g						
Cesium–134	U	0.0288	+/–0.0278	0.0251	+/–0.0278	0.0501	pCi/g						
Cesium–137	U	–0.0668	+/–0.0287	0.0209	+/–0.0287	0.0417	pCi/g						
Cobalt–60	U	0.0109	+/–0.0246	0.0216	+/–0.0246	0.0432	pCi/g						
Europium–152	U	0.00427	+/–0.0766	0.0605	+/–0.0766	0.121	pCi/g						
Europium–154	U	–0.0295	+/–0.0787	0.0639	+/–0.0787	0.128	pCi/g						
Europium–155	U	0.0686	+/–0.0746	0.0705	+/–0.0746	0.141	pCi/g						
Lead–212		0.899	+/–0.102	0.0362	+/–0.102	0.0723	pCi/g						
Lead–214		0.731	+/–0.122	0.0418	+/–0.122	0.0836	pCi/g						
Manganese–54	U	0.0138	+/–0.0244	0.0222	+/–0.0244	0.0443	pCi/g						
Niobium–94	U	0.0192	+/–0.0216	0.0198	+/–0.0216	0.0395	pCi/g						
Potassium–40		14.8	+/–1.35	0.175	+/–1.35	0.349	pCi/g						
Radium–226		0.655	+/–0.123	0.0359	+/–0.123	0.0718	pCi/g						
Silver–108m	U	0.000511	+/–0.0232	0.0194	+/–0.0232	0.0389	pCi/g						
Thallium–208		0.296	+/–0.057	0.0194	+/–0.057	0.0387	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	–0.000504	+/–0.0155	0.0131	+/–0.0155	0.0314	pCi/g		KSD1	04/03/07	1647	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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
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East Hampton, Connecticut 06424
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–013F
Sample ID: 183255014

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

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid-ALL FSS	80	(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–014F	Project:	YANK01204
Sample ID:	183255015	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	6.6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.921	+/–0.223	0.0716	+/–0.223	0.143	pCi/g		MJH1	04/02/07	2147	621154	
Americium–241	U	0.0947	+/–0.0915	0.0805	+/–0.0915	0.161	pCi/g						
Bismuth–212		0.715	+/–0.282	0.159	+/–0.282	0.318	pCi/g						
Bismuth–214		0.621	+/–0.117	0.0376	+/–0.117	0.0752	pCi/g						
Cesium–134	U	0.017	+/–0.0361	0.0274	+/–0.0361	0.0548	pCi/g						
Cesium–137	U	–0.0537	+/–0.0327	0.0221	+/–0.0327	0.0441	pCi/g						
Cobalt–60	U	0.00424	+/–0.0294	0.0215	+/–0.0294	0.043	pCi/g						
Europium–152	U	0.063	+/–0.0815	0.0638	+/–0.0815	0.128	pCi/g						
Europium–154	U	–0.0308	+/–0.0787	0.0637	+/–0.0787	0.127	pCi/g						
Europium–155	U	0.0924	+/–0.112	0.0723	+/–0.112	0.145	pCi/g						
Lead–212		0.889	+/–0.102	0.0385	+/–0.102	0.0769	pCi/g						
Lead–214		0.700	+/–0.125	0.0403	+/–0.125	0.0805	pCi/g						
Manganese–54	U	–0.00548	+/–0.029	0.0214	+/–0.029	0.0429	pCi/g						
Niobium–94	U	0.00584	+/–0.0246	0.0213	+/–0.0246	0.0425	pCi/g						
Potassium–40		14.6	+/–1.35	0.184	+/–1.35	0.368	pCi/g						
Radium–226		0.621	+/–0.117	0.0376	+/–0.117	0.0752	pCi/g						
Silver–108m	U	0.0186	+/–0.0238	0.0195	+/–0.0238	0.039	pCi/g						
Thallium–208		0.301	+/–0.0652	0.0211	+/–0.0652	0.0422	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	–0.00862	+/–0.0169	0.0157	+/–0.0169	0.0372	pCi/g		KSD1	04/03/07	1647	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–014F
Sample ID: 183255015
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

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

Notes:

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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
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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
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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd
East Hampton, Connecticut 06424
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312-0003-015F	Project:	YANK01204
Sample ID:	183255016	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27-MAR-07		
Receive Date:	29-MAR-07		
Collector:	Client		
Moisture:	7.37%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	0.0787	+/-0.116	0.0347	+/-0.116	0.174	pCi/g		GXR1	04/03/07	0933	621107	
Curium-242	U	0.00	+/-0.0782	0.00	+/-0.0782	0.108	pCi/g						
Curium-243/244	U	0.0294	+/-0.078	0.0347	+/-0.0781	0.174	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	-0.0146	+/-0.0203	0.0387	+/-0.0203	0.160	pCi/g		GXR1	04/04/07	2258	622351	
Plutonium-239/240	U	0.00	+/-0.0597	0.00	+/-0.0597	0.0825	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	0.999	+/-8.92	7.44	+/-8.92	15.6	pCi/g		BXL1	04/05/07	1459	622105	
Rad Gamma Spec Analysis													
Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium-228		0.679	+/-0.213	0.0666	+/-0.213	0.133	pCi/g		MJH1	04/03/07	0052	621154	
Americium-241	U	0.115	+/-0.0925	0.0803	+/-0.0925	0.161	pCi/g						
Bismuth-212	U	0.314	+/-0.307	0.165	+/-0.307	0.330	pCi/g						
Bismuth-214		0.537	+/-0.114	0.0378	+/-0.114	0.0756	pCi/g						
Cesium-134	UI	0.00	+/-0.0491	0.0283	+/-0.0491	0.0565	pCi/g						
Cesium-137	U	-0.0355	+/-0.0318	0.0256	+/-0.0318	0.0511	pCi/g						
Cobalt-60	U	-0.00282	+/-0.0264	0.0217	+/-0.0264	0.0434	pCi/g						
Europium-152	U	-0.0368	+/-0.0933	0.0612	+/-0.0933	0.122	pCi/g						
Europium-154	U	-0.0724	+/-0.0819	0.0623	+/-0.0819	0.125	pCi/g						
Europium-155	U	0.00665	+/-0.109	0.0684	+/-0.109	0.137	pCi/g						
Lead-212		0.756	+/-0.0938	0.0352	+/-0.0938	0.0704	pCi/g						
Lead-214		0.584	+/-0.110	0.0456	+/-0.110	0.0911	pCi/g						
Manganese-54	U	-0.00807	+/-0.0244	0.0207	+/-0.0244	0.0414	pCi/g						
Niobium-94	U	-0.00113	+/-0.0231	0.0194	+/-0.0231	0.0388	pCi/g						
Potassium-40		12.7	+/-1.21	0.176	+/-1.21	0.351	pCi/g						
Radium-226		0.537	+/-0.114	0.0378	+/-0.114	0.0756	pCi/g						
Silver-108m	U	-0.00738	+/-0.0233	0.0201	+/-0.0233	0.0401	pCi/g						
Thallium-208		0.236	+/-0.0626	0.0207	+/-0.0626	0.0415	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90	U	-0.0025	+/-0.0208	0.0178	+/-0.0208	0.0412	pCi/g		KSD1	04/03/07	1647	621124	
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid – 3 pCi/g													
Tritium	U	0.300	+/-0.972	0.802	+/-0.972	1.68	pCi/g		AXD2	03/31/07	1652	621141	

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : 362 Injun Hollow Rd
East Hampton, Connecticut 06424
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–015F
Sample ID: 183255016
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid All,FSS													
Carbon–14	U	–0.0313	+/–0.0874	0.0741	+/–0.0874	0.152	pCi/g		AXD2	03/30/07	2258	621144	
Liquid Scint Fe55, Solid–ALL FSS													
Iron–55	U	–7.82	+/–34.9	25.2	+/–34.9	53.1	pCi/g		MXP1	04/02/07	2146	621136	
Liquid Scint Ni63, Solid–ALL FSS													
Nickel–63	U	–2.57	+/–10.6	9.00	+/–10.6	18.9	pCi/g		MXP1	04/02/07	1654	621137	
Liquid Scint Tc99, Solid–ALL FSS													
Technetium–99	U	–0.13	+/–0.225	0.192	+/–0.225	0.393	pCi/g		MXP1	04/03/07	1453	621139	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium–243 Tracer	Alphaspec Am241, Cm, Solid ALL	70	(15%–125%)
Plutonium–242 Tracer	Alphaspec Pu, Solid–ALL FSS	86	(15%–125%)
Plutonium–242 Tracer	Liquid Scint Pu241, Solid–ALL FS	79	(25%–125%)
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	76	(25%–125%)
Iron–59 Tracer	Liquid Scint Fe55, Solid–ALL FS	60	(15%–125%)
Nickel Carrier	Liquid Scint Ni63, Solid–ALL FS	73	(25%–125%)

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Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–015F
Sample ID: 183255016

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst Date	Time	Batch	M
Technetium–99m Tracer		Liquid Scint Tc99, Solid–ALL FS			85		(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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–016B	Project:	YANK01204
Sample ID:	183255017	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	8.12%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.805	+/–0.191	0.0765	+/–0.191	0.153	pCi/g		MJH1	04/03/07	0357	621154	
Americium–241	U	0.0839	+/–0.0977	0.0839	+/–0.0977	0.168	pCi/g						
Bismuth–212		0.481	+/–0.384	0.164	+/–0.384	0.328	pCi/g						
Bismuth–214		0.764	+/–0.131	0.0389	+/–0.131	0.0777	pCi/g						
Cesium–134	U	0.0521	+/–0.0374	0.0274	+/–0.0374	0.0547	pCi/g						
Cesium–137	UI	0.00	+/–0.0516	0.0236	+/–0.0516	0.0472	pCi/g						
Cobalt–60	U	0.0121	+/–0.0265	0.0232	+/–0.0265	0.0463	pCi/g						
Europium–152	U	–0.00745	+/–0.0824	0.0602	+/–0.0824	0.120	pCi/g						
Europium–154	U	0.00741	+/–0.0785	0.0664	+/–0.0785	0.133	pCi/g						
Europium–155	U	0.0711	+/–0.080	0.0751	+/–0.080	0.150	pCi/g						
Lead–212		0.717	+/–0.105	0.0472	+/–0.105	0.0943	pCi/g						
Lead–214		0.784	+/–0.122	0.045	+/–0.122	0.0899	pCi/g						
Manganese–54	U	0.00822	+/–0.0232	0.0207	+/–0.0232	0.0415	pCi/g						
Niobium–94	U	0.023	+/–0.0246	0.0211	+/–0.0246	0.0421	pCi/g						
Potassium–40		15.3	+/–1.35	0.132	+/–1.35	0.264	pCi/g						
Radium–226		0.764	+/–0.131	0.0389	+/–0.131	0.0777	pCi/g						
Silver–108m	U	–0.00592	+/–0.0236	0.0204	+/–0.0236	0.0408	pCi/g						
Thallium–208		0.296	+/–0.0566	0.0228	+/–0.0566	0.0456	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00643	+/–0.0183	0.0143	+/–0.0183	0.0339	pCi/g		KSD1	04/03/07	1647	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–016B
Sample ID: 183255017
Project: YANK01204
Client ID: YANK001
Vol. Recv.:

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	80	(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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–017B	Project:	YANK01204
Sample ID:	183255018	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	6.51%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.958	+/–0.202	0.0666	+/–0.202	0.133	pCi/g		MJH1	03/31/07	1242	621154	
Americium–241	U	0.0532	+/–0.116	0.0926	+/–0.116	0.185	pCi/g						
Bismuth–212		0.393	+/–0.259	0.170	+/–0.259	0.340	pCi/g						
Bismuth–214		0.644	+/–0.108	0.0407	+/–0.108	0.0814	pCi/g						
Cesium–134	UI	0.00	+/–0.0364	0.0278	+/–0.0364	0.0556	pCi/g						
Cesium–137	U	–0.00262	+/–0.0251	0.0217	+/–0.0251	0.0434	pCi/g						
Cobalt–60	U	–0.00167	+/–0.0263	0.0225	+/–0.0263	0.045	pCi/g						
Europium–152	U	–0.0302	+/–0.0864	0.0545	+/–0.0864	0.109	pCi/g						
Europium–154	U	0.0292	+/–0.080	0.0713	+/–0.080	0.142	pCi/g						
Europium–155	U	0.0405	+/–0.0697	0.0655	+/–0.0697	0.131	pCi/g						
Lead–212		1.01	+/–0.111	0.0323	+/–0.111	0.0647	pCi/g						
Lead–214		0.724	+/–0.111	0.040	+/–0.111	0.080	pCi/g						
Manganese–54	U	0.00142	+/–0.0251	0.0217	+/–0.0251	0.0433	pCi/g						
Niobium–94	U	–0.00464	+/–0.0245	0.021	+/–0.0245	0.0421	pCi/g						
Potassium–40		15.9	+/–1.43	0.191	+/–1.43	0.381	pCi/g						
Radium–226		0.644	+/–0.108	0.0407	+/–0.108	0.0814	pCi/g						
Silver–108m	U	0.000158	+/–0.0229	0.0191	+/–0.0229	0.0382	pCi/g						
Thallium–208		0.316	+/–0.0583	0.0191	+/–0.0583	0.0382	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.0163	+/–0.020	0.0141	+/–0.020	0.0338	pCi/g		KSD1	04/03/07	1647	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–017B Project: YANK01204
Sample ID: 183255018 Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst Date	Time	Batch	N
Surrogate/Tracer recovery	**Test**				**Recovery%**		**Acceptable Limits**					
Strontium Carrier	GFPC, Sr90, solid–ALL FSS				69		(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
Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID:	9312–0003–018B	Project:	YANK01204
Sample ID:	183255019	Client ID:	YANK001
Matrix:	TS	Vol. Recv.:	
Collect Date:	27–MAR–07		
Receive Date:	29–MAR–07		
Collector:	Client		
Moisture:	4.73%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	N
Rad Gamma Spec Analysis													
Gamma,Solid–FSS GAM & ALL FSS 226 Ingrowth Waived													
Actinium–228		0.670	+/–0.200	0.0768	+/–0.200	0.154	pCi/g		MJH1	03/31/07	1243	621154	
Americium–241	U	0.0878	+/–0.101	0.0874	+/–0.101	0.175	pCi/g						
Bismuth–212		0.484	+/–0.300	0.146	+/–0.300	0.293	pCi/g						
Bismuth–214		0.572	+/–0.106	0.0379	+/–0.106	0.0757	pCi/g						
Cesium–134	U	0.0406	+/–0.0287	0.024	+/–0.0287	0.048	pCi/g						
Cesium–137	U	0.00567	+/–0.0255	0.022	+/–0.0255	0.044	pCi/g						
Cobalt–60	U	–0.0185	+/–0.0273	0.0215	+/–0.0273	0.0431	pCi/g						
Europium–152	U	0.0503	+/–0.101	0.0538	+/–0.101	0.108	pCi/g						
Europium–154	U	–0.0673	+/–0.0973	0.0635	+/–0.0973	0.127	pCi/g						
Europium–155	U	0.0839	+/–0.0677	0.0618	+/–0.0677	0.124	pCi/g						
Lead–212		0.831	+/–0.0922	0.0318	+/–0.0922	0.0636	pCi/g						
Lead–214		0.705	+/–0.114	0.0384	+/–0.114	0.0767	pCi/g						
Manganese–54	U	–0.003	+/–0.0229	0.0196	+/–0.0229	0.0391	pCi/g						
Niobium–94	U	–0.00294	+/–0.0221	0.0192	+/–0.0221	0.0384	pCi/g						
Potassium–40		13.7	+/–1.26	0.156	+/–1.26	0.312	pCi/g						
Radium–226		0.572	+/–0.106	0.0379	+/–0.106	0.0757	pCi/g						
Silver–108m	U	–0.00818	+/–0.0233	0.0173	+/–0.0233	0.0345	pCi/g						
Thallium–208		0.277	+/–0.0536	0.0192	+/–0.0536	0.0385	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid–ALL FSS													
Strontium–90	U	0.00138	+/–0.0171	0.0141	+/–0.0171	0.0339	pCi/g		KSD1	04/03/07	1647	621124	

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	LXM2	03/29/07	1057	621103

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 Report Date: April 5, 2007
Contact: Mr. Jack McCarthy
Project: Soils PO# 002332

Client Sample ID: 9312–0003–018B Project: YANK01204
Sample ID: 183255019 Client ID: YANK001
Vol. Recv.:

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid–ALL FSS	76	(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
ND Analyte concentration is not detected above the detection limit
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UI Gamma Spectroscopy––Uncertain identification
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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.

QUALITY CONTROL DATA

QC Summary

Report Date: April 5, 2007

lient : Connecticut Yankee Atomic Power
362 Injun Hollow Rd

East Hampton, Connecticut
ontact: Mr. Jack McCarthy

Vorkorder: 183255

armname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
ad Alpha Spec										
atch 621107										
QC1201305241 183245006 DUP										
mericium-241	U	-0.0394	U	-0.0452	pCi/g	14		(0% - 100%)	GXR1	04/03/07 09:33
	Uncert:	+/-0.0816		+/-0.0683						
	TPU:	+/-0.0818		+/-0.0684						
urium-242	U	0.00	U	0.00	pCi/g	0		(0% - 100%)		
	Uncert:	+/-0.083		+/-0.0676						
	TPU:	+/-0.083		+/-0.0676						
urium-243/244	U	0.00	U	-0.0555	pCi/g	200		(0% - 100%)		
	Uncert:	+/-0.0794		+/-0.0411						
	TPU:	+/-0.0794		+/-0.0418						
QC1201305243 LCS										
mericium-241	12.4			11.2	pCi/g		90	(75%-125%)		
	Uncert:			+/-1.06						
	TPU:			+/-1.79						
urium-242			U	0.00	pCi/g					
	Uncert:			+/-0.0518						
	TPU:			+/-0.0518						
urium-243/244	14.8			14.2	pCi/g		96	(75%-125%)		
	Uncert:			+/-1.19						
	TPU:			+/-2.18						
QC1201305240 MB										
mericium-241			U	-0.0487	pCi/g					
	Uncert:			+/-0.0641						
	TPU:			+/-0.0641						
urium-242			U	0.00	pCi/g					
	Uncert:			+/-0.0603						
	TPU:			+/-0.0603						
urium-243/244			U	0.0459	pCi/g					
	Uncert:			+/-0.0861						
	TPU:			+/-0.0863						
QC1201305242 183245006 MS										
mericium-241	13.5 U	-0.0394		12.0	pCi/g		89	(75%-125%)		
	Uncert:	+/-0.0816		+/-1.16						
	TPU:	+/-0.0818		+/-1.94						
urium-242	U	0.00	U	0.0303	pCi/g					
	Uncert:	+/-0.083		+/-0.0594						
	TPU:	+/-0.083		+/-0.0595						
urium-243/244	16.1 U	0.00		14.9	pCi/g		93	(75%-125%)		
	Uncert:	+/-0.0794		+/-1.29						
	TPU:	+/-0.0794		+/-2.33						
atch 622105										
QC1201307489 183245006 DUP										
lutonium-241	U	-3.12	U	-8.22	pCi/g	0		(0% - 100%)	BXL1	04/05/07 15:31

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 622105										
	Uncert:	+/-10.1		+/-9.75						
	TPU:	+/-10.1		+/-9.75						
QC1201307491 LCS										
Plutonium-241	138			113	pCi/g		82	(75%-125%)		04/05/07 16:04
	Uncert:			+/-14.9						
	TPU:			+/-19.1						
QC1201307488 MB										
Plutonium-241			U	-1.9	pCi/g					04/05/07 15:15
	Uncert:			+/-11.3						
	TPU:			+/-11.3						
QC1201307490 183245006 MS										
Plutonium-241	140 U	-3.12		120	pCi/g		86	(75%-125%)		04/05/07 15:48
	Uncert:	+/-10.1		+/-13.1						
	TPU:	+/-10.1		+/-17.4						
Batch 622351										
QC1201308035 183245006 DUP										
Plutonium-238	U	0.0429	U	-0.0147	pCi/g	409		(0% - 100%)	GXR1	04/04/07 22:58
	Uncert:	+/-0.0969		+/-0.0204						
	TPU:	+/-0.0971		+/-0.0204						
Plutonium-239/240	U	0.059	U	0.0306	pCi/g	63		(0% - 100%)		
	Uncert:	+/-0.0943		+/-0.060						
	TPU:	+/-0.0946		+/-0.0601						
QC1201308037 LCS										
Plutonium-238			U	0.0151	pCi/g			(75%-125%)		
	Uncert:			+/-0.0602						
	TPU:			+/-0.0603						
Plutonium-239/240	12.7			12.9	pCi/g		102	(75%-125%)		
	Uncert:			+/-1.20						
	TPU:			+/-1.91						
QC1201308034 MB										
Plutonium-238			U	-0.00689	pCi/g					
	Uncert:			+/-0.0135						
	TPU:			+/-0.0135						
Plutonium-239/240			U	-0.0138	pCi/g					
	Uncert:			+/-0.0191						
	TPU:			+/-0.0192						
QC1201308036 183245006 MS										
Plutonium-238	U	0.0429	U	0.0767	pCi/g			(75%-125%)		
	Uncert:	+/-0.0969		+/-0.105						
	TPU:	+/-0.0971		+/-0.106						
Plutonium-239/240	13.7 U	0.059		14.9	pCi/g		109	(75%-125%)		
	Uncert:	+/-0.0943		+/-1.32						
	TPU:	+/-0.0946		+/-2.15						
Rad Gamma Spec										
Batch 621154										
QC1201305362 183255001 DUP										
Actinium-228		0.954		0.882	pCi/g	8		(0% - 100%)	MJH1	03/31/07 12:45
	Uncert:	+/-0.263		+/-0.205						
				+/-0.205						

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 621154											
	TPU:	+/-0.263									
Americium-241	U	-0.0315	U	0.0304	pCi/g	11200		(0% - 100%)			
	Uncert:	+/-0.0533		+/-0.120							
	TPU:	+/-0.0533		+/-0.120							
Bismuth-212		0.762		0.659	pCi/g	15		(0% - 100%)			
	Uncert:	+/-0.469		+/-0.270							
	TPU:	+/-0.469		+/-0.270							
Bismuth-214		0.600		0.608	pCi/g	1		(0% - 100%)			
	Uncert:	+/-0.134		+/-0.116							
	TPU:	+/-0.134		+/-0.116							
Cesium-134	U	0.0404	U	0.0339	pCi/g	18		(0% - 100%)			
	Uncert:	+/-0.0352		+/-0.0395							
	TPU:	+/-0.0352		+/-0.0395							
Cesium-137	U	-0.0638	U	0.0127	pCi/g	300		(0% - 100%)			
	Uncert:	+/-0.0378		+/-0.0256							
	TPU:	+/-0.0378		+/-0.0256							
Cobalt-60	U	0.00635	U	0.0181	pCi/g	96		(0% - 100%)			
	Uncert:	+/-0.0381		+/-0.0256							
	TPU:	+/-0.0381		+/-0.0256							
Europium-152	U	-0.107	U	-0.0149	pCi/g	151		(0% - 100%)			
	Uncert:	+/-0.0919		+/-0.074							
	TPU:	+/-0.0919		+/-0.074							
Europium-154	U	-0.03	U	-0.0726	pCi/g	83		(0% - 100%)			
	Uncert:	+/-0.0926		+/-0.0885							
	TPU:	+/-0.0926		+/-0.0885							
Europium-155	U	0.0313	U	-0.0474	pCi/g	976		(0% - 100%)			
	Uncert:	+/-0.0747		+/-0.0683							
	TPU:	+/-0.0747		+/-0.0683							
Lead-212		0.909		0.842	pCi/g	8		(0% - 20%)			
	Uncert:	+/-0.110		+/-0.0893							
	TPU:	+/-0.110		+/-0.0893							
Lead-214		0.596		0.603	pCi/g	1		(0% - 20%)			
	Uncert:	+/-0.126		+/-0.0876							
	TPU:	+/-0.126		+/-0.0876							
Manganese-54	U	-0.0134	U	-0.0138	pCi/g	3		(0% - 100%)			
	Uncert:	+/-0.031		+/-0.0243							
	TPU:	+/-0.031		+/-0.0243							
Niobium-94	U	0.000192	U	0.00213	pCi/g	167		(0% - 100%)			
	Uncert:	+/-0.0307		+/-0.0218							
	TPU:	+/-0.0307		+/-0.0218							
Potassium-40		13.9		14.6	pCi/g	5		(0% - 20%)			
	Uncert:	+/-1.41		+/-1.33							
	TPU:	+/-1.41		+/-1.33							
Radium-226		0.600		0.608	pCi/g	1		(0% - 100%)			
	Uncert:	+/-0.134		+/-0.116							
	TPU:	+/-0.134		+/-0.116							
Silver-108m	U	-0.00202	U	-0.00702	pCi/g	111		(0% - 100%)			
	Uncert:	+/-0.0285		+/-0.0218							

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 621154											
	TPU:	+/-0.0285		+/-0.0218							
Thallium-208		0.273		0.284	pCi/g	4		(0% - 100%)			
	Uncert:	+/-0.0629		+/-0.0608							
	TPU:	+/-0.0629		+/-0.0608							
QC1201305363 LCS											
Actinium-228				1.04	pCi/g					03/31/07	12:57
	Uncert:			+/-0.640							
	TPU:			+/-0.640							
Americium-241	16.0			13.9	pCi/g		87	(75%-125%)			
	Uncert:			+/-1.23							
	TPU:			+/-1.23							
Bismuth-212				1.15	pCi/g						
	Uncert:			+/-0.926							
	TPU:			+/-0.926							
Bismuth-214				0.671	pCi/g						
	Uncert:			+/-0.363							
	TPU:			+/-0.363							
Cesium-134			U	0.0945	pCi/g						
	Uncert:			+/-0.114							
	TPU:			+/-0.114							
Cesium-137	6.20			5.46	pCi/g		88	(75%-125%)			
	Uncert:			+/-0.526							
	TPU:			+/-0.526							
Cobalt-60	9.32			9.18	pCi/g		99	(75%-125%)			
	Uncert:			+/-0.676							
	TPU:			+/-0.676							
Europium-152			U	0.0996	pCi/g						
	Uncert:			+/-0.234							
	TPU:			+/-0.234							
Europium-154			U	-0.128	pCi/g						
	Uncert:			+/-0.211							
	TPU:			+/-0.211							
Europium-155			U	0.0283	pCi/g						
	Uncert:			+/-0.261							
	TPU:			+/-0.261							
Lead-212				0.951	pCi/g						
	Uncert:			+/-0.253							
	TPU:			+/-0.253							
Lead-214				0.702	pCi/g						
	Uncert:			+/-0.256							
	TPU:			+/-0.256							
Manganese-54			U	0.0815	pCi/g						
	Uncert:			+/-0.103							
	TPU:			+/-0.103							
Niobium-94			U	-0.0328	pCi/g						
	Uncert:			+/-0.0835							
	TPU:			+/-0.0835							
Potassium-40			U	1.00	pCi/g						

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 621154											
	Uncert:			+/-0.801							
	TPU:			+/-0.801							
Radium-226				0.671	pCi/g			(75%-125%)			
	Uncert:			+/-0.363							
	TPU:			+/-0.363							
Silver-108m			U	0.0761	pCi/g						
	Uncert:			+/-0.076							
	TPU:			+/-0.076							
Thallium-208				0.322	pCi/g						
	Uncert:			+/-0.170							
	TPU:			+/-0.170							
QC1201305361 MB											
Actinium-228			U	0.0506	pCi/g					03/31/07	12:46
	Uncert:			+/-0.0618							
	TPU:			+/-0.0618							
Americium-241			U	-0.0283	pCi/g						
	Uncert:			+/-0.0485							
	TPU:			+/-0.0485							
Bismuth-212			U	0.0823	pCi/g						
	Uncert:			+/-0.107							
	TPU:			+/-0.107							
Bismuth-214			U	0.00442	pCi/g						
	Uncert:			+/-0.0359							
	TPU:			+/-0.0359							
Cesium-134			U	-0.00565	pCi/g						
	Uncert:			+/-0.015							
	TPU:			+/-0.015							
Cesium-137			U	0.00478	pCi/g						
	Uncert:			+/-0.0141							
	TPU:			+/-0.0141							
Cobalt-60			U	-0.00475	pCi/g						
	Uncert:			+/-0.0154							
	TPU:			+/-0.0154							
Europium-152			U	-0.048	pCi/g						
	Uncert:			+/-0.0387							
	TPU:			+/-0.0387							
Europium-154			U	-0.0385	pCi/g						
	Uncert:			+/-0.045							
	TPU:			+/-0.045							
Europium-155			U	-0.00386	pCi/g						
	Uncert:			+/-0.0347							
	TPU:			+/-0.0347							
Lead-212			U	-0.0283	pCi/g						
	Uncert:			+/-0.0279							
	TPU:			+/-0.0279							
Lead-214			U	-0.0273	pCi/g						
	Uncert:			+/-0.033							
	TPU:			+/-0.033							

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 621154											
Manganese-54			U	-0.0018	pCi/g						
Uncert:				+/-0.0118							
TPU:				+/-0.0118							
Niobium-94			U	-0.00473	pCi/g						
Uncert:				+/-0.0138							
TPU:				+/-0.0138							
Potassium-40			U	0.0105	pCi/g						
Uncert:				+/-0.198							
TPU:				+/-0.198							
Radium-226			U	0.00442	pCi/g						
Uncert:				+/-0.0359							
TPU:				+/-0.0359							
Silver-108m			U	0.0111	pCi/g						
Uncert:				+/-0.0129							
TPU:				+/-0.0129							
Thallium-208			U	0.0093	pCi/g						
Uncert:				+/-0.0264							
TPU:				+/-0.0264							
Rad Gas Flow											
Batch 621124											
QC1201305278 183255001 DUP											
Strontium-90	U	-0.0138	U	-0.00104	pCi/g	0		(0% - 100%)	KSD1	04/03/07	16:47
Uncert:		+/-0.0138		+/-0.0179							
TPU:		+/-0.0138		+/-0.0179							
QC1201305280 LCS											
Strontium-90	1.43			1.44	pCi/g		101	(75%-125%)		04/03/07	16:47
Uncert:				+/-0.0895							
TPU:				+/-0.0994							
QC1201305277 MB											
Strontium-90			U	-0.0136	pCi/g					04/03/07	16:47
Uncert:				+/-0.0127							
TPU:				+/-0.0127							
QC1201305279 183255001 MS											
Strontium-90	1.44 U	-0.0138		1.18	pCi/g		82	(75%-125%)		04/03/07	16:47
Uncert:		+/-0.0138		+/-0.0879							
TPU:		+/-0.0138		+/-0.0949							
Rad Liquid Scintillation											
Batch 621136											
QC1201305301 183245006 DUP											
Iron-55	U	-26.4	U	2.65	pCi/g	0		(0% - 100%)	MXP1	04/02/07	22:19
Uncert:		+/-34.3		+/-34.0							
TPU:		+/-34.3		+/-34.0							
QC1201305303 LCS											
Iron-55	1180			1130	pCi/g		96	(75%-125%)		04/02/07	22:51
Uncert:				+/-61.3							
TPU:				+/-98.0							
QC1201305300 MB											
Iron-55			U	-26.4	pCi/g					04/02/07	22:02

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
ad Liquid Scintillation										
atch 621136										
	Uncert:			+/-28.2						
	TPU:			+/-28.2						
QC1201305302 183245006 MS										
on-55	1230 U	-26.4		1180	pCi/g		96	(75%-125%)		04/02/07 22:35
	Uncert:	+/-34.3		+/-69.4						
	TPU:	+/-34.3		+/-110						
atch 621137										
QC1201305305 183245006 DUP										
ickel-63	U	-11.2	U	-8.44	pCi/g	0		(0% - 100%)	MXP1	04/02/07 17:27
	Uncert:	+/-9.41		+/-10.1						
	TPU:	+/-9.41		+/-10.1						
QC1201305307 LCS										
ickel-63	556			477	pCi/g		86	(75%-125%)		04/02/07 17:59
	Uncert:			+/-25.4						
	TPU:			+/-30.6						
QC1201305304 MB										
ickel-63			U	2.75	pCi/g					04/02/07 17:10
	Uncert:			+/-11.6						
	TPU:			+/-11.6						
QC1201305306 183245006 MS										
ickel-63	591 U	-11.2		505	pCi/g		85	(75%-125%)		04/02/07 17:43
	Uncert:	+/-9.41		+/-27.3						
	TPU:	+/-9.41		+/-33.0						
atch 621139										
QC1201305311 183245006 DUP										
echnetium-99	U	-0.155	U	-0.139	pCi/g	0		(0% - 100%)	MXP1	04/03/07 15:56
	Uncert:	+/-0.229		+/-0.236						
	TPU:	+/-0.229		+/-0.236						
QC1201305313 LCS										
echnetium-99	19.6			16.4	pCi/g		84	(75%-125%)		04/03/07 17:00
	Uncert:			+/-0.466						
	TPU:			+/-0.623						
QC1201305310 MB										
echnetium-99			U	-0.281	pCi/g					04/03/07 15:25
	Uncert:			+/-0.210						
	TPU:			+/-0.210						
QC1201305312 183245006 MS										
echnetium-99	20.0 U	-0.155		15.0	pCi/g		75	(75%-125%)		04/05/07 09:59
	Uncert:	+/-0.229		+/-0.676						
	TPU:	+/-0.229		+/-0.776						
atch 621141										
QC1201305317 183255002 DUP										
ritium	U	-0.106	U	0.451	pCi/g	0		(0% - 100%)	AXD2	03/31/07 18:55
	Uncert:	+/-1.06		+/-1.03						
	TPU:	+/-1.06		+/-1.03						
QC1201305319 LCS										
ritium	11.7			12.0	pCi/g		102	(75%-125%)		03/31/07 20:57
	Uncert:			+/-1.54						
	TPU:			+/-1.55						

QC Summary

Workorder: 183255

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Liquid Scintillation											
Batch 621141											
QC1201305316 MB											
Tritium			U	-0.232	pCi/g					03/31/07	17:53
	Uncert:			+/-0.991							
	TPU:			+/-0.991							
QC1201305318 183255002 MS											
Tritium	11.9 U	-0.106		13.2	pCi/g		111	(75%-125%)		03/31/07	19:56
	Uncert:	+/-1.06		+/-1.63							
	TPU:	+/-1.06		+/-1.65							
Batch 621144											
QC1201305325 183245006 DUP											
Carbon-14	U	0.0236	U	-0.0162	pCi/g	0		(0% - 100%)	AXD2	04/02/07	15:22
	Uncert:	+/-0.090		+/-0.0934							
	TPU:	+/-0.090		+/-0.0934							
QC1201305327 LCS											
Carbon-14	7.09			7.02	pCi/g		99	(75%-125%)		04/02/07	17:28
	Uncert:			+/-0.203							
	TPU:			+/-0.231							
QC1201305324 MB											
Carbon-14			U	-0.0233	pCi/g					04/02/07	14:19
	Uncert:			+/-0.0925							
	TPU:			+/-0.0925							
QC1201305326 183245006 MS											
Carbon-14	7.16 U	0.0236		6.92	pCi/g		97	(75%-125%)		04/02/07	16:25
	Uncert:	+/-0.090		+/-0.202							
	TPU:	+/-0.090		+/-0.229							

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

QC Summary

Workorder: 183255

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

Y

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
* Indicates analyte is a surrogate compound.
The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence 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.

ATTACHMENT 4 (DQA RESULTS)

ATTACHMENT 4A
(PRELIMINARY DATA REVIEW)

RELEASE RECORD
Attachment 4

Survey Unit:	9312-0003
Area Description	RCA, Southwest 115 kV Switchyard
Classification	1
Survey Media	Surface Soils
Type of Survey	Final Status Survey
Number of Measurements	15 Static, 3 Judgmental

STATISTICS on TOTAL POPULATION

	Cs-137	Co-60	Sr-90
$DCGL_{op}$ (pCi/g):	4.75E+00	2.29E+00	9.30E-01
Minimum Value:	-6.68E-02	-2.21E-02	-1.38E-02
Maximum Value:	2.25E-02	1.78E-02	3.65E-02
Mean:	-1.73E-02	8.93E-04	4.22E-03
Median:	-6.48E-03	3.04E-03	1.68E-03
Standard Deviation:	2.87E-02	1.14E-02	1.22E-02

STATISTICS on NON-PARAMETRIC POPULATION

	Cs-137	Co-60	Sr-90
$DCGL_{op}$ (pCi/g):	4.75E+00	2.29E+00	9.30E-01
Minimum Value:	-6.68E-02	-2.21E-02	-1.38E-02
Maximum Value:	2.25E-02	1.78E-02	3.65E-02
Mean:	-2.10E-02	1.61E-03	3.46E-03
Median:	-1.28E-02	4.24E-03	1.08E-03
Standard Deviation:	3.02E-02	1.10E-02	1.30E-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	
9312-0003-001F	236545.81	668643.81	-6.38E-02	0.038	5.32E-02		6.35E-03	0.038	6.44E-02		-1.38E-02	0.014	3.42E-02		-0.025
9312-0003-002F	236545.81	668678.94	-1.90E-03	0.028	4.83E-02		6.19E-03	0.036	6.19E-02		-2.55E-03	0.017	3.50E-02		0.000
9312-0003-003F	236515.39	668661.38	-1.28E-02	0.023	3.76E-02		1.83E-03	0.025	4.11E-02		1.20E-02	0.024	4.26E-02		0.011
9312-0003-004F	236515.39	668696.51	1.19E-02	0.025	4.40E-02		-2.21E-02	0.024	3.67E-02		1.91E-02	0.025	4.27E-02		0.013
9312-0003-005F	236515.39	668801.90	-9.37E-03	0.024	3.96E-02		1.78E-02	0.024	4.33E-02		3.25E-03	0.018	3.53E-02		0.009
9312-0003-006F	236515.39	668837.03	-3.58E-03	0.035	5.84E-02		-2.86E-03	0.040	6.62E-02		-1.19E-02	0.017	4.01E-02		-0.015
9312-0003-007F	236484.96	668678.94	-1.38E-02	0.020	3.24E-02		1.06E-02	0.022	3.86E-02		3.65E-02	0.027	4.13E-02	+	0.041
9312-0003-008F	236484.96	668714.07	2.25E-02	0.043	5.34E-02		-7.12E-03	0.035	5.53E-02		-1.60E-03	0.016	3.28E-02		0.000
9312-0003-009F	236484.96	668749.21	-8.06E-04	0.022	3.83E-02		4.92E-03	0.024	4.09E-02		1.08E-03	0.017	3.36E-02		0.003
9312-0003-010F	236484.96	668784.34	1.21E-02	0.033	5.83E-02		1.60E-02	0.032	5.68E-02		4.06E-03	0.020	3.77E-02		0.014
9312-0003-011F	236484.96	668819.47	-3.38E-02	0.042	6.64E-02		-4.28E-03	0.042	6.99E-02		1.54E-02	0.024	4.22E-02		0.008

RELEASE RECORD
Attachment 4

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	
9312-0003-012F	236454.54	668731.64	-6.57E-02	0.031	4.60E-02		-1.55E-02	0.026	4.07E-02		1.98E-03	0.024	4.47E-02		-0.018
9312-0003-013F	236454.54	668766.77	-6.68E-02	0.029	4.17E-02		1.09E-02	0.025	4.32E-02		-5.04E-04	0.016	3.14E-02		-0.010
9312-0003-014F	236454.54	668801.90	-5.37E-02	0.033	4.41E-02		4.24E-03	0.029	4.30E-02		-8.62E-03	0.017	3.72E-02		-0.019
9312-0003-015F	236424.11	668784.34	-3.55E-02	0.032	5.11E-02		-2.82E-03	0.026	4.34E-02		-2.50E-03	0.021	4.12E-02		-0.011
9312-0003-016-B	236553.97	668630.24	0.00E+00	0.052	4.72E-02		1.21E-02	0.027	4.63E-02		6.43E-03	0.018	3.39E-02		0.012
9312-0003-017-B	236522.69	668819.13	-2.62E-03	0.025	4.34E-02		-1.67E-03	0.026	4.50E-02		1.63E-02	0.020	3.38E-02		0.016
9312-0003-018-B	236492.21	668744.15	5.67E-03	0.026	4.40E-02		-1.85E-02	0.027	4.31E-02		1.38E-03	0.017	3.39E-02		-0.005

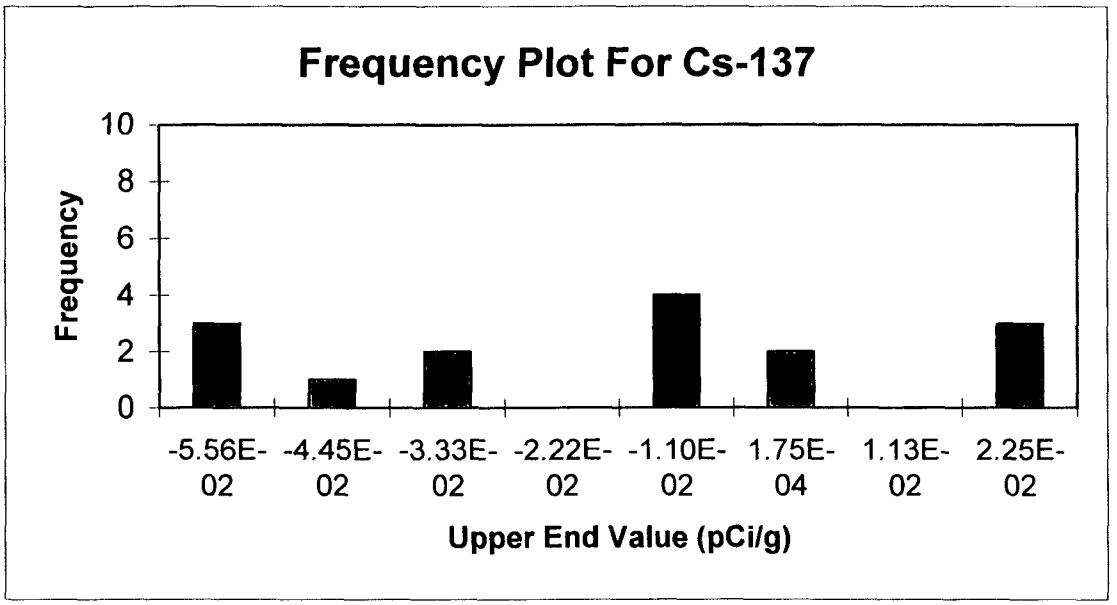
OTHER RADIONUCLIDES

Sample ID	Isotope	Result (pCi/g)	2σ	MDA (pCi/g)	Identified	$DCGL_{op}$ (pCi/g)	Fraction of DCGL
9312-0003-001F	Cs-134	4.04E-02	0.035	6.54E-02	+	2.8E+00	0.014
9312-0003-002F	Am-241	4.84E-02	0.042	6.91E-02	+	1.6E+01	0.003
9312-0003-003F	Mn-54	2.92E-02	0.025	3.63E-02	+	1.0E+01	0.003
9312-0003-004F	Eu-155	7.86E-02	0.068	1.29E-01	+	2.4E+02	0.000
9312-0003-005F	Cs-134	3.38E-02	0.026	4.84E-02	+	2.8E+00	0.012
9312-0003-005F	Eu-155	6.29E-02	0.058	1.14E-01	+	2.4E+02	0.000
9312-0003-006F	Cs-134	7.84E-02	0.050	7.90E-02	+	2.8E+00	0.028
9312-0003-007F	Eu-152	7.04E-02	0.066	9.87E-02	+	6.1E+00	0.012
9312-0003-008F	Cs-134	7.43E-02	0.049	7.76E-02	+	2.8E+00	0.027
9312-0003-010F	Eu-155	7.55E-02	0.071	1.32E-01	+	2.4E+02	0.000
9312-0003-011F	Cs-134	7.50E-02	0.074	8.03E-02	+	2.8E+00	0.027
9312-0003-012F	Cs-134	4.42E-02	0.042	5.17E-02	+	2.8E+00	0.016
9312-0003-013F	Cs-134	2.88E-02	0.028	5.01E-02	+	2.8E+00	0.010
9312-0003-014F	Am-241	9.47E-02	0.092	1.61E-01	+	1.6E+01	0.006
9312-0003-015F	Am-241	1.15E-01	0.093	1.61E-01	+	1.6E+01	0.007
9312-0003-016-B	Cs-134	5.21E-02	0.037	5.47E-02	+	2.8E+00	0.019
9312-0003-018-B	Cs-134	4.06E-02	0.029	4.80E-02	+	2.8E+00	0.015
9312-0003-018-B	Eu-155	8.39E-02	0.068	1.24E-01	+	2.4E+02	0.000

ATTACHMENT 4B
(GRAPHICAL REPRESENTATION OF DATA)

FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9312-0003
Survey Unit Name: RCA - Southwest 115 kV Switchyard
Mean: -2.10E-02 pCi/g



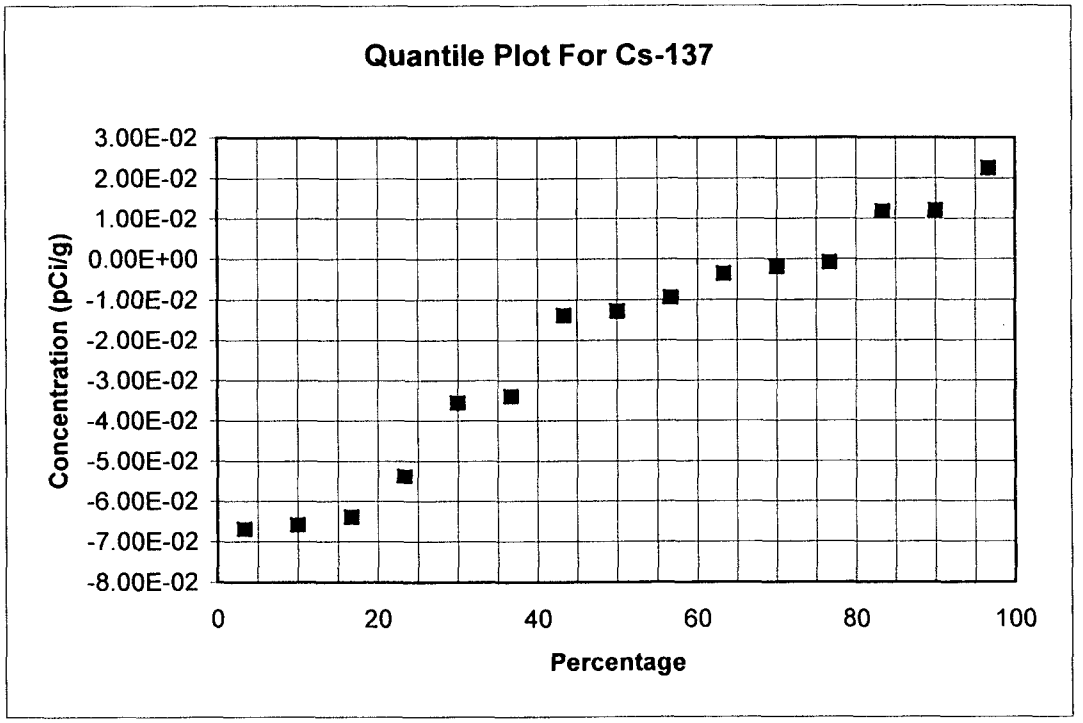
Upper End Value	Observation Frequency	Observation Frequency
-5.56E-02	3	20%
-4.45E-02	1	7%
-3.33E-02	2	13%
-2.22E-02	0	0%
-1.10E-02	4	27%
1.750E-04	2	13%
1.134E-02	0	0%
2.25E-02	3	20%
Total:	15	100%

D. WOJTKOWIAK 4/18/07
Submitted by/Date

4-18-07
Reviewed by/Date

QUANTILE PLOT FOR CESIUM-137

Survey Unit: 9312-0003
Survey Unit Name: RCA – Southwest 115 kV Switchyard
Mean: -2.10E-02 pCi/g



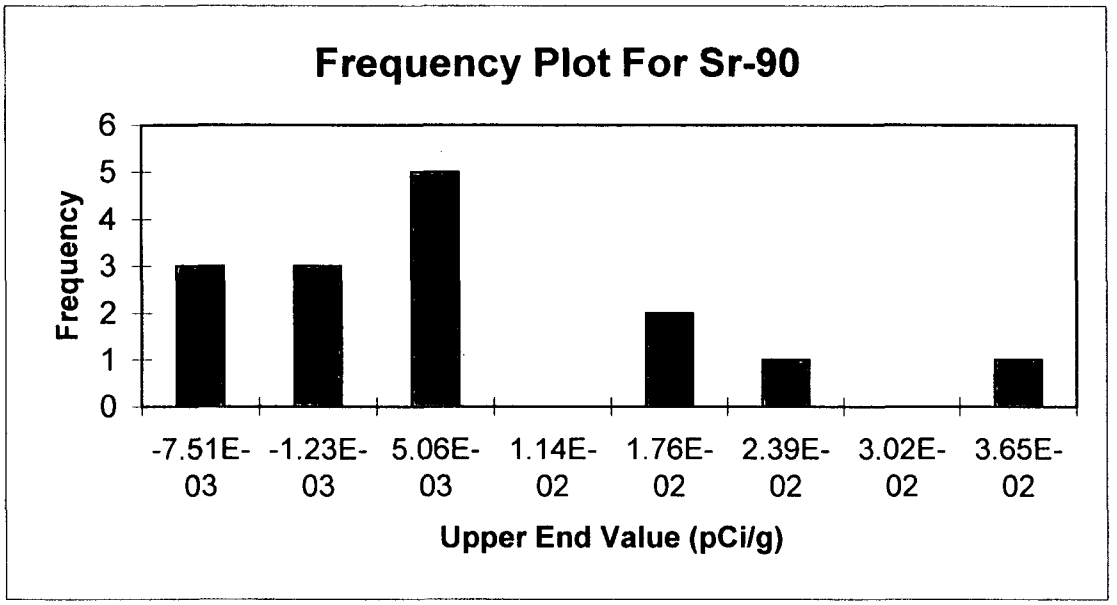
Cs-137	Rank	Percentage
-6.68E-02	1	3.3%
-6.57E-02	2	10.0%
-6.38E-02	3	16.7%
-5.37E-02	4	23.3%
-3.55E-02	5	30.0%
-3.38E-02	6	36.7%
-1.38E-02	7	43.3%
-1.28E-02	8	50.0%
-9.37E-03	9	56.7%
-3.58E-03	10	63.3%
-1.90E-03	11	70.0%
-8.06E-04	12	76.7%
1.19E-02	13	83.3%
1.21E-02	14	90.0%
2.25E-02	15	96.7%

D. WOJTKOWIAK 4/17/07
Submitted by/Date

Reviewed by/Date

FREQUENCY PLOT FOR STRONTIUM-90

Survey Unit: 9312-0003
Survey Unit Name: RCA - Southwest 115 kV Switchyard
Mean: 3.46E-03 pCi/g



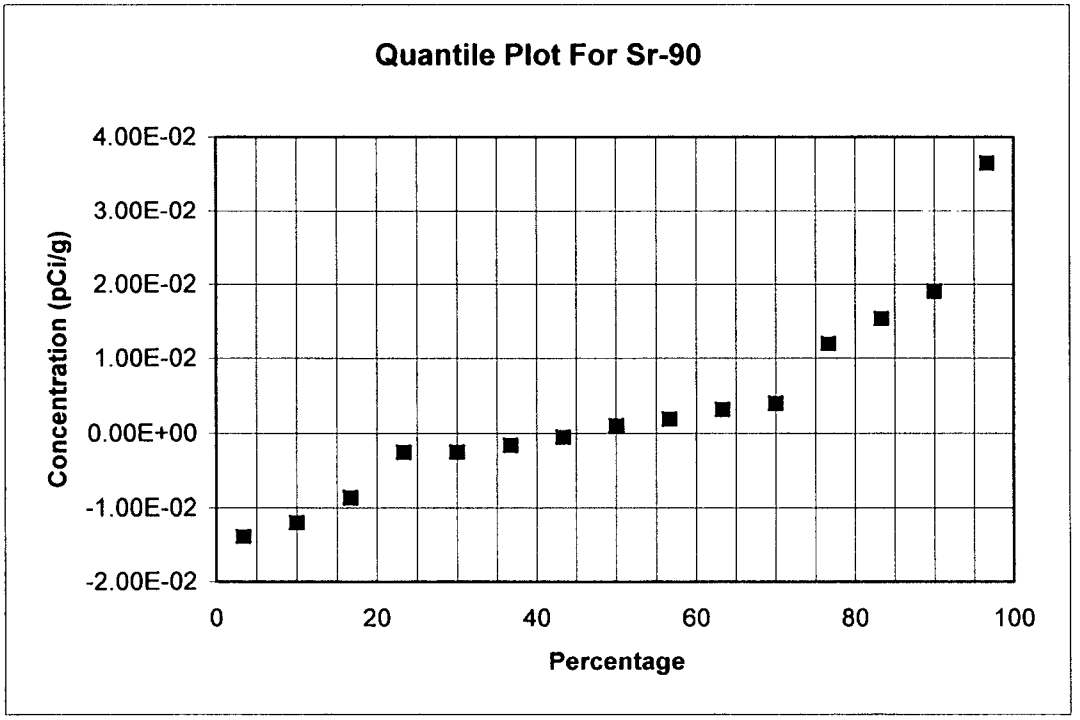
Upper End Value	Observation Frequency	Observation Frequency
-7.51E-03	3	20%
-1.23E-03	3	20%
5.06E-03	5	33%
1.14E-02	0	0%
1.76E-02	2	13%
2.393E-02	1	7%
3.021E-02	0	0%
3.65E-02	1	7%
Total:	15	100%

D WOJTKOWIAK 4/18/07
Submitted by/Date

4-18-07
Reviewed by/Date

QUANTILE PLOT FOR STRONTIUM-90

Survey Unit: 9312-0003
Survey Unit Name: RCA - Southwest 115 kV Switchyard
Mean: 3.46E-03 pCi/g



Sr-90	Rank	Percentage
-1.38E-02	1	3.3%
-1.19E-02	2	10.0%
-8.62E-03	3	16.7%
-2.55E-03	4	23.3%
-2.50E-03	5	30.0%
-1.60E-03	6	36.7%
-5.04E-04	7	43.3%
1.08E-03	8	50.0%
1.98E-03	9	56.7%
3.25E-03	10	63.3%
4.06E-03	11	70.0%
1.20E-02	12	76.7%
1.54E-02	13	83.3%
1.91E-02	14	90.0%
3.65E-02	15	96.7%

D. WOJTKOWIAK 4/17/07
Submitted by/Date

Reviewed by/Date

ATTACHMENT 4C (SIGN TEST)

Sign Test Calculation Sheet for Multiple Radionuclides

Survey Area Number:	9312	Survey Unit Number:	0003	WPIR #:	N/A
Survey Area Name:	Southwest 115 kV Switchyard	Classification:	1	TYPE I (α error): 0.05	N: 15

Radionuclides:	1st Radionuclide Cs-137	2nd Radionuclide Co-60	3rd Radionuclide Sr-90	4th Radionuclide
DCGL:	4.75E+00	2.29E+00	9.30E-01	

Results 1st Radionuclide (pCi/g)	Results 2nd Radionuclide (pCi/g)	Results 3rd Radionuclide (pCi/g)	Results 4th Radionuclide (pCi/g)	Weighted Sum (W_s)	1-W_s	Sign
-6.38E-02	6.35E-03	-1.38E-02		-0.03	1.03	+1
-1.90E-03	6.19E-03	-2.55E-03		0.00	1.00	+1
-1.28E-02	1.83E-03	1.20E-02		0.01	0.99	+1
1.19E-02	-2.21E-02	1.91E-02		0.01	0.99	+1
-9.37E-03	1.78E-02	3.25E-03		0.01	0.99	+1
-3.58E-03	-2.86E-03	-1.19E-02		-0.01	1.01	+1
-1.38E-02	1.06E-02	3.65E-02		0.04	0.96	+1
2.25E-02	-7.12E-03	-1.60E-03		0.00	1.00	+1
-8.06E-04	4.92E-03	1.08E-03		0.00	1.00	+1
1.21E-02	1.60E-02	4.06E-03		0.01	0.99	+1
-3.38E-02	-4.28E-03	1.54E-02		0.01	0.99	+1
-6.57E-02	-1.55E-02	1.98E-03		-0.02	1.02	+1
-6.68E-02	1.09E-02	-5.04E-04		-0.01	1.01	+1
-5.37E-02	4.24E-03	-8.62E-03		-0.02	1.02	+1
-3.55E-02	-2.82E-03	-2.50E-03		-0.01	1.01	+1
				Number of positive differences (S+)		15

Critical Value 11 Survey Unit Meets the Acceptance Criteria

Performed by: David Wojtkowiak Date: 4/11/2007

Independent Review by: Date: 4-18-07

ATTACHMENT 4D (QC SPLIT RESULTS)

Split Sample Assessment Form

Survey Area #: 9312	Survey Unit # 0003	Survey Unit Name: RCA - Southwest 115 kV Switchyard
Sample Plan or WPIR#: N/A		SML#: 9312-0003-009

Sample Description: Comparison of split samples collected from sample measurement location #9 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9312-0003-009F, the comparison sample was 9312-0003-009FS.

	STANDARD				COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
K-40	1.26E+01	0.625	20	0.75 - 1.33	1.37E+01	0.600	1.09	Y

Comments/Corrective Actions: Cs-137 was not detected in sufficient quantities in the field split results at location 9312-0003-009F to evaluate in accordance with procedure. Evaluation using the reported results for K-40 resulted in acceptable agreement between the field-split results at these locations.. Since K-40 was found to be present at an acceptable level of agreement, no further action is warranted.

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

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

Performed by: D. Wojtkowiak	Date: 4/11/2007	Reviewed by:	Date: 4-18-07

ATTACHMENT 4E
(COMPASS POWER CURVE)

DQA Surface Soil Report

Assessment Summary

Site:	9312		
Planner(s):	Wojo		
Survey Unit Name:	9312-0003		
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