



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

**Appendix A1  
Survey Unit Release Record  
9106-0001, Discharge Canal**

**November 2006**



CYAPCO  
FINAL STATUS SURVEY RELEASE RECORD  
DISCHARGE CANAL  
SURVEY UNIT 9106-0001

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**1. SURVEY UNIT DESCRIPTION**

Survey Unit 9106-0001 (Discharge Canal) is designated as Final Status Survey (FSS) Class 1 survey area and consists of approximately 1,917 m<sup>2</sup> (0.47 acres) of water covered sediment in an area located approximately 0.16 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: Survey Area 9522 is to the north and east (called north as orientated with the north to south flow of the Connecticut River), Survey Area 9520 is to the north and west, Discharge Canal Survey Unit 9106-0014 is to the south. 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 E006 through E010 and by S072 through S078 (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) based on the Connecticut State Plane System North American Datum (NAD) 1927.

**2. CLASSIFICATION BASIS**

The survey unit was classified in accordance with Procedure RPM 5.1-10, "Survey Unit Classification." The "Classification Basis Summary" conducted for 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 "walkdown."
- e) Formal or informal interviews with cognizant personnel.

A review of the 10CFR50.75(g)(1) database report identified a number of events that may 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 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



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sample analyses indicated that the concentrations of Cs-137, Co-60 and other radionuclides were a small fraction of the Derived Concentration Guideline Limits (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 Historical Site Assessment (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.

This area was initially a larger Class 2 survey unit, also designated as 9106-0001. Upon reviewing the FSS data for this area, it was determined that at least one (1) sample exceeded the DCGL for the area. This required that the area be reclassified as two (2), Class 1 survey units. In order to optimize the amount of area covered by the Class 1 surveys, a portion of Class 2 Survey Unit 9106-0002 was also included into the southern most area of the two newly designated Class 1 survey units. Survey Unit 9106-0001 encompasses the northern portion of the newly reclassified area and Survey Unit 9106-0014 (new) encompasses the southern portion of the newly reclassified area.

An initial characterization was performed in April and May of 2004 to obtain the necessary data of sufficient data quality for final status survey (FSS) planning purposes. Fifteen (15) samples were obtained by biased sampling from five (5) locations throughout the area. The samples were analyzed, at an approved off-site laboratory, by gamma spectroscopy and with radiochemical analyses for Sr-90 and Tritium. Hard-to-Detect analyses were also conducted on one (1) of the fifteen (15) samples. The only plant-related dosimetrically significant radionuclides identified in the samples were Cs-137 and Co-60. All sample analysis results were below the ten (10) mrem/yr design DCGL. Co-60 accounted for the majority of the dose in these samples with a maximum concentration of 1.04 pCi/g.

A final characterization survey was performed in May of 2006. Samples were collected and analyzed on-site by gamma spectroscopy. Fifteen (15) sediment samples from fifteen (15) locations were collected and analyzed for radioactive materials. All of the samples were analyzed by gamma spectroscopy. A summary of the results are presented in Table 1 below.

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**Table 1 – Basic Statistical Quantities for Cs-137 and Co-60  
from the Characterization Survey**

Parameter	Cs-137 (pCi/g)	Co-60 (pCi/g)
Minimum Value:	2.15E-02	1.03E-03
Maximum Value:	1.57E+00	2.25E+00
Mean:	5.96E-01	6.15E-01
Median:	6.39E-01	3.81E-01
Standard Deviation:	4.96E-01	6.97E-01

NOTE: The Operational DCGLs from Table 2 are 5.38 pCi/g for Cs-137 and 2.59 pCi/g for Co-60; these are used in conjunction with the unity rule to achieve seventeen (17) mrem/yr Total Effective Dose Equivalent (TEDE).

Based upon the results of radiological surveys performed during characterization, it was concluded that there was a significant probability for residual radioactivity to be present in this survey unit in concentrations greater than the Operational DCGL justifying a final survey unit classification of Class 1 (refer to Section 3).

Since the pre-remediation data presented in Table 1 is determined to be sufficient to adequately characterize the survey area, no further characterization efforts were undertaken.

A Class 1 Final Status Survey (FSS) plan was developed and implemented in this survey unit starting in May of 2006.

Prior to completion of the FSS plan, it was determined that a remediation was required to remove sediment material in a region exceeding the associated DCGL<sub>EMC</sub>. A post-remediation Remedial Action Survey (RAS) was performed under SSWP 06-07-002. This survey confirmed that grab samples of the dredge spoils materials were below the Operational DCGL, indicating that remediation was completed in the affected areas.

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

### 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

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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 9106-0001 did not exceed the release criteria specified in the LTP and that the potential dose from residual radioactivity is As Low As Reasonably Achievable (ALARA).

A fundamental precursor to survey design is to establish a relationship between the release criteria and some measurable quantity. This is done through the development of DCGLs. The DCGLs represent 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 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 (3) 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.

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This survey unit is affected by existing groundwater (reference CY memo ISC 06-024). The dose contribution from existing groundwater is less than two (2) mrem/yr TEDE, based on field data.

This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no concrete foundations or footings remaining within the groundwater saturated zone in the area (reference CY memo ISC 06-024). The dose contribution from future groundwater is zero (0) mrem/yr TEDE.

*Equation 2:*

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

The allowable dose for soil in this survey unit is seventeen (17) mrem/yr TEDE as shown by Equation 2 above. The concentration of residual radioactivity resulting in seventeen (17) mrem/yr TEDE is designated as the Operational DCGL, 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.

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**Table 2 – Radionuclide Specific Base Case Soil DCGL, Operational DCGLs and Required Minimum Detectable Concentrations**

<b>Radionuclide <sup>(1)</sup></b>	<b>Base Case Soil DCGL (pCi/g) <sup>(2)</sup></b>	<b>Operational DCGL (pCi/g) <sup>(3)</sup></b>	<b>Required MDC (pCi/g) <sup>(4)</sup></b>
<b>H-3</b>	4.12E+02	2.80E+02	1.65E+01
<b>C-14</b>	5.66E+00	3.85E+00	2.26E-01
Mn-54	1.74E+01	1.18E+01	6.96E-01
<b>Fe-55</b>	2.74E+04	1.86E+04	1.10E+03
Co-60	3.81E+00	2.59E+00	1.52E-01
<b>Ni-63</b>	7.23E+02	4.92E+02	2.89E+01
<b>Sr-90</b>	1.55E+00	1.05E+00	6.20E-02
Nb-94	7.12E+00	4.84E+00	2.85E-01
<b>Tc-99</b>	1.26E+01	8.57E+00	5.04E-01
Ag-108m	7.14E+00	4.86E+00	2.86E-01
Cs-134	4.67E+00	3.18E+00	1.87E-01
Cs-137	7.91E+00	5.38E+00	3.16E-01
Eu-152	1.01E+01	6.87E+00	4.04E-01
Eu-154	9.29E+00	6.32E+00	3.72E-01
Eu-155	3.92E+02	2.67E+02	1.57E+01
<b>Pu-238</b>	2.96E+01	2.01E+01	1.18E+00
<b>Pu-239/240</b>	2.67E+01	1.82E+01	1.07E+00
<b>Pu-241</b>	8.70E+02	5.92E+02	3.48E+01
Am-241 <sup>(5)</sup>	2.58E+01	1.75E+01	1.03E+00
<b>Cm-243/244</b>	2.90E+01	1.97E+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 seventeen (17) 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.

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 and May of 2004 and final characterization in May of 2006 as discussed in Section 2. Cs-137 and Co-60 were found to be the predominate radionuclides of concern. The basic statistical quantities (i.e., mean, standard deviation, median) for Cs-137 and Co-60 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

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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.

The Elevated Measurement Comparison (EMC) consists of comparing each measurement from the survey unit with the investigation levels discussed in Section 4.0 (and presented in Table 4). As stated in section 5.8.3 of the LTP, any measurement from the survey unit that is greater than an investigation level indicates an area of relatively high concentrations that should be investigated, regardless of the outcome of the nonparametric statistical tests. Thus the use of the EMC against the investigation levels may be viewed as assurance that unusually large measurements will receive proper attention regardless of the outcome of those tests and that any area having the potential for significant dose contributions will be identified.

The LTP (by way of Equation 5-31) states that if elevated levels of residual radioactivity are present over portions of the survey unit area, they will be evaluated in conjunction with the average level of residual activity present across the balance of the survey unit to determine whether the total dose associated with the distribution of activity present is in compliance with the release criteria. This is demonstrated in Equation 3.

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*Equation 3 (LTP Equation 5-31):*

$$\frac{\delta}{DCGL_w} + \frac{\bar{C}_{elevated} - \delta}{(AreaFactor) \times DCGL_w} < 1$$

Where:

$\delta$  = Average concentration outside the elevated area,

$\bar{C}_{elevated}$  = Average concentration inside the elevated area.

A separate term will be used in Equation 3 for each elevated area in a survey unit.

#### 4. SURVEY DESIGN

The level of effort associated with planning a survey is based on the complexity of the survey and nature of the hazards. Guidance for preparing FSS plans is provided in Procedure RPM 5.1-11, "*Preparation of Final Status Survey Plans*".

The dose for soil used for this survey unit to demonstrate compliance with the LTP criteria is seventeen (17) mrem/yr TEDE, as discussed in Section 3 of this Release Record.

The DQO process determined that Cs-137 and Co-60 were the radionuclides of concern (refer to Section 2). The sum of fractions or unity rule was used with the individual Operational DCGLs because multiple radionuclides (Cs-137 and Co-60) 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 screening process described in LTP Section 5.4.7.2, "Gross Activity DCGLs".

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 that are less than 5% for individual radionuclides and that are less than 10% for the aggregate of all radionuclides that are de-selected. This process was applied to analysis data for this survey unit.

The Elevated Measurement Comparison (EMC) applies to this survey unit since it is a Class 1 area and discrete, elevated areas of contamination are expected. A description of the application of the EMC is provided in section 3.0.

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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 0.652 to maintain the relative shift ( $\Delta/\sigma$ ) in the range of 1 and 3. The resulting relative shift was 2.3. 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 (10 CFR 20, 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. For statistical purposes, the survey design specified fifteen (15) samples were required. However, due to a special requirement to double the number of statistical samples in this section of the discharge canal, resulting from an agreement with the State of Connecticut Department of Environmental Protection (CTDEP), this number needed to be doubled to thirty (30) 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.*" VSP was created by Pacific Northwest National Laboratory (PNNL) for the United States Department of Energy. A systematic triangular grid pattern with a random starting point was selected for sample design, which is appropriate for a Class 1 area.

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



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**Table 3 -Sample Measurement Locations with Associated GPS Coordinates**

<b>Designation</b>	<b>Northing</b>	<b>Easting</b>
9106-0001-101F	236249.32	668909.83
9106-0001-103F	236224.86	668923.95
9106-0001-104F	236224.86	668952.20
9106-0001-106F	236200.40	668881.58
9106-0001-107F	236200.40	668966.32
9106-0001-108F	236200.40	668994.57
9106-0001-109F	236200.40	669022.82
9106-0001-110F	236175.93	668867.45
9106-0001-111F	236175.93	668895.70
9106-0001-112F	236175.93	668923.95
9106-0001-113F	236175.93	668952.20
9106-0001-114F	236175.93	668980.44
9106-0001-115F	236175.93	669008.69
9106-0001-116F	236175.93	669036.94
9106-0001-117F	236175.93	669065.19
9106-0001-119F	236151.47	668909.83
9106-0001-120F	236151.47	668938.07
9106-0001-121F	236151.47	668966.32
9106-0001-122F	236151.47	668994.57
9106-0001-123F	236151.47	669022.82
9106-0001-124F	236151.47	669051.06
9106-0001-125F	236127.01	668923.95
9106-0001-126F	236127.01	668952.20
9106-0001-127F	236127.01	668980.44
9106-0001-128F	236127.01	669008.69
9106-0001-129F	236102.55	668966.32
9106-0001-130F	236102.55	668994.57
9106-0001-131F	236178.99	668971.40
9106-0001-132F	236118.53	669020.35
9106-0001-133F	236172.48	669019.85

The sample location designations of Table 3 are not sequentially inclusive because of the necessity to relocate samples due to the inaccessibility of original sample locations. Sample locations 9106-0001-102F, 9106-0001-105F and 9106-0001-118F were found to be on dry land. Consequently, they were randomly re-located using the VSP software to three (3) new locations designated as 9106-0001-131F through 9106-001-0133F.

The sample plan specified that all sample were to be collected within three (3) meters of the specified coordinates. This is a satisfactory positioning tolerance given the challenges associated with positioning the sampling vessel to fixed locations. In addition, sample procurement was, at times, hindered by rock and other obstructions that limited the penetration of the coring device and in some

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cases prevented sampling all together. The vendor's positioning logs were reviewed to determine that the positioning was within the specified tolerances. It was determined that for this survey unit, the maximum sample location offset was found to be 8.51 feet (2.59 meters) at sample point 9106-0001-119.

Three (3) 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 three (3) samples were randomly selected using the Microsoft Excel "RAND" function. Additionally, the gamma results were screened to ensure that the sample exhibiting the highest observed radionuclide concentration by gamma analysis was selected. This process resulted in selecting an additional sample for HTD analyses.

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) 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.

Table 4 – Synopsis of the Survey Design		
Feature	Design Criteria	Basis
Survey Unit Land Area	1,917 m <sup>2</sup>	Based on AutoCAD-LT and VSP calculations
Number of Measurements <sup>(1)</sup>	30	Type 1 and Type 2 errors were 0.05, sigma was 0.284 the LBGR was set to 0.652 to maintain Relative Shift in the range of 1 and 3, Relative Shift was 2.3
Grid Spacing	8.59 m	Based on triangular grid
Operational DCGL	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	To achieve seventeen (17) 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	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	The Operational DCGL meets the LTP criteria for a Class 1 survey unit

(1) Section 5.7 of the LTP requires that the calculated number of statistical samples (n=15) be doubled for this survey unit.

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

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**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 Survey, 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 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 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 thirty (30) 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*". Samples were controlled, transported, stored, and transferred to the off-site laboratory using COC protocols.

Three (3) samples (9106-0001-112F, 9106-0001-121F and 9106-0001-132F) 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 9106-0001-106F and 9106-0001-117F 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

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laboratory analyzed the thirty (30) samples taken for non-parametric statistical testing and the associated duplicates using gamma spectroscopy. 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 twenty-five (25) and Co-60 was positively identified in twenty-one (21) of the thirty (30) 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.

One (1) of the sample results exceeded the Operational DCGL and required further investigation. A summary of the sample results is provided in Table 5.

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

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>	
			Nuclides of concern	Unity (Sign Test) <sup>(2)</sup>
9106-0001-101F	5.04E-01	1.28E-02	9.86E-02	1.58E-01
9106-0001-103F	9.09E-01	4.14E-01	3.29E-01	3.88E-01
9106-0001-104F	2.89E-01	3.15E-02	6.59E-02	1.25E-01
9106-0001-106F	1.63E-01	1.48E-01	8.74E-02	1.47E-01
9106-0001-107F	6.95E-01	2.46E-01	2.24E-01	2.83E-01
9106-0001-108F	2.07E-02	1.70E-02	1.04E-02	6.95E-02
9106-0001-109F	-6.78E-04	-4.42E-03	-1.83E-03	5.73E-02
9106-0001-110F	6.09E-02	0.00E+00	1.13E-02	7.04E-02
9106-0001-111F	1.61E-01	1.14E-01	7.39E-02	1.33E-01
9106-0001-112F	2.34E+00	2.65E+00	1.46E+00	1.53E+00
9106-0001-113F	3.87E-01	2.59E-01	1.72E-01	2.31E-01
9106-0001-114F	7.93E-01	3.70E-01	2.90E-01	3.49E-01
9106-0001-115F	7.60E-01	5.97E-01	3.72E-01	4.31E-01
9106-0001-116F	1.38E-02	3.26E-02	1.52E-02	7.43E-02
9106-0001-117F	1.38E-02	5.25E-04	2.77E-03	6.19E-02
9106-0001-119F	2.20E-01	1.12E-01	8.41E-02	1.43E-01
9106-0001-120F	7.39E-01	7.08E-01	4.11E-01	4.70E-01
9106-0001-121F	7.43E-01	6.27E-01	3.80E-01	4.04E-01
9106-0001-122F	4.59E-01	4.22E-01	2.48E-01	3.07E-01
9106-0001-123F	6.77E-01	7.65E-01	4.21E-01	4.80E-01
9106-0001-124F	2.85E-01	2.54E-01	1.51E-01	2.10E-01
9106-0001-125F	2.71E-02	0.00E+00	5.04E-03	6.42E-02
9106-0001-126F	2.44E-01	1.07E-01	8.67E-02	1.46E-01
9106-0001-127F	4.78E-01	7.86E-01	3.92E-01	4.51E-01
9106-0001-128F	8.50E-01	8.18E-01	4.74E-01	5.33E-01
9106-0001-129F	6.10E-02	-3.30E-03	1.01E-02	6.92E-02
9106-0001-130F	0.00E+00	0.00E+00	0.00E+00	5.91E-02
9106-0001-131F	5.66E-01	2.58E-01	2.05E-01	2.64E-01
9106-0001-132F	5.58E-01	1.66E+00	7.45E-01	8.29E-01
9106-0001-133F	6.08E-01	7.84E-01	4.16E-01	4.75E-01

(1) The Operational DCGLs from Table 2 are 5.38 pCi/g for Cs-137 and 2.59 pCi/g for Co-60; these are used in conjunction with the unity rule to achieve seventeen (17) mrem/yr TEDE

(2) This column is the sum of the DCGL unity fraction from identified radionuclides of concern and an HTD isotope (C-14) that exceeded the 5%/10% rule for one (1) or more FSS samples. For those samples not measured for HTD isotopes, an average calculated value of 5.9% of the DCGL was added to each sample.

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The off-site laboratory also processed a total of three (3) samples for full HTD analysis as required by the sample plan, and for gamma results that indicated additional testing was warranted. The requested analyses included alpha spectroscopy and liquid scintillation depending upon the radionuclide and the measurement method. All analyses were performed to the required MDC. Several of the HTD radionuclides met the accepted criteria for detection (i.e., a result greater than two standard deviations uncertainty) in one (1) or more samples; however, each of the positive results for HTD radionuclides could be de-selected based on the 5% and 10% rules, except for C-14. These results are presented in Table 6.

Table 6-Hard-to-Detect Sample Results		
Sample Number	C-14 pCi/g	Fraction of the Operational DCGL <sup>(2)</sup>
9106-0001-112F	9.16E-02	0.0238
9106-0001-121F	2.67E-01	0.0694
9106-0001-132F	3.24E-01	0.0842

(1) The Operational DCGL from Table 2 is 3.85 pCi/g for C-14.

**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.*" For all QC split samples, there was an acceptable level of agreement.

The sample analysis vendor, GEL, maintained quality control and quality assurance plans as part of normal operation. Refer to Attachment 2 for data and data quality analysis results.

**8. INVESTIGATIONS AND RESULTS**

In order to expedite the survey design and implementation, unprocessed excess sample aliquot was measured on-site in non-specification geometry (usually a plastic bag). This provided the ability to screen as many sample locations as possible, in advance of receiving the official results from the offsite laboratory, to determine whether any locations may exceed the investigation levels. In turn, this allowed locations to be investigated to assess the extent of suspected elevated areas on a shortened schedule. This process identified two (2) sample results that appeared to exceed the Operational DCGL of seventeen (17) mrem/yr, exceeding the investigation level from Table 4. Thus investigations were required to determine compliance with Equation 3 of Section 3.

The locations identified for investigation were 9106-0001-112F and 9106-0001-132F. Investigational sample plans were designed and implemented for these locations.

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Upon receiving the official off-site laboratory results it was found that only one (1) (9106-0001-112F) of the two (2) investigated samples exceeded the Operational DCGL. However, investigational sample 9106-0001-132B, intended to bound the extent of contamination about sample 9106-0001-132F, was found to exceed the Operational DCGL. As a result, the EMC test was applied to the elevated region surrounding samples 9106-0001-112F and sample 9106-0001-132B.

The first step in assessing compliance with the EMC unity rule is to determine the extent of the elevated measurement region. In the case of elevated sample location 9106-0001-112F, this was done by taking investigation samples at a distance of approximately two (2) meters in each of the four (4) major compass directions (north, east, south, and west) about the elevated sample point. The actual area for the elevated measurement location was determined by using actual GPS log data and is graphically displayed in Figures 6 & 7 of this report. The extent of the elevated area was approximately 20.2 m<sup>2</sup>.

For sample 9106-0001-132B, which was found to be in excess of the Operational DCGL after demobilization of the sampling contractor, the extent of the elevated area was bounded by using existing statistical sampling grid points and boundaries. Samples 9106-0001-123F, 9106-0001-124F, 9106-0001-128F and 9106-0001-132F in conjunction with the survey area boundary with Survey Unit 9106-0014 were used to completely bound the elevated area. The actual area for the elevated measurement location was determined by using actual GPS log data and is graphically displayed in Figures 6 & 7 of this report. The extent of the elevated area was approximately 80.4 m<sup>2</sup>.

Table 7 provides sample measurement location information (in NAD 1927) and distances from sample locations 9106-0001-112F and 9106-0001-132B respectively.

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<b>Table 7 – Investigation Sample Measurement Locations with Associated GPS Coordinates</b>			
<b>Designation</b>	<b>Northing</b>	<b>Easting</b>	<b>Distance from 9106-0001-112F (m)</b>
9106-0001-112F	236176.63	668921.35	-
9106-0001-112A	236178.98	668927.68	2.06
9106-0001-112B	236184.70	668923.36	2.54
9106-0001-112C	236177.87	668914.97	1.98
9106-0001-112D	236169.65	668920.03	2.17
<b>Area (m<sup>2</sup>)<sup>(1)</sup></b>			20.2
<b>Area Factor Table Value (m<sup>2</sup>)</b>			25
<b>Designation</b>	<b>Northing</b>	<b>Easting</b>	<b>Distance from 9106-0001-132B (m)</b>
9106-0001-132B	236123.81	669022.89	-
9106-0001-132F	236118.53	669020.35	1.79
9106-0001-123F	236148.80	669024.97	7.65
9106-0001-124F	236152.46	669056.08	13.37
9106-0001-128F	236124.76	669007.80	4.61
<b>Area (m<sup>2</sup>)<sup>(1)</sup></b>			80.4
<b>Area Factor Table Value (m<sup>2</sup>)</b>			100

(1) The Area of each EMC is graphically depicted on Figures 6 & 7 of this report.

Since the bounded areas were determined to be 20 m<sup>2</sup> and 80 m<sup>2</sup> respectively, the Area Factor (AF) values from Table 5-5 of the LTP for 25 m<sup>2</sup> and 100 m<sup>2</sup> were conservatively applied to determine the DCGL<sub>EMC</sub> for each nuclide. With this information, it was possible to assess compliance with the EMC rule. This is demonstrated in Table 8.



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Table 8-Investigation Results				
Sample Number	Cs-137 pCi/g	Co-60 pCi/g	C-14 pCi/g	Fraction of the Operational DCGL
Area Factor ( 25 m <sup>2</sup> )	3.89	1.82	1,480	
DCGL <sub>EMC</sub>	20.92	4.72	5,698	
9106-0001-112F	2.34E+00	2.65E+00	2.67E-01	
9106-0001-112A	2.20E+00	1.83E+00	2.67E-01	1.18E+00
9106-0001-112B	1.48E+00	9.81E-01	2.67E-01	7.23E-01
9106-0001-112C	7.46E-01	5.20E-01	2.67E-01	4.09E-01
9106-0001-112D	5.42E-01	3.08E-01	2.67E-01	2.89E-01
EMC Comparison for 9106-0001-112F (Equation 3)				
$\bar{C}_{elevated}$	1.46E+00	1.26E+00	2.67E-01	EMC unity fraction
$\bar{C}_{elevated} - \delta$	1.11E+00	1.02E+00	1.75E-01	
$\frac{\bar{C}_{elevated} - \delta}{DCGL_{EMC}}$	5.28E-02	2.16E-01	3.08E-05	2.68E-01
Sample Number	Cs-137 pCi/g	Co-60 pCi/g	C-14 pCi/g	Fraction of the Operational DCGL
Area Factor ( 100 m <sup>2</sup> )	2.93	1.41	203	
DCGL <sub>EMC</sub>	15.76	3.65	782	
9106-0001-132B	1.25E+00	3.56E+00	3.24E-01	
9106-0001-132F	5.58E-01	1.66E+00	3.24E-01	1.69E+00
9106-0001-123F	6.77E-01	7.65E-01	3.24E-01	8.29E-01
9106-0001-124F	2.85E-01	2.54E-01	3.24E-01	5.05E-01
9106-0001-128F	8.50E-01	8.18E-01	3.24E-01	2.35E-01
9106-0001-128F	8.50E-01	8.18E-01	3.24E-01	5.58E-01
EMC Comparison for 9106-0001-132B (Equation 3)				
$\bar{C}_{elevated}$	7.24E-01	1.41E+00	3.24E-01	EMC unity fraction
$\bar{C}_{elevated} - \delta$	3.67E-01	1.17E+00	2.32E-01	
$\frac{\bar{C}_{elevated} - \delta}{DCGL_{EMC}}$	2.33E-02	3.20E-01	2.97E-04	3.44E-01
$\frac{\delta}{DCGL}$	6.63E-02	9.32E-02	2.38E-02	1.83E-01
EMC for sample 9106-0001-132B				3.44E-01
EMC for sample 9106-0001-112F				2.68E-01
Total For the Survey Unit (must be <1 in accordance with the LTP (Equation 5-31) & Equation 3 of this report)				7.95E-01

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Sample 9106-0001-112A exceeded the Operational DCGL. It would not normally be acceptable to consider samples exceeding the Operational DCGL to be bounding. However, the samples are located essentially on a survey unit boundary, (refer to the maps of attachment 2.) thus, the elevated area extent within the survey unit is bounded. More specifically, in this case, the sample was located adjacent to the concrete pad of the discharge canal outfall structure. This structure, which was surveyed and released as part of the buried concrete dose model, was observed to have insufficient depths of sediment to permit sampling.

**9. REMEDIATION AND RESULTS**

Prior to designing and implementing this FSS, a Remedial Action Survey (RAS) was performed to determine when the remediation was complete. When an area was believed to be remediated, grab samples were collected from the dredge spoils media and counted on-site using gamma spectroscopy. It was determined that the remediation was completed when dredge materials from the survey unit were below the operational DCGL unitized concentrations.

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

No significant changes were made to the Final Status Survey Plan as a result of remediation of a portion of the survey unit.

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

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, "*Data Quality Assessment*." 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, thus, the null hypothesis is rejected.

Documentation was complete and legible. Surveys and sample collection were consistent with the DQOs and were sufficient to ensure that the survey unit was properly designated as Class 1.

The preliminary data review consisted of calculating basic statistical quantities (e.g., mean, median, standard deviation). The 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 thirty (30) 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

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The range of the data, about 4.91 standard deviations, was larger than other survey units in the discharge canal, as would be expected for a Class 1 survey unit. The difference between the mean and median was 26.6% 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 2.62.

The survey area had two (2) elevated measurement locations, which were evaluated using the EMC unity test. This resulted in a less than unity combined passing value of 0.786.

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

**12. ANOMALIES**

The anomalies associated with having bounding samples for elevated areas exceeding the operational DCGL are discussed in Section 8. These anomalies had no consequences with regards to the conclusion or other findings of this report.

**13. CONCLUSION**

Survey Unit 9106-0001 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 were required prior to performing the FSS survey presented in this document.

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 1 survey unit.

The dose contribution from sediment in this survey unit is 4.1 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

This survey unit is affected by existing groundwater (reference CY memo ISC 06-024). It has been determined that the dose contribution from groundwater sources is bounded by two (2) mrem/yr TEDE.

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

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The average total dose from residual radioactivity in this survey unit, including exposures from the three (3) components as described in Section 3, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity, will not exceed 6.1 mrem/yr Total Effective Dose Equivalent (TEDE).

**14. ATTACHMENTS**

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Sample and Statistical Data

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Attachment 1  
Figures  
(6 pages)

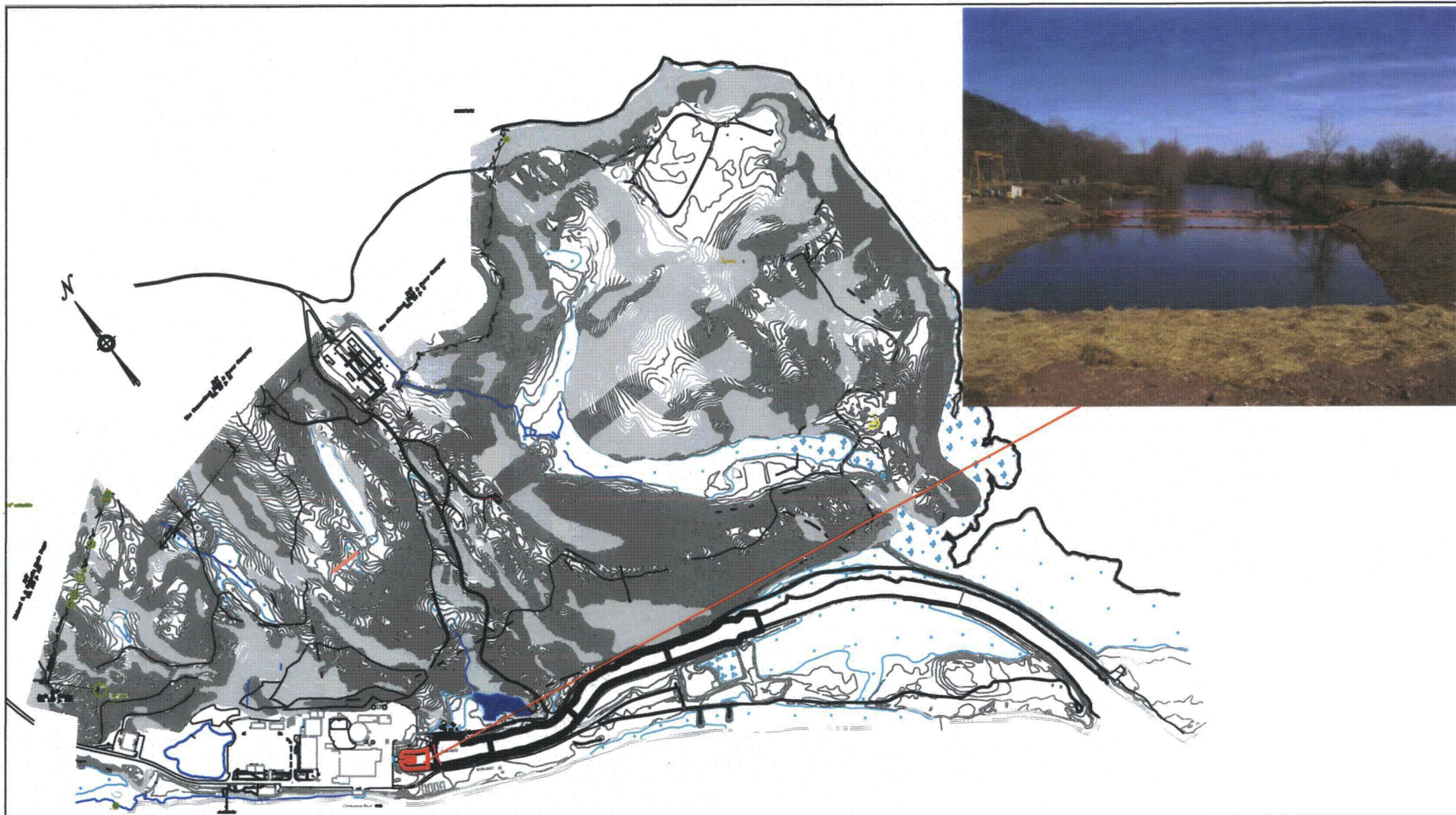


Figure 1

Connecticut Yankee Atomic Power Company  
Site Map With Reference To Survey Unit 9106-0001

Date	By
October 2006	E. Sergent



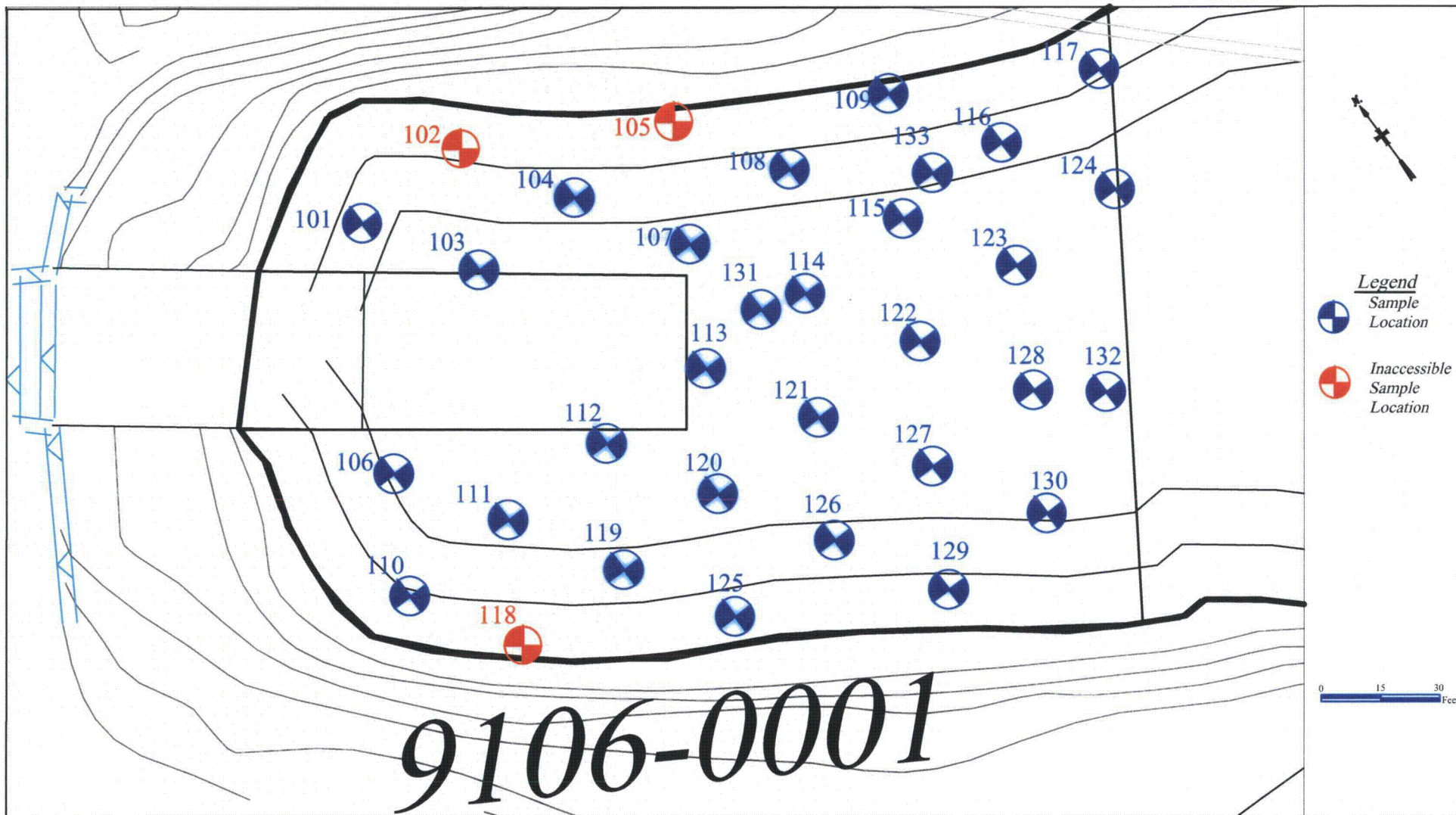


Figure 2

Connecticut Yankee Atomic Power Company  
9106-0001 Final Status Survey Design

Date	By
October 2006	E. Sergent

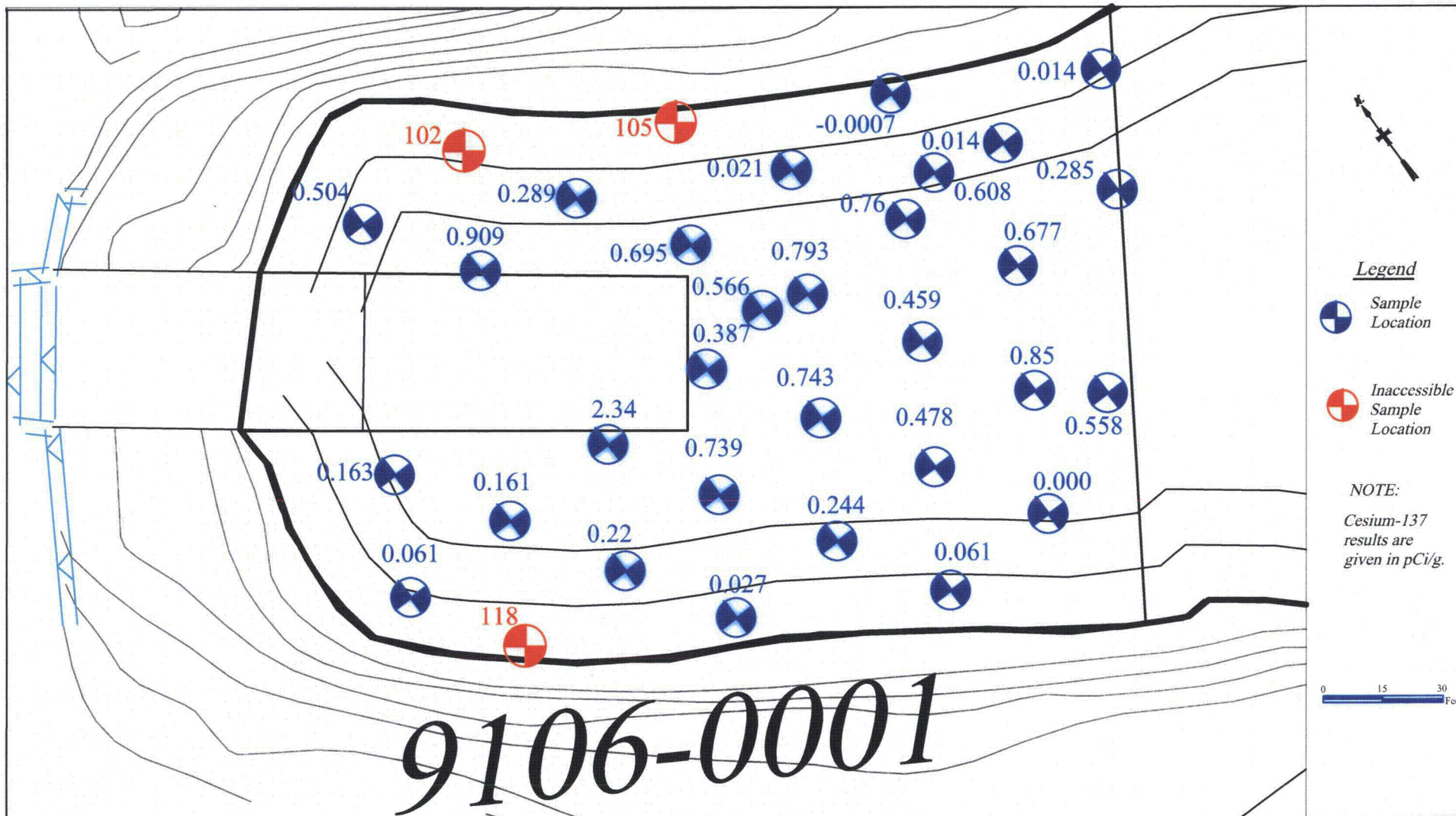


Figure 3

Connecticut Yankee Atomic Power Company  
9106-0001 Final Status Survey Design  
Cesium-137 Posting Plot

Date	By
October 2006	E. Sergeant



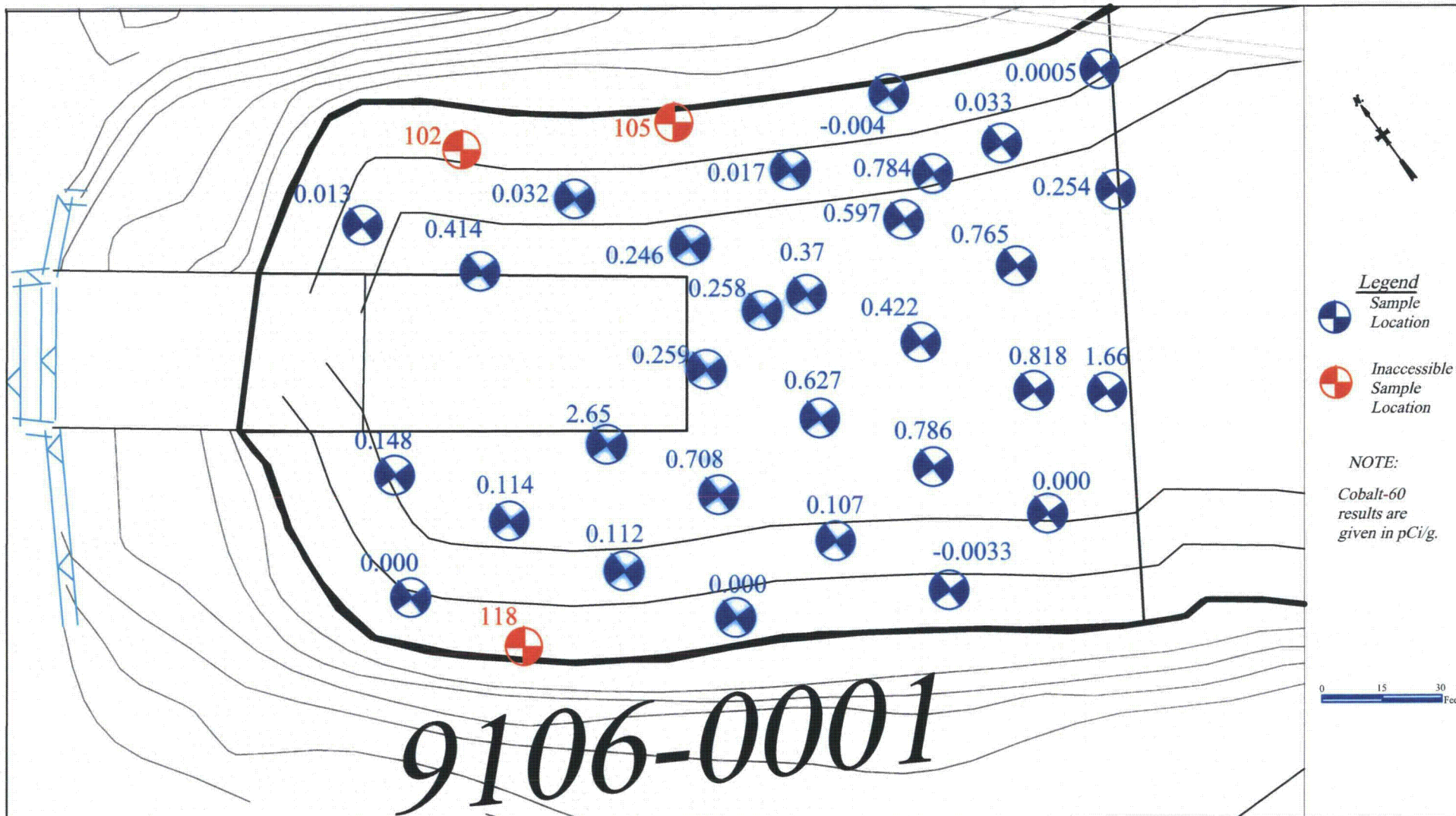


Figure 4

Connecticut Yankee Atomic Power Company  
9106-0001 Final Status Survey Design  
Cobalt-60 Posting Plot

Date	By
October 2006	E. Sergent

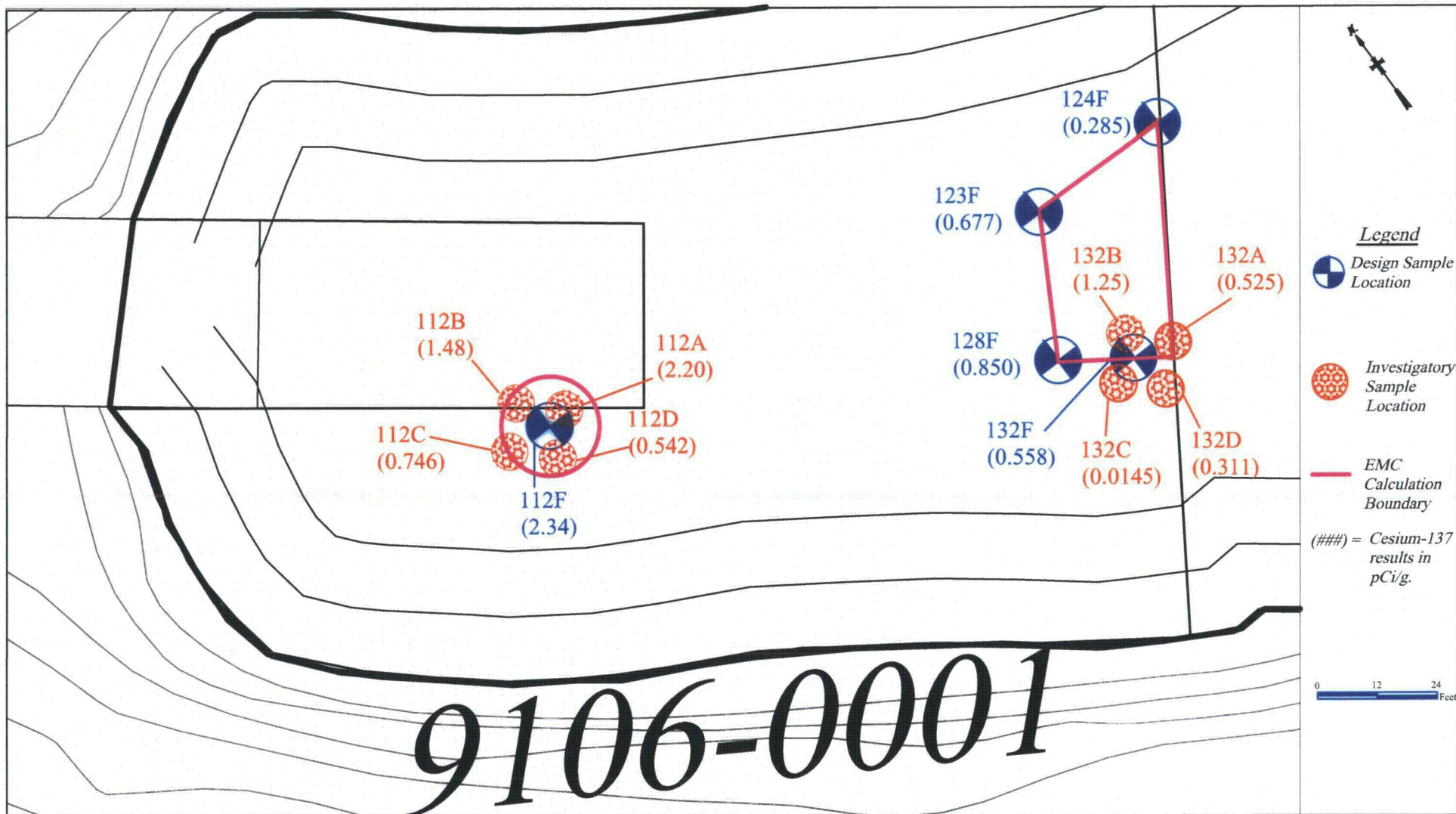


Figure 6a

Connecticut Yankee Atomic Power Company  
 9106-0001 Elevated Measurement Comparison (EMC) Calculation Data for Cesium-137

Date  
 November 2006

By  
 E. Sergent



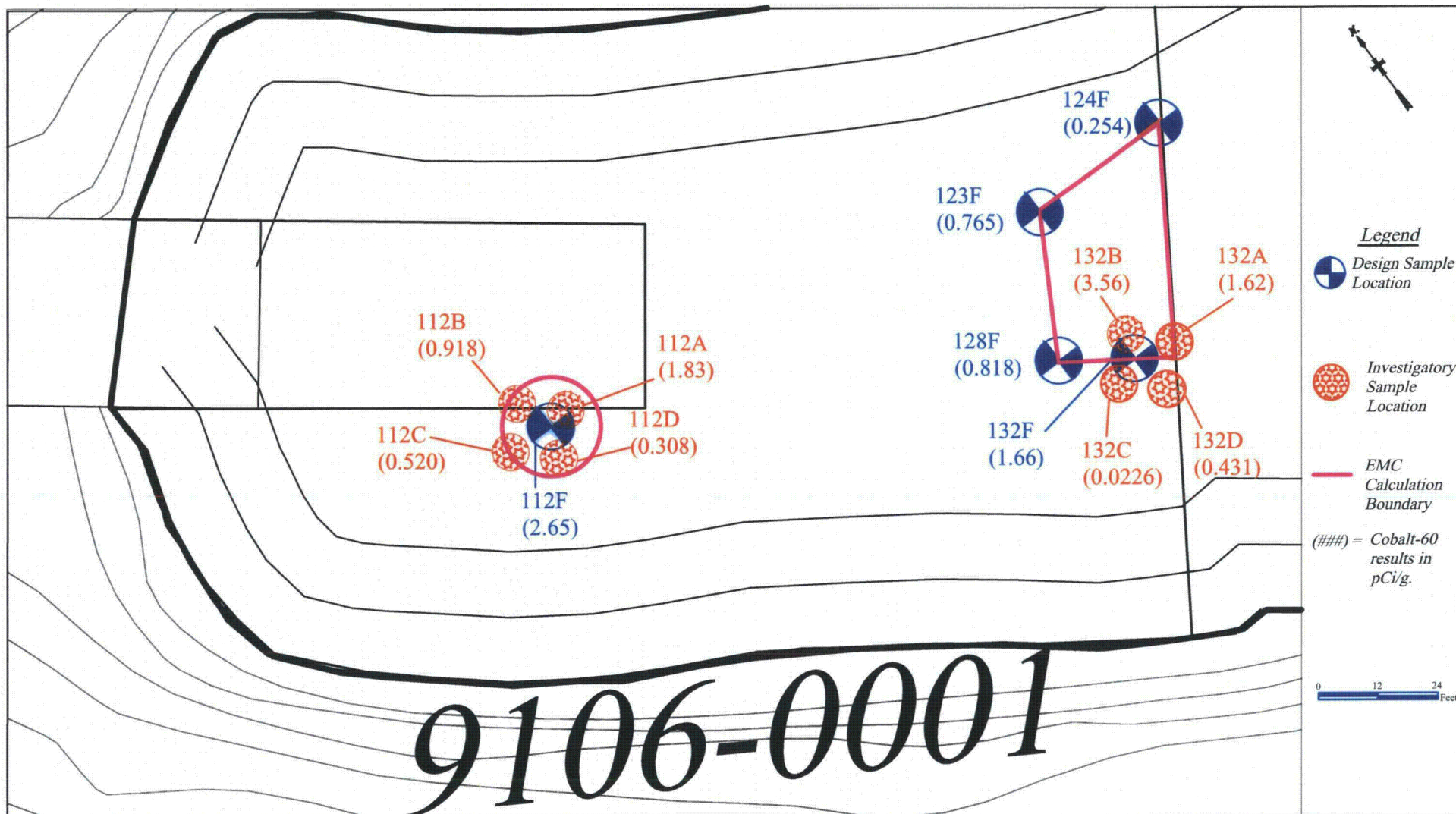


Figure 5b

Connecticut Yankee Atomic Power Company  
 9106-0001 Elevated Measurement Comparison (EMC) Calculation Data for Cobalt-60

Date	By
November 2006	E. Sergent

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Attachment 2  
Sample and Statistical Data

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Attachment 2a  
Sample Data  
(199 Pages)

## Table of Contents

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# **General Narrative**

**CASE NARRATIVE**  
**For**  
**CONNECTICUT YANKEE**  
**RE: Soil**  
**PO# 002332**  
**Work Order: 170132**  
**SDG: MSR #06-1156**

**September 6, 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 August 25, 2006. All sample containers arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

Analytical results were requested within seven days of receipt, with the data package due fourteen calendar days after the receipt date. The data was emailed on time on September 1, 2006.

The laboratory received the following sample(s):

<b><u>Sample ID</u></b>	<b><u>Client Sample ID</u></b>
170132001	9106-0001-121F
170132002	9106-0001-121F
170132003	9106-0001-127F
170132004	9106-0001-128F
170132005	9106-0001-129F

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](http://www.gel.com)



170132006	9106-0001-130F
170132007	9106-0001-131F
170132008	9106-0001-133F
170132009	9106-0001-117F
170132010	9106-0001-117FS
170132011	9106-0001-113F
170132012	9106-0001-114F
170132013	9106-0001-116F
170132014	9106-0001-120F
170132015	9106-0001-104F
170132016	9106-0001-107F
170132017	9106-0001-115F
170132018	9106-0001-108F
170132019	9106-0001-119F
170132020	9106-0001-101F
170132021	9106-0001-103F
170132022	9106-0001-106F
170132023	9106-0001-106FS
170132024	9106-0001-110F
170132025	9106-0001-109F
170132026	9106-0001-111F
170132027	9106-0001-122F
170132028	9106-0001-123F
170132029	9106-0001-124F
170132030	9106-0001-125F
170132031	9106-0001-126F

**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:**

One soil samples was analyzed for CHALL.  
Twenty-nine soil samples were analyzed for FSSGAM.

**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

GENERAL ENGINEERING LABORATORIES, LLC

*a Member of THE GEL GROUP, INC.*

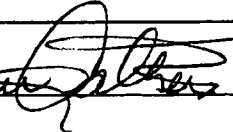
P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)  
Phone (843) 556-8171 • Fax (843) 766-1178 • [www.gel.com](http://www.gel.com)

**List of current GEL Certifications as of 06 September 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

# **Chain of Custody And Supporting Documentation**

<b>Connecticut Yankee Atomic Power Company</b> 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						<b>Chain of Custody Form</b>					No. 2006-00516		
<b>Project Name:</b> Haddam Neck Decommissioning						<b>Analyses Requested</b>					<b>Lab Use Only</b>		
<b>Contact Name &amp; Phone:</b> Jack McCarthy 860-267-3924						FSSGAM	FSSALL					<b>Comments:</b>  <div style="text-align: right; font-size: 1.2em;">1701321/</div>	
<b>Analytical Lab (Name, City, State)</b> General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													
<b>Priority:</b> <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. <input type="checkbox"/> 3 D.													
<b>Sample Designation</b>	<b>Date</b>	<b>Time</b>	<b>Media Code</b>	<b>Sample Type Code</b>	<b>Container Size- &amp; Type Code</b>						<b>Comment, Preservation</b>	<b>Lab Sample ID</b>	
9106-0001-127F	8/1/06	13:59	SE	C	BP	X					Transferred from COC 2006-00480		
9106-0001-128F	8/1/06	12:58	SE	C	BP	X					Transferred from COC 2006-00480		
9106-0001-129F	8/7/06	08:06	SE	C	BP	X					Transferred from COC 2006-00487		
9106-0001-130F	8/1/06	11:10	SE	C	BP	X					Transferred from COC 2006-00480		
9106-0001-131F	8/7/06	13:32	SE	C	BP	X					Transferred from COC 2006-00487		
9106-0001-133F	8/8/06	13:35	SE	C	BP	X					Transferred from COC 2006-00488		
9106-0001-117F	8/3/06	12:55	SE	C	BP	X					Transferred from COC 2006-00484		
9106-0001-117FS	8/3/06	12:55	SE	C	BP	X					Transferred from COC 2006-00484		
<b>NOTES:</b> PO #: 002332    MSR #: 06-1156    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA										<b>Samples Shipped Via:</b> <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		<b>Internal Container Temp.:</b> ____ Deg. <div style="text-align: center;">C</div> <b>Custody Sealed?</b> Y <input type="checkbox"/> N <input type="checkbox"/> <b>Custody Seal Intact?</b> Y <input type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>JAME BLARTE</i> Date/Time <i>8-23-06/1340</i>			2) Received By <i>[Signature]</i> Date/Time <i>8/25/06 0900</i>			<b>Bill of Lading #</b>  7905 3767 2184							
3) Relinquished By    Date/Time			4) Received By    Date/Time										
5) Relinquished By    Date/Time			6) Received By    Date/Time										

<b>Connecticut Yankee Atomic Power Company</b> 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						<b>Chain of Custody Form</b>					No. 2006-00517				
<b>Project Name:</b> Haddam Neck Decommissioning						<b>Analyses Requested</b>					<b>Lab Use Only</b>				
<b>Contact Name &amp; Phone:</b> Jack McCarthy 860-267-3924						<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">FSSGAM</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">FSSALL</div> </div>					<b>Comments:</b>				
<b>Analytical Lab (Name, City, State)</b> General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones											<b>Comment, Preservation</b>		<b>Lab Sample ID</b>		
<b>Priority:</b> <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. <input type="checkbox"/> 3 D.															
<b>Sample Designation</b>	<b>Date</b>	<b>Time</b>	<b>Media Code</b>	<b>Sample Type Code</b>	<b>Container Size- &amp; Type Code</b>										
9106-0001-113F	8/3/06	08:12	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-114F	8/3/06	08:38	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-116F	8/3/06	10:04	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-120F	8/3/06	14:06	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-121F	8/3/06	14:32	SE	C	BP		X					Transferred from COC 2006-00484			
9106-0001-104F	8/8/06	10:28	SE	C	BP	X						Transferred from COC 2006-00488			
9106-0001-107F	8/8/06	08:59	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-115F	8/8/06	08:14	SE	C	BP	X						Transferred from COC 2006-00484			
NOTES: PO #: 002332    MSR #: 06-1156    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA												<b>Samples Shipped Via:</b> <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		<b>Internal Container Temp.:</b> ____ Deg. <div style="text-align: center;">C</div> <b>Custody Sealed?</b> Y <input type="checkbox"/> N <input type="checkbox"/> <b>Custody Seal Intact?</b> Y <input type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>JAME RUADE</i>			Date/Time <i>8-23-06 / 1340</i>			2) Received By 			Date/Time <i>8/25/06 900</i>			<b>Bill of Lading #</b> <i>7905 3767 2195</i>			
3) Relinquished By			Date/Time			4) Received By			Date/Time						
5) Relinquished By			Date/Time			6) Received By			Date/Time						

<b>Connecticut Yankee Atomic Power Company</b> 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						<b>Chain of Custody Form</b>					No. 2006-00518				
<b>Project Name:</b> Haddam Neck Decommissioning						<b>Analyses Requested</b>					<b>Lab Use Only</b>				
<b>Contact Name &amp; Phone:</b> Jack McCarthy 860-267-3924						<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">FSSGAM</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">FSSALL</div> </div>					<b>Comments:</b>				
<b>Analytical Lab (Name, City, State)</b> General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones											<b>Comment, Preservation</b>		<b>Lab Sample ID</b>		
<b>Priority:</b> <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. <input type="checkbox"/> 3 D.															
<b>Sample Designation</b>	<b>Date</b>	<b>Time</b>	<b>Media Code</b>	<b>Sample Type Code</b>	<b>Container Size- &amp; Type Code</b>										
9106-0001-108F	8/7/06	14:42	SE	C	BP	X						Transferred from COC 2006-00487			
9106-0001-119F	8/7/06	11:01	SE	C	BP	X						Transferred from COC 2006-00487			
9106-0001-101F	7/31/06	13:25	SE	C	BP	X						Transferred from COC 2006-00478			
9106-0001-103F	7/31/06	15:00	SE	C	BP	X						Transferred from COC 2006-00478			
9106-0001-106F	8/2/06	08:00	SE	C	BP	X						Transferred from COC 2006-00484			
9106-0001-106FS	8/2/06	08:00	SE	C	BP	X						Transferred from COC 2006-00488			
9106-0001-110F	8/2/06	10:20	SE	C	BP	X						Transferred from COC 2006-00482			
NOTES: PO #: 002332    MSR #: 06-1156    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA												<b>Samples Shipped Via:</b> <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		<b>Internal Container Temp.:</b> ____ Deg. C <b>Custody Sealed?</b> Y <input type="checkbox"/> N <input type="checkbox"/> <b>Custody Seal Intact?</b> Y <input type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>JAIME RICHART</i> Date/Time <i>8-23-06/1340</i>			2) Received By <i>Marion Githas</i> Date/Time <i>8/25/06 0900</i>			<b>Bill of Lading #</b> 7905 3767 2200									
3) Relinquished By    Date/Time			4) Received By    Date/Time												
5) Relinquished By    Date/Time			6) Received By    Date/Time												

Connecticut Yankee Atomic Power Company 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						Chain of Custody Form						No. 2006-00519			
Project Name: Haddam Neck Decommissioning						Analyses Requested						Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-3924						FSSGAM	FSSALL							Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones															
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. <input type="checkbox"/> 3 D.															
Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- & Type Code								Comment, Preservation	Lab Sample ID	
9106-0001-109F	8/2/06	09:37	SE	C	BP	X							Transferred from COC 2006-00482		
9106-0001-111F	8/2/06	13:23	SE	C	BP	X							Transferred from COC 2006-00482		
9106-0001-122F	8/4/06	07:55	SE	C	BP	X							Transferred from COC 2006-00485		
9106-0001-123F	8/4/06	09:45	SE	C	BP	X							Transferred from COC 2006-00485		
9106-0001-124F	8/4/06	11:18	SE	C	BP	X							Transferred from COC 2006-00485		
9106-0001-125F	8/4/06	12:54	SE	C	BP	X							Transferred from COC 2006-00485		
9106-0001-126F	8/4/06	13:39	SE	C	BP	X							Transferred from COC 2006-00485		
NOTES: PO #: 002332    MSR #: 06-1156    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA															
1) Relinquished By JAME RICHARDS						2) Received By <i>Maureen Lathen</i>						Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other  Bill of Lading # 7905 3767 2210			
3) Relinquished By						4) Received By									
5) Relinquished By						6) Received By									
Date/Time 8-23-06/1340						Date/Time 8/25/06 0900						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"/>			



Figure 1. Sample Check-in List

Date/Time Received: 8/25/06

SDG#: MSR#06-1156

Work Order Number: 170132

Shipping Container ID: 790537672184 Chain of Custody #: 2006-005116

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°C
5. Vermiculite/packing materials is: Wet ☒ Dry ☐
6. Number of samples in shipping container: 8
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: Maria Lathum Date: 8/25/06 0100

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

Figure 1. Sample Check-in List

Date/Time Received: 8/25/06  
SDG#: USR#06-1156  
Work Order Number: 170132  
Shipping Container ID: 74053767 2195 Chain of Custody # 2006-00517

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°C
5. Vermiculite/packing materials is: Wet ☐ Dry ☐
6. Number of samples in shipping container: 8
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: Marian E. [Signature] Date: 8/25/06 0900  
Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

Figure 1. Sample Check-in List

Date/Time Received: 8/25/06 0900  
SDG#: MSR#06-1156  
Work Order Number: 170132  
Shipping Container ID: 790537672200 Chain of Custody #: 2006-00518

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°C
5. Vermiculite/packing materials is: Wet ☒ Dry ☐
6. Number of samples in shipping container: 7
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: [Signature] Date: 8/25/06 0900  
Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

Figure 1. Sample Check-in List

Date/Time Received: 8/25/06

SDG#: MSR#06-1156

Work Order Number: 170132

Shipping Container ID: 7905 3767 2210 Chain of Custody #: 2006-00519

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°C
5. Vermiculite/packing materials is: Wet ☒ Dry ☐
6. Number of samples in shipping container: 7
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: Manhattan Laboratory Date: 8/25/06 0900

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

# **RADIOLOGICAL ANALYSIS**

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 170132**

**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:	562551
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169377	Method Blank (MB)
1201169378	170125005(9522-0006-ASPHALT-015) Sample Duplicate (DUP)
1201169379	170125005(9522-0006-ASPHALT-015) Matrix Spike (MS)
1201169380	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: 170125005 (9522-0006-ASPHALT-015).

**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:	562552
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169381	Method Blank (MB)
1201169382	170125005(9522-0006-ASPHALT-015) Sample Duplicate (DUP)
1201169383	170125005(9522-0006-ASPHALT-015) Matrix Spike (MS)
1201169384	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: 170125005 (9522-0006-ASPHALT-015).

##### **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:	562553
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169385	Method Blank (MB)
1201169386	170125005(9522-0006-ASPHALT-015) Sample Duplicate (DUP)
1201169387	170125005(9522-0006-ASPHALT-015) Matrix Spike (MS)
1201169388	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: 170125005 (9522-0006-ASPHALT-015).

##### **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 226 Ingrowth Waived  
**Analytical Method:** EML HASL 300, 4.5.2.3  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 562372  
**Prep Batch Number:** 562337

<b>Sample ID</b>	<b>Client ID</b>
170132022	9106-0001-106F
170132023	9106-0001-106FS
170132024	9106-0001-110F
170132025	9106-0001-109F
170132026	9106-0001-111F
170132027	9106-0001-122F
170132028	9106-0001-123F
170132029	9106-0001-124F
170132030	9106-0001-125F
170132031	9106-0001-126F
1201168947	Method Blank (MB)
1201168948	170125001(9522-0006-ASPHALT-015) Sample Duplicate (DUP)
1201168949	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: 170125001 (9522-0006-ASPHALT-015).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high peak-width.	Bismuth-212	170132028
		Cobalt-60	170132030
UI	Data rejected due to interference.	Manganese-54	170132027
UI	Data rejected due to low abundance.	Actinium-228	1201168948
		Cesium-134	170132028
			170132029
		Cobalt-60	170132024

#### **Method/Analysis Information**

**Product:** Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived  
**Analytical Method:** EML HASL 300, 4.5.2.3  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 562373  
**Prep Batch Number:** 562334

<b>Sample ID</b>	<b>Client ID</b>
170132001	9106-0001-121F
170132003	9106-0001-127F
170132004	9106-0001-128F
170132005	9106-0001-129F
170132006	9106-0001-130F
170132007	9106-0001-131F
170132008	9106-0001-133F
170132009	9106-0001-117F
170132010	9106-0001-117FS
170132011	9106-0001-113F
170132012	9106-0001-114F
170132013	9106-0001-116F
170132014	9106-0001-120F
170132015	9106-0001-104F
170132016	9106-0001-107F
170132017	9106-0001-115F
170132018	9106-0001-108F
170132019	9106-0001-119F
170132020	9106-0001-101F
170132021	9106-0001-103F
1201168950	Method Blank (MB)
1201168951	170132001(9106-0001-121F) Sample Duplicate (DUP)
1201168952	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: 170132001 (9106-0001-121F).

**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**

The relative percent difference between samples 1201168951 (9106-0001-121F) and 170132001 (9106-0001-121F) for TI-208 did not meet with in the duplication criteria. However, when a relative error ratio, precision is shown at 2.45394.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high counting uncertainty.	Bismuth-212	170132007
UI	Data rejected due to high peak-width.		170132020
			170132021
		Cesium-137	170132006
UI	Data rejected due to interference.	Europium-155	170132003
			170132006
			170132009
			170132010
			170132018
UI	Data rejected due to low abundance.	Cesium-134	170132003
			170132006
			170132009
			170132010
			170132012
			170132013
			170132015
			170132017
			170132018
			1201168951
		Niobium-94	170132016
			170132017
		Silver-108m	170132019
UI	Data rejected due to no valid peak.	Cobalt-60	170132006

**Method/Analysis Information**



<b>Product:</b>	<b>GFPC, Sr90, solid - 0.025 pCi/g</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:	562545
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132001	9106-0001-121F
1201169351	Method Blank (MB)
1201169352	170132001(9106-0001-121F) Sample Duplicate (DUP)
1201169353	170132001(9106-0001-121F) Matrix Spike (MS)
1201169354	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: 170132001 (9106-0001-121F).

##### **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:** 562651

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169591	Method Blank (MB)
1201169592	170132002(9106-0001-121F) Sample Duplicate (DUP)
1201169593	170132002(9106-0001-121F) Matrix Spike (MS)
1201169594	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: 170132002 (9106-0001-121F).

**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:	562520
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169282	Method Blank (MB)
1201169283	170125007(9522-0006-ASPHALT-014) Sample Duplicate (DUP)
1201169284	170125007(9522-0006-ASPHALT-014) Matrix Spike (MS)
1201169285	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: 170125007 (9522-0006-ASPHALT-014).

##### **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:	562521
Prep Batch Number:	562335
Dry Soil Prep GL-RAD-A-021 Batch Number:	562334

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169286	Method Blank (MB)
1201169287	170125007(9522-0006-ASPHALT-014) Sample Duplicate (DUP)
1201169288	170125007(9522-0006-ASPHALT-014) Matrix Spike (MS)
1201169289	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: 170125007 (9522-0006-ASPHALT-014).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

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

**Additional Comments**

Additional comments were not required for this sample set.

### **Qualifier information**

Manual qualifiers were not required.

### **Method/Analysis Information**

**Product:** LSC, Tritium Dist, Solid - 3 pCi/g  
**Analytical Method:** EPA 906.0 Modified  
**Analytical Batch Number:** 562518

<b>Sample ID</b>	<b>Client ID</b>
170132001	9106-0001-121F
1201169278	Method Blank (MB)
1201169279	170125003(9522-0006-ASPHALT-014) Sample Duplicate (DUP)
1201169280	170125003(9522-0006-ASPHALT-014) Matrix Spike (MS)
1201169281	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# 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: 170125003 (9522-0006-ASPHALT-014).

#### **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 1201169278 (MB), 1201169279 (9522-0006-ASPHALT-014) and 170132001 (9106-0001-121F) were recounted due to high MDAs.

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

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 353427 was generated due to Container scanning event for custody missed. 1. Samples 170125001, 170125002, 170125003, 170125004, and 170132001 were not scanned into the batch prior to analysis. Custody of the samples was maintained at all times. 1. Reporting results. The error has been corrected, and the analyst has been instructed on proper scanning procedure.

**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:** 562522

<b>Sample ID</b>	<b>Client ID</b>
170132002	9106-0001-121F
1201169290	Method Blank (MB)
1201169291	170132002(9106-0001-121F) Sample Duplicate (DUP)
1201169292	170132002(9106-0001-121F) Matrix Spike (MS)
1201169293	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: 170132002 (9106-0001-121F).

**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: KAB Gellert 9/1/06

COMPANY - WIDE NONCONFORMANCE REPORT			
<b>Mo. Day Yr.</b> 31-AUG-06	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> LSC	<b>Test / Method:</b> EPA 906.0 Modified	<b>Matrix Type:</b> Solid	<b>Client Code:</b> YANK
<b>Batch ID:</b> 562518	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG): 170125(MSR#06-1155),170132(MSR#06-1156)</b> <b>Application Issues:</b> Container scanning event for custody missed			
<b>Specification and Requirements</b>		<b>NRG Disposition:</b>	
<b>Nonconformance Description:</b>			
1. Samples 170125001, 170125002, 170125003, 170125004, and 170132001 were not scanned into the batch prior to analysis. Custody of the samples was maintained at all times.		1. Reporting results. The error has been corrected, and the analyst has been instructed on proper scanning procedure.	

**Originator's Name:**

John Parker 31-AUG-06

**Data Validator/Group Leader:**

Melanie Aycock 01-SEP-06

**Quality Review:**

**Director:**

# **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#06-1156 GEL Work Order: 170132

**The Qualifiers in this report are defined as follows:**

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

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

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

This data report has been prepared and reviewed in accordance with 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: September 7, 2006

Client Sample ID: 9106 0001 121F  
Sample ID: 170132001  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 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
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### Rad Gamma Spec Analysis

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

Actinium 228		0.940	+/- 0.143	0.0524	+/- 0.143	0.111	pCi/g		MJH1	08/28/06	2336	562373	1
Americium 241	U	0.0463	+/- 0.0742	0.061	+/- 0.0742	0.125	pCi/g						
Bismuth 212		0.504	+/- 0.254	0.117	+/- 0.254	0.247	pCi/g						
Bismuth 214		0.724	+/- 0.0757	0.0291	+/- 0.0757	0.0609	pCi/g						
Cesium 134	U	0.0291	+/- 0.032	0.0211	+/- 0.032	0.0441	pCi/g						
Cesium 137		0.743	+/- 0.0489	0.0145	+/- 0.0489	0.0306	pCi/g						
Cobalt 60		0.627	+/- 0.0612	0.013	+/- 0.0612	0.0286	pCi/g						
Europium 152	U	0.00488	+/- 0.0485	0.0407	+/- 0.0485	0.0844	pCi/g						
Europium 154	U	0.029	+/- 0.0513	0.0464	+/- 0.0513	0.0997	pCi/g						
Europium 155	U	0.0447	+/- 0.0581	0.0384	+/- 0.0581	0.0789	pCi/g						
Lead 212		0.941	+/- 0.0572	0.0226	+/- 0.0572	0.0466	pCi/g						
Lead 214		0.858	+/- 0.0803	0.0286	+/- 0.0803	0.0594	pCi/g						
Manganese 54	U	0.0142	+/- 0.0214	0.0168	+/- 0.0214	0.0354	pCi/g						
Niobium 94	U	0.00021	+/- 0.0166	0.0143	+/- 0.0166	0.0299	pCi/g						
Potassium 40		10.8	+/- 0.700	0.106	+/- 0.700	0.238	pCi/g						
Radium 226		0.724	+/- 0.0757	0.0291	+/- 0.0757	0.0609	pCi/g						
Silver 108m	U	0.00568	+/- 0.0162	0.0142	+/- 0.0162	0.0295	pCi/g						
Thallium 208		0.261	+/- 0.0377	0.016	+/- 0.0377	0.0334	pCi/g						

### Rad Gas Flow Proportional Counting

*GFPC, Sr90, solid 0.025 pCi/g*

Strontium 90	U	0.00389	+/- 0.0104	0.00841	+/- 0.0104	0.0185	pCi/g		KSD1	08/30/06	1844	562545	2
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### Rad Liquid Scintillation Analysis

*LSC, Tritium Dist, Solid 3 pCi/g*

Tritium	U	1.29	+/- 1.53	1.17	+/- 1.53	2.58	pCi/g		DFA1	08/31/06	1221	562518	3
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### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
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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: September 7, 2006

Client Sample ID: 9106 0001 121F  
Sample ID: 170132001

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time Batch	Mtd
1	EML HASL 300, 4.5.2.3											
2	EPA 905.0 Modified											
3	EPA 906.0 Modified											

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Carrier/Tracer Recovery	GFPC, Sr90, solid	0.025 pCi/g	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.

# 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: September 7, 2006

Client Sample ID: 9106 0001 121F  
Sample ID: 170132002  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 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		0.861	+/- 0.333	0.0504	+/- 0.351	0.189	pCi/g	DDR1	09/03/06	1211	562551	1	
Curium 242	U	0.0089	+/- 0.0174	0.0333	+/- 0.0175	0.167	pCi/g						
Curium 243/244		0.433	+/- 0.250	0.0772	+/- 0.256	0.243	pCi/g						
<i>Alphaspec Pu, Solid ALL FSS</i>													
Plutonium 238	U	0.00157	+/- 0.0855	0.0706	+/- 0.0855	0.248	pCi/g	DDR1	09/03/06	1206	562552	2	
Plutonium 239/240	U	0.0566	+/- 0.0894	0.0864	+/- 0.0894	0.279	pCi/g						
<i>Liquid Scint Pu241, Solid ALL FSS</i>													
Plutonium 241	U	6.93	+/- 13.0	11.2	+/- 13.0	23.4	pCi/g	DDR1	09/06/06	1618	562553	3	
<b>Rad Liquid Scintillation Analysis</b>													
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon 14		0.155	+/- 0.0912	0.0686	+/- 0.0912	0.145	pCi/g	AXD2	08/30/06	0307	562522	4	
<i>Liquid Scint Fe55, Solid ALL FSS</i>													
Iron 55	U	51.5	+/- 52.6	34.0	+/- 52.7	70.7	pCi/g	MXP1	09/01/06	1903	562520	5	
<i>Liquid Scint Ni63, Solid ALL FSS</i>													
Nickel 63	U	4.91	+/- 7.64	6.30	+/- 7.64	12.9	pCi/g	MXP1	09/01/06	0320	562521	6	
<i>Liquid Scint Tc99, Solid ALL FSS</i>													
Technetium 99	U	0.00437	+/- 0.175	0.146	+/- 0.175	0.300	pCi/g	KXR1	09/02/06	1207	562651	7	

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### 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 EERF C 01 Modified
5	DOE RESL Fe 1, Modified
6	DOE RESL Ni 1, Modified
7	DOE EML HASL 300, Tc 02 RC Modified



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

## Certificate of Analysis

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

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

Report Date: September 7, 2006

Client Sample ID: 9106 0001 121F  
Sample ID: 170132002

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>					
Americium 243		Alphaspec Am241, Cm, Solid ALL			76		(15% 125%)					
Plutonium 242		Alphaspec Pu, Solid ALL FSS			49		(15% 125%)					
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid ALL FS			90		(25% 125%)					
Carrier/Tracer Recovery		Liquid Scint Fe55, Solid ALL FS			65		(15% 125%)					
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid ALL FS			84		(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: September 7, 2006

Client Sample ID: 9106 0001 127F  
Sample ID: 170132003  
Matrix: SE  
Collect Date: 01 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.848	+/- 0.170	0.0681	+/- 0.170	0.143	pCi/g		MJH1	08/28/06	2336	562373	1
Americium 241	U	0.0252	+/- 0.0326	0.0218	+/- 0.0326	0.0445	pCi/g						
Bismuth 212		0.657	+/- 0.311	0.126	+/- 0.311	0.265	pCi/g						
Bismuth 214		0.729	+/- 0.0884	0.0298	+/- 0.0884	0.0624	pCi/g						
Cesium 134	UI	0.00	+/- 0.039	0.0225	+/- 0.039	0.0468	pCi/g						
Cesium 137		0.478	+/- 0.0432	0.0182	+/- 0.0432	0.0379	pCi/g						
Cobalt 60		0.786	+/- 0.0635	0.0161	+/- 0.0635	0.0346	pCi/g						
Europium 152	U	0.00832	+/- 0.0462	0.0412	+/- 0.0462	0.0852	pCi/g						
Europium 154	U	0.0439	+/- 0.056	0.0502	+/- 0.056	0.107	pCi/g						
Europium 155	UI	0.00	+/- 0.0708	0.0367	+/- 0.0708	0.0751	pCi/g						
Lead 212		0.947	+/- 0.0548	0.0224	+/- 0.0548	0.046	pCi/g						
Lead 214		0.817	+/- 0.0803	0.0281	+/- 0.0803	0.0584	pCi/g						
Manganese 54	U	0.0273	+/- 0.0257	0.0176	+/- 0.0257	0.0368	pCi/g						
Niobium 94	U	0.00739	+/- 0.019	0.0156	+/- 0.019	0.0327	pCi/g						
Potassium 40		10.5	+/- 0.707	0.138	+/- 0.707	0.301	pCi/g						
Radium 226		0.729	+/- 0.0884	0.0298	+/- 0.0884	0.0624	pCi/g						
Silver 108m	U	0.0162	+/- 0.0161	0.0135	+/- 0.0161	0.0281	pCi/g						
Thallium 208		0.301	+/- 0.0409	0.0162	+/- 0.0409	0.0339	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 127F  
Sample ID: 170132003

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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> 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: September 7, 2006

Client Sample ID: 9106 0001 128F  
Sample ID: 170132004  
Matrix: SE  
Collect Date: 01 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 23.7%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.03	+/- 0.175	0.0612	+/- 0.175	0.129	pCi/g		MJH1	08/29/06	0457	562373	1
Americium 241	U	0.0227	+/- 0.0297	0.0233	+/- 0.0297	0.0475	pCi/g						
Bismuth 212		0.484	+/- 0.256	0.138	+/- 0.256	0.288	pCi/g						
Bismuth 214		0.732	+/- 0.0823	0.030	+/- 0.0823	0.0625	pCi/g						
Cesium 134	U	0.032	+/- 0.0345	0.0226	+/- 0.0345	0.047	pCi/g						
Cesium 137		0.850	+/- 0.0592	0.0157	+/- 0.0592	0.0329	pCi/g						
Cobalt 60		0.818	+/- 0.0581	0.0151	+/- 0.0581	0.0325	pCi/g						
Europium 152	U	0.0101	+/- 0.0473	0.0424	+/- 0.0473	0.0875	pCi/g						
Europium 154	U	0.00382	+/- 0.0554	0.0471	+/- 0.0554	0.100	pCi/g						
Europium 155	U	0.0371	+/- 0.0419	0.0394	+/- 0.0419	0.0805	pCi/g						
Lead 212		0.982	+/- 0.0559	0.023	+/- 0.0559	0.0472	pCi/g						
Lead 214		0.822	+/- 0.0761	0.0302	+/- 0.0761	0.0624	pCi/g						
Manganese 54	U	0.003	+/- 0.020	0.0178	+/- 0.020	0.0373	pCi/g						
Niobium 94	U	0.0111	+/- 0.0179	0.0157	+/- 0.0179	0.0328	pCi/g						
Potassium 40		11.8	+/- 0.779	0.134	+/- 0.779	0.292	pCi/g						
Radium 226		0.732	+/- 0.0823	0.030	+/- 0.0823	0.0625	pCi/g						
Silver 108m	U	0.00397	+/- 0.0168	0.015	+/- 0.0168	0.0311	pCi/g						
Thallium 208		0.316	+/- 0.0465	0.0151	+/- 0.0465	0.0316	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 128F  
Sample ID: 170132004

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 129F  
Sample ID: 170132005  
Matrix: SE  
Collect Date: 07 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 12.2%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.701	+/- 0.197	0.0708	+/- 0.197	0.149	pCi/g		MJH1	08/29/06	0702	562373	1
Americium 241	U	0.00649	+/- 0.0351	0.028	+/- 0.0351	0.0572	pCi/g						
Bismuth 212		0.557	+/- 0.324	0.152	+/- 0.324	0.319	pCi/g						
Bismuth 214		0.717	+/- 0.109	0.0374	+/- 0.109	0.0779	pCi/g						
Cesium 134	U	0.044	+/- 0.0348	0.0259	+/- 0.0348	0.054	pCi/g						
Cesium 137		0.061	+/- 0.0496	0.0202	+/- 0.0496	0.0422	pCi/g						
Cobalt 60	U	0.0033	+/- 0.0253	0.0208	+/- 0.0253	0.0445	pCi/g						
Europium 152	U	0.0226	+/- 0.0599	0.0492	+/- 0.0599	0.102	pCi/g						
Europium 154	U	0.00152	+/- 0.0846	0.061	+/- 0.0846	0.130	pCi/g						
Europium 155	U	0.0851	+/- 0.0996	0.0432	+/- 0.0996	0.0885	pCi/g						
Lead 212		0.750	+/- 0.0729	0.0345	+/- 0.0729	0.0706	pCi/g						
Lead 214		0.753	+/- 0.0882	0.0361	+/- 0.0882	0.0747	pCi/g						
Manganese 54	U	0.0115	+/- 0.0268	0.0227	+/- 0.0268	0.0474	pCi/g						
Niobium 94	U	0.0013	+/- 0.0218	0.0183	+/- 0.0218	0.0384	pCi/g						
Potassium 40		12.1	+/- 0.864	0.197	+/- 0.864	0.422	pCi/g						
Radium 226		0.717	+/- 0.109	0.0374	+/- 0.109	0.0779	pCi/g						
Silver 108m	U	0.00081	+/- 0.0188	0.0165	+/- 0.0188	0.0343	pCi/g						
Thallium 208		0.269	+/- 0.0566	0.020	+/- 0.0566	0.0417	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 129F  
Sample ID: 170132005

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 130F  
Sample ID: 170132006  
Matrix: SE  
Collect Date: 01 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 14.1%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.952	+/- 0.128	0.0454	+/- 0.128	0.0959	pCi/g		MJH1	08/29/06	0702	562373	1
Americium 241	U	0.0124	+/- 0.019	0.0169	+/- 0.019	0.0346	pCi/g						
Bismuth 212		0.596	+/- 0.191	0.102	+/- 0.191	0.214	pCi/g						
Bismuth 214		0.747	+/- 0.0748	0.0217	+/- 0.0748	0.0456	pCi/g						
Cesium 134	UI	0.00	+/- 0.0362	0.0177	+/- 0.0362	0.037	pCi/g						
Cesium 137	UI	0.00	+/- 0.0192	0.0129	+/- 0.0192	0.0271	pCi/g						
Cobalt 60	UI	0.00	+/- 0.0261	0.0162	+/- 0.0261	0.0343	pCi/g						
Europium 152	U	0.0176	+/- 0.0349	0.031	+/- 0.0349	0.0642	pCi/g						
Europium 154	U	0.0194	+/- 0.0433	0.0382	+/- 0.0433	0.0817	pCi/g						
Europium 155	UI	0.00	+/- 0.0481	0.027	+/- 0.0481	0.0555	pCi/g						
Lead 212		0.886	+/- 0.043	0.0178	+/- 0.043	0.0367	pCi/g						
Lead 214		0.839	+/- 0.0578	0.0224	+/- 0.0578	0.0464	pCi/g						
Manganese 54	U	0.0174	+/- 0.0177	0.0126	+/- 0.0177	0.0266	pCi/g						
Niobium 94	U	0.0185	+/- 0.0134	0.0124	+/- 0.0134	0.026	pCi/g						
Potassium 40		10.2	+/- 0.600	0.117	+/- 0.600	0.254	pCi/g						
Radium 226		0.747	+/- 0.0748	0.0217	+/- 0.0748	0.0456	pCi/g						
Silver 108m	U	0.00797	+/- 0.0121	0.0106	+/- 0.0121	0.0221	pCi/g						
Thallium 208		0.311	+/- 0.0331	0.0112	+/- 0.0331	0.0236	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported



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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: September 7, 2006

Client Sample ID: 9106 0001 130F  
Sample ID: 170132006

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 131F  
Sample ID: 170132007  
Matrix: SE  
Collect Date: 07 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16.3%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.762	+/- 0.229	0.0761	+/- 0.229	0.164	pCi/g		MJH1	08/29/06	0721	562373	1
Americium 241	U	0.0168	+/- 0.0333	0.0326	+/- 0.0333	0.0669	pCi/g						
Bismuth 212	UI	0.00	+/- 0.430	0.163	+/- 0.430	0.349	pCi/g						
Bismuth 214		0.670	+/- 0.105	0.0418	+/- 0.105	0.0885	pCi/g						
Cesium 134	U	0.0558	+/- 0.0362	0.0299	+/- 0.0362	0.0632	pCi/g						
Cesium 137		0.566	+/- 0.0691	0.0212	+/- 0.0691	0.0452	pCi/g						
Cobalt 60		0.258	+/- 0.0709	0.0231	+/- 0.0709	0.0507	pCi/g						
Europium 152	U	0.0317	+/- 0.0576	0.0542	+/- 0.0576	0.114	pCi/g						
Europium 154	U	0.0547	+/- 0.0703	0.0542	+/- 0.0703	0.121	pCi/g						
Europium 155	U	0.0667	+/- 0.0646	0.0485	+/- 0.0646	0.100	pCi/g						
Lead 212		0.814	+/- 0.0651	0.0285	+/- 0.0651	0.0594	pCi/g						
Lead 214		0.731	+/- 0.105	0.0395	+/- 0.105	0.0826	pCi/g						
Manganese 54	U	0.00911	+/- 0.0281	0.0244	+/- 0.0281	0.0519	pCi/g						
Niobium 94	U	0.0199	+/- 0.0266	0.0216	+/- 0.0266	0.0458	pCi/g						
Potassium 40		9.45	+/- 0.974	0.202	+/- 0.974	0.450	pCi/g						
Radium 226		0.670	+/- 0.105	0.0418	+/- 0.105	0.0885	pCi/g						
Silver 108m	U	0.00604	+/- 0.0218	0.0192	+/- 0.0218	0.0405	pCi/g						
Thallium 208		0.260	+/- 0.0608	0.0223	+/- 0.0608	0.0473	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 131F  
Sample ID: 170132007

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

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

- > 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: September 7, 2006

Client Sample ID: 9106 0001 133F  
Sample ID: 170132008  
Matrix: SE  
Collect Date: 08 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 24.7%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.960	+/- 0.222	0.0697	+/- 0.222	0.148	pCi/g		MJH1	08/29/06	0722	562373	1
Americium 241	U	0.0263	+/- 0.0493	0.0448	+/- 0.0493	0.0923	pCi/g						
Bismuth 212		0.750	+/- 0.290	0.165	+/- 0.290	0.348	pCi/g						
Bismuth 214		0.697	+/- 0.108	0.0358	+/- 0.108	0.0754	pCi/g						
Cesium 134	U	0.0398	+/- 0.0419	0.0255	+/- 0.0419	0.0536	pCi/g						
Cesium 137		0.608	+/- 0.0796	0.0195	+/- 0.0796	0.0411	pCi/g						
Cobalt 60		0.784	+/- 0.083	0.0166	+/- 0.083	0.0366	pCi/g						
Europium 152	U	0.0146	+/- 0.0549	0.0471	+/- 0.0549	0.0985	pCi/g						
Europium 154	U	0.0185	+/- 0.0601	0.0477	+/- 0.0601	0.105	pCi/g						
Europium 155	U	0.0575	+/- 0.0533	0.0478	+/- 0.0533	0.0986	pCi/g						
Lead 212		0.921	+/- 0.0972	0.028	+/- 0.0972	0.0579	pCi/g						
Lead 214		0.834	+/- 0.123	0.0333	+/- 0.123	0.0697	pCi/g						
Manganese 54	U	0.00563	+/- 0.0225	0.0199	+/- 0.0225	0.0422	pCi/g						
Niobium 94	U	0.000437	+/- 0.0184	0.0161	+/- 0.0184	0.0342	pCi/g						
Potassium 40		11.9	+/- 1.08	0.145	+/- 1.08	0.323	pCi/g						
Radium 226		0.697	+/- 0.108	0.0358	+/- 0.108	0.0754	pCi/g						
Silver 108m	U	0.008	+/- 0.0201	0.0176	+/- 0.0201	0.0368	pCi/g						
Thallium 208		0.264	+/- 0.0577	0.0184	+/- 0.0577	0.0389	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 133F  
Sample ID: 170132008

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 117F  
Sample ID: 170132009  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16.1%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.854	+/- 0.122	0.0425	+/- 0.122	0.0907	pCi/g		MJH1	08/29/06	0722	562373	1
Americium 241	U	0.00795	+/- 0.0589	0.0551	+/- 0.0589	0.113	pCi/g						
Bismuth 212		0.586	+/- 0.288	0.100	+/- 0.288	0.212	pCi/g						
Bismuth 214		0.685	+/- 0.0696	0.0288	+/- 0.0696	0.0601	pCi/g						
Cesium 134	UI	0.00	+/- 0.026	0.0166	+/- 0.026	0.0348	pCi/g						
Cesium 137	U	0.0138	+/- 0.0176	0.0127	+/- 0.0176	0.0268	pCi/g						
Cobalt 60	U	0.000525	+/- 0.0153	0.0128	+/- 0.0153	0.0276	pCi/g						
Europium 152	U	0.00368	+/- 0.0435	0.0342	+/- 0.0435	0.0715	pCi/g						
Europium 154	U	0.00778	+/- 0.0434	0.0355	+/- 0.0434	0.0768	pCi/g						
Europium 155	UI	0.00	+/- 0.0763	0.0427	+/- 0.0763	0.0879	pCi/g						
Lead 212		0.791	+/- 0.0539	0.0224	+/- 0.0539	0.0462	pCi/g						
Lead 214		0.772	+/- 0.0754	0.0251	+/- 0.0754	0.0524	pCi/g						
Manganese 54	U	0.00517	+/- 0.0151	0.0134	+/- 0.0151	0.0284	pCi/g						
Niobium 94	U	0.000367	+/- 0.0135	0.0119	+/- 0.0135	0.0251	pCi/g						
Potassium 40		10.1	+/- 0.622	0.105	+/- 0.622	0.230	pCi/g						
Radium 226		0.685	+/- 0.0696	0.0288	+/- 0.0696	0.0601	pCi/g						
Silver 108m	U	0.00923	+/- 0.0134	0.0121	+/- 0.0134	0.0254	pCi/g						
Thallium 208		0.260	+/- 0.0364	0.0127	+/- 0.0364	0.0267	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 117F  
Sample ID: 170132009

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 117FS  
Sample ID: 170132010  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 15.1%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.863	+/- 0.148	0.0411	+/- 0.148	0.0867	pCi/g		MJH1	08/29/06	0734	562373	1
Americium 241	U	0.0492	+/- 0.101	0.087	+/- 0.101	0.179	pCi/g						
Bismuth 212		0.589	+/- 0.197	0.0809	+/- 0.197	0.171	pCi/g						
Bismuth 214		0.643	+/- 0.0878	0.0222	+/- 0.0878	0.0462	pCi/g						
Cesium 134	UI	0.00	+/- 0.028	0.0151	+/- 0.028	0.0315	pCi/g						
Cesium 137	U	0.00646	+/- 0.034	0.0116	+/- 0.034	0.0243	pCi/g						
Cobalt 60	U	0.00392	+/- 0.0134	0.0117	+/- 0.0134	0.0252	pCi/g						
Europium 152	U	0.0139	+/- 0.0379	0.0318	+/- 0.0379	0.0659	pCi/g						
Europium 154	U	0.0529	+/- 0.0464	0.0358	+/- 0.0464	0.0765	pCi/g						
Europium 155	UI	0.00	+/- 0.0713	0.0376	+/- 0.0713	0.077	pCi/g						
Lead 212		0.783	+/- 0.0865	0.0186	+/- 0.0865	0.0382	pCi/g						
Lead 214		0.748	+/- 0.0985	0.0234	+/- 0.0985	0.0485	pCi/g						
Manganese 54	U	0.018	+/- 0.0197	0.0115	+/- 0.0197	0.0243	pCi/g						
Niobium 94	U	0.00153	+/- 0.0125	0.0108	+/- 0.0125	0.0225	pCi/g						
Potassium 40		10.3	+/- 0.895	0.107	+/- 0.895	0.233	pCi/g						
Radium 226		0.643	+/- 0.0878	0.0222	+/- 0.0878	0.0462	pCi/g						
Silver 108m	U	0.0105	+/- 0.0116	0.0109	+/- 0.0116	0.0226	pCi/g						
Thallium 208		0.256	+/- 0.0371	0.0124	+/- 0.0371	0.0258	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported



# 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: September 7, 2006

Client Sample ID: 9106 0001 117FS  
Sample ID: 170132010

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 113F  
Sample ID: 170132011  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 14.9%

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

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

### Rad Gamma Spec Analysis

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

Actinium 228		0.761	+/- 0.200	0.0898	+/- 0.200	0.179	pCi/g						
Americium 241	U	0.0461	+/- 0.0416	0.0349	+/- 0.0416	0.0697	pCi/g						
Bismuth 212		0.611	+/- 0.344	0.185	+/- 0.344	0.371	pCi/g						
Bismuth 214		0.767	+/- 0.144	0.0444	+/- 0.144	0.0888	pCi/g						
Cesium 134	U	0.027	+/- 0.0425	0.0308	+/- 0.0425	0.0616	pCi/g						
Cesium 137		0.387	+/- 0.0685	0.025	+/- 0.0685	0.0499	pCi/g						
Cobalt 60		0.259	+/- 0.0727	0.0258	+/- 0.0727	0.0517	pCi/g						
Europium 152	U	0.119	+/- 0.130	0.0576	+/- 0.130	0.115	pCi/g						
Europium 154	U	0.000805	+/- 0.0891	0.075	+/- 0.0891	0.150	pCi/g						
Europium 155	U	0.0487	+/- 0.066	0.0559	+/- 0.066	0.112	pCi/g						
Lead 212		0.850	+/- 0.0977	0.0318	+/- 0.0977	0.0636	pCi/g						
Lead 214		0.792	+/- 0.144	0.0417	+/- 0.144	0.0833	pCi/g						
Manganese 54	U	0.00206	+/- 0.0321	0.0281	+/- 0.0321	0.0561	pCi/g						
Niobium 94	U	0.016	+/- 0.0263	0.0242	+/- 0.0263	0.0483	pCi/g						
Potassium 40		10.7	+/- 1.02	0.189	+/- 1.02	0.378	pCi/g						
Radium 226		0.767	+/- 0.144	0.0444	+/- 0.144	0.0888	pCi/g						
Silver 108m	U	0.0206	+/- 0.0314	0.0224	+/- 0.0314	0.0448	pCi/g						
Thallium 208		0.307	+/- 0.0628	0.0263	+/- 0.0628	0.0527	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 113F  
Sample ID: 170132011

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 114F  
Sample ID: 170132012  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 20.3%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.722	+/- 0.127	0.0422	+/- 0.127	0.0901	pCi/g						
Americium 241	U	0.0207	+/- 0.0659	0.0547	+/- 0.0659	0.113	pCi/g						
Bismuth 212		0.434	+/- 0.239	0.115	+/- 0.239	0.240	pCi/g						
Bismuth 214		0.545	+/- 0.0769	0.0249	+/- 0.0769	0.0522	pCi/g						
Cesium 134	UI	0.00	+/- 0.0243	0.0168	+/- 0.0243	0.0353	pCi/g						
Cesium 137		0.793	+/- 0.0493	0.0134	+/- 0.0493	0.0282	pCi/g						
Cobalt 60		0.370	+/- 0.0518	0.0108	+/- 0.0518	0.0238	pCi/g						
Europium 152	U	0.0119	+/- 0.044	0.0339	+/- 0.044	0.0707	pCi/g						
Europium 154	U	0.00625	+/- 0.048	0.0396	+/- 0.048	0.0848	pCi/g						
Europium 155	U	0.00	+/- 0.0492	0.0462	+/- 0.0492	0.095	pCi/g						
Lead 212		0.776	+/- 0.0533	0.0217	+/- 0.0533	0.0448	pCi/g						
Lead 214		0.644	+/- 0.0632	0.0291	+/- 0.0632	0.0603	pCi/g						
Manganese 54	U	0.00559	+/- 0.0161	0.0143	+/- 0.0161	0.0302	pCi/g						
Niobium 94	U	0.00431	+/- 0.0137	0.0119	+/- 0.0137	0.0251	pCi/g						
Potassium 40		10.6	+/- 0.695	0.108	+/- 0.695	0.235	pCi/g						
Radium 226		0.545	+/- 0.0769	0.0249	+/- 0.0769	0.0522	pCi/g						
Silver 108m	U	0.00137	+/- 0.0144	0.0127	+/- 0.0144	0.0265	pCi/g						
Thallium 208		0.214	+/- 0.032	0.0141	+/- 0.032	0.0296	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
I	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 114F  
Sample ID: 170132012

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 116F  
Sample ID: 170132013  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 12.1%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.756	+/- 0.134	0.0493	+/- 0.134	0.109	pCi/g		MJH1	08/29/06	1103	562373	1
Americium 241	U	0.0108	+/- 0.0922	0.0769	+/- 0.0922	0.159	pCi/g						
Bismuth 212	U	0.289	+/- 0.343	0.153	+/- 0.343	0.326	pCi/g						
Bismuth 214		0.577	+/- 0.100	0.0315	+/- 0.100	0.0674	pCi/g						
Cesium 134	UI	0.00	+/- 0.0373	0.0241	+/- 0.0373	0.0513	pCi/g						
Cesium 137	U	0.0138	+/- 0.0209	0.0193	+/- 0.0209	0.0411	pCi/g						
Cobalt 60	U	0.0326	+/- 0.0229	0.0228	+/- 0.0229	0.0496	pCi/g						
Europium 152	U	0.0074	+/- 0.0561	0.0485	+/- 0.0561	0.102	pCi/g						
Europium 154	U	0.0116	+/- 0.0608	0.0539	+/- 0.0608	0.119	pCi/g						
Europium 155	U	0.00	+/- 0.0517	0.0518	+/- 0.0517	0.107	pCi/g						
Lead 212		0.706	+/- 0.0606	0.028	+/- 0.0606	0.0582	pCi/g						
Lead 214		0.676	+/- 0.108	0.0335	+/- 0.108	0.0705	pCi/g						
Manganese 54	U	0.0262	+/- 0.0271	0.0152	+/- 0.0271	0.0331	pCi/g						
Niobium 94	U	0.00164	+/- 0.020	0.0176	+/- 0.020	0.0375	pCi/g						
Potassium 40		9.32	+/- 0.927	0.168	+/- 0.927	0.377	pCi/g						
Radium 226		0.577	+/- 0.100	0.0315	+/- 0.100	0.0674	pCi/g						
Silver 108m	U	0.00992	+/- 0.0183	0.0163	+/- 0.0183	0.0345	pCi/g						
Thallium 208		0.189	+/- 0.044	0.0194	+/- 0.044	0.0412	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 116F  
Sample ID: 170132013

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 120F  
Sample ID: 170132014  
Matrix: SE  
Collect Date: 03 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 19.8%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.05	+/- 0.200	0.057	+/- 0.200	0.119	pCi/g		MJH1	08/29/06	1104	562373	1
Americium 241	U	0.0753	+/- 0.124	0.0937	+/- 0.124	0.191	pCi/g						
Bismuth 212		0.597	+/- 0.357	0.120	+/- 0.357	0.251	pCi/g						
Bismuth 214		0.760	+/- 0.118	0.0287	+/- 0.118	0.0597	pCi/g						
Cesium 134	U	0.0284	+/- 0.0315	0.0199	+/- 0.0315	0.0415	pCi/g						
Cesium 137		0.739	+/- 0.0787	0.0162	+/- 0.0787	0.0337	pCi/g						
Cobalt 60		0.708	+/- 0.0781	0.0152	+/- 0.0781	0.0325	pCi/g						
Europium 152	U	0.00273	+/- 0.0478	0.0411	+/- 0.0478	0.0847	pCi/g						
Europium 154	U	0.061	+/- 0.0547	0.0411	+/- 0.0547	0.0879	pCi/g						
Europium 155	U	0.0174	+/- 0.0551	0.0471	+/- 0.0551	0.0961	pCi/g						
Lead 212		0.967	+/- 0.0943	0.023	+/- 0.0943	0.0473	pCi/g						
Lead 214		0.934	+/- 0.118	0.0278	+/- 0.118	0.0575	pCi/g						
Manganese 54	U	0.0104	+/- 0.0201	0.0177	+/- 0.0201	0.0368	pCi/g						
Niobium 94	U	0.0223	+/- 0.0168	0.0153	+/- 0.0168	0.0319	pCi/g						
Potassium 40		11.7	+/- 1.03	0.118	+/- 1.03	0.258	pCi/g						
Radium 226		0.760	+/- 0.118	0.0287	+/- 0.118	0.0597	pCi/g						
Silver 108m	U	0.00417	+/- 0.0167	0.0143	+/- 0.0167	0.0295	pCi/g						
Thallium 208		0.323	+/- 0.045	0.0141	+/- 0.045	0.0295	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported



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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: September 7, 2006

Client Sample ID: 9106 0001 120F  
Sample ID: 170132014

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 104F  
Sample ID: 170132015  
Matrix: SE  
Collect Date: 08 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 11.9%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.644	+/- 0.143	0.0561	+/- 0.143	0.121	pCi/g		MJH1	08/29/06	1105	562373	1
Americium 241	U	0.15	+/- 0.095	0.0754	+/- 0.095	0.155	pCi/g						
Bismuth 212		0.646	+/- 0.228	0.116	+/- 0.228	0.249	pCi/g						
Bismuth 214		0.446	+/- 0.067	0.0342	+/- 0.067	0.0721	pCi/g						
Cesium 134	UI	0.00	+/- 0.0237	0.0208	+/- 0.0237	0.0441	pCi/g						
Cesium 137		0.289	+/- 0.0526	0.0161	+/- 0.0526	0.0342	pCi/g						
Cobalt 60	U	0.0315	+/- 0.0262	0.0172	+/- 0.0262	0.0377	pCi/g						
Europium 152	U	0.0171	+/- 0.0524	0.045	+/- 0.0524	0.0942	pCi/g						
Europium 154	U	0.0153	+/- 0.0591	0.0479	+/- 0.0591	0.105	pCi/g						
Europium 155	U	0.00	+/- 0.0552	0.0551	+/- 0.0552	0.113	pCi/g						
Lead 212		0.668	+/- 0.0532	0.0285	+/- 0.0532	0.0588	pCi/g						
Lead 214		0.476	+/- 0.0773	0.0322	+/- 0.0773	0.0674	pCi/g						
Manganese 54	U	0.0279	+/- 0.0165	0.0155	+/- 0.0165	0.0332	pCi/g						
Niobium 94	U	0.00824	+/- 0.0167	0.0153	+/- 0.0167	0.0324	pCi/g						
Potassium 40		9.62	+/- 0.738	0.145	+/- 0.738	0.323	pCi/g						
Radium 226		0.446	+/- 0.067	0.0342	+/- 0.067	0.0721	pCi/g						
Silver 108m	U	0.00821	+/- 0.0194	0.0139	+/- 0.0194	0.0294	pCi/g						
Thallium 208		0.187	+/- 0.0448	0.0163	+/- 0.0448	0.0346	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 104F  
Sample ID: 170132015

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 107F  
Sample ID: 170132016  
Matrix: SE  
Collect Date: 08 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16.5%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.875	+/- 0.197	0.0826	+/- 0.197	0.177	pCi/g		MJH1	08/29/06	1251	562373	1
Americium 241	U	0.141	+/- 0.107	0.0807	+/- 0.107	0.167	pCi/g						
Bismuth 212		0.861	+/- 0.481	0.157	+/- 0.481	0.336	pCi/g						
Bismuth 214		0.543	+/- 0.0961	0.0453	+/- 0.0961	0.0953	pCi/g						
Cesium 134	U	0.00	+/- 0.0409	0.0254	+/- 0.0409	0.0542	pCi/g						
Cesium 137		0.695	+/- 0.0741	0.0199	+/- 0.0741	0.0426	pCi/g						
Cobalt 60		0.246	+/- 0.0507	0.0231	+/- 0.0507	0.0508	pCi/g						
Europium 152	U	0.0178	+/- 0.0651	0.0569	+/- 0.0651	0.119	pCi/g						
Europium 154	U	0.0182	+/- 0.0767	0.0664	+/- 0.0767	0.145	pCi/g						
Europium 155	U	0.00	+/- 0.0629	0.0568	+/- 0.0629	0.118	pCi/g						
Lead 212		0.856	+/- 0.0734	0.0331	+/- 0.0734	0.0687	pCi/g						
Lead 214		0.739	+/- 0.0994	0.0406	+/- 0.0994	0.0851	pCi/g						
Manganese 54	U	0.0111	+/- 0.0307	0.0233	+/- 0.0307	0.0496	pCi/g						
Niobium 94	UI	0.00	+/- 0.0272	0.020	+/- 0.0272	0.0425	pCi/g						
Potassium 40		11.2	+/- 0.933	0.151	+/- 0.933	0.348	pCi/g						
Radium 226		0.543	+/- 0.0961	0.0453	+/- 0.0961	0.0953	pCi/g						
Silver 108m	U	0.000917	+/- 0.0226	0.0191	+/- 0.0226	0.0403	pCi/g						
Thallium 208		0.251	+/- 0.0525	0.0207	+/- 0.0525	0.0439	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 107F  
Sample ID: 170132016

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

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

- > 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: September 7, 2006

Client Sample ID: 9106 0001 115F  
Sample ID: 170132017  
Matrix: SE  
Collect Date: 08 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 25.1%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.772	+/- 0.186	0.0701	+/- 0.186	0.151	pCi/g		MJH1	08/29/06	1251	562373	1
Americium 241	U	0.0775	+/- 0.0941	0.088	+/- 0.0941	0.182	pCi/g						
Bismuth 212		0.765	+/- 0.300	0.177	+/- 0.300	0.375	pCi/g						
Bismuth 214		0.621	+/- 0.108	0.0362	+/- 0.108	0.0768	pCi/g						
Cesium 134	UI	0.00	+/- 0.0437	0.0285	+/- 0.0437	0.060	pCi/g						
Cesium 137		0.760	+/- 0.0771	0.0197	+/- 0.0771	0.0419	pCi/g						
Cobalt 60		0.597	+/- 0.0718	0.0199	+/- 0.0718	0.0438	pCi/g						
Europium 152	U	0.0063	+/- 0.0603	0.0534	+/- 0.0603	0.112	pCi/g						
Europium 154	U	0.0188	+/- 0.0736	0.0633	+/- 0.0736	0.137	pCi/g						
Europium 155	U	0.00	+/- 0.063	0.0563	+/- 0.063	0.116	pCi/g						
Lead 212		0.782	+/- 0.0699	0.0292	+/- 0.0699	0.0607	pCi/g						
Lead 214		0.791	+/- 0.0962	0.039	+/- 0.0962	0.0816	pCi/g						
Manganese 54	U	0.0156	+/- 0.0252	0.0224	+/- 0.0252	0.0475	pCi/g						
Niobium 94	UI	0.00	+/- 0.0338	0.0219	+/- 0.0338	0.0462	pCi/g						
Potassium 40		12.5	+/- 0.997	0.217	+/- 0.997	0.474	pCi/g						
Radium 226		0.621	+/- 0.108	0.0362	+/- 0.108	0.0768	pCi/g						
Silver 108m	U	0.00503	+/- 0.0205	0.018	+/- 0.0205	0.0379	pCi/g						
Thallium 208		0.257	+/- 0.0561	0.0212	+/- 0.0561	0.0449	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1557	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 115F  
Sample ID: 170132017

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 108F  
Sample ID: 170132018  
Matrix: SE  
Collect Date: 07 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 13.8%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.04	+/- 0.246	0.0835	+/- 0.246	0.179	pCi/g		MJH1	08/29/06	1251	562373	1
Americium 241	U	0.0106	+/- 0.0417	0.0342	+/- 0.0417	0.0703	pCi/g						
Bismuth 212		0.539	+/- 0.378	0.202	+/- 0.378	0.427	pCi/g						
Bismuth 214		0.857	+/- 0.129	0.0427	+/- 0.129	0.0902	pCi/g						
Cesium 134	UI	0.00	+/- 0.0364	0.0326	+/- 0.0364	0.0687	pCi/g						
Cesium 137	U	0.0207	+/- 0.0385	0.0235	+/- 0.0385	0.0498	pCi/g						
Cobalt 60	U	0.017	+/- 0.028	0.025	+/- 0.028	0.0544	pCi/g						
Europium 152	U	0.00148	+/- 0.0661	0.0559	+/- 0.0661	0.117	pCi/g						
Europium 154	U	0.0537	+/- 0.0799	0.0718	+/- 0.0799	0.155	pCi/g						
Europium 155	UI	0.00	+/- 0.0809	0.0549	+/- 0.0809	0.113	pCi/g						
Lead 212		0.721	+/- 0.0888	0.0417	+/- 0.0888	0.0858	pCi/g						
Lead 214		0.887	+/- 0.116	0.0438	+/- 0.116	0.0915	pCi/g						
Manganese 54	U	0.0278	+/- 0.0333	0.0293	+/- 0.0333	0.0618	pCi/g						
Niobium 94	U	0.00411	+/- 0.025	0.021	+/- 0.025	0.0445	pCi/g						
Potassium 40		10.7	+/- 0.925	0.203	+/- 0.925	0.450	pCi/g						
Radium 226		0.857	+/- 0.129	0.0427	+/- 0.129	0.0902	pCi/g						
Silver 108m	U	0.00713	+/- 0.0237	0.0207	+/- 0.0237	0.0435	pCi/g						
Thallium 208		0.299	+/- 0.0688	0.0231	+/- 0.0688	0.0487	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1558	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported



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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: September 7, 2006

Client Sample ID: 9106 0001 108F  
Sample ID: 170132018

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 119F  
Sample ID: 170132019  
Matrix: SE  
Collect Date: 07 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 13.5%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.519	+/- 0.162	0.0585	+/- 0.162	0.127	pCi/g		MJH1	08/29/06	1252	562373	1
Americium 241	U	0.00832	+/- 0.0234	0.021	+/- 0.0234	0.0435	pCi/g						
Bismuth 212		0.334	+/- 0.225	0.138	+/- 0.225	0.295	pCi/g						
Bismuth 214		0.421	+/- 0.0823	0.030	+/- 0.0823	0.064	pCi/g						
Cesium 134	U	0.00	+/- 0.0292	0.021	+/- 0.0292	0.0447	pCi/g						
Cesium 137		0.220	+/- 0.0394	0.0169	+/- 0.0394	0.0361	pCi/g						
Cobalt 60		0.112	+/- 0.0464	0.0153	+/- 0.0464	0.0343	pCi/g						
Europium 152	U	0.00995	+/- 0.0455	0.0393	+/- 0.0455	0.0828	pCi/g						
Europium 154	U	0.035	+/- 0.0546	0.0498	+/- 0.0546	0.110	pCi/g						
Europium 155	U	0.00	+/- 0.0357	0.035	+/- 0.0357	0.0726	pCi/g						
Lead 212		0.547	+/- 0.0471	0.0205	+/- 0.0471	0.0428	pCi/g						
Lead 214		0.553	+/- 0.0721	0.0262	+/- 0.0721	0.0555	pCi/g						
Manganese 54	U	0.0173	+/- 0.0198	0.0151	+/- 0.0198	0.0327	pCi/g						
Niobium 94	U	0.00613	+/- 0.0168	0.0148	+/- 0.0168	0.0316	pCi/g						
Potassium 40		8.91	+/- 0.798	0.110	+/- 0.798	0.258	pCi/g						
Radium 226		0.421	+/- 0.0823	0.030	+/- 0.0823	0.064	pCi/g						
Silver 108m	UI	0.00	+/- 0.0227	0.0128	+/- 0.0227	0.0273	pCi/g						
Thallium 208		0.158	+/- 0.0348	0.0157	+/- 0.0348	0.0334	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1558	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 119F  
Sample ID: 170132019

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 101F  
Sample ID: 170132020  
Matrix: SE  
Collect Date: 31 JUL 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 12.4%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.678	+/- 0.206	0.0548	+/- 0.206	0.110	pCi/g		MJH1	08/29/06	1304	562373	1
Americium 241	U	0.0343	+/- 0.0373	0.0312	+/- 0.0373	0.0624	pCi/g						
Bismuth 212	UI	0.00	+/- 0.589	0.153	+/- 0.589	0.305	pCi/g						
Bismuth 214		0.547	+/- 0.117	0.0382	+/- 0.117	0.0763	pCi/g						
Cesium 134	U	0.00	+/- 0.058	0.033	+/- 0.058	0.0659	pCi/g						
Cesium 137		0.504	+/- 0.0828	0.0213	+/- 0.0828	0.0426	pCi/g						
Cobalt 60	U	0.0128	+/- 0.028	0.025	+/- 0.028	0.0499	pCi/g						
Europium 152	U	0.0402	+/- 0.0953	0.0544	+/- 0.0953	0.109	pCi/g						
Europium 154	U	0.0507	+/- 0.0898	0.0803	+/- 0.0898	0.161	pCi/g						
Europium 155	U	0.00	+/- 0.0541	0.0495	+/- 0.0541	0.0989	pCi/g						
Lead 212		0.624	+/- 0.0796	0.0335	+/- 0.0796	0.067	pCi/g						
Lead 214		0.609	+/- 0.110	0.0384	+/- 0.110	0.0767	pCi/g						
Manganese 54	U	0.0178	+/- 0.0251	0.0203	+/- 0.0251	0.0405	pCi/g						
Niobium 94	U	0.0296	+/- 0.0262	0.0248	+/- 0.0262	0.0495	pCi/g						
Potassium 40		9.59	+/- 0.982	0.229	+/- 0.982	0.457	pCi/g						
Radium 226		0.547	+/- 0.117	0.0382	+/- 0.117	0.0763	pCi/g						
Silver 108m	U	0.00266	+/- 0.0226	0.0195	+/- 0.0226	0.039	pCi/g						
Thallium 208		0.184	+/- 0.0512	0.0203	+/- 0.0512	0.0406	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	LXM1	08/25/06	1558	562334

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

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

< Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 101F  
Sample ID: 170132020

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

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

- > 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: September 7, 2006

Client Sample ID: 9106 0001 103F  
Sample ID: 170132021  
Matrix: SE  
Collect Date: 31 JUL 06  
Receive Date: 25 AUG 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
-----------	-----------	--------	-------------	----	-----	-----	-------	----	---------	------	------	-------	-----

### Rad Gamma Spec Analysis

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

Actinium 228		0.574	+/- 0.146	0.0667	+/- 0.146	0.141	pCi/g		MJH1	08/29/06	1428	562373	1
Americium 241	U	0.0403	+/- 0.113	0.0732	+/- 0.113	0.150	pCi/g						
Bismuth 212	UI	0.00	+/- 0.360	0.129	+/- 0.360	0.274	pCi/g						
Bismuth 214		0.372	+/- 0.0778	0.0326	+/- 0.0778	0.0686	pCi/g						
Cesium 134	U	0.00	+/- 0.0251	0.0215	+/- 0.0251	0.0454	pCi/g						
Cesium 137		0.909	+/- 0.0585	0.0172	+/- 0.0585	0.0365	pCi/g						
Cobalt 60		0.414	+/- 0.0505	0.0151	+/- 0.0505	0.0332	pCi/g						
Europium 152	U	0.0242	+/- 0.052	0.0472	+/- 0.052	0.0982	pCi/g						
Europium 154	U	0.0362	+/- 0.0528	0.0406	+/- 0.0528	0.0895	pCi/g						
Europium 155	U	0.00	+/- 0.0536	0.0523	+/- 0.0536	0.108	pCi/g						
Lead 212		0.573	+/- 0.0504	0.0271	+/- 0.0504	0.0561	pCi/g						
Lead 214		0.509	+/- 0.0895	0.0306	+/- 0.0895	0.0639	pCi/g						
Manganese 54	U	0.00731	+/- 0.0194	0.0165	+/- 0.0194	0.0351	pCi/g						
Niobium 94	U	0.0186	+/- 0.0153	0.0143	+/- 0.0153	0.0304	pCi/g						
Potassium 40		10.1	+/- 0.742	0.126	+/- 0.742	0.282	pCi/g						
Radium 226		0.372	+/- 0.0778	0.0326	+/- 0.0778	0.0686	pCi/g						
Silver 108m	U	0.000807	+/- 0.0182	0.0158	+/- 0.0182	0.0331	pCi/g						
Thallium 208		0.168	+/- 0.0358	0.0163	+/- 0.0358	0.0345	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

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- < Result is less than value reported

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## Certificate of Analysis

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Address : 362 Injun Hollow Rd

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

Report Date: September 7, 2006

Client Sample ID: 9106 0001 103F  
Sample ID: 170132021

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

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

> 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

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Address : 362 Injun Hollow Rd

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

Report Date: September 7, 2006

Client Sample ID: 9106 0001 106F  
Sample ID: 170132022  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16.2%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.892	+/- 0.192	0.0622	+/- 0.192	0.124	pCi/g						
Americium 241	U	0.0412	+/- 0.0772	0.061	+/- 0.0772	0.122	pCi/g						
Bismuth 212		0.610	+/- 0.303	0.139	+/- 0.303	0.278	pCi/g						
Bismuth 214		0.718	+/- 0.108	0.0348	+/- 0.108	0.0695	pCi/g						
Cesium 134	U	0.0471	+/- 0.046	0.0237	+/- 0.046	0.0474	pCi/g						
Cesium 137		0.163	+/- 0.0448	0.0186	+/- 0.0448	0.0371	pCi/g						
Cobalt 60		0.148	+/- 0.0466	0.021	+/- 0.0466	0.042	pCi/g						
Europium 152	U	0.0545	+/- 0.0732	0.0448	+/- 0.0732	0.0894	pCi/g						
Europium 154	U	0.0228	+/- 0.0661	0.0574	+/- 0.0661	0.115	pCi/g						
Europium 155	U	0.039	+/- 0.0725	0.0505	+/- 0.0725	0.101	pCi/g						
Lead 212		0.713	+/- 0.0811	0.0286	+/- 0.0811	0.0571	pCi/g						
Lead 214		0.734	+/- 0.110	0.0353	+/- 0.110	0.0705	pCi/g						
Manganese 54	U	0.0271	+/- 0.0227	0.0177	+/- 0.0227	0.0355	pCi/g						
Niobium 94	U	0.00686	+/- 0.0193	0.0165	+/- 0.0193	0.033	pCi/g						
Potassium 40		12.2	+/- 1.09	0.130	+/- 1.09	0.259	pCi/g						
Radium 226		0.718	+/- 0.108	0.0348	+/- 0.108	0.0695	pCi/g						
Silver 108m	U	0.000841	+/- 0.0201	0.0169	+/- 0.0201	0.0337	pCi/g						
Thallium 208		0.240	+/- 0.051	0.0172	+/- 0.051	0.0344	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
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## Certificate of Analysis

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

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

Report Date: September 7, 2006

Client Sample ID: 9106 0001 106F  
Sample ID: 170132022

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

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

> 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.

# 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: September 7, 2006

Client Sample ID: 9106 0001 106FS  
Sample ID: 170132023  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 16.6%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.676	+/- 0.168	0.0598	+/- 0.168	0.129	pCi/g		MJH1	08/28/06	1757	562372	1
Americium 241	U	0.0251	+/- 0.108	0.087	+/- 0.108	0.180	pCi/g						
Bismuth 212		0.464	+/- 0.301	0.124	+/- 0.301	0.268	pCi/g						
Bismuth 214		0.504	+/- 0.0851	0.032	+/- 0.0851	0.0682	pCi/g						
Cesium 134	U	0.032	+/- 0.016	0.0218	+/- 0.016	0.0465	pCi/g						
Cesium 137		0.234	+/- 0.0437	0.0164	+/- 0.0437	0.0353	pCi/g						
Cobalt 60		0.230	+/- 0.0517	0.0198	+/- 0.0517	0.0435	pCi/g						
Europium 152	U	0.0134	+/- 0.0527	0.0444	+/- 0.0527	0.0935	pCi/g						
Europium 154	U	0.0267	+/- 0.0592	0.0475	+/- 0.0592	0.106	pCi/g						
Europium 155	U	0.00242	+/- 0.0531	0.0502	+/- 0.0531	0.104	pCi/g						
Lead 212		0.684	+/- 0.0599	0.0247	+/- 0.0599	0.0516	pCi/g						
Lead 214		0.553	+/- 0.0816	0.0323	+/- 0.0816	0.068	pCi/g						
Manganese 54	U	0.00702	+/- 0.0224	0.0184	+/- 0.0224	0.0393	pCi/g						
Niobium 94	U	0.0177	+/- 0.0251	0.0163	+/- 0.0251	0.0347	pCi/g						
Potassium 40		10.2	+/- 0.810	0.144	+/- 0.810	0.327	pCi/g						
Radium 226		0.504	+/- 0.0851	0.032	+/- 0.0851	0.0682	pCi/g						
Silver 108m	U	0.00683	+/- 0.0178	0.0157	+/- 0.0178	0.0331	pCi/g						
Thallium 208		0.228	+/- 0.040	0.0178	+/- 0.040	0.0379	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 106FS  
Sample ID: 170132023

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 110F  
Sample ID: 170132024  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 11.8%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.640	+/- 0.148	0.0589	+/- 0.148	0.128	pCi/g		MJH1	08/28/06	1757	562372	1
Americium 241	U	0.0447	+/- 0.117	0.0916	+/- 0.117	0.191	pCi/g						
Bismuth 212		0.384	+/- 0.269	0.139	+/- 0.269	0.298	pCi/g						
Bismuth 214		0.513	+/- 0.084	0.0293	+/- 0.084	0.0626	pCi/g						
Cesium 134	U	0.0326	+/- 0.0274	0.0208	+/- 0.0274	0.0444	pCi/g						
Cesium 137		0.0609	+/- 0.0269	0.0167	+/- 0.0269	0.0358	pCi/g						
Cobalt 60	UI	0.00	+/- 0.0366	0.0272	+/- 0.0366	0.0582	pCi/g						
Europium 152	U	0.0514	+/- 0.0503	0.0458	+/- 0.0503	0.0962	pCi/g						
Europium 154	U	0.0268	+/- 0.0584	0.0465	+/- 0.0584	0.104	pCi/g						
Europium 155	U	0.0111	+/- 0.0518	0.0488	+/- 0.0518	0.101	pCi/g						
Lead 212		0.584	+/- 0.0556	0.0254	+/- 0.0556	0.0529	pCi/g						
Lead 214		0.598	+/- 0.0802	0.0285	+/- 0.0802	0.0603	pCi/g						
Manganese 54	U	0.019	+/- 0.0322	0.0168	+/- 0.0322	0.0362	pCi/g						
Niobium 94	U	0.00338	+/- 0.0169	0.0147	+/- 0.0169	0.0315	pCi/g						
Potassium 40		8.86	+/- 0.820	0.091	+/- 0.820	0.221	pCi/g						
Radium 226		0.513	+/- 0.084	0.0293	+/- 0.084	0.0626	pCi/g						
Silver 108m	U	0.011	+/- 0.016	0.0136	+/- 0.016	0.0289	pCi/g						
Thallium 208		0.201	+/- 0.0386	0.0146	+/- 0.0386	0.0315	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
I	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 110F  
Sample ID: 170132024

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 109F  
Sample ID: 170132025  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 14.6%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.01	+/- 0.174	0.0584	+/- 0.174	0.128	pCi/g		MJH1	08/28/06	1758	562372	1
Americium 241	U	0.0336	+/- 0.107	0.0851	+/- 0.107	0.176	pCi/g						
Bismuth 212	U	0.306	+/- 0.287	0.163	+/- 0.287	0.348	pCi/g						
Bismuth 214		0.657	+/- 0.0986	0.0393	+/- 0.0986	0.0833	pCi/g						
Cesium 134	U	0.0496	+/- 0.0372	0.0257	+/- 0.0372	0.0545	pCi/g						
Cesium 137	U	0.000678	+/- 0.0234	0.0204	+/- 0.0234	0.0435	pCi/g						
Cobalt 60	U	0.00442	+/- 0.0213	0.0178	+/- 0.0213	0.0399	pCi/g						
Europium 152	U	0.05	+/- 0.0625	0.0512	+/- 0.0625	0.108	pCi/g						
Europium 154	U	0.00746	+/- 0.0686	0.0599	+/- 0.0686	0.132	pCi/g						
Europium 155	U	0.0219	+/- 0.0696	0.0515	+/- 0.0696	0.107	pCi/g						
Lead 212		0.946	+/- 0.0691	0.0321	+/- 0.0691	0.0667	pCi/g						
Lead 214		0.805	+/- 0.0924	0.0424	+/- 0.0924	0.0886	pCi/g						
Manganese 54	U	0.0114	+/- 0.0221	0.0198	+/- 0.0221	0.0426	pCi/g						
Niobium 94	U	0.00952	+/- 0.0215	0.0193	+/- 0.0215	0.041	pCi/g						
Potassium 40		8.69	+/- 0.941	0.180	+/- 0.941	0.404	pCi/g						
Radium 226		0.657	+/- 0.0986	0.0393	+/- 0.0986	0.0833	pCi/g						
Silver 108m	U	0.00241	+/- 0.0198	0.0169	+/- 0.0198	0.0358	pCi/g						
Thallium 208		0.289	+/- 0.0551	0.0179	+/- 0.0551	0.0382	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 109F  
Sample ID: 170132025

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 111F  
Sample ID: 170132026  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 14.7%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.799	+/- 0.183	0.061	+/- 0.183	0.132	pCi/g		MJH1	08/28/06	1758	562372	1
Americium 241	U	0.0218	+/- 0.0914	0.0787	+/- 0.0914	0.162	pCi/g						
Bismuth 212		0.561	+/- 0.319	0.116	+/- 0.319	0.251	pCi/g						
Bismuth 214		0.670	+/- 0.0906	0.0372	+/- 0.0906	0.0785	pCi/g						
Cesium 134	U	0.0281	+/- 0.0255	0.0219	+/- 0.0255	0.0466	pCi/g						
Cesium 137		0.161	+/- 0.0372	0.0169	+/- 0.0372	0.0361	pCi/g						
Cobalt 60		0.114	+/- 0.0405	0.0157	+/- 0.0405	0.0352	pCi/g						
Europium 152	U	0.0276	+/- 0.0569	0.049	+/- 0.0569	0.103	pCi/g						
Europium 154	U	0.00614	+/- 0.0742	0.0638	+/- 0.0742	0.138	pCi/g						
Europium 155	U	0.0488	+/- 0.0625	0.049	+/- 0.0625	0.101	pCi/g						
Lead 212		0.790	+/- 0.0634	0.0269	+/- 0.0634	0.0559	pCi/g						
Lead 214		0.762	+/- 0.0956	0.034	+/- 0.0956	0.0712	pCi/g						
Manganese 54	U	0.000471	+/- 0.0278	0.0206	+/- 0.0278	0.0437	pCi/g						
Niobium 94	U	0.0111	+/- 0.0188	0.0171	+/- 0.0188	0.0363	pCi/g						
Potassium 40		9.54	+/- 0.814	0.156	+/- 0.814	0.350	pCi/g						
Radium 226		0.670	+/- 0.0906	0.0372	+/- 0.0906	0.0785	pCi/g						
Silver 108m	U	0.00951	+/- 0.0179	0.0161	+/- 0.0179	0.0339	pCi/g						
Thallium 208		0.264	+/- 0.0403	0.0184	+/- 0.0403	0.0391	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported



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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: September 7, 2006

Client Sample ID: 9106 0001 111F  
Sample ID: 170132026

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

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

> 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.

# 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: September 7, 2006

Client Sample ID: 9106 0001 122F  
Sample ID: 170132027  
Matrix: SE  
Collect Date: 04 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 21.2%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.01	+/- 0.178	0.0692	+/- 0.178	0.150	pCi/g						
Americium 241	U	0.00742	+/- 0.106	0.0874	+/- 0.106	0.181	pCi/g						
Bismuth 212		0.593	+/- 0.342	0.161	+/- 0.342	0.344	pCi/g						
Bismuth 214		0.744	+/- 0.102	0.039	+/- 0.102	0.0828	pCi/g						
Cesium 134	U	0.0465	+/- 0.0409	0.0219	+/- 0.0409	0.047	pCi/g						
Cesium 137		0.459	+/- 0.0528	0.0219	+/- 0.0528	0.0466	pCi/g						
Cobalt 60		0.422	+/- 0.0575	0.0176	+/- 0.0575	0.0396	pCi/g						
Europium 152	U	0.0297	+/- 0.0563	0.0516	+/- 0.0563	0.109	pCi/g						
Europium 154	U	0.0577	+/- 0.0671	0.0504	+/- 0.0671	0.113	pCi/g						
Europium 155	U	0.0335	+/- 0.066	0.060	+/- 0.066	0.124	pCi/g						
Lead 212		0.969	+/- 0.0669	0.0332	+/- 0.0669	0.0689	pCi/g						
Lead 214		0.973	+/- 0.0888	0.0331	+/- 0.0888	0.070	pCi/g						
Manganese 54	UI	0.00	+/- 0.0361	0.019	+/- 0.0361	0.0411	pCi/g						
Niobium 94	U	0.00348	+/- 0.0223	0.0186	+/- 0.0223	0.0396	pCi/g						
Potassium 40		10.5	+/- 0.894	0.148	+/- 0.894	0.341	pCi/g						
Radium 226		0.744	+/- 0.102	0.039	+/- 0.102	0.0828	pCi/g						
Silver 108m	U	0.0072	+/- 0.0214	0.0191	+/- 0.0214	0.0403	pCi/g						
Thallium 208		0.297	+/- 0.0501	0.0223	+/- 0.0501	0.0472	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 122F  
Sample ID: 170132027

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

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

> 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.

# 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: September 7, 2006

Client Sample ID: 9106 0001 123F  
Sample ID: 170132028  
Matrix: SE  
Collect Date: 04 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 24.4%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.999	+/- 0.216	0.0826	+/- 0.216	0.176	pCi/g		MJH1	08/28/06	1759	562372	1
Americium 241	U	0.0566	+/- 0.142	0.0882	+/- 0.142	0.182	pCi/g						
Bismuth 212	UI	0.00	+/- 0.367	0.172	+/- 0.367	0.366	pCi/g						
Bismuth 214		0.697	+/- 0.097	0.0381	+/- 0.097	0.081	pCi/g						
Cesium 134	UI	0.00	+/- 0.0669	0.0311	+/- 0.0669	0.0655	pCi/g						
Cesium 137		0.677	+/- 0.0743	0.0227	+/- 0.0743	0.0482	pCi/g						
Cobalt 60		0.765	+/- 0.0797	0.0233	+/- 0.0797	0.051	pCi/g						
Europium 152	U	0.0283	+/- 0.0665	0.0568	+/- 0.0665	0.119	pCi/g						
Europium 154	U	0.0474	+/- 0.0919	0.0802	+/- 0.0919	0.172	pCi/g						
Europium 155	U	0.0227	+/- 0.0704	0.0621	+/- 0.0704	0.128	pCi/g						
Lead 212		0.945	+/- 0.0833	0.0326	+/- 0.0833	0.0677	pCi/g						
Lead 214		0.898	+/- 0.108	0.0434	+/- 0.108	0.0906	pCi/g						
Manganese 54	U	0.0138	+/- 0.0278	0.0231	+/- 0.0278	0.0493	pCi/g						
Niobium 94	U	0.00151	+/- 0.0236	0.0194	+/- 0.0236	0.0414	pCi/g						
Potassium 40		13.1	+/- 0.943	0.166	+/- 0.943	0.376	pCi/g						
Radium 226		0.697	+/- 0.097	0.0381	+/- 0.097	0.081	pCi/g						
Silver 108m	U	0.0262	+/- 0.0237	0.0216	+/- 0.0237	0.0453	pCi/g						
Thallium 208		0.376	+/- 0.0729	0.0202	+/- 0.0729	0.043	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 123F  
Sample ID: 170132028

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

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

> 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.  
U1 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: September 7, 2006

Client Sample ID: 9106 0001 124F  
Sample ID: 170132029  
Matrix: SE  
Collect Date: 04 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 15.4%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.603	+/- 0.135	0.0498	+/- 0.135	0.106	pCi/g		MJH1	08/28/06	1759	562372	1
Americium 241	U	0.0229	+/- 0.132	0.087	+/- 0.132	0.179	pCi/g						
Bismuth 212		0.568	+/- 0.276	0.104	+/- 0.276	0.221	pCi/g						
Bismuth 214		0.337	+/- 0.0681	0.025	+/- 0.0681	0.0527	pCi/g						
Cesium 134	UI	0.00	+/- 0.0175	0.0174	+/- 0.0175	0.0366	pCi/g						
Cesium 137		0.285	+/- 0.0412	0.0126	+/- 0.0412	0.0266	pCi/g						
Cobalt 60		0.254	+/- 0.0465	0.0155	+/- 0.0465	0.0335	pCi/g						
Europium 152	U	0.0171	+/- 0.0391	0.0357	+/- 0.0391	0.0743	pCi/g						
Europium 154	U	0.00232	+/- 0.0457	0.0388	+/- 0.0457	0.0842	pCi/g						
Europium 155	U	0.0775	+/- 0.0639	0.0413	+/- 0.0639	0.085	pCi/g						
Lead 212		0.519	+/- 0.0608	0.0214	+/- 0.0608	0.0442	pCi/g						
Lead 214		0.495	+/- 0.0854	0.024	+/- 0.0854	0.0502	pCi/g						
Manganese 54	U	0.00887	+/- 0.0167	0.0152	+/- 0.0167	0.0321	pCi/g						
Niobium 94	U	0.00207	+/- 0.0137	0.0121	+/- 0.0137	0.0256	pCi/g						
Potassium 40		10.2	+/- 0.920	0.143	+/- 0.920	0.311	pCi/g						
Radium 226		0.337	+/- 0.0681	0.025	+/- 0.0681	0.0527	pCi/g						
Silver 108m	U	0.00278	+/- 0.0138	0.012	+/- 0.0138	0.025	pCi/g						
Thallium 208		0.191	+/- 0.0398	0.0129	+/- 0.0398	0.0273	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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: September 7, 2006

Client Sample ID: 9106 0001 124F  
Sample ID: 170132029

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

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

> 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: September 7, 2006

Client Sample ID: 9106 0001 125F  
Sample ID: 170132030  
Matrix: SE  
Collect Date: 04 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 14.3%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.865	+/- 0.174	0.058	+/- 0.174	0.125	pCi/g		MJH1	08/28/06	1759	562372	1
Americium 241	U	0.00558	+/- 0.141	0.0859	+/- 0.141	0.176	pCi/g						
Bismuth 212		0.440	+/- 0.357	0.115	+/- 0.357	0.248	pCi/g						
Bismuth 214		0.680	+/- 0.0966	0.0341	+/- 0.0966	0.0719	pCi/g						
Cesium 134	U	0.0459	+/- 0.0287	0.023	+/- 0.0287	0.0485	pCi/g						
Cesium 137	U	0.0271	+/- 0.0264	0.0168	+/- 0.0264	0.0359	pCi/g						
Cobalt 60	UI	0.00	+/- 0.056	0.0181	+/- 0.056	0.0396	pCi/g						
Europium 152	U	0.098	+/- 0.0665	0.0445	+/- 0.0665	0.0933	pCi/g						
Europium 154	U	0.00194	+/- 0.0598	0.0497	+/- 0.0598	0.109	pCi/g						
Europium 155	U	0.0163	+/- 0.0619	0.058	+/- 0.0619	0.119	pCi/g						
Lead 212		0.868	+/- 0.0614	0.0281	+/- 0.0614	0.0582	pCi/g						
Lead 214		0.745	+/- 0.085	0.0376	+/- 0.085	0.0783	pCi/g						
Manganese 54	U	0.0147	+/- 0.0216	0.0175	+/- 0.0216	0.0374	pCi/g						
Niobium 94	U	4.970E	+/- 0.0185	0.0161	+/- 0.0185	0.0343	pCi/g						
		05											
Potassium 40		9.34	+/- 0.827	0.148	+/- 0.827	0.330	pCi/g						
Radium 226		0.680	+/- 0.0966	0.0341	+/- 0.0966	0.0719	pCi/g						
Silver 108m	U	0.00151	+/- 0.0187	0.0159	+/- 0.0187	0.0334	pCi/g						
Thallium 208		0.279	+/- 0.0439	0.0186	+/- 0.0439	0.0392	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

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- < Result is less than value reported



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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: September 7, 2006

Client Sample ID: 9106 0001 125F  
Sample ID: 170132030

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

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

> 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  
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H Analytical holding time was exceeded  
J Value is estimated  
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more  
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: September 7, 2006

Client Sample ID: 9106 0001 126F  
Sample ID: 170132031  
Matrix: SE  
Collect Date: 04 AUG 06  
Receive Date: 25 AUG 06  
Collector: Client  
Moisture: 15.3%

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

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

### Rad Gamma Spec Analysis

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

Actinium 228		0.904	+/- 0.256	0.0859	+/- 0.256	0.184	pCi/g						
Americium 241	U	0.0153	+/- 0.0414	0.0328	+/- 0.0414	0.0675	pCi/g						
Bismuth 212		0.827	+/- 0.447	0.171	+/- 0.447	0.366	pCi/g						
Bismuth 214		0.766	+/- 0.125	0.0446	+/- 0.125	0.0942	pCi/g						
Cesium 134	U	0.0359	+/- 0.0647	0.032	+/- 0.0647	0.0675	pCi/g						
Cesium 137		0.244	+/- 0.0636	0.025	+/- 0.0636	0.053	pCi/g						
Cobalt 60		0.107	+/- 0.0605	0.0254	+/- 0.0605	0.0554	pCi/g						
Europium 152	U	0.0382	+/- 0.0714	0.062	+/- 0.0714	0.129	pCi/g						
Europium 154	U	0.000532	+/- 0.0894	0.075	+/- 0.0894	0.162	pCi/g						
Europium 155	U	0.0784	+/- 0.0637	0.0563	+/- 0.0637	0.116	pCi/g						
Lead 212		0.734	+/- 0.0846	0.0411	+/- 0.0846	0.0847	pCi/g						
Lead 214		0.840	+/- 0.117	0.0446	+/- 0.117	0.0931	pCi/g						
Manganese 54	U	0.033	+/- 0.0308	0.0277	+/- 0.0308	0.0585	pCi/g						
Niobium 94	U	0.00241	+/- 0.0294	0.0247	+/- 0.0294	0.0521	pCi/g						
Potassium 40		10.3	+/- 0.956	0.256	+/- 0.956	0.556	pCi/g						
Radium 226		0.766	+/- 0.125	0.0446	+/- 0.125	0.0942	pCi/g						
Silver 108m	U	0.00154	+/- 0.0244	0.0217	+/- 0.0244	0.0455	pCi/g						
Thallium 208		0.268	+/- 0.0712	0.0248	+/- 0.0712	0.0523	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	JMB1	08/25/06	1728	562337

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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: September 7, 2006

Client Sample ID: 9106 0001 126F  
Sample ID: 170132031

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

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

> 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.

# QUALITY CONTROL DATA

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Report Date: September 7, 2006

Page 1 of 12

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 170132

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	562551										
QC1201169378	170125005	DUP									
Americium-241		U	0.0864	U	0.067	pCi/g	25	(0% - 100%)	DDR1	09/03/06	12:11
		Uncert:	+/-0.0853		+/-0.138						
		TPU:	+/-0.086		+/-0.138						
Curium-242		U	0.0159	U	-0.0253	pCi/g	877	(0% - 100%)			
		Uncert:	+/-0.0423		+/-0.0286						
		TPU:	+/-0.0423		+/-0.0288						
Curium-243/244		U	0.0681	U	0.0674	pCi/g	1	(0% - 100%)			
		Uncert:	+/-0.077		+/-0.134						
		TPU:	+/-0.0774		+/-0.134						
QC1201169380	LCS										
Americium-241		7.03			6.32	pCi/g		90 (75%-125%)		09/03/06	12:11
		Uncert:			+/-0.638						
		TPU:			+/-1.05						
Curium-242				U	-0.0483	pCi/g					
		Uncert:			+/-0.0462						
		TPU:			+/-0.0466						
Curium-243/244		8.50			7.03	pCi/g		83 (75%-125%)			
		Uncert:			+/-0.676						
		TPU:			+/-1.15						
QC1201169377	MB										
Americium-241				U	0.117	pCi/g					
		Uncert:			+/-0.126						
		TPU:			+/-0.126						
Curium-242				U	-0.0282	pCi/g					
		Uncert:			+/-0.0226						
		TPU:			+/-0.0229						
Curium-243/244				U	0.00383	pCi/g					
		Uncert:			+/-0.0932						
		TPU:			+/-0.0932						
QC1201169379	170125005	MS									
Americium-241		10.8 U	0.0864		10.7	pCi/g		99 (75%-125%)		09/03/06	12:11
		Uncert:	+/-0.0853		+/-1.09						
		TPU:	+/-0.086		+/-1.83						
Curium-242		U	0.0159	U	-0.00492	pCi/g					
		Uncert:	+/-0.0423		+/-0.0956						
		TPU:	+/-0.0423		+/-0.0956						
Curium-243/244		13.0 U	0.0681		12.6	pCi/g		97 (75%-125%)			
		Uncert:	+/-0.077		+/-1.18						
		TPU:	+/-0.0774		+/-2.09						
Batch	562552										
QC1201169382	170125005	DUP									
Plutonium-238		U	0.00945	U	-0.0244	pCi/g	453	(0% - 100%)	DDR1	09/03/06	12:11

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**QC Summary**

Workorder: 170132

Page 2 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	562552										
Plutonium-239/240	U	Uncert:	+/-0.102	+/-0.0891	pCi/g	79	(0% - 100%)				
		TPU:	+/-0.102	+/-0.0891							
			-0.0435	-0.0188							
		Uncert:	+/-0.0791	+/-0.0643							
		TPU:	+/-0.0793	+/-0.0643							
QC1201169384	LCS										
Plutonium-238			U	0.046	pCi/g		(75%-125%)			09/03/06	12:11
Plutonium-239/240	6.50	Uncert:		+/-0.089	pCi/g	95	(75%-125%)				
		TPU:		+/-0.0891							
				6.14							
		Uncert:		+/-0.642							
		TPU:		+/-0.894							
QC1201169381	MB										
Plutonium-238			U	-0.00886	pCi/g					09/03/06	12:11
Plutonium-239/240		Uncert:		+/-0.0458	pCi/g						
		TPU:		+/-0.0458							
				-0.00403							
		Uncert:		+/-0.0448							
		TPU:		+/-0.0448							
QC1201169383	170125005	MS									
Plutonium-238		U	0.00945	U	-0.0645	pCi/g		(75%-125%)			
Plutonium-239/240	9.95	Uncert:	+/-0.102	+/-0.0868	pCi/g	88	(75%-125%)				
		TPU:	+/-0.102	+/-0.0871							
			-0.0435	8.77							
		Uncert:	+/-0.0791	+/-0.927							
		TPU:	+/-0.0793	+/-1.28							
Batch	562553										
QC1201169386	170125005	DUP									
Plutonium-241		U	-11.3	U	-7.26	pCi/g	0	(0% - 100%)	DDR1	09/06/06	16:50
Plutonium-241		Uncert:	+/-11.8	+/-11.7	pCi/g		85	(75%-125%)			
		TPU:	+/-11.8	+/-11.7							
				160							
		Uncert:		+/-15.5							
		TPU:		+/-22.2							
QC1201169388	LCS										
Plutonium-241		188			pCi/g					09/06/06	17:22
Plutonium-241		Uncert:		+/-9.47	pCi/g						
		TPU:		+/-22.2							
				-8.25							
		Uncert:		+/-9.47							
		TPU:		+/-9.47							
QC1201169385	MB										
Plutonium-241			U	-8.25	pCi/g					09/06/06	16:34
Plutonium-241		Uncert:		+/-9.47	pCi/g		101	(75%-125%)			
		TPU:		+/-9.47							
				203							
		Uncert:		+/-19.1							
		TPU:	+/-11.8	+/-28.7							
Rad Gamma Spec											
Batch	562372										
QC1201168948	170125001	DUP									
Actinium-228			0.305	UI	0.00	pCi/g	6	(0% - 100%)	MJH1	08/29/06	14:27
		Uncert:	+/-0.0937		+/-0.0926						
					+/-0.0926						

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 562372											
Americium-241		TPU:		+/-0.0937							
	U			-0.00488	U	-0.0681		pCi/g	173	(0% - 100%)	
		Uncert:		+/-0.0494		+/-0.139					
Bismuth-212		TPU:		+/-0.0494		+/-0.139					
			U	0.199	U	0.242		pCi/g	20	(0% - 100%)	
		Uncert:		+/-0.157		+/-0.144					
Bismuth-214		TPU:		+/-0.157		+/-0.144					
				0.213		0.230		pCi/g	8	(0% - 100%)	
		Uncert:		+/-0.053		+/-0.0744					
Cesium-134		TPU:		+/-0.053		+/-0.0744					
	U		U	-0.000615	U	0.017		pCi/g	215	(0% - 100%)	
		Uncert:		+/-0.0135		+/-0.0186					
Cesium-137		TPU:		+/-0.0135		+/-0.0186					
				0.235		0.204		pCi/g	14	(0% - 100%)	
		Uncert:		+/-0.0299		+/-0.0397					
Cobalt-60		TPU:		+/-0.0299		+/-0.0397					
				0.0679		0.0892		pCi/g	27	(0% - 100%)	
		Uncert:		+/-0.0301		+/-0.0361					
Europium-152		TPU:		+/-0.0301		+/-0.0361					
	U		U	0.015	U	-0.0104		pCi/g	1120	(0% - 100%)	
		Uncert:		+/-0.033		+/-0.0473					
Europium-154		TPU:		+/-0.033		+/-0.0473					
	U		U	0.0132	U	-0.0214		pCi/g	844	(0% - 100%)	
		Uncert:		+/-0.0356		+/-0.0491					
Europium-155		TPU:		+/-0.0356		+/-0.0491					
	U		U	-0.0237	U	-0.00448		pCi/g	136	(0% - 100%)	
		Uncert:		+/-0.0376		+/-0.0462					
Lead-212		TPU:		+/-0.0376		+/-0.0462					
				0.269		0.244		pCi/g	10	(0% - 100%)	
		Uncert:		+/-0.0389		+/-0.0483					
Lead-214		TPU:		+/-0.0389		+/-0.0483					
				0.268		0.223		pCi/g	18	(0% - 100%)	
		Uncert:		+/-0.0568		+/-0.0607					
Manganese-54		TPU:		+/-0.0568		+/-0.0607					
	U		U	0.00705	U	0.00379		pCi/g	60	(0% - 100%)	
		Uncert:		+/-0.0128		+/-0.0164					
Niobium-94		TPU:		+/-0.0128		+/-0.0164					
	U		U	-0.00239	U	0.000295		pCi/g	256	(0% - 100%)	
		Uncert:		+/-0.0114		+/-0.016					
Potassium-40		TPU:		+/-0.0114		+/-0.016					
				5.10		4.91		pCi/g	4	(0%-20%)	
		Uncert:		+/-0.471		+/-0.656					
Radium-226		TPU:		+/-0.471		+/-0.656					
				0.213		0.230		pCi/g	8	(0% - 100%)	
		Uncert:		+/-0.053		+/-0.0744					
Silver-108m		TPU:		+/-0.053		+/-0.0744					
	U		U	-0.00762	U	-0.00096		pCi/g	155	(0% - 100%)	
		Uncert:		+/-0.012		+/-0.0146					

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<b>Rad Gamma Spec</b>											
Batch	562372										
Thallium-208	TPU:	+/-0.012		+/-0.0146							
		0.0606		0.106	pCi/g	54		(0% - 100%)			
	Uncert:	+/-0.0255		+/-0.0385							
	TPU:	+/-0.0255		+/-0.0385							
QC1201168949 LCS											
Actinium-228			U	-0.109	pCi/g					08/28/06	18:06
	Uncert:			+/-0.648							
	TPU:			+/-0.648							
Americium-241	23.4			24.5	pCi/g		105	(75%-125%)			
	Uncert:			+/-0.624							
	TPU:			+/-0.624							
Bismuth-212			U	1.13	pCi/g						
	Uncert:			+/-1.10							
	TPU:			+/-1.10							
Bismuth-214			U	0.00418	pCi/g						
	Uncert:			+/-0.263							
	TPU:			+/-0.263							
Cesium-134			U	0.0393	pCi/g						
	Uncert:			+/-0.159							
	TPU:			+/-0.159							
Cesium-137	9.58			10.4	pCi/g		108	(75%-125%)			
	Uncert:			+/-0.509							
	TPU:			+/-0.509							
Cobalt-60	14.5			15.4	pCi/g		106	(75%-125%)			
	Uncert:			+/-0.682							
	TPU:			+/-0.682							
Europium-152				0.495	pCi/g						
	Uncert:			+/-0.394							
	TPU:			+/-0.394							
Europium-154			U	-0.144	pCi/g						
	Uncert:			+/-0.295							
	TPU:			+/-0.295							
Europium-155			U	0.295	pCi/g						
	Uncert:			+/-0.369							
	TPU:			+/-0.369							
Lead-212			U	-0.0816	pCi/g						
	Uncert:			+/-0.166							
	TPU:			+/-0.166							
Lead-214			U	0.121	pCi/g						
	Uncert:			+/-0.199							
	TPU:			+/-0.199							
Manganese-54			U	0.0342	pCi/g						
	Uncert:			+/-0.146							
	TPU:			+/-0.146							
Niobium-94			U	-0.14	pCi/g						
	Uncert:			+/-0.131							
	TPU:			+/-0.131							
Potassium-40			U	0.363	pCi/g						



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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>										
Batch	562372									
		Uncert:	+/-1.23							
		TPU:	+/-1.23							
Radium-226		U	0.00418	pCi/g			(75%-125%)			
		Uncert:	+/-0.263							
		TPU:	+/-0.263							
Silver-108m		U	-0.0232	pCi/g						
		Uncert:	+/-0.118							
		TPU:	+/-0.118							
Thallium-208		U	-0.106	pCi/g						
		Uncert:	+/-0.128							
		TPU:	+/-0.128							
QC1201168947 MB										
Actinium-228		U	0.0253	pCi/g					08/28/06	18:00
		Uncert:	+/-0.0412							
		TPU:	+/-0.0412							
Americium-241		U	-0.000294	pCi/g						
		Uncert:	+/-0.0103							
		TPU:	+/-0.0103							
Bismuth-212		U	-0.0573	pCi/g						
		Uncert:	+/-0.105							
		TPU:	+/-0.105							
Bismuth-214		U	0.0142	pCi/g						
		Uncert:	+/-0.0246							
		TPU:	+/-0.0246							
Cesium-134		U	-0.006	pCi/g						
		Uncert:	+/-0.013							
		TPU:	+/-0.013							
Cesium-137		U	0.00358	pCi/g						
		Uncert:	+/-0.0115							
		TPU:	+/-0.0115							
Cobalt-60		U	0.00466	pCi/g						
		Uncert:	+/-0.0132							
		TPU:	+/-0.0132							
Europium-152		U	-0.0168	pCi/g						
		Uncert:	+/-0.0401							
		TPU:	+/-0.0401							
Europium-154		U	-0.0107	pCi/g						
		Uncert:	+/-0.0371							
		TPU:	+/-0.0371							
Europium-155		U	0.00224	pCi/g						
		Uncert:	+/-0.0185							
		TPU:	+/-0.0185							
Lead-212		U	0.0215	pCi/g						
		Uncert:	+/-0.0162							
		TPU:	+/-0.0162							
Lead-214		U	0.0147	pCi/g						
		Uncert:	+/-0.0208							
		TPU:	+/-0.0208							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	562372										
Manganese-54			U	0.00907	pCi/g						
	Uncert:			+/-0.0108							
	TPU:			+/-0.0108							
Niobium-94			U	-0.00448	pCi/g						
	Uncert:			+/-0.00974							
	TPU:			+/-0.00974							
Potassium-40			U	0.303	pCi/g						
	Uncert:			+/-0.175							
	TPU:			+/-0.175							
Radium-226			U	0.0142	pCi/g						
	Uncert:			+/-0.0246							
	TPU:			+/-0.0246							
Silver-108m			U	0.000295	pCi/g						
	Uncert:			+/-0.00968							
	TPU:			+/-0.00968							
Thallium-208			U	0.0058	pCi/g						
	Uncert:			+/-0.0123							
	TPU:			+/-0.0123							
Batch	562373										
QC1201168951 170132001 DUP											
Actinium-228		0.940		0.916	pCi/g	3		(0% - 100%)	MJH1	08/29/06	14:29
	Uncert:	+/-0.143		+/-0.129							
	TPU:	+/-0.143		+/-0.129							
Americium-241	U	-0.0463	U	0.0649	pCi/g	1190		(0% - 100%)			
	Uncert:	+/-0.0742		+/-0.0752							
	TPU:	+/-0.0742		+/-0.0752							
Bismuth-212		0.504		0.580	pCi/g	14		(0% - 100%)			
	Uncert:	+/-0.254		+/-0.264							
	TPU:	+/-0.254		+/-0.264							
Bismuth-214		0.724		0.726	pCi/g	0		(0% - 100%)			
	Uncert:	+/-0.0757		+/-0.0789							
	TPU:	+/-0.0757		+/-0.0789							
Cesium-134	U	0.0291	UI	0.00	pCi/g	60		(0% - 100%)			
	Uncert:	+/-0.032		+/-0.0338							
	TPU:	+/-0.032		+/-0.0338							
Cesium-137		0.743		0.729	pCi/g	2		(0% - 100%)			
	Uncert:	+/-0.0489		+/-0.0496							
	TPU:	+/-0.0489		+/-0.0496							
Cobalt-60		0.627		0.538	pCi/g	15		(0% - 100%)			
	Uncert:	+/-0.0612		+/-0.064							
	TPU:	+/-0.0612		+/-0.064							
Europium-152	U	-0.00488	U	-0.0138	pCi/g	95		(0% - 100%)			
	Uncert:	+/-0.0485		+/-0.0487							
	TPU:	+/-0.0485		+/-0.0487							
Europium-154	U	0.029	U	-0.00552	pCi/g	294		(0% - 100%)			
	Uncert:	+/-0.0513		+/-0.0452							
	TPU:	+/-0.0513		+/-0.0452							
Europium-155	U	0.0447	U	0.00	pCi/g	25		(0% - 100%)			

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	562373										
Lead-212		Uncert:	+/-0.0581	+/-0.0537	pCi/g	6		(0% - 20%)			
		TPU:	+/-0.0581	+/-0.0537							
			0.941	0.883							
Lead-214		Uncert:	+/-0.0572	+/-0.0569	pCi/g	5		(0% - 20%)			
		TPU:	+/-0.0572	+/-0.0569							
			0.858	0.818							
Manganese-54	U	Uncert:	+/-0.0803	+/-0.0652	pCi/g	517		(0% - 100%)			
		TPU:	+/-0.0803	+/-0.0652							
			0.0142	-0.00626							
Niobium-94	U	Uncert:	+/-0.0214	+/-0.0183	pCi/g	196		(0% - 100%)			
		TPU:	+/-0.0214	+/-0.0183							
			0.00021	0.0224							
Potassium-40		Uncert:	+/-0.0166	+/-0.0212	pCi/g	5		(0% - 20%)			
		TPU:	+/-0.0166	+/-0.0212							
			10.8	11.3							
Radium-226		Uncert:	+/-0.700	+/-0.675	pCi/g	0		(0% - 100%)			
		TPU:	+/-0.700	+/-0.675							
			0.724	0.726							
Silver-108m	U	Uncert:	+/-0.0757	+/-0.0789	pCi/g	2380		(0% - 100%)			
		TPU:	+/-0.0757	+/-0.0789							
			-0.00568	0.00672							
Thallium-208		Uncert:	+/-0.0162	+/-0.0152	pCi/g	23		(0% - 100%)			
		TPU:	+/-0.0162	+/-0.0152							
			0.261	0.329							
Actinium-228	LCS	Uncert:	+/-0.0377	+/-0.0399	pCi/g					08/29/06	14:29
		TPU:	+/-0.0377	+/-0.0399							
				0.00153							
Americium-241	23.4	Uncert:		+/-0.701	pCi/g		102	(75%-125%)			
		TPU:		+/-0.701							
				23.9							
Bismuth-212		Uncert:		+/-1.18	pCi/g						
		TPU:		+/-1.18							
				-0.0231							
Bismuth-214	U	Uncert:		+/-1.03	pCi/g						
		TPU:		+/-1.03							
				0.190							
Cesium-134	U	Uncert:		+/-0.239	pCi/g						
		TPU:		+/-0.239							
				-0.00599							
Cesium-137	9.58	Uncert:		+/-0.144	pCi/g		106	(75%-125%)			
		TPU:		+/-0.144							
				10.1							
Cobalt-60	14.5	Uncert:		+/-0.514	pCi/g		103	(75%-125%)			
		TPU:		+/-0.514							
				14.9							
		Uncert:		+/-0.720							
		TPU:		+/-0.720							

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>										
Batch	562373									
Europium-152		U	-0.18	pCi/g						
	Uncert:		+/-0.328							
	TPU:		+/-0.328							
Europium-154		U	0.227	pCi/g						
	Uncert:		+/-0.271							
	TPU:		+/-0.271							
Europium-155		U	-0.143	pCi/g						
	Uncert:		+/-0.295							
	TPU:		+/-0.295							
Lead-212		U	-0.0695	pCi/g						
	Uncert:		+/-0.169							
	TPU:		+/-0.169							
Lead-214		U	0.0167	pCi/g						
	Uncert:		+/-0.233							
	TPU:		+/-0.233							
Manganese-54		U	-0.104	pCi/g						
	Uncert:		+/-0.143							
	TPU:		+/-0.143							
Niobium-94		U	-0.0889	pCi/g						
	Uncert:		+/-0.120							
	TPU:		+/-0.120							
Potassium-40		U	0.272	pCi/g						
	Uncert:		+/-1.10							
	TPU:		+/-1.10							
Radium-226		U	0.190	pCi/g			(75%-125%)			
	Uncert:		+/-0.239							
	TPU:		+/-0.239							
Silver-108m		U	-0.0248	pCi/g						
	Uncert:		+/-0.120							
	TPU:		+/-0.120							
Thallium-208		U	-0.134	pCi/g						
	Uncert:		+/-0.124							
	TPU:		+/-0.124							
QC1201168950 MB										
Actinium-228		U	0.0216	pCi/g					08/29/06	14:28
	Uncert:		+/-0.0695							
	TPU:		+/-0.0695							
Americium-241		U	0.0136	pCi/g						
	Uncert:		+/-0.0649							
	TPU:		+/-0.0649							
Bismuth-212		U	-0.0269	pCi/g						
	Uncert:		+/-0.0962							
	TPU:		+/-0.0962							
Bismuth-214		U	0.0038	pCi/g						
	Uncert:		+/-0.0237							
	TPU:		+/-0.0237							
Cesium-134		U	0.00475	pCi/g						
	Uncert:		+/-0.0121							

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	562373										
Cesium-137	TPU:			+/-0.0121							
		U		0.00641	pCi/g						
	Uncert:			+/-0.0202							
Cobalt-60	TPU:			+/-0.0202							
		U		0.00173	pCi/g						
	Uncert:			+/-0.0104							
Europium-152	TPU:			+/-0.0104							
		U		-0.00536	pCi/g						
	Uncert:			+/-0.0301							
Europium-154	TPU:			+/-0.0301							
		U		-0.00864	pCi/g						
	Uncert:			+/-0.0277							
Europium-155	TPU:			+/-0.0277							
		U		-0.0398	pCi/g						
	Uncert:			+/-0.0316							
Lead-212	TPU:			+/-0.0316							
		U		0.0203	pCi/g						
	Uncert:			+/-0.0328							
Lead-214	TPU:			+/-0.0328							
		U		0.0056	pCi/g						
	Uncert:			+/-0.0235							
Manganese-54	TPU:			+/-0.0235							
		U		-0.00481	pCi/g						
	Uncert:			+/-0.0107							
Niobium-94	TPU:			+/-0.0107							
		U		-0.00067	pCi/g						
	Uncert:			+/-0.0103							
Potassium-40	TPU:			+/-0.0103							
		U		0.0956	pCi/g						
	Uncert:			+/-0.244							
Radium-226	TPU:			+/-0.244							
		U		0.0038	pCi/g						
	Uncert:			+/-0.0237							
Silver-108m	TPU:			+/-0.0237							
		U		-0.00607	pCi/g						
	Uncert:			+/-0.00977							
Thallium-208	TPU:			+/-0.00977							
		U		0.0123	pCi/g						
	Uncert:			+/-0.011							
	TPU:			+/-0.011							
<b>Rad Gas Flow</b>											
Batch	562545										
QC1201169352	170132001	DUP									
Strontium-90	U	0.00389	U	-0.00664	pCi/g	0		(0% - 100%) KSD1		08/30/06	18:45
	Uncert:	+/-0.0104		+/-0.0116							
	TPU:	+/-0.0104		+/-0.0116							
QC1201169354	LCS										
Strontium-90	1.21			1.03	pCi/g		86	(75%-125%)		08/30/06	19:22

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch	562545										
		Uncert:		+/-0.104							
		TPU:		+/-0.108							
QC1201169351 MB											
Strontium-90			U	0.0149	pCi/g					08/30/06	18:46
		Uncert:		+/-0.0105							
		TPU:		+/-0.0105							
QC1201169353 170132001 MS											
Strontium-90	1.20	U	0.00389	1.08	pCi/g		90	(75%-125%)		08/30/06	18:46
		Uncert:	+/-0.0104	+/-0.111							
		TPU:	+/-0.0104	+/-0.114							
<b>Rad Liquid Scintillation</b>											
Batch	562518										
QC1201169279 170125003 DUP											
Tritium		U	0.119	U 1.40	pCi/g	0		(0% - 100%)	DFA1	08/31/06	13:04
		Uncert:	+/-1.35	+/-1.58							
		TPU:	+/-1.35	+/-1.58							
QC1201169281 LCS											
Tritium	11.3			10.8	pCi/g		96	(75%-125%)		08/30/06	11:17
		Uncert:		+/-3.03							
		TPU:		+/-3.04							
QC1201169278 MB											
Tritium			U	-0.193	pCi/g					08/31/06	12:42
		Uncert:		+/-1.43							
		TPU:		+/-1.43							
QC1201169280 170125003 MS											
Tritium	10.7	U	0.119	8.79	pCi/g		82	(75%-125%)		08/30/06	11:01
		Uncert:	+/-1.35	+/-2.73							
		TPU:	+/-1.35	+/-2.74							
Batch	562520										
QC1201169283 170125007 DUP											
Iron-55		U	9.61	U 14.5	pCi/g	0		(0% - 100%)	MXPI	09/01/06	19:36
		Uncert:	+/-36.3	+/-38.8							
		TPU:	+/-36.3	+/-38.8							
QC1201169285 LCS											
Iron-55	631			590	pCi/g		93	(75%-125%)		09/01/06	20:09
		Uncert:		+/-53.7							
		TPU:		+/-64.0							
QC1201169282 MB											
Iron-55			U	24.7	pCi/g					09/01/06	19:20
		Uncert:		+/-38.2							
		TPU:		+/-38.3							
QC1201169284 170125007 MS											
Iron-55	660	U	9.61	664	pCi/g		101	(75%-125%)		09/01/06	19:52
		Uncert:	+/-36.3	+/-57.1							
		TPU:	+/-36.3	+/-69.8							
Batch	562521										
QC1201169287 170125007 DUP											
Nickel-63		U	9.73	U 1.41	pCi/g	0		(0% - 100%)	MXPI	09/01/06	04:23

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**QC Summary**

Workorder: 170132

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Parmname		NOM		Sample	Qual		QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation														
Batch	562521													
QC1201169289	LCS													
Nickel-63														
QC1201169286	MB													
Nickel-63														
QC1201169288	170125007	MS												
Nickel-63														
Batch	562522													
QC1201169291	170132002	DUP												
Carbon-14														
QC1201169293	LCS													
Carbon-14														
QC1201169290	MB													
Carbon-14														
QC1201169292	170132002	MS												
Carbon-14														
Batch	562651													
QC1201169592	170132002	DUP												
Technetium-99														
QC1201169594	LCS													
Technetium-99														
QC1201169591	MB													
Technetium-99														
QC1201169593	170132002	MS												
Technetium-99														

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**QC Summary**

Workorder: 170132

Page 12 of 12

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

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.



## Table of Contents

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# **General Narrative**

**CASE NARRATIVE  
For  
CONNECTICUT YANKEE  
RE: Soil  
PO# 002332  
Work Order: 169489  
SDG: MSR #06-1130**

**August 21, 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 August 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>
169489001	9106-0001-132F
169489002	9106-0001-112F
169489003	9106-0001-132A
169489004	9106-0001-132B
169489005	9106-0001-132C
169489006	9106-0001-132D
169489007	9106-0001-112A
169489008	9106-0001-112B
169489009	9106-0001-112C
169489010	9106-0001-112D

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

**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:**

Ten soil samples were analyzed for FSSGAM.

**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. 2006-00496

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. 3924						FSSGAM	FSSALL						Comments		
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													1694891		
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D. <input checked="" type="checkbox"/> 3 D.															
Sample Designation	Date	Time										Comment, Preservation	Lab Sample ID		
9106-0001-132F			SE	C	BP	X									
9106-0001-112F			SE	C	BP	X									
9106-0001-132A			SE	C	BP	X									
9106-0001-132B			SE	C	BP	X									
9106-0001-132C			SE	C	BP	X									
9106-0001-132D			SE	C	BP	X									
9106-0001-112A			SE	C	BP	X									
9106-0001-112B			SE	C	BP	X									
9106-0001-112C			SE	C	BP	X									
NOTES: PO #: 002332    MSR #: 06-1130    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 JAIME RICARTE			Date/Time 8-16-06/1155			2) Received By C. Derivat			Date/Time 8/17/06/915A			Bill of Lading # 7921 8130 3482.			
3) Relinquished By			Date/Time			4) Received By			Date/Time						
5) Relinquished By			Date/Time			6) Received By			Date/Time						

<b>Connecticut Yankee Atomic Power Company</b> 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						<b>Chain of Custody Form</b>						No. 2006-00497		
<b>Project Name:</b> Haddam Neck Decommissioning						<b>Analyses Requested</b>					<b>Lab Use Only</b>			
<b>Contact Name &amp; Phone:</b> Jack McCarthy 860-267-2556 Ext. 3924						FSSGAM	FSSALL					<b>Comments</b>		
<b>Analytical Lab (Name, City, State)</b> General Engineering Laboratories 2040 Savage Road. Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones														
<b>Priority:</b> <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D. <input checked="" type="checkbox"/> 3 D.														
<b>Sample Designation</b>	<b>Date</b>	<b>Time</b>	<b>Media Code</b>	<b>Sample Type Code</b>	<b>Container Size- &amp; Type Code</b>						<b>Comment, Preservation</b>	<b>Lab Sample ID</b>		
9106-0001-112D			SE	C	BP	X								
<b>NOTES:</b> PO #: 002332    MSR #: 06-1130    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA											<b>Samples Shipped Via:</b> <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		<b>Internal Container Temp:</b> _____ Deg <b>Custody Sealed?</b> Y <input type="checkbox"/> N <input type="checkbox"/> <b>Custody Seal Intact?</b> Y <input type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <u>JAIME RICARTE</u> Date/Time <u>8-16-06/1155</u>			2) Received By <u>C. Deri cut</u> Date/Time <u>8/17/06 @ 915a</u>									<b>Bill of Lading #</b>  <u>7921 8130 3482</u>		
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: 8/17/06 @ 915A.

SDG#: MSR#06-1130

Work Order Number: 169489/.

Shipping Container ID: 7921 6130 3482 Chain of Custody #: 2606-PD496

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 26.0
5. Vermiculite/packing materials is: Wet ☒ Dry ☐
6. Number of samples in shipping container: 10 - samples
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): none

Sample Custodian/Laboratory: C. Duniach Date: 8/17/06

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





# **RADIOLOGICAL ANALYSIS**

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 169489**

**Method/Analysis Information**

**Product:** Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived  
**Analytical Method:** EML HASL 300, 4.5.2.3  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 559393  
**Prep Batch Number:** 559366

<b>Sample ID</b>	<b>Client ID</b>
169489001	9106-0001-132F
169489002	9106-0001-112F
169489003	9106-0001-132A
169489004	9106-0001-132B
169489005	9106-0001-132C
169489006	9106-0001-132D
169489007	9106-0001-112A
169489008	9106-0001-112B
169489009	9106-0001-112C
169489010	9106-0001-112D
1201161904	Method Blank (MB)
1201161905	169489001(9106-0001-132F) Sample Duplicate (DUP)
1201161906	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: 169489001 (9106-0001-132F).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG:

NCR 348221 was generated due to Failed RPD for DUP. 1. The relative percent difference (169489001 and 1201161905) did not meet the required duplication criteria for Lead-212 at 23.486%.  
1. Pb-212 is a naturally emitting isotope. Reporting results.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high peak-width.	Bismuth-212	169489001
UI	Data rejected due to interference.	Cesium-134	169489003
		Europium-155	169489001
			169489003
UI	Data rejected due to low abundance.	Cesium-134	169489002
			169489004
			169489005
			169489007
			169489008
			169489009
			169489010
			1201161905

#### **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: Y. Gmel 8/21/06

COMPANY - WIDE NONCONFORMANCE REPORT			
<b>Mo.Day Yr.</b> 21-AUG-06	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> GAMMA SPECTROMETER	<b>Test / Method:</b> EML HASL 300, 4.5.2.3	<b>Matrix Type:</b> Solid	<b>Client Code:</b> YANK
<b>Batch ID:</b> 559393	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG): 169489(MSR#06-1130),169493(MSR#06-1131)</b> <b>Application Issues:</b> Failed RPD for DUP			
<b>Specification and Requirements</b>		<b>NRG Disposition:</b>	
<b>Nonconformance Description:</b>			
1. The relative percent difference (169489001 and 1201161905) did not meet the required duplication criteria for Lead-212 at 23.486%.		1. Pb-212 is a naturally emitting isotope. Reporting results.	

**Originator's Name:**  
Jimmy Hartley      21-AUG-06

**Data Validator/Group Leader:**  
Heather Anderson      21-AUG-06

**Quality Review:**

**Director:**

# **SAMPLE DATA SUMMARY**

## GENERAL ENGINEERING LABORATORIES, LLC

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### Certificate of Analysis Report for

YANK001 Connecticut Yankee Atomic Power Co.

Client SDG: MSR#06-1130 GEL Work Order: 169489

**The Qualifiers in this report are defined as follows:**

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

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

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

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



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



# 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 0001 132F  
Sample ID: 169489001  
Matrix: SE  
Collect Date: 07 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 27.9%

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

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

### Rad Gamma Spec Analysis

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

Actinium 228		1.03	+/- 0.245	0.0918	+/- 0.245	0.196	pCi/g						
Americium 241	U	0.0548	+/- 0.103	0.087	+/- 0.103	0.180	pCi/g						
Bismuth 212	UI	0.00	+/- 0.427	0.207	+/- 0.427	0.436	pCi/g						
Bismuth 214		0.654	+/- 0.137	0.0399	+/- 0.137	0.0847	pCi/g						
Cesium 134	U	0.0706	+/- 0.0524	0.0345	+/- 0.0524	0.0725	pCi/g						
Cesium 137		0.558	+/- 0.0668	0.0252	+/- 0.0668	0.0533	pCi/g						
Cobalt 60		1.66	+/- 0.124	0.0235	+/- 0.124	0.0517	pCi/g						
Europium 152	U	0.0057	+/- 0.0712	0.0589	+/- 0.0712	0.123	pCi/g						
Europium 154	U	0.0388	+/- 0.0741	0.0596	+/- 0.0741	0.132	pCi/g						
Europium 155	UI	0.00	+/- 0.111	0.0544	+/- 0.111	0.113	pCi/g						
Lead 212		0.799	+/- 0.0747	0.0323	+/- 0.0747	0.067	pCi/g						
Lead 214		0.805	+/- 0.123	0.0402	+/- 0.123	0.0843	pCi/g						
Manganese 54	U	0.000465	+/- 0.0303	0.0254	+/- 0.0303	0.0539	pCi/g						
Niobium 94	U	0.00327	+/- 0.0264	0.0223	+/- 0.0264	0.0471	pCi/g						
Potassium 40		11.3	+/- 1.02	0.185	+/- 1.02	0.419	pCi/g						
Radium 226		0.654	+/- 0.137	0.0399	+/- 0.137	0.0847	pCi/g						
Silver 108m	U	0.00854	+/- 0.0236	0.0212	+/- 0.0236	0.0445	pCi/g						
Thallium 208		0.394	+/- 0.0629	0.0188	+/- 0.0629	0.0403	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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 0001 132F  
Sample ID: 169489001

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

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

> 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.

# 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 0001 112F  
Sample ID: 169489002  
Matrix: SE  
Collect Date: 02 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 43.6%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.06	+/- 0.211	0.107	+/- 0.211	0.221	pCi/g						
Americium 241	U	0.125	+/- 0.116	0.0817	+/- 0.116	0.167	pCi/g						
Bismuth 212		0.851	+/- 0.345	0.188	+/- 0.345	0.390	pCi/g						
Bismuth 214		0.905	+/- 0.111	0.0425	+/- 0.111	0.0881	pCi/g						
Cesium 134	UI	0.00	+/- 0.0393	0.0314	+/- 0.0393	0.0651	pCi/g						
Cesium 137		2.34	+/- 0.111	0.0256	+/- 0.111	0.0532	pCi/g						
Cobalt 60		2.65	+/- 0.124	0.0239	+/- 0.124	0.0508	pCi/g						
Europium 152	U	0.00432	+/- 0.0724	0.0607	+/- 0.0724	0.125	pCi/g						
Europium 154	U	0.0153	+/- 0.0839	0.0694	+/- 0.0839	0.147	pCi/g						
Europium 155	U	0.0707	+/- 0.0686	0.0593	+/- 0.0686	0.121	pCi/g						
Lead 212		1.25	+/- 0.0793	0.0339	+/- 0.0793	0.0694	pCi/g						
Lead 214		0.949	+/- 0.113	0.045	+/- 0.113	0.0927	pCi/g						
Manganese 54	U	0.0451	+/- 0.0419	0.0263	+/- 0.0419	0.0547	pCi/g						
Niobium 94	U	0.012	+/- 0.0252	0.0217	+/- 0.0252	0.0451	pCi/g						
Potassium 40		13.9	+/- 0.991	0.207	+/- 0.991	0.444	pCi/g						
Radium 226		0.905	+/- 0.111	0.0425	+/- 0.111	0.0881	pCi/g						
Silver 108m	U	0.0214	+/- 0.0315	0.0236	+/- 0.0315	0.0485	pCi/g						
Thallium 208		0.418	+/- 0.0636	0.0225	+/- 0.0636	0.0468	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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 0001 112F  
Sample ID: 169489002

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

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

> 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 0001 132A  
Sample ID: 169489003  
Matrix: SE  
Collect Date: 11 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 31.8%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.19	+/- 0.207	0.0693	+/- 0.207	0.144	pCi/g						
Americium 241	U	0.0893	+/- 0.121	0.0963	+/- 0.121	0.197	pCi/g						
Bismuth 212		0.712	+/- 0.213	0.133	+/- 0.213	0.276	pCi/g						
Bismuth 214		0.833	+/- 0.0801	0.0311	+/- 0.0801	0.0645	pCi/g						
Cesium 134	UI	0.00	+/- 0.0324	0.0188	+/- 0.0324	0.0393	pCi/g						
Cesium 137		0.525	+/- 0.0438	0.0172	+/- 0.0438	0.0357	pCi/g						
Cobalt 60		1.62	+/- 0.0869	0.0166	+/- 0.0869	0.0354	pCi/g						
Europium 152	U	0.0472	+/- 0.0519	0.0414	+/- 0.0519	0.0855	pCi/g						
Europium 154	U	0.0684	+/- 0.0623	0.0535	+/- 0.0623	0.113	pCi/g						
Europium 155	UI	0.00	+/- 0.0727	0.0442	+/- 0.0727	0.0905	pCi/g						
Lead 212		1.08	+/- 0.0562	0.0234	+/- 0.0562	0.048	pCi/g						
Lead 214		0.970	+/- 0.0862	0.0306	+/- 0.0862	0.0632	pCi/g						
Manganese 54	U	0.000782	+/- 0.0227	0.0187	+/- 0.0227	0.039	pCi/g						
Niobium 94	U	0.00632	+/- 0.0182	0.0156	+/- 0.0182	0.0324	pCi/g						
Potassium 40		13.0	+/- 0.754	0.126	+/- 0.754	0.274	pCi/g						
Radium 226		0.833	+/- 0.0801	0.0311	+/- 0.0801	0.0645	pCi/g						
Silver 108m	U	0.00519	+/- 0.017	0.0147	+/- 0.017	0.0305	pCi/g						
Thallium 208		0.316	+/- 0.0483	0.016	+/- 0.0483	0.0332	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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 0001 132A  
Sample ID: 169489003

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

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

> 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 0001 132B  
Sample ID: 169489004  
Matrix: SE  
Collect Date: 11 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 28.5%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.08	+/- 0.244	0.113	+/- 0.244	0.233	pCi/g		MJH1	08/18/06	1315	559393	1
Americium 241	U	0.147	+/- 0.110	0.0817	+/- 0.110	0.167	pCi/g						
Bismuth 212		0.681	+/- 0.364	0.202	+/- 0.364	0.419	pCi/g						
Bismuth 214		0.521	+/- 0.110	0.0448	+/- 0.110	0.0926	pCi/g						
Cesium 134	UI	0.00	+/- 0.0539	0.0325	+/- 0.0539	0.0671	pCi/g						
Cesium 137		1.25	+/- 0.0738	0.0253	+/- 0.0738	0.0524	pCi/g						
Cobalt 60		3.56	+/- 0.133	0.0219	+/- 0.133	0.0469	pCi/g						
Europium 152	U	0.0214	+/- 0.0677	0.0569	+/- 0.0677	0.117	pCi/g						
Europium 154	U	0.0341	+/- 0.0832	0.0718	+/- 0.0832	0.152	pCi/g						
Europium 155	U	0.0966	+/- 0.0619	0.0555	+/- 0.0619	0.114	pCi/g						
Lead 212		0.903	+/- 0.0645	0.0321	+/- 0.0645	0.0657	pCi/g						
Lead 214		0.706	+/- 0.0984	0.0431	+/- 0.0984	0.0887	pCi/g						
Manganese 54	U	0.00978	+/- 0.0344	0.0291	+/- 0.0344	0.0601	pCi/g						
Niobium 94	U	0.00758	+/- 0.0277	0.0232	+/- 0.0277	0.0481	pCi/g						
Potassium 40		13.2	+/- 0.906	0.185	+/- 0.906	0.400	pCi/g						
Radium 226		0.521	+/- 0.110	0.0448	+/- 0.110	0.0926	pCi/g						
Silver 108m	U	0.00177	+/- 0.0264	0.022	+/- 0.0264	0.0453	pCi/g						
Thallium 208		0.297	+/- 0.0591	0.0236	+/- 0.0591	0.0488	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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 0001 132B  
Sample ID: 169489004

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

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

> 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 0001 132C  
Sample ID: 169489005  
Matrix: SE  
Collect Date: 11 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 18%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.814	+/- 0.152	0.0601	+/- 0.152	0.130	pCi/g						
Americium 241	U	0.0306	+/- 0.0879	0.0846	+/- 0.0879	0.174	pCi/g						
Bismuth 212		0.532	+/- 0.294	0.117	+/- 0.294	0.253	pCi/g						
Bismuth 214		0.821	+/- 0.0975	0.0329	+/- 0.0975	0.0699	pCi/g						
Cesium 134	UI	0.00	+/- 0.0308	0.0215	+/- 0.0308	0.0458	pCi/g						
Cesium 137	U	0.0145	+/- 0.0195	0.0179	+/- 0.0195	0.0381	pCi/g						
Cobalt 60	U	0.0226	+/- 0.0231	0.0217	+/- 0.0231	0.0471	pCi/g						
Europium 152	U	0.0194	+/- 0.0484	0.043	+/- 0.0484	0.0907	pCi/g						
Europium 154	U	0.00311	+/- 0.0706	0.0601	+/- 0.0706	0.130	pCi/g						
Europium 155	U	0.0612	+/- 0.0812	0.0518	+/- 0.0812	0.107	pCi/g						
Lead 212		0.865	+/- 0.0633	0.0279	+/- 0.0633	0.058	pCi/g						
Lead 214		0.945	+/- 0.0936	0.0309	+/- 0.0936	0.0651	pCi/g						
Manganese 54	U	0.028	+/- 0.0186	0.0155	+/- 0.0186	0.0334	pCi/g						
Niobium 94	U	0.0121	+/- 0.0182	0.0147	+/- 0.0182	0.0315	pCi/g						
Potassium 40		10.4	+/- 0.911	0.163	+/- 0.911	0.364	pCi/g						
Radium 226		0.821	+/- 0.0975	0.0329	+/- 0.0975	0.0699	pCi/g						
Silver 108m	U	0.00579	+/- 0.0171	0.0149	+/- 0.0171	0.0316	pCi/g						
Thallium 208		0.275	+/- 0.0501	0.0174	+/- 0.0501	0.0369	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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 0001 132C  
Sample ID: 169489005

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

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

> 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 0001 132D  
Sample ID: 169489006  
Matrix: SE  
Collect Date: 11 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 24.4%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.953	+/- 0.221	0.068	+/- 0.221	0.146	pCi/g						
Americium 241	U	0.0091	+/- 0.126	0.084	+/- 0.126	0.173	pCi/g						
Bismuth 212		1.15	+/- 0.319	0.126	+/- 0.319	0.271	pCi/g						
Bismuth 214		0.780	+/- 0.0989	0.0349	+/- 0.0989	0.0738	pCi/g						
Cesium 134	U	0.0515	+/- 0.0385	0.0247	+/- 0.0385	0.0522	pCi/g						
Cesium 137		0.311	+/- 0.0437	0.0189	+/- 0.0437	0.0402	pCi/g						
Cobalt 60		0.431	+/- 0.062	0.0153	+/- 0.062	0.0342	pCi/g						
Europium 152	U	0.00842	+/- 0.0543	0.048	+/- 0.0543	0.101	pCi/g						
Europium 154	U	0.00698	+/- 0.0661	0.0549	+/- 0.0661	0.120	pCi/g						
Europium 155	U	0.0858	+/- 0.061	0.0577	+/- 0.061	0.119	pCi/g						
Lead 212		0.927	+/- 0.0645	0.0295	+/- 0.0645	0.0611	pCi/g						
Lead 214		0.809	+/- 0.0949	0.0368	+/- 0.0949	0.0768	pCi/g						
Manganese 54	U	0.0222	+/- 0.0269	0.0194	+/- 0.0269	0.0413	pCi/g						
Niobium 94	U	0.021	+/- 0.020	0.0181	+/- 0.020	0.0384	pCi/g						
Potassium 40		11.0	+/- 0.892	0.152	+/- 0.892	0.341	pCi/g						
Radium 226		0.780	+/- 0.0989	0.0349	+/- 0.0989	0.0738	pCi/g						
Silver 108m	U	0.00199	+/- 0.0198	0.0172	+/- 0.0198	0.0362	pCi/g						
Thallium 208		0.287	+/- 0.0511	0.0182	+/- 0.0511	0.0386	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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 0001 132D  
Sample ID: 169489006

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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> 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 0001 112A  
Sample ID: 169489007  
Matrix: SE  
Collect Date: 14 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 39.6%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.17	+/- 0.220	0.0988	+/- 0.220	0.205	pCi/g						
Americium 241	U	0.128	+/- 0.116	0.0835	+/- 0.116	0.171	pCi/g		MJH1	08/18/06	1316	559393	1
Bismuth 212		0.828	+/- 0.299	0.169	+/- 0.299	0.352	pCi/g						
Bismuth 214		0.741	+/- 0.104	0.0446	+/- 0.104	0.0924	pCi/g						
Cesium 134	UI	0.00	+/- 0.0571	0.0293	+/- 0.0571	0.0608	pCi/g						
Cesium 137		2.20	+/- 0.0876	0.0219	+/- 0.0876	0.0457	pCi/g						
Cobalt 60		1.83	+/- 0.0987	0.0192	+/- 0.0987	0.0414	pCi/g						
Europium 152	U	0.0307	+/- 0.0725	0.0592	+/- 0.0725	0.122	pCi/g						
Europium 154	U	0.00545	+/- 0.0739	0.0609	+/- 0.0739	0.130	pCi/g						
Europium 155	U	0.0387	+/- 0.0683	0.0583	+/- 0.0683	0.119	pCi/g						
Lead 212		1.11	+/- 0.0677	0.0321	+/- 0.0677	0.0658	pCi/g						
Lead 214		0.883	+/- 0.109	0.0473	+/- 0.109	0.0972	pCi/g						
Manganese 54	U	0.00409	+/- 0.0279	0.0236	+/- 0.0279	0.0491	pCi/g						
Niobium 94	U	0.011	+/- 0.0235	0.0203	+/- 0.0235	0.0423	pCi/g						
Potassium 40		14.1	+/- 0.876	0.164	+/- 0.876	0.358	pCi/g						
Radium 226		0.741	+/- 0.104	0.0446	+/- 0.104	0.0924	pCi/g						
Silver 108m	U	0.0107	+/- 0.0258	0.0208	+/- 0.0258	0.043	pCi/g						
Thallium 208		0.370	+/- 0.0475	0.0219	+/- 0.0475	0.0455	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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 0001 112A  
Sample ID: 169489007

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

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

> 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 0001 112B  
Sample ID: 169489008  
Matrix: SE  
Collect Date: 14 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 28.7%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		1.07	+/- 0.147	0.0548	+/- 0.147	0.114	pCi/g						
Americium 241	U	0.0756	+/- 0.106	0.0857	+/- 0.106	0.176	pCi/g						
Bismuth 212		0.644	+/- 0.196	0.108	+/- 0.196	0.225	pCi/g						
Bismuth 214		0.703	+/- 0.0761	0.0287	+/- 0.0761	0.0594	pCi/g						
Cesium 134	UI	0.00	+/- 0.0284	0.0184	+/- 0.0284	0.0382	pCi/g						
Cesium 137		1.48	+/- 0.0633	0.0143	+/- 0.0633	0.0298	pCi/g						
Cobalt 60		0.981	+/- 0.0677	0.0132	+/- 0.0677	0.0281	pCi/g						
Europium 152	U	0.0301	+/- 0.0672	0.041	+/- 0.0672	0.0846	pCi/g						
Europium 154	U	0.019	+/- 0.0512	0.0435	+/- 0.0512	0.0918	pCi/g						
Europium 155	U	0.0394	+/- 0.0692	0.0479	+/- 0.0692	0.0982	pCi/g						
Lead 212		1.00	+/- 0.0537	0.0236	+/- 0.0537	0.0485	pCi/g						
Lead 214		0.848	+/- 0.0763	0.0286	+/- 0.0763	0.0589	pCi/g						
Manganese 54	U	0.0186	+/- 0.0222	0.0165	+/- 0.0222	0.0342	pCi/g						
Niobium 94	U	0.00178	+/- 0.018	0.0131	+/- 0.018	0.0273	pCi/g						
Potassium 40		14.2	+/- 0.695	0.101	+/- 0.695	0.219	pCi/g						
Radium 226		0.703	+/- 0.0761	0.0287	+/- 0.0761	0.0594	pCi/g						
Silver 108m	U	0.00208	+/- 0.0164	0.0144	+/- 0.0164	0.0298	pCi/g						
Thallium 208		0.301	+/- 0.042	0.0145	+/- 0.042	0.0302	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1312	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

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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 0001 112B  
Sample ID: 169489008

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

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

> 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 0001 112C  
Sample ID: 169489009  
Matrix: SE  
Collect Date: 15 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 19.9%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.801	+/- 0.180	0.056	+/- 0.180	0.119	pCi/g						
Americium 241	U	0.0214	+/- 0.0414	0.0394	+/- 0.0414	0.0812	pCi/g						
Bismuth 212		0.465	+/- 0.239	0.138	+/- 0.239	0.291	pCi/g						
Bismuth 214		0.545	+/- 0.0847	0.0288	+/- 0.0847	0.0607	pCi/g						
Cesium 134	UI	0.00	+/- 0.0334	0.0233	+/- 0.0334	0.0487	pCi/g						
Cesium 137		0.746	+/- 0.0861	0.0163	+/- 0.0861	0.0343	pCi/g						
Cobalt 60		0.520	+/- 0.0652	0.0152	+/- 0.0652	0.0332	pCi/g						
Europium 152	U	0.0216	+/- 0.045	0.0413	+/- 0.045	0.0862	pCi/g						
Europium 154	U	0.0288	+/- 0.0508	0.0395	+/- 0.0508	0.0867	pCi/g						
Europium 155	U	0.0581	+/- 0.0468	0.0439	+/- 0.0468	0.0903	pCi/g						
Lead 212		0.787	+/- 0.0899	0.0303	+/- 0.0899	0.0623	pCi/g						
Lead 214		0.576	+/- 0.0834	0.0279	+/- 0.0834	0.0585	pCi/g						
Manganese 54	U	0.00473	+/- 0.0188	0.0162	+/- 0.0188	0.0344	pCi/g						
Niobium 94	U	0.00483	+/- 0.0155	0.0141	+/- 0.0155	0.0299	pCi/g						
Potassium 40		10.6	+/- 0.950	0.112	+/- 0.950	0.252	pCi/g						
Radium 226		0.545	+/- 0.0847	0.0288	+/- 0.0847	0.0607	pCi/g						
Silver 108m	U	0.00971	+/- 0.0166	0.015	+/- 0.0166	0.0314	pCi/g						
Thallium 208		0.272	+/- 0.0457	0.0164	+/- 0.0457	0.0344	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1313	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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 0001 112C  
Sample ID: 169489009

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

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

- > 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 0001 112D  
Sample ID: 169489010  
Matrix: SE  
Collect Date: 15 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 19.6%

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 226 Ingrowth</i>													
<i>Waived</i>													
Actinium 228		0.729	+/- 0.146	0.0411	+/- 0.146	0.087	pCi/g						
Americium 241	U	0.0381	+/- 0.0558	0.0534	+/- 0.0558	0.110	pCi/g						
Bismuth 212		0.574	+/- 0.213	0.0874	+/- 0.213	0.184	pCi/g						
Bismuth 214		0.581	+/- 0.0677	0.0243	+/- 0.0677	0.0507	pCi/g						
Cesium 134	UI	0.00	+/- 0.0226	0.0156	+/- 0.0226	0.0326	pCi/g						
Cesium 137		0.542	+/- 0.0411	0.0121	+/- 0.0411	0.0255	pCi/g						
Cobalt 60		0.308	+/- 0.0358	0.011	+/- 0.0358	0.0238	pCi/g						
Europium 152	U	0.00733	+/- 0.0366	0.0338	+/- 0.0366	0.0702	pCi/g						
Europium 154	U	0.0297	+/- 0.0423	0.0377	+/- 0.0423	0.0803	pCi/g						
Europium 155	U	0.0713	+/- 0.0587	0.0392	+/- 0.0587	0.0806	pCi/g						
Lead 212		0.771	+/- 0.0446	0.0202	+/- 0.0446	0.0416	pCi/g						
Lead 214		0.672	+/- 0.071	0.0227	+/- 0.071	0.0471	pCi/g						
Manganese 54	U	0.00752	+/- 0.0139	0.0127	+/- 0.0139	0.0266	pCi/g						
Niobium 94	U	0.00559	+/- 0.0126	0.0116	+/- 0.0126	0.0243	pCi/g						
Potassium 40		10.9	+/- 0.586	0.0941	+/- 0.586	0.206	pCi/g						
Radium 226		0.581	+/- 0.0677	0.0243	+/- 0.0677	0.0507	pCi/g						
Silver 108m	U	0.00191	+/- 0.0126	0.0114	+/- 0.0126	0.0238	pCi/g						
Thallium 208		0.236	+/- 0.0295	0.0125	+/- 0.0295	0.0262	pCi/g						

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL RAD A 021	AXP2	08/17/06	1313	559366

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

- \* A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported

# 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 0001 112D  
Sample ID: 169489010

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

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

- > 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.

# 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 5

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 169489

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	559393										
QC1201161905 169489001 DUP											
Actinium-228		1.03		0.939	pCi/g	10		(0% - 100%)	MJH1	08/18/06	16:29
	Uncert:	+/-0.245		+/-0.174							
	TPU:	+/-0.245		+/-0.174							
Americium-241	U	0.0548	U	0.153	pCi/g	95		(0% - 100%)			
	Uncert:	+/-0.103		+/-0.118							
	TPU:	+/-0.103		+/-0.118							
Bismuth-212	UI	0.00		0.672	pCi/g	13*		(0% - 100%)			
	Uncert:	+/-0.427		+/-0.252							
	TPU:	+/-0.427		+/-0.252							
Bismuth-214		0.654		0.799	pCi/g	20		(0% - 100%)			
	Uncert:	+/-0.137		+/-0.0914							
	TPU:	+/-0.137		+/-0.0914							
Cesium-134	U	0.0706	UI	0.00	pCi/g	24		(0% - 100%)			
	Uncert:	+/-0.0524		+/-0.0359							
	TPU:	+/-0.0524		+/-0.0359							
Cesium-137		0.558		0.562	pCi/g	1		(0% - 100%)			
	Uncert:	+/-0.0668		+/-0.0427							
	TPU:	+/-0.0668		+/-0.0427							
Cobalt-60		1.66		1.72	pCi/g	3		(0% - 20%)			
	Uncert:	+/-0.124		+/-0.087							
	TPU:	+/-0.124		+/-0.087							
Europium-152	U	-0.0057	U	-0.0116	pCi/g	68		(0% - 100%)			
	Uncert:	+/-0.0712		+/-0.0537							
	TPU:	+/-0.0712		+/-0.0537							
Europium-154	U	-0.0388	U	-0.0661	pCi/g	52		(0% - 100%)			
	Uncert:	+/-0.0741		+/-0.0619							
	TPU:	+/-0.0741		+/-0.0619							
Europium-155	UI	0.00	U	0.0287	pCi/g	136		(0% - 100%)			
	Uncert:	+/-0.111		+/-0.052							
	TPU:	+/-0.111		+/-0.052							
Lead-212		0.799		1.01	pCi/g	24		(0% - 20%)			
	Uncert:	+/-0.0747		+/-0.0574							
	TPU:	+/-0.0747		+/-0.0574							
Lead-214		0.805		0.946	pCi/g	16		(0% - 20%)			
	Uncert:	+/-0.123		+/-0.0832							
	TPU:	+/-0.123		+/-0.0832							
Manganese-54	U	-0.000465	U	0.00889	pCi/g	222		(0% - 100%)			
	Uncert:	+/-0.0303		+/-0.0174							
	TPU:	+/-0.0303		+/-0.0174							
Niobium-94	U	-0.00327	U	0.00534	pCi/g	833		(0% - 100%)			
	Uncert:	+/-0.0264		+/-0.0181							
	TPU:	+/-0.0264		+/-0.0181							

**GENERAL ENGINEERING LABORATORIES, LLC**  
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**QC Summary**

Workorder: 169489

Page 2 of 5

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	559393										
Potassium-40		11.3		12.9	pCi/g	13		(0% - 20%)			
	Uncert:	+/-1.02		+/-0.740							
	TPU:	+/-1.02		+/-0.740							
Radium-226		0.654		0.799	pCi/g	20		(0% - 100%)			
	Uncert:	+/-0.137		+/-0.0914							
	TPU:	+/-0.137		+/-0.0914							
Silver-108m	U	0.00854	U	-0.0148	pCi/g	748		(0% - 100%)			
	Uncert:	+/-0.0236		+/-0.0167							
	TPU:	+/-0.0236		+/-0.0167							
Thallium-208		0.394		0.332	pCi/g	17		(0% - 100%)			
	Uncert:	+/-0.0629		+/-0.0441							
	TPU:	+/-0.0629		+/-0.0441							
QC1201161906	LCS										
Actinium-228			U	0.692	pCi/g					08/18/06	16:30
	Uncert:			+/-0.624							
	TPU:			+/-0.624							
Americium-241	23.4			25.5	pCi/g		109	(75%-125%)			
	Uncert:			+/-1.42							
	TPU:			+/-1.42							
Bismuth-212			U	0.670	pCi/g						
	Uncert:			+/-1.36							
	TPU:			+/-1.36							
Bismuth-214			U	0.0325	pCi/g						
	Uncert:			+/-0.247							
	TPU:			+/-0.247							
Cesium-134			U	-0.00147	pCi/g						
	Uncert:			+/-0.156							
	TPU:			+/-0.156							
Cesium-137	9.58			9.55	pCi/g		100	(75%-125%)			
	Uncert:			+/-0.496							
	TPU:			+/-0.496							
Cobalt-60	14.6			15.6	pCi/g		107	(75%-125%)			
	Uncert:			+/-0.680							
	TPU:			+/-0.680							
Europium-152			U	0.193	pCi/g						
	Uncert:			+/-0.310							
	TPU:			+/-0.310							
Europium-154			U	-0.0809	pCi/g						
	Uncert:			+/-0.407							
	TPU:			+/-0.407							
Europium-155			U	-0.0999	pCi/g						
	Uncert:			+/-0.330							
	TPU:			+/-0.330							
Lead-212			U	0.0195	pCi/g						
	Uncert:			+/-0.167							
	TPU:			+/-0.167							
Lead-214			U	-0.188	pCi/g						
	Uncert:			+/-0.225							

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

**QC Summary**

Workorder: 169489

Page 3 of 5

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>										
Batch	559393									
Manganese-54	TPU:		+/-0.225							
	Uncert:	U	-0.037	pCi/g						
Niobium-94	TPU:		+/-0.167							
	Uncert:	U	0.00951	pCi/g						
Potassium-40	TPU:		+/-0.128							
	Uncert:	U	-0.215	pCi/g						
Radium-226	TPU:		+/-1.21							
	Uncert:	U	0.0325	pCi/g			(75%-125%)			
Silver-108m	TPU:		+/-0.247							
	Uncert:	U	0.0256	pCi/g						
Thallium-208	TPU:		+/-0.118							
	Uncert:	U	-0.021	pCi/g						
Actinium-228	TPU:		+/-0.129							
	Uncert:	U	+/-0.129							
QC1201161904 MB										
Americium-241	TPU:		0.0529	pCi/g					08/18/06	16:29
	Uncert:	U	+/-0.0385							
Bismuth-212	TPU:		+/-0.0385							
	Uncert:	U	0.00443	pCi/g						
Bismuth-214	TPU:		+/-0.0405							
	Uncert:	U	+/-0.0405							
Cesium-134	TPU:		0.0079	pCi/g						
	Uncert:	U	+/-0.0865							
Cesium-137	TPU:		+/-0.0865							
	Uncert:	U	0.0138	pCi/g						
Cobalt-60	TPU:		+/-0.0472							
	Uncert:	U	+/-0.0472							
Europium-152	TPU:		-0.00723	pCi/g						
	Uncert:	U	+/-0.00999							
Europium-154	TPU:		+/-0.00999							
	Uncert:	U	-0.00436	pCi/g						
Europium-155	TPU:		+/-0.0111							
	Uncert:	U	+/-0.0111							



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

**QC Summary**

Workorder: 169489

Page 4 of 5

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>										
Batch	559393									
			Uncert:							
			TPU:							
Lead-212		U	0.000175	pCi/g						
			Uncert:							
			TPU:							
Lead-214		U	0.0241	pCi/g						
			Uncert:							
			TPU:							
Manganese-54		U	-0.0049	pCi/g						
			Uncert:							
			TPU:							
Niobium-94		U	-0.0093	pCi/g						
			Uncert:							
			TPU:							
Potassium-40		U	0.0553	pCi/g						
			Uncert:							
			TPU:							
Radium-226		U	0.0138	pCi/g						
			Uncert:							
			TPU:							
Silver-108m		U	0.00363	pCi/g						
			Uncert:							
			TPU:							
Thallium-208		U	0.00849	pCi/g						
			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

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**QC Summary**

Workorder: 169489

Page 5 of 5

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

## Table of Contents

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# **General Narrative**

**General Narrative  
for  
Connecticut Yankee Atomic Power Co.  
Work Order: 173770  
SDG: MSR#06-1130**

**October 16, 2006**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The sample arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on August 17, 2006 for analysis. Shipping container temperature was checked, documented, and within specifications. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

**Sample Identification** The laboratory received the following sample:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
173770001	9106-0001-112F

**Items of Note**

Dale Randall requested FSSALL (sans gamma) be analyzed on the sample above via email on 10/11/06.

**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 contained in the analytical case narratives in the enclosed data package.

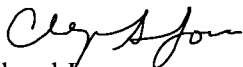
**Analytical Request**

One soil sample was reanalyzed for FSSALL, sans gamma.

**Data Package**

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

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

A handwritten signature in black ink, appearing to read "Cheryl Jones", written in a cursive style.

Cheryl Jones  
Project Manager

**List of current GEL Certifications as of 16 October 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)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**



**Connecticut Yankee Atomic Power Company**362 Injun Hollow Road, East Hampton, CT 06424  
860-267-2556**Chain of Custody Form**

No. 2006-00496

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. 3924						FSSGAM	FSSALL						Comments:	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones													relog 173770  169489%	
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D. <input checked="" type="checkbox"/> 3 D.														
Sample Designation	Date	Time									Comment, Preservation	Lab Sample ID		
9106-0001-132F			SE	C	BP	X								
9106-0001-112F			SE	C	BP	X								
9106-0001-132A			SE	C	BP	X								
9106-0001-132B			SE	C	BP	X								
9106-0001-132C			SE	C	BP	X								
9106-0001-132D			SE	C	BP	X								
9106-0001-112A			SE	C	BP	X								
9106-0001-112B			SE	C	BP	X								
9106-0001-112C			SE	C	BP	X								
NOTES: PO #: 002332    MSR #: 06-1130    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		Date/Time		2) Received By		Date/Time		Bill of Lading # 7921 8130 3482						
JAIME RICARTE		8-16-06/1155		C. Demicco		8/17/06/915A								
3) Relinquished By		Date/Time		4) Received By		Date/Time								
5) Relinquished By		Date/Time		6) Received By		Date/Time								

Connecticut Yankee Atomic Power Company						Chain of Custody Form						No. 2006-00497			
362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556															
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. 3924						FSSGAM	FSSALL							Comments	
Analytical Lab (Name, City, State) General Engineering Laboratories 2040 Savage Road, Charleston SC. 29407 843 556 8171. Attn. Cheryl Jones															
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input type="checkbox"/> 7 D. <input checked="" type="checkbox"/> 3 D.															
Sample Designation	Date	Time										Comment, Preservation	Lab Sample ID		
9106-0001-112D			SE	C	BP	X									
NOTES: PO #: 002332    MSR #: 06-1130    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 Custody Sealed? Y <input type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>			
1) Relinquished By JAIME RICARTE			Date/Time 8-16-06/1155			2) Received By C. Demicco			Date/Time 8/17/06 @ 915a			Bill of Lading # 7921 8130 3482			
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: 8/17/06 @ 915A.

SDG#: MSR#06-1130

Work Order Number: 1694891.

Shipping Container ID: 7921 6130 3482 Chain of Custody #: 2606-00496

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 26°C
5. Vermiculite/packing materials is: Wet ☒ Dry ☐
6. Number of samples in shipping container: 10 - samples
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): none

Sample Custodian/Laboratory: C. Duric et al Date: 8/17/06

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

RE: Please send your request for analysis

**Subject:** RE: Please send your request for analysis

**From:** "Dale Randall" <randall@cyapco.com>

**Date:** Wed, 11 Oct 2006 09:21:19 -0400

**To:** "Cheryl Jones" <cj@gel.com>

**CC:** "Arthur L. Hammond" <Hammond@CYAPCO.com>, "John McCarthy" <McCarthy@CYAPCO.com>

Sorry, old habits die hard, it is:  
9106-0001-112F

-----Original Message-----

From: Cheryl Jones [mailto:cj@gel.com]

Sent: Wednesday, October 11, 2006 9:17 AM

To: Dale Randall

Cc: Arthur L. Hammond; John McCarthy

Subject: Re: Please send your request for analysis

Dale,

Please confirm that ID. Our system lists MSR#06-1130 as containing the following IDs:

9106-0001-132F  
9106-0001-112F  
9106-0001-132A  
9106-0001-132B  
9106-0001-132C  
9106-0001-132D  
9106-0001-112A  
9106-0001-112B  
9106-0001-112C  
9106-0001-112D

I will check with the lab on the available TAT and let you know yet this morning.  
Thanks,  
Cheryl

Dale Randall wrote:

Cheryl,

The Sample ID is 9106-0001-012F, to be tested for FSSALL. This sample has been tested to the FSSGAM protocol as part of MSR#06-1130, COC#2006-00496. Can this be done on a 7-day turn?

Thank you,

Dale Randall  
FSS Engineer  
Connecticut Yankee

(860) 267-3133

-----Original Message-----

From: Cheryl Jones [mailto:cj@gel.com]

Sent: Tuesday, October 10, 2006 5:30 PM

To: Dale Randall

Subject: Please send your request for analysis

Dale,

I was interrupted while listening to the voice mail you left me this

RE: Please send your request for analysis

afternoon and somehow deleted it. Could you please send me the ID that  
you need and the analysis? I apologize for the inconvenience.

Thanks,  
Cheryl

--

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

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INC.



**11**

# **Data Review Qualifier Definitions**

## Data Review Qualifier Definitions

Qualifier    Explanation

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

\*\*   Analyte is a surrogate compound

<    Result is less than value reported

>    Result is greater than value reported

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

A    The TIC is a suspected aldol-condensation product

B    Target analyte was detected in the associated blank

B    Metals-Either presence of analyte detected in the associated blank, or  
MDL/IDL < sample value < PQL

BD   Results are either below the MDC or tracer recovery is low

C    Analyte has been confirmed by GC/MS analysis

D    Results are reported from a diluted aliquot of the sample

d    5-day BOD-The 2:1 depletion requirement was not met for this sample

E    Organics-Concentration of the target analyte exceeds the instrument calibration range

E    Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

H    Analytical holding time was exceeded

h    Preparation or preservation holding time was exceeded

J    Value is estimated

N    Metals-The Matrix spike sample recovery is not within specified control limits

N    Organics-Presumptive evidence based on mass spectral library search to make a tentative  
identification of the analyte (TIC). Quantitation is based on nearest internal standard  
response factor

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

ND   Analyte concentration is not detected above the reporting limit

UI   Gamma Spectroscopy-Uncertain identification

X    Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y    QC Samples were not spiked with this compound

Z    Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.



# **RADIOLOGICAL ANALYSIS**

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 173770**

**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:                 | 578392                                    |
| Prep Batch Number:                       | 578049                                    |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                                    |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205231       | Method Blank (MB)                                |
| 1201205232       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205233       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205234       | 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: 173770001 (9106-0001-112F).

**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:                 | 578394                              |
| Prep Batch Number:                       | 578049                              |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                              |

|                  |                                                  |
|------------------|--------------------------------------------------|
| <b>Sample ID</b> | <b>Client ID</b>                                 |
| 173770001        | 9106-0001-112F                                   |
| 1201205235       | Method Blank (MB)                                |
| 1201205236       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205237       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205238       | 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: 173770001 (9106-0001-112F).

##### **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:                 | 578398                                   |
| Prep Batch Number:                       | 578049                                   |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                                   |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205248       | Method Blank (MB)                                |
| 1201205249       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205250       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205251       | 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: 173770001 (9106-0001-112F).

##### **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:                 | 578500                           |
| Prep Batch Number:                       | 578049                           |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                           |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205511       | Method Blank (MB)                                |
| 1201205512       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205513       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205514       | 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: 173770001 (9106-0001-112F).

**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**

|                          |                                         |
|--------------------------|-----------------------------------------|
| <b>Product:</b>          | <b>Liquid Scint Tc99, Solid-ALL FSS</b> |
| Analytical Method:       | DOE EML HASL-300, Tc-02-RC Modified     |
| Analytical Batch Number: | 578363                                  |



| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205177       | Method Blank (MB)                                |
| 1201205178       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205179       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205180       | 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: 173770001 (9106-0001-112F).

##### **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:                 | 578445                                  |
| Prep Batch Number:                       | 578049                                  |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                                  |

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205350       | Method Blank (MB)                                |
| 1201205351       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205352       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205353       | 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: 173770001 (9106-0001-112F).

**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:                 | 578448                                  |
| Prep Batch Number:                       | 578049                                  |
| Dry Soil Prep GL-RAD-A-021 Batch Number: | 578048                                  |

|                  |                                                  |
|------------------|--------------------------------------------------|
| <b>Sample ID</b> | <b>Client ID</b>                                 |
| 173770001        | 9106-0001-112F                                   |
| 1201205362       | Method Blank (MB)                                |
| 1201205363       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205364       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205365       | 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: 173770001 (9106-0001-112F).

##### **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:** 578364

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205181       | Method Blank (MB)                                |
| 1201205182       | 173770001(9106-0001-112F) Sample Duplicate (DUP) |
| 1201205183       | 173770001(9106-0001-112F) Matrix Spike (MS)      |
| 1201205184       | 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# 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: 173770001 (9106-0001-112F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Liquid Scint C14, Solid All,FSS

Analytical Method: EPA EERF C-01 Modified

Analytical Batch Number: 578362

| <b>Sample ID</b> | <b>Client ID</b>                                 |
|------------------|--------------------------------------------------|
| 173770001        | 9106-0001-112F                                   |
| 1201205173       | Method Blank (MB)                                |
| 1201205174       | 173435001(9520-0003-039F) Sample Duplicate (DUP) |
| 1201205175       | 173435001(9520-0003-039F) Matrix Spike (MS)      |
| 1201205176       | 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: 173435001 (9520-0003-039F).

##### **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**

The background was recounted due to high MDAs.

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**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: Atreya G Ujale 10/18/06



# **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#06-1130 GEL Work Order: 173770

**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

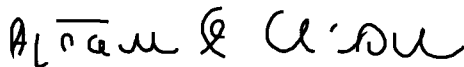
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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: October 18, 2006

Client Sample ID: 9106 0001 112F  
Sample ID: 173770001  
Matrix: TS  
Collect Date: 02 AUG 06  
Receive Date: 17 AUG 06  
Collector: Client  
Moisture: 38.5%

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                                 |           | 0.0478  | +/- 0.0378  | 0.00908 | +/- 0.0383 | 0.0375 | pCi/g |    | MXA     | 10/16/06 | 0853 | 578392 | 1   |
| Curium 242                                    | U         | 0.00985 | +/- 0.0193  | 0.00    | +/- 0.0193 | 0.0267 | pCi/g |    |         |          |      |        |     |
| Curium 243/244                                | U         | 0.0199  | +/- 0.0247  | 0.00646 | +/- 0.0248 | 0.0324 | pCi/g |    |         |          |      |        |     |
| <i>Alphaspec Pu, Solid ALL FSS</i>            |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Plutonium 238                                 |           | 0.0551  | +/- 0.0409  | 0.00929 | +/- 0.0413 | 0.0384 | pCi/g |    | MXA     | 10/15/06 | 0837 | 578394 | 2   |
| Plutonium 239/240                             | U         | 0.0257  | +/- 0.0291  | 0.00928 | +/- 0.0292 | 0.0384 | pCi/g |    |         |          |      |        |     |
| <i>Liquid Scint Pu241, Solid ALL FSS</i>      |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Plutonium 241                                 | U         | 0.274   | +/- 1.93    | 1.61    | +/- 1.93   | 3.36   | pCi/g |    | MXA     | 10/17/06 | 1559 | 578398 | 3   |
| <b>Rad Gas Flow Proportional Counting</b>     |           |         |             |         |            |        |       |    |         |          |      |        |     |
| <i>GFPC, Sr90, solid ALL FSS</i>              |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Strontium 90                                  | U         | 0.00433 | +/- 0.0204  | 0.0164  | +/- 0.0204 | 0.0389 | pCi/g |    | TC1     | 10/17/06 | 0743 | 578500 | 4   |
| <b>Rad Liquid Scintillation Analysis</b>      |           |         |             |         |            |        |       |    |         |          |      |        |     |
| <i>LSC, Tritium Dist, Solid HTD2, ALL FSS</i> |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Tritium                                       | U         | 1.60    | +/- 5.76    | 4.73    | +/- 5.76   | 10.1   | pCi/g |    | DFA1    | 10/15/06 | 0104 | 578364 | 5   |
| <i>Liquid Scint C14, Solid All, FSS</i>       |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Carbon 14                                     |           | 0.267   | +/- 0.116   | 0.0912  | +/- 0.116  | 0.187  | pCi/g |    | AXD2    | 10/13/06 | 1917 | 578362 | 6   |
| <i>Liquid Scint Fe55, Solid ALL FSS</i>       |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Iron 55                                       | U         | 10.1    | +/- 21.2    | 15.5    | +/- 21.2   | 32.1   | pCi/g |    | MXP1    | 10/17/06 | 2304 | 578445 | 7   |
| <i>Liquid Scint Ni63, Solid ALL FSS</i>       |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Nickel 63                                     | U         | 2.53    | +/- 9.07    | 7.73    | +/- 9.07   | 16.2   | pCi/g |    | MXP1    | 10/17/06 | 1802 | 578448 | 8   |
| <i>Liquid Scint Tc99, Solid ALL FSS</i>       |           |         |             |         |            |        |       |    |         |          |      |        |     |
| Technetium 99                                 | U         | 0.222   | +/- 0.296   | 0.242   | +/- 0.296  | 0.500  | pCi/g |    | KXR1    | 10/18/06 | 0455 | 578363 | 9   |

### The following Prep Methods were performed

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL RAD A 021 | AXP2    | 10/11/06 | 2056 | 578048     |

### The following Analytical Methods were performed

# 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: October 18, 2006

Client Sample ID: 9106 0001 112F  
Sample ID: 173770001

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

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

### 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                  |
| 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   | 83        | (15% 125%)        |
| Plutonium 242             | Alphaspec Pu, Solid ALL FSS      | 76        | (15% 125%)        |
| Carrier/Tracer Recovery   | Liquid Scint Pu241, Solid ALL FS | 80        | (25% 125%)        |
| Technetium 99m            | Liquid Scint Tc99, Solid ALL FS  | 69        |                   |
| Carrier/Tracer Recovery   | Liquid Scint Tc99, Solid ALL FS  | 69        |                   |

### 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

# 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: October 18, 2006

Client Sample ID: 9106 0001 112F  
Sample ID: 173770001

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

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

Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/- RL. Concentrations are <5X the RL  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

# QUALITY CONTROL DATA

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

**QC Summary**

**Client :** Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

**Report Date: October 18, 2006**  
**Page 1 of 5**

**Contact:** East Hampton, Connecticut  
Mr. Jack McCarthy

**Workorder:** 173770

| Parmname       | NOM       | Sample    | Qual   | QC        | Units | RPD% | REC% | Range       | Anlst | Date     | Time  |
|----------------|-----------|-----------|--------|-----------|-------|------|------|-------------|-------|----------|-------|
| Rad Alpha Spec |           |           |        |           |       |      |      |             |       |          |       |
| Batch          | 578392    |           |        |           |       |      |      |             |       |          |       |
| QC1201205232   | 173770001 | DUP       |        |           |       |      |      |             |       |          |       |
| Americium-241  |           | 0.0478    |        | 0.109     | pCi/g | 78   |      | (0% - 100%) | 4XA1  | 10/16/06 | 08:53 |
|                | Uncert:   | +/-0.0378 |        | +/-0.0598 |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0383 |        | +/-0.0612 |       |      |      |             |       |          |       |
| Curium-242     | U         | 0.00985   | U      | 0.0221    | pCi/g | 77   |      | (0% - 100%) |       |          |       |
|                | Uncert:   | +/-0.0193 |        | +/-0.0338 |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0193 |        | +/-0.0339 |       |      |      |             |       |          |       |
| Curium-243/244 | U         | 0.0199    | U      | 0.0263    | pCi/g | 28   |      | (0% - 100%) |       |          |       |
|                | Uncert:   | +/-0.0247 |        | +/-0.0445 |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0248 |        | +/-0.0446 |       |      |      |             |       |          |       |
| QC1201205234   | LCS       |           |        |           |       |      |      |             |       |          |       |
| Americium-241  | 2.69      |           |        | 2.88      | pCi/g |      | 107  | (75%-125%)  |       |          |       |
|                | Uncert:   |           |        | +/-0.328  |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.502  |       |      |      |             |       |          |       |
| Curium-242     |           |           | U      | 0.0195    | pCi/g |      |      |             |       |          |       |
|                | Uncert:   |           |        | +/-0.027  |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.0271 |       |      |      |             |       |          |       |
| Curium-243/244 | 3.24      |           |        | 3.01      | pCi/g |      | 93   | (75%-125%)  |       |          |       |
|                | Uncert:   |           |        | +/-0.335  |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.519  |       |      |      |             |       |          |       |
| QC1201205231   | MB        |           |        |           |       |      |      |             |       |          |       |
| Americium-241  |           |           | U      | -0.017    | pCi/g |      |      |             |       |          |       |
|                | Uncert:   |           |        | +/-0.0116 |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.0118 |       |      |      |             |       |          |       |
| Curium-242     |           |           | U      | 0.0121    | pCi/g |      |      |             |       |          |       |
|                | Uncert:   |           |        | +/-0.0193 |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.0194 |       |      |      |             |       |          |       |
| Curium-243/244 |           |           | U      | 0.0488    | pCi/g |      |      |             |       |          |       |
|                | Uncert:   |           |        | +/-0.0482 |       |      |      |             |       |          |       |
|                | TPU:      |           |        | +/-0.0485 |       |      |      |             |       |          |       |
| QC1201205233   | 173770001 | MS        |        |           |       |      |      |             |       |          |       |
| Americium-241  | 2.72      | 0.0478    |        | 2.74      | pCi/g |      | 99   | (75%-125%)  |       |          |       |
|                | Uncert:   | +/-0.0378 |        | +/-0.258  |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0383 |        | +/-0.409  |       |      |      |             |       |          |       |
| Curium-242     | U         | 0.00985   | U      | 0.0286    | pCi/g |      |      |             |       |          |       |
|                | Uncert:   | +/-0.0193 |        | +/-0.0393 |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0193 |        | +/-0.0394 |       |      |      |             |       |          |       |
| Curium-243/244 | 3.30      | U         | 0.0199 | 2.75      | pCi/g |      | 83   | (75%-125%)  |       |          |       |
|                | Uncert:   | +/-0.0247 |        | +/-0.260  |       |      |      |             |       |          |       |
|                | TPU:      | +/-0.0248 |        | +/-0.411  |       |      |      |             |       |          |       |
| Batch          | 578394    |           |        |           |       |      |      |             |       |          |       |
| QC1201205236   | 173770001 | DUP       |        |           |       |      |      |             |       |          |       |
| Plutonium-238  |           | 0.0551    | U      | 0.00929   | pCi/g | 142  |      | (0% - 100%) | 4XA1  | 10/15/06 | 08:37 |

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**QC Summary**

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| Parmname          | NOM       | Sample  | Qual      | QC        | Units     | RPD%   | REC%  | Range          | Anlst       | Date     | Time           |
|-------------------|-----------|---------|-----------|-----------|-----------|--------|-------|----------------|-------------|----------|----------------|
| Rad Alpha Spec    |           |         |           |           |           |        |       |                |             |          |                |
| Batch             | 578394    |         |           |           |           |        |       |                |             |          |                |
|                   |           | Uncert: | +/-0.0409 | +/-0.021  |           |        |       |                |             |          |                |
|                   |           | TPU:    | +/-0.0413 | +/-0.021  |           |        |       |                |             |          |                |
| Plutonium-239/240 |           | U       | 0.0257    | U         | 0.0328    | pCi/g  | 24    | (0% - 100%)    |             |          |                |
|                   |           | Uncert: | +/-0.0291 | +/-0.0321 |           |        |       |                |             |          |                |
|                   |           | TPU:    | +/-0.0292 | +/-0.0323 |           |        |       |                |             |          |                |
| QC1201205238      | LCS       |         |           |           |           |        |       |                |             |          |                |
| Plutonium-238     |           |         |           | U         | 0.00764   | pCi/g  |       | (75%-125%)     |             | 10/15/06 | 08:37          |
|                   |           | Uncert: |           |           | +/-0.0215 |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-0.0215 |        |       |                |             |          |                |
| Plutonium-239/240 |           | 2.49    |           |           | 2.81      | pCi/g  |       | 113 (75%-125%) |             |          |                |
|                   |           | Uncert: |           |           | +/-0.282  |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-0.441  |        |       |                |             |          |                |
| QC1201205235      | MB        |         |           |           |           |        |       |                |             |          |                |
| Plutonium-238     |           |         |           | U         | -0.00339  | pCi/g  |       |                |             | 10/15/06 | 08:37          |
|                   |           | Uncert: |           |           | +/-0.0146 |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-0.0146 |        |       |                |             |          |                |
| Plutonium-239/240 |           |         |           | U         | -0.0031   | pCi/g  |       |                |             |          |                |
|                   |           | Uncert: |           |           | +/-0.016  |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-0.016  |        |       |                |             |          |                |
| QC1201205237      | 173770001 | MS      |           |           |           |        |       |                |             |          |                |
| Plutonium-238     |           |         | 0.0551    |           | 0.0421    | pCi/g  |       | (75%-125%)     |             |          |                |
|                   |           | Uncert: | +/-0.0409 |           | +/-0.0369 |        |       |                |             |          |                |
|                   |           | TPU:    | +/-0.0413 |           | +/-0.0372 |        |       |                |             |          |                |
| Plutonium-239/240 |           | 2.52    | U         | 0.0257    | 2.54      | pCi/g  |       | 101 (75%-125%) |             |          |                |
|                   |           | Uncert: | +/-0.0291 |           | +/-0.274  |        |       |                |             |          |                |
|                   |           | TPU:    | +/-0.0292 |           | +/-0.382  |        |       |                |             |          |                |
| Batch             | 578398    |         |           |           |           |        |       |                |             |          |                |
| QC1201205249      | 173770001 | DUP     |           |           |           |        |       |                |             |          |                |
| Plutonium-241     |           |         | U         | 0.274     | U         | 0.507  | pCi/g | 0              | (0% - 100%) | MAX1     | 10/17/06 16:42 |
|                   |           | Uncert: | +/-1.93   |           | +/-1.96   |        |       |                |             |          |                |
|                   |           | TPU:    | +/-1.93   |           | +/-1.96   |        |       |                |             |          |                |
| QC1201205251      | LCS       |         |           |           |           |        |       |                |             |          |                |
| Plutonium-241     |           | 35.9    |           |           | 37.4      | pCi/g  |       | 104 (75%-125%) |             | 10/17/06 | 17:24          |
|                   |           | Uncert: |           |           | +/-3.27   |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-5.07   |        |       |                |             |          |                |
| QC1201205248      | MB        |         |           |           |           |        |       |                |             |          |                |
| Plutonium-241     |           |         |           | U         | 0.00      | pCi/g  |       |                |             | 10/17/06 | 16:20          |
|                   |           | Uncert: |           |           | +/-1.50   |        |       |                |             |          |                |
|                   |           | TPU:    |           |           | +/-1.50   |        |       |                |             |          |                |
| QC1201205250      | 173770001 | MS      |           |           |           |        |       |                |             |          |                |
| Plutonium-241     |           | 36.4    | U         | 0.274     | 30.9      | pCi/g  |       | 85 (75%-125%)  |             | 10/17/06 | 17:03          |
|                   |           | Uncert: | +/-1.93   |           | +/-2.68   |        |       |                |             |          |                |
|                   |           | TPU:    | +/-1.93   |           | +/-4.01   |        |       |                |             |          |                |
| Rad Gas Flow      |           |         |           |           |           |        |       |                |             |          |                |
| Batch             | 578500    |         |           |           |           |        |       |                |             |          |                |
| QC1201205512      | 173770001 | DUP     |           |           |           |        |       |                |             |          |                |
| Strontium-90      |           |         | U         | 0.00433   | U         | 0.0168 | pCi/g | 0              | (0% - 100%) | TC1      | 10/17/06 07:43 |
|                   |           | Uncert: | +/-0.0204 |           | +/-0.0206 |        |       |                |             |          |                |
|                   |           |         |           |           | +/-0.0206 |        |       |                |             |          |                |



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| Parmname                 | NOM       | Sample  | Qual      | QC        | Units | RPD%     | REC%  | Range      | Anlst       | Date     | Time           |
|--------------------------|-----------|---------|-----------|-----------|-------|----------|-------|------------|-------------|----------|----------------|
| Rad Gas Flow             |           |         |           |           |       |          |       |            |             |          |                |
| Batch                    | 578500    |         |           |           |       |          |       |            |             |          |                |
|                          |           | TPU:    | +/-0.0204 |           |       |          |       |            |             |          |                |
| QC1201205514             | LCS       |         |           |           |       |          |       |            |             |          |                |
| Strontium-90             |           | 7.81    |           | 7.63      | pCi/g |          | 98    | (75%-125%) |             | 10/17/06 | 07:44          |
|                          |           | Uncert: |           | +/-0.241  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.312  |       |          |       |            |             |          |                |
| QC1201205511             | MB        |         |           |           |       |          |       |            |             |          |                |
| Strontium-90             |           |         | U         | -0.0145   | pCi/g |          |       |            |             | 10/17/06 | 07:43          |
|                          |           | Uncert: |           | +/-0.0207 |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.0207 |       |          |       |            |             |          |                |
| QC1201205513             | 173770001 | MS      |           |           |       |          |       |            |             |          |                |
| Strontium-90             |           | 7.65    | U         | 0.00433   | pCi/g |          | 96    | (75%-125%) |             | 10/17/06 | 07:43          |
|                          |           | Uncert: |           | +/-0.0204 |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.0204 |       |          |       |            |             |          |                |
| Rad Liquid Scintillation |           |         |           |           |       |          |       |            |             |          |                |
| Batch                    | 578362    |         |           |           |       |          |       |            |             |          |                |
| QC1201205174             | 173435001 | DUP     |           |           |       |          |       |            |             |          |                |
| Carbon-14                |           |         | U         | 0.0477    | U     | -0.118   | pCi/g | 0          | (0% - 100%) | AXD2     | 10/13/06 22:26 |
|                          |           | Uncert: |           | +/-0.111  |       | +/-0.110 |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.111  |       | +/-0.110 |       |            |             |          |                |
| QC1201205176             | LCS       |         |           |           |       |          |       |            |             |          |                |
| Carbon-14                |           | 7.27    |           | 8.66      | pCi/g |          | 119   | (75%-125%) |             | 10/14/06 | 00:00          |
|                          |           | Uncert: |           | +/-0.265  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.297  |       |          |       |            |             |          |                |
| QC1201205173             | MB        |         |           |           |       |          |       |            |             |          |                |
| Carbon-14                |           |         | U         | -0.0701   | pCi/g |          |       |            |             | 10/13/06 | 21:38          |
|                          |           | Uncert: |           | +/-0.113  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.113  |       |          |       |            |             |          |                |
| QC1201205175             | 173435001 | MS      |           |           |       |          |       |            |             |          |                |
| Carbon-14                |           | 7.10    | U         | 0.0477    | pCi/g |          | 116   | (75%-125%) |             | 10/13/06 | 23:13          |
|                          |           | Uncert: |           | +/-0.111  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.111  |       |          |       |            |             |          |                |
| Batch                    | 578363    |         |           |           |       |          |       |            |             |          |                |
| QC1201205178             | 173770001 | DUP     |           |           |       |          |       |            |             |          |                |
| Technetium-99            |           |         | U         | 0.222     | U     | 0.373    | pCi/g | 0          | (0% - 100%) | KXR1     | 10/18/06 06:00 |
|                          |           | Uncert: |           | +/-0.296  |       | +/-0.287 |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.296  |       | +/-0.287 |       |            |             |          |                |
| QC1201205180             | LCS       |         |           |           |       |          |       |            |             |          |                |
| Technetium-99            |           | 13.0    |           | 12.6      | pCi/g |          | 97    | (75%-125%) |             | 10/18/06 | 06:32          |
|                          |           | Uncert: |           | +/-0.542  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.625  |       |          |       |            |             |          |                |
| QC1201205177             | MB        |         |           |           |       |          |       |            |             |          |                |
| Technetium-99            |           |         | U         | 0.179     | pCi/g |          |       |            |             | 10/18/06 | 05:44          |
|                          |           | Uncert: |           | +/-0.238  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.238  |       |          |       |            |             |          |                |
| QC1201205179             | 173770001 | MS      |           |           |       |          |       |            |             |          |                |
| Technetium-99            |           | 13.1    | U         | 0.222     | pCi/g |          | 92    | (75%-125%) |             | 10/18/06 | 06:16          |
|                          |           | Uncert: |           | +/-0.296  |       |          |       |            |             |          |                |
|                          |           | TPU:    |           | +/-0.296  |       |          |       |            |             |          |                |
| Batch                    | 578364    |         |           |           |       |          |       |            |             |          |                |

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| Parmname                 | NOM       | Sample  | Qual    | QC    | Units   | RPD%  | REC% | Range       | Anlst | Date     | Time  |
|--------------------------|-----------|---------|---------|-------|---------|-------|------|-------------|-------|----------|-------|
| Rad Liquid Scintillation |           |         |         |       |         |       |      |             |       |          |       |
| Batch                    | 578364    |         |         |       |         |       |      |             |       |          |       |
| QC1201205182             | 173770001 | DUP     |         |       |         |       |      |             |       |          |       |
| Tritium                  |           | U       | 1.60    | U     | -1.29   | pCi/g | 0    | (0% - 100%) | DFA1  | 10/15/06 | 02:10 |
|                          |           | Uncert: | +/-5.76 |       | +/-6.37 |       |      |             |       |          |       |
|                          |           | TPU:    | +/-5.76 |       | +/-6.37 |       |      |             |       |          |       |
| QC1201205184             | LCS       |         |         |       |         |       |      |             |       |          |       |
| Tritium                  |           | 10.4    |         |       | 9.95    | pCi/g | 96   | (75%-125%)  |       | 10/15/06 | 02:42 |
|                          |           | Uncert: |         |       | +/-1.86 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-1.86 |       |      |             |       |          |       |
| QC1201205181             | MB        |         |         |       |         |       |      |             |       |          |       |
| Tritium                  |           |         |         | U     | -0.187  | pCi/g |      |             |       | 10/15/06 | 01:53 |
|                          |           | Uncert: |         |       | +/-1.17 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-1.17 |       |      |             |       |          |       |
| QC1201205183             | 173770001 | MS      |         |       |         |       |      |             |       |          |       |
| Tritium                  |           | 57.8    | U       | 1.60  | 48.5    | pCi/g | 84   | (75%-125%)  |       | 10/15/06 | 02:26 |
|                          |           | Uncert: |         |       | +/-9.94 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-9.97 |       |      |             |       |          |       |
| Batch                    | 578445    |         |         |       |         |       |      |             |       |          |       |
| QC1201205351             | 173770001 | DUP     |         |       |         |       |      |             |       |          |       |
| Iron-55                  |           | U       | -10.1   | U     | -8.61   | pCi/g | 0    | (0% - 100%) | MXPI  | 10/18/06 | 01:11 |
|                          |           | Uncert: | +/-21.2 |       | +/-21.1 |       |      |             |       |          |       |
|                          |           | TPU:    | +/-21.2 |       | +/-21.1 |       |      |             |       |          |       |
| QC1201205353             | LCS       |         |         |       |         |       |      |             |       |          |       |
| Iron-55                  |           | 612     |         |       | 540     | pCi/g | 88   | (75%-125%)  |       | 10/18/06 | 02:15 |
|                          |           | Uncert: |         |       | +/-28.0 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-44.2 |       |      |             |       |          |       |
| QC1201205350             | MB        |         |         |       |         |       |      |             |       |          |       |
| Iron-55                  |           |         |         | U     | -2.86   | pCi/g |      |             |       | 10/18/06 | 00:40 |
|                          |           | Uncert: |         |       | +/-17.3 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-17.3 |       |      |             |       |          |       |
| QC1201205352             | 173770001 | MS      |         |       |         |       |      |             |       |          |       |
| Iron-55                  |           | 650     | U       | -10.1 | 549     | pCi/g | 85   | (75%-125%)  |       | 10/18/06 | 01:43 |
|                          |           | Uncert: |         |       | +/-31.4 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-46.9 |       |      |             |       |          |       |
| Batch                    | 578448    |         |         |       |         |       |      |             |       |          |       |
| QC1201205363             | 173770001 | DUP     |         |       |         |       |      |             |       |          |       |
| Nickel-63                |           | U       | -2.53   | U     | -4.02   | pCi/g | 0    | (0% - 100%) | MXPI  | 10/17/06 | 19:07 |
|                          |           | Uncert: | +/-9.07 |       | +/-8.95 |       |      |             |       |          |       |
|                          |           | TPU:    | +/-9.07 |       | +/-8.95 |       |      |             |       |          |       |
| QC1201205365             | LCS       |         |         |       |         |       |      |             |       |          |       |
| Nickel-63                |           | 520     |         |       | 441     | pCi/g | 85   | (75%-125%)  |       | 10/17/06 | 19:40 |
|                          |           | Uncert: |         |       | +/-20.5 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-25.6 |       |      |             |       |          |       |
| QC1201205362             | MB        |         |         |       |         |       |      |             |       |          |       |
| Nickel-63                |           |         |         | U     | -4.42   | pCi/g |      |             |       | 10/17/06 | 18:51 |
|                          |           | Uncert: |         |       | +/-8.74 |       |      |             |       |          |       |
|                          |           | TPU:    |         |       | +/-8.74 |       |      |             |       |          |       |
| QC1201205364             | 173770001 | MS      |         |       |         |       |      |             |       |          |       |
| Nickel-63                |           | 563     | U       | -2.53 | 466     | pCi/g | 83   | (75%-125%)  |       | 10/17/06 | 19:24 |
|                          |           | Uncert: |         |       | +/-22.8 |       |      |             |       |          |       |

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### QC Summary

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| Parmname                        | NOM    | Sample Qual | QC      | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------------------------------|--------|-------------|---------|-------|------|------|-------|-------|------|------|
| <b>Rad Liquid Scintillation</b> |        |             |         |       |      |      |       |       |      |      |
| Batch                           | 578448 |             |         |       |      |      |       |       |      |      |
|                                 | TPU:   | +/-9.07     | +/-28.2 |       |      |      |       |       |      |      |

**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.


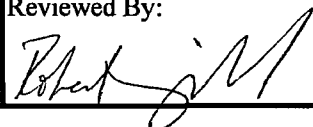
DISCHARGE CANAL  
SURVEY UNIT 9106-0001

RELEASE RECORD

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Attachment 2b  
Split Sample Assessment Forms  
(2 Pages)

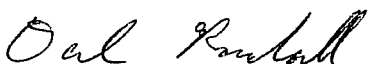
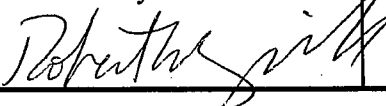
**Split Sample Assessment Form**

| Survey Area#:                                                                                                                                                                                                                                                              | 9106           | Survey Unit #: | 0001       | Survey Unit Name: Discharge Canal |                                                                             |                |                                                                                      |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|------------|-----------------------------------|-----------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------|------------------|
| Sample Plan or WPIR#: 2006-0021                                                                                                                                                                                                                                            |                |                |            |                                   | SML #: 9106-0001-106                                                        |                |                                                                                      |                  |
| Sample Description: Comparison of split samples collected from sample measurement location #106 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was <u>9106-0001-106F</u> , the comparison sample was <u>9106-0001-106FS</u> . |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
| STANDARD                                                                                                                                                                                                                                                                   |                |                |            |                                   | COMPARISON                                                                  |                |                                                                                      |                  |
| Radionuclide                                                                                                                                                                                                                                                               | Activity Value | Standard Error | Resolution | Agreement Range                   | Activity Value                                                              | Standard Error | Comparison Ratio                                                                     | Acceptable (Y/N) |
| Cs-137                                                                                                                                                                                                                                                                     | 1.63E-01       | 2.24E-02       | 7          | 0.5 - 2                           | 2.34E-01                                                                    | 2.19E-02       | 1.44                                                                                 | Y                |
| Co-60                                                                                                                                                                                                                                                                      | 1.48E-01       | 2.33E-02       | 6          | 0.5 - 2                           | 2.30E-01                                                                    | 2.59E-02       | 1.55                                                                                 | Y                |
| K-40                                                                                                                                                                                                                                                                       | 1.22E+01       | 5.45E-01       | 22         | 0.75 - 1.33                       | 1.02E+01                                                                    | 4.05E-01       | 0.84                                                                                 | Y                |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                |                                                                                      |                  |
| Comments/Corrective Actions: N/A                                                                                                                                                                                                                                           |                |                |            |                                   | 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:                                                                         |                  |
|                                                                                                                                                                                         |                |                |            |                                   | 11-6-06                                                                     |                |  |                  |
|                                                                                                                                                                                                                                                                            |                |                |            |                                   |                                                                             |                | 11-15-06                                                                             |                  |

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

### Split Sample Assessment Form

| Survey Area #: 9106                                                                                                                                                                                                                                                                                                                                                                               | Survey Unit #: 0001 | Survey Unit Name: Discharge Canal |            |                 |                                                                                      |                      |                  |                  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------|------------|-----------------|--------------------------------------------------------------------------------------|----------------------|------------------|------------------|--|--|
| Sample Plan or WPIR#: 2006-021                                                                                                                                                                                                                                                                                                                                                                    |                     |                                   |            |                 |                                                                                      | SML #: 9106-0001-117 |                  |                  |  |  |
| Sample Description: Comparison of split samples collected from sample measurement location #04 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was <u>9106-0001-117F</u> the comparison sample was <u>9106-0001-117FS</u> .                                                                                                                           |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
| STANDARD                                                                                                                                                                                                                                                                                                                                                                                          |                     |                                   |            |                 | COMPARISON                                                                           |                      |                  |                  |  |  |
| Radionuclide                                                                                                                                                                                                                                                                                                                                                                                      | Activity Value      | Standard Error                    | Resolution | Agreement Range | Activity Value                                                                       | Standard Error       | Comparison Ratio | Acceptable (Y/N) |  |  |
| Cs-137                                                                                                                                                                                                                                                                                                                                                                                            | 1.38E-02            | 8.80E-03                          | 2          | NONE -          | 6.46E-03                                                                             | 1.70E-02             | 0.47             | N/A              |  |  |
| Co-60                                                                                                                                                                                                                                                                                                                                                                                             | 5.25E-04            | 7.65E-03                          | 0          | NONE -          | 3.92E-03                                                                             | 6.70E-03             | 7.47             | N/A              |  |  |
| K-40                                                                                                                                                                                                                                                                                                                                                                                              | 1.01E+01            | 3.11E-01                          | 32         | 0.75 1.33       | 1.03E+01                                                                             | 4.48E-01             | 1.02             | Y                |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 |                                                                                      |                      |                  |                  |  |  |
| Comments/Corrective Actions: In consideration of the Cs-137 and Co-60 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 K-40 was found to be present at an acceptable level of agreement, no further action is warranted. |                     |                                   |            |                 | Table is provided to show acceptance criteria used to assess split samples.          |                      |                  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 | Resolution                                                                           |                      | Agreement Range  |                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                   |            |                 | 4                                                                                    | 7                    | 0.50             | 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:            |                  |  |  |
|                                                                                                                                                                                                                                                                                                                |                     |                                   | 11-6-06    |                 |  |                      | 11-15-06         |                  |  |  |

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

DISCHARGE CANAL  
SURVEY UNIT 9106-0001

RELEASE RECORD

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Attachment 2c  
Preliminary Data Forms  
(2 Pages)

### Preliminary Data Review Form - Samples for the Sign Test

Survey Unit: 9106- 0001  
 Survey Unit Name: Discharge Canal

Classification: 2  
 Survey Media: Soil  
 Type of Survey: Final Status Survey  
 Type of Measurement: Radionuclide Specific  
 Number of Measurements: 30  
 Operational DCGL: 1

#### BASIC STATISTICAL QUANTITIES

|                     | Cs-137    | Co-60     |
|---------------------|-----------|-----------|
| Minimum Value:      | -6.78E-04 | -4.42E-03 |
| Maximum Value:      | 2.34E+00  | 2.65E+00  |
| Mean:               | 4.54E-01  | 4.06E-01  |
| Median:             | 4.23E-01  | 2.50E-01  |
| Standard Deviation: | 4.65E-01  | 5.68E-01  |

#### RADIONUCLIDE CONCENTRATION (pCi/g)

| NUMBER         | Cs-137    | Co-60     | Identified? | Identified? |
|----------------|-----------|-----------|-------------|-------------|
| 9106-0001-101F | 5.04E-01  | 1.28E-02  | Y           | N           |
| 9106-0001-103F | 9.09E-01  | 4.14E-01  | Y           | Y           |
| 9106-0001-104F | 2.89E-01  | 3.15E-02  | Y           | Y           |
| 9106-0001-106F | 1.63E-01  | 1.48E-01  | Y           | Y           |
| 9106-0001-107F | 6.95E-01  | 2.46E-01  | Y           | Y           |
| 9106-0001-108F | 2.07E-02  | 1.70E-02  | N           | N           |
| 9106-0001-109F | -6.78E-04 | -4.42E-03 | N           | N           |
| 9106-0001-110F | 6.09E-02  | 0.00E+00  | Y           | N           |
| 9106-0001-111F | 1.61E-01  | 1.14E-01  | Y           | Y           |
| 9106-0001-112F | 2.34E+00  | 2.65E+00  | Y           | Y           |
| 9106-0001-113F | 3.87E-01  | 2.59E-01  | Y           | Y           |
| 9106-0001-114F | 7.93E-01  | 3.70E-01  | Y           | Y           |
| 9106-0001-115F | 7.60E-01  | 5.97E-01  | Y           | Y           |
| 9106-0001-116F | 1.38E-02  | 3.26E-02  | N           | N           |
| 9106-0001-117F | 1.38E-02  | 5.25E-04  | N           | N           |
| 9106-0001-119F | 2.20E-01  | 1.12E-01  | Y           | Y           |
| 9106-0001-120F | 7.39E-01  | 7.08E-01  | Y           | Y           |
| 9106-0001-121F | 7.43E-01  | 6.27E-01  | Y           | Y           |
| 9106-0001-122F | 4.59E-01  | 4.22E-01  | Y           | Y           |
| 9106-0001-123F | 6.77E-01  | 7.65E-01  | Y           | Y           |
| 9106-0001-124F | 2.85E-01  | 2.54E-01  | Y           | Y           |
| 9106-0001-125F | 2.71E-02  | 0.00E+00  | Y           | N           |
| 9106-0001-126F | 2.44E-01  | 1.07E-01  | Y           | Y           |
| 9106-0001-127F | 4.78E-01  | 7.86E-01  | Y           | Y           |



|                |          |           |   |   |
|----------------|----------|-----------|---|---|
| 9106-0001-128F | 8.50E-01 | 8.18E-01  | Y | Y |
| 9106-0001-129F | 6.10E-02 | -3.30E-03 | Y | N |
| 9106-0001-130F | 0.00E+00 | 0.00E+00  | N | N |
| 9106-0001-131F | 5.66E-01 | 2.58E-01  | Y | Y |
| 9106-0001-132F | 5.58E-01 | 1.66E+00  | Y | Y |
| 9106-0001-133F | 6.08E-01 | 7.84E-01  | Y | Y |

Performed By: Don Randall

Date: 11-15-06

Independent Review: Robert J. M.

Date: 11-15-06

DISCHARGE CANAL  
SURVEY UNIT 9106-0001

RELEASE RECORD

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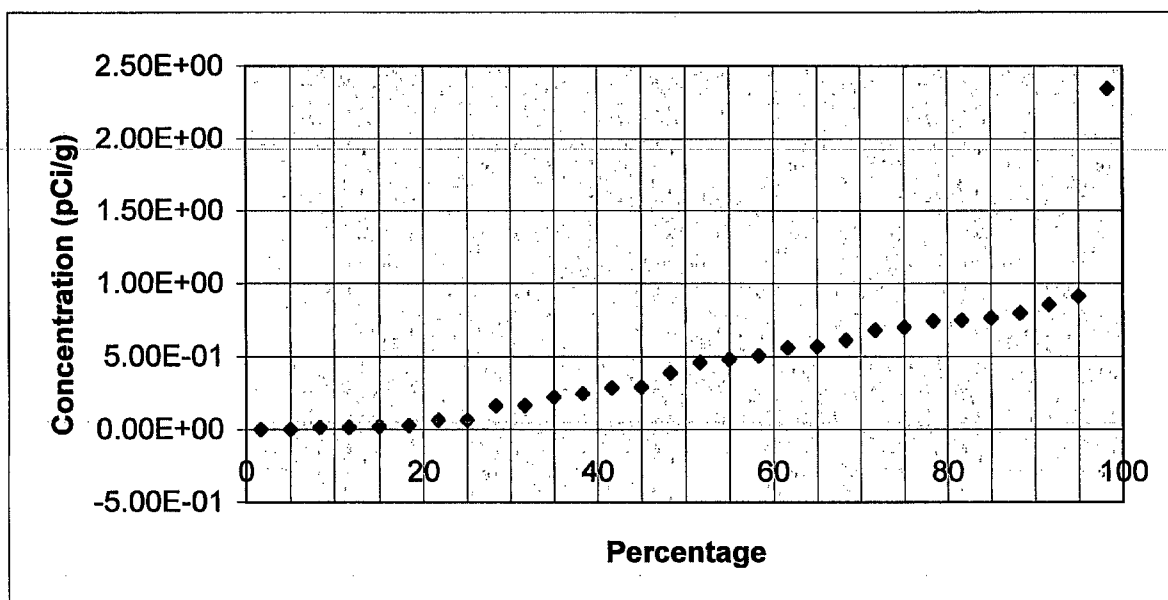
Attachment 2d  
Graphical Representation of Data  
(4 Pages)

**Quantile Plot For Cesium - 137**

Survey Unit: 9106-0001

Survey Unit Name: Discharge Canal

Mean: 4.54E-01 pCi/g

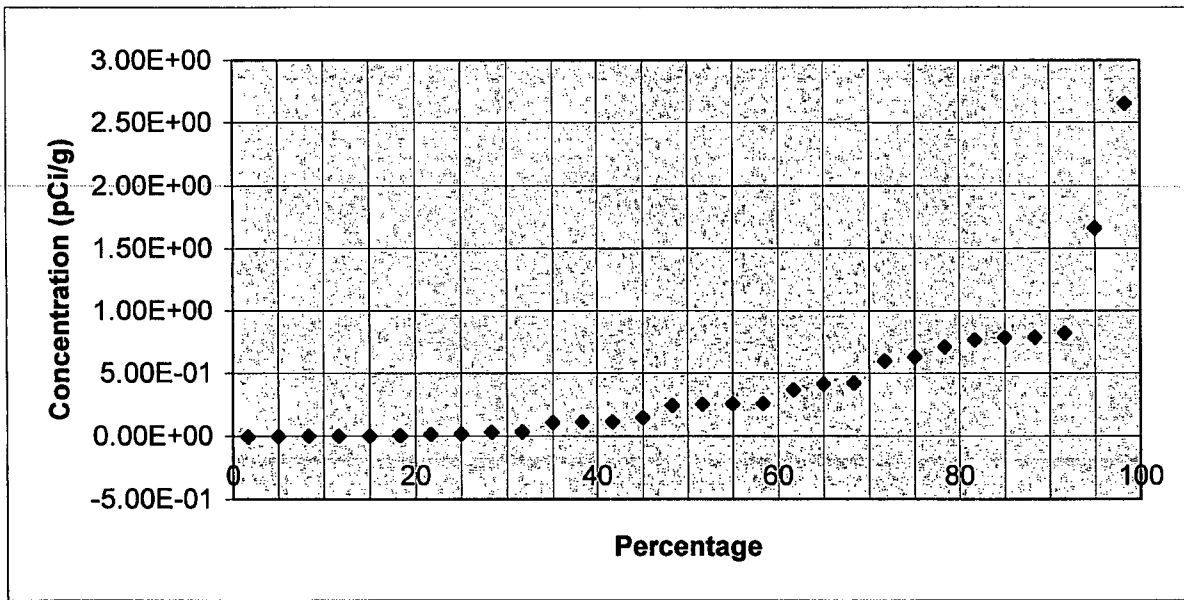


| Cs-137    | Rank | Percentage | Cs-137   | Rank | Percentage |
|-----------|------|------------|----------|------|------------|
| -6.78E-04 | 1    | 2 %        | 4.59E-01 | 16   | 52 %       |
| 0.00E+00  | 2    | 5 %        | 4.78E-01 | 17   | 55 %       |
| 1.38E-02  | 3    | 8 %        | 5.04E-01 | 18   | 58 %       |
| 1.38E-02  | 4    | 12 %       | 5.58E-01 | 19   | 62 %       |
| 2.07E-02  | 5    | 15 %       | 5.66E-01 | 20   | 65 %       |
| 2.71E-02  | 6    | 18 %       | 6.08E-01 | 21   | 68 %       |
| 6.09E-02  | 7    | 22 %       | 6.77E-01 | 22   | 72 %       |
| 6.10E-02  | 8    | 25 %       | 6.95E-01 | 23   | 75 %       |
| 1.61E-01  | 9    | 28 %       | 7.39E-01 | 24   | 78 %       |
| 1.63E-01  | 10   | 32 %       | 7.43E-01 | 25   | 82 %       |
| 2.20E-01  | 11   | 35 %       | 7.60E-01 | 26   | 85 %       |
| 2.44E-01  | 12   | 38 %       | 7.93E-01 | 27   | 88 %       |
| 2.85E-01  | 13   | 42 %       | 8.50E-01 | 28   | 92 %       |
| 2.89E-01  | 14   | 45 %       | 9.09E-01 | 29   | 95 %       |
| 3.87E-01  | 15   | 48 %       | 2.34E+00 | 30   | 98 %       |

Prepared By: Paul MarshallDate: 11-6-06Reviewed By: [Signature]Date: 11-15-06

# Quantile Plot For Cobalt - 60

Survey Unit: 9106-0001  
 Survey Unit Name: Discharge Canal  
 Mean: 4.06E-01 pCi/g



| Co-60     | Rank | Percentage | Co-60    | Rank | Percentage |
|-----------|------|------------|----------|------|------------|
| -4.42E-03 | 1    | 2 %        | 2.54E-01 | 16   | 52 %       |
| -3.30E-03 | 2    | 5 %        | 2.58E-01 | 17   | 55 %       |
| 0.00E+00  | 3    | 8 %        | 2.59E-01 | 18   | 58 %       |
| 0.00E+00  | 4    | 12 %       | 3.70E-01 | 19   | 62 %       |
| 0.00E+00  | 5    | 15 %       | 4.14E-01 | 20   | 65 %       |
| 5.25E-04  | 6    | 18 %       | 4.22E-01 | 21   | 68 %       |
| 1.28E-02  | 7    | 22 %       | 5.97E-01 | 22   | 72 %       |
| 1.70E-02  | 8    | 25 %       | 6.27E-01 | 23   | 75 %       |
| 3.15E-02  | 9    | 28 %       | 7.08E-01 | 24   | 78 %       |
| 3.26E-02  | 10   | 32 %       | 7.65E-01 | 25   | 82 %       |
| 1.07E-01  | 11   | 35 %       | 7.84E-01 | 26   | 85 %       |
| 1.12E-01  | 12   | 38 %       | 7.86E-01 | 27   | 88 %       |
| 1.14E-01  | 13   | 42 %       | 8.18E-01 | 28   | 92 %       |
| 1.48E-01  | 14   | 45 %       | 1.66E+00 | 29   | 95 %       |
| 2.46E-01  | 15   | 48 %       | 2.65E+00 | 30   | 98 %       |

Prepared By: Don Rumball

Date: 11-15-06

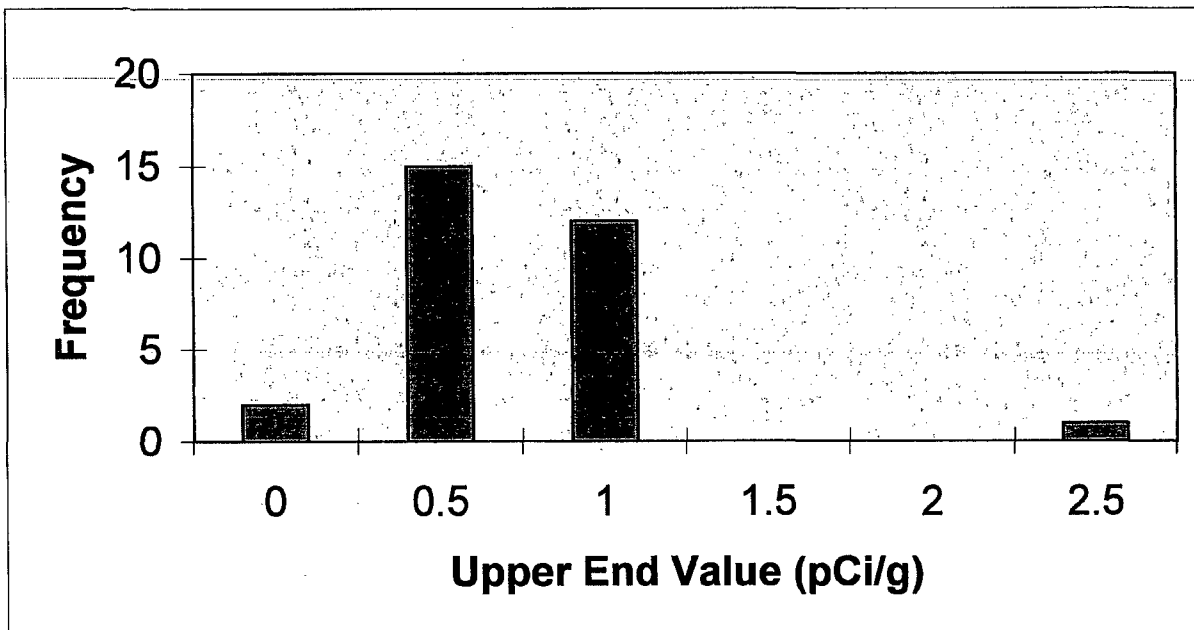
Reviewed By: Robert J. M.

Date: 11-15-06

**Frequency Plot For Cesium - 137**

Survey Unit: 9106-0001  
Survey Unit Name: Discharge Canal

Mean: 0.454 pCi/g



| Upper End Value | Observation Frequency | Observation Frequency |
|-----------------|-----------------------|-----------------------|
| 0               | 2                     | 7%                    |
| 0.5             | 15                    | 50%                   |
| 1               | 12                    | 40%                   |
| 1.5             | 0                     | 0%                    |
| 2               | 0                     | 0%                    |
| 2.5             | 1                     | 3%                    |
| Total           | 30                    | 100%                  |

Prepared By: Orel Randall

Date: 11-6-06

Reviewed By: [Signature]

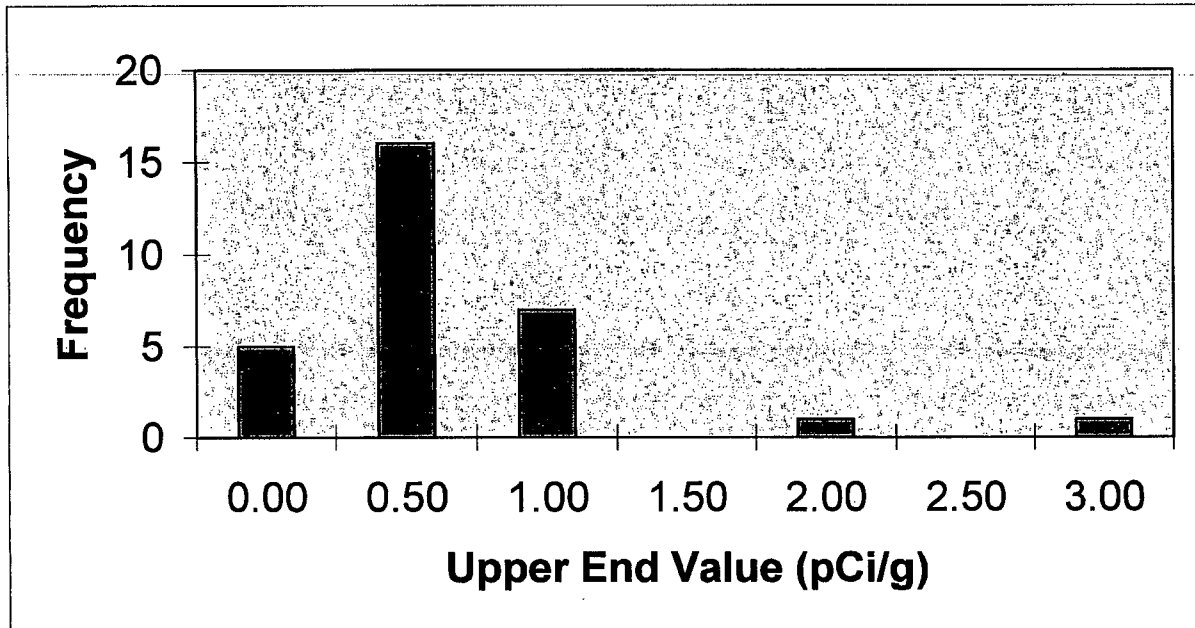
Date: 11-15-06

**Frequency Plot For Co - 60**

Survey Unit: 9106-0001

Survey Unit Name: Discharge Canal

Mean: 0.406 pCi/g



| Upper End Value | Observation Frequency | Observation Frequency |
|-----------------|-----------------------|-----------------------|
| 0.00            | 5                     | 17%                   |
| 0.50            | 16                    | 53%                   |
| 1.00            | 7                     | 23%                   |
| 1.50            | 0                     | 0%                    |
| 2.00            | 1                     | 3%                    |
| 2.50            | 0                     | 0%                    |
| 3.00            | 1                     | 3%                    |
| Total           | 30                    | 100%                  |

Prepared By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed By: *Robert J. M.*Date: 11-15-06

DISCHARGE CANAL  
SURVEY UNIT 9106-0001

RELEASE RECORD

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Attachment 2e  
Sign Test Calculation  
(2 Page)

**Sign Test Calculation Sheet For Multiple Radionuclides**

|                                                                                                                                                                                                       |                               |                        |                              |      |                |        |       |      |                             |      |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------|------------------------------|------|----------------|--------|-------|------|-----------------------------|------|------|------|
| Survey Unit Number: 9106-0001                                                                                                                                                                         |                               |                        |                              |      |                |        |       |      |                             |      |      |      |
| Survey Unit Name: Discharge Canal                                                                                                                                                                     |                               |                        |                              |      |                |        |       |      |                             |      |      |      |
| WP&IR#: 2006-021                                                                                                                                                                                      |                               |                        |                              |      |                |        |       |      |                             |      |      |      |
| Classification : 1                                                                                                                                                                                    | TYPE I ( $\alpha$ error):0.05 |                        | TYPE I ( $\beta$ error):0.05 |      |                |        |       |      |                             |      |      |      |
| <table border="0"> <tr> <td>Radionuclides:</td> <td>Cs-137</td> <td>Co-60</td> <td>C-14</td> </tr> <tr> <td>Survey Design DCGL (pCi/g):</td> <td>5.38</td> <td>2.59</td> <td>3.85</td> </tr> </table> |                               |                        |                              |      | Radionuclides: | Cs-137 | Co-60 | C-14 | Survey Design DCGL (pCi/g): | 5.38 | 2.59 | 3.85 |
| Radionuclides:                                                                                                                                                                                        | Cs-137                        | Co-60                  | C-14                         |      |                |        |       |      |                             |      |      |      |
| Survey Design DCGL (pCi/g):                                                                                                                                                                           | 5.38                          | 2.59                   | 3.85                         |      |                |        |       |      |                             |      |      |      |
| Results Cs-137                                                                                                                                                                                        | Results Co-60                 | Weighted Sum ( $W_s$ ) | DCGL-Result                  | Sign |                |        |       |      |                             |      |      |      |
| 5.04E-01                                                                                                                                                                                              | 1.28E-02                      | 1.58E-01               | 8.42E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 9.09E-01                                                                                                                                                                                              | 4.14E-01                      | 3.88E-01               | 6.12E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.89E-01                                                                                                                                                                                              | 3.15E-02                      | 1.25E-01               | 8.75E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 1.63E-01                                                                                                                                                                                              | 1.48E-01                      | 1.47E-01               | 8.53E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 6.95E-01                                                                                                                                                                                              | 2.46E-01                      | 2.83E-01               | 7.17E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.07E-02                                                                                                                                                                                              | 1.70E-02                      | 6.95E-02               | 9.30E-01                     | 1    |                |        |       |      |                             |      |      |      |
| -6.78E-04                                                                                                                                                                                             | -4.42E-03                     | 5.73E-02               | 9.43E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 6.09E-02                                                                                                                                                                                              | 0.00E+00                      | 7.04E-02               | 9.30E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 1.61E-01                                                                                                                                                                                              | 1.14E-01                      | 1.33E-01               | 8.67E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.34E+00                                                                                                                                                                                              | 2.65E+00                      | 1.53E+00               | -5.27E-01                    | -1   |                |        |       |      |                             |      |      |      |
| 3.87E-01                                                                                                                                                                                              | 2.59E-01                      | 2.31E-01               | 7.69E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 7.93E-01                                                                                                                                                                                              | 3.70E-01                      | 3.49E-01               | 6.51E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 7.60E-01                                                                                                                                                                                              | 5.97E-01                      | 4.31E-01               | 5.69E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 1.38E-02                                                                                                                                                                                              | 3.26E-02                      | 7.43E-02               | 9.26E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 1.38E-02                                                                                                                                                                                              | 5.25E-04                      | 6.19E-02               | 9.38E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.20E-01                                                                                                                                                                                              | 1.12E-01                      | 1.43E-01               | 8.57E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 7.39E-01                                                                                                                                                                                              | 7.08E-01                      | 4.70E-01               | 5.30E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 7.43E-01                                                                                                                                                                                              | 6.27E-01                      | 4.04E-01               | 5.96E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 4.59E-01                                                                                                                                                                                              | 4.22E-01                      | 3.07E-01               | 6.93E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 6.77E-01                                                                                                                                                                                              | 7.65E-01                      | 4.80E-01               | 5.20E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.85E-01                                                                                                                                                                                              | 2.54E-01                      | 2.10E-01               | 7.90E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.71E-02                                                                                                                                                                                              | 0.00E+00                      | 6.42E-02               | 9.36E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 2.44E-01                                                                                                                                                                                              | 1.07E-01                      | 1.46E-01               | 8.54E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 4.78E-01                                                                                                                                                                                              | 7.86E-01                      | 4.51E-01               | 5.49E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 8.50E-01                                                                                                                                                                                              | 8.18E-01                      | 5.33E-01               | 4.67E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 6.10E-02                                                                                                                                                                                              | -3.30E-03                     | 6.92E-02               | 9.31E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 0.00E+00                                                                                                                                                                                              | 0.00E+00                      | 5.91E-02               | 9.41E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 5.66E-01                                                                                                                                                                                              | 2.58E-01                      | 2.64E-01               | 7.36E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 5.58E-01                                                                                                                                                                                              | 1.66E+00                      | 8.29E-01               | 1.71E-01                     | 1    |                |        |       |      |                             |      |      |      |
| 6.08E-01                                                                                                                                                                                              | 7.84E-01                      | 4.75E-01               | 5.25E-01                     | 1    |                |        |       |      |                             |      |      |      |
| Number of Positive Differences (S+):                                                                                                                                                                  |                               |                        | 29                           |      |                |        |       |      |                             |      |      |      |



Critical Value: 19

Survey Unit: Meets Acceptance Criterion

Performed By: Orl Benball

Date: 11-15-06

Independent Review: Robert M

Date: 11-15-06

DISCHARGE CANAL  
SURVEY UNIT 9106-0001

RELEASE RECORD

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Attachment 2f  
COMPASS DQA Surface Soil Report with  
Retrospective Power Curve  
(5 Pages)

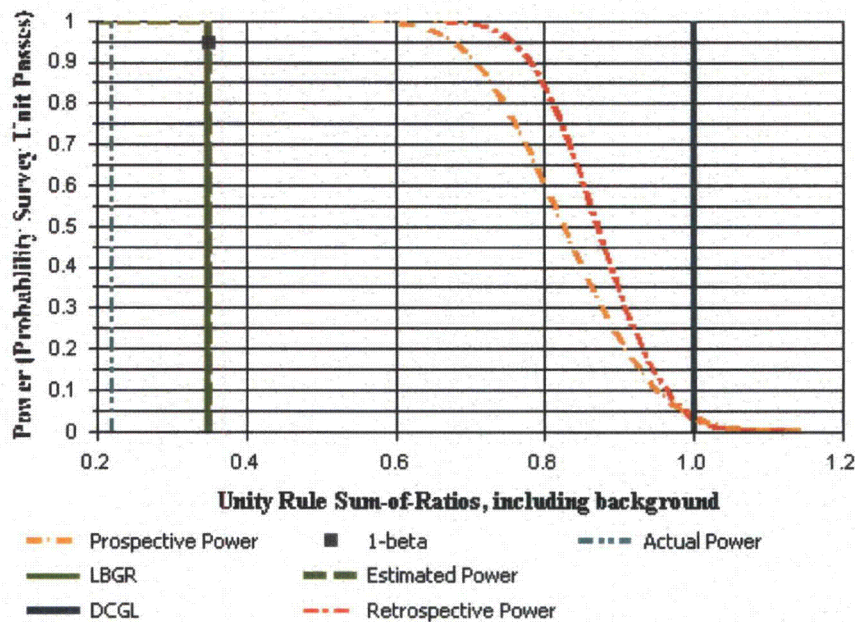


# DQA Surface Soil Report

## Assessment Summary

|                         |                                                           |              |               |
|-------------------------|-----------------------------------------------------------|--------------|---------------|
| Site:                   | 9106-0001 17 mrem/yr w/HTDs                               |              |               |
| Planner(s):             | Dale Randall                                              |              |               |
| Survey Unit Name:       | 9106-0001 17 mrem/yr w/HTDs                               |              |               |
| Report Number:          | 1                                                         |              |               |
| Survey Unit Samples:    | 30                                                        |              |               |
| Reference Area Samples: | 0                                                         |              |               |
| Test Performed:         | Sign                                                      | Test Result: | Pass          |
| Judgmental Samples:     | 0                                                         | EMC Result:  | Not Performed |
| Assessment Conclusion:  | <b><i>Reject Null Hypothesis (Survey Unit PASSES)</i></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 | C-14 (pCi/g) | Co-60 (pCi/g) | Cs-137 (pCi/g) |
|----------------|------|--------------|---------------|----------------|
| 9106-0001-101F | S    | 0.23         | 0.01          | 0.5            |
| 9106-0001-103F | S    | 0.23         | 0.41          | 0.91           |
| 9106-0001-104F | S    | 0.23         | 0.03          | 0.29           |
| 9106-0001-106F | S    | 0.23         | 0.15          | 0.16           |
| 9106-0001-107F | S    | 0.23         | 0.25          | 0.7            |
| 9106-0001-108F | S    | 0.23         | 0.02          | 0.02           |
| 9106-0001-109F | S    | 0.23         | 0             | 0              |
| 9106-0001-110F | S    | 0.23         | 0             | 0.06           |
| 9106-0001-111F | S    | 0.23         | 0.11          | 0.16           |
| 9106-0001-112F | S    | 0.27         | 2.65          | 2.34           |
| 9106-0001-113F | S    | 0.23         | 0.26          | 0.39           |
| 9106-0001-114F | S    | 0.23         | 0.37          | 0.79           |
| 9106-0001-115F | S    | 0.23         | 0.6           | 0.76           |
| 9106-0001-116F | S    | 0.23         | 0.03          | 0.01           |
| 9106-0001-117F | S    | 0.23         | 0             | 0.01           |
| 9106-0001-119F | S    | 0.23         | 0.11          | 0.22           |
| 9106-0001-120F | S    | 0.23         | 0.71          | 0.74           |
| 9106-0001-121F | S    | 0.09         | 0.63          | 0.74           |
| 9106-0001-122F | S    | 0.23         | 0.42          | 0.46           |
| 9106-0001-123F | S    | 0.23         | 0.76          | 0.68           |
| 9106-0001-124F | S    | 0.23         | 0.25          | 0.28           |
| 9106-0001-125F | S    | 0.23         | 0             | 0.03           |
| 9106-0001-126F | S    | 0.23         | 0.11          | 0.24           |
| 9106-0001-127F | S    | 0.23         | 0.79          | 0.48           |
| 9106-0001-128F | S    | 0.23         | 0.82          | 0.85           |
| 9106-0001-129F | S    | 0.23         | 0             | 0.06           |
| 9106-0001-130F | S    | 0.23         | 0             | 0              |
| 9106-0001-131F | S    | 0.23         | 0.26          | 0.57           |
| 9106-0001-132F | S    | 0.32         | 1.66          | 0.56           |
| 9106-0001-133F | S    | 0.23         | 0.78          | 0.61           |



# DQA Surface Soil Report

## Modified Data (Unity Rule SOR)

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NOTE: Type = "S" indicates survey unit sample.  
Type = "R" indicates reference area sample.

| Sample Number  | Type | Sum-of-Ratios (SOR) |
|----------------|------|---------------------|
| 9106-0001-101F | S    | 0.16                |
| 9106-0001-103F | S    | 0.39                |
| 9106-0001-104F | S    | 0.12                |
| 9106-0001-106F | S    | 0.15                |
| 9106-0001-107F | S    | 0.28                |
| 9106-0001-108F | S    | 0.07                |
| 9106-0001-109F | S    | 0.06                |
| 9106-0001-110F | S    | 0.07                |
| 9106-0001-111F | S    | 0.13                |
| 9106-0001-112F | S    | 1.53                |
| 9106-0001-113F | S    | 0.23                |
| 9106-0001-114F | S    | 0.35                |
| 9106-0001-115F | S    | 0.43                |
| 9106-0001-116F | S    | 0.07                |
| 9106-0001-117F | S    | 0.06                |
| 9106-0001-119F | S    | 0.14                |
| 9106-0001-120F | S    | 0.47                |
| 9106-0001-121F | S    | 0.4                 |
| 9106-0001-122F | S    | 0.31                |
| 9106-0001-123F | S    | 0.48                |
| 9106-0001-124F | S    | 0.21                |
| 9106-0001-125F | S    | 0.06                |
| 9106-0001-126F | S    | 0.15                |
| 9106-0001-127F | S    | 0.45                |
| 9106-0001-128F | S    | 0.53                |
| 9106-0001-129F | S    | 0.07                |
| 9106-0001-130F | S    | 0.06                |
| 9106-0001-131F | S    | 0.26                |
| 9106-0001-132F | S    | 0.83                |
| 9106-0001-133F | S    | 0.47                |



# DQA Surface Soil Report

## Basic Statistical Quantities Summary

| Statistic        | Survey Unit | Background | DQO Results |
|------------------|-------------|------------|-------------|
| Sample Number    | 30          | N/A        | N=15        |
| Mean (SOR)       | 0.30        | N/A        | 0.35        |
| Median (SOR)     | 0.22        | N/A        | N/A         |
| Std Dev (SOR)    | 0.30        | N/A        | 0.28        |
| High Value (SOR) | 1.53        | N/A        | N/A         |
| Low Value (SOR)  | 0.06        | N/A        | N/A         |

## Statistical Test Summary

S+: 29  
Critical Value: 20  
Result: Pass

| Data | DCGLw - Data | Sign |
|------|--------------|------|
| 0.16 | 0.84         | +    |
| 0.39 | 0.61         | +    |
| 0.12 | 0.88         | +    |
| 0.15 | 0.85         | +    |
| 0.28 | 0.72         | +    |
| 0.07 | 0.93         | +    |
| 0.06 | 0.94         | +    |
| 0.07 | 0.93         | +    |
| 0.13 | 0.87         | +    |
| 1.53 | -0.53        | -    |
| 0.23 | 0.77         | +    |
| 0.35 | 0.65         | +    |
| 0.43 | 0.57         | +    |
| 0.07 | 0.93         | +    |
| 0.06 | 0.94         | +    |
| 0.14 | 0.86         | +    |
| 0.47 | 0.53         | +    |
| 0.4  | 0.60         | +    |
| 0.31 | 0.69         | +    |
| 0.48 | 0.52         | +    |
| 0.21 | 0.79         | +    |
| 0.06 | 0.94         | +    |
| 0.15 | 0.85         | +    |
| 0.45 | 0.55         | +    |
| 0.53 | 0.47         | +    |
| 0.07 | 0.93         | +    |
| 0.06 | 0.94         | +    |



# DQA Surface Soil Report

## Statistical Test Summary

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| Data | DCGLw - Data | Sign |
|------|--------------|------|
| 0.26 | 0.74         | +    |
| 0.83 | 0.17         | +    |
| 0.47 | 0.53         | +    |