



# **Final Status Survey Final Report Phase IV**

**Appendix A10  
Survey Unit Release Record  
9106-0010, Discharge Canal**

**November 2006**



CYAPCO  
FINAL STATUS SURVEY RELEASE RECORD  
DISCHARGE CANAL  
SURVEY UNIT 9106-0010

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**1. SURVEY UNIT DESCRIPTION**

Survey Unit 9106-0010 (Discharge Canal) is designated as Final Status Survey (FSS) Class 2 and consists of approximately 9,512 m<sup>2</sup> (2.35 acres) of water covered sediment in an area located approximately 1.10 miles from the reference coordinate system benchmark used at the Haddam Neck Plant (HNP) (see Attachment 1, Figure 1). The Discharge Canal is a man-made mile long waterway that runs parallel to, and ultimately communicates with the Connecticut River. The Discharge Canal is subdivided into fifteen (15) survey units including two (2) permanent wetland areas for FSS purposes. The survey unit is bounded as follows: Discharge Canal Survey Unit 9106-0009 is to the north (called north as orientated with the north to south flow of the Connecticut River), Survey Area 9523 is to the east, Discharge Canal Survey Unit 9106-0011 is to the south and Survey Area 9531 is to the west. The survey unit comprises the canal sediments to the depth of three feet from the top of the sediment layer or the original construction depth and it extends up the canal banks to the mean high water level.

This survey unit is bounded by reference coordinates E013 through E020 and by S156 through S168 (refer to License Termination Plan 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).

**2. CLASSIFICATION BASIS**

The survey unit was classified in accordance with Procedure RPM 5.1-10, "*Survey Unit Classification*." The historical information, scoping analyses and characterization results provided sufficient data to designate Survey Unit 9106-0010 as Class 2 in May 2006.

The "*Classification Basis Summary*" conducted for this survey unit 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 (HSA) Supplement*,"
- c) Historic and current survey records review,
- d) Visual inspections and a "walk-down."
- e) Formal or informal interviews with cognizant personnel.

A review of the 10CFR50.75(g)(1) database report identified a number of events that might have impacted this survey unit. This was expected since the discharge canal served as the licensed discharge pathway for liquid releases. Several events indicated the potential for plant related contamination in the survey unit. These included a number of primary side system to secondary side

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system leakage events, contamination found to be present in secondary side systems and components, and unmonitored spills that drained to the discharge canal. In 1986, samples were taken from the legacy dredge spoils removed in 1979 dredged spoils area and from recently dredged canal sediment. The sample analyses indicated that the concentrations of Cs-137, Co-60 and other radionuclides were a small fraction of the DCGLs for those nuclides that could be identified by gamma spectroscopy. (refer to NE-86-RA-1142 dated 11-13-86). None of the available historical information reviewed would support a conclusion that any residual activity in this survey unit is likely to be present at concentrations greater than the respective DCGLs.

Additional information was provided by several historical documents, including the "*Results of Scoping Survey*", (completed 9/1/98), the "*Historical Site Assessment*", and the HSA Supplement (dated 6-30-00). These documents presented the results of several sediment samples taken in 1997. These sample results indicated concentrations of 0.5 pCi/g for Co-60, 0.024 pCi/g for Cs-134 and 0.722 pCi/g for Cs-137.

An initial characterization survey was performed during April and May of 2004. However, none of these samples were taken from within the footprint of survey Unit 9106-0010.

A final characterization was performed by Site Closure personnel in April of 2006 to obtain the necessary data of sufficient data quality for Final Status Survey (FSS) planning purposes. Six (6) 3-foot core sediment samples were taken from six (6) locations. All of the samples were analyzed by gamma spectroscopy. Since Hard-to-Detect (HTD) analyses were not performed, and since Ni-63 was found to be a nuclide of concern in an adjacent discharge canal Survey Unit (SU 9106-0009), for conservatism it was included as a nuclide of concern in Survey Unit 9106-0010. The Ni-63 concentration statistics were also included in the variance calculations to determine the size of the sample population for FSS. Although no additional HTD testing was performed for characterization; four (4) of the fifteen (15) samples taken to demonstrate compliance with the release criteria during FSS were tested for the full suite of HTD nuclides to provide additional assurance that all of the radionuclides of concern were appropriately addressed. As a result of characterization, the radionuclides of concern identified for FSS planning purposes were Cs-137, Co-60 and Ni-63 (refer to Table 1).

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<b>Parameter</b>	<b>Cs-137 (pCi/g)</b>	<b>Co-60 (pCi/g)</b>	<b>Ni-63 (pCi/g)</b>
Minimum Value:	2.12E-02	1.69E-02	2.42E+01
Maximum Value:	4.32E-01	9.22E-01	2.59E+01
Mean:	1.97E-01	2.15E-01	2.51E+01
Median:	1.48E-01	7.76E-02	2.51E+01
Standard Deviation:	1.86E-01	3.51E-01	1.20E+00

NOTE: The Operational DCGLs are 6.01 pCi/g for Cs-137, 2.90 pCi/g for Co-60 and 549 pCi/g for Ni-63; these are used in conjunction with the unity rule to achieve nineteen (19) mrem/yr TEDE

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

Based upon the historical information and the results of radiological surveys performed during characterization, it was concluded that there was a low probability for residual radioactivity to be present in this survey unit in concentrations greater than the Operational DCGLs justifying a survey unit classification of Class 2 (refer to Section 3).

**3. DATA QUALITY OBJECTIVES (DQO)**

FSS design and planning is based on 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 incorporates 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 satisfy the release criteria objective of the FSS.

The primary objective of the Final Status Survey Plan (FSSP) was to demonstrate that the level of residual radioactivity in Survey Unit 9106-0010 did not exceed the release criteria specified in the LTP and that the potential

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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 Derived Concentration Guideline Levels (DCGLs). The DCGLs represent the concentration of radioactivity above background, equivalent to a dose-based release criterion and is 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), for existing groundwater radioactivity and for additional future groundwater radioactivity that will be contributed by building foundations and footings.

As described in detail in the LTP, the dose model applied to the discharge canal presumes that the canal sediments are dredged to a depth of three (3) feet below the top of the sediment layer and spread for the planting of crops per the Resident Farmer Scenario. Consequently, the soil DCGLs are directly applied to the canal sediment media

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

*Equation 1:*

$$H_{\text{Total}} = H_{\text{Soil (sediment)}} + H_{\text{Existing GW}} + H_{\text{Future GW}}$$

The total dose under the LTP criteria is twenty-five (25) mrem/yr TEDE from all three components. The allowable total dose under the Connecticut Department of Environmental Protection (CTDEP) radiological remediation standard for Connecticut Yankee (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 groundwater dose values discussed above.

This survey unit is not affected by either existing groundwater or by future groundwater (reference CY memo ISC 06-024). Therefore, dose contribution from both existing and future groundwater is zero (0) mrem/yr TEDE, based on field data.

*Equation 2:*

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

The allowable dose for soil in this survey unit is nineteen (19) mrem/yr TEDE as shown by Equation 2 above. The concentration of residual radioactivity

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resulting in nineteen (19) mrem/yr TEDE is designated as the Operational DCGL, and has been established for the radionuclides of concern as provided in Table 2.

Note: The survey design used a much smaller value for investigation than the Operational DCGL provided by Table 2 to conservatively account for the contribution to the total dose from existing and future groundwater which had not been established at the time of planning the FSS.

<b>Table 2 – Radionuclide Specific Base Case Soil DCGL, Operational DCGLs and Required Minimum Detectable Concentrations</b>			
Radionuclide <sup>(1)</sup>	Base Case Soil DCGL (pCi/g) <sup>(2)</sup>	Operational DCGL (pCi/g) <sup>(3)</sup>	Required MDC (pCi/g) <sup>(4)</sup>
<b>H-3</b>	4.12E+02	3.13E+02	1.65E+01
<b>C-14</b>	5.66E+00	4.30E+00	2.26E-01
Mn-54	1.74E+01	1.32E+01	6.96E-01
<b>Fe-55</b>	2.74E+04	2.08E+04	1.10E+03
Co-60	3.81E+00	2.90E+00	1.52E-01
<b>Ni-63</b>	7.23E+02	5.49E+02	2.89E+01
<b>Sr-90</b>	1.55E+00	1.18E+00	6.20E-02
Nb-94	7.12E+00	5.41E+00	2.85E-01
<b>Tc-99</b>	1.26E+01	9.58E+00	5.04E-01
Ag-108m	7.14E+00	5.43E+00	2.86E-01
Cs-134	4.67E+00	3.55E+00	1.87E-01
Cs-137	7.91E+00	6.01E+00	3.16E-01
Eu-152	1.01E+01	7.68E+00	4.04E-01
Eu-154	9.29E+00	7.06E+00	3.72E-01
Eu-155	3.92E+02	2.98E+02	1.57E+01
<b>Pu-238</b>	2.96E+01	2.25E+01	1.18E+00
<b>Pu-239/240</b>	2.67E+01	2.03E+01	1.07E+00
<b>Pu-241</b>	8.70E+02	6.61E+02	3.48E+01
Am-241 <sup>(5)</sup>	2.58E+01	1.96E+01	1.03E+00
<b>Cm-243/244</b>	2.90E+01	2.20E+01	1.16E+00

(1) **Bold** indicates those radionuclides considered to be Hard to Detect (HTD)

(2) The Base Case Soil DCGLs for soil 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 nineteen (19) mrem/yr TEDE

(4) The required MDC is equivalent to one (1) mrem/yr TEDE

(5) Americium-241 can be analyzed by gamma and alpha spectroscopy and is considered to be Easy to Detect (ETD). The preferred result is the alpha spectroscopy's when both analyses are performed.

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Another important facet of the DQO process is to identify the radionuclides of concern and determine the concentration variability. Initial characterization was performed in April of 2004 as discussed in Section 2. Cs-137, Co-60 and Ni-63 were found to be the predominate radionuclides of concern. The basic statistical quantities (i.e., mean, standard deviation, median) for Cs-137, Co-60 and Ni-63 are provided in Table 1.

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*".

This survey was initially designed to ten (10) mrem/yr TEDE. At the time when the survey was designed, the dose contribution for existing and future groundwater had not yet been determined. Subsequently, a conservative value was chosen for the Operational DCGL. This approach is no longer required as the total dose from existing and future groundwater has been established. The dose for soil used for this survey unit to demonstrate compliance with the LTP criteria is nineteen (19) mrem/yr TEDE, as discussed in Section 2 of this Release Record.

The DQO process determined that Cs-137, Co-60 and Ni-63 were the radionuclides of concern (refer to Section 3). The sum of fractions or unity rule was used with the individual Operational DCGLs because multiple radionuclides (Cs-137, Co-60 and Ni-63) were considered in the survey design.

Surrogate DCGLs were not required for this survey unit based on process knowledge from FSS of nearby adjacent areas and via the screening process described in LTP Section 5.4.7.2, "Gross Activity DCGLs". Ni-63 concentrations in sediment and soil were ascertained by direct analysis.

Radionuclide screening or de-selection is a process where an individual radionuclide or aggregate 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 the aggregate of all radionuclides de-selected. This process was applied to analysis data for this survey unit.

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

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The Sign Test was selected as the non-parametric statistical test to demonstrate that the null hypothesis was rejected. The use of the Sign Test did not require the selection or use of a background reference area, which simplified survey design and implementation. In addition, this approach is conservative since it includes background Cs-137 as part of the sample set.

The number of sediment samples for FSS was determined in accordance with Procedure RPM 5.1-12, "*Determination of the Number of Samples for Final Status Survey.*" The Lower Bound of the Gray Region (LBGR) was set in accordance with Procedure RPM 5.1-11 to 0.5 to maintain the relative shift ( $\Delta/\sigma$ ) in the range of 1 and 3. The resulting relative shift was 2.1. 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 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. This indicates that the survey unit has a high probability of rejecting the null hypothesis, assuming that the characterization data are representative of the FSS results. Survey design specified fifteen (15) sediment core samples for non-parametric statistical testing.

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

Judgmental sampling was included as a feature of this survey design to address any anomalies identified in the field.

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

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<b>Table 3 - Sample Measurement Locations with Associated GPS Coordinates</b>		
<b>Designation</b>	<b>Northing</b>	<b>Easting</b>
9106-0010-001F	233655.56	673189.16
9106-0010-002F	233655.56	673278.89
9106-0010-003F	233577.85	673144.30
9106-0010-004F	233577.85	673234.03
9106-0010-005F	233577.85	673323.76
9106-0010-006F	233500.14	673189.16
9106-0010-007F	233500.14	673278.89
9106-0010-008F	233422.43	673144.30
9106-0010-009F	233422.43	673234.03
9106-0010-010F	233422.43	673323.76
9106-0010-011F	233344.72	673189.16
9106-0010-012F	233344.72	673278.89
9106-0010-013F	233344.72	673368.62
9106-0010-014F	233267.02	673323.76
9106-0010-015F	233267.02	673413.49

Four (4) sediment samples were analyzed for the full suite of radionuclides specified in Table 1, exceeding the requirement to analyze 5% of the sample population for HTD analysis specified in procedure RPM 5.1-11. Two (2) of the four (4) samples were randomly selected using the Microsoft Excel "RAND" function. The two (2) samples exhibiting the highest observed radionuclide concentrations by gamma analyses were also selected.

The implementation of quality control measures as referenced by Procedure RPM 5.1-24, "*Split Sample Assessment for Final Status Survey*," required the collection of two (2) soil samples for "split sample" analysis by the off-site laboratory. These locations were selected randomly using the Microsoft Excel "RAND" function. The number of quality control samples exceeded the 5% requirement as specified by the LTP.

Section 5.7.3.2.6 of the LTP specifies that scanning is not required for the FSS of the Discharge Canal. Table 4 provides a synopsis of the survey design.

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<b>Table 4 – Synopsis of the Survey Design</b>		
<b>Feature</b>	<b>Design Criteria</b>	<b>Basis</b>
Survey Unit Land Area	9,512 m <sup>2</sup>	Based on AutoCAD-LT and Visual Sample Plan calculations
Number of Measurements	15	Type 1 and Type 2 errors were 0.05, sigma was 0.238 the LBGR was set to 0.5 to maintain Relative Shift in the range of 1 and 3, Relative Shift was 2.1
Grid Spacing	23.4 m	Based on triangular grid
Design DCGL	3.16 pCi/g Cs-137 1.52 pCi/g Co-60 289 pCi/g Ni-63	To achieve ten (10) mrem/yr TEDE <sup>(1)</sup>
Operational DCGL	6.01 pCi/g Cs-137 2.90 pCi/g Co-60 549 pCi/g Ni-63	To achieve nineteen (19) mrem/yr TEDE <sup>(2)</sup> to demonstrate compliance with Equation 2 of this Release Record
Scan Coverage	N/A	The LTP exempts this area
Sediment Investigation Level	6.01 pCi/g Cs-137 2.90 pCi/g Co-60 549 pCi/g Ni-63	The Operational DCGL meets the LTP criteria for a Class 2 survey unit

(1) The survey design used a much smaller value for investigation than the Operational DCGL provided by Table 2 as the total dose from existing and future groundwater had not been established at the time of planning the FSS

(2) The allowable dose for soil in this survey unit is nineteen (19) mrem/yr TEDE as the bounding dose from existing and future groundwater has been established based on field data (reference CY memo ISC 06-024)

## 5. SURVEY IMPLEMENTATION

Final Status Survey field activities were conducted under Work Plan and Inspection Record (WP&IR) 2006-0021. The WP&IR package included a detailed FSSP, 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.

Measurement locations were identified in North American Datum (NAD) 1927 coordinates that were supplied to the sampling vendor, Ocean Surveys, Inc. (OSI) of Old Saybrook, Connecticut. Discharge Canal sampling was accomplished using direct push technology to collect composite samples of bottom and mean high water mark sediments. Sediment cores from the Discharge Canal were obtained by OSI using a vibrating corer that is platform mounted on a sampling vessel. The core barrel was a three (3) inch diameter thin-walled aluminum tube which also served as a core liner (ten (10) feet or less). A core catcher was available to prevent the sample from sliding out of the bottom of the tube. Vessel positioning and the determination of sample

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locations were accomplished using a GPS interfaced with a navigation and data logging system.

After extraction, water was drained from above the sample by drilling holes above the sediment. The liner was cut, capped, sealed, labeled and turned over to site personnel who processed and controlled the samples under Chain of Custody (COC) protocols in accordance with procedure RPM 5.1-5, "*Chain of Custody for Final Status Survey Samples.*" Rinsing of the barrel and associated equipment was performed between sampling events. New aluminum tubes were used for each sample to prevent cross-contamination of subsequent samples.

The fifteen (15) sediment 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 COC protocols.

Four (4) samples (9106-0010-001F, 9106-0010-008F, 9106-0010-012F and 9106-0010-013F) were selected for HTD radionuclide analysis by the off-site laboratory.

The implementation of quality control measures included the collection of two (2) split samples at locations 9106-0010-011F and 9106-0010-014F for comparative analysis by the off-site laboratory.

## 6. SURVEY RESULTS

The off-site laboratory employed for the radiological analyses of samples was General Engineering Laboratories (GEL) – Charleston, South Carolina. The laboratory analyzed the fifteen (15) samples taken for non-parametric statistical testing and the associated duplicates using gamma spectroscopy. Ni-63 was analyzed by liquid scintillation analysis. All analyses were performed to the required MDC.

Cs-137 was positively identified (i.e., a result greater than two (2) standard deviations uncertainty) in thirteen (13), Co-60 was positively identified in eleven (11) and Ni-63 was positively identified in none of the fifteen (15) samples. The results reported for the remaining sample analyses indicated that activity was present at levels approaching or below the established detection limits in the remaining samples collected and analyzed for non-parametric testing.

Several other radionuclides which were positively identified (i.e., a result greater than two (2) standard deviations uncertainty) could be de-selected or excluded using the 5% and 10% rule described in Section 5.4.7.2 of the LTP.

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The off-site laboratory also processed four (4) samples for full HTD analysis as required by the sample plan. The requested analyses included alpha spectroscopy, gas flow proportional counting, and liquid scintillation depending upon the radionuclide and the measurement method. All analyses were performed to the required MDC. Four (4) of the HTD radionuclides met the accepted criteria for detection (i.e., a result greater than two standard deviations uncertainty) in more than one sample; however, each of the positive results for HTD radionuclides could be de-selected based on the 5% and 10% rules.

None of the samples exceeded the Operational DCGL or required further investigation. A summary of the sample results is provided in Table 5.

**Table 5- Summary of Soil Sample Results**

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Ni-63 pCi/g	Fraction of the Operational DCGL (1)
9106-0010-001F	2.60E-01	5.75E-01	-1.07E+00	2.40E-01
9106-0010-002F	2.78E-02	5.45E-02	-4.66E+00	1.49E-02
9106-0010-003F	6.72E-02	-2.26E-03	-3.75E+00	3.57E-03
9106-0010-004F	4.92E-02	8.38E-02	-4.77E+00	2.84E-02
9106-0010-005F	1.08E-02	-2.17E-05	-3.87E+00	-5.26E-03
9106-0010-006F	1.47E-01	1.82E-01	-2.58E+00	8.25E-02
9106-0010-007F	8.00E-02	8.30E-02	-2.34E+00	3.77E-02
9106-0010-008F	2.20E-01	1.95E-02	-2.65E+00	3.85E-02
9106-0010-009F	1.30E-01	1.92E-01	-3.71E+00	8.11E-02
9106-0010-010F	1.17E-01	5.08E-02	-3.80E+00	3.01E-02
9106-0010-011F	3.45E-01	2.27E-01	6.33E+00	1.47E-01
9106-0010-012F	1.94E-01	4.03E-01	-2.72E+00	1.66E-01
9106-0010-013F	7.71E-03	1.48E-03	-4.88E+00	-7.10E-03
9106-0010-014F	8.57E-02	5.07E-02	-4.24E+00	2.40E-02
9106-0010-015F	6.73E-03	2.28E-02	-1.48E+00	6.29E-03

(1) The Operational DCGLs from Table 2 are 6.01 pCi/g for Cs-137, 2.90 pCi/g for Co-60 and 549 pCi/g for Ni-63; these are used in conjunction with the unity rule to achieve nineteen (19) mrem/yr TEDE.

NOTE: The off-site laboratory reported that fourteen (14) of the fifteen (15) samples analyzed for Ni-63, within this survey unit, had a negative value reported. These negative values when used to determine the fraction of the Operational DCGL for the Radionuclide(s) of Concern had a maximum effect of lowering the fraction of the Operational DCGL present by less than 1% and the corresponding assigned dose for this survey unit by less than 0.2\* mrem/yr TEDE.

\*[-4.88 pCi/g (Maximum reported negative value for Ni-63) ÷ 549 pCi/g (Operational DCGL for Ni-63) x 19 mrem/yr TEDE per DCGL = -0.169 mrem/yr TEDE ≈ -0.2 mrem/yr TEDE]

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One (1) biased sample was required by the FSS plan. This sample was designated as sample location 9106-0010-016F. Sample results for sample location 9106-0010-016F are presented in Table 6 below.

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Ni-63 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>
9106-0010-016F	1.61E-02	1.49E-02	-5.24E+00	-1.73E-03

(1) The Operational DCGLs from Table 2 are 6.01 pCi/g for Cs-137, 2.90 pCi/g for Co-60 and 549 pCi/g for Ni-63; these are used in conjunction with the unity rule to achieve nineteen (19) mrem/yr TEDE

7. **QUALITY CONTROL**

The two (2) split samples taken for QC were analyzed by the off-site laboratory. The data were evaluated using USNRC acceptance criteria specified in Inspection Procedure 84750 and as detailed in HNP Procedure RPM 5.1-24, "Split Sample Assessment for Final Status Survey."

The first split-sample, 9106-0010-010F/S, did not meet the comparison criterion for Cs-137. A possible cause for this anomaly could be the presence of Cs-137 tightly bound to organic material in the sample aliquot. This distribution of material does not lend itself to homogenous mixing in a sediment matrix and, therefore, is not necessarily an indicator of inadequate sampling or sample preparation methodology. Additionally, Co-60 did meet the comparison criteria for the sample results. However, Ni-63 had a resolution of one (1) and values <4 have not been addressed in NRC Inspection Procedure 84750. Therefore, a determination of the acceptability for values <4 can not be made. In this sample, K-40, a natural radioisotope, was found to be present at an acceptable level of agreement; therefore, the comparison was determined to be acceptable.

For the second QC split sample, 9106-0010-014F/S, did not meet the comparison criterion for Co-60. A possible cause for this anomaly could be the presence of Co-60 in the form of discrete particles. Such a physical form does not lend itself to homogenous mixing in a sediment matrix and, therefore, is not necessarily an indicator of inadequate sampling or sample preparation methodology. Additionally, Cs-137 did meet the comparison criteria for the sample results. However, Ni-63 had a resolution of negative two (-2) and values <4 have not been addressed in NRC Inspection Procedure 84750. Therefore, a determination of the acceptability for values <4 can not be made. In this sample, K-40, a natural radioisotope, was found to be present at an acceptable level of agreement; therefore, the comparison was determined to be acceptable.

The sample analysis vendor, General Engineering Laboratories (GEL) – Charleston, South Carolina, maintained quality control and quality assurance plans as part of normal operation. Refer to Attachment 2 for data and data quality analysis results.

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

RELEASE RECORD

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**8. INVESTIGATIONS AND RESULTS**

No investigation was required to be performed since none of the sample results exceeded the investigation levels.

**9. REMEDIATION AND RESULTS**

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

**10. CHANGES FROM THE FINAL STATUS SURVEY PLAN**

The survey was designed to ten (10) mrem/yr TEDE which was conservative and necessary at the time of FSS planning. It is no longer required as the total dose from existing and future groundwater has been established. The dose for soil used to demonstrate compliance with the LTP criteria is nineteen (19) mrem/yr TEDE as discussed in Section 2 of this Release Record.

**11. DATA QUALITY ASSESSMENT (DQA)**

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, "*Data Quality Assessment*." The sample 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 indicates that the survey unit passes the unrestricted release criterion.

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

The preliminary data review consisted of calculating basic statistical quantities (e.g., mean, median, standard deviation). The standard deviation was slightly more than the value used for the survey design. This is represented by the shift in the retrospective power curve as shown in Attachment 2f. This would indicate a need to change the original LBGR in order to maintain the number of samples at fifteen (15) to meet the Operational DCGL. However, the value of LBGR is not a critical issue as the survey unit has passed the statistical test, and the mean and median values are well below the Operational DCGL when used in conjunction with the unity rule. 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 criterion with adequate power as required by the DQOs.

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

RELEASE RECORD

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The range of the data, about 3.41 standard deviations, was not unusually large. The difference between the mean and median was 40.3% of the standard deviation which indicates some skewness in the data. The data was represented graphically through posting plots, a frequency plot, and a quantile plot. The frequency plot shows some positive skewness as confirmed by the calculated skew of 1.07.

All data, assessments, and graphical representations are provided in Attachment 2.

**12. ANOMALIES**

The anomalies associated with the disagreement between the field splits has been discussed in Section 7. The source of the disagreement for Co-60 and Cs-137, were likely due to Co-60 being present in the form of discrete particles and Cs-137 being tightly bound to organic materials in the sample media. Such a physical form does not lend itself to homogenous mixing in a sediment matrix.

**13. CONCLUSION**

Survey Unit 9106-0010 has demonstrated compliance with the dose based, unrestricted release criterion. The sample data passed the Sign Test and the null hypothesis was rejected. The ALARA criteria for soils as specified in Chapter 4 of the LTP were achieved. Reclassification and remediation of this survey unit was not required.

Graphical representation of data indicates some positive skewness that is probably due to localized differences in particulate deposition rates, hydraulic velocity and sedimentation rates. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved. The survey unit was properly designated as a Class 2 survey unit.

As stated in Section 6, fourteen (14) of the fifteen (15) sample results reported for Ni-63 were negative values. These negative values were used when determining the sum of the fractions (unity rule) and, therefore, lowered the reported fraction of the Operational DCGL. In the interests of conservatism, the maximum dose contribution from the negative impact of using these values will be added to the total dose for this survey unit. The maximum dose contribution for Ni-63 is less than 0.2 mrem/yr TEDE.

The dose contribution from sediment in this survey unit is 1.3 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

This survey unit is not affected by existing groundwater (reference CY memo ISC 06-024). It has been determined that the dose contribution from groundwater sources is zero (0) mrem/yr TEDE.

This survey unit also is not considered impacted by future groundwater radioactive contamination, as there are no concrete foundations or footings

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

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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, therefore, zero (0) mrem/yr TEDE.

The average total dose from residual radioactivity in this survey unit, including that from sediment, will not exceed 1.3 mrem/yr Total Effective Dose Equivalent (TEDE).

**14. ATTACHMENTS**

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Sample and Statistical Data

DISCHARGE CANAL  
SURVEY UNIT 9106-0010  
RELEASE RECORD

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Attachment 1  
Figures  
(5 pages)

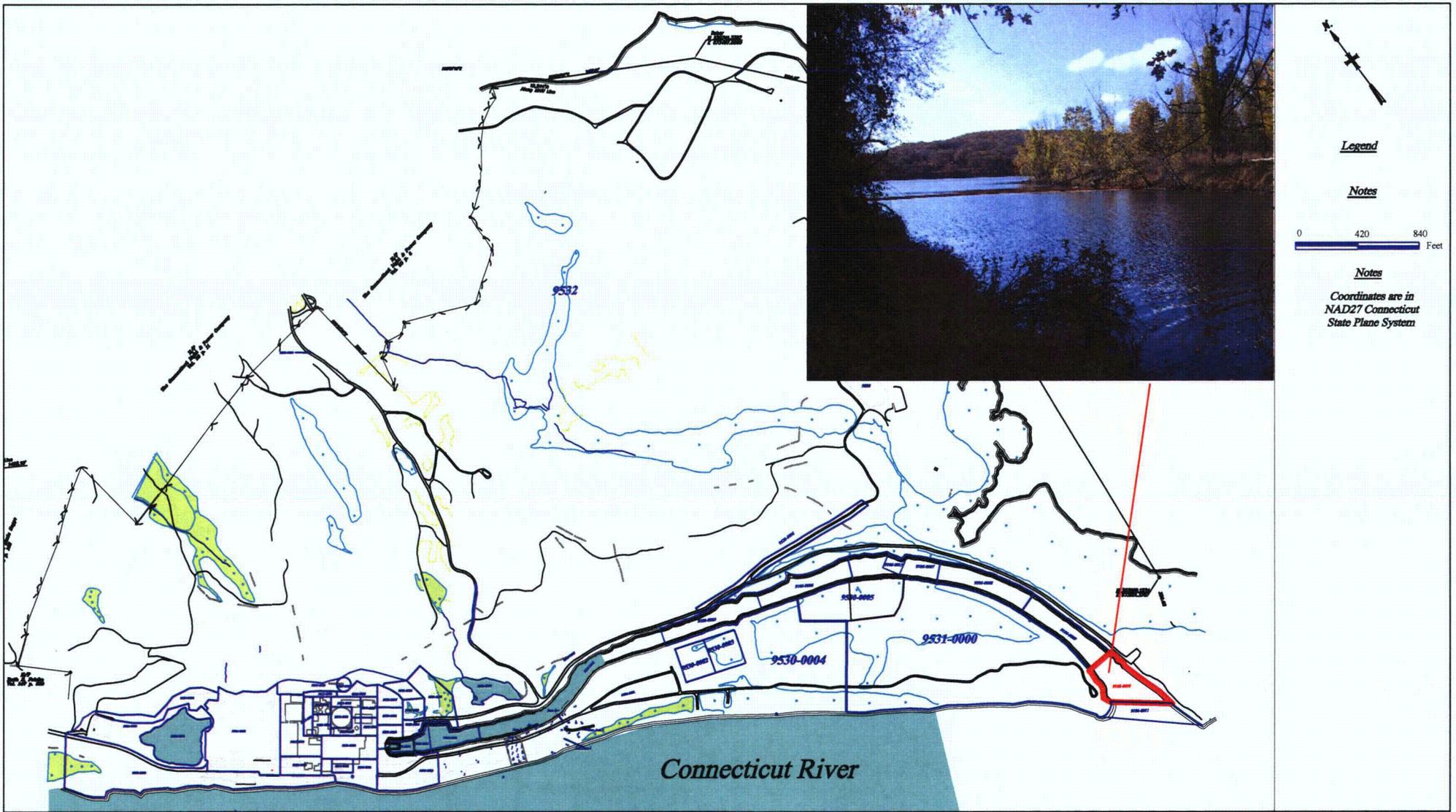
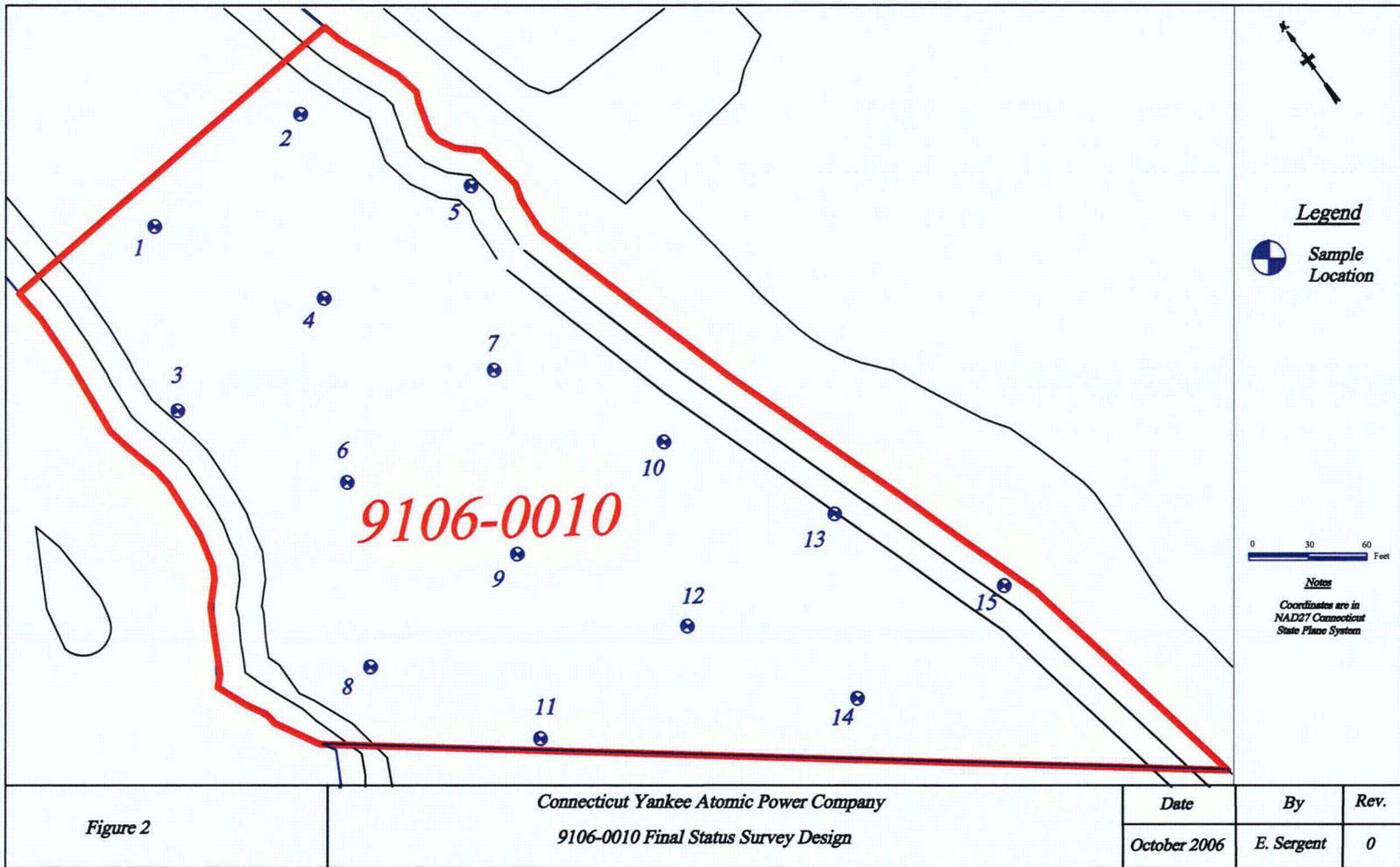


Figure 1

Connecticut Yankee Atomic Power Company  
 Site Map With Reference To Survey Unit 9106-0010

Date	By	Rev.
October 2006	E. Sergeant	0



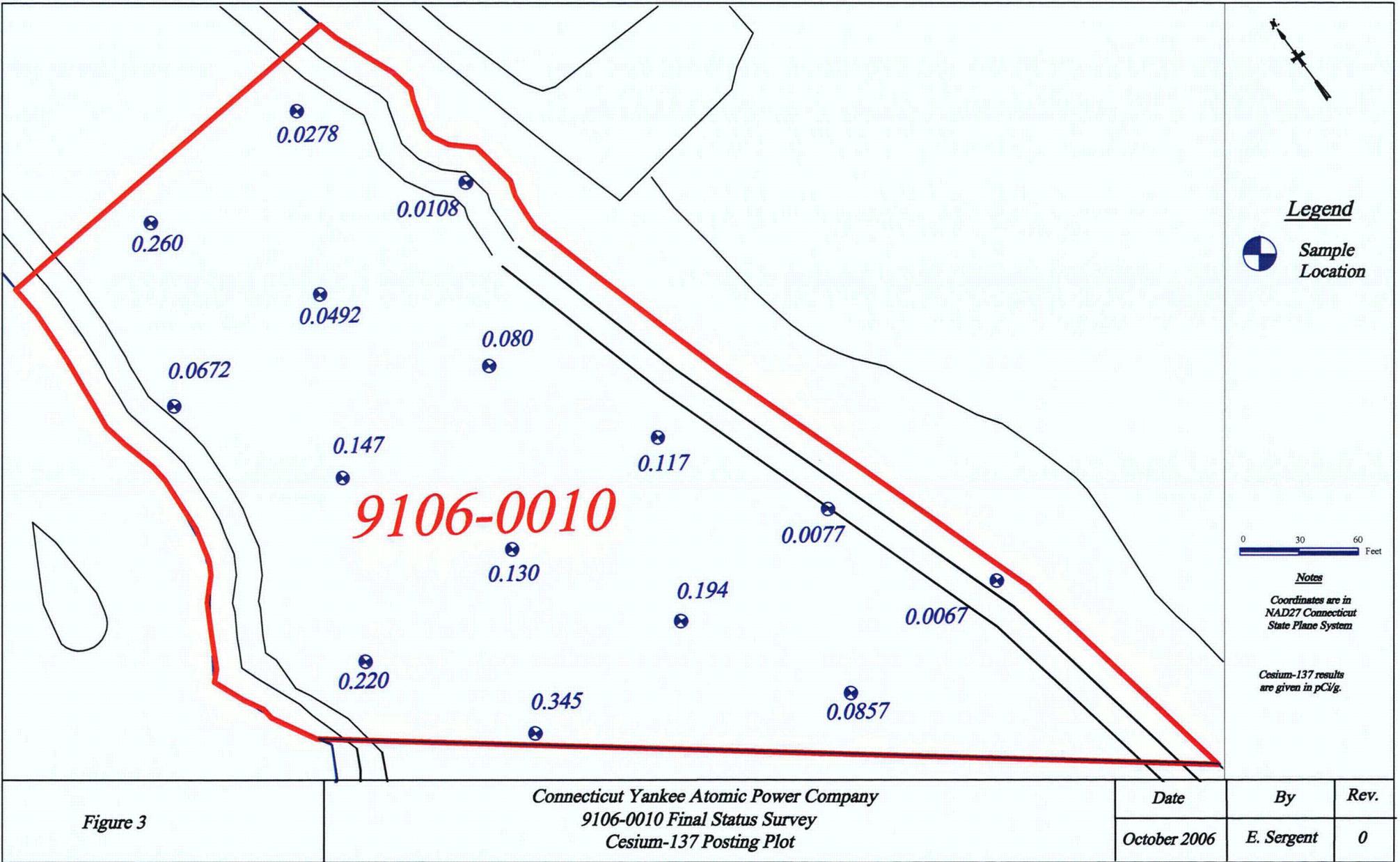


Figure 3

Connecticut Yankee Atomic Power Company  
 9106-0010 Final Status Survey  
 Cesium-137 Posting Plot

Date	By	Rev.
October 2006	E. Sergent	0

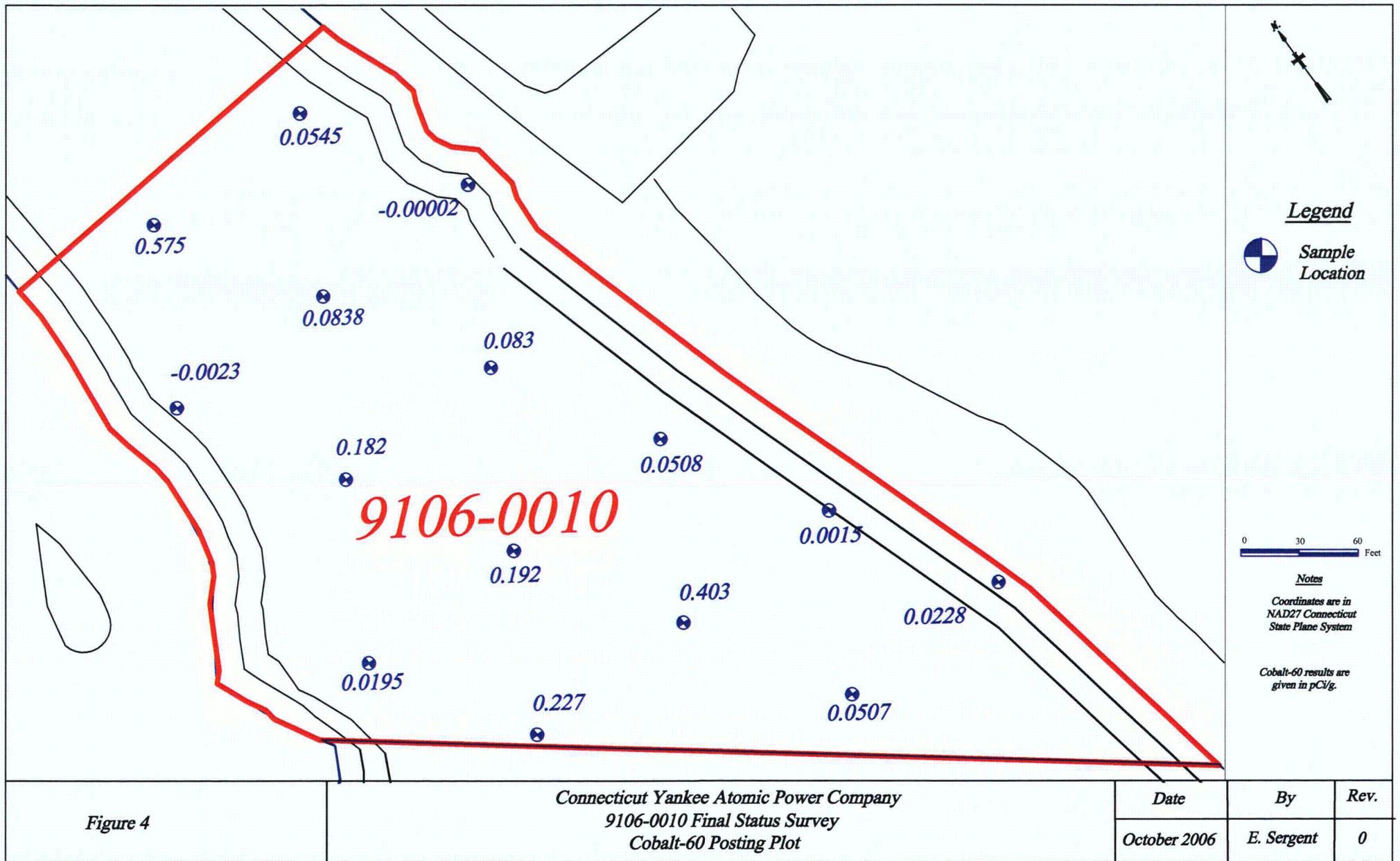


Figure 4

Connecticut Yankee Atomic Power Company  
 9106-0010 Final Status Survey  
 Cobalt-60 Posting Plot

Date	By	Rev.
October 2006	E. Sargent	0

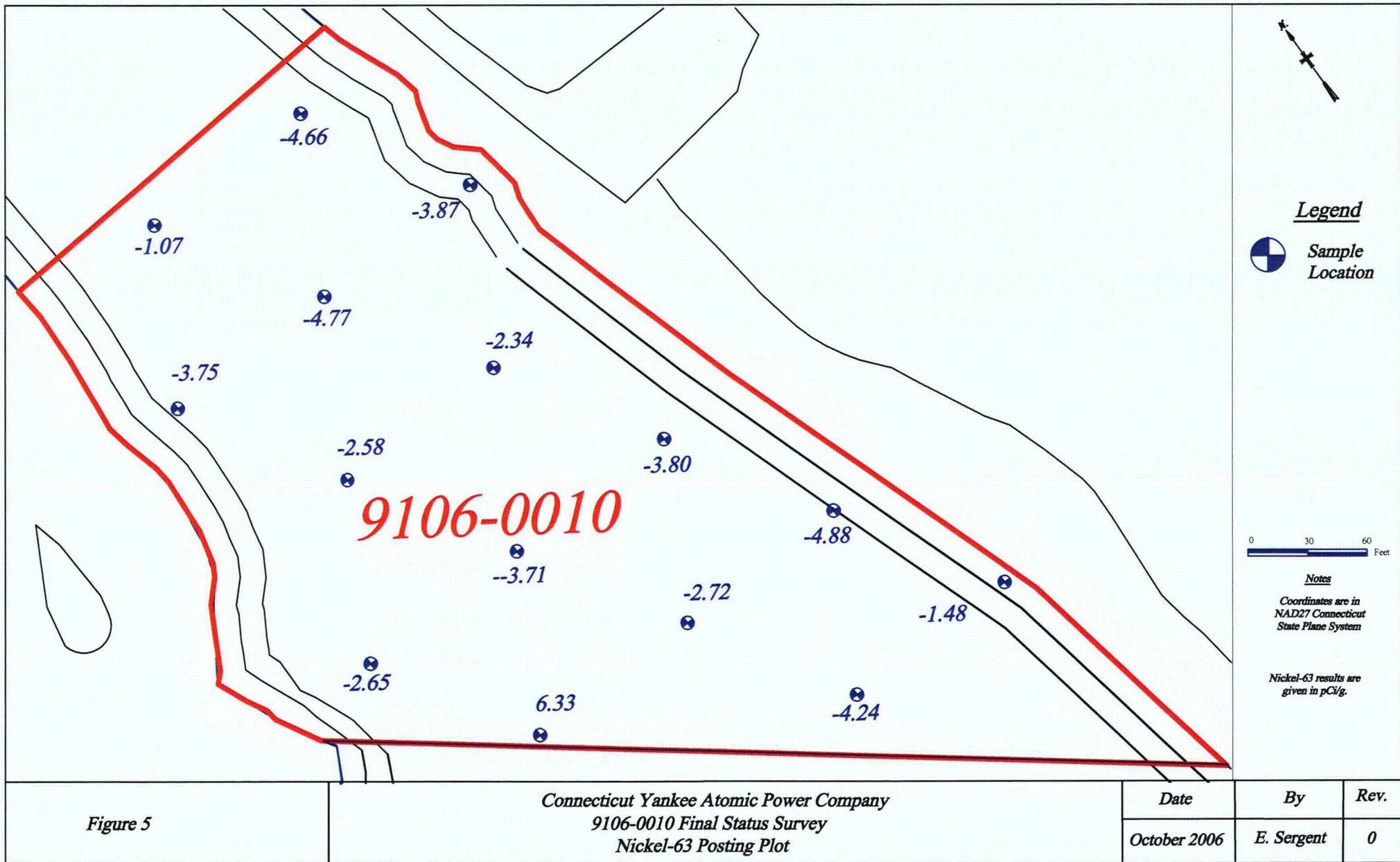


Figure 5

Connecticut Yankee Atomic Power Company  
 9106-0010 Final Status Survey  
 Nickel-63 Posting Plot

Date	By	Rev.
October 2006	E. Sergent	0

DISCHARGE CANAL  
SURVEY UNIT 9106-0010  
RELEASE RECORD

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Attachment 2  
Sample and Statistical Data

DISCHARGE CANAL  
SURVEY UNIT 9106-0010  
RELEASE RECORD

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Attachment 2a  
Sample Data  
(186 Pages)

## Table of Contents

<b>General Narrative</b> .....	<b>1</b>
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<b>Radiological Analysis</b> .....	<b>11</b>
Sample Data Summary .....	33
Quality Control Data .....	73

# **General Narrative**

**CASE NARRATIVE**  
**For**  
**CONNECTICUT YANKEE**  
**RE: Sediment**  
**PO# 002332**  
**Work Order: 163105**  
**SDG: MSR #06-0707**

**June 16, 2006**

**Laboratory Identification:**

General Engineering Laboratories, LLC

**Mailing Address:**

P.O. Box 30712  
Charleston, South Carolina 29417

**Express Mail Delivery and Shipping Address:**

2040 Savage Road  
Charleston, South Carolina 29407

**Telephone Number:**

(843) 556-8171

**Summary:**

**Sample receipt**

The sample(s) for this Project arrived at General Engineering Laboratories, LLC, (GEL) in Charleston, South Carolina on May 17, 2006. All sample containers arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

The laboratory received the following sample(s):

<b><u>Sample ID</u></b>	<b><u>Client Sample ID</u></b>
163105001	9106-0010-014F
163105002	9106-0010-014FS
163105003	9106-0010-011F
163105004	9106-0010-011FS
163105005	9106-0010-015F
163105006	9106-0010-005F
163105007	9106-0010-003F
163105008	9106-0010-016F

<u>Sample ID</u>	<u>Client Sample ID</u>
163105009	9106-0010-001F
163105010	9106-0010-002F
163105011	9106-0010-004F
163105012	9106-0010-006F
163105013	9106-0010-007F
163105014	9106-0010-009F
163105015	9106-0010-010F
163105016	9106-0010-012F
163105017	9106-0010-008F
163105018	9106-0010-013F

**Items of Note:**

There are no items of note.

**Case Narrative:**

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

**Analytical Request:**

Sixteen sediment samples were analyzed for FSSGAM and Ni-63.  
Two sediment samples were analyzed for FSSALL.

**Internal Chain of Custody:**

Custody was maintained for the sample(s).

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody and Supporting Documentation and all analytical fractions.

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

**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. 2006-00349

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested					Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Ni-63					Comments:  <i>16.3105%</i>	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.														
Sample Designation	Date	Time												
											Comment, Preservation	Lab Sample ID		
<i>09</i> 9106-0010-001F	5/04/06	10:49	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>010</i> 9106-0010-002F	5/04/06	11:12	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>011</i> 9106-0010-004F	5/04/06	12:48	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>012</i> 9106-0010-006F	5/04/06	13:34	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>013</i> 9106-0010-007F	5/04/06	13:21	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>014</i> 9106-0010-009F	5/04/06	14:01	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>015</i> 9106-0010-010F	5/04/06	14:21	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>016</i> 9106-0010-012F	5/04/06	14:44	SE	C	BP	X		X			Transferred from COC 2006-00321			
<i>018</i> 9106-0010-013F	5/04/06	15:06	SE	C	BP			X			Transferred from COC 2006-00321			
NOTES: PO #: 002332 MSR #: 06-0707 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA											Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		Internal Container Temp.: <i>17</i> Deg. C  Custody Sealed? Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact?  Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>JAYME RUIARTE</i>			Date/Time <i>5-16-06 / 1150</i>			2) Received By <i>AMMOLLEY</i>			Date/Time <i>5/17/06 945</i>			Bill of Lading # <i>7904-3 113-8541</i>		
3) Relinquished By			Date/Time			4) Received By			Date/Time					

**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00350

Project Name: Haddam Neck Decommissioning							Analyses Requested				Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024							FSSGAM	FSSALL	Ni-63	Comments:  <i>163105%</i>				
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.														
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- & Type Code						Comment, Preservation	Lab Sample ID		
9106-0010-014F	5/05/06	10:23	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-014FS	5/05/06	10:23	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-011F	5/05/06	09:39	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-011FS	5/05/06	09:39	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-015F	5/05/06	10:02	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-005F	5/05/06	08:25	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-008F	5/05/06	09:21	SE	C	BP			X			Transferred from COC 2006-00324			
9106-0010-003F	5/05/06	07:48	SE	C	BP	X		X			Transferred from COC 2006-00324			
9106-0010-016F	5/15/06	10:45	SE	C	BP	X		X			Transferred from COC 2006-00351			
NOTES: PO #: 002332 MSR #: 06-0707 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA											Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		Internal Container Temp.: <i>17</i> Deg. C  Custody Sealed? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>  Custody Seal Intact?  Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>JAMIE RICARTE</i>			Date/Time <i>5-16-06 / 1150</i>			2) Received By <i>A. Maley</i>			Date/Time <i>5-17-06 945</i>					
3) Relinquished By			Date/Time			4) Received By			Date/Time			Bill of Lading # <i>7904-3113-852</i>		

01  
02  
03  
04  
05  
06  
07  
08

Figure 1. Sample Check-in List

Date/Time Received: 945 05/17/06

SDG#: MSR # 06-0707

Work Order Number: 1631051

Shipping Container ID: 7904 3113 8552 Chain of Custody # 0206-00250

1. Custody Seals on shipping container intact? Yes  No
2. Custody Seals dated and signed? Yes  No
3. Chain-of-Custody record present? Yes  No
4. Cooler temperature 17°C
5. Vermiculite/packing materials is: Wet  Dry
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: AMaley Date: 5-17-06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

*CHERYL*

PM use only

Client: <u>CONN. YANKEE</u>	SDG/ARCO/Work Order:
Date Received: <u>5-17-06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): 
Received By: <u>ALM</u>	

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

14 Air Bill ,Tracking #'s, & Additional Comments	<u>7904 3113 8541</u>
--	-----------------------

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	✓	✓		Maximum Counts Observed*: <u>CPM 60</u>
B PCB Regulated?	✓			Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification:	Initials <u>CD</u>	Date: <u>5/17/06</u>
--	--------------------	----------------------

Figure 1. Sample Check-in List

Date/Time Received: 945 5/17/06

SDG#: MAP# 04-0707

Work Order Number: 1631051

Shipping Container ID: 7904 3113 8541 Chain of Custody #: 2006-60349

1. Custody Seals on shipping container intact? Yes  No
2. Custody Seals dated and signed? Yes  No
3. Chain-of-Custody record present? Yes  No
4. Cooler temperature 17°C
5. Vermiculite/packing materials is: Wet  Dry
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: AMaly Date: 5-17-06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

CHERYL

PM use only

Client: <u>CONN. YANKEE</u>	SDG/ARCOC/Work Order:
Date Received: <u>5-17-06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>ALM</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice <del>none</del> other describe <p style="text-align: center; margin-left: 100px;">17°C</p>
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	7904 3113 8552
--	----------------

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?	✓			Maximum Counts Observed*: <u>CPM 60</u>
B PCB Regulated?	✓			Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification:	Initials <u>CD</u>	Date: <u>5/17/06</u>
--	--------------------	----------------------

# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 163105**

**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: 535134  
Prep Batch Number: 531287  
Dry Soil Prep GL-RAD-A-021 Batch Number: 531278

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201105084	Method Blank (MB)
1201105085	163105017(9106-0010-008F) Sample Duplicate (DUP)
1201105086	163105017(9106-0010-008F) Matrix Spike (MS)
1201105087	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 163105017 (9106-0010-008F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**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: 535138

Prep Batch Number: 531287

Dry Soil Prep GL-RAD-A-021 Batch Number: 531278

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201105088	Method Blank (MB)
1201105089	163105017(9106-0010-008F) Sample Duplicate (DUP)
1201105090	163105017(9106-0010-008F) Matrix Spike (MS)
1201105091	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 163105017 (9106-0010-008F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

Samples 1201105088 (MB), 1201105089 (9106-0010-008F) and 163105018 (9106-0010-013F) 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.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Pu241, Solid-ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	535141
Prep Batch Number:	531287
Dry Soil Prep GL-RAD-A-021 Batch Number:	531278

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201105092	Method Blank (MB)
1201105093	163105017(9106-0010-008F) Sample Duplicate (DUP)
1201105094	163105017(9106-0010-008F) Matrix Spike (MS)
1201105095	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 163105017 (9106-0010-008F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**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  
**Analytical Method:** EML HASL 300, 4.5.2.3  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 531444  
**Prep Batch Number:** 531278

<b>Sample ID</b>	<b>Client ID</b>
163105001	9106-0010-014F
163105002	9106-0010-014FS
163105003	9106-0010-011F
163105004	9106-0010-011FS
163105005	9106-0010-015F
163105006	9106-0010-005F
163105007	9106-0010-003F
163105008	9106-0010-016F
163105009	9106-0010-001F
163105010	9106-0010-002F
163105011	9106-0010-004F
163105012	9106-0010-006F
163105013	9106-0010-007F
163105014	9106-0010-009F
163105015	9106-0010-010F
163105016	9106-0010-012F
163105017	9106-0010-008F
163105018	9106-0010-013F
1201096203	Method Blank (MB)
1201096204	163105001(9106-0010-014F) Sample Duplicate (DUP)
1201096205	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 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: 163105001 (9106-0010-014F).

**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**

<b>Qualifier</b>	<b>Reason</b>	<b>Analyte</b>	<b>Sample</b>
UI	Data rejected due to high full width half maximum.	Cobalt-60	163105002
UI	Data rejected due to high uncertainty.	Bismuth-214	1201096204
UI	Data rejected due to interference.	Cesium-134	163105011
		Europium-155	163105001
			163105005
			163105006
			1201096204
UI	Data rejected due to low abundance.	Cesium-134	163105001
			163105002
			163105003
			163105005
			163105006
			163105014
			163105017

**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: 536335  
Prep Batch Number: 531287  
Dry Soil Prep GL-RAD-A-021 Batch Number: 531278

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201107674	Method Blank (MB)
1201107675	163105017(9106-0010-008F) Sample Duplicate (DUP)
1201107676	163105017(9106-0010-008F) Matrix Spike (MS)
1201107677	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 163105017 (9106-0010-008F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Chemical Recoveries**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Liquid Scint Tc99, Solid-ALL FSS  
**Analytical Method:** DOE EML HASL-300, Tc-02-RC Modified  
**Analytical Batch Number:** 531704

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201096867	Method Blank (MB)
1201096868	162583001(NOL-02-02-005-F-S) Sample Duplicate (DUP)
1201096869	162583001(NOL-02-02-005-F-S) Matrix Spike (MS)
1201096870	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 162583001 (NOL-02-02-005-F-S).

**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 163105017 (9106-0010-008F) was recounted due to high MDA.

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Fe55, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Fe-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	531618
Prep Batch Number:	531287
Dry Soil Prep GL-RAD-A-021 Batch Number:	531278

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201096631	Method Blank (MB)
1201096632	163173001(9304-0000-063RACR) Sample Duplicate (DUP)
1201096633	163173001(9304-0000-063RACR) Matrix Spike (MS)
1201096634	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 163173001 (9304-0000-063RACR).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Ni63, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	531622
Prep Batch Number:	531287
Dry Soil Prep GL-RAD-A-021 Batch Number:	531278

<b>Sample ID</b>	<b>Client ID</b>
163105001	9106-0010-014F
163105002	9106-0010-014FS
163105004	9106-0010-011FS
163105005	9106-0010-015F
163105006	9106-0010-005F
163105007	9106-0010-003F
163105008	9106-0010-016F
163105009	9106-0010-001F
1201096644	Method Blank (MB)
1201096645	163173001(9304-0000-063RACR) Sample Duplicate (DUP)
1201096646	163173001(9304-0000-063RACR) Matrix Spike (MS)
1201096647	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering 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: 163173001 (9304-0000-063RACR).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Ni63, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	531654
Prep Batch Number:	531287
Dry Soil Prep GL-RAD-A-021 Batch Number:	531278

<b>Sample ID</b>	<b>Client ID</b>
163105010	9106-0010-002F
163105011	9106-0010-004F
163105012	9106-0010-006F
163105013	9106-0010-007F
163105014	9106-0010-009F
163105015	9106-0010-010F
163105016	9106-0010-012F
163105017	9106-0010-008F
163105018	9106-0010-013F
1201096727	Method Blank (MB)
1201096728	163105010(9106-0010-002F) Sample Duplicate (DUP)
1201096729	163105010(9106-0010-002F) Matrix Spike (MS)
1201096730	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering 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: 163105010 (9106-0010-002F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:****Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

Sample 163105017 (9106-0010-008F) was recounted due to a negative result greater than three times the error.

**Miscellaneous Information:****NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Ni63, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	534699
Prep Batch Number:	531287
Dry Soil Prep GL-RAD-A-021 Batch Number:	531278

<b>Sample ID</b>	<b>Client ID</b>
163105003	9106-0010-011F
1201104073	Method Blank (MB)
1201104074	163105003(9106-0010-011F) Sample Duplicate (DUP)
1201104075	163105003(9106-0010-011F) Matrix Spike (MS)
1201104076	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering 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: 163105003 (9106-0010-011F).

**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 163105003 (9106-0010-011F) was re-prepped due to spectral interference.

**Miscellaneous Information:**

**NCR Documentation**

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

SDG.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** LSC, Tritium Dist, Solid-HTD2,ALL FSS

Analytical Method: EPA 906.0 Modified

Analytical Batch Number: 531705

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201096877	Method Blank (MB)
1201096878	162583001(NOL-02-02-005-F-S) Sample Duplicate (DUP)
1201096879	162583001(NOL-02-02-005-F-S) Matrix Spike (MS)
1201096880	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 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: 162583001 (NOL-02-02-005-F-S).

**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 1201096877 (MB) was recounted due to high MDA.

**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:** 534984

<b>Sample ID</b>	<b>Client ID</b>
163105017	9106-0010-008F
163105018	9106-0010-013F
1201104745	Method Blank (MB)
1201104746	163173001(9304-0000-063RACR) Sample Duplicate (DUP)
1201104747	163173001(9304-0000-063RACR) Matrix Spike (MS)
1201104748	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:****Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

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

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

**Designated QC**

The following sample was used for QC: 163173001 (9304-0000-063RACR).

**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 reprepared due to low/high recovery.

**Miscellaneous Information:****NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.



# SAMPLE DATA SUMMARY

**GENERAL ENGINEERING 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#06-0707 GEL Work Order: 163105

**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 reporting 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 General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.



Reviewed by \_\_\_\_\_

**GENERAL ENGINEERING LABORATORIES, LLC**  
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID:	9106-0010-014F	Project:	YANK01204
Sample ID:	163105001	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	05-MAY-06		
Receive Date:	17-MAY-06		
Collector:	Client		
Moisture:	20.4%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.657	+/-0.147	0.0487	+/-0.147	0.104	pCi/g		MJH1	05/31/06	1745	531444	1
Americium-241	U	0.0197	+/-0.135	0.0925	+/-0.135	0.191	pCi/g						
Bismuth-212		0.270	+/-0.294	0.113	+/-0.294	0.237	pCi/g						
Bismuth-214		0.430	+/-0.0735	0.0247	+/-0.0735	0.0522	pCi/g						
Cesium-134	UUI	0.00	+/-0.0318	0.0185	+/-0.0318	0.0389	pCi/g						
Cesium-137		0.0857	+/-0.0355	0.0143	+/-0.0355	0.0301	pCi/g						
Cobalt-60		0.0507	+/-0.0266	0.0131	+/-0.0266	0.0287	pCi/g						
Europium-152	U	-0.00125	+/-0.0441	0.0368	+/-0.0441	0.0768	pCi/g						
Europium-154	U	0.0628	+/-0.0565	0.0518	+/-0.0565	0.110	pCi/g						
Europium-155	UUI	0.00	+/-0.0699	0.0406	+/-0.0699	0.0838	pCi/g						
Lead-212		0.710	+/-0.0836	0.0237	+/-0.0836	0.049	pCi/g						
Lead-214		0.491	+/-0.0798	0.0276	+/-0.0798	0.0574	pCi/g						
Manganese-54	U	0.00641	+/-0.0164	0.0141	+/-0.0164	0.0298	pCi/g						
Niobium-94	U	0.0108	+/-0.0148	0.0132	+/-0.0148	0.0277	pCi/g						
Potassium-40		11.9	+/-1.05	0.0979	+/-1.05	0.221	pCi/g						
Radium-226		0.430	+/-0.0735	0.0247	+/-0.0735	0.0522	pCi/g						
Silver-108m	U	-0.00638	+/-0.0136	0.0117	+/-0.0136	0.0246	pCi/g						
Thallium-208		0.215	+/-0.0408	0.0122	+/-0.0408	0.0258	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-4.24	+/-3.72	3.20	+/-3.72	6.53	pCi/g		SLN1	05/27/06	0423	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

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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: June 14, 2006

Client Sample ID: 9106-0010-014F Project: YANK01204  
 Sample ID: 163105001 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			91		(25%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-014FS  
Sample ID: 163105002  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 21.4%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.693	+/-0.139	0.0435	+/-0.139	0.092	pCi/g		MJH1	05/31/06	2041	531444	1
Americium-241	U	0.0263	+/-0.0556	0.0504	+/-0.0556	0.104	pCi/g						
Bismuth-212		0.533	+/-0.235	0.0965	+/-0.235	0.203	pCi/g						
Bismuth-214		0.409	+/-0.0762	0.0267	+/-0.0762	0.0556	pCi/g						
Cesium-134	UUI	0.00	+/-0.0274	0.0163	+/-0.0274	0.0341	pCi/g						
Cesium-137		0.0659	+/-0.039	0.0131	+/-0.039	0.0275	pCi/g						
Cobalt-60	UUI	0.00	+/-0.034	0.0109	+/-0.034	0.0238	pCi/g						
Europium-152	U	-0.00333	+/-0.0383	0.0331	+/-0.0383	0.0688	pCi/g						
Europium-154	U	-0.0107	+/-0.0435	0.0351	+/-0.0435	0.0753	pCi/g						
Europium-155	U	0.0641	+/-0.0609	0.0383	+/-0.0609	0.0788	pCi/g						
Lead-212		0.685	+/-0.0716	0.0196	+/-0.0716	0.0405	pCi/g						
Lead-214		0.554	+/-0.0813	0.0219	+/-0.0813	0.0458	pCi/g						
Manganese-54	U	0.00475	+/-0.0143	0.0125	+/-0.0143	0.0264	pCi/g						
Niobium-94	U	0.00908	+/-0.0136	0.0122	+/-0.0136	0.0255	pCi/g						
Potassium-40		12.9	+/-1.01	0.115	+/-1.01	0.249	pCi/g						
Radium-226		0.409	+/-0.0762	0.0267	+/-0.0762	0.0556	pCi/g						
Silver-108m	U	-0.00399	+/-0.0129	0.0108	+/-0.0129	0.0227	pCi/g						
Thallium-208		0.201	+/-0.0387	0.012	+/-0.0387	0.0253	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-2.83	+/-4.47	3.80	+/-4.47	7.74	pCi/g		SLN1	05/27/06	0524	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-011F  
Sample ID: 163105003  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 23%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		1.02	+/-0.260	0.0931	+/-0.260	0.197	pCi/g		MJH1	05/31/06	2154	531444	1
Americium-241	U	0.00183	+/-0.0449	0.0393	+/-0.0449	0.0804	pCi/g						
Bismuth-212		0.818	+/-0.423	0.206	+/-0.423	0.433	pCi/g						
Bismuth-214		0.616	+/-0.119	0.0485	+/-0.119	0.102	pCi/g						
Cesium-134	UUI	0.00	+/-0.0454	0.0343	+/-0.0454	0.0718	pCi/g						
Cesium-137		0.345	+/-0.0708	0.0306	+/-0.0708	0.0639	pCi/g						
Cobalt-60		0.227	+/-0.0748	0.0273	+/-0.0748	0.0589	pCi/g						
Europium-152	U	0.0136	+/-0.0815	0.0697	+/-0.0815	0.145	pCi/g						
Europium-154	U	-0.0794	+/-0.0976	0.0769	+/-0.0976	0.165	pCi/g						
Europium-155	U	0.116	+/-0.106	0.0585	+/-0.106	0.120	pCi/g						
Lead-212		0.948	+/-0.0805	0.0382	+/-0.0805	0.0788	pCi/g						
Lead-214		0.802	+/-0.127	0.0475	+/-0.127	0.0988	pCi/g						
Manganese-54	U	0.0392	+/-0.0412	0.0323	+/-0.0412	0.0676	pCi/g						
Niobium-94	U	0.00593	+/-0.0311	0.0267	+/-0.0311	0.0558	pCi/g						
Potassium-40		14.5	+/-1.09	0.265	+/-1.09	0.571	pCi/g						
Radium-226		0.616	+/-0.119	0.0485	+/-0.119	0.102	pCi/g						
Silver-108m	U	-0.0184	+/-0.0298	0.0241	+/-0.0298	0.0501	pCi/g						
Thallium-208		0.273	+/-0.0627	0.028	+/-0.0627	0.0585	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	6.33	+/-9.13	7.58	+/-9.14	15.4	pCi/g		SLN1	06/04/06	0440	534699	3

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified
3	DOE RESL Ni-1, Modified



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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: June 14, 2006

Client Sample ID: 9106-0010-011FS  
Sample ID: 163105004  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 25.9%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.733	+/-0.145	0.0463	+/-0.145	0.0983	pCi/g		MJH1	05/31/06	2154	531444	1
Americium-241	U	-0.0647	+/-0.114	0.0915	+/-0.114	0.189	pCi/g						
Bismuth-212		0.287	+/-0.189	0.106	+/-0.189	0.224	pCi/g						
Bismuth-214		0.412	+/-0.0789	0.026	+/-0.0789	0.0543	pCi/g						
Cesium-134	U	0.0209	+/-0.0212	0.0167	+/-0.0212	0.0351	pCi/g						
Cesium-137		0.139	+/-0.0314	0.0115	+/-0.0314	0.0244	pCi/g						
Cobalt-60		0.132	+/-0.037	0.0145	+/-0.037	0.0313	pCi/g						
Europium-152	U	-0.00476	+/-0.0452	0.0371	+/-0.0452	0.077	pCi/g						
Europium-154	U	0.0523	+/-0.0521	0.0472	+/-0.0521	0.100	pCi/g						
Europium-155	U	0.0396	+/-0.0448	0.0411	+/-0.0448	0.0844	pCi/g						
Lead-212		0.615	+/-0.0762	0.023	+/-0.0762	0.0473	pCi/g						
Lead-214		0.567	+/-0.084	0.0242	+/-0.084	0.0504	pCi/g						
Manganese-54	U	-0.00048	+/-0.0163	0.0134	+/-0.0163	0.0284	pCi/g						
Niobium-94	U	0.00895	+/-0.0155	0.0135	+/-0.0155	0.0282	pCi/g						
Potassium-40		12.1	+/-1.05	0.118	+/-1.05	0.259	pCi/g						
Radium-226		0.412	+/-0.0789	0.026	+/-0.0789	0.0543	pCi/g						
Silver-108m	U	0.00226	+/-0.0144	0.0127	+/-0.0144	0.0264	pCi/g						
Thallium-208		0.233	+/-0.0425	0.0133	+/-0.0425	0.0279	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-6.07	+/-4.72	4.07	+/-4.72	8.30	pCi/g		SLN1	05/27/06	0727	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-011FS  
Sample ID: 163105004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			85		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-015F  
Sample ID: 163105005  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 21.6%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.766	+/-0.152	0.039	+/-0.152	0.0827	pCi/g		MJH1	05/31/06	2155	531444	1
Americium-241	U	0.0219	+/-0.0815	0.0728	+/-0.0815	0.150	pCi/g						
Bismuth-212		0.397	+/-0.168	0.0853	+/-0.168	0.180	pCi/g						
Bismuth-214		0.481	+/-0.0706	0.0217	+/-0.0706	0.0455	pCi/g						
Cesium-134	UUI	0.00	+/-0.0227	0.0155	+/-0.0227	0.0324	pCi/g						
Cesium-137	U	0.00673	+/-0.0142	0.0124	+/-0.0142	0.026	pCi/g						
Cobalt-60	U	0.0228	+/-0.0199	0.0145	+/-0.0199	0.0308	pCi/g						
Europium-152	U	0.0041	+/-0.0333	0.0305	+/-0.0333	0.0635	pCi/g						
Europium-154	U	-0.015	+/-0.0458	0.0372	+/-0.0458	0.0792	pCi/g						
Europium-155	UUI	0.00	+/-0.0621	0.0393	+/-0.0621	0.0811	pCi/g						
Lead-212		0.753	+/-0.0729	0.019	+/-0.0729	0.0393	pCi/g						
Lead-214		0.631	+/-0.0836	0.0212	+/-0.0836	0.0442	pCi/g						
Manganese-54	U	0.00443	+/-0.0143	0.0127	+/-0.0143	0.0267	pCi/g						
Niobium-94	U	0.00862	+/-0.0131	0.0115	+/-0.0131	0.024	pCi/g						
Potassium-40		13.6	+/-1.25	0.100	+/-1.25	0.218	pCi/g						
Radium-226		0.481	+/-0.0706	0.0217	+/-0.0706	0.0455	pCi/g						
Silver-108m	U	0.00145	+/-0.0115	0.0103	+/-0.0115	0.0214	pCi/g						
Thallium-208		0.216	+/-0.0322	0.0114	+/-0.0322	0.0239	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-1.48	+/-4.24	3.58	+/-4.24	7.30	pCi/g		SLN1	05/27/06	0828	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-015F  
Sample ID: 163105005

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			71		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-005F  
Sample ID: 163105006  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 4.04%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.604	+/-0.119	0.0333	+/-0.119	0.0714	pCi/g		MJH1	05/31/06	2158	531444	1
Americium-241	U	-0.0427	+/-0.062	0.054	+/-0.062	0.111	pCi/g						
Bismuth-212		0.384	+/-0.180	0.0807	+/-0.180	0.171	pCi/g						
Bismuth-214		0.451	+/-0.0676	0.0189	+/-0.0676	0.0397	pCi/g						
Cesium-134	UU1	0.00	+/-0.0235	0.0136	+/-0.0235	0.0285	pCi/g						
Cesium-137	U	0.0108	+/-0.015	0.0121	+/-0.015	0.0253	pCi/g						
Cobalt-60	U	-2.170E-05	+/-0.0138	0.0117	+/-0.0138	0.0253	pCi/g						
Europium-152	U	0.0223	+/-0.0369	0.0288	+/-0.0369	0.0598	pCi/g						
Europium-154	U	0.0113	+/-0.0431	0.0375	+/-0.0431	0.080	pCi/g						
Europium-155	UU1	0.00	+/-0.0558	0.0306	+/-0.0558	0.063	pCi/g						
Lead-212		0.584	+/-0.0602	0.0161	+/-0.0602	0.0333	pCi/g						
Lead-214		0.431	+/-0.0639	0.0187	+/-0.0639	0.039	pCi/g						
Manganese-54	U	-0.000375	+/-0.0149	0.011	+/-0.0149	0.0232	pCi/g						
Niobium-94	U	0.0114	+/-0.0113	0.0103	+/-0.0113	0.0217	pCi/g						
Potassium-40		10.9	+/-0.928	0.0987	+/-0.928	0.216	pCi/g						
Radium-226		0.451	+/-0.0676	0.0189	+/-0.0676	0.0397	pCi/g						
Silver-108m	U	0.00371	+/-0.010	0.00924	+/-0.010	0.0194	pCi/g						
Thallium-208		0.168	+/-0.033	0.0108	+/-0.033	0.0227	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-3.87	+/-4.61	3.94	+/-4.62	8.03	pCi/g		SLN1	05/27/06	1527	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified



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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: June 14, 2006

Client Sample ID: 9106-0010-003F  
Sample ID: 163105007  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 17.9%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.617	+/-0.163	0.0484	+/-0.163	0.106	pCi/g		MJH1	06/01/06	0536	531444	1
Americium-241	U	0.0462	+/-0.0903	0.0784	+/-0.0903	0.162	pCi/g						
Bismuth-212		0.476	+/-0.239	0.123	+/-0.239	0.263	pCi/g						
Bismuth-214		0.424	+/-0.0791	0.0293	+/-0.0791	0.0623	pCi/g						
Cesium-134	U	0.0354	+/-0.0203	0.0204	+/-0.0203	0.0433	pCi/g						
Cesium-137		0.0672	+/-0.0349	0.0143	+/-0.0349	0.0308	pCi/g						
Cobalt-60	U	-0.00226	+/-0.0263	0.0189	+/-0.0263	0.0412	pCi/g						
Europium-152	U	-0.0164	+/-0.0494	0.0404	+/-0.0494	0.0849	pCi/g						
Europium-154	U	0.0252	+/-0.0611	0.0537	+/-0.0611	0.117	pCi/g						
Europium-155	U	0.0457	+/-0.0487	0.0457	+/-0.0487	0.0947	pCi/g						
Lead-212		0.643	+/-0.0743	0.022	+/-0.0743	0.0459	pCi/g						
Lead-214		0.497	+/-0.0858	0.0289	+/-0.0858	0.0608	pCi/g						
Manganese-54	U	-0.00392	+/-0.0199	0.0162	+/-0.0199	0.0348	pCi/g						
Niobium-94	U	-0.00193	+/-0.0196	0.0143	+/-0.0196	0.0306	pCi/g						
Potassium-40		11.5	+/-1.12	0.124	+/-1.12	0.282	pCi/g						
Radium-226		0.424	+/-0.0791	0.0293	+/-0.0791	0.0623	pCi/g						
Silver-108m	U	-0.00521	+/-0.0151	0.013	+/-0.0151	0.0276	pCi/g						
Thallium-208		0.194	+/-0.0457	0.0159	+/-0.0457	0.0338	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-3.75	+/-4.48	3.83	+/-4.48	7.79	pCi/g		SLN1	05/27/06	1628	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-003F Project: YANK01204  
 Sample ID: 163105007 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			84		(25%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-016F  
Sample ID: 163105008  
Matrix: SE  
Collect Date: 15-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 22%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.621	+/-0.122	0.0435	+/-0.122	0.0939	pCi/g		MJH1	06/01/06	0536	531444	1
Americium-241	U	0.0459	+/-0.107	0.0957	+/-0.107	0.198	pCi/g						
Bismuth-212		0.314	+/-0.197	0.0902	+/-0.197	0.194	pCi/g						
Bismuth-214		0.376	+/-0.0745	0.0226	+/-0.0745	0.0481	pCi/g						
Cesium-134	U	0.0219	+/-0.0182	0.017	+/-0.0182	0.036	pCi/g						
Cesium-137	U	0.0161	+/-0.0219	0.0126	+/-0.0219	0.0269	pCi/g						
Cobalt-60	U	0.0149	+/-0.0182	0.0167	+/-0.0182	0.0361	pCi/g						
Europium-152	U	-0.0045	+/-0.0403	0.0342	+/-0.0403	0.0719	pCi/g						
Europium-154	U	0.0228	+/-0.0492	0.0438	+/-0.0492	0.0949	pCi/g						
Europium-155	U	0.0303	+/-0.0411	0.0397	+/-0.0411	0.0822	pCi/g						
Lead-212		0.479	+/-0.0638	0.0206	+/-0.0638	0.0429	pCi/g						
Lead-214		0.442	+/-0.0706	0.0245	+/-0.0706	0.0515	pCi/g						
Manganese-54	U	0.0254	+/-0.0193	0.0136	+/-0.0193	0.0291	pCi/g						
Niobium-94	U	0.0192	+/-0.0129	0.0124	+/-0.0129	0.0262	pCi/g						
Potassium-40		11.2	+/-1.03	0.110	+/-1.03	0.247	pCi/g						
Radium-226		0.376	+/-0.0745	0.0226	+/-0.0745	0.0481	pCi/g						
Silver-108m	U	0.00904	+/-0.0136	0.0127	+/-0.0136	0.0267	pCi/g						
Thallium-208		0.174	+/-0.0402	0.0119	+/-0.0402	0.0253	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-5.24	+/-4.38	3.77	+/-4.38	7.69	pCi/g		SLN1	05/27/06	1729	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-I, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-016F Project: YANK01204  
 Sample ID: 163105008 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			82		(25%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-001F  
Sample ID: 163105009  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 29.8%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.831	+/-0.201	0.068	+/-0.201	0.145	pCi/g		MJH1	06/01/06	1000	531444	1
Americium-241	U	0.0912	+/-0.0978	0.0862	+/-0.0978	0.178	pCi/g						
Bismuth-212		0.466	+/-0.367	0.146	+/-0.367	0.308	pCi/g						
Bismuth-214		0.511	+/-0.0976	0.034	+/-0.0976	0.0717	pCi/g						
Cesium-134	U	0.0457	+/-0.0382	0.0252	+/-0.0382	0.053	pCi/g						
Cesium-137		0.260	+/-0.0408	0.0173	+/-0.0408	0.0367	pCi/g						
Cobalt-60		0.575	+/-0.0748	0.0186	+/-0.0748	0.0406	pCi/g						
Europium-152	U	-0.0188	+/-0.0529	0.0433	+/-0.0529	0.0907	pCi/g						
Europium-154	U	0.00	+/-0.00	0.0511	+/-0.00	0.112	pCi/g						
Europium-155	U	0.063	+/-0.0841	0.048	+/-0.0841	0.0991	pCi/g						
Lead-212		0.858	+/-0.0923	0.0258	+/-0.0923	0.0535	pCi/g						
Lead-214		0.611	+/-0.0987	0.0311	+/-0.0987	0.0651	pCi/g						
Manganese-54	U	-0.00443	+/-0.0231	0.0189	+/-0.0231	0.0402	pCi/g						
Niobium-94	U	0.00885	+/-0.0194	0.0169	+/-0.0194	0.0357	pCi/g						
Potassium-40		13.8	+/-1.32	0.156	+/-1.32	0.346	pCi/g						
Radium-226		0.511	+/-0.0976	0.034	+/-0.0976	0.0717	pCi/g						
Silver-108m	U	-0.0022	+/-0.0207	0.016	+/-0.0207	0.0335	pCi/g						
Thallium-208		0.252	+/-0.0503	0.0196	+/-0.0503	0.0413	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-1.07	+/-5.17	4.36	+/-5.17	8.88	pCi/g		SLN1	05/27/06	1830	531622	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-002F  
 Sample ID: 163105010  
 Matrix: SE  
 Collect Date: 04-MAY-06  
 Receive Date: 17-MAY-06  
 Collector: Client  
 Moisture: 18.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.401	+/-0.123	0.0498	+/-0.123	0.107	pCi/g		MJH1	06/01/06	1000	531444	1
Americium-241	U	-0.0267	+/-0.0778	0.0728	+/-0.0778	0.151	pCi/g						
Bismuth-212		0.345	+/-0.188	0.114	+/-0.188	0.241	pCi/g						
Bismuth-214		0.365	+/-0.0708	0.0227	+/-0.0708	0.0484	pCi/g						
Cesium-134	U	0.0228	+/-0.0169	0.0162	+/-0.0169	0.0345	pCi/g						
Cesium-137		0.0278	+/-0.0218	0.0111	+/-0.0218	0.0239	pCi/g						
Cobalt-60		0.0545	+/-0.0283	0.0144	+/-0.0283	0.0314	pCi/g						
Europium-152	U	0.014	+/-0.0419	0.0341	+/-0.0419	0.0715	pCi/g						
Europium-154	U	0.0594	+/-0.0525	0.0487	+/-0.0525	0.105	pCi/g						
Europium-155	U	0.00518	+/-0.043	0.0396	+/-0.043	0.0817	pCi/g						
Lead-212		0.463	+/-0.0582	0.0196	+/-0.0582	0.0407	pCi/g						
Lead-214		0.398	+/-0.0726	0.0244	+/-0.0726	0.0511	pCi/g						
Manganese-54	U	-0.00887	+/-0.0155	0.0129	+/-0.0155	0.0278	pCi/g						
Niobium-94	U	-0.0103	+/-0.0143	0.0113	+/-0.0143	0.0241	pCi/g						
Potassium-40		10.9	+/-0.991	0.121	+/-0.991	0.269	pCi/g						
Radium-226		0.365	+/-0.0708	0.0227	+/-0.0708	0.0484	pCi/g						
Silver-108m	U	-0.00217	+/-0.0128	0.0112	+/-0.0128	0.0236	pCi/g						
Thallium-208		0.146	+/-0.0333	0.0133	+/-0.0333	0.0281	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-4.66	+/-8.24	7.06	+/-8.24	14.6	pCi/g		SLN1	06/03/06	2242	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-002F  
Sample ID: 163105010

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS				62		(25%-125%)						

**Notes:**

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID:	9106-0010-004F	Project:	YANK01204
Sample ID:	163105011	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	04-MAY-06		
Receive Date:	17-MAY-06		
Collector:	Client		
Moisture:	22.7%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.886	+/-0.150	0.0456	+/-0.150	0.0956	pCi/g		MJH1	06/01/06	1001	531444	1
Americium-241	U	-0.0371	+/-0.102	0.0826	+/-0.102	0.170	pCi/g						
Bismuth-212		0.563	+/-0.203	0.0974	+/-0.203	0.204	pCi/g						
Bismuth-214		0.541	+/-0.0816	0.0236	+/-0.0816	0.0491	pCi/g						
Cesium-134	UUI	0.00	+/-0.0221	0.0136	+/-0.0221	0.0285	pCi/g						
Cesium-137		0.0492	+/-0.0259	0.0116	+/-0.0259	0.0243	pCi/g						
Cobalt-60		0.0838	+/-0.0404	0.0116	+/-0.0404	0.025	pCi/g						
Europium-152	U	0.00342	+/-0.0433	0.0317	+/-0.0433	0.0657	pCi/g						
Europium-154	U	0.0287	+/-0.0475	0.0415	+/-0.0475	0.0877	pCi/g						
Europium-155	U	0.0663	+/-0.0516	0.0366	+/-0.0516	0.075	pCi/g						
Lead-212		0.932	+/-0.100	0.0195	+/-0.100	0.040	pCi/g						
Lead-214		0.638	+/-0.0926	0.023	+/-0.0926	0.0476	pCi/g						
Manganese-54	U	0.014	+/-0.0158	0.013	+/-0.0158	0.0271	pCi/g						
Niobium-94	U	0.013	+/-0.0136	0.0119	+/-0.0136	0.0249	pCi/g						
Potassium-40		14.1	+/-1.13	0.122	+/-1.13	0.261	pCi/g						
Radium-226		0.541	+/-0.0816	0.0236	+/-0.0816	0.0491	pCi/g						
Silver-108m	U	-0.0106	+/-0.0124	0.0103	+/-0.0124	0.0215	pCi/g						
Thallium-208		0.256	+/-0.0435	0.0119	+/-0.0435	0.0248	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-4.77	+/-6.05	5.23	+/-6.06	10.8	pCi/g		SLN1	06/03/06	2313	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

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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: June 14, 2006

Client Sample ID: 9106-0010-004F  
Sample ID: 163105011

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			66		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID:	9106-0010-006F	Project:	YANK01204
Sample ID:	163105012	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	04-MAY-06		
Receive Date:	17-MAY-06		
Collector:	Client		
Moisture:	24.6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.750	+/-0.123	0.0533	+/-0.123	0.114	pCi/g		MJH1	06/01/06	1236	531444	1
Americium-241	U	-0.166	+/-0.0914	0.0694	+/-0.0914	0.143	pCi/g						
Bismuth-212		0.594	+/-0.221	0.124	+/-0.221	0.263	pCi/g						
Bismuth-214		0.435	+/-0.0671	0.0293	+/-0.0671	0.0617	pCi/g						
Cesium-134	U	0.0238	+/-0.0484	0.0214	+/-0.0484	0.045	pCi/g						
Cesium-137		0.147	+/-0.0358	0.0153	+/-0.0358	0.0325	pCi/g						
Cobalt-60		0.182	+/-0.0381	0.0163	+/-0.0381	0.0355	pCi/g						
Europium-152	U	0.0282	+/-0.0544	0.0423	+/-0.0544	0.0881	pCi/g						
Europium-154	U	0.0685	+/-0.060	0.0551	+/-0.060	0.118	pCi/g						
Europium-155	U	0.0696	+/-0.0653	0.0495	+/-0.0653	0.102	pCi/g						
Lead-212		0.718	+/-0.0549	0.0255	+/-0.0549	0.0527	pCi/g						
Lead-214		0.558	+/-0.0708	0.0324	+/-0.0708	0.0674	pCi/g						
Manganese-54	U	0.0148	+/-0.0189	0.0171	+/-0.0189	0.0362	pCi/g						
Niobium-94	U	0.000519	+/-0.0177	0.0154	+/-0.0177	0.0324	pCi/g						
Potassium-40		13.2	+/-0.836	0.135	+/-0.836	0.298	pCi/g						
Radium-226		0.435	+/-0.0671	0.0293	+/-0.0671	0.0617	pCi/g						
Silver-108m	U	-0.00981	+/-0.018	0.0147	+/-0.018	0.0307	pCi/g						
Thallium-208		0.213	+/-0.041	0.0157	+/-0.041	0.0331	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-2.58	+/-4.12	3.54	+/-4.12	7.29	pCi/g		SLN1	06/03/06	2345	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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**Certificate of Analysis**

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-006F Project: YANK01204  
 Sample ID: 163105012 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			64		(25%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-007F  
Sample ID: 163105013  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 23%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.671	+/-0.151	0.0738	+/-0.151	0.156	pCi/g		MJH1	06/01/06	1237	531444	1
Americium-241	U	0.0308	+/-0.0323	0.0312	+/-0.0323	0.0639	pCi/g						
Bismuth-212		0.708	+/-0.298	0.165	+/-0.298	0.345	pCi/g						
Bismuth-214		0.634	+/-0.103	0.0397	+/-0.103	0.0827	pCi/g						
Cesium-134	U	0.0387	+/-0.029	0.0269	+/-0.029	0.0562	pCi/g						
Cesium-137		0.080	+/-0.0383	0.022	+/-0.0383	0.0459	pCi/g						
Cobalt-60		0.083	+/-0.0391	0.0207	+/-0.0391	0.0444	pCi/g						
Europium-152	U	-0.0522	+/-0.0598	0.0512	+/-0.0598	0.106	pCi/g						
Europium-154	U	-0.0542	+/-0.0815	0.0669	+/-0.0815	0.142	pCi/g						
Europium-155	U	0.0676	+/-0.0524	0.0496	+/-0.0524	0.102	pCi/g						
Lead-212		0.749	+/-0.0605	0.029	+/-0.0605	0.0597	pCi/g						
Lead-214		0.582	+/-0.0941	0.0375	+/-0.0941	0.0777	pCi/g						
Manganese-54	U	-0.00264	+/-0.0262	0.0224	+/-0.0262	0.047	pCi/g						
Niobium-94	U	-0.0179	+/-0.0265	0.0191	+/-0.0265	0.040	pCi/g						
Potassium-40		12.3	+/-0.980	0.161	+/-0.980	0.351	pCi/g						
Radium-226		0.634	+/-0.103	0.0397	+/-0.103	0.0827	pCi/g						
Silver-108m	U	0.0167	+/-0.021	0.0181	+/-0.021	0.0377	pCi/g						
Thallium-208		0.264	+/-0.0519	0.0194	+/-0.0519	0.0406	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-2.34	+/-3.85	3.30	+/-3.85	6.81	pCi/g		SLN1	06/04/06	0016	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-007F  
Sample ID: 163105013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			77		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

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  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-009F  
Sample ID: 163105014  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 26.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid- FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.668	+/-0.145	0.0572	+/-0.145	0.122	pCi/g		MJH1	06/01/06	1237	531444	1
Americium-241	U-0.000611		+/-0.0214	0.0192	+/-0.0214	0.0395	pCi/g						
Bismuth-212		0.638	+/-0.246	0.105	+/-0.246	0.225	pCi/g						
Bismuth-214		0.418	+/-0.0801	0.0291	+/-0.0801	0.0613	pCi/g						
Cesium-134	UUI	0.00	+/-0.0382	0.022	+/-0.0382	0.0462	pCi/g						
Cesium-137		0.130	+/-0.0414	0.0147	+/-0.0414	0.0312	pCi/g						
Cobalt-60		0.192	+/-0.0462	0.0161	+/-0.0462	0.0351	pCi/g						
Europium-152	U	-0.0105	+/-0.0423	0.0356	+/-0.0423	0.0744	pCi/g						
Europium-154	U	-0.0153	+/-0.0589	0.0482	+/-0.0589	0.104	pCi/g						
Europium-155	U	0.0259	+/-0.0352	0.0312	+/-0.0352	0.0643	pCi/g						
Lead-212		0.753	+/-0.0485	0.0196	+/-0.0485	0.0407	pCi/g						
Lead-214		0.518	+/-0.0661	0.0245	+/-0.0661	0.0514	pCi/g						
Manganese-54	U	0.00765	+/-0.0202	0.0174	+/-0.0202	0.0367	pCi/g						
Niobium-94	U	0.00514	+/-0.0153	0.0134	+/-0.0153	0.0283	pCi/g						
Potassium-40		12.7	+/-0.809	0.137	+/-0.809	0.303	pCi/g						
Radium-226		0.418	+/-0.0801	0.0291	+/-0.0801	0.0613	pCi/g						
Silver-108m	U	-0.0059	+/-0.0132	0.0115	+/-0.0132	0.0243	pCi/g						
Thallium-208		0.235	+/-0.0389	0.0144	+/-0.0389	0.0305	pCi/g						

**Rad Liquid Scintillation Analysis**

*Liquid Scint Ni63, Solid-ALL FSS*

Nickel-63 U -3.71 +/-4.85 4.19 +/-4.86 8.64 pCi/g SLN1 06/04/06 0048 531654 2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-009F  
Sample ID: 163105014

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			76		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-010F  
Sample ID: 163105015  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 22.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.719	+/-0.165	0.0679	+/-0.165	0.146	pCi/g		MJH1	06/01/06	1238	531444	1
Americium-241	U	0.00799	+/-0.0282	0.0268	+/-0.0282	0.0551	pCi/g						
Bismuth-212	U	0.273	+/-0.204	0.147	+/-0.204	0.313	pCi/g						
Bismuth-214		0.413	+/-0.0779	0.033	+/-0.0779	0.070	pCi/g						
Cesium-134	U	0.0401	+/-0.0269	0.0251	+/-0.0269	0.0531	pCi/g						
Cesium-137		0.117	+/-0.0364	0.0182	+/-0.0364	0.0386	pCi/g						
Cobalt-60		0.0508	+/-0.039	0.0192	+/-0.039	0.042	pCi/g						
Europium-152	U	-0.0333	+/-0.0477	0.0415	+/-0.0477	0.0871	pCi/g						
Europium-154	U	-0.00612	+/-0.0606	0.0509	+/-0.0606	0.112	pCi/g						
Europium-155	U	0.0368	+/-0.0444	0.0418	+/-0.0444	0.0862	pCi/g						
Lead-212		0.604	+/-0.048	0.0241	+/-0.048	0.050	pCi/g						
Lead-214		0.475	+/-0.0708	0.0341	+/-0.0708	0.0712	pCi/g						
Manganese-54	U	0.0117	+/-0.023	0.0201	+/-0.023	0.0428	pCi/g						
Niobium-94	U	0.0199	+/-0.0208	0.0189	+/-0.0208	0.040	pCi/g						
Potassium-40		10.8	+/-0.926	0.145	+/-0.926	0.327	pCi/g						
Radium-226		0.413	+/-0.0779	0.033	+/-0.0779	0.070	pCi/g						
Silver-108m	U	-0.00375	+/-0.0172	0.0151	+/-0.0172	0.0318	pCi/g						
Thallium-208		0.164	+/-0.0415	0.0219	+/-0.0415	0.046	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-3.8	+/-4.72	4.08	+/-4.72	8.41	pCi/g		SLN1	06/04/06	0120	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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# GENERAL ENGINEERING LABORATORIES, LLC

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

## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-010F  
Sample ID: 163105015

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			67		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: June 14, 2006

Client Sample ID: 9106-0010-012F  
Sample ID: 163105016  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 28.6%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.901	+/-0.176	0.0485	+/-0.176	0.102	pCi/g		MJH1	06/01/06	1238	531444	1
Americium-241	U	0.014	+/-0.094	0.0811	+/-0.094	0.167	pCi/g						
Bismuth-212		0.644	+/-0.247	0.104	+/-0.247	0.218	pCi/g						
Bismuth-214		0.549	+/-0.086	0.027	+/-0.086	0.0564	pCi/g						
Cesium-134	U	0.0359	+/-0.0257	0.0186	+/-0.0257	0.0388	pCi/g						
Cesium-137		0.194	+/-0.0344	0.0153	+/-0.0344	0.0319	pCi/g						
Cobalt-60		0.403	+/-0.0592	0.0141	+/-0.0592	0.0302	pCi/g						
Europium-152	U	-0.0075	+/-0.0415	0.0368	+/-0.0415	0.0765	pCi/g						
Europium-154	U	0.016	+/-0.0496	0.0422	+/-0.0496	0.0898	pCi/g						
Europium-155	U	0.0703	+/-0.0676	0.0456	+/-0.0676	0.0939	pCi/g						
Lead-212		0.838	+/-0.0881	0.0309	+/-0.0881	0.0632	pCi/g						
Lead-214		0.748	+/-0.102	0.0272	+/-0.102	0.0565	pCi/g						
Manganese-54	U	0.00225	+/-0.0176	0.0154	+/-0.0176	0.0322	pCi/g						
Niobium-94	U	0.000771	+/-0.0154	0.0129	+/-0.0154	0.027	pCi/g						
Potassium-40		15.2	+/-1.40	0.107	+/-1.40	0.233	pCi/g						
Radium-226		0.549	+/-0.086	0.027	+/-0.086	0.0564	pCi/g						
Silver-108m	U	0.0065	+/-0.0146	0.0131	+/-0.0146	0.0272	pCi/g						
Thallium-208		0.279	+/-0.0443	0.0125	+/-0.0443	0.0264	pCi/g						
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-2.72	+/-7.85	6.67	+/-7.85	13.7	pCi/g		SLN1	06/04/06	0151	531654	2

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

Method	Description
1	EML HASL 300, 4.5.2.3
2	DOE RESL Ni-1, Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
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## Certificate of Analysis

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

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

Report Date: June 14, 2006

Client Sample ID: 9106-0010-012F  
Sample ID: 163105016

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Surrogate/Tracer recovery</b>	<b>Test</b>				<b>Recovery%</b>		<b>Acceptable Limits</b>						
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS				73		(25%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- 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: June 14, 2006

Client Sample ID: 9106-0010-008F  
Sample ID: 163105017  
Matrix: SE  
Collect Date: 05-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 24.2%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.0374	+/-0.065	0.0506	+/-0.065	0.186	pCi/g		LCW1	06/06/06	2133	535134	1
Curium-242	U	0.00	+/-0.0708	0.00	+/-0.0708	0.0979	pCi/g						
Curium-243/244	U	-0.00756	+/-0.0635	0.0359	+/-0.0636	0.157	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00586	+/-0.0492	0.0278	+/-0.0493	0.122	pCi/g		LCW1	06/06/06	1737	535138	2
Plutonium-239/240	U	0.0244	+/-0.0478	0.00	+/-0.0479	0.0661	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	2.14	+/-12.6	10.5	+/-12.6	21.7	pCi/g		LCW1	06/08/06	2032	535141	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma,Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.704	+/-0.156	0.0384	+/-0.156	0.0813	pCi/g		MJH1	06/01/06	1238	531444	4
Americium-241	U	-0.0245	+/-0.0522	0.0475	+/-0.0522	0.0975	pCi/g						
Bismuth-212		0.533	+/-0.212	0.0839	+/-0.212	0.177	pCi/g						
Bismuth-214		0.511	+/-0.0766	0.0201	+/-0.0766	0.0421	pCi/g						
Cesium-134	UU1	0.00	+/-0.0241	0.0147	+/-0.0241	0.0306	pCi/g						
Cesium-137		0.220	+/-0.0387	0.0106	+/-0.0387	0.0223	pCi/g						
Cobalt-60	U	0.0195	+/-0.0266	0.0125	+/-0.0266	0.0267	pCi/g						
Europium-152	U	-0.00792	+/-0.033	0.0289	+/-0.033	0.0601	pCi/g						
Europium-154	U	-0.00843	+/-0.0361	0.0294	+/-0.0361	0.0632	pCi/g						
Europium-155	U	0.0606	+/-0.0567	0.0403	+/-0.0567	0.0825	pCi/g						
Lead-212		0.718	+/-0.0705	0.0182	+/-0.0705	0.0375	pCi/g						
Lead-214		0.598	+/-0.0811	0.021	+/-0.0811	0.0436	pCi/g						
Manganese-54	U	0.000493	+/-0.0132	0.0115	+/-0.0132	0.0242	pCi/g						
Niobium-94	U	0.00753	+/-0.0118	0.0108	+/-0.0118	0.0225	pCi/g						
Potassium-40		12.8	+/-0.954	0.0896	+/-0.954	0.195	pCi/g						
Radium-226		0.511	+/-0.0766	0.0201	+/-0.0766	0.0421	pCi/g						
Silver-108m	U	-0.00385	+/-0.011	0.00936	+/-0.011	0.0196	pCi/g						
Thallium-208		0.219	+/-0.0354	0.0111	+/-0.0354	0.0232	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.00194	+/-0.0174	0.0205	+/-0.0174	0.046	pCi/g		BXF1	06/10/06	1907	536335	5
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	3.07	+/-5.86	4.80	+/-5.87	9.98	pCi/g		NXP1	05/28/06	0735	531705	6
<i>Liquid Scint C14, Solid All,FSS</i>													

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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: June 14, 2006

Client Sample ID: 9106-0010-008F  
Sample ID: 163105017

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint C14, Solid ALL FSS</i>													
Carbon-14	U	0.0417	+/-0.0932	0.0769	+/-0.0932	0.159	pCi/g		ATH2	06/04/06	0547	534984	7
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	11.5	+/-20.5	14.8	+/-20.5	31.2	pCi/g		SLN1	05/29/06	1648	531618	9
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-2.65	+/-7.14	6.07	+/-7.14	12.5	pCi/g		SLN1	06/04/06	0223	531654	10
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0805	+/-0.266	0.221	+/-0.266	0.454	pCi/g		SXE1	05/31/06	1041	531704	11

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	79	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	96	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	41	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	70	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	81	(15%-125%)



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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: June 14, 2006

Client Sample ID: 9106-0010-013F  
Sample ID: 163105018  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 19.7%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.0381	+/-0.0661	0.0515	+/-0.0662	0.189	pCi/g		LCW1	06/06/06	2133	535134	1
Curium-242	U	-0.00885	+/-0.0744	0.042	+/-0.0745	0.184	pCi/g						
Curium-243/244	U	-0.0308	+/-0.0696	0.073	+/-0.0696	0.233	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0142	+/-0.0279	0.0675	+/-0.0279	0.295	pCi/g		LCW1	06/07/06	1003	535138	2
Plutonium-239/240	U	-0.0284	+/-0.0394	0.0954	+/-0.0395	0.351	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-1.48	+/-6.99	5.91	+/-7.00	12.2	pCi/g		LCW1	06/08/06	2103	535141	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma,Solid-FSS GAM &amp; ALL FSS</i>													
Actinium-228		0.526	+/-0.122	0.0492	+/-0.122	0.0983	pCi/g		MJH1	06/01/06	1244	531444	4
Americium-241	U	0.0427	+/-0.0671	0.0561	+/-0.0671	0.112	pCi/g						
Bismuth-212		0.292	+/-0.202	0.117	+/-0.202	0.233	pCi/g						
Bismuth-214		0.416	+/-0.0757	0.0262	+/-0.0757	0.0523	pCi/g						
Cesium-134	U	0.036	+/-0.0305	0.0188	+/-0.0305	0.0375	pCi/g						
Cesium-137	U	0.00771	+/-0.0221	0.0155	+/-0.0221	0.0309	pCi/g						
Cobalt-60	U	0.00148	+/-0.0165	0.0141	+/-0.0165	0.0281	pCi/g						
Europium-152	U	-0.0709	+/-0.0541	0.0381	+/-0.0541	0.0762	pCi/g						
Europium-154	U	-0.0286	+/-0.0494	0.0394	+/-0.0494	0.0787	pCi/g						
Europium-155	U	0.000963	+/-0.0463	0.0418	+/-0.0463	0.0836	pCi/g						
Lead-212		0.576	+/-0.0665	0.0206	+/-0.0665	0.0412	pCi/g						
Lead-214		0.470	+/-0.0799	0.0282	+/-0.0799	0.0564	pCi/g						
Manganese-54	U	-0.00391	+/-0.0168	0.0145	+/-0.0168	0.029	pCi/g						
Niobium-94	U	0.00862	+/-0.0147	0.013	+/-0.0147	0.026	pCi/g						
Potassium-40		10.6	+/-0.918	0.119	+/-0.918	0.238	pCi/g						
Radium-226		0.416	+/-0.0757	0.0262	+/-0.0757	0.0523	pCi/g						
Silver-108m	U	0.000776	+/-0.0145	0.0128	+/-0.0145	0.0256	pCi/g						
Thallium-208		0.189	+/-0.0397	0.0138	+/-0.0397	0.0275	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0129	+/-0.019	0.0191	+/-0.019	0.043	pCi/g		BXF1	06/10/06	1907	536335	5
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	5.31	+/-6.34	5.12	+/-6.34	10.6	pCi/g		NXP1	05/28/06	0807	531705	6
<i>Liquid Scint C14, Solid All,FSS</i>													

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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: June 14, 2006

Client Sample ID: 9106-0010-013F  
Sample ID: 163105018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint C14, Solid ALL FSS</i>													
Carbon-14	U	0.0654	+/-0.103	0.0848	+/-0.103	0.175	pCi/g		ATH2	06/04/06	0750	534984	7
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	11.3	+/-19.4	14.1	+/-19.5	29.7	pCi/g		SLN1	05/29/06	1705	531618	9
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-4.88	+/-4.47	3.90	+/-4.47	8.04	pCi/g		SLN1	06/04/06	0255	531654	10
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.252	+/-0.260	0.210	+/-0.260	0.434	pCi/g		SXE1	05/30/06	2354	531704	11

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	05/19/06	1856	531287
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	PD	05/19/06	0918	531278

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	75	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	56	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	71	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	73	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	79	(15%-125%)



# QUALITY CONTROL DATA

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Report Date: June 14, 2006

Page 1 of 9

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 163105

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch 535134											
QC1201105085 163105017 DUP											
Americium-241	U	-0.0374	U	0.0655	pCi/g	732		(0% - 100%)	LCW1	06/06/06	21:33
	Uncert:	+/-0.065		+/-0.0856							
	TPU:	+/-0.065		+/-0.0861							
Curium-242	U	0.00	U	0.00	pCi/g	0		(0% - 100%)			
	Uncert:	+/-0.0708		+/-0.0656							
	TPU:	+/-0.0708		+/-0.0656							
Curium-243/244	U	-0.00756	U	-0.063	pCi/g	157		(0% - 100%)			
	Uncert:	+/-0.0635		+/-0.0412							
	TPU:	+/-0.0636		+/-0.0421							
QC1201105087 LCS											
Americium-241		12.9		11.7	pCi/g		91	(75%-125%)		06/06/06	21:33
	Uncert:			+/-0.987							
	TPU:			+/-1.82							
Curium-242			U	0.00	pCi/g						
	Uncert:			+/-0.0427							
	TPU:			+/-0.0427							
Curium-243/244		15.7		14.0	pCi/g		89	(75%-125%)			
	Uncert:			+/-1.08							
	TPU:			+/-2.12							
QC1201105084 MB											
Americium-241			U	0.0943	pCi/g					06/06/06	21:33
	Uncert:			+/-0.111							
	TPU:			+/-0.112							
Curium-242			U	0.00	pCi/g						
	Uncert:			+/-0.061							
	TPU:			+/-0.061							
Curium-243/244			U	-0.00741	pCi/g						
	Uncert:			+/-0.0622							
	TPU:			+/-0.0623							
QC1201105086 163105017 MS											
Americium-241	U	-0.0374		11.7	pCi/g		91	(75%-125%)		06/06/06	21:33
	Uncert:	+/-0.065		+/-0.981							
	TPU:	+/-0.065		+/-1.81							
Curium-242	U	0.00	U	0.00	pCi/g						
	Uncert:	+/-0.0708		+/-0.0482							
	TPU:	+/-0.0708		+/-0.0482							
Curium-243/244	U	-0.00756		13.8	pCi/g		87	(75%-125%)			
	Uncert:	+/-0.0635		+/-1.07							
	TPU:	+/-0.0636		+/-2.08							
Batch 535138											
QC1201105089 163105017 DUP											
Plutonium-238	U	-0.00586	U	-0.00933	pCi/g	46		(0% - 100%)	LCW1	06/07/06	10:03

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	535138										
Plutonium-239/240		Uncert:	+/-0.0492	+/-0.0183							
		TPU:	+/-0.0493	+/-0.0183							
	U		0.0244	-0.00932	pCi/g	447		(0% - 100%)			
		Uncert:	+/-0.0478	+/-0.0183							
		TPU:	+/-0.0479	+/-0.0183							
QC1201105091	LCS										
Plutonium-238				U	0.00106	pCi/g		(75%-125%)		06/06/06	21:33
		Uncert:			+/-0.0577						
		TPU:			+/-0.0577						
Plutonium-239/240	11.9				10.6	pCi/g	89	(75%-125%)			
		Uncert:			+/-1.04						
		TPU:			+/-1.58						
QC1201105088	MB										
Plutonium-238				U	-0.0139	pCi/g				06/07/06	10:03
		Uncert:			+/-0.0719						
		TPU:			+/-0.0719						
Plutonium-239/240				U	-0.0987	pCi/g					
		Uncert:			+/-0.0536						
		TPU:			+/-0.0546						
QC1201105090	163105017	MS									
Plutonium-238		U	-0.00586	U	-0.0214	pCi/g		(75%-125%)		06/06/06	21:33
		Uncert:	+/-0.0492		+/-0.0922						
		TPU:	+/-0.0493		+/-0.0922						
Plutonium-239/240	11.9	U	0.0244		12.5	pCi/g	105	(75%-125%)			
		Uncert:	+/-0.0478		+/-1.46						
		TPU:	+/-0.0479		+/-2.17						
Batch	535141										
QC1201105093	163105017	DUP									
Plutonium-241		U	2.14	U	-1.35	pCi/g	0	(0% - 100%)	LCW1	06/08/06	22:05
		Uncert:	+/-12.6		+/-5.34						
		TPU:	+/-12.6		+/-5.35						
QC1201105095	LCS										
Plutonium-241			136		114	pCi/g	84	(75%-125%)		06/08/06	23:08
		Uncert:			+/-10.1						
		TPU:			+/-15.5						
QC1201105092	MB										
Plutonium-241				U	2.49	pCi/g				06/08/06	21:34
		Uncert:			+/-6.09						
		TPU:			+/-6.09						
QC1201105094	163105017	MS									
Plutonium-241		U	2.14		127	pCi/g	93	(75%-125%)		06/08/06	22:37
		Uncert:	+/-12.6		+/-9.05						
		TPU:	+/-12.6		+/-15.0						
<b>Rad Gamma Spec</b>											
Batch	531444										
QC1201096204	163105001	DUP									
Actinium-228			0.657		0.787	pCi/g	18	(0% - 100%)	MJH1	06/02/06	11:55
		Uncert:	+/-0.147		+/-0.181						
					+/-0.181						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	531444										
Americium-241		TPU:	+/-0.147								
	U		0.0197	U	0.00783	pCi/g	86	(0% - 100%)			
		Uncert:	+/-0.135		+/-0.0361						
Bismuth-212		TPU:	+/-0.135		+/-0.0361						
			0.270	U	0.215	pCi/g	22	(0% - 100%)			
		Uncert:	+/-0.294		+/-0.363						
Bismuth-214		TPU:	+/-0.294		+/-0.363						
			0.430	UUI	0.00	pCi/g	8*	(0% - 100%)			
		Uncert:	+/-0.0735		+/-0.0986						
Cesium-134		TPU:	+/-0.0735		+/-0.0986						
	UUI		0.00	U	0.0594	pCi/g	17	(0% - 100%)			
		Uncert:	+/-0.0318		+/-0.0406						
Cesium-137		TPU:	+/-0.0318		+/-0.0406						
			0.0857		0.0823	pCi/g	4	(0% - 100%)			
		Uncert:	+/-0.0355		+/-0.0423						
Cobalt-60		TPU:	+/-0.0355		+/-0.0423						
			0.0507		0.108	pCi/g	72	(0% - 100%)			
		Uncert:	+/-0.0266		+/-0.0498						
Europium-152		TPU:	+/-0.0266		+/-0.0498						
	U		-0.00125	U	-0.0242	pCi/g	180	(0% - 100%)			
		Uncert:	+/-0.0441		+/-0.0667						
Europium-154		TPU:	+/-0.0441		+/-0.0667						
	U		0.0628	U	-0.022	pCi/g	415	(0% - 100%)			
		Uncert:	+/-0.0565		+/-0.0877						
Europium-155		TPU:	+/-0.0565		+/-0.0877						
	UUI		0.00	UUI	0.00	pCi/g	24	(0% - 100%)			
		Uncert:	+/-0.0699		+/-0.0782						
Lead-212		TPU:	+/-0.0699		+/-0.0782						
			0.710		0.740	pCi/g	4	(0% - 20%)			
		Uncert:	+/-0.0836		+/-0.0659						
Lead-214		TPU:	+/-0.0836		+/-0.0659						
			0.491		0.572	pCi/g	15				
		Uncert:	+/-0.0798		+/-0.0863						
Manganese-54		TPU:	+/-0.0798		+/-0.0863						
	U		0.00641	U	0.00847	pCi/g	28	(0% - 100%)			
		Uncert:	+/-0.0164		+/-0.0425						
Niobium-94		TPU:	+/-0.0164		+/-0.0425						
	U		0.0108	U	-0.00216	pCi/g	300	(0% - 100%)			
		Uncert:	+/-0.0148		+/-0.0247						
Potassium-40		TPU:	+/-0.0148		+/-0.0247						
			11.9		12.6	pCi/g	6	(0% - 20%)			
		Uncert:	+/-1.05		+/-0.965						
Radium-226		TPU:	+/-1.05		+/-0.965						
			0.430		0.467	pCi/g	8	(0% - 100%)			
		Uncert:	+/-0.0735		+/-0.0986						
Silver-108m		TPU:	+/-0.0735		+/-0.0986						
	U		-0.00638	U	0.0115	pCi/g	700	(0% - 100%)			
		Uncert:	+/-0.0136		+/-0.0229						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	531444										
Thallium-208		TPU:	+/-0.0136	+/-0.0229							
			0.215	0.249	pCi/g	14		(0% - 100%)			
		Uncert:	+/-0.0408	+/-0.0592							
		TPU:	+/-0.0408	+/-0.0592							
QC1201096205	LCS										
Actinium-228				U	-0.14	pCi/g				06/02/06	11:55
		Uncert:		+/-0.429							
		TPU:		+/-0.429							
Americium-241	23.4				24.1	pCi/g	103	(75%-125%)			
		Uncert:		+/-3.07							
		TPU:		+/-3.07							
Bismuth-212				U	-0.522	pCi/g					
		Uncert:		+/-0.818							
		TPU:		+/-0.818							
Bismuth-214				U	0.0187	pCi/g					
		Uncert:		+/-0.246							
		TPU:		+/-0.246							
Cesium-134				U	0.0489	pCi/g					
		Uncert:		+/-0.118							
		TPU:		+/-0.118							
Cesium-137	9.64				10.7	pCi/g	111	(75%-125%)			
		Uncert:		+/-0.808							
		TPU:		+/-0.808							
Cobalt-60	15.0				16.4	pCi/g	109	(75%-125%)			
		Uncert:		+/-1.43							
		TPU:		+/-1.43							
Europium-152				U	-0.0654	pCi/g					
		Uncert:		+/-0.253							
		TPU:		+/-0.253							
Europium-154				U	0.0234	pCi/g					
		Uncert:		+/-0.256							
		TPU:		+/-0.256							
Europium-155				U	-0.174	pCi/g					
		Uncert:		+/-0.327							
		TPU:		+/-0.327							
Lead-212				U	0.141	pCi/g					
		Uncert:		+/-0.182							
		TPU:		+/-0.182							
Lead-214				U	-0.0253	pCi/g					
		Uncert:		+/-0.191							
		TPU:		+/-0.191							
Manganese-54				U	-0.041	pCi/g					
		Uncert:		+/-0.124							
		TPU:		+/-0.124							
Niobium-94				U	0.0474	pCi/g					
		Uncert:		+/-0.103							
		TPU:		+/-0.103							
Potassium-40				U	0.516	pCi/g					

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	531444									
Radium-226	Uncert: TPU:	U	+/-0.947 +/-0.947 0.0187	pCi/g			(75%-125%)			
Silver-108m	Uncert: TPU:	U	+/-0.246 +/-0.246 0.0347	pCi/g						
Thallium-208	Uncert: TPU:	U	+/-0.136 +/-0.136 0.141	pCi/g						
QC1201096203 MB Actinium-228	Uncert: TPU:	U	+/-0.105 +/-0.105 0.047	pCi/g					06/03/06	12:45
Americium-241	Uncert: TPU:	U	+/-0.0622 +/-0.0622 -0.0397	pCi/g						
Bismuth-212	Uncert: TPU:	U	+/-0.0695 +/-0.0695 0.0403	pCi/g						
Bismuth-214	Uncert: TPU:	U	+/-0.104 +/-0.104 0.0185	pCi/g						
Cesium-134	Uncert: TPU:	U	+/-0.0236 +/-0.0236 0.00684	pCi/g						
Cesium-137	Uncert: TPU:	U	+/-0.0134 +/-0.0134 0.0139	pCi/g						
Cobalt-60	Uncert: TPU:	U	+/-0.0105 +/-0.0105 -0.00948	pCi/g						
Europium-152	Uncert: TPU:	U	+/-0.0105 +/-0.0105 -2.390E-05	pCi/g						
Europium-154	Uncert: TPU:	U	+/-0.0276 +/-0.0276 -0.0124	pCi/g						
Europium-155	Uncert: TPU:	U	+/-0.0303 +/-0.0303 -0.0106	pCi/g						
Lead-212	Uncert: TPU:	U	+/-0.0268 +/-0.0268 0.0167	pCi/g						
Lead-214	Uncert: TPU:	U	+/-0.0177 +/-0.0177 0.0112	pCi/g						
	Uncert: TPU:		+/-0.0205 +/-0.0205							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	531444										
Manganese-54			U	0.00725	pCi/g						
	Uncert:			+/-0.0121							
	TPU:			+/-0.0121							
Niobium-94			U	-0.00341	pCi/g						
	Uncert:			+/-0.0111							
	TPU:			+/-0.0111							
Potassium-40			U	0.214	pCi/g						
	Uncert:			+/-0.126							
	TPU:			+/-0.126							
Radium-226			U	0.0185	pCi/g						
	Uncert:			+/-0.0236							
	TPU:			+/-0.0236							
Silver-108m			U	-0.0106	pCi/g						
	Uncert:			+/-0.00889							
	TPU:			+/-0.00889							
Thallium-208			U	0.0102	pCi/g						
	Uncert:			+/-0.0123							
	TPU:			+/-0.0123							
<b>Rad Gas Flow</b>											
Batch	536335										
QC1201107675	163105017	DUP									
Strontium-90			U	-0.00194	pCi/g	0		(0% - 100%)	BXF1	06/11/06	10:58
	Uncert:			+/-0.0174							
	TPU:			+/-0.0174							
QC1201107677	LCS										
Strontium-90				1.48	pCi/g		105	(75%-125%)		06/11/06	10:59
	Uncert:			1.56							
	TPU:			+/-0.0872							
				+/-0.099							
QC1201107674	MB										
Strontium-90			U	-0.00598	pCi/g					06/11/06	10:58
	Uncert:			+/-0.0102							
	TPU:			+/-0.0102							
QC1201107676	163105017	MS									
Strontium-90			1.57 U	-0.00194	pCi/g		104	(75%-125%)		06/11/06	10:59
	Uncert:			+/-0.0174							
	TPU:			+/-0.0174							
<b>Rad Liquid Scintillation</b>											
Batch	531618										
QC1201096632	163173001	DUP									
Iron-55			U	10.3	pCi/g	0		(0% - 100%)	SLN1	05/31/06	12:49
	Uncert:			+/-20.1							
	TPU:			+/-20.1							
QC1201096634	LCS										
Iron-55				437	pCi/g		98	(75%-125%)		05/31/06	13:22
	Uncert:			428							
	TPU:			+/-40.6							
				+/-62.3							
QC1201096631	MB										
Iron-55			U	3.58	pCi/g					05/31/06	12:32

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>											
Batch	531618										
		Uncert:		+/-24.7							
		TPU:		+/-24.7							
QC1201096633	163173001	MS									
Iron-55		569	U	10.3	544		96	(75%-125%)		05/31/06	13:05
		Uncert:		+/-20.1	+/-39.3						
		TPU:		+/-20.1	+/-69.3						
Batch	531622										
QC1201096645	163173001	DUP									
Nickel-63			U	-6.64	U	-5.49	0	(0% - 100%)	SLN1	05/28/06	01:38
		Uncert:		+/-7.30	+/-4.33						
		TPU:		+/-7.31	+/-4.33						
QC1201096647	LCS										
Nickel-63		362			301	pCi/g	83	(75%-125%)		05/28/06	03:40
		Uncert:			+/-7.49						
		TPU:			+/-11.1						
QC1201096644	MB										
Nickel-63			U	-1.66		pCi/g				05/28/06	00:37
		Uncert:		+/-3.41							
		TPU:		+/-3.41							
QC1201096646	163173001	MS									
Nickel-63		460	U	-6.64	395	pCi/g	86	(75%-125%)		05/28/06	02:39
		Uncert:		+/-7.30	+/-9.22						
		TPU:		+/-7.31	+/-14.9						
Batch	531654										
QC1201096728	163105010	DUP									
Nickel-63			U	-4.66	U	-9.09	0	(0% - 100%)	SLN1	06/04/06	03:58
		Uncert:		+/-8.24	+/-7.46						
		TPU:		+/-8.24	+/-7.47						
QC1201096730	LCS										
Nickel-63		258			235	pCi/g	91	(75%-125%)		06/04/06	04:46
		Uncert:			+/-12.2						
		TPU:			+/-13.6						
QC1201096727	MB										
Nickel-63			U	0.387		pCi/g				06/08/06	22:07
		Uncert:		+/-4.73							
		TPU:		+/-4.73							
QC1201096729	163105010	MS									
Nickel-63		286	U	-4.66	268	pCi/g	94	(75%-125%)		06/04/06	04:30
		Uncert:		+/-8.24	+/-12.8						
		TPU:		+/-8.24	+/-14.5						
Batch	531704										
QC1201096868	162583001	DUP									
Technetium-99			U	0.161	U	0.239	0	(0% - 100%)	SXE1	05/31/06	00:27
		Uncert:		+/-0.254	+/-0.273						
		TPU:		+/-0.255	+/-0.273						
QC1201096870	LCS										
Technetium-99		12.5			11.1	pCi/g	89	(75%-125%)		05/31/06	01:00
		Uncert:			+/-0.474						
		TPU:			+/-0.545						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>											
Batch 531704											
QC1201096867	MB										
Technetium-99			U	0.163	pCi/g					05/31/06	00:11
				Uncert: +/-0.214							
				TPU: +/-0.214							
QC1201096869	162583001	MS									
Technetium-99		13.1	U	0.161	pCi/g		89	(75%-125%)		05/31/06	00:44
				Uncert: +/-0.254							
				TPU: +/-0.255							
Batch 531705											
QC1201096878	162583001	DUP									
Tritium			U	1.17	pCi/g	0		(0% - 100%) NXP1		05/28/06	09:10
				Uncert: +/-4.09							
				TPU: +/-4.09							
QC1201096880	LCS										
Tritium		41.4		44.8	pCi/g		108	(75%-125%)		05/28/06	10:14
				Uncert: +/-5.68							
				TPU: +/-5.73							
QC1201096877	MB										
Tritium			U	0.0641	pCi/g					06/03/06	05:11
				Uncert: +/-0.533							
				TPU: +/-0.533							
QC1201096879	162583001	MS									
Tritium		45.7	U	1.17	pCi/g		114	(75%-125%)		05/28/06	09:42
				Uncert: +/-4.09							
				TPU: +/-4.09							
Batch 534699											
QC1201104074	163105003	DUP									
Nickel-63			U	6.33	pCi/g	0		(0% - 100%) SLN1		06/04/06	07:46
				Uncert: +/-9.13							
				TPU: +/-9.14							
QC1201104076	LCS										
Nickel-63		1190		983	pCi/g		83	(75%-125%)		06/04/06	11:01
				Uncert: +/-22.7							
				TPU: +/-58.9							
QC1201104073	MB										
Nickel-63			U	9.47	pCi/g					06/04/06	06:13
				Uncert: +/-8.66							
				TPU: +/-8.68							
QC1201104075	163105003	MS									
Nickel-63		1280	U	6.33	pCi/g		79	(75%-125%)		06/04/06	09:58
				Uncert: +/-9.13							
				TPU: +/-9.14							
Batch 534984											
QC1201104746	163173001	DUP									
Carbon-14			U	0.00714	pCi/g	0		(0% - 100%) ATH2		06/05/06	03:00
				Uncert: +/-0.0996							
				TPU: +/-0.0996							
QC1201104748	LCS										
Carbon-14		12.1		11.3	pCi/g		94	(75%-125%)		06/05/06	05:20

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Workorder: 163105

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
<b>Rad Liquid Scintillation</b>									
Batch	534984								
			Uncert:						
			TPU:						
QC1201104745	MB								
Carbon-14		U	-0.0368	pCi/g					06/05/06 00:57
			Uncert:						
			TPU:						
QC1201104747	163173001 MS								
Carbon-14		U	0.00714	pCi/g		94 (75%-125%)			06/05/06 05:02
			Uncert:						
			TPU:						

**Notes:**

The Qualifiers in this report are defined as follows:

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

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

\*\* Indicates analyte is a surrogate compound.

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

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

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

# **General Narrative**

**CASE NARRATIVE**  
**For**  
**CONNECTICUT YANKEE**  
**RE: Soil**  
**PO# 002332**

**Work Order: 168404**

**SDG: MSR #06-0652, 06-0675, 06-0687, 06-0688, 06-0707, 06-0743, 06-0755**

**August 15, 2006**

**Laboratory Identification:**

General Engineering Laboratories, LLC

**Mailing Address:**

P.O. Box 30712  
Charleston, South Carolina 29417

**Express Mail Delivery and Shipping Address:**

2040 Savage Road  
Charleston, South Carolina 29407

**Telephone Number:**

(843) 556-8171

**Summary:**

**Sample receipt**

The sample(s) for this Project arrived at General Engineering Laboratories, LLC, (GEL) in Charleston, South Carolina on May 5, May 9, May 12, May 17, May 26, June 2, June 8, 2006. All sample containers arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

The laboratory received the following sample(s):

<b><u>Sample ID</u></b>	<b><u>Client Sample ID</u></b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F

GENERAL ENGINEERING LABORATORIES, LLC

*a Member of THE GEL GROUP, INC.*

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)  
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F

**Items of Note:**

At the request of Dale Randall on July 20, 2006, GEL analyzed the above samples according to the spreadsheet in the attached email.

**Case Narrative:**

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

**Analytical Request:**

Seven soil samples were reanalyzed for FSSALL, except gamma and Sr-90.  
Four soil samples were reanalyzed for FSSALL, except gamma and Ni-63.  
Two soil samples were reanalyzed for FSSALL, except gamma.  
Two soil samples were reanalyzed for FSALL, except gamma, Sr-90 and Ni-63.

**Internal Chain of Custody:**

Custody was maintained for the sample(s).

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody and Supporting Documentation and all analytical fractions.

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

168404%

**Subject:** Additional HTD analyses  
**From:** "Dale Randall" <randall@cyapco.com>  
**Date:** Thu, 20 Jul 2006 11:04:54 -0400  
**To:** "Cheryl Jones" <cj@gel.com>  
**CC:** "Clyde Newson" <Newson@CYAPCO.com>, "John McCarthy" <McCarthy@CYAPCO.com>

Cheryl:

Per our earlier discussion, attached is a list of samples that we would like to have analyzed to the FSSALL protocol. I have included a list of test protocols performed on each sample to date. Once you have had an opportunity to determine our options for each sample please call or e-mail me at your convenience.

Thank You,

Dale

(860) 267-3133

<b>GEL FSSALL analyses request.xls</b>	<b>Content-Description:</b> GEL FSSALL analyses request.xls
	<b>Content-Type:</b> application/vnd.ms-excel
	<b>Content-Encoding:</b> base64

Previous GEL ID	CY sample location IDs	Done			To be done								
		FSS Gam	Sr-90	Ni-63	Am	Pu	Sr90	Pu241	Fe55	Ni63	Tc99	H3	C14
164220008	9106-0002-007F	x	x		x	x		x	x	x	x	x	x
164220012	9106-0002-011F	x	x		x	x		x	x	x	x	x	x
162335004	9106-0003-004F	x			x	x	x	x	x	x	x	x	x
162335014	9106-0003-015F	x			x	x	x	x	x	x	x	x	x
162832015	9106-0004-005F	x	x		x	x		x	x	x	x	x	x
162832009	9106-0004-015F	x	x		x	x		x	x	x	x	x	x
162485008	9106-0005-010F	x	x		x	x		x	x	x	x	x	x
162485011	9106-0005-014F	x	x		x	x		x	x	x	x	x	x
162850014	9106-0006-005F	x	x		x	x		x	x	x	x	x	x
163741005	9106-0008-006F	x	x	x	x	x		x	x		x	x	x
163741009	9106-0008-008F	x	x	x	x	x		x	x		x	x	x
164542008	9106-0009-002F	x		x	x	x	x	x	x		x	x	x
164542003	9106-0009-017F	x		x	x	x	x	x	x		x	x	x
163105009	9106-0010-001F	x		x	x	x	x	x	x		x	x	x
163105016	9106-0010-012F	x		x	x	x	x	x	x		x	x	x

# **Chain of Custody and Supporting Documentation**

Relog 168404

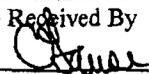
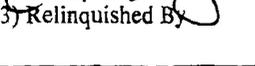
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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00371

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size & Type Code	Analyses Requested					Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Sr-90					Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													164220%	
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.													Comment, Preservation	
Sample Designation	Date	Time												
9106-0002-001F	5/17/06	10:42	SE	C	BP	X		X			Transferred from COC 2006-00357			
9106-0002-002F	5/18/06	09:43	SE	C	BP		X				Transferred from COC 2006-00361			
9106-0002-003F	5/18/06	10:14	SE	C	BP	X		X			Transferred from COC 2006-00361			
9106-0002-004F	5/18/06	10:39	SE	C	BP	X		X			Transferred from COC 2006-00361			
9106-0002-005F	5/18/06	12:49	SE	C	BP	X		X			Transferred from COC 2006-00364			
9106-0002-006F	5/18/06	13:14	SE	C	BP	X		X			Transferred from COC 2006-00364			
9106-0002-006FS	5/18/06	13:14	SE	C	BP	X		X			Transferred from COC 2006-00364			
9106-0002-007F	5/18/06	13:37	SE	C	BP	X		X			Transferred from COC 2006-00364			
9106-0002-008F	5/18/06	14:04	SE	C	BP	X		X			Transferred from COC 2006-00364			
NOTES: PO #: 002332 MSR #: 06- SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA 0755										Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other		Internal Container Temp.: _____ Deg. C Custody Sealed? Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>		
1) Relinquished By 			Date/Time 6-06-0815		2) Received By 			Date/Time 6-02-06 9:20		Bill of Lading # 7909 4145 5710				
3) Relinquished By 			Date/Time		4) Received By			Date/Time						
5) Relinquished By			Date/Time		6) Received By			Date/Time						

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### Connecticut Yankee Atomic Power Company

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

### Chain of Custody Form

No. 2006-00372

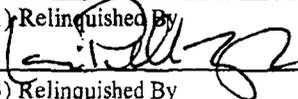
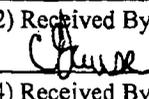
Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size & Type Code	Analyses Requested					Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALI	Sr-90					Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.														
Sample Designation	Date	Time								Comment, Preservation	Lab Sample ID			
9106-0002-009F	5/18/06	14:28	SE	C	BP		X			Transferred from COC 2006-00364				
9106-0002-010F	5/18/06	14:50	SE	C	BP	X		X		Transferred from COC 2006-00364				
9106-0002-011F	5/19/06	08:10	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-012F	5/19/06	08:31	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-013F	5/19/06	09:00	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-014F	5/19/06	09:58	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-014FS	5/19/06	09:58	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-015F	5/19/06	10:29	SE	C	BP	X		X		Transferred from COC 2006-00365				
9106-0002-016F	5/19/06	13:19	SE	C	BP	X		X		Transferred from COC 2006-00365				
NOTES: PO #: 002332 MSR #: 06- SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA 0755										Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other		Internal Container Temp.: _____ Deg. C Custody Sealed? Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>		
1) Relinquished By 			Date/Time 6/10/06 0815		2) Received By 			Date/Time 6-206 9:20		Bill of Lading # 7909 4145 5709				
3) Relinquished By			Date/Time		4) Received By			Date/Time						
5) Relinquished By			Date/Time		6) Received By			Date/Time						

Figure 1. Sample Check-in List

Date/Time Received: 6-2-06 9:20

SDG#: MSR#06-0755

Work Order Number: 1642201

Shipping Container ID: 7909 41455710 Chain of Custody # 2006-00371

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 23°
- 5. Vermiculite/packing materials is: Wet  Dry  NO PACKING Bot wet
- 6. Number of samples in shipping container: 9
- 7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: *Chase* Date: 6-2-06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

Figure 1. Sample Check-in List

Date/Time Received: 6-2-06 9:20

SDG#: MSR#06-0755

Work Order Number: 1642201

Shipping Container ID: 1909 4145 5109 Chain of Custody #: 2006-00372

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 23°
- 5. Vermiculite/packing materials is: Wet  Dry  no packing bot wet
- 6. Number of samples in shipping container: 9
- 7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: Custer Hus Date: 6-2-06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Connecticut Yankee</u>	SDG/ARCOC/Work Order: <u>164220</u>
Date Received: <u>6/2/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):  <i>[Signature]</i>
Received By: <i>[Signature]</i>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.				Circle Coolant # ice bags blue ice dry ice none other describe
3 Chain of custody documents included with shipment?				
4 Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?				Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)				
8 Samples received within holding time?				Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?				Sample ID's affected:
11 Number of containers received match number indicated on COC?				Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?				COC # <u>2006-00371</u>

14	Air Bill, Tracking #'s, & Additional Comments	
----	---	--

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

PM (or PMA) review of Hazard classification:	Initials <i>[Signature]</i>	Date: <u>6/2/06</u>
--	-----------------------------	---------------------



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Connecticut Yankee</u>	SDG/ARCOC/Work Order: <u>164220</u>
Date Received: <u>6-2-06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): <i>[Signature]</i>
Received By: <u>[Signature]</u>	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.				Circle Coolant # ice bags blue ice dry ice none other (describe)
3	Chain of custody documents included with shipment?				
4	Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?				Sample ID's, containers affected and observed pH:
6	VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)				
8	Samples received within holding time?				ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?				Sample ID's affected:
11	Number of containers received match number indicated on COC?				Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?				COC # <u>2006-0037-adj 6/2/06</u> <u>00372</u>
14	Air Bill ,Tracking #'s, & Additional Comments				

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?		✓		Maximum Counts Observed*: <u>70CPM</u>
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:
PM (or PMA) review of Hazard classification:					Initials: <u>[Signature]</u> Date: <u>6/2/06</u>

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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00312

*162334%* *162335%* *CD 5/8/06*

Project Name: Haddam Neck Decommissioning			Analyses Requested				Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024			Media Code	Sample Type Code	Container Size- & Type Code	FSSGAM	FSSALL	Sr-90	Comments:
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones									
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.									

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Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- & Type Code	FSSGAM	FSSALL	Sr-90	Comment, Preservation	Lab Sample ID
9106-0003-001F	4/24/06	14:13	SE	C	BP	X			Transferred from COC2006-00221	
9106-0003-002F	4/24/06	14:39	SE	C	BP	X			Transferred from COC2006-00221	
9106-0003-003F	4/24/06	15:01	SE	C	BP	X			Transferred from COC2006-00221	
9106-0003-004F	4/25/06	08:41	SE	C	BP	X			Transferred from COC2006-00223	
9106-0003-004FS	4/25/06	08:41	SE	C	BP	X			Transferred from COC2006-00223	
9106-0003-005F	4/25/06	09:21	SE	C	BP	X			Transferred from COC2006-00223	
9106-0003-006F	4/25/06	09:46	SE	C	BP	X			Transferred from COC2006-00223	
9106-0003-007F	4/25/06	10:28	SE	C	BP	X			Transferred from COC2006-00223	
9106-0003-008F	4/25/06	11:15	SE	C	BP		X		Transferred from COC2006-00223	

NOTES: PO #: 002332 MSR #: 06-<sup>0652</sup> SSWP# NA  LTP QA  Radwaste QA  Non QA  
Combined samples 9106-0003-003F taken on 4/25/06 @08:19 and 9106-0003-003FB taken on 4/25/06 @ 08:19 in order to have sufficient sample for counting.

Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other	Internal Container Temp: _____ Deg. C. Custody Sealed? Y <input type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>
Bill of Lading #	7920-8920-0240

1) Relinquished By <i>JAMIE RICARTE</i>	Date/Time <i>5-4-06/13:30</i>	2) Received By <i>C. Demicatto</i>	Date/Time <i>5/5/06/10:15</i>
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00313

*162334 162335*

Project Name: Haddam Neck Decommissioning							Analyses Requested				Lab Use Only					
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024							FSSGAM	FSSALL	Sr-90	Comments:						
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones																
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.																
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size & Type Code						Comment, Preservation	Lab Sample ID				
9106-0003-009F	4/25/06	13:00	SE	C	BP	X					Transferred from COC 2006-00236					
9106-0003-010F	4/25/06	13:23	SE	C	BP	X					Transferred from COC 2006-00236					
9106-0003-010FS	4/25/06	13:23	SE	C	BP	X					Transferred from COC 2006-00236					
9106-0003-012F	4/25/06	15:12	SE	C	BP	X					Transferred from COC 2006-00236					
9106-0003-013F	4/25/06	14:21	SE	C	BP	X					Transferred from COC 2006-00236					
9106-0003-014F	4/25/06	14:48	SE	C	BP		X				Transferred from COC 2006-00236					
9106-0003-015F	4/26/06	08:16	SE	C	BP	X					Transferred from COC 2006-00237					
9106-0003-016F	4/26/06	09:41	SE	C	BP	X					Transferred from COC 2006-00237					
9106-0003-017F	4/26/06	09:18	SE	C	BP	X					Transferred from COC 2006-00237					
9106-0003-018F	4/26/06	08:59	SE	C	BP	X					Transferred from COC 2006-00237					
NOTES: PO #: 002332 MSR #: 06- <sup>0652</sup> SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA											Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other		Internal Container Temp: _____ Deg C Custody Sealed? Y <input type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>			
1) Relinquished By SARIE RICARTE			Date/Time 5-1-06 / 1330			2) Received By C. Derriceto			Date/Time 5/5/06 / 1015			Bill of Lading # 7920-8920-0261				
3) Relinquished By			Date/Time			4) Received By			Date/Time							

010  
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017

Cheryl

162335

Figure 1. Sample Check-in List

Date/Time Received: 5/5/06 1015

SDG#: MSR#06-0652

Work Order Number: 162335

Shipping Container ID: 7920 8920 0261 Chain of Custody # 2006-00312  
" " 0240 2006-00313

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 19°C
- 5. Vermiculite/packing materials is: Wet  Dry  n/a
- 6. Number of samples in shipping container: [10] ten / [9] nine
- 7. Sample holding times exceeded? Yes  No

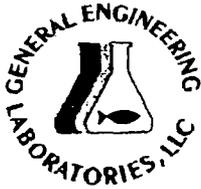
8. Samples have:	
<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels
9. Samples are:	
<input checked="" type="checkbox"/> in good condition	<input checked="" type="checkbox"/>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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: C. Derricotte Date: 5/5/06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

PM use only 162335

Client: <u>Yankel</u>	SDG/ARCOC/Work Order:
Date Received: <u>COA 5/5/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>C. Perricotte</u>	<u>Clyde</u>

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice none <u>other describe</u> <u>1900</u> <u>Peanutts</u>
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			✓	
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	✓			
14	Air Bill ,Tracking #'s, & Additional Comments				<u>FedEx #</u> <u>7920 8920 0261</u> <u>" " 0240</u>

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?		✓		Maximum Counts Observed*: <u>30 cpm</u>
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:
PM (or PMA) review of Hazard classification: _____					Initials <u>CPJ</u> Date: <u>5/5/06</u>

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### Connecticut Yankee Atomic Power Company

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

## Chain of Custody Form

No. 2006-00336

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested					Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Sr-90					Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.														
Sample Designation	Date	Time								Comment, Preservation	Lab Sample ID			
9106-0004-001F	05/3/06	09:37	SE	C	BP		X	X		Transferred from COC 2006-00316				
9106-0004-002F	05/3/06	09:56	SE	C	BP	X		X		Transferred from COC 2006-00316				
9106-0004-003F	05/3/06	10:28	SE	C	BP	X		X		Transferred from COC 2006-00316				
9106-0004-004F	05/3/06	10:48	SE	C	BP	X		X		Transferred from COC 2006-00316				
9106-0004-004FS	05/3/06	10:48	SE	C	BP	X		X		Transferred from COC 2006-00316				
9106-0004-005F	05/3/06	11:07	SE	C	BP	X		X		Transferred from COC 2006-00316				
9106-0004-006F	05/3/06	12:46	SE	C	BP	X		X		Transferred from COC 2006-00317				
9106-0004-007F	05/4/06	07:55	SE	C	BP	X		X		Transferred from COC 2006-00320				
9106-0004-017F	05/4/06	09:27	SE	C	BP	X		X		Transferred from COC 2006-00320				
NOTES: PO #: 002332 MSR #: 06-0688 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA											Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other			
1) Relinquished By			Date/Time		2) Received By			Date/Time		Internal Container Temp: 72 Deg C Custody Sealed? N/A Custody Seal Intact? N/A				
3) Relinquished By			Date/Time		4) Received By			Date/Time						
Bill of Lading # 7919-3895-8881														



Figure 1. Sample Check-in List

Date/Time Received: 5.12.06 09:20

SDG#: MSR#06-0688

Work Order Number: 1628321

Shipping Container ID: 7919 3895 8892 Chain of Custody # 2006-00337

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature N/A
- 5. Vermiculite/packing materials is: Wet  Dry
- 6. Number of samples in shipping container: 9
- 7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: Emily Martin Date: 5.12.06 09:20

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

Figure 1. Sample Check-in List

Date/Time Received: 5/12/06 @ 0920

SDG#: NSR #06-0688

Work Order Number: 1628321

Shipping Container ID: 7919 3895 8892 7420 Chain of Custody # 2006-00337

1. Custody Seals on shipping container intact? Yes [ ] No
2. Custody Seals dated and signed? Yes [ ] No
3. Chain-of-Custody record present? Yes  No [ ]
4. Cooler temperature 17°C
5. Vermiculite/packing materials is: Wet  Dry [ ]
6. Number of samples in shipping container: \_\_\_\_\_
7. Sample holding times exceeded? Yes [ ] No

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

10. Were any anomalies identified in sample receipt? Yes  No [ ]

11. Description of anomalies (include sample numbers): soil was busting out of container bag

Sample Custodian/Laboratory: C. Demicco Date: 5/12/06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_





# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>CT Yankee</u>	SDG/ARCOC/Work Order: <u>162832</u>
Date Received: <u>5.12.06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>E. Martin</u>	<u><i>[Signature]</i></u>

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		X		Circle Coolant # ice bags blue ice dry ice none other describe)
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?			X	Circle Applicable: seals broken damaged container <del>leaking container</del> other (describe) <u>SN: 9106-0004-014F</u>
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			X	
8	Samples received within holding time?	X			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?			X	<u>Coc Not Relinquished</u>
14	Air Bill ,Tracking #'s, & Additional Comments				<u>7919 3895 8892</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?		X		Maximum Counts Observed*: <u>&lt; Bkgd.</u>
B PCB Regulated?	X			Comments: <u>Bkgd = 40 cpm</u>
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	X			Hazard Class Shipped: <u>N/A</u> UN#: <u>N/A</u>
PM (or PMA) review of Hazard classification:				Initials: <u><i>[Signature]</i></u> Date: <u>5/12/06</u>



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Vankel</u>	SDG/ARCOC/Work Order: <u>162832</u>
Date Received: <u>5/12/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>C. Derricotte</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice <u>none</u> other (describe) <u>17°C</u>
3 Chain of custody documents included with shipment?	✓			<u>COCs are wet</u>
4 Sample containers intact and sealed?			✓	Circle Applicable: seals broken damaged container leaking container <u>other (describe)</u> <u>busted bag w/ RSOs cooler 7970 9480 6038</u>
5 Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: <u>8892</u>
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?			✓	<u>no COCs are relinquished</u>
14 Air Bill, Tracking #'s, & Additional Comments	<u>FedEx #'s see continuation sheet</u>			

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?		✓		Maximum Counts Observed*: <u>100 @ 40 CPA</u>
B PCB Regulated?	✓			Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:
PM (or PMA) review of Hazard classification:		Initials		Date: <u>5/12/06</u>

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### Connecticut Yankee Atomic Power Company

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

### Chain of Custody Form

No. 2006-00319

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested				Lab Use Only										
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Sr-90					Comments							
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones																				
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.																				
Sample Designation	Date	Time	Comment, Preservation									Lab Sample ID								
9106-0005-010F	5/02/06	13:16	SE	C	BP	X		X			Transferred from COC 2006-00314									
9106-0005-011F	5/02/06	13:39	SE	C	BP	X		X			Transferred from COC 2006-00314									
9106-0005-013F	5/02/06	14:35	SE	C	BP	X		X			Transferred from COC 2006-00314									
9106-0005-014F	5/02/06	15:04	SE	C	BP	X		X			Transferred from COC 2006-00314									
9106-0005-016F	5/02/06	13:59	SE	C	BP	X		X			Transferred from COC 2006-00314									
9106-0005-015F	5/03/06	08:03	SE	C	BP	X		X			Transferred from COC 2006-00316									
9106-0005-017F	5/03/06	08:13	SE	C	BP	X		X			Transferred from COC 2006-00316									
9106-0005-018F	5/03/06	09:09	SE	C	BP	X		X			Transferred from COC 2006-00316									
9106-0005-018FS	5/03/06	09:09	SE	C	BP	X		X			Transferred from COC 2006-00316									
NOTES: PO #: 002332 MSR #: 06-0675 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA										Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		Internal Container Temp: _____ Deg-C Custody Sealed? <input type="checkbox"/> YES <input type="checkbox"/> NO Custody Seal Intact? <input type="checkbox"/> YES <input type="checkbox"/> NO  Y <input type="checkbox"/> N <input type="checkbox"/>								
1) Relinquished By <i>[Signature]</i> Date/Time 5-8-06 1440			2) Received By <i>[Signature]</i> Date/Time 5/9/06 0930			3) Relinquished By _____ Date/Time _____			4) Received By _____ Date/Time _____				Bill of Lading # 7920 9195 4352							

11

Figure 1. Sample Check-in List

Date/Time Received: 5/9/06 0930

SDG#: MSR# 06-0675

Work Order Number: 1624851

Shipping Container ID: 7920 9195 4352, 4363 Chain of Custody #: 2006-00318/20319

1. Custody Seals on shipping container intact? Yes  No
2. Custody Seals dated and signed? Yes  No
3. Chain-of-Custody record present? Yes  No
4. Cooler temperature 18°C, 19°C
5. Vermiculite/packing materials is: Wet  Dry
6. Number of samples in shipping container: 18
7. Sample holding times exceeded? Yes  No

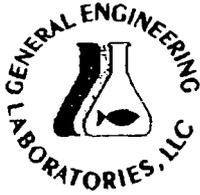
8. Samples have:	
<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels
9. Samples are:	
<input type="checkbox"/> in good condition	<input checked="" type="checkbox"/> leaking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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: *Perle* Date: 5/9/06 0930

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>ATMC</u>	SDG/ARCO/Work Order: <u>162485</u>
Date Received: <u>5/9/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): <i>[Signature]</i>
Received By: <u>BHC</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.				Circle Coolant # ice bags blue ice dry ice none other describe
3 Chain of custody documents included with shipment?				
4 Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?				Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)				<i>BHC 5/9/06</i>
8 Samples received within holding time?				ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?				Sample ID's affected:
11 Number of containers received match number indicated on COC?				Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?				

14 Air Bill ,Tracking #'s, & Additional Comments	<u>Fed 7920 9195 4352 → 19°C</u> <u>Ex 4363 → 18°C</u>
--	---

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?				Maximum Counts Observed*: <u>80 cpm</u>
B PCB Regulated?				Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.				Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: \_\_\_\_\_ Initials CJ Date: 5/9/06

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### Connecticut Yankee Atomic Power Company

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

### Chain of Custody Form

No. 2006-00332

Project Name: Haddam Neck Decommissioning							Analyses Requested				Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024							FSSGAM	FSSALL	Sr-90				Comments:
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.													
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size & Type Code						Comment, Preservation	Lab Sample ID	
9106-0006-004F	4/28/06	12:46	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-005F	4/28/06	13:03	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-006F	4/28/06	13:22	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-007F	4/28/06	13:41	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-007FS	4/28/06	13:41	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-012F	5/01/06	13:40	SE	C	BP	X		X			Transferred from COC 2006-00317		
9106-0006-017F	5/01/06	14:03	SE	C	BP	X		X			Transferred from COC 2006-00317		
NOTES: PO #: 002332 MSR #: 06-0687 SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA													
1) Relinquished By			Date/Time			2) Received By			Date/Time			Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other	
						<i>C. DeNicotris</i>			<i>5/2/06 0920</i>				
3) Relinquished By			Date/Time			4) Received By			Date/Time			Internal Container Temp: <i>120</i> Deg C Custody Sealed? <i>YES</i> Custody Seal Intact? <i>YES</i>	
Bill of Lading # <i>7920-9480-6688</i>													

Figure 1. Sample Check-in List

Date/Time Received: 5/10/06 @ 0920

SDG#: MSR#06-0687

Work Order Number: 1628501

Shipping Container ID: see cont sheet Chain of Custody #: see cont sheet

1. Custody Seals on shipping container intact? Yes [ ] No
2. Custody Seals dated and signed? Yes [ ] No
3. Chain-of-Custody record present? Yes  No [ ]
4. Cooler temperature 1700
5. Vermiculite/packing materials is: Wet  Dry [ ]
6. Number of samples in shipping container: see: cont sheet
7. Sample holding times exceeded? Yes [ ] No

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

10. Were any anomalies identified in sample receipt? Yes [ ] No

11. Description of anomalies (include sample numbers): N/A

Sample Custodian/Laboratory: C. Quinn Date: 5/12/06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Yankel</u>	SDG/ARCOC/Work Order: <u>162832, 162850</u>
Date Received: <u>5/12/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>C. Derricotte</u>	<u>[Signature]</u>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		<input checked="" type="checkbox"/>		Circle Coolant # ice bags blue ice dry ice <u>none</u> other (describe) <u>170C</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			<u>COG's are wet</u>
4 Sample containers intact and sealed?			<input checked="" type="checkbox"/>	Circle Applicable: seals broken damaged container leaking container other (describe) <u>busted bag w/ RSO's cooler 7970 9480 6038 (C)</u>
5 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample ID's, containers affected and observed pH: <u>8892</u>
6 VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			<input checked="" type="checkbox"/>	
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?			<input checked="" type="checkbox"/>	<u>no COG's are relinquished</u>

14 Air Bill ,Tracking #'s, & Additional Comments	<u>FedEx #'s</u> <u>see continuation sheet</u>		
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Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt #
A Radiological Classification?		<input checked="" type="checkbox"/>		*If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
B PCB Regulated?	<input checked="" type="checkbox"/>			Maximum Counts Observed*: <u>100 @ 40 cpm</u>
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	<input checked="" type="checkbox"/>			Comments: Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: \_\_\_\_\_ Initials [Signature] Date: 5/12/06



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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00367

163741%

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested				Lab Use Only				
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Sr-90	Ni-63	Comments:				
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.														
Sample Designation	Date	Time								Comment, Preservation	Lab Sample ID			
9106-0008-001F	5/05/06	11:13	SE	C	BP	X		X	X		Transferred from COC # 2006-00324			
9106-0008-003F	5/5/06	13:35	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			
9106-0008-004F	5/5/06	13:51	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			
9106-0008-005F	5/5/06	14:17	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			
9106-0008-006F	5/5/06	14:36	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			
9106-0008-006FS	5/5/06	14:36	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			
9106-0008-007F	5/5/06	15:03	SE	C	BP		X				Transferred from COC # 2006-00325			
9106-0008-002F	5/5/06	13:10	SE	C	BP	X		X	X		Transferred from COC # 2006-00325			

NOTES: PO #: 002332 MSR #: 06-0743 SSWP# NA  LTP QA  Radwaste QA  Non QA

Samples Shipped Via:

- Fed Ex
- UPS
- Hand
- Other

Internal Container Temp.: \_\_\_ Deg. C

Custody Sealed?  
Y  N   
Custody Seal Intact?

Y  N

1) Relinquished By *[Signature]* Date/Time 5/25/06 0950

2) Received By *[Signature]* Date/Time 5/26/06 0930

3) Relinquished By *[Signature]* Date/Time

4) Received By *[Signature]* Date/Time

Bill of Lading #

TR275154 1162

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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00366

163741%

Project Name: Haddam Neck Decommissioning							Analyses Requested				Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024							FSSGAM	FSSALL	Sr-90	Ni-63	Comments:		
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.													
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size & Type Code					Comment, Preservation	Lab Sample ID		
9106-0008-008F	5/08/06	08:01	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-009F	5/08/06	08:32	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-010F	5/08/06	09:09	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-010FS	5/08/06	09:09	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-011F	5/08/06	09:30	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-012F	5/08/06	09:53	SE	C	BP		X			Transferred from COC # 2006-00327			
9106-0008-013F	5/08/06	10:16	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
9106-0008-014F	5/08/06	10:47	SE	C	BP	X		X	X	Transferred from COC # 2006-00327			
NOTES: PO #: 002332 MSR #: 06-0743 SSWP#NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA						Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other				Internal Container Temp.: <u>21</u> Deg. C Custody Sealed? Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			
1) Relinquished By			Date/Time			2) Received By			Date/Time				
						C. DeLuca			5/26/06 0930				
3) Relinquished By			Date/Time			4) Received By			Date/Time				
Bill of Lading #													

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Figure 1. Sample Check-in List

Date/Time Received: 5/21/06 0930

SDG#: \_\_\_\_\_

Work Order Number: \_\_\_\_\_

Shipping Container ID: 7927554 1102 Chain of Custody # 2006-00367

- 1. Custody Seals on shipping container intact? Yes [] No []
- 2. Custody Seals dated and signed? Yes [] No []
- 3. Chain-of-Custody record present? Yes [] No []
- 4. Cooler temperature 19°C
- 5. Vermiculite/packing materials is: Wet [] Dry [] NA
- 6. Number of samples in shipping container: 8
- 7. Sample holding times exceeded? Yes [] No []

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

10. Were any anomalies identified in sample receipt? Yes [] No []

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: [Signature] Date: 5/21/06 9:50  
Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Conn. Yankee</u>	SDG/ARCO/Work Order: <u>1637417</u>
Date Received: <u>5/26/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): <u>[Signature]</u>
Received By: <u>[Signature]</u>	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	/			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		/		Circle Coolant # ice bags blue ice dry ice <u>none</u> other describe  19°C
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				7927 8154 1162

	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? <u>4524</u>	/	/		Maximum Counts Observed*: <u>cpm 20 Per RSO</u>
B	PCB Regulated?	/			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	/			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: [Signature] Initials 5/26/06 Date:



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Yankee</u>	SDG/ARCOC/Work Order: <u>1637417.</u>
Date Received: <u>5/26/06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing): <u>ell</u>
Received By: <u>C. Duricich</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice <u>none</u> other (describe) <u>21°C</u>
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?	✓		✓	<u>not relinquished</u>
14 Air Bill, Tracking #'s, & Additional Comments				<u>7927 5154 1173</u> <u>COC # 2604 - 00364</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	✓	✓		Maximum Counts Observed*: <u>40 cpm</u>
B PCB Regulated?	✓			Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:
PM (or PMA) review of Hazard classification: <u>ell</u> Initials <u>5/26/06</u> Date:				

1637417

Figure 1. Sample Check-in List

Date/Time Received: 5/26/06 @ 0930

SDG#: \_\_\_\_\_

Work Order Number: \_\_\_\_\_

Shipping Container ID: 79215K41173 Chain of Custody #: 2006-08364

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 21°
- 5. Vermiculite/packing materials is: Wet  Dry
- 6. Number of samples in shipping container: (8) eight
- 7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): N/A

Sample Custodian/Laboratory: C. DeWick Date: 5/26/06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00380

Project Name: Haddam Neck Decommissioning							Analyses Requested				Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024							FSSGAM	FSSALL	Ni-63	Comments:			
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.													

Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size & Type Code	FSSGAM	FSSALL	Ni-63	Comment, Preservation	Lab Sample ID
9106-0009-016F	5/15/06	13:28	SE	C	BP	X		X	Transferred from COC 2006-00352	
9106-0009-016FS	5/15/06	13:28	SE	C	BP	X		X	Transferred from COC 2006-00352	
9106-0009-017F	5/15/06	14:03	SE	C	BP	X		X	Transferred from COC 2006-00352	
9106-0009-011F	5/15/06	08:05	SE	C	BP		X		Transferred from COC 2006-00351	
9106-0009-013F	5/15/06	08:35	SE	C	BP	X		X	Transferred from COC 2006-00351	
9106-0009-013FS	5/15/06	08:35	SE	C	BP	X		X	Transferred from COC 2006-00351	
9106-0009-014F	5/15/06	08:59	SE	C	BP		X		Transferred from COC 2006-00351	
9106-0009-015F	5/15/06	09:36	SE	C	BP	X		X	Transferred from COC 2006-00351	

NOTES: PO #: 002332 MSR #: 06-0818 SSWP# NA  LTP QA  Radwaste QA  Non QA

1) Relinquished By <i>Jane Ricart</i>	Date/Time 6-7-06/11:00	2) Received By <i>AMaley</i>	Date/Time 6-8-06 9:00
3) Relinquished By	Date/Time	4) Received By	Date/Time

Samples Shipped Via:  
 Fed Ex  
 UPS  
 Hand  
 Other

Internal Container Temp.: \_\_\_ Deg. C  
 Custody Sealed? Y  N   
 Custody Seal Intact? Y  N

Bill of Lading #  
7921-1915 2869

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**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00381

Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested					Lab Use Only					
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Ni-63					Comments:			
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones																
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.																
Sample Designation	Date	Time								Comment, Preservation	Lab Sample ID					
9106-0009-001F	5/11/06	13:22	SE	C	BP	X		X		Transferred from COC 2006-00347						
9106-0009-002F	5/11/06	13:46	SE	C	BP	X		X		Transferred from COC 2006-00347						
9106-0009-003F	5/11/06	14:06	SE	C	BP	X		X		Transferred from COC 2006-00347						
9106-0009-004F	5/11/06	14:30	SE	C	BP	X		X		Transferred from COC 2006-00347						
9106-0009-005F	5/11/06	14:55	SE	C	BP	X		X		Transferred from COC 2006-00347						
9106-0009-007F	5/12/06	07:44	SE	C	BP	X		X		Transferred from COC 2006-00348						
9106-0009-008F	5/12/06	08:16	SE	C	BP	X		X		Transferred from COC 2006-00348						
9106-0009-009F	5/12/06	08:35	SE	C	BP	X		X		Transferred from COC 2006-00348						
9106-0009-010F	5/12/06	09:07	SE	C	BP	X		X		Transferred from COC 2006-00348						
NOTES: PO #: 002332 MSR #: 06- SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA										Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		Internal Container Temp.: ___ Deg. C  Custody Sealed? Y <input type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact?  Y <input type="checkbox"/> N <input type="checkbox"/>				
1) Relinquished By JAMIE RICARTE			Date/Time 6-7-06/11:00			2) Received By A. Maly			Date/Time 6/8/06 900							
3) Relinquished By			Date/Time			4) Received By			Date/Time			Bill of Lading # 7921 1915 2858				

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Connecticut Yankee  
Statement of Work for Analytical Lab Services

CY-ISC-SOW-001

Figure 1. Sample Check-in List

Date/Time Received: 6-8-06 900

SDG#: MSR# 06-0819, 0818

Work Order Number: \_\_\_\_\_

Shipping Container ID: 7921-1915-2858 Chain of Custody #: 2008-00382  
2006-00380  
2008-00381

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 20°C
- 5. Vermiculite/packing materials is: Wet  Dry
- 6. Number of samples in shipping container: \_\_\_\_\_
- 7. Sample holding times exceeded? Yes  No

8. Samples have:

tape                      \_\_\_\_\_ hazard labels

custody seals              \_\_\_\_\_ appropriate sample labels

---

9. Samples are:

in good condition              \_\_\_\_\_ leaking

\_\_\_\_\_ broken                      \_\_\_\_\_ have air bubbles

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: A. Malys Date: 6-8-06 900

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

**Connecticut Yankee Atomic Power Company**

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

**Chain of Custody Form**

No. 2006-00349

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Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size & Type Code	Analyses Requested				Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-2556 Ext. 3024						FSSGAM	FSSALL	Ni-63				Comments:
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones												
Priority: <input checked="" type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D.												
Sample Designation	Date	Time								Comment, Preservation	Lab Sample ID	
9106-0010-001F	5/04/06	10:49	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-002F	5/04/06	11:12	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-004F	5/04/06	12:48	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-006F	5/04/06	13:34	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-007F	5/04/06	13:21	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-009F	5/04/06	14:01	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-010F	5/04/06	14:21	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-012F	5/04/06	14:44	SE	C	BP	X		X		Transferred from COC 2006-00321		
9106-0010-013F	5/04/06	15:06	SE	C	BP		X			Transferred from COC 2006-00321		

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NOTES: PO #: 002332 MSR #: 06-0707 SSWP#NA  LTP QA  Radwaste QA  Non QA

Samples Shipped Via:

- Fed Ex
- UPS
- Hand

Internal Container Temp.: 17 Deg. C

Custody Sealed?  
Y  N

Custody Seal Intact?  
Y  N

Other

Bill of Lading #  
7904-3113-8541

1) Relinquished By <i>JAMIE RUCARTE</i>	Date/Time <i>5-16-06 / 1150</i>	2) Received By <i>AMMOLLEY</i>	Date/Time <i>5/17/06 945</i>
3) Relinquished By	Date/Time	4) Received By	Date/Time

Figure 1. Sample Check-in List

Date/Time Received: 945 5/17/06

SDG#: MARK 06-0707

Work Order Number: 1631051

Shipping Container ID: 7904 3113 8541 Chain of Custody #: 2006-00349

- 1. Custody Seals on shipping container intact? Yes  No
- 2. Custody Seals dated and signed? Yes  No
- 3. Chain-of-Custody record present? Yes  No
- 4. Cooler temperature 17°C
- 5. Vermiculite/packing materials is: Wet  Dry
- 6. Number of samples in shipping container: 9
- 7. Sample holding times exceeded? Yes  No

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

10. Were any anomalies identified in sample receipt? Yes  No

11. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian/Laboratory: AMaly Date: 5-17-06

Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_



# SAMPLE RECEIPT & REVIEW FORM

CHERYL

PM use only

Client: <u>CONN. YANKEE</u>	SDG/ARCOC/Work Order:
Date Received: <u>5-17-06</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>ALM</u>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle: Coolant # ice bags blue ice dry ice <u>none</u> 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	7904 3113 8541
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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?	✓	✓		Maximum Counts Observed*: <u>CPM 60</u>
B PCB Regulated?	✓			Comments:
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: \_\_\_\_\_ Initials CD Date: 5/17/06

**List of current GEL Certifications as of 15 August 2006**

<b>State</b>	<b>Certification</b>
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)
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	N/A
Virginia	00151
Washington	C223

# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 168404**

**Method/Analysis Information**

<b>Product:</b>	<b>Alphaspec Am241, Cm, Solid ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	555696
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201153129	Method Blank (MB)
1201153130	168340011(9304-01-005C) Sample Duplicate (DUP)
1201153131	168340011(9304-01-005C) Matrix Spike (MS)
1201153132	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 168340011 (9304-01-005C).

**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 168404003 (9106-0003-004F) was recounted due to high MDA.

**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 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:** 557837  
**Prep Batch Number:** 554650  
**Dry Soil Prep GL-RAD-A-021 Batch Number:** 554649

<b>Sample ID</b>	<b>Client ID</b>
168404009	9106-0006-005F
168404010	9106-0008-006F
1201158316	Method Blank (MB)
1201158317	168404009(9106-0006-005F) Sample Duplicate (DUP)
1201158318	168404009(9106-0006-005F) Matrix Spike (MS)
1201158319	Laboratory Control Sample (LCS)

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 168404009 (9106-0006-005F).

##### **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.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Alphaspec Pu, Solid-ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	555697
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201153133	Method Blank (MB)
1201153134	168340011(9304-01-005C) Sample Duplicate (DUP)
1201153135	168340011(9304-01-005C) Matrix Spike (MS)
1201153136	Laboratory Control Sample (LCS)

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 168340011 (9304-01-005C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Pu241, Solid-ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	555698
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201153137	Method Blank (MB)
1201153138	168340011(9304-01-005C) Sample Duplicate (DUP)
1201153139	168340011(9304-01-005C) Matrix Spike (MS)
1201153140	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 168340011 (9304-01-005C).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>GFPC, Sr90, solid-ALL FSS</b>
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:	556350
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404003	9106-0003-004F
168404004	9106-0003-015F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201154644	Method Blank (MB)
1201154645	168404003(9106-0003-004F) Sample Duplicate (DUP)
1201154646	168404003(9106-0003-004F) Matrix Spike (MS)
1201154647	Laboratory Control Sample (LCS)

### **SOP Reference**

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

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

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

#### **Sample Geometry**

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

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

#### **Blank Information**

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

#### **Designated QC**

The following sample was used for QC: 168404003 (9106-0003-004F).

#### **QC Information**

All of the QC samples met the required acceptance limits.

### **Technical Information:**

#### **Holding Time**

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

#### **Preparation Information**

All preparation criteria have been met for these analyses.

#### **Sample Re-prep/Re-analysis**

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

**Chemical Recoveries**

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

**Miscellaneous Information:****NCR Documentation**

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

**Additional Comments**

Samples 1201154644 (MB), 1201154645 (9106-0003-004F), 1201154646 (9106-0003-004F), 1201154647 (LCS), 168404003 (9106-0003-004F), 168404004 (9106-0003-015F), 168404012 (9106-0009-002F), 168404013 (9106-0009-017F), 168404014 (9106-0010-001F) and 168404015 (9106-0010-012F) were dried and reweighed due to low matrix spike/laboratory control sample recovery.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Tc99, Solid-ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number:	554580

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201150561	Method Blank (MB)
1201150562	168340012(9304-02-003C) Sample Duplicate (DUP)
1201150563	168340012(9304-02-003C) Matrix Spike (MS)
1201150564	Laboratory Control Sample (LCS)

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 168340012 (9304-02-003C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Fe55, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Fe-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	555722
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201153222	Method Blank (MB)
1201153223	168340012(9304-02-003C) Sample Duplicate (DUP)
1201153224	168340012(9304-02-003C) Matrix Spike (MS)
1201153225	Laboratory Control Sample (LCS)

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

##### **Designated QC**

The following sample was used for QC: 168340012 (9304-02-003C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Ni63, Solid-ALL FSS</b>
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	555723
Prep Batch Number:	554650
Dry Soil Prep GL-RAD-A-021 Batch Number:	554649

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
1201153226	Method Blank (MB)
1201153227	168340012(9304-02-003C) Sample Duplicate (DUP)
1201153228	168340012(9304-02-003C) Matrix Spike (MS)
1201153229	Laboratory Control Sample (LCS)

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering 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: 168340012 (9304-02-003C).

#### **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-HTD2,ALL FSS  
**Analytical Method:** EPA 906.0 Modified  
**Analytical Batch Number:** 554582

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201150569	Method Blank (MB)
1201150570	168340011(9304-01-005C) Sample Duplicate (DUP)
1201150571	168340011(9304-01-005C) Matrix Spike (MS)
1201150572	Laboratory Control Sample (LCS)

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 12.

**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: 168340011 (9304-01-005C).

**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 168404010 (9106-0008-006F) was recounted due to high MDA.

**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:** 554583

<b>Sample ID</b>	<b>Client ID</b>
168404001	9106-0002-007F
168404002	9106-0002-011F
168404003	9106-0003-004F
168404004	9106-0003-015F
168404005	9106-0004-005F
168404006	9106-0004-015F
168404007	9106-0005-010F
168404008	9106-0005-014F
168404009	9106-0006-005F
168404010	9106-0008-006F
168404011	9106-0008-008F
168404012	9106-0009-002F
168404013	9106-0009-017F
168404014	9106-0010-001F
168404015	9106-0010-012F
1201150573	Method Blank (MB)
1201150574	168404003(9106-0003-004F) Sample Duplicate (DUP)
1201150575	168404003(9106-0003-004F) Matrix Spike (MS)
1201150576	Laboratory Control Sample (LCS)

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

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

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

**Designated QC**

The following sample was used for QC: 168404003 (9106-0003-004F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:****Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

**Sample Re-prep/Re-analysis**

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

**Miscellaneous Information:****NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

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

**Review Validation:**

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

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

Reviewer/Date: Kat Bellatt 8/22/66

# SAMPLE DATA SUMMARY

**GENERAL ENGINEERING 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: 168404 GEL Work Order: 168404

**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.
- 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 General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.



Reviewed by \_\_\_\_\_

**GENERAL ENGINEERING LABORATORIES, LLC**  
 2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Certificate of Analysis**

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

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

Report Date: August 21, 2006

Client Sample ID:	9106-0002-007F	Project:	YANK01204
Sample ID:	168404001	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	18-MAY-06		
Receive Date:	02-JUN-06		
Collector:	Client		
Moisture:	20.9%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0762	+/-0.102	0.00	+/-0.102	0.0956	pCi/g		BXL1	08/11/06	1336	555696	1
Curium-242	U	0.00	+/-0.0995	0.00	+/-0.0995	0.138	pCi/g						
Curium-243/244	U	-0.00853	+/-0.0717	0.0405	+/-0.0717	0.177	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.199	+/-0.228	0.181	+/-0.229	0.444	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	0.0341	+/-0.129	0.120	+/-0.129	0.323	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	10.0	+/-6.64	5.08	+/-6.72	10.7	pCi/g		BXL1	08/16/06	1220	555698	3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	4.17	+/-6.67	5.28	+/-6.67	11.4	pCi/g		DFA1	08/09/06	1128	554582	4
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.0813	+/-0.0797	0.0634	+/-0.0797	0.132	pCi/g		ATH2	08/09/06	0324	554583	5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	9.90	+/-48.1	32.0	+/-48.1	65.9	pCi/g		MXP1	08/12/06	1633	555722	6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	7.02	+/-6.39	5.18	+/-6.40	10.6	pCi/g		MXP1	08/11/06	0738	555723	7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.139	+/-0.213	0.173	+/-0.213	0.360	pCi/g		EGD1	08/11/06	2027	554580	8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified



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

Report Date: August 21, 2006

Client Sample ID: 9106-0002-011F  
Sample ID: 168404002  
Matrix: SE  
Collect Date: 19-MAY-06  
Receive Date: 02-JUN-06  
Collector: Client  
Moisture: 17.4%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.120	+/-0.154	0.0683	+/-0.155	0.251	pCi/g		BXL1	08/11/06	1336	555696	1
Curium-242	U	-0.0146	+/-0.122	0.0692	+/-0.123	0.303	pCi/g						
Curium-243/244	U	-0.0103	+/-0.0861	0.0487	+/-0.0862	0.213	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0121	+/-0.125	0.127	+/-0.125	0.344	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	0.0254	+/-0.0675	0.0381	+/-0.0675	0.167	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	6.72	+/-7.02	5.56	+/-7.05	11.7	pCi/g		BXL1	08/16/06	1237	555698	3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	-0.521	+/-7.03	5.94	+/-7.03	12.8	pCi/g		DFA1	08/09/06	1143	554582	4
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.023	+/-0.0828	0.0685	+/-0.0828	0.143	pCi/g		ATH2	08/09/06	0426	554583	5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	3.93	+/-47.7	31.9	+/-47.7	65.7	pCi/g		MXP1	08/12/06	1649	555722	6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	7.52	+/-5.81	4.68	+/-5.81	9.60	pCi/g		MXP1	08/11/06	0825	555723	7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.173	+/-0.203	0.164	+/-0.203	0.341	pCi/g		EGD1	08/11/06	2043	554580	8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified

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

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

Report Date: August 21, 2006

Client Sample ID: 9106-0002-011F      Project: YANK01204  
Sample ID: 168404002                      Client ID: YANK001  
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
6		DOE RESL Fe-1, Modified											
7		DOE RESL Ni-1, Modified											
8		DOE EML HASL-300, Tc-02-RC Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	76	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	100	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	88	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	72	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS	76	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	79	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

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

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

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

Report Date: August 21, 2006

Client Sample ID: 9106-0003-004F  
Sample ID: 168404003  
Matrix: SE  
Collect Date: 25-APR-06  
Receive Date: 05-MAY-06  
Collector: Client  
Moisture: 23.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.027	+/-0.117	0.153	+/-0.117	0.488	pCi/g	BXL1	08/13/06	0819	555696		1
Curium-242	U	0.112	+/-0.315	0.245	+/-0.315	0.781	pCi/g						
Curium-243/244	U	0.0217	+/-0.206	0.205	+/-0.206	0.594	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.061	+/-0.189	0.176	+/-0.189	0.449	pCi/g	BXL1	08/11/06	1633	555697		2
Plutonium-239/240	U	0.0551	+/-0.103	0.0584	+/-0.103	0.215	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	8.31	+/-5.73	4.40	+/-5.78	9.25	pCi/g	BXL1	08/16/06	1253	555698		3
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.00343	+/-0.0203	0.0172	+/-0.0203	0.036	pCi/g	BXF1	08/14/06	0834	556350		4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.603	+/-8.25	6.87	+/-8.25	14.8	pCi/g	DFA1	08/09/06	1159	554582		5
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.0937	+/-0.0813	0.0642	+/-0.0813	0.134	pCi/g	ATH2	08/09/06	0529	554583		6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	7.68	+/-51.2	34.2	+/-51.2	70.4	pCi/g	MXP1	08/12/06	1706	555722		7
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	5.74	+/-7.12	6.58	+/-7.13	13.6	pCi/g	MXP1	08/11/06	0912	555723		8
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	-0.0643	+/-0.198	0.169	+/-0.198	0.351	pCi/g	EGD1	08/11/06	2059	554580		9

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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



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Project: Soils PO# 002332

Report Date: August 21, 2006

Client Sample ID: 9106-0003-004F  
Sample ID: 168404003

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
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The above sample is reported on a dry weight basis.

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 Address : 362 Injun Hollow Rd

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

Report Date: August 21, 2006

Client Sample ID: 9106-0003-015F  
 Sample ID: 168404004  
 Matrix: SE  
 Collect Date: 25-APR-06  
 Receive Date: 05-MAY-06  
 Collector: Client  
 Moisture: 22.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0456	+/-0.155	0.139	+/-0.155	0.387	pCi/g		BXL1	08/11/06	1434	555696	1
Curium-242	U	0.113	+/-0.181	0.0733	+/-0.182	0.321	pCi/g						
Curium-243/244	U	0.180	+/-0.239	0.181	+/-0.240	0.472	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0196	+/-0.121	0.118	+/-0.121	0.324	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	0.0326	+/-0.0639	0.00	+/-0.064	0.0884	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	6.63	+/-6.19	4.86	+/-6.22	10.2	pCi/g		BXL1	08/16/06	1309	555698	3
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.00477	+/-0.0216	0.0179	+/-0.0216	0.0375	pCi/g		BXF1	08/14/06	0834	556350	4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	1.03	+/-7.06	5.85	+/-7.06	12.6	pCi/g		DFA1	08/09/06	1215	554582	5
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14		0.156	+/-0.0912	0.0699	+/-0.0913	0.146	pCi/g		ATH2	08/09/06	0632	554583	6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	-9.99	+/-42.7	28.7	+/-42.7	59.2	pCi/g		MXP1	08/12/06	1722	555722	7
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	0.939	+/-10.1	10.3	+/-10.1	21.6	pCi/g		MXP1	08/11/06	1001	555723	8
<i>Liquid Scint Te99, Solid-ALL FSS</i>													
Technetium-99	U	0.237	+/-0.213	0.170	+/-0.213	0.353	pCi/g		EGD1	08/11/06	2115	554580	9

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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

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

Report Date: August 21, 2006

Client Sample ID: 9106-0003-015F      Project: YANK01204  
Sample ID: 168404004      Client ID: YANK001  
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
3		DOE EML HASL-300, Pu-11-RC Modified											
4		EPA 905.0 Modified											
5		EPA 906.0 Modified											
6		EPA EERF C-01 Modified											
7		DOE RESL Fe-1, Modified											
8		DOE RESL Ni-1, Modified											
9		DOE EML HASL-300, Tc-02-RC Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	78	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	94	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	101	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	58	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	75	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS	62	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	75	(15%-125%)

Notes:

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- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- 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

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Address : 362 Injun Hollow Rd

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

Report Date: August 21, 2006

Client Sample ID: 9106-0003-015F  
Sample ID: 168404004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
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The above sample is reported on a dry weight basis.

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**Certificate of Analysis**

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

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

Report Date: August 21, 2006

Client Sample ID:	9106-0004-005F	Project:	YANK01204
Sample ID:	168404005	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	03-MAY-06		
Receive Date:	12-MAY-06		
Collector:	Client		
Moisture:	15.4%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.036	+/-0.123	0.157	+/-0.123	0.437	pCi/g	BXL1	08/11/06	1434	555696		1
Curium-242	U	-0.0169	+/-0.033	0.080	+/-0.0331	0.350	pCi/g						
Curium-243/244	U	-0.0129	+/-0.227	0.247	+/-0.227	0.619	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0217	+/-0.163	0.181	+/-0.163	0.444	pCi/g	BXL1	08/11/06	1633	555697		2
Plutonium-239/240	U	-0.0708	+/-0.0791	0.128	+/-0.0795	0.337	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	9.52	+/-6.00	4.57	+/-6.07	9.61	pCi/g	BXL1	08/16/06	1326	555698		3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.854	+/-5.88	4.87	+/-5.88	10.5	pCi/g	DFA1	08/09/06	1231	554582		4
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14		0.347	+/-0.097	0.0674	+/-0.0972	0.141	pCi/g	ATH2	08/09/06	0734	554583		5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	-1.57	+/-46.0	30.7	+/-46.0	63.2	pCi/g	MXP1	08/12/06	1738	555722		6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	6.39	+/-7.62	7.40	+/-7.62	15.5	pCi/g	MXP1	08/11/06	1017	555723		7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0198	+/-0.187	0.156	+/-0.187	0.324	pCi/g	EGD1	08/11/06	2131	554580		8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified

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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: August 21, 2006

Client Sample ID: 9106-0004-005F      Project: YANK01204  
Sample ID: 168404005      Client ID: YANK001  
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
6	DOE RESL Fe-1, Modified												
7	DOE RESL Ni-1, Modified												
8	DOE EML HASL-300, Tc-02-RC Modified												

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	65	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	95	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	105	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	78	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS	80	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	80	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: August 21, 2006

Client Sample ID: 9106-0004-015F  
Sample ID: 168404006  
Matrix: SE  
Collect Date: 03-MAY-06  
Receive Date: 12-MAY-06  
Collector: Client  
Moisture: 26.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0823	+/-0.203	0.178	+/-0.203	0.469	pCi/g		BXL1	08/11/06	1434	555696	1
Curium-242	U	-0.0154	+/-0.0301	0.0729	+/-0.0302	0.319	pCi/g						
Curium-243/244	U	-0.0994	+/-0.251	0.300	+/-0.251	0.713	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0466	+/-0.213	0.210	+/-0.213	0.521	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	-0.142	+/-0.108	0.191	+/-0.109	0.483	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	6.64	+/-6.53	5.16	+/-6.57	10.8	pCi/g		BXL1	08/16/06	1342	555698	3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	-2.9	+/-7.59	6.60	+/-7.59	14.2	pCi/g		DFA1	08/09/06	1247	554582	4
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.0352	+/-0.0868	0.0713	+/-0.0868	0.149	pCi/g		ATH2	08/09/06	0837	554583	5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	1.88	+/-46.8	31.3	+/-46.8	64.4	pCi/g		MXP1	08/12/06	1754	555722	6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	3.88	+/-7.46	7.40	+/-7.46	15.5	pCi/g		MXP1	08/11/06	1033	555723	7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0894	+/-0.198	0.163	+/-0.198	0.338	pCi/g		EGD1	08/11/06	2147	554580	8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified

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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: August 21, 2006

Client Sample ID: 9106-0004-015F  
Sample ID: 168404006

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
6		DOE RESL Fe-1, Modified											
7		DOE RESL Ni-1, Modified											
8		DOE EML HASL-300, Tc-02-RC Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	72	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	72	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	94	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	73	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS	80	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	78	(15%-125%)

**Notes:**

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: August 21, 2006

Client Sample ID: 9106-0005-010F  
Sample ID: 168404007  
Matrix: SE  
Collect Date: 02-MAY-06  
Receive Date: 09-MAY-06  
Collector: Client  
Moisture: 56.2%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.128	+/-0.0939	0.142	+/-0.0942	0.385	pCi/g		BXL1	08/11/06	1434	555696	1
Curium-242	U	-0.0115	+/-0.128	0.147	+/-0.128	0.450	pCi/g						
Curium-243/244	U	-0.0333	+/-0.122	0.149	+/-0.122	0.401	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0548	+/-0.169	0.158	+/-0.170	0.403	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	0.0195	+/-0.121	0.117	+/-0.121	0.322	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	10.4	+/-6.89	5.27	+/-6.97	11.1	pCi/g		BXL1	08/16/06	1358	555698	3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	0.00	+/-6.86	5.76	+/-6.86	12.4	pCi/g		DFA1	08/09/06	1303	554582	4
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.0636	+/-0.0801	0.0644	+/-0.0801	0.135	pCi/g		ATH2	08/09/06	1017	554583	5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	36.1	+/-44.1	28.7	+/-44.1	59.0	pCi/g		MXP1	08/12/06	1811	555722	6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	7.26	+/-10.2	10.0	+/-10.2	20.9	pCi/g		MXP1	08/11/06	1049	555723	7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	-0.05	+/-0.199	0.169	+/-0.199	0.351	pCi/g		EGD1	08/11/06	2203	554580	8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified



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## Certificate of Analysis

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

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

Report Date: August 21, 2006

Client Sample ID: 9106-0005-014F  
Sample ID: 168404008  
Matrix: SE  
Collect Date: 02-MAY-06  
Receive Date: 09-MAY-06  
Collector: Client  
Moisture: 32.3%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.00591	+/-0.219	0.231	+/-0.219	0.608	pCi/g	BXL1	08/11/06	1434	555696		1
Curium-242	U	-0.04	+/-0.0554	0.134	+/-0.0557	0.494	pCi/g						
Curium-243/244	U	0.0634	+/-0.261	0.249	+/-0.261	0.646	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0694	+/-0.106	0.160	+/-0.106	0.434	pCi/g	BXL1	08/11/06	1633	555697		2
Plutonium-239/240	U	-0.0287	+/-0.098	0.127	+/-0.0981	0.369	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	4.68	+/-8.01	6.48	+/-8.02	13.6	pCi/g	BXL1	08/16/06	1415	555698		3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	6.02	+/-6.38	4.90	+/-6.38	10.6	pCi/g	DFA1	08/09/06	1319	554582		4
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.0892	+/-0.0827	0.0655	+/-0.0827	0.137	pCi/g	ATH2	08/09/06	1424	554583		5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	19.8	+/-46.3	30.6	+/-46.3	62.9	pCi/g	MXP1	08/12/06	1827	555722		6
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	5.41	+/-7.91	7.77	+/-7.91	16.2	pCi/g	MXP1	08/11/06	1106	555723		7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	-0.134	+/-0.192	0.167	+/-0.192	0.346	pCi/g	EGD1	08/11/06	2218	554580		8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified

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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: August 21, 2006

Client Sample ID: 9106-0005-014F      Project: YANK01204  
Sample ID: 168404008                      Client ID: YANK001  
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch	Mtd
6	DOE RESL	Fe-1, Modified										
7	DOE RESL	Ni-1, Modified										
8	DOE EML	HASL-300, Tc-02-RC Modified										

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	50	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	61	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	74	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	76	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Ni63, Solid-ALL FS	76	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	75	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

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

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**Certificate of Analysis**

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

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

Report Date: August 21, 2006

Client Sample ID:	9106-0006-005F	Project:	YANK01204
Sample ID:	168404009	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	28-APR-06		
Receive Date:	12-MAY-06		
Collector:	Client		
Moisture:	16.5%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.0851	+/-0.136	0.106	+/-0.136	0.390	pCi/g		BXL1	08/16/06	0949	557837	1
Curium-242	U	-0.0253	+/-0.0495	0.120	+/-0.0496	0.525	pCi/g						
Curium-243/244	U	-0.0479	+/-0.0542	0.131	+/-0.0545	0.443	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0183	+/-0.113	0.110	+/-0.113	0.303	pCi/g		BXL1	08/11/06	1633	555697	3
Plutonium-239/240	U	0.00122	+/-0.0662	0.0694	+/-0.0662	0.221	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	4.43	+/-5.83	4.67	+/-5.85	9.82	pCi/g		BXL1	08/16/06	1431	555698	4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	-2.02	+/-6.67	5.76	+/-6.67	12.4	pCi/g		DFA1	08/09/06	1335	554582	5
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14		0.142	+/-0.0798	0.061	+/-0.0799	0.127	pCi/g		ATH2	08/09/06	1719	554583	6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	12.6	+/-47.6	31.7	+/-47.6	65.3	pCi/g		MXP1	08/12/06	1843	555722	7
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	7.70	+/-9.56	9.31	+/-9.56	19.5	pCi/g		MXP1	08/11/06	1122	555723	8
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	-0.00659	+/-0.185	0.156	+/-0.185	0.323	pCi/g		EGD1	08/11/06	2234	554580	9

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified



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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: August 21, 2006

Client Sample ID:	9106-0008-006F	Project:	YANK01204
Sample ID:	168404010	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	05-MAY-06		
Receive Date:	26-MAY-06		
Collector:	Client		
Moisture:	34.8%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.129	+/-0.195	0.0758	+/-0.196	0.332	pCi/g		BXL1	08/16/06	0949	557837	1
Curium-242	U	0.103	+/-0.202	0.00	+/-0.203	0.280	pCi/g						
Curium-243/244	U	-0.0161	+/-0.0316	0.0766	+/-0.0317	0.335	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0276	+/-0.0711	0.0967	+/-0.0712	0.275	pCi/g		BXL1	08/11/06	1633	555697	3
Plutonium-239/240	U	0.00359	+/-0.113	0.118	+/-0.113	0.317	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241		14.9	+/-6.37	4.64	+/-6.51	9.75	pCi/g		BXL1	08/16/06	1447	555698	4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.00	+/-6.06	5.09	+/-6.06	10.7	pCi/g		DFA1	08/10/06	2150	554582	5
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.107	+/-0.0846	0.0664	+/-0.0846	0.139	pCi/g		ATH2	08/09/06	1822	554583	6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	15.1	+/-41.4	27.5	+/-41.4	56.6	pCi/g		MXP1	08/12/06	1900	555722	7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.258	+/-0.225	0.179	+/-0.225	0.373	pCi/g		EGD1	08/11/06	2251	554580	8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
6	EPA EERF C-01 Modified
7	DOE RESL Fe-1, Modified

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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: August 21, 2006

Client Sample ID: 9106-0008-006F      Project: YANK01204  
Sample ID: 168404010      Client ID: YANK001  
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
8		DOE EML HASL-300, Tc-02-RC Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	77	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	94	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	103	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	72	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	71	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: August 21, 2006

Client Sample ID:	9106-0008-008F	Project:	YANK01204
Sample ID:	168404011	Client ID:	YANK001
Matrix:	SE	Vol. Recv.:	
Collect Date:	08-MAY-06		
Receive Date:	26-MAY-06		
Collector:	Client		
Moisture:	35.7%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0969	+/-0.192	0.152	+/-0.193	0.426	pCi/g		BXL1	08/11/06	1434	555696	1
Curium-242	U	-0.0482	+/-0.142	0.132	+/-0.142	0.446	pCi/g						
Curium-243/244	U	-0.0576	+/-0.202	0.240	+/-0.203	0.603	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0397	+/-0.096	0.125	+/-0.096	0.328	pCi/g		BXL1	08/11/06	1633	555697	2
Plutonium-239/240	U	-0.0315	+/-0.114	0.137	+/-0.114	0.353	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241		11.5	+/-6.72	5.08	+/-6.80	10.7	pCi/g		BXL1	08/16/06	1504	555698	3
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.00	+/-5.92	4.97	+/-5.92	10.7	pCi/g		DFA1	08/09/06	1407	554582	4
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	-0.0238	+/-0.0745	0.0636	+/-0.0745	0.133	pCi/g		ATH2	08/09/06	1924	554583	5
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	-10.7	+/-40.9	27.5	+/-40.9	56.8	pCi/g		MXP1	08/12/06	1916	555722	6
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0956	+/-0.211	0.174	+/-0.211	0.361	pCi/g		EGD1	08/11/06	2307	554580	7

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 906.0 Modified
5	EPA EERF C-01 Modified
6	DOE RESL Fe-1, Modified

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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: August 21, 2006

Client Sample ID: 9106-0008-008F Project: YANK01204  
 Sample ID: 168404011 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
7		DOE EML HASL-300, Tc-02-RC Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	65	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	98	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	96	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	76	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	74	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: August 21, 2006

Client Sample ID: 9106-0009-002F  
Sample ID: 168404012  
Matrix: SE  
Collect Date: 11-MAY-06  
Receive Date: 08-JUN-06  
Collector: Client  
Moisture: 33%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.00144	+/-0.155	0.166	+/-0.155	0.458	pCi/g	BXL1	08/11/06	1434	555696	1	
Curium-242	U	0.0192	+/-0.145	0.135	+/-0.145	0.455	pCi/g						
Curium-243/244	U	0.013	+/-0.268	0.281	+/-0.268	0.687	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00587	+/-0.0493	0.0279	+/-0.0494	0.122	pCi/g	BXL1	08/11/06	1632	555697	2	
Plutonium-239/240	U	0.0186	+/-0.0492	0.0278	+/-0.0493	0.122	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241		13.6	+/-6.90	5.13	+/-7.01	10.8	pCi/g	BXL1	08/16/06	1520	555698	3	
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0151	+/-0.0146	0.0114	+/-0.0146	0.0242	pCi/g	BXF1	08/14/06	0834	556350	4	
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	4.12	+/-8.36	6.70	+/-8.36	14.5	pCi/g	DFA1	08/09/06	1422	554582	5	
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.046	+/-0.0755	0.0613	+/-0.0755	0.128	pCi/g	ATH2	08/09/06	2027	554583	6	
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	12.9	+/-40.6	26.8	+/-40.6	55.2	pCi/g	MXP1	08/12/06	1932	555722	7	
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.078	+/-0.203	0.168	+/-0.203	0.348	pCi/g	EGD1	08/11/06	2323	554580	8	

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 905.0 Modified

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**Certificate of Analysis**

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

Report Date: August 21, 2006

Client Sample ID: 9106-0009-002F      Project: YANK01204  
Sample ID: 168404012      Client ID: YANK001  
Vol. Recv.:      Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
5	EPA 906.0 Modified												
6	EPA EERF C-01 Modified												
7	DOE RESL Fe-1, Modified												
8	DOE EML HASL-300, Tc-02-RC Modified												

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	61	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	98	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	94	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	69	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	81	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	75	(15%-125%)

Notes:

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  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B 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
  - 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: August 21, 2006

Client Sample ID: 9106-0009-017F  
 Sample ID: 168404013  
 Matrix: SE  
 Collect Date: 15-MAY-06  
 Receive Date: 08-JUN-06  
 Collector: Client  
 Moisture: 28.4%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0755	+/-0.242	0.230	+/-0.243	0.574	pCi/g	BXL1	08/11/06	1434	555696		1
Curium-242	U	0.0957	+/-0.220	0.171	+/-0.220	0.509	pCi/g						
Curium-243/244	U	-0.073	+/-0.214	0.256	+/-0.214	0.627	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00629	+/-0.0529	0.0299	+/-0.0529	0.131	pCi/g	BXL1	08/11/06	1632	555697		2
Plutonium-239/240	U	0.0262	+/-0.0513	0.00	+/-0.0514	0.0709	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241		13.3	+/-6.66	4.95	+/-6.77	10.4	pCi/g	BXL1	08/16/06	1536	555698		3
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0205	+/-0.0151	0.0116	+/-0.0151	0.0246	pCi/g	BXF1	08/14/06	0833	556350		4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	0.583	+/-7.98	6.65	+/-7.98	14.4	pCi/g	DFA1	08/09/06	1438	554582		5
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.0271	+/-0.0759	0.0625	+/-0.0759	0.131	pCi/g	ATH2	08/09/06	2129	554583		6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	-61.9	+/-150	102	+/-150	210	pCi/g	MXP1	08/12/06	1949	555722		7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0628	+/-0.200	0.165	+/-0.200	0.343	pCi/g	EGD1	08/11/06	2338	554580		8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 905.0 Modified

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**Certificate of Analysis**

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

Report Date: August 21, 2006

Client Sample ID: 9106-0009-017F Project: YANK01204  
 Sample ID: 168404013 Client ID: YANK001  
 Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
5	EPA 906.0 Modified												
6	EPA EERF C-01 Modified												
7	DOE RESL Fe-1, Modified												
8	DOE EML HASL-300, Tc-02-RC Modified												

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	64	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	91	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Pu241, Solid-ALL FS	96	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	72	(25%-125%)
Carrier/Tracer Recovery	Liquid Scint Fe55, Solid-ALL FS	73	(15%-125%)
Carrier/Tracer Recovery	Liquid Scint Tc99, Solid-ALL FS	79	(15%-125%)

Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
  - < Result is less than value reported
  - > Result is greater than value reported
  - A The TIC is a suspected aldol-condensation product
  - B Target analyte was detected in the associated blank
  - BD Results are either below the MDC or tracer recovery is low
  - C Analyte has been confirmed by GC/MS analysis
  - D Results are reported from a diluted aliquot of the sample
  - H Analytical holding time was exceeded
  - J Value is estimated
  - N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
  - 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: August 21, 2006

Client Sample ID: 9106-0010-001F  
Sample ID: 168404014  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 27.3%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.00677	+/-0.227	0.238	+/-0.227	0.628	pCi/g	BXL1	08/11/06	1434	555696		1
Curium-242	U	0.0854	+/-0.167	0.00	+/-0.168	0.231	pCi/g						
Curium-243/244	U	0.0361	+/-0.242	0.241	+/-0.242	0.634	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.173	+/-0.181	0.143	+/-0.182	0.331	pCi/g	BXL1	08/11/06	2250	555697		2
Plutonium-239/240	U	-0.0342	+/-0.0865	0.0951	+/-0.0866	0.235	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241		13.0	+/-6.44	4.78	+/-6.54	10.0	pCi/g	BXL1	08/16/06	1553	555698		3
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.0128	+/-0.0141	0.0125	+/-0.0141	0.0262	pCi/g	BXF1	08/14/06	0833	556350		4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.548	+/-7.50	6.25	+/-7.50	13.5	pCi/g	DFA1	08/09/06	1454	554582		5
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.0555	+/-0.0809	0.0655	+/-0.0809	0.137	pCi/g	ATH2	08/09/06	2232	554583		6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	-18.1	+/-47.6	32.3	+/-47.6	66.6	pCi/g	MXP1	08/12/06	2005	555722		7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.134	+/-0.205	0.167	+/-0.205	0.347	pCi/g	EGD1	08/11/06	2354	554580		8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 905.0 Modified



# GENERAL ENGINEERING LABORATORIES, LLC

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## Certificate of Analysis

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

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

Report Date: August 21, 2006

Client Sample ID: 9106-0010-012F  
Sample ID: 168404015  
Matrix: SE  
Collect Date: 04-MAY-06  
Receive Date: 17-MAY-06  
Collector: Client  
Moisture: 28.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.110	+/-0.184	0.140	+/-0.184	0.386	pCi/g	BXL1	08/11/06	1434	555696		1
Curium-242	U	-0.0547	+/-0.141	0.192	+/-0.141	0.544	pCi/g						
Curium-243/244	U	-0.126	+/-0.184	0.245	+/-0.185	0.597	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00157	+/-0.126	0.122	+/-0.126	0.291	pCi/g	BXL1	08/11/06	2250	555697		2
Plutonium-239/240	U	0.0867	+/-0.0869	0.0406	+/-0.0872	0.128	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	8.31	+/-6.16	4.77	+/-6.21	10.0	pCi/g	BXL1	08/16/06	1609	555698		3
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.00771	+/-0.0144	0.0124	+/-0.0144	0.0263	pCi/g	BXF1	08/14/06	0833	556350		4
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	0.896	+/-6.17	5.11	+/-6.17	11.0	pCi/g	DFA1	08/09/06	1510	554582		5
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	0.0162	+/-0.0763	0.0633	+/-0.0763	0.132	pCi/g	ATH2	08/09/06	2334	554583		6
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	23.3	+/-49.3	32.5	+/-49.3	67.0	pCi/g	MXP1	08/12/06	2021	555722		7
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.0577	+/-0.206	0.171	+/-0.206	0.354	pCi/g	EGD1	08/12/06	0010	554580		8

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	08/03/06	1534	554649

**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	EPA 905.0 Modified



# QUALITY CONTROL DATA

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Report Date: August 21, 2006

Page 1 of 6

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 168404

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	555696										
QC1201153130	168340011 DUP										
Americium-241	U	-0.000522	U	0.0578	pCi/g	204		(0% - 100%)	BXL1	08/11/06	14:34
		Uncert: +/-0.0385		+/-0.278							
		TPU: +/-0.0385		+/-0.279							
Curium-242	U	0.00	U	-0.0405	pCi/g	200		(0% - 100%)			
		Uncert: +/-0.0756		+/-0.0562							
		TPU: +/-0.0756		+/-0.0565							
Curium-243/244	U	-0.0177	U	-0.0517	pCi/g	98		(0% - 100%)			
		Uncert: +/-0.0764		+/-0.257							
		TPU: +/-0.0765		+/-0.257							
QC1201153132	LCS										
Americium-241		12.8		12.8	pCi/g		100	(75%-125%)			
		Uncert: +/-1.84									
		TPU: +/-2.70									
Curium-242			U	-0.0328	pCi/g						
		Uncert: +/-0.0454									
		TPU: +/-0.0457									
Curium-243/244		15.5		14.3	pCi/g		92	(75%-125%)			
		Uncert: +/-1.94									
		TPU: +/-2.92									
QC1201153129	MB										
Americium-241			U	0.0471	pCi/g						
		Uncert: +/-0.157									
		TPU: +/-0.157									
Curium-242			U	-0.0469	pCi/g						
		Uncert: +/-0.0459									
		TPU: +/-0.0464									
Curium-243/244			U	-0.00385	pCi/g						
		Uncert: +/-0.210									
		TPU: +/-0.210									
QC1201153131	168340011 MS										
Americium-241	U	-0.000522		12.0	pCi/g		91	(75%-125%)			
		Uncert: +/-0.0385		+/-1.38							
		TPU: +/-0.0385		+/-2.08							
Curium-242	U	0.00	U	0.0427	pCi/g						
		Uncert: +/-0.0756		+/-0.0837							
		TPU: +/-0.0756		+/-0.0839							
Curium-243/244	U	-0.0177		15.9	pCi/g		99	(75%-125%)			
		Uncert: +/-0.0764		+/-1.58							
		TPU: +/-0.0765		+/-2.61							
Batch	555697										
QC1201153134	168340011 DUP										
Plutonium-238	U	-0.0155	U	0.0237	pCi/g	956		(0% - 100%)	BXL1	08/11/06	22:51

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**QC Summary**

Workorder: 168404

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	555697										
Plutonium-239/240		Uncert: +/-0.0215 TPU: +/-0.0216 U 0.0414	U	+/-0.0465 +/-0.0466 -0.0489	pCi/g	2410		(0% - 100%)			
		Uncert: +/-0.0934 TPU: +/-0.0935		+/-0.124 +/-0.124							
QC1201153136 LCS Plutonium-238			U	0.155	pCi/g			(75%-125%)			
Plutonium-239/240	11.8	Uncert: +/-0.141 TPU: +/-0.142		11.5	pCi/g		98	(75%-125%)			
		Uncert: +/-0.856 TPU: +/-1.32									
QC1201153133 MB Plutonium-238			U	0.0552	pCi/g					08/11/06	22:50
Plutonium-239/240		Uncert: +/-0.186 TPU: +/-0.186	U	-0.0978	pCi/g						
		Uncert: +/-0.0892 TPU: +/-0.0899									
QC1201153135 168340011 MS Plutonium-238		U -0.0155	U	0.0539	pCi/g			(75%-125%)		08/11/06	22:51
Plutonium-239/240	12.3	Uncert: +/-0.0215 TPU: +/-0.0216 U 0.0414	U	+/-0.112 +/-0.112 10.3	pCi/g		84	(75%-125%)			
		Uncert: +/-0.0934 TPU: +/-0.0935		+/-0.796 +/-1.19							
Batch	555698										
QC1201153138 168340011 DUP Plutonium-241		U 7.28	U	10.1	pCi/g	0		(0% - 100%)	BXL1	08/16/06	16:41
		Uncert: +/-6.30 TPU: +/-6.35		+/-6.39 +/-6.46							
QC1201153140 LCS Plutonium-241	137			145	pCi/g		106	(75%-125%)		08/16/06	17:14
		Uncert: +/-12.5 TPU: +/-19.9									
QC1201153137 MB Plutonium-241			U	8.57	pCi/g					08/16/06	16:25
		Uncert: +/-6.93 TPU: +/-6.98									
QC1201153139 168340011 MS Plutonium-241	138	U 7.28		142	pCi/g		103	(75%-125%)		08/16/06	16:58
		Uncert: +/-6.30 TPU: +/-6.35		+/-12.4 +/-19.7							
Batch	557837										
QC1201158317 168404009 DUP Americium-241		U -0.0851	U	0.167	pCi/g	616		(0% - 100%)	BXL1	08/16/06	09:49
		Uncert: +/-0.136 TPU: +/-0.136		+/-0.220 +/-0.221							
Curium-242		U -0.0253	U	0.241	pCi/g	247		(0% - 100%)			

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**QC Summary**

Workorder: 168404

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	557837										
Curium-243/244		Uncert:	+/-0.0495	+/-0.334							
		TPU:	+/-0.0496	+/-0.335							
	U		-0.0479	U 0.0761	pCi/g	879		(0% - 100%)			
		Uncert:	+/-0.0542	+/-0.149							
		TPU:	+/-0.0545	+/-0.149							
QC1201158319 LCS Americium-241	24.5			25.4	pCi/g		104	(75%-125%)			
		Uncert:		+/-2.47							
		TPU:		+/-4.16							
Curium-242				U 0.0477	pCi/g						
		Uncert:		+/-0.127							
		TPU:		+/-0.127							
Curium-243/244	29.7			27.0	pCi/g		91	(75%-125%)			
		Uncert:		+/-2.54							
		TPU:		+/-4.38							
QC1201158316 MB Americium-241				U 0.234	pCi/g						
		Uncert:		+/-0.275							
		TPU:		+/-0.277							
Curium-242				U 0.00	pCi/g						
		Uncert:		+/-0.152							
		TPU:		+/-0.152							
Curium-243/244				U -0.0551	pCi/g						
		Uncert:		+/-0.0624							
		TPU:		+/-0.0628							
QC1201158318 168404009 MS Americium-241	26.4	U	-0.0851	29.1	pCi/g		110	(75%-125%)			
		Uncert:	+/-0.136	+/-2.97							
		TPU:	+/-0.136	+/-5.01							
Curium-242		U	-0.0253	U 0.126	pCi/g						
		Uncert:	+/-0.0495	+/-0.247							
		TPU:	+/-0.0496	+/-0.248							
Curium-243/244	32.4	U	-0.0479	31.7	pCi/g		98	(75%-125%)			
		Uncert:	+/-0.0542	+/-3.12							
		TPU:	+/-0.0545	+/-5.39							
<b>Rad Gas Flow</b>											
Batch	556350										
QC1201154645 168404003 DUP Strontium-90		U	-0.00343	U -0.00637	pCi/g	0		(0% - 100%)	BXF1	08/14/06	08:33
		Uncert:	+/-0.0203	+/-0.0152							
		TPU:	+/-0.0203	+/-0.0152							
QC1201154647 LCS Strontium-90	1.56			1.30	pCi/g		83	(75%-125%)			
		Uncert:		+/-0.0563							
		TPU:		+/-0.0881							
QC1201154644 MB Strontium-90				U 0.0176	pCi/g						
		Uncert:		+/-0.018							
		TPU:		+/-0.018							

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## QC Summary

Workorder: 168404

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	556350										
QC1201154646	168404003	MS									
Strontium-90	1.58	U	-0.00343	1.29	pCi/g		82	(75%-125%)			
	Uncert:		+/-0.0203	+/-0.0535							
	TPU:		+/-0.0203	+/-0.0813							
<b>Rad Liquid Scintillation</b>											
Batch	554580										
QC1201150562	168340012	DUP									
Technetium-99		U	0.0338	U 0.266	pCi/g	0		(0% - 100%)	EGD1	08/12/06	00:42
	Uncert:		+/-0.192	+/-0.226							
	TPU:		+/-0.192	+/-0.226							
QC1201150564	LCS										
Technetium-99	13.1			13.6	pCi/g		103	(75%-125%)		08/12/06	01:14
	Uncert:			+/-0.496							
	TPU:			+/-0.599							
QC1201150561	MB										
Technetium-99				U 0.0311	pCi/g					08/12/06	00:26
	Uncert:			+/-0.177							
	TPU:			+/-0.177							
QC1201150563	168340012	MS									
Technetium-99	13.0	U	0.0338	12.0	pCi/g		92	(75%-125%)		08/12/06	00:58
	Uncert:		+/-0.192	+/-0.523							
	TPU:		+/-0.192	+/-0.602							
Batch	554582										
QC1201150570	168340011	DUP									
Tritium		U	1.77	U 1.62	pCi/g	0		(0% - 100%)	DFA1	08/09/06	15:42
	Uncert:		+/-8.20	+/-7.47							
	TPU:		+/-8.20	+/-7.47							
QC1201150572	LCS										
Tritium	68.3			76.2	pCi/g		111	(75%-125%)		08/09/06	16:14
	Uncert:			+/-14.0							
	TPU:			+/-14.1							
QC1201150569	MB										
Tritium				U 0.586	pCi/g					08/09/06	15:26
	Uncert:			+/-8.01							
	TPU:			+/-8.01							
QC1201150571	168340011	MS									
Tritium	61.3	U	1.77	61.8	pCi/g		101	(75%-125%)		08/09/06	15:58
	Uncert:		+/-8.20	+/-12.2							
	TPU:		+/-8.20	+/-12.3							
Batch	554583										
QC1201150574	168404003	DUP									
Carbon-14		U	0.0937	U 0.0422	pCi/g	0		(0% - 100%)	ATH2	08/10/06	01:39
	Uncert:		+/-0.0813	+/-0.075							
	TPU:		+/-0.0813	+/-0.0751							
QC1201150576	LCS										
Carbon-14	7.27			7.14	pCi/g		98	(75%-125%)		08/10/06	03:00
	Uncert:			+/-0.508							
	TPU:			+/-0.520							
QC1201150573	MB										

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## QC Summary

Workorder: 168404

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>											
Batch	554583										
Carbon-14				U	-0.0315						
					pCi/g						
				Uncert:	+/-0.0776						
				TPU:	+/-0.0776						
QC1201150575	168404003	MS									
Carbon-14				U	15.1			92 (75%-125%)		08/10/06	02:43
					0.0937						
				Uncert:	+/-0.0813						
				TPU:	+/-0.0813						
Batch	555722										
QC1201153223	168340012	DUP									
Iron-55				U	-26.5			0 (0% - 100%)	MXPI	08/12/06	20:54
					5.83						
				Uncert:	+/-65.1						
				TPU:	+/-65.1						
QC1201153225	LCS										
Iron-55				U	641			103 (75%-125%)		08/12/06	21:27
					660						
				Uncert:	+/-56.2						
				TPU:	+/-67.2						
QC1201153222	MB										
Iron-55				U	18.2					08/12/06	20:38
					18.2						
				Uncert:	+/-39.6						
				TPU:	+/-39.6						
QC1201153224	168340012	MS									
Iron-55				U	717			96 (75%-125%)		08/12/06	21:11
					-26.5						
				Uncert:	+/-65.1						
				TPU:	+/-65.1						
Batch	555723										
QC1201153227	168340012	DUP									
Nickel-63				U	3.79			0 (0% - 100%)	MXPI	08/11/06	11:55
					6.68						
				Uncert:	+/-5.39						
				TPU:	+/-5.40						
QC1201153229	LCS										
Nickel-63				U	512			94 (75%-125%)		08/11/06	12:27
					479						
				Uncert:	+/-22.4						
				TPU:	+/-27.1						
QC1201153226	MB										
Nickel-63				U	15.7					08/11/06	11:38
					15.7						
				Uncert:	+/-9.92						
				TPU:	+/-9.93						
QC1201153228	168340012	MS									
Nickel-63				U	530			96 (75%-125%)		08/11/06	12:11
					3.79						
				Uncert:	+/-5.39						
				TPU:	+/-5.40						

Notes:

The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported

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## QC Summary

Workorder: 168404

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
>										
A										
B										
BD										
C										
D										
H										
J										
N/A										
R										
U										
UI										
X										
Y										
^										
h										

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

\*\* Indicates analyte is a surrogate compound.

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

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

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

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

RELEASE RECORD

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Attachment 2b  
Split Sample Assessment Forms  
(2 Pages)

**Split Sample Assessment Form**

Survey Area #: 9106	Survey Unit #: 0010	Survey Unit Name: Discharge Canal								
Sample Plan or WPIR#: 2006-021				SML #: 9106-0010-011						
Sample Description: Comparison of split samples collected from sample measurement location #11 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was <u>9106-0010-011F</u> the comparison sample was <u>9106-0010-011FS</u> .										
STANDARD				COMPARISON						
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)		
Cs-137	3.45E-01	3.54E-02	10	0.6 - 1.66	1.39E-01	1.57E-02	0.40	N		
Co-60	2.27E-01	3.74E-02	6	0.5 - 2	1.32E-01	1.85E-02	0.58	Y		
Ni-63	6.33E+00	4.57E+00	1	NONE -	-6.07E+00	2.36E+00	-0.96	N/A		
K-40	1.45E+01	5.45E-01	27	0.75 1.33	1.21E+01	5.25E-01	0.83	Y		
Comments/Corrective Actions: In consideration of the Ni-63 results, guidance for agreement ranges, obtained from USNRC Inspection Procedure 84750, does not address resolution ratios less than 4, therefore, a determination of acceptability for such ratios cannot be made. Since Cs-137 has a likelihood to be tightly bound to organic mater in the sample matrix, one would not neccessarily expect it to be homogenously mixed if processing of the sample-split aliquot is not effective in dispersing organic material uniformly through the sample aliquot. Since both Co-60 and K-40 were also 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	0.50	2.00		
8	15	0.60	1.66							
16	50	0.75	1.33							
51	200	0.80	1.25							
> 200		0.85	1.18							
Performed By:			Date:	Reviewed By:		Date:				
			11-2-06			11/2/06				

WPIR – Work Plan and Inspection Record  
SML – Sample Measurement Location designation

**Split Sample Assessment Form**

Survey Area#:	9106	Survey Unit #:	0010	Survey Unit Name:	Discharge Canal							
Sample Plan or WPIR#:					2006-0021							
					SML #: 9106-0010-014							
Sample Description: Comparison of split samples collected from sample measurement location #18 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was 9106-0010-014F, the comparison sample was 9106-0010-014FS.												
STANDARD					COMPARISON							
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)				
Cs-137	8.57E-02	1.78E-02	5	0.5 - 2	6.59E-02	1.95E-02	0.77	Y				
Co-60	5.07E-02	1.33E-02	4	0.5- 2	0.00E+00	1.70E-02	0.00	N				
Ni-63	-4.24E+00	1.86E+00	-2	NONE -	-2.83E+00	2.24E+00	0.67	N/A				
K-40	1.19E+01	5.25E-01	23	0.75 1.33	1.29E+01	5.05E-01	1.08	Y				
Comments/Corrective Actions: In consideration of the Ni-63 results, guidance for agreement ranges, obtained from USNRC Inspection Procedure 84750, does not address resolution ratios less than 4, therefore, a determination of acceptability for such ratios cannot be made. Since Co-60 has a likelihood to be present in the sample matrix in particulate form, one would not necessarily expect it to be homogeneously mixed from processing of the sample-split aliquot. Since both Cs-137 and K-40 were also 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	0.50	2.00				
					8	15	0.60	1.66				
16	50	0.75	1.33									
51	200	0.80	1.25									
> 200		0.85	1.18									
Performed By:				Date:		Reviewed By:		Date:				
				11-2-06				11-2-06				

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

DISCHARGE CANAL  
SURVEY UNIT 9106-0010  
RELEASE RECORD

---

Attachment 2c  
Preliminary Data Form  
(1 Page)

### Preliminary Data Review Form - Samples for the Sign Test

Survey Unit: 9106- 0010  
 Survey Unit Name: Discharge Canal  
  
 Classification: 2  
 Survey Media: Soil  
 Type of Survey: Final Status Survey  
 Type of Measurement: Gross Measurement  
 Number of Measurements: 15  
 Operational DCGL: 1

#### BASIC STATISTICAL QUANTITIES

	Cs-137	Co-60	Ni-63
Minimum Value:	6.73E-03	-2.26E-03	-4.88E+00
Maximum Value:	3.45E-01	5.75E-01	6.33E+00
Mean:	1.17E-01	1.30E-01	-2.68E+00
Median:	8.57E-02	5.45E-02	-3.71E+00
Standard Deviation:	1.01E-01	1.66E-01	2.75E+00

#### RADIONUCLIDE CONCENTRATION (pCi/g)

NUMBER	Cs-137	Co-60	Ni-63	Identified?	Identified?	Identified?
9106-0010-001F	2.60E-01	5.75E-01	-1.07E+00	Y	Y	N
9106-0010-002F	2.78E-02	5.45E-02	-4.66E+00	Y	Y	N
9106-0010-003F	6.72E-02	-2.26E-03	-3.75E+00	Y	N	N
9106-0010-004F	4.92E-02	8.38E-02	-4.77E+00	Y	Y	N
9106-0010-005F	1.08E-02	-2.17E-05	-3.87E+00	N	N	N
9106-0010-006F	1.47E-01	1.82E-01	-2.58E+00	Y	Y	N
9106-0010-007F	8.00E-02	8.30E-02	-2.34E+00	Y	Y	N
9106-0010-008F	2.20E-01	1.95E-02	-2.65E+00	Y	N	N
9106-0010-009F	1.30E-01	1.92E-01	-3.71E+00	Y	Y	N
9106-0010-010F	1.17E-01	5.08E-02	-3.80E+00	Y	Y	N
9106-0010-011F	3.45E-01	2.27E-01	6.33E+00	Y	Y	N
9106-0010-012F	1.94E-01	4.03E-01	-2.72E+00	Y	Y	N
9106-0010-013F	7.71E-03	1.48E-03	-4.88E+00	N	N	N
9106-0010-014F	8.57E-02	5.07E-02	-4.24E+00	Y	Y	N
9106-0010-015F	6.73E-03	2.28E-02	-1.48E+00	N	Y	N

Performed By: *Ocl Renhall*

Date: 11-2-06

Independent Review: *[Signature]*

Date: 11/2/06

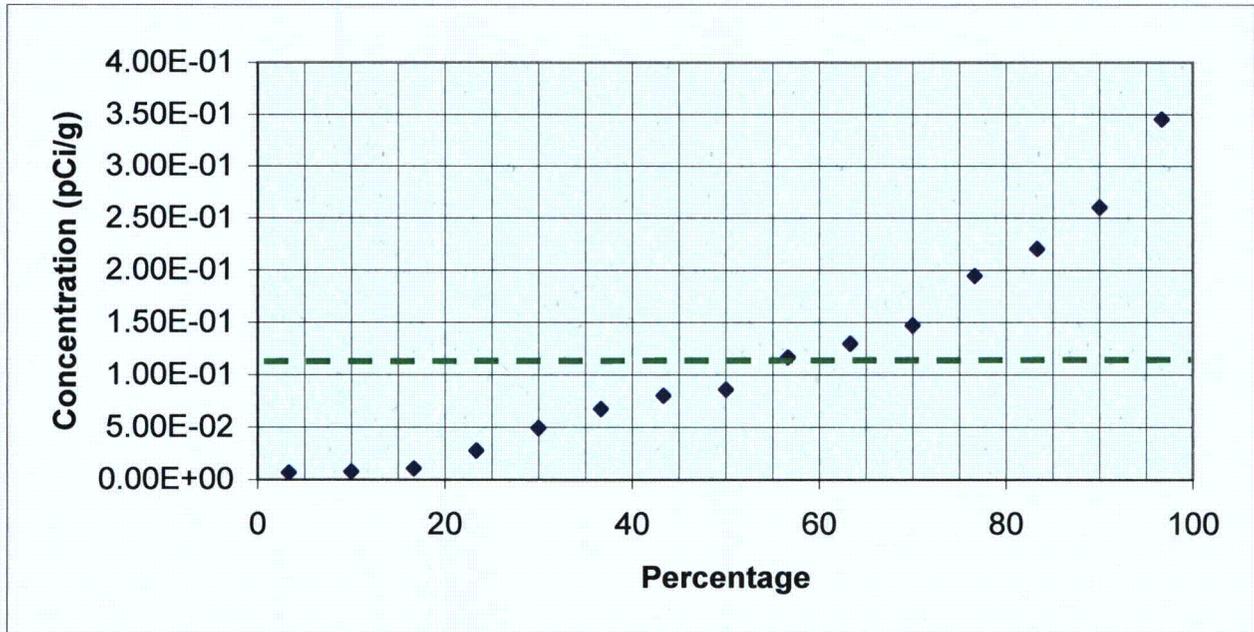
DISCHARGE CANAL  
SURVEY UNIT 9106-0010  
RELEASE RECORD

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Attachment 2d  
Graphical Representation of Data  
(6 Pages)

**Quantile Plot For Cesium - 137**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal  
 Mean: 1.17E-01 pCi/g



Cs-137	Rank	Percentage
6.73E-03	1	3 %
7.71E-03	2	10 %
1.08E-02	3	17 %
2.78E-02	4	23 %
4.92E-02	5	30 %
6.72E-02	6	37 %
8.00E-02	7	43 %
8.57E-02	8	50 %
1.17E-01	9	57 %
1.30E-01	10	63 %
1.47E-01	11	70 %
1.94E-01	12	77 %
2.20E-01	13	83 %
2.60E-01	14	90 %
3.45E-01	15	97 %

Prepared By: *Del Paulall*

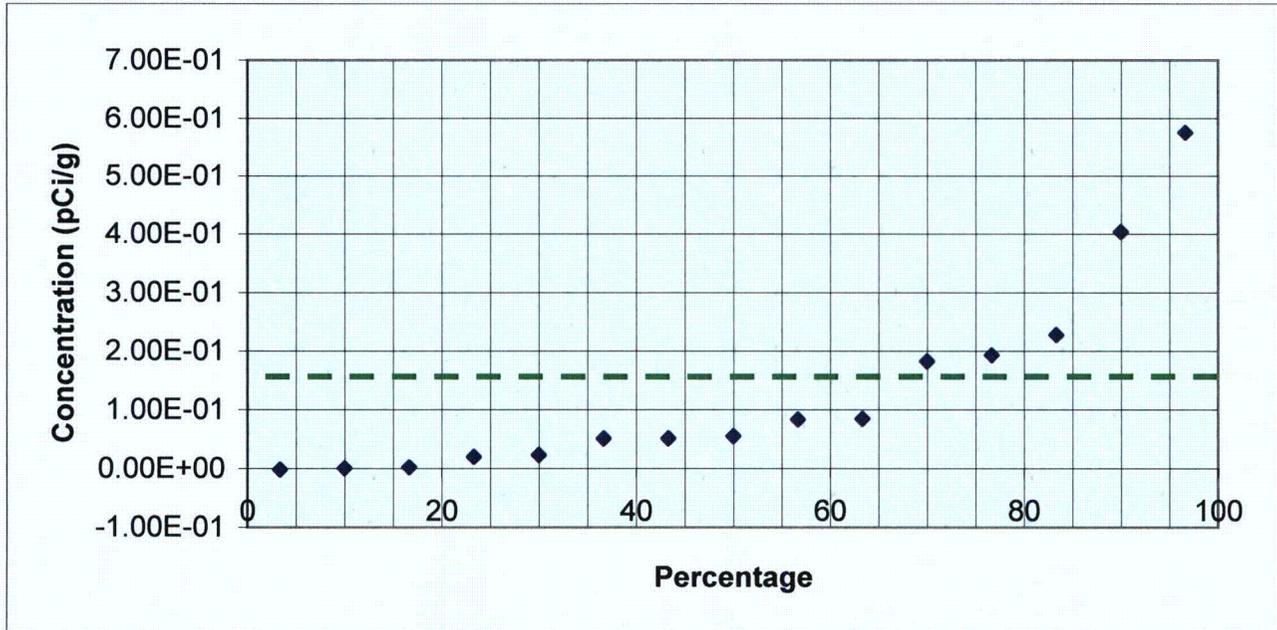
Date: 11-2-06

Reviewed By: *[Signature]*

Date: 11/2/06

**Quantile Plot For Cobalt - 60**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal  
 Mean: 1.30E-01 pCi/g



Co-60	Rank	Percentage
-2.26E-03	1	3 %
-2.17E-05	2	10 %
1.48E-03	3	17 %
1.95E-02	4	23 %
2.28E-02	5	30 %
5.07E-02	6	37 %
5.08E-02	7	43 %
5.45E-02	8	50 %
8.30E-02	9	57 %
8.38E-02	10	63 %
1.82E-01	11	70 %
1.92E-01	12	77 %
2.27E-01	13	83 %
4.03E-01	14	90 %
5.75E-01	15	97 %

Prepared By: *Dale Reinhardt*

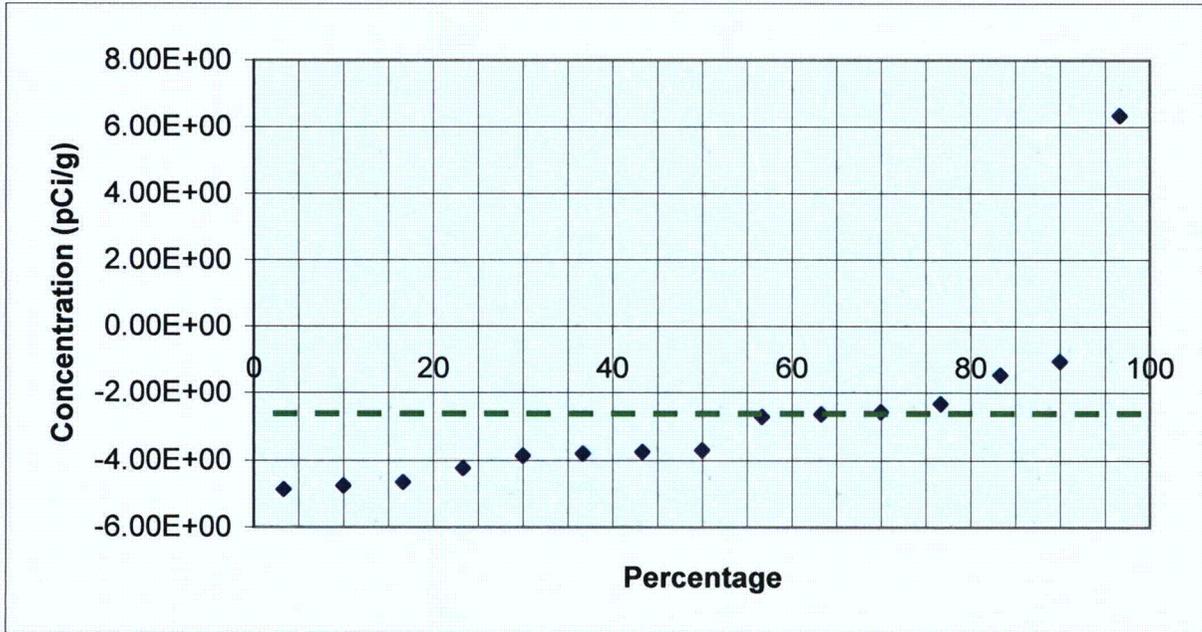
Date: 11-2-06

Reviewed By: *ELJ*

Date: 11/2/06

**Quantile Plot For Nickel - 63**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal  
 Mean: -2.68E+00 pCi/g



Ni-63	Rank	Percentage
-4.88E+00	1	3 %
-4.77E+00	2	10 %
-4.66E+00	3	17 %
-4.24E+00	4	23 %
-3.87E+00	5	30 %
-3.80E+00	6	37 %
-3.75E+00	7	43 %
-3.71E+00	8	50 %
-2.72E+00	9	57 %
-2.65E+00	10	63 %
-2.58E+00	11	70 %
-2.34E+00	12	77 %
-1.48E+00	13	83 %
-1.07E+00	14	90 %
6.33E+00	15	97 %

Prepared By: *Paul Marshall*

Date: 11-2-06

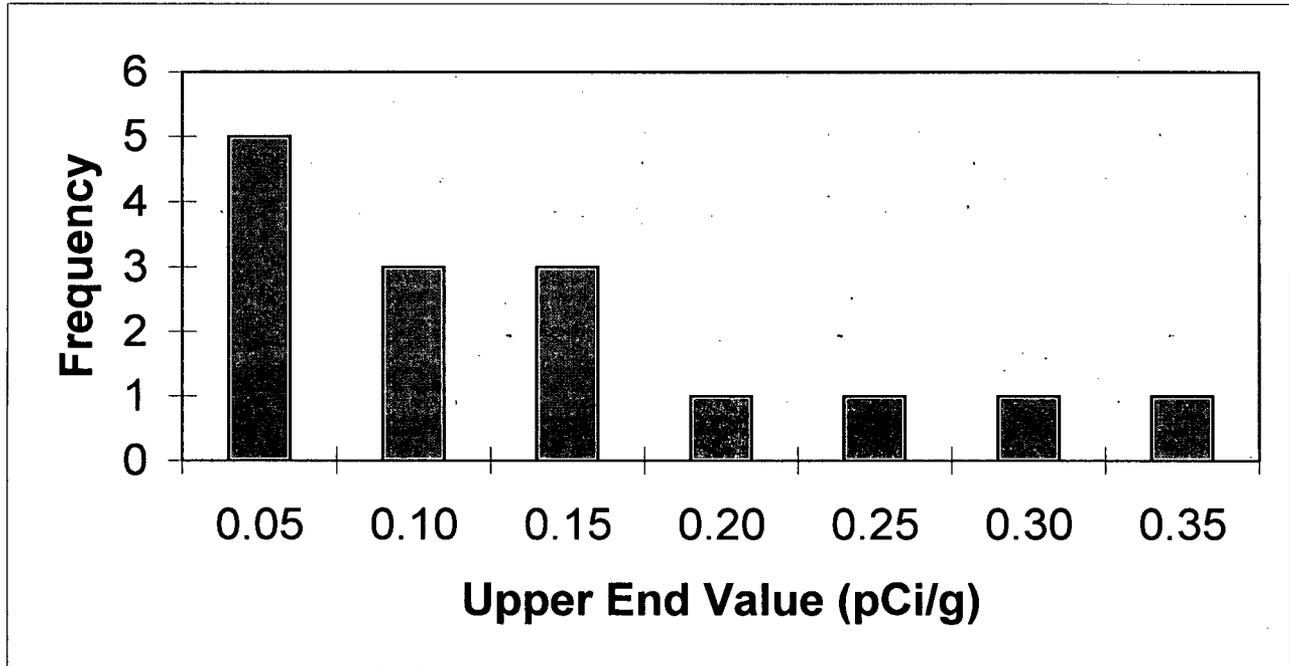
Reviewed By: *[Signature]*

Date: 11/2/06

**Frequency Plot For Cs - 137**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal

Mean: 0.117 pCi/g



Upper End Value	Observation Frequency	Observation % Frequency
0.05	5	33%
0.10	3	20%
0.15	3	20%
0.20	1	7%
0.25	1	7%
0.30	1	7%
0.35	1	7%
Total	15	100%

Prepared By: *Don Marshall*

Date: 11-2-06

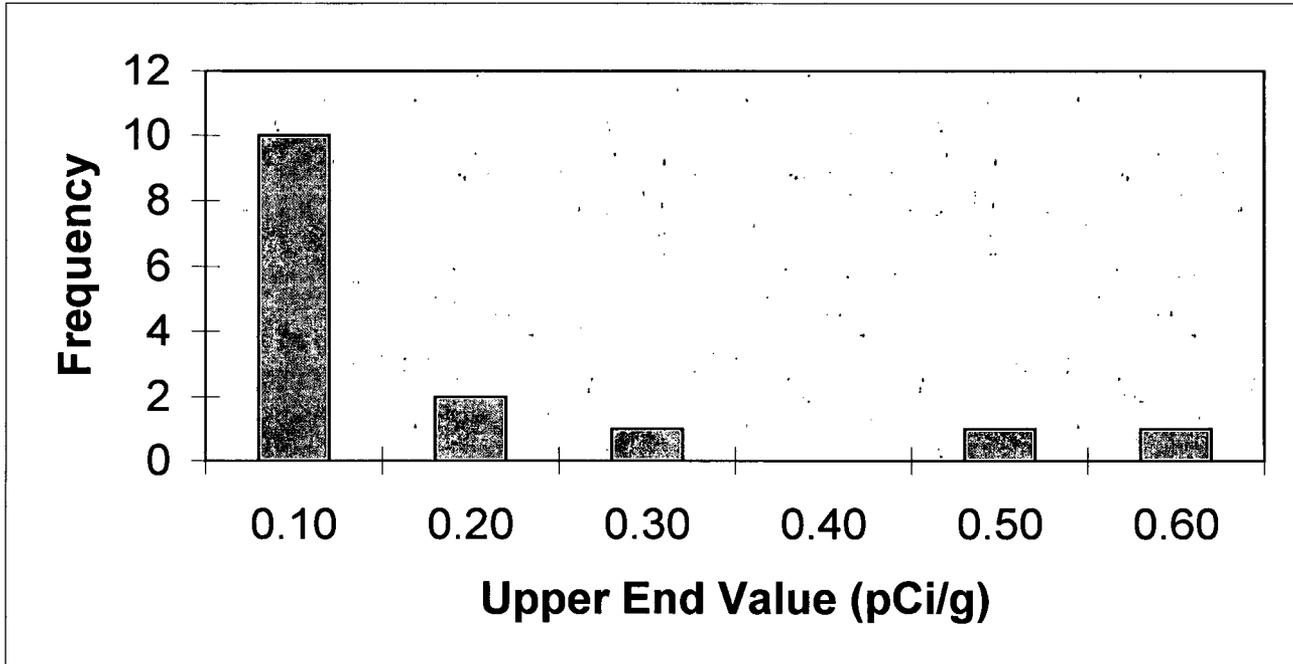
Reviewed By: *[Signature]*

Date: 11/2/06

**Frequency Plot For Cobalt-60**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal

Mean: 0.130 pCi/g



Upper End Value	Observation Frequency	Observation % Frequency
0.10	10	67%
0.20	2	13%
0.30	1	7%
0.40	0	0%
0.50	1	7%
0.60	1	7%
Total	15	100%

Prepared By: *Oel Runkall*

Date: 11-2-06

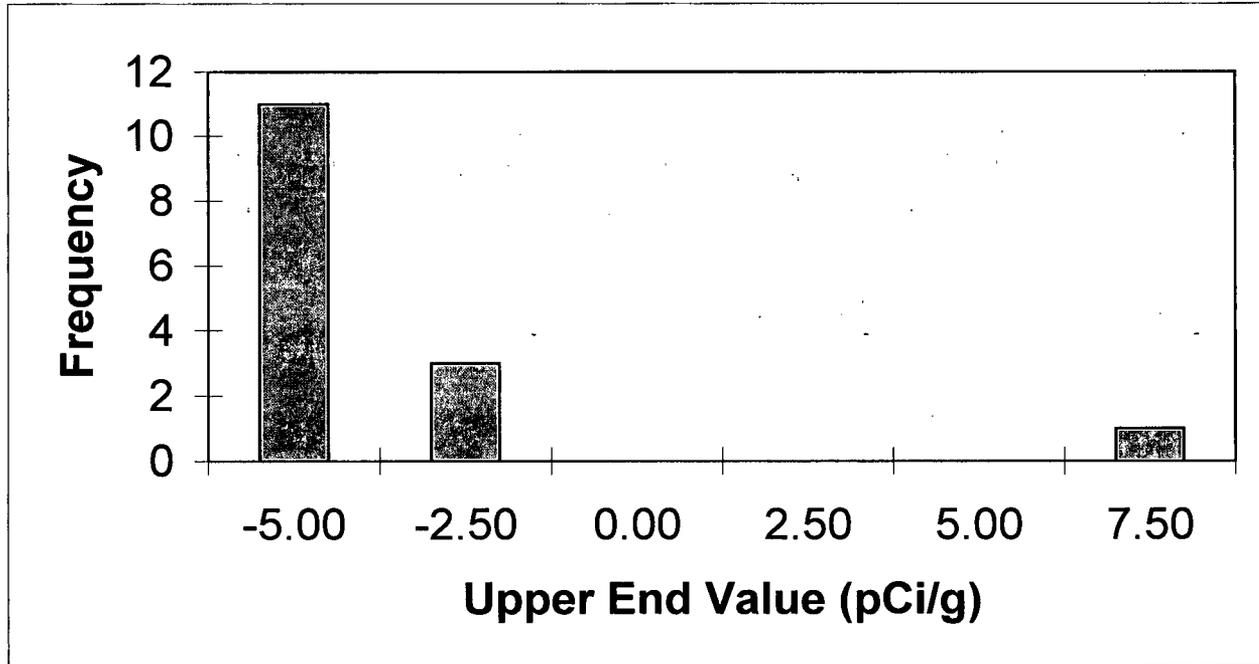
Reviewed By: *[Signature]*

Date: 11/2/06

**Frequency Plot For Nickel - 63**

Survey Unit: 9106-0010  
 Survey Unit Name: Discharge Canal

Mean: -2.679 pCi/g



Upper End Value	Observation Frequency	Observation % Frequency
-5.00	11	73%
-2.50	3	20%
0.00	0	0%
2.50	0	0%
5.00	0	0%
7.50	1	7%
Total	15	100%

Prepared By: Del Marshall

Date: 11-2-96

Reviewed By: EGJ

Date: 11/2/06

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

RELEASE RECORD

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Attachment 2e  
Sign Test Calculation  
(1 Page)

**Sign Test Calculation Sheet For Multiple Radionuclides**

Survey Unit Number: 9106-0010

Survey Unit Name: Discharge Canal

WP&IR#: 2006-021

Classification : 2

TYPE I ( $\alpha$  error):0.05

TYPE I ( $\beta$  error):0.05

Radionuclides:		Cs-137	Co-60	Ni-63		
Survey Design DCGL (pCi/g):		6.01	2.90	549		
Results Cs-137	Results Co-60	Results Ni-63	Weighted Sum ( $W_s$ )	DCGL-Result	Sign	
2.60E-01	5.75E-01	-1.07E+00	2.40E-01	7.60E-01	1	
2.78E-02	5.45E-02	-4.66E+00	1.49E-02	9.85E-01	1	
6.72E-02	-2.26E-03	-3.75E+00	3.57E-03	9.96E-01	1	
4.92E-02	8.38E-02	-4.77E+00	2.84E-02	9.72E-01	1	
1.08E-02	-2.17E-05	-3.87E+00	-5.26E-03	1.01E+00	1	
1.47E-01	1.82E-01	-2.58E+00	8.25E-02	9.17E-01	1	
8.00E-02	8.30E-02	-2.34E+00	3.77E-02	9.62E-01	1	
2.20E-01	1.95E-02	-2.65E+00	3.85E-02	9.61E-01	1	
1.30E-01	1.92E-01	-3.71E+00	8.11E-02	9.19E-01	1	
1.17E-01	5.08E-02	-3.80E+00	3.01E-02	9.70E-01	1	
3.45E-01	2.27E-01	6.33E+00	1.47E-01	8.53E-01	1	
1.94E-01	4.03E-01	-2.72E+00	1.66E-01	8.34E-01	1	
7.71E-03	1.48E-03	-4.88E+00	-7.10E-03	1.01E+00	1	
8.57E-02	5.07E-02	-4.24E+00	2.40E-02	9.76E-01	1	

Number of Positive Differences (S+): 14

Critical Value: 11

Survey Unit: Meets Acceptance Criterion

Performed By: Deal Rumball

Date: 11-8-06

Independent Review: Robert Massagill

Date: 11/8/06

DISCHARGE CANAL  
SURVEY UNIT 9106-0010

RELEASE RECORD

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Attachment 2f  
COMPASS DQA Surface Soil Report with  
Retrospective Power Curve  
(3 Pages)

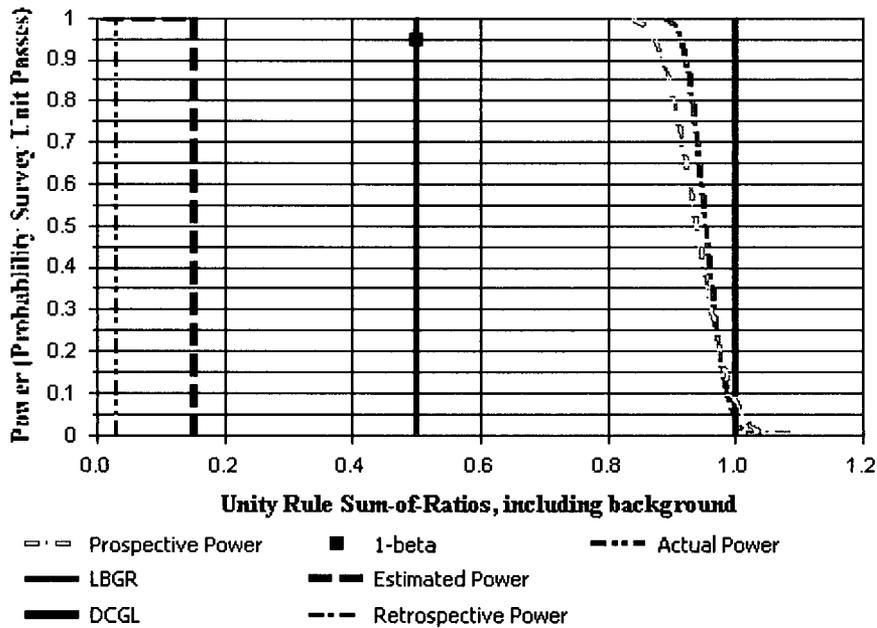


# DQA Surface Soil Report

## Assessment Summary

Site:	9106-0010 (19 mrem/yr)		
Planner(s):	Dale Randall		
Survey Unit Name:	9106-0010		
Report Number:	1		
Survey Unit Samples:	15		
Reference Area Samples:	0		
Test Performed:	Sign	Test Result:	Not Performed
Judgmental Samples:	0	EMC Result:	Not Performed
Assessment Conclusion:	<b>Reject Null Hypothesis (Survey Unit PASSES)</b>		

## Retrospective Power Curve





# DQA Surface Soil Report

## Survey Unit Data

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NOTE: Type = "S" indicates survey unit sample.  
Type = "R" indicates reference area sample.

Sample Number	Type	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ni-63 (pCi/g)
9106-0010-001F	S	0.57	0.26	-1.07
9106-0010-002F	S	0.05	0.03	-4.66
9106-0010-003F	S	0	0.07	-3.75
9106-0010-004F	S	0.08	0.05	-4.77
9106-0010-005F	S	0	0.01	-3.87
9106-0010-006F	S	0.18	0.15	-2.58
9106-0010-007F	S	0.08	0.08	-2.34
9106-0010-008F	S	0.02	0.22	-2.65
9106-0010-009F	S	0.19	0.13	-3.71
9106-0010-010F	S	0.05	0.12	-3.8
9106-0010-011F	S	0.23	0.34	6.33
9106-0010-012F	S	0.4	0.19	-2.72
9106-0010-013F	S	0	0.01	-4.88
9106-0010-014F	S	0.05	0.09	-4.24
9106-0010-015F	S	0.02	0.01	-1.48

## Modified Data (Unity Rule SOR)

---

NOTE: Type = "S" indicates survey unit sample.  
Type = "R" indicates reference area sample.

Sample Number	Type	Sum-of-Ratios (SOR)
9106-0010-001F	S	0.24
9106-0010-002F	S	0.01
9106-0010-003F	S	0
9106-0010-004F	S	0.03
9106-0010-005F	S	-0.01
9106-0010-006F	S	0.08
9106-0010-007F	S	0.04
9106-0010-008F	S	0.04
9106-0010-009F	S	0.08
9106-0010-010F	S	0.03
9106-0010-011F	S	0.15
9106-0010-012F	S	0.17
9106-0010-013F	S	-0.01
9106-0010-014F	S	0.02
9106-0010-015F	S	0.01



# DQA Surface Soil Report

## Basic Statistical Quantities Summary

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<b>Statistic</b>	<b>Survey Unit</b>	<b>Background</b>	<b>DQO Results</b>
Sample Number	15	N/A	N=13
Mean (SOR)	0.06	N/A	0.15
Median (SOR)	0.03	N/A	N/A
Std Dev (SOR)	0.07	N/A	0.12
High Value (SOR)	0.24	N/A	N/A
Low Value (SOR)	-0.01	N/A	N/A