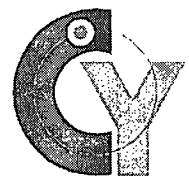





# **Final Status Survey Final Report Phase V**

**Appendix A5  
Survey Unit Release Record  
9520-0005, Southwest Site Storage Area**

**December 2006**



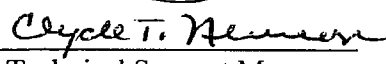
CYAPCO  
FINAL STATUS SURVEY RELEASE RECORD  
SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

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**1. SURVEY UNIT DESCRIPTION**

Survey Unit 9520-0005 (Southwest Site Storage Area) is designated as Final Status Survey (FSS) Class 1 and consists of 1,887 m<sup>2</sup> (0.5 acres) of uninhabited open land located approximately 1,661 feet from the reference coordinate system benchmark used at Haddam Neck Plant (HNP) (see Attachment 1). The survey unit is bounded by Survey Unit 9520-0003. The survey unit is relatively level open space in the middle of the peninsula. The restoration of the peninsula for FSS has removed most of the surface interference in the survey unit.

The reference coordinates associated with this survey unit are E005 through E010 by S086 through S093 (refer to License Termination Plan (LTP) Section 5.4.4). The reference coordinates provide the maximum dimensions of a rectangle containing this survey unit. Some areas contained in this rectangle may not be part of this survey unit. The boundary of the survey unit was defined using a Global Positioning System (GPS) based on the Connecticut State Plane System North American Datum (NAD) 1927.

**2. CLASSIFICATION BASIS**

The survey unit was classified in accordance with Procedure RPM 5.1-10, "Survey Unit Classification."

The "Classification Basis Summary" conducted for Survey Unit 9520-0005 consisted of:

- a) A review of the 10CFR50.75 (g) (1) database,
- b) A review of the "Initial Characterization Report" and the "Historic Site Assessment Supplement,"
- c) Historic and current survey records review,
- d) Visual inspections and a "walkdown."

A review of the 10CFR50.75(g)(1) database report and historical files shows a documented history of the use of this survey unit (which was originally part of Survey Unit 9520-0003) as a radioactive materials storage area. Additionally, at least one (1) case of contamination to underlying soil has been recorded (refer to survey performed 3/23/1985). Examples of some of the major events are provided below.

- a) Plant Incident Report (PIR) 80-37 reported the discovery of three (3) discrete sources of elevated activity on the Southeast Site Storage area in March 1980, along with other areas around the site. Two (2) of the discrete sources were identified within nearby Survey Unit 9520-0001. Based on a review of the 1980 survey maps, the likely location of the third discrete source, identified as 3-24-2, was in adjacent Survey Unit 9520-0002 based on a review of the documentation.



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- b) Health Physics surveys performed in 1983 and 1985 document the discovery of radioactive material (strainers, bolts, wood pallets, sections of pipe, etc.) on the peninsula. The 1985 survey documents the discovery of contaminated dirt under a pallet.
- c) Condition Report (CR) 05-0314: Documents the discovery of excavation spoils, intended for backfill, above the radiological criteria for use as backfill. These spoils were likely located in Survey Units 9520-0003 and 9520-0004 based on review of the documentation. According to the CR closure documentation, the affected spoils were removed and packaged for disposal. Follow-up survey and sampling was performed and the results were below established action levels.

A review of the *"Initial and Supplemental Characterization Reports"* as well as the previous *"Classification Basis Summaries"* was performed. Survey Unit 9520-0005 was originally part of Survey Unit 9520-0003, which was initially designated as Class 2 during the development of the LTP. The source documents, the *"Connecticut Yankee Haddam Neck Characterization Report"* and *"Initial Classification for Survey Areas at Connecticut Yankee"*, were incorporated by reference in LTP revision 0 (references 2-2 and 2-7 respectively). The second source document justified a Class 2 designation for those areas for which there was historical evidence of contamination above the Derived Concentration Guideline Levels (DCGLs - refer to Section 2 for definition and description of DCGL), but for which recent surveys had shown that decontamination efforts had occurred and that the radiological conditions were expected to be below the DCGLs. Additional justification for a Class 2 designation based on survey and sampling data was provided as another reference to the LTP by the *"Haddam Neck Plant Historical Site Assessment Supplement"*.

In October of 2006, Co-60 was identified in soil in sufficient concentrations to warrant a Class 1 designation for a new Survey Unit, 9520-0005 within the original boundaries of 9520-0003. A small area of elevated activity was identified during scanning of Survey Unit 9520-0003. Scan levels following sampling were at ambient radiation levels which showed that the activity was contained within the sample. Further evaluation of the sample showed that the activity was not uniform throughout the sample. Scanning was performed in nearby areas; however, no other areas of elevated activity were identified. While the source of the elevated activity cannot be determined with certainty, the type of activity, that is a small discrete source of Co-60, is believed to be isolated to this location.

The characterization results for the original survey unit, 9520-0003, were used to determine the baseline radiological status of Survey Unit 9520-0005 since the new survey unit was within the boundaries sampled during characterization. Statistical quantities (mean, median and standard deviation)

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from the 2006 characterization survey conducted under SSWP 06-07-006 are provided in Table 1.

Table 1 - Basic Statistical Quantities for Cs-137 and Co-60 from the 2006 Characterization Survey		
	Cs-137	Co-60
Minimum Observed Concentration (pCi/g) :	7.39E-04	-9.79E-03
Maximum Observed Concentration (pCi/g) :	1.03E-01	1.41E-01
Mean (pCi/g):	6.63E-02	1.96E-02
Median (pCi/g):	6.86E-02	-2.93E-03
Standard Deviation (pCi/g):	3.74E-02	5.96E-02

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

This survey area is affected by existing groundwater (reference CY memo ISC 06-024) which will be a source of dose from residual radioactivity, as discussed in Section 3 under the Data Quality Objectives.

Based upon the results of radiological surveys performed over six years of restoration and the 2006 characterization survey, it was concluded that there was a probability for residual radioactivity in concentrations greater than the DCGLs, justifying a final survey unit classification of Class 1 (refer to Section 3).

### 3. DATA QUALITY OBJECTIVES (DQO)

FSS design and planning used the Data Quality Objective (DQO) process as described by the LTP, Procedure RPM 5.1-11, "*Preparation of Final Status Survey Plan*," and the "*Multi-Agency Radiation Survey and Site Investigation Manual*" (MARSSIM). A summary of the main features of the DQO process are provided herein.

The DQO process incorporated hypothesis testing and probabilistic sampling distributions to control decision errors during data analysis. Hypothesis testing is a process based on the scientific method that compares a baseline condition to an alternate condition. The baseline condition is technically known as the null hypothesis. Hypothesis testing rests on the premise that the null hypothesis is true and that sufficient evidence must be provided for rejection. In designing the survey plan, the underlying assumption, or null hypothesis was that residual activity in the survey unit exceeded the release criteria. Rejection of the null hypothesis would indicate that residual activity within the survey unit does not exceed the release criteria. Therefore, the survey unit does satisfy the primary objective of the FSS plan.

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The primary objective of the FSS plan was to demonstrate that the level of residual radioactivity in Survey Unit 9520-0005 did not exceed the release criteria specified in the LTP and that the potential dose from residual radioactivity is As Low As Reasonably Achievable (ALARA).

A fundamental precursor to survey design is to establish a relationship between the release criteria and some measurable quantity. This is done through the development of DCGLs. The DCGLs represent average levels of radioactivity above background levels and are presented in terms of surface or mass activity concentrations. Chapter 6 of the LTP describes in detail the modeling used to develop the DCGLs for soil (called Base Case Soil DCGL), existing groundwater radioactivity and future groundwater radioactivity that will be contributed by building basements and footings.

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

***Equation 1***

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

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 CY is nineteen (19) mrem/yr TEDE. To satisfy both the LTP and CY CTDEP criteria, the dose from soil must be reduced when using the existing and future groundwater dose values discussed above.

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

This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no buried 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.

***Equation 2***

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

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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.

<b>Table 2 – Radionuclide Specific Base Case Soil DCGL, Operational DCGLs and Required Minimum Detectable Concentrations</b>			
<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 25 mrem/yr TEDE

(3) The Operational DCGL is equivalent to 17 mrem/yr TEDE

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

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

Another important facet of the DQO process is to identify the radionuclides of concern and determine the concentration variability. Soil samples were collected in 2006 to establish the radiological condition of Survey Unit 9520-

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0003 for FSS. The characterization results for Survey Unit 9520-0003 were used to determine the baseline radiological status of Survey Unit 9520-0005 since the new survey unit was within the boundaries sampled during characterization. Cs-137 and Co-60 are the only gamma emitting radionuclides reported in concentrations with the potential for exceeding the screening criteria. The characterization data were used for the survey design and are provided in Table 1.

Instrument DQOs included a verification of the ability of the survey instrument to detect the radiation(s) of interest relative to the DCGL. Survey instrument response checks were required prior to issue and after the instrument had been used. Control and accountability of survey instruments was required to assure the quality and prevent the loss of data.

As part of the DQOs applied to laboratory processes, analysis results were reported as actual calculated results. Results reported as less than Minimum Detectable Concentration (MDC) were not accepted for FSS. Sample report summaries included unique sample identification, analytical method, radionuclide, result, and uncertainty to two (2) standard deviations, laboratory data qualifiers, units, and the required and observed MDC.

**4. SURVEY DESIGN**

The level of effort associated with planning a survey is based on the complexity of the survey and nature of the hazards. Guidance for preparing FSS plans is provided in Procedure RPM 5.1-11, "*Preparation of Final Status Survey Plans*". The FSS plan uses an integrated sample design that combines scanning surveys and sampling which can be either random or biased.

The DQO process determined that Cs-137 and Co-60 would be the radionuclides of concern in Survey Unit 9520-0005 (refer to Section 3). Other radionuclides identified during this FSS would be evaluated to ensure adequate survey design.

Surrogate DCGLs were not required for this survey unit via screening under LTP Section 5.4.7.2, "*Gross Activity DCGLs*". Radionuclide screening or de-selection is a process where an individual radionuclide or aggregates may be considered insignificant and eliminated from the FSS. The criteria for de-selection are concentrations less than 5% for individual radionuclides and less than 10% for aggregates.

The Elevated Measurement Comparison (EMC) did apply to this survey unit since it is a Class 1 area and discrete, elevated areas of contamination were expected.

The Sign Test was selected as the non-parametric statistical test. The use of the Sign Test did not require the selection or use of a background reference area, which simplified survey design and implementation. This approach was conservative since it included background Cs-137 as part of the sample set.

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The number of soil samples for FSS was determined in accordance with Procedure RPM 5.1-12, "*Determination of the Number of Surface Samples for Final Status Survey.*" The Lower Bound of the Gray Region (LBGR) was set in accordance with Procedure RPM 5.1-11 to 0.95 to maintain the relative shift ( $\Delta/\sigma$ ) in the range of 1 and 3. The resulting Adjusted Relative Shift was 2.0. A Prospective Power Curve was generated using COMPASS, a software package developed under the sponsorship of the United States Nuclear Regulatory Commission (USNRC) for implementation of the MARSSIM in support of the decommissioning license termination rule (10 CFR 20, Subpart E). The result of the COMPASS computer run showed adequate power for the survey design. The survey design specified fifteen (15) surface soil samples for non-parametric statistical testing and two (2) samples at biased locations.

The grid pattern and locations of the soil samples were determined using Visual Sample Plan (VSP) in accordance with Procedure RPM 5.1-14, "*Identifying, and Marking Surface Sample Locations for Final Status Survey.*" Visual Sample Plan was created by Pacific Northwest National Laboratory (PNNL) for the United States Department of Energy. A systematic triangular grid pattern with a random starting point was selected for sample design, which is appropriate for a Class 1 area.

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

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

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

Designation	Northing	Easting
9520-0005-001F	235733.05	669559.32
9520-0005-002F	235733.05	669598.71
9520-0005-003F	235733.05	669638.11
9520-0005-004F	235698.93	669539.62
9520-0005-005F	235698.93	669579.01
9520-0005-006F	235698.93	669618.41
9520-0005-007F	235664.81	669559.32
9520-0005-008F	235664.81	669598.71
9520-0005-009F	235664.81	669638.11

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Table 3. Sample Measurement Locations with Associated GPS Coordinates		
Designation	Northing	Easting
9520-0005-010F	235630.69	669539.62
9520-0005-011F	235630.69	669579.01
9520-0005-012F	235630.69	669618.41
9520-0005-013F	235596.57	669519.92
9520-0005-014F	235596.57	669559.32
9520-0005-015F	235596.57	669598.71
9520-0005-016F	235754.08	669579.67
9520-0005-017F	235738.16	669613.53

Procedure RPM 5.1-11 specifies that 5% of the samples are required to be selected for HTD analysis. Two (2) soil samples, or about 10% of the number of samples that would be used for non-parametric statistical testing were randomly selected for HTD radionuclide analysis using the Microsoft Excel "RANDBETWEEN" function. Each sample was sent off-site for a full suite analysis of the HTD radionuclides specified in the LTP, Table 2-12, "*Radionuclides Potentially Present at Haddam Neck Plant*" and as provided in Table 2.

The implementation of quality control measures as referenced by Procedure RPM 5.1-24, "*Split Sample Assessment for Final Status Survey*," included the collection of two (2) soil samples for "split sample" analysis by the off-site laboratory. These locations were selected randomly using the Microsoft Excel "RANDBETWEEN" function. The number of quality control soil samples was about 10% of fifteen (15) samples.

The LTP specifies a required scanning coverage of 100% for outdoor Class 1 areas. Almost 40% of this survey unit was scanned during the FSS of Survey Unit 9520-0003. These areas were not required to be scanned during the FSS of Survey Unit 9520-0005. The total surface area to be scanned was approximately 100% of the survey unit.

For this Class 1 survey unit, the "Investigation Level" for area scanning and soil sample measurement results are those levels specified in LTP, Table 5-8. Table 4 provides a synopsis of the survey design.

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Table 4—Synopsis of the Survey Design		
Feature	Design Criteria	Basis
Survey Unit Land Area	1,887 m <sup>2</sup>	Based on AutoCAD-LT
Number of Measurements	17 (15 systematic grid) (2 biased)	Type 1 and Type 2 errors were 0.05, sigma was 0.024 pCi/g, the LBGR was adjusted to 0.95 to maintain Relative Shift in the range of 1 and 3
Grid Spacing	12.1 m	Based on triangular grid
Operational DCGL	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	Administratively set to achieve 17 mrem/yr TEDE <sup>(1)</sup>
Soil Investigation Level	5.38 pCi/g Cs-137 2.59 pCi/g Co-60	The Operational DCGL conservatively meets the LTP criteria for a Class 1 survey unit
Scan Survey Area Coverage	Approximately 100% of the area	The LTP requires 100% area coverage for Class 1 survey units
Scan Investigation Level	An instrument response greater than 2,700 cpm <sup>(2)</sup> above background	Based upon a Minimum Detectable Count Rate (MDCR) of 1,195 cpm and a corresponding DCGL <sub>EMC</sub> of 13.3 pCi/g for Cs-137 and a corresponding DCGL <sub>EMC</sub> of 1.78 pCi/g for Co-60 <sup>(3)</sup>

(1) The allowable dose for soil in this survey unit is 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)

(2) The FSS plan had a slightly higher value due to a typographical error; however, a review of the scan data shows that investigations were performed at a much lower threshold value

(3) The radionuclide fraction is 0.77, the Area Factor is 2.54, and the instrument conversion factor is 228 cpm/pCi/g for Cs-137; the radionuclide fraction is 0.23, the Area Factor is 1.30, and the instrument conversion factor is 873 cpm/pCi/g for Co-60

## 5. SURVEY IMPLEMENTATION

FSS field activities were conducted under Work Plan and Inspection Record (WP&IR) 2006-0038. The WP&IR package included a detailed FSS plan, job safety analysis, job planning checklist and related procedures for reference. Daily briefings were conducted to discuss the expectations for job performance and the safety aspects of the survey. The "Daily Survey Journal" was used to document field activities and other information pertaining to the FSS.

Almost 40% of this survey unit was scanned during the FSS of Survey Unit 9520-0003. These areas were not required to be scanned during the FSS of Survey Unit 9520-0005. Three (3) scan areas were established that constituted the remaining surface area of Survey Unit 9520-0005. Grid lines, one meter wide, were painted on the ground of the scan area. A background survey was performed around the survey unit and it was determined that, using an Eberline



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E-600 with a SPA-3 sodium iodide detector, background ranged from 5,860 counts per minute (cpm) up to 9,330 cpm.

The scan areas were established and scanned for elevated readings (see Attachment 2 for all scan results). Scanning was performed with an Eberline E-600 using a SPA-3 sodium iodide detector. The E-600 was operated in the rate-meter mode and used with audio response. The probe was positioned as close to the ground as possible and was moved at a scan speed of about 0.5 meters per second. Approximately 60% of the survey unit was scanned.

Measurement locations were identified in North American Datum (NAD) 1927 coordinates using GPS coordinates; sample locations were identified and marked with a surveyor's flag or paint for identification. At each sample location, a one (1) meter radius around the sample flag or paint mark was scanned for elevated radiation levels.

Thirty-two (32) surface soil samples were collected and packaged in accordance with Haddam Neck Plant (HNP) Procedure RPM 5.1-3, "*Collection of Sample Media for Final Status Survey*" and FSS design. Samples were controlled, transported, stored, and transferred to the off-site laboratory using Chain-of-Custody (COC) protocol in accordance with Procedure RPM 5.1-5, "*Chain of Custody for Final Status Survey Samples*."

Two (2) samples (9520-0005-012F and 9520-0005-013F) were randomly selected for HTD radionuclide analysis.

The implementation of survey specific quality control measures included the collection of two (2) samples (9520-0005-001F and 9520-0005-013F) for "split sample" analysis.

**6. SURVEY RESULTS**

All field survey activities were conducted between September 25, 2006 and October 23, 2006.

The sample locations identified in the FSS plan were scanned over approximately a one (1) meter radius for elevated radiation levels. Table 5 provides an overview of the scan results for sample measurement locations. Scan results are provided in Attachment 2.

**Table 5 - Scan Results for Sample Measurement Locations**

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level <sup>(1)</sup> (kcpm)	> Action Level <sup>(2)</sup>
1	8.32	8.17	YES
2	8.08	7.77	YES
3	6.85	6.94	NO
4	6.51	7.59	NO

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**Table 5 Scan Results for Sample Measurement Locations**

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level <sup>(1)</sup> (kcpm)	> Action Level <sup>(2)</sup>
5	8.01	8.97	NO
6	6.53	7.35	NO
7	7.88	8.49	NO
8	6.15	7.81	NO
9	6.31	7.34	NO
10	6.88	7.24	NO
11	6.11	6.71	NO
12	5.87	6.44	NO
13	8.34	8.18	YES
14	6.54	6.93	NO
15	7.34	6.89	YES
16	6.46	7.51	NO
17	5.80	6.76	NO
18 <sup>(3)</sup>	8.98	6.89	YES

(1) The action level is based on a measurement above ambient background in accordance with the FSS plan

(2) The FSS plan requires movement of the sample measurement location to the area within the 1 meter radius yielding the response above the action level

(3) Sample location 18 was added as a biased sample during the FSS by direction of the FSS Engineer; the sample location was the area of localized remediation

The scan areas, that comprised approximately 100% of the total surface area for the survey unit, were scanned for elevated radiation levels. The areas were scanned in accordance with the FSS plan on September 26, 2006 through October 23, 2006. Almost 40% of this survey unit was scanned during the FSS of Survey Unit 9520-0003. These areas were not required to be scanned during the FSS of Survey Unit 9520-0005. Several elevated measurement locations were identified during scanning. Soil samples were collected from all the elevated areas. Table 6 provides an overview of the scan area survey. Scan results are provided in Attachment 2.

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Table 6 - Scan Area Results				
Scan Area	Highest Logged Reading (kcpm)	Action Level <sup>(1)</sup> (kcpm)	Elevated Reading Identification <sup>(2)</sup>	Investigation Sample
1	9.73	7.12	9520-05-ER-01-01-1	9520-0005-021F
			9520-05-ER-01-01-2	9520-0005-022F
			9520-05-ER-01-01-3	9520-0005-023F
			9520-05-ER-01-03-1	9520-0005-024F
			9520-05-ER-01-04-1	9520-0005-025F
			9520-05-ER-01-04-2	9520-0005-026F
			9520-05-ER-01-04-3	9520-0005-027F
			9520-05-ER-01-04-4	9520-0005-028F
			9520-05-ER-01-04-5	9520-0005-029F
			9520-05-ER-01-05-1	9520-0005-030F
			99520-05-ER-01-06-1	9520-0005-031F
			9520-05-ER-01-06-2	9520-0005-032F
			9520-05-ER-01-06-3	9520-0005-033F
2	7.90	9.17	None – no elevated areas identified	None
3	8.96	10.1	None – no elevated areas identified	None
4	6.71	8.41	None – no elevated areas identified	None
5	9.17	7.12	9520-05-ER-05-36-1	9520-0005-019F

(1) The action level is based on a measurement above ambient background

(2) ER is an abbreviation associated with the barcodes used in the field where ER stands for Elevated Reading

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The off-site laboratory employed for the radiological analyses of samples was General Engineering Laboratories, LLC. The laboratory analyzed the fifteen (15) samples collected for non-parametric statistical testing, the associated field splits, the three (3) biased samples, and the fourteen (14) confirmatory samples using gamma spectroscopy. Gamma spectroscopy analysis was performed to the required MDCs. Gamma spectroscopy results identified some radionuclides meeting the accepted criteria for detection (i.e., a result greater than two standard deviations uncertainty). However, Cs-137 and Co-60 were the only radionuclides reported in concentrations exceeding the de-selection criteria.

Cs-137 was identified in fourteen (14) of the fifteen (15) samples collected for non-parametric statistical testing. Cs-137 was the primary radionuclide confirming the DQOs. The mean of the gamma spectroscopic analysis results for the sample population indicated that Cs-137 was present at levels lower than the concentrations of Cs-137 found in soil at off-site locations within the vicinity of the HNP as presented in the Health Physics TSD BCY-HP-0063. Co-60 was identified in four (4) of the fifteen (15) samples collected for non-parametric statistical testing.

A summary of the fifteen (15) samples collected for non-parametric statistical testing results is provided in Table 7.

**Table 7 - Summary of Soil Sample Results for the Statistical Sample Population**

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>
9520-0005-001F	4.10E-02	4.13E-02	0.024
9520-0005-002F	4.59E-02	-1.37E-04	0.009
9520-0005-003F	1.35E-01	1.28E-04	0.025
9520-0005-004F	6.47E-02	1.34E-03	0.013
9520-0005-005F	1.93E-01	4.83E-01	0.222
9520-0005-006F	9.03E-02	5.91E-02	0.040
9520-0005-007F	4.91E-02	2.31E-03	0.010
9520-0005-008F	2.93E-02	-1.20E-02	0.005
9520-0005-009F	6.79E-02	1.40E-02	0.018
9520-0005-010F	1.27E-01	2.14E-02	0.032
9520-0005-011F	6.07E-02	7.15E-02	0.039
9520-0005-012F	1.52E-01	1.57E-02	0.034

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Table 7 - Summary of Soil Sample Results for the Statistical Sample Population			
Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>
9520-0005-013F	-5.14E-03	-9.84E-05	0.000
9520-0005-014F	1.16E-01	8.07E-04	0.022
9520-0005-015F	4.54E-02	9.99E-04	0.009

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

The off-site laboratory also processed two (2) samples for HTD analysis as required by the sample plan. The requested analyses included alpha spectroscopy, gas proportional counting, and liquid scintillation depending on the radionuclide and the measurement method. All analyses met the required MDC.

As previously stated in Section 4 of this report, the criteria for de-selection of a radionuclide is a concentration that is less than 5% of the Operational DCGL for individual radionuclides and less than 10% of the Operational DCGLs for aggregates. Sr-90 was the only HTD, which by analysis, met the criteria for detection (i.e., a result greater than two standard deviations uncertainty). The highest result for Sr-90 was at 3% of the Operational DCGL.

Table 8 - Hard-to-Detect Sample Results		
Sample	Sr-90 (pCi/g)	Fraction of Operational DCGL <sup>(1)</sup>
9520-0005-012F	1.49E-02	0.014
9520-0005-013F	2.73E-02	0.026

(1) The Operational DCGL from Table 2 is 1.05 pCi/g for Sr-90 to achieve 17 mrem/yr TEDE

Three (3) biased samples were collected at locations selected by FSS Supervision based on professional judgment and observation. Gamma spectroscopy analysis was performed by the off-site laboratory to the required MDC.

Table 9 - Judgmental or Biased Sample Results			
Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>
9520-0005-016F	1.62E-01	2.28E-02	0.039
9520-0005-017F	5.27E-01	9.89E-02	0.136
9520-0005-018F	2.39E-01	1.93E-01	0.119

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**Table 9 - Judgmental or Biased Sample Results**

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(1)</sup>
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(1) The Operational DCGL from Table 2 is 5.38 pCi/g for Cs-137 and 2.59 pCi/g for Co-60 used in conjunction with the unity rule to achieve 17 mrem/yr TEDE

**7. QUALITY CONTROL**

The off-site laboratory processed the split samples and performed gamma spectroscopy analysis. Ten percent (10%) of the samples were selected for analysis, which exceeds the 5% minimum required by the LTP. The data were evaluated using USNRC acceptance criteria specified in Inspection Procedure 84750 as detailed in HNP Procedure RPM 5.1-24, "Split Sample Assessment for Final Status Survey". Cs-137 was not detected in sufficient quantities in the field split results at location 9520-0005-001 to evaluate in accordance with procedure. Evaluation using the reported results for K-40 resulted in acceptable agreement between the field split results at this location. Cs-137 was not detected in either of the field split results at location 9520-0005-013.

Evaluation using the reported results for K-40 resulted in acceptable agreement between the field split results at this location. The sample analysis vendor, General Engineering Laboratories, LLC, maintains quality control and quality assurance plans as part of normal operation. Refer to Attachment 4 for data and data quality analysis results.

**8. INVESTIGATIONS AND RESULTS**

Fourteen confirmatory samples were collected from scan area 1 and scan area 5 at locations exhibiting elevated scan readings. The samples are denoted as shown in Table 6, with the sample results shown in Table 10 below.

**Table 10 - Confirmatory Sample Results**

Sample Number <sup>(1)</sup>	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(2)</sup>
9520-0005-019F	1.28E-01	1.43E-01	0.029
9520-0005-021F	8.68E-02	9.80E-03	0.020
9520-0005-022F	7.52E-02	-2.09E-03	0.014
9520-0005-023F	1.94E-01	1.18E-02	0.041
9520-0005-024F	3.93E-02	6.72E-03	0.010
9520-0005-025F	5.68E-02	-1.40E-03	0.011
9520-0005-026F	6.54E-02	-8.00E-03	0.012
9520-0005-027F	7.72E-02	2.56E-03	0.015

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**Table 10- Confirmatory Sample Results**

Sample Number <sup>(1)</sup>	Cs-137 pCi/g	Co-60 pCi/g	Fraction of the Operational DCGL <sup>(2)</sup>
9520-0005-028F	5.96E-02	5.03E-03	0.013
9520-0005-029F	8.04E-02	1.03E-02	0.019
9520-0005-030F	4.58E-02	3.48E-03	0.010
9520-0005-031F	4.61E-02	-1.86E-03	0.009
9520-0005-032F	4.61E-02	-1.22E-02	0.009
9520-0005-033F	4.57E-02	-8.48E-03	0.008

(1) Sample location 9520-0005-020F was not used; sample locations 9520-0005-021F through 9520-0005-034F were reassigned to Survey Unit 9520-0005 from Survey Unit 9520-0003

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

**9. REMEDIATION AND RESULTS**

In October of 2006, Co-60 was identified in soil in sufficient concentrations to warrant a Class 1 designation for a new Survey Unit, 9520-0005 within the original boundaries of 9520-0003. A small area of elevated activity was identified during scanning of Survey Unit 9520-0003. Additional scan surveys were performed around the sample location out to an approximate radial distance of 10 meters east. No elevated areas were identified indicating a localized area which was effectively remediated by sample collection. Further evaluation of the sample showed that the activity was not uniform throughout the sample. While the source of the elevated activity cannot be determined with certainty, the type of activity, that is a small discrete source of Co-60, is believed to be isolated to this location. Health Physics TSD BCY-HP-0078, "ALARA Evaluation of Soil Remediation in Support of Final Status Survey," has determined that remediation beyond that required to meet the release criteria is unnecessary and that the remaining residual radioactivity in soil was ALARA.

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

No changes were made to the FSS plan.

SOUTHWEST SITE STORAGE AREA  
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**11. DATA QUALITY ASSESSMENT (DQA)**

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, "*Data Quality Assessment*," for completeness and consistency. The sampling design had adequate power as indicated by the Retrospective Power Curve. The Sign Test was performed on the data and compared to the original assumptions of the DQOs. The evaluation of the Sign Test results demonstrates that the survey unit passes the unrestricted release criteria, thus, the null hypothesis is rejected.

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

The preliminary data review consisted of calculating basic statistical quantities (e.g., mean, median, standard deviation). The mean and median values are well below the Operational DCGL. Also, the retrospective power curve shows that a sufficient number of samples were collected to achieve the desired power. Therefore, the survey unit meets the unrestricted release criteria with adequate power as required by the DQOs.

For Cs-137, the range of the data, about four (4) standard deviations, was not a particularly large variation considering that the levels were essentially at existing environmental levels where such variation is to be expected. The difference between the mean and median was about 30% of the standard deviation which indicates some skewness in the data. The data was represented graphically through posting plots, a frequency plot, and a quantile plot. The frequency plot indicates positive skewness as confirmed by the calculated skew of 0.60.

Co-60, although included in the FSS plan for compliance purposes, was identified in only four (4) of the fifteen (15) samples collected for non-parametric statistical testing. Data assessment and graphical representation of Co-60 was not considered useful given the limited number of data points to represent the distribution.

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

**12. ANOMALIES**

No anomalies were noted.

**13. CONCLUSION**

Survey Unit 9520-0005 has met the final DQOs of the FSS plan. The ALARA criteria for soils as specified in Chapter 4 of the LTP were achieved. Elevated Measurement Comparison was not required.



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Cs-137 and Co-60 were used for statistical testing to determine the adequacy of the survey unit for FSS.

The sample data passed the Sign Test. The null hypothesis was rejected. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved. The survey unit is properly designated as Class 1.

The dose contribution from soil is less than 1 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

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

This survey unit is not considered impacted by future groundwater radioactive contamination, as there are no underground structures, systems or components containing residual radioactive material within the groundwater saturated zone in the area (reference CY memo ISC 06-024); therefore, the dose contribution from future groundwater is zero (0) mrem/yr TEDE.

The average total dose from residual radioactivity in this survey unit, including exposures from the three (3) components as described in Section 3, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity, will not exceed 3 mrem/yr TEDE. Therefore, Survey Unit 9520-0005 is acceptable for unrestricted release.

**14. ATTACHMENTS**

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Scan Results

14.3 Attachment 3 – Laboratory Results

14.4 Attachment 4 – DQA Results

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**ATTACHMENT 1 (FIGURES)**

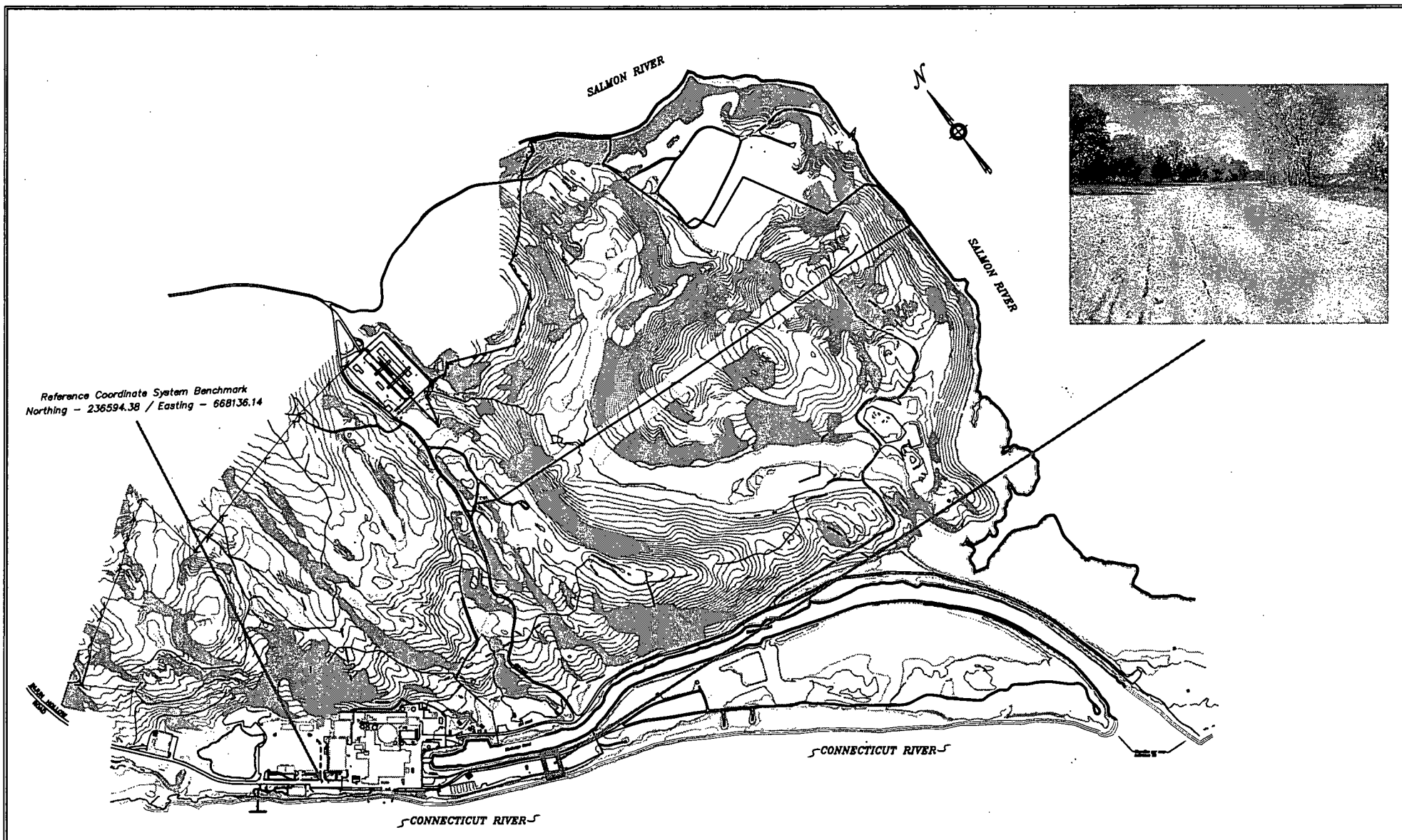


Figure 1



Connecticut Yankee Atomic Power Company  
Site Map With Reference To Survey Unit 9520-0005

Date

By

November 2006

J. McC.

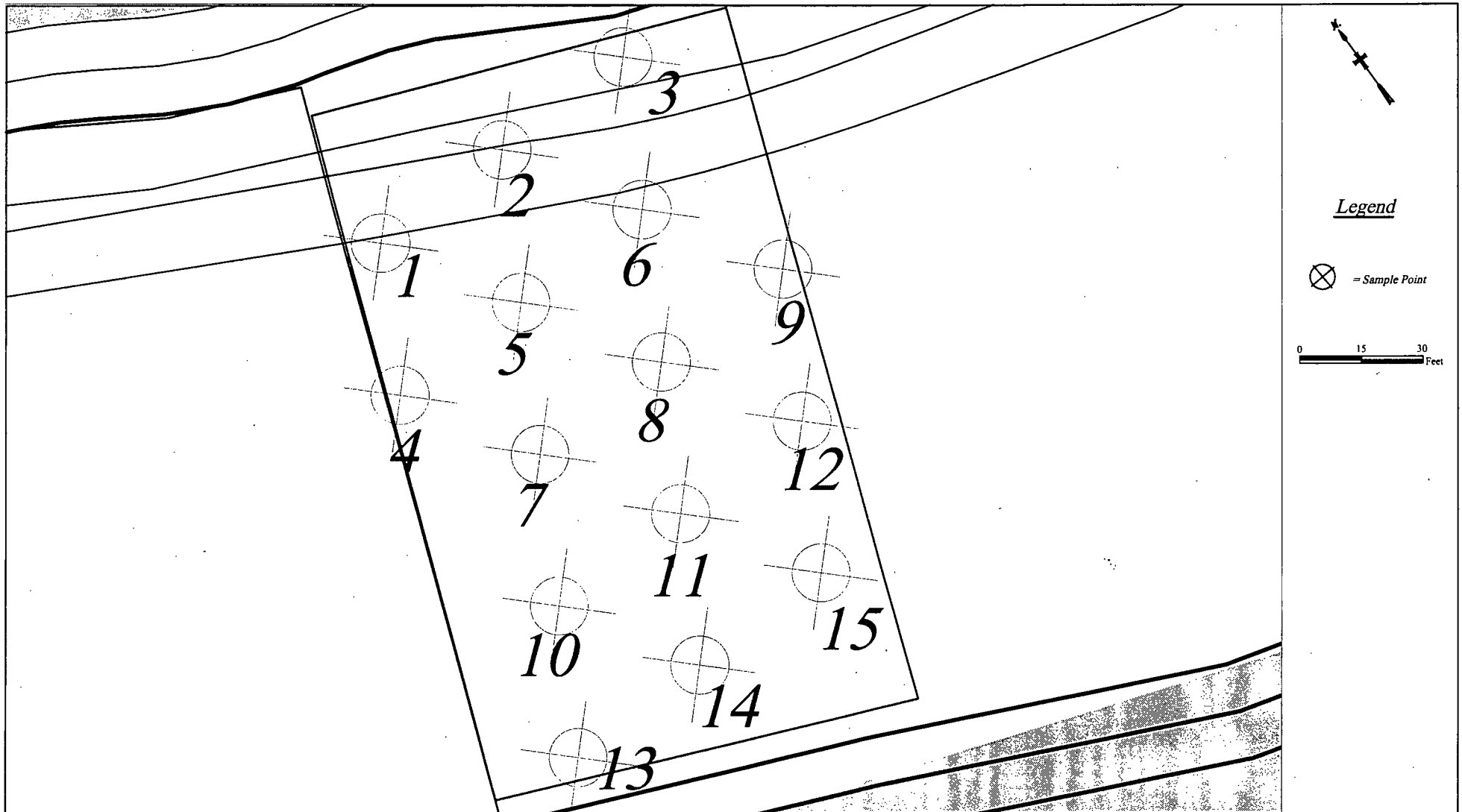
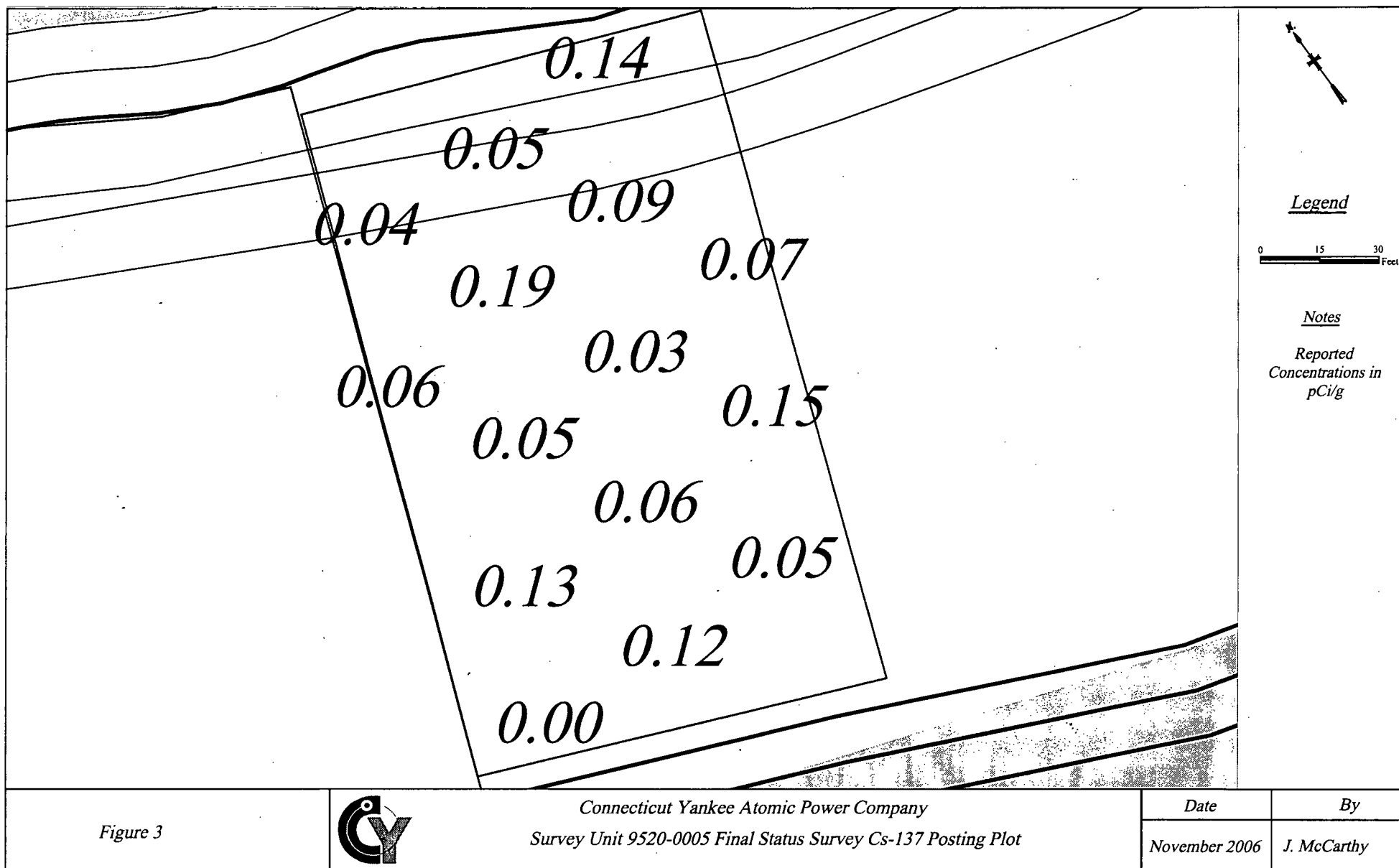


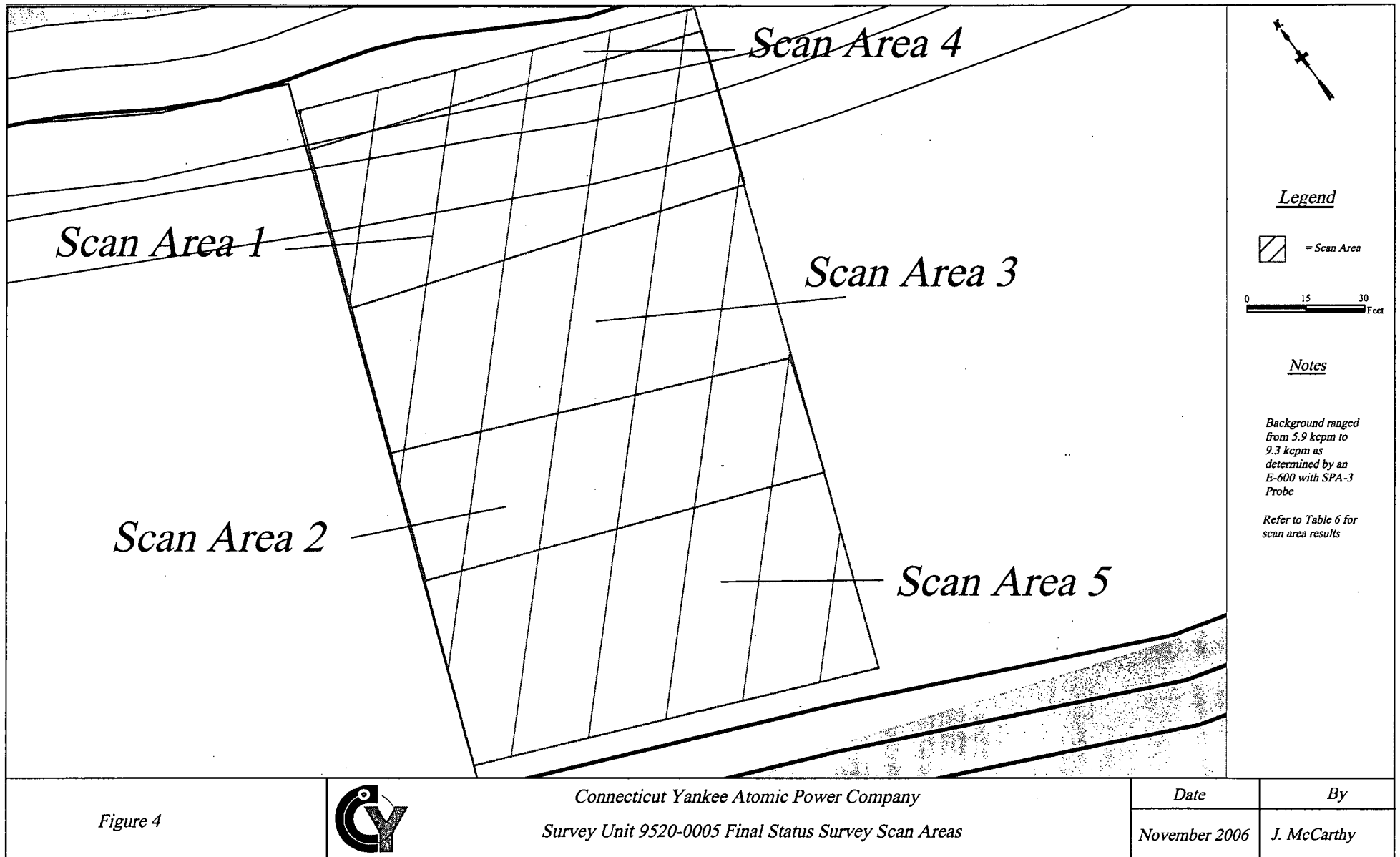
Figure 2



Connecticut Yankee Atomic Power Company  
Survey Unit 9520-0005 Final Status Survey Design

Date	By
November 2006	J. McCarthy





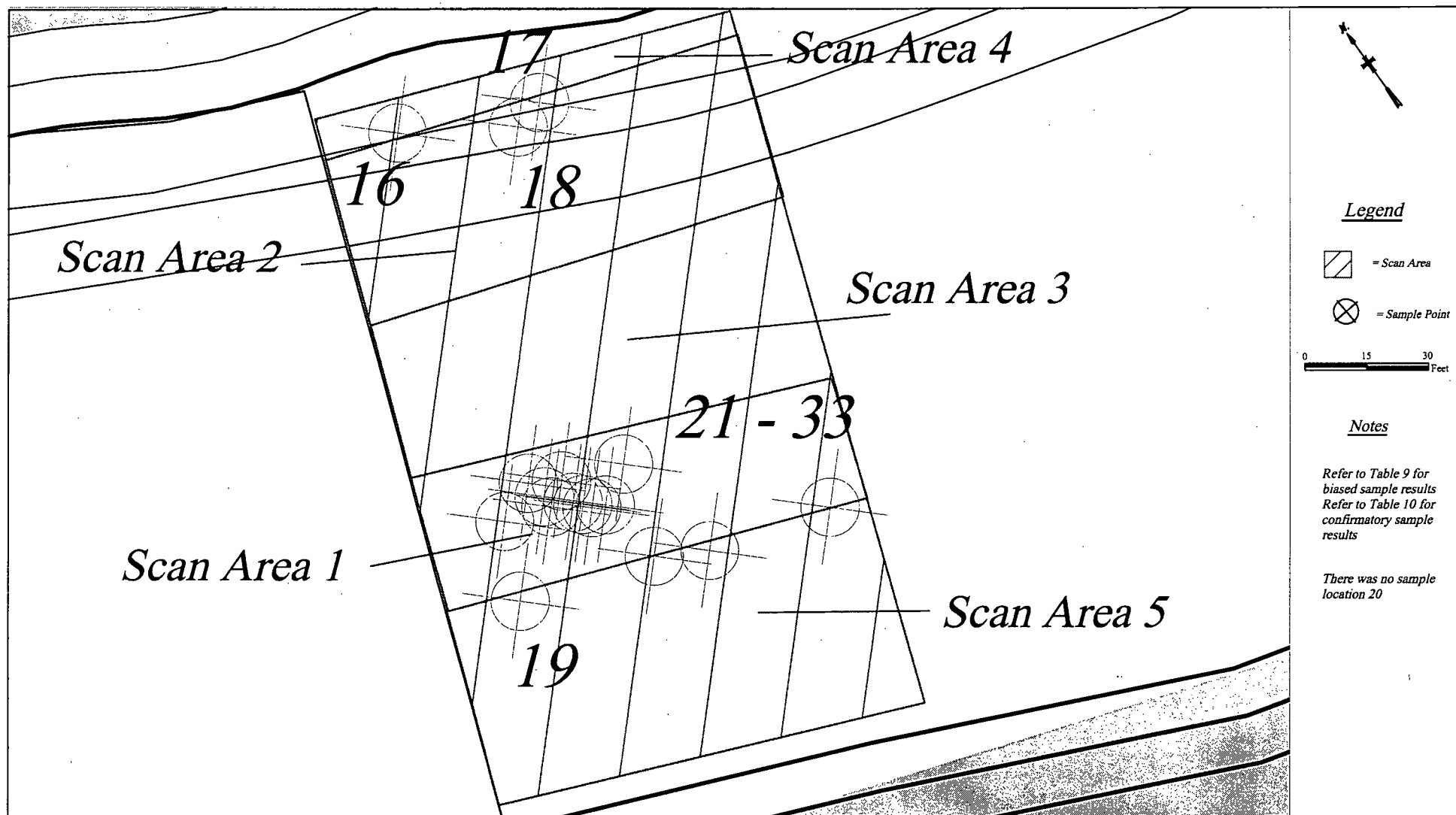


Figure 5



Connecticut Yankee Atomic Power Company  
Survey Unit 9520-0005 Final Status Survey Biased and Confirmatory Samples

Date	By
November 2006	J. McCarthy

SOUTHWEST SITE STORAGE AREA  
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**ATTACHMENT 2 (SCAN RESULTS)**



# Survey Release Record Sample Location Scan Results

## Survey Unit 9520-0005

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-05-SL-00-01-0	6.98E+03	8.17E+03	8.32E+03	+	10/16/2006	9:47:00	1105	1012
9520-05-SL-00-02-0	6.61E+03	7.77E+03	8.08E+03	+	10/16/2006	10:32:00	1105	1012
9520-05-SL-00-03-0	5.85E+03	6.94E+03	6.85E+03		10/16/2006	10:42:00	1105	1012
9520-05-SL-00-04-0	6.44E+03	7.59E+03	6.51E+03		10/16/2006	10:53:00	1105	1012
9520-05-SL-00-05-0	7.72E+03	8.97E+03	8.01E+03		10/16/2006	11:01:00	1105	1012
9520-05-SL-00-06-0	6.22E+03	7.35E+03	6.53E+03		10/16/2006	11:21:00	1105	1012
9520-05-SL-00-07-0	7.27E+03	8.49E+03	7.88E+03		10/16/2006	13:40:00	1105	1012
9520-05-SL-00-08-0	6.65E+03	7.81E+03	6.15E+03		10/16/2006	13:52:00	1105	1012
9520-05-SL-00-09-0	6.21E+03	7.34E+03	6.31E+03		10/16/2006	14:09:00	1105	1012
9520-05-SL-00-10-0	6.12E+03	7.24E+03	6.88E+03		10/16/2006	14:20:00	1105	1012
9520-05-SL-00-11-0	5.64E+03	6.71E+03	6.11E+03		10/16/2006	14:31:00	1105	1012
9520-05-SL-00-12-0	5.39E+03	6.44E+03	5.87E+03		10/16/2006	15:07:00	1105	1012
9520-05-SL-00-13-0	6.99E+03	8.18E+03	8.34E+03	+	10/16/2006	14:51:00	1105	1012
9520-05-SL-00-14-0	5.84E+03	6.93E+03	6.54E+03		10/17/2006	7:59:00	1112	1013
9520-05-SL-00-15-0	5.80E+03	6.89E+03	7.34E+03	+	10/17/2006	8:14:00	1112	1013
9520-05-SL-00-16-0	6.37E+03	7.51E+03	6.46E+03		10/17/2006	8:36:00	1112	1013
9520-05-SL-00-17-0	5.68E+03	6.76E+03	5.80E+03		10/17/2006	10:04:00	1112	1013
9520-05-SL-00-18-0	5.80E+03	6.89E+03	8.98E+03	+	10/17/2006	10:23:00	1112	1013

AL - Action Level

## Errata

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The following change is made to scan nomenclature to acknowledge the reassignment of scan locations from Survey Unit 9520-0003 to Survey Unit 9520-0005:

Original Barcode Designation	Revised Barcode Designation
9520-03-SC-01-01-0	9520-05-SC-01-01-0
9520-03-ER-01-01-1	9520-05-ER-01-01-1
9520-03-ER-01-01-2	9520-05-ER-01-01-2
9520-03-ER-01-01-3	9520-05-ER-01-01-3
9520-03-SC-01-02-0	9520-05-SC-01-02-0
9520-03-SC-01-03-0	9520-05-SC-01-03-0
9520-03-ER-01-03-1	9520-05-ER-01-03-1
9520-03-SC-01-04-0	9520-05-SC-01-04-0
9520-03-ER-01-04-1	9520-05-ER-01-04-1
9520-03-ER-01-04-2	9520-05-ER-01-04-2
9520-03-ER-01-04-3	9520-05-ER-01-04-3
9520-03-ER-01-04-4	9520-05-ER-01-04-4
9520-03-ER-01-04-5	9520-05-ER-01-04-5
9520-03-SC-01-05-0	9520-05-SC-01-05-0
9520-03-ER-01-05-1	9520-05-ER-01-05-1
9520-03-SC-01-06-0	9520-05-SC-01-06-0
9520-03-ER-01-06-1	9520-05-ER-01-06-1
9520-03-ER-01-06-2	9520-05-ER-01-06-2
9520-03-ER-01-06-3	9520-05-ER-01-06-3
9520-03-SC-01-07-0	9520-05-SC-01-07-0
9520-03-SC-01-08-0	9520-05-SC-01-08-0
9520-03-SC-01-09-0	9520-05-SC-01-09-0
9520-03-SC-02-01-0	9520-05-SC-02-01-0
9520-03-SC-02-02-0	9520-05-SC-02-02-0
9520-03-SC-02-03-0	9520-05-SC-02-03-0
9520-03-SC-02-04-0	9520-05-SC-02-04-0
9520-03-SC-02-05-0	9520-05-SC-02-05-0
9520-03-SC-02-06-0	9520-05-SC-02-06-0
9520-03-SC-02-07-0	9520-05-SC-02-07-0

## Errata

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9520-03-SC-02-08-0	9520-05-SC-02-08-0
9520-03-SC-02-09-0	9520-05-SC-02-09-0
9520-03-SC-02-10-0	9520-05-SC-02-10-0
9520-03-SC-02-11-0	9520-05-SC-02-11-0
9520-03-SC-02-12-0	9520-05-SC-02-12-0
9520-03-SC-02-13-0	9520-05-SC-02-13-0
9520-03-SC-02-14-0	9520-05-SC-02-14-0
9520-03-SC-02-15-0	9520-05-SC-02-15-0
9520-03-SC-02-16-0	9520-05-SC-02-16-0
9520-03-SC-02-17-0	9520-05-SC-02-17-0
9520-03-SC-02-18-0	9520-05-SC-02-18-0
9520-03-SC-02-19-0	9520-05-SC-02-19-0
9520-03-SC-02-20-0	9520-05-SC-02-20-0
9520-03-SC-02-21-0	9520-05-SC-02-21-0
9520-03-SC-02-22-0	9520-05-SC-02-22-0

Completed by: Jack McCarthy 3/3/07

# Survey Release Record Scan Area Results

## Survey Unit 9520-0005

### 9520-0005 SCAN AREA 1

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-01-SC-01-01-0	5.86E+03	6.95E+03	5.98E+03		9/26/2006	10:16:00	1114	1014
9520-01-ER-01-01-1	5.86E+03	6.95E+03	7.60E+03	+	9/26/2006	13:17:00	1114	1014
9520-01-ER-01-01-2	5.86E+03	6.95E+03	8.02E+03	+	9/26/2006	13:06:00	1114	1014
9520-01-ER-01-01-3	5.86E+03	6.95E+03	9.44E+03	+	9/26/2006	13:06:00	1114	1014
9520-01-SC-01-02-0	6.11E+03	7.23E+03	6.26E+03		9/26/2006	10:22:00	1114	1014
9520-01-SC-01-03-0	6.37E+03	7.51E+03	5.66E+03		9/26/2006	10:32:00	1114	1014
9520-01-ER-01-03-1	6.37E+03	7.51E+03	9.09E+03	+	9/26/2006	13:07:00	1114	1014
9520-01-SC-01-04-0	6.01E+03	7.12E+03	6.48E+03		9/26/2006	10:40:00	1114	1014
9520-01-ER-01-04-1	6.01E+03	7.12E+03	9.73E+03	+	9/26/2006	13:08:00	1114	1014
9520-01-ER-01-04-2	6.01E+03	7.12E+03	8.59E+03	+	9/26/2006	13:09:00	1114	1014
9520-01-ER-01-04-3	6.01E+03	7.12E+03	9.28E+03	+	9/26/2006	13:10:00	1114	1014
9520-01-ER-01-04-4	6.01E+03	7.12E+03	8.54E+03	+	9/26/2006	13:11:00	1114	1014
9520-01-ER-01-04-5	6.01E+03	7.12E+03	8.55E+03	+	9/26/2006	13:11:00	1114	1014
9520-01-SC-01-05-0	7.04E+03	8.24E+03	6.38E+03		9/26/2006	10:48:00	1114	1014
9520-01-ER-01-05-1	7.04E+03	8.24E+03	9.07E+03	+	9/26/2006	13:12:00	1114	1014
9520-01-SC-01-06-0	6.03E+03	7.14E+03	6.57E+03		9/26/2006	11:04:00	1114	1014
9520-01-ER-01-06-1	6.03E+03	7.14E+03	7.54E+03	+	9/26/2006	13:15:00	1114	1014
9520-01-ER-01-06-2	6.03E+03	7.14E+03	8.68E+03	+	9/26/2006	13:16:00	1114	1014
9520-01-ER-01-06-3	6.03E+03	7.14E+03	8.17E+03	+	9/26/2006	13:16:00	1114	1014
9520-01-SC-01-07-0	7.41E+03	8.64E+03	5.42E+03		9/26/2006	11:11:00	1114	1014
9520-01-SC-01-08-0	7.58E+03	8.82E+03	6.97E+03		9/26/2006	11:16:00	1114	1014
9520-01-SC-01-09-0	7.89E+03	9.16E+03	6.35E+03		9/26/2006	11:20:00	1114	1014

### 9520-0005 SCAN AREA 2

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-02-SC-02-01-0	8.10E+03	9.39E+03	7.27E+03		9/27/2006	11:20:00	1114	1014
9520-02-SC-02-02-0	7.51E+03	8.75E+03	7.20E+03		9/27/2006	11:15:00	1114	1014
9520-02-SC-02-03-0	7.85E+03	9.12E+03	7.68E+03		9/27/2006	11:07:00	1114	1014

AL - Action Level

# Survey Release Record Scan Area Results

## Survey Unit 9520-0005

9520-02-SC-02-04-0	8.26E+03	9.56E+03	7.27E+03	9/27/2006	10:58:00	1114	1014
9520-02-SC-02-05-0	7.90E+03	9.17E+03	7.72E+03	9/27/2006	10:51:00	1114	1014
9520-02-SC-02-06-0	8.39E+03	9.70E+03	7.62E+03	9/27/2006	10:26:00	1114	1014
9520-02-SC-02-07-0	8.02E+03	9.30E+03	7.87E+03	9/27/2006	10:21:00	1114	1014
9520-02-SC-02-08-0	7.90E+03	9.17E+03	7.90E+03	9/27/2006	10:16:00	1114	1014
9520-02-SC-02-09-0	8.70E+03	1.00E+04	7.10E+03	9/27/2006	10:10:00	1114	1014
9520-02-SC-02-10-0	9.33E+03	1.07E+04	7.13E+03	9/27/2006	10:03:00	1114	1014
9520-02-SC-02-11-0	9.05E+03	1.04E+04	7.36E+03	9/27/2006	9:57:00	1114	1014
9520-02-SC-02-12-0	5.95E+03	7.05E+03	5.81E+03	9/27/2006	13:35:00	1114	1014
9520-02-SC-02-13-0	6.60E+03	7.76E+03	6.98E+03	9/27/2006	13:43:00	1114	1014
9520-02-SC-02-14-0	6.91E+03	8.10E+03	6.89E+03	9/27/2006	13:51:00	1114	1014
9520-02-SC-02-15-0	7.57E+03	8.81E+03	7.15E+03	9/27/2006	13:58:00	1114	1014
9520-02-SC-02-16-0	6.86E+03	8.04E+03	6.81E+03	9/27/2006	14:03:00	1114	1014
9520-02-SC-02-17-0	7.43E+03	8.66E+03	7.21E+03	9/27/2006	14:09:00	1114	1014
9520-02-SC-02-18-0	6.77E+03	7.94E+03	6.38E+03	9/27/2006	14:17:00	1114	1014
9520-02-SC-02-19-0	6.52E+03	7.67E+03	7.05E+03	9/27/2006	14:22:00	1114	1014
9520-02-SC-02-20-0	6.55E+03	7.71E+03	7.10E+03	9/27/2006	14:28:00	1114	1014
9520-02-SC-02-21-0	6.55E+03	7.71E+03	6.60E+03	9/27/2006	14:35:00	1114	1014
9520-02-SC-02-22-0	6.35E+03	7.49E+03	6.71E+03	9/27/2006	14:40:00	1114	1014

### 9520-0005 SCAN AREA 3

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-05-SC-03-01-0	8.61E+03	9.94E+03	7.97E+03		10/19/2006	9:24:00	1105	1012
9520-05-SC-03-02-0	8.04E+03	9.32E+03	8.67E+03		10/19/2006	9:26:00	1105	1012
9520-05-SC-03-03-0	8.86E+03	1.02E+04	8.36E+03		10/19/2006	9:30:00	1105	1012
9520-05-SC-03-04-0	8.22E+03	9.51E+03	8.53E+03		10/19/2006	9:33:00	1105	1012
9520-05-SC-03-05-0	8.37E+03	9.68E+03	8.00E+03		10/19/2006	9:35:00	1105	1012
9520-05-SC-03-06-0	8.30E+03	9.60E+03	8.52E+03		10/19/2006	9:38:00	1105	1012
9520-05-SC-03-07-0	8.76E+03	1.01E+04	8.96E+03		10/19/2006	9:40:00	1105	1012

AL - Action Level

# Survey Release Record Scan Area Results

## Survey Unit 9520-0005

9520-05-SC-03-08-0	8.39E+03	9.70E+03	8.62E+03	10/19/2006	9:42:00	1105	1012
9520-05-SC-03-09-0	9.06E+03	1.04E+04	7.80E+03	10/19/2006	9:46:00	1105	1012
9520-05-SC-03-10-0	8.02E+03	9.30E+03	8.38E+03	10/19/2006	9:48:00	1105	1012
9520-05-SC-03-11-0	7.39E+03	8.62E+03	7.98E+03	10/19/2006	9:51:00	1105	1012
9520-05-SC-03-12-0	8.03E+03	9.31E+03	8.91E+03	10/19/2006	9:53:00	1105	1012
9520-05-SC-03-13-0	6.92E+03	8.11E+03	7.22E+03	10/19/2006	10:01:00	1105	1012
9520-05-SC-03-14-0	7.65E+03	8.90E+03	8.11E+03	10/19/2006	10:02:00	1105	1012
9520-05-SC-03-15-0	7.68E+03	8.93E+03	7.51E+03	10/19/2006	10:05:00	1105	1012
9520-05-SC-03-16-0	6.74E+03	7.91E+03	7.65E+03	10/19/2006	10:09:00	1105	1012
9520-05-SC-03-17-0	7.71E+03	8.96E+03	7.69E+03	10/19/2006	10:11:00	1105	1012
9520-05-SC-03-18-0	7.60E+03	8.84E+03	7.78E+03	10/19/2006	10:13:00	1105	1012
9520-05-SC-03-19-0	7.55E+03	8.79E+03	7.12E+03	10/19/2006	10:16:00	1105	1012
9520-05-SC-03-20-0	7.68E+03	8.93E+03	7.62E+03	10/19/2006	10:18:00	1105	1012
9520-05-SC-03-21-0	7.04E+03	8.24E+03	6.94E+03	10/19/2006	10:22:00	1105	1012
9520-05-SC-03-22-0	7.14E+03	8.35E+03	6.39E+03	10/19/2006	10:25:00	1105	1012
9520-05-SC-03-23-0	6.58E+03	7.74E+03	7.14E+03	10/19/2006	10:27:00	1105	1012
9520-05-SC-03-24-0	7.35E+03	8.57E+03	6.44E+03	10/19/2006	10:29:00	1105	1012
9520-05-SC-03-25-0	6.72E+03	7.89E+03	6.47E+03	10/19/2006	10:32:00	1105	1012
9520-05-SC-03-26-0	6.76E+03	7.93E+03	5.96E+03	10/19/2006	10:34:00	1105	1012
9520-05-SC-03-27-0	6.34E+03	7.48E+03	6.15E+03	10/19/2006	10:37:00	1105	1012
9520-05-SC-03-28-0	6.73E+03	7.90E+03	5.82E+03	10/19/2006	10:39:00	1105	1012
9520-05-SC-03-29-0	6.10E+03	7.22E+03	6.72E+03	10/19/2006	10:43:00	1105	1012
9520-05-SC-03-30-0	6.11E+03	7.23E+03	5.88E+03	10/19/2006	10:45:00	1105	1012
9520-05-SC-03-31-0	6.48E+03	7.63E+03	6.37E+03	10/19/2006	10:47:00	1105	1012
9520-05-SC-03-32-0	6.15E+03	7.27E+03	6.57E+03	10/19/2006	10:49:00	1105	1012
9520-05-SC-03-33-0	6.40E+03	7.54E+03	6.42E+03	10/19/2006	10:52:00	1105	1012

# Survey Release Record Scan Area Results

## Survey Unit 9520-0005

### 9520-0005 SCAN AREA 4

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-05-SC-04-34-0	7.21E+03	8.42E+03	6.23E+03		10/19/2006	11:12:00	1105	1012
9520-05-SC-04-35-0	7.20E+03	8.41E+03	6.71E+03		10/19/2006	11:02:00	1105	1012

### 9520-0005 SCAN AREA 5

<u>Sample Name</u>	<u>Background (cpm)</u>	<u>Action Level (cpm)</u>	<u>Results (cpm)</u>	<u>Above AL</u>	<u>Log Date</u>	<u>Log Time</u>	<u>E600 S/N</u>	<u>Probe S/N</u>
9520-05-SC-05-36-0	5.98E+03	7.08E+03	6.40E+03		10/23/2006	9:38:00	1117	1001
9520-05-ER-05-36-1	5.98E+03	7.12E+03	9.17E+03	+	10/23/2006	10:27:00	1117	1001
9520-05-SC-05-37-0	6.87E+03	8.05E+03	6.44E+03		10/23/2006	9:41:00	1117	1001
9520-05-SC-05-38-0	6.39E+03	7.53E+03	6.66E+03		10/23/2006	9:43:00	1117	1001
9520-05-SC-05-39-0	6.56E+03	7.72E+03	6.43E+03		10/23/2006	9:47:00	1117	1001
9520-05-SC-05-40-0	5.89E+03	6.99E+03	6.29E+03		10/23/2006	9:50:00	1117	1001
9520-05-SC-05-41-0	6.28E+03	7.41E+03	6.70E+03		10/23/2006	9:53:00	1117	1001
9520-05-SC-05-42-0	6.01E+03	7.12E+03	6.39E+03		10/23/2006	9:56:00	1117	1001

SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

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**ATTACHMENT 3 (LABORATORY DATA)**



# **General Narrative**

**General Narrative  
for  
Connecticut Yankee Atomic Power Co.  
Work Order: 174484  
SDG: MSR#06-1381**

**October 24, 2006**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on October 19, 2006 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

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

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
174484001	9520-0005-001F
174484002	9520-0005-001FS
174484003	9520-0005-002F
174484004	9520-0005-003F
174484005	9520-0005-004F
174484006	9520-0005-005F
174484007	9520-0005-006F
174484008	9520-0005-007F
174484009	9520-0005-008F
174484010	9520-0005-009F
174484011	9520-0005-010F
174484012	9520-0005-014F
174484013	9520-0005-015F
174484014	9520-0005-016F
174484015	9520-0005-017F
174484016	9520-0005-018F
174484017	9520-0005-011F
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS

**Items of Note**

There are no items to 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 contained in the analytical case narratives in the enclosed data package.

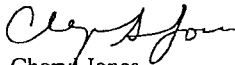
### Analytical Request

Seventeen soil samples were analyzed for FSSGAM. Three soil samples were analyzed for FSSALL.

### Data Package

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

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


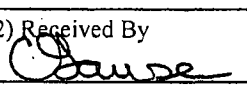
  
Cheryl Jones  
Project Manager

**List of current GEL Certifications as of 24 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						Chain of Custody Form							No. 2006-00633	
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 860-267-3924						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									Comment, Preservation	Lab Sample ID		
9520-0005-001F	10/16/06	0950	TS	G	BP	X								
9520-0005-001FS	10/16/06	0950	TS	G	BP	X								
9520-0005-002F	10/16/06	1037	TS	G	BP	X								
9520-0005-003F	10/16/06	1045	TS	G	BP	X								
9520-0005-004F	10/16/06	1057	TS	G	BP	X								
9520-0005-005F	10/16/06	1108	TS	G	BP	X								
9520-0005-006F	10/16/06	1124	TS	G	BP	X								
9520-0005-007F	10/16/06	1343	TS	G	BP	X								
9520-0005-008F	10/16/06	1355	TS	G	BP	X								
9520-0005-009F	10/16/06	1420	TS	G	BP	X								
9520-0005-010F	10/16/06	1425	TS	G	BP	X								
NOTES: PO #: 002332    MSR #: 06-1381    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 checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			
1) Relinquished By _____ Date/Time 10/18/06 1400			2) Received By _____ Date/Time 10/19/06 9:15			Bill of Lading # 799521871630								
3) Relinquished By _____ Date/Time			4) Received By _____ Date/Time											

Connecticut Yankee Atomic Power Company						Chain of Custody Form						No. 2006-00636		
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 860-267-3924						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									Comment, Preservation	Lab Sample ID		
9520-0005-014F	10/17/06	0757	TS	G	BP	X								
9520-0005-015F	10/17/06	0813	TS	G	BP	X								
9520-0005-016F	10/17/06	0833	TS	G	BP	X								
9520-0005-017F	10/17/06	1002	TS	G	BP	X								
9520-0005-018F	10/17/06	1021	TS	G	BP	X								
NOTES: PO #: 002332    MSR #: 06-1381    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 checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input type="checkbox"/> N <input type="checkbox"/>			
1) Relinquished By  Date/Time 10/18/06 1400			2) Received By  Date/Time 10/19/06 9:15			799521871641					Bill of Lading #			
3) Relinquished By    Date/Time			4) Received By    Date/Time											

## Chain of Custody Form

No. 2006-00634

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 860-267-3924						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										Comment, Preservation	Lab Sample ID		
9520-0005-011F	10/16/06	1434	TS	G	BP	X									
9520-0005-012F	10/16/06	1511	TS	G	BP		X								
9520-0005-013F	10/16/06	1455	TS	G	BP		X								
9520-0005-013FS	10/16/06	1455	TS	G	BP		X								
NOTES: PO #: 002332      MSR #: 06-1381      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 checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By <i>[Signature]</i> Date/Time 10/18/06 1400			2) Received By <i>[Signature]</i> Date/Time 10/19/06 9:15			799521871641 Bill of Lading #									
3) Relinquished By _____ Date/Time _____			4) Received By _____ Date/Time _____												



Figure 1. Sample Check-in List

Date/Time Received: 9:15 10/19/06  
SDG#: MSL # 06-1381  
Work Order Number: 174484  
Shipping Container ID: 7995 2187 1630 Chain of Custody #: 2006-00633

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 23°
5. Vermiculite/packing materials is: Wet ☐ Dry ☒
6. Number of samples in shipping container: 11
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: Cause cy 10/19/06 Date: 10/19/06  
Telephoned to: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

Figure 1. Sample Check-in List

Date/Time Received: 10/19/06 9:45

SDG#: MSR # 06-1381

Work Order Number: 174484

Shipping Container ID: 7995 2187 164 Chain of Custody #: 2006 00634  
2006 00636

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 22°
5. Vermiculite/packing materials is: Wet ☐ Dry ☒
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? Yes ☐ No ☒

8. Samples have:

☒ 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: CY Cause Date: 10/19/06

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

# **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.

GENERAL ENGINEERING LABORATORIES, LLC

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# **RADIOLOGICAL ANALYSIS**

**Radiochemistry Case Narrative  
Connecticut Yankee Atomic Power Co. (YANK)  
Work Order 174484**

**Method/Analysis Information**

<b>Product:</b>	Alphaspec Am241, Cm, Solid ALL FSS
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	581362
Prep Batch Number:	581196
Dry Soil Prep GL-RAD-A-021 Batch Number:	581177

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212423	Method Blank (MB)
1201212424	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212425	174484018(9520-0005-012F) Matrix Spike (MS)
1201212426	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: 174484018 (9520-0005-012F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Alphaspec Pu, Solid-ALL FSS  
**Analytical Method:** DOE EML HASL-300, Pu-11-RC Modified  
**Prep Method:** Ash Soil Prep  
**Dry Soil Prep GL-RAD-A-021 Method:** Dry Soil Prep  
**Analytical Batch Number:** 581363  
**Prep Batch Number:** 581196  
**Dry Soil Prep GL-RAD-A-021 Batch Number:** 581177

Sample ID	Client ID
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212427	Method Blank (MB)
1201212428	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212429	174484018(9520-0005-012F) Matrix Spike (MS)
1201212430	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: 174484018 (9520-0005-012F).

##### **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:	581364
Prep Batch Number:	581196
Dry Soil Prep GL-RAD-A-021 Batch Number:	581177

Sample ID	Client ID
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212431	Method Blank (MB)
1201212432	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212433	174484018(9520-0005-012F) Matrix Spike (MS)
1201212434	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: 174484018 (9520-0005-012F).

##### **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>Gamma,Solid-FSS GAM &amp; ALL FSS 226 Ingrowth Waived</b>
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	581676
Prep Batch Number:	581177

<b>Sample ID</b>	<b>Client ID</b>
174484001	9520-0005-001F
174484002	9520-0005-001FS
174484003	9520-0005-002F
174484004	9520-0005-003F
174484005	9520-0005-004F
174484006	9520-0005-005F
174484007	9520-0005-006F
174484008	9520-0005-007F
174484009	9520-0005-008F
174484010	9520-0005-009F
174484011	9520-0005-010F
174484012	9520-0005-014F
174484013	9520-0005-015F
174484014	9520-0005-016F
174484015	9520-0005-017F
174484016	9520-0005-018F
174484017	9520-0005-011F
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201213160	Method Blank (MB)
1201213161	174484001(9520-0005-001F) Sample Duplicate (DUP)
1201213162	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# 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: 174484001 (9520-0005-001F).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Sample 174484011 (9520-0005-010F) was recounted due to high MDA.

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to interference.	Europium-155	174484007
			174484008
UI	Data rejected due to low abundance.	Cesium-134	174484003
			174484004
			174484006
			174484007
			174484008
			174484012
			174484013
			174484016
			174484018
			1201213161

### Method/Analysis Information

**Product:** GFPC, Sr90, solid-ALL FSS  
**Analytical Method:** EPA 905.0 Modified  
**Prep Method:** Ash Soil Prep  
**Dry Soil Prep GL-RAD-A-021 Method:** Dry Soil Prep  
**Analytical Batch Number:** 581340  
**Prep Batch Number:** 581196  
**Dry Soil Prep GL-RAD-A-021 Batch Number:** 581177

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212369	Method Blank (MB)
1201212370	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212371	174484018(9520-0005-012F) Matrix Spike (MS)
1201212372	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: 174484018 (9520-0005-012F).

**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>
<b>Analytical Method:</b>	<b>DOE EML HASL-300, Tc-02-RC Modified</b>
<b>Analytical Batch Number:</b>	<b>581330</b>

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212324	Method Blank (MB)
1201212325	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212326	174484018(9520-0005-012F) Matrix Spike (MS)
1201212327	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: 174484018 (9520-0005-012F).

##### **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:	581333
Prep Batch Number:	581196
Dry Soil Prep GL-RAD-A-021 Batch Number:	581177

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212328	Method Blank (MB)
1201212329	174484019(9520-0005-013F) Sample Duplicate (DUP)
1201212330	174484019(9520-0005-013F) Matrix Spike (MS)
1201212331	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: 174484019 (9520-0005-013F).

**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:	581334
Prep Batch Number:	581196
Dry Soil Prep GL-RAD-A-021 Batch Number:	581177

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212336	Method Blank (MB)
1201212337	174484020(9520-0005-013FS) Sample Duplicate (DUP)
1201212338	174484020(9520-0005-013FS) Matrix Spike (MS)
1201212339	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: 174484020 (9520-0005-013FS).

##### **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>LSC, Tritium Dist, Solid-HTD2,ALL FSS</b>
<b>Analytical Method:</b>	<b>EPA 906.0 Modified</b>
<b>Analytical Batch Number:</b>	<b>581335</b>

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212345	Method Blank (MB)
1201212346	174484018(9520-0005-012F) Sample Duplicate (DUP)
1201212347	174484018(9520-0005-012F) Matrix Spike (MS)
1201212348	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: 174484018 (9520-0005-012F).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Sample 174484020 (9520-0005-013FS) was recounted due to high MDA.

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

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 375389 was generated due to Container scanning event for custody missed. 1. Samples 174484018, 174484019, and 174484020 were scanned into the batch prior to analysis. The event was not saved due to a network error. Custody of the samples was maintained at all times. 1. Reporting results.

**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:** 581337

<b>Sample ID</b>	<b>Client ID</b>
174484018	9520-0005-012F
174484019	9520-0005-013F
174484020	9520-0005-013FS
1201212351	Method Blank (MB)
1201212352	174484019(9520-0005-013F) Sample Duplicate (DUP)
1201212353	174484019(9520-0005-013F) Matrix Spike (MS)
1201212354	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: 174484019 (9520-0005-013F).

##### **QC Information**

All of the QC samples met the required acceptance limits.

#### **Technical Information:**

##### **Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

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

**Review Validation:**

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

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

Reviewer/Date: \_\_\_\_\_

*Pamela Williams*

10/27/06

COMPANY - WIDE NONCONFORMANCE REPORT			
<b>Mo. Day Yr.</b> 24-OCT-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> 581335	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG): 174484(MSR#06-1381)</b> <b>Application Issues:</b> Container scanning event for custody missed			
<b>Specification and Requirements</b> <b>Nonconformance Description:</b>		<b>NRG Disposition:</b>	
1. Samples 174484018, 174484019, and 174484020 were scanned into the batch prior to analysis. The event was not saved due to a network error. Custody of the samples was maintained at all times.		1. Reporting results.	

**Originator's Name:**

John Parker 24-OCT-06

**Data Validator/Group Leader:**

Lesley Anderson 25-OCT-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#06-1381 GEL Work Order: 174484

**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

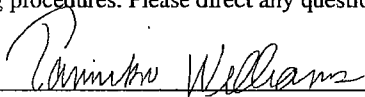
ND The analyte concentration is not detected above the detection limit.

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: October 27, 2006

Client Sample ID: 9520-0005-001F  
Sample ID: 174484001  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 6.1%

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		0.834	+/-0.172	0.0559	+/-0.172	0.123	pCi/g						
Americium-241	U	-0.0109	+/-0.0281	0.0271	+/-0.0281	0.056	pCi/g						
Bismuth-212		0.439	+/-0.196	0.138	+/-0.196	0.298	pCi/g						
Bismuth-214		0.521	+/-0.0929	0.0313	+/-0.0929	0.0674	pCi/g						
Cesium-134	U	0.0453	+/-0.0357	0.0252	+/-0.0357	0.0537	pCi/g						
Cesium-137	U	0.041	+/-0.0286	0.0224	+/-0.0286	0.0476	pCi/g						
Cobalt-60	U	0.0413	+/-0.027	0.0223	+/-0.027	0.0489	pCi/g						
Europium-152	U	0.0149	+/-0.0506	0.0477	+/-0.0506	0.100	pCi/g						
Europium-154	U	-0.00379	+/-0.0737	0.0547	+/-0.0737	0.121	pCi/g						
Europium-155	U	0.0341	+/-0.0557	0.046	+/-0.0557	0.0952	pCi/g						
Lead-212		0.751	+/-0.0636	0.0268	+/-0.0636	0.0559	pCi/g						
Lead-214		0.535	+/-0.0812	0.0323	+/-0.0812	0.0682	pCi/g						
Manganese-54	U	0.0193	+/-0.0215	0.0182	+/-0.0215	0.0393	pCi/g						
Niobium-94	U	-0.0146	+/-0.0199	0.0161	+/-0.0199	0.0348	pCi/g						
Potassium-40		12.4	+/-0.978	0.154	+/-0.978	0.350	pCi/g						
Radium-226		0.521	+/-0.0929	0.0313	+/-0.0929	0.0674	pCi/g						
Silver-108m	U	-0.0131	+/-0.0181	0.0156	+/-0.0181	0.0332	pCi/g						
Thallium-208		0.267	+/-0.0418	0.0205	+/-0.0418	0.0435	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-001F  
Sample ID: 174484001

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: October 27, 2006

Client Sample ID: 9520-0005-001FS  
Sample ID: 174484002  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 6.18%

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		1.11	+/-0.221	0.0844	+/-0.221	0.182	pCi/g						
Americium-241	U	0.00514	+/-0.0376	0.0338	+/-0.0376	0.0698	pCi/g						
Bismuth-212	U	0.143	+/-0.348	0.190	+/-0.348	0.405	pCi/g						
Bismuth-214		0.669	+/-0.127	0.0447	+/-0.127	0.0949	pCi/g						
Cesium-134	U	0.0489	+/-0.0452	0.0302	+/-0.0452	0.064	pCi/g						
Cesium-137		0.188	+/-0.045	0.0281	+/-0.045	0.0593	pCi/g						
Cobalt-60	U	0.0209	+/-0.0341	0.0304	+/-0.0341	0.0655	pCi/g						
Europium-152	U	-0.00746	+/-0.0709	0.0603	+/-0.0709	0.127	pCi/g						
Europium-154	U	0.00976	+/-0.0908	0.0775	+/-0.0908	0.168	pCi/g						
Europium-155	U	0.0196	+/-0.0822	0.0543	+/-0.0822	0.112	pCi/g						
Lead-212		0.750	+/-0.0893	0.046	+/-0.0893	0.0946	pCi/g						
Lead-214		0.688	+/-0.112	0.0426	+/-0.112	0.0894	pCi/g						
Manganese-54	U	-0.00448	+/-0.0288	0.0238	+/-0.0288	0.0509	pCi/g						
Niobium-94	U	-0.00398	+/-0.0266	0.0225	+/-0.0266	0.0478	pCi/g						
Potassium-40		13.5	+/-1.08	0.224	+/-1.08	0.496	pCi/g						
Radium-226		0.669	+/-0.127	0.0447	+/-0.127	0.0949	pCi/g						
Silver-108m	U	-0.0143	+/-0.0238	0.0206	+/-0.0238	0.0435	pCi/g						
Thallium-208		0.293	+/-0.0568	0.0242	+/-0.0568	0.0513	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-001FS  
Sample ID: 174484002

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: October 27, 2006

Client Sample ID: 9520-0005-002F  
Sample ID: 174484003  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 7.05%

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		0.617	+/-0.111	0.0523	+/-0.111	0.111	pCi/g						
Americium-241	U	0.000176	+/-0.0966	0.0794	+/-0.0966	0.165	pCi/g						
Bismuth-212		0.444	+/-0.184	0.094	+/-0.184	0.201	pCi/g						
Bismuth-214		0.409	+/-0.062	0.0256	+/-0.062	0.054	pCi/g						
Cesium-134	UI	0.00	+/-0.0298	0.0167	+/-0.0298	0.0353	pCi/g						
Cesium-137		0.0459	+/-0.022	0.0145	+/-0.022	0.0307	pCi/g						
Cobalt-60	U	-0.000137	+/-0.0156	0.0135	+/-0.0156	0.0294	pCi/g						
Europium-152	U	0.00642	+/-0.0373	0.0345	+/-0.0373	0.0724	pCi/g						
Europium-154	U	-0.0428	+/-0.0475	0.038	+/-0.0475	0.0825	pCi/g						
Europium-155	U	0.0278	+/-0.0525	0.0486	+/-0.0525	0.100	pCi/g						
Lead-212		0.596	+/-0.0473	0.021	+/-0.0473	0.0437	pCi/g						
Lead-214		0.544	+/-0.0625	0.0239	+/-0.0625	0.0502	pCi/g						
Manganese-54	U	0.0027	+/-0.0152	0.0136	+/-0.0152	0.0288	pCi/g						
Niobium-94	U	0.0135	+/-0.0141	0.0134	+/-0.0141	0.0282	pCi/g						
Potassium-40		11.8	+/-0.701	0.113	+/-0.701	0.251	pCi/g						
Radium-226		0.409	+/-0.062	0.0256	+/-0.062	0.054	pCi/g						
Silver-108m	U	-0.0101	+/-0.0131	0.0111	+/-0.0131	0.0235	pCi/g						
Thallium-208		0.209	+/-0.029	0.0127	+/-0.029	0.0269	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	10/19/06	1652	581177

### The following Analytical Methods were performed

Method	Description
J	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: October 27, 2006

Client Sample ID: 9520-0005-002F  
Sample ID: 174484003

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: October 27, 2006

Client Sample ID: 9520-0005-003F  
Sample ID: 174484004  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 18.7%

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		0.768	+/-0.141	0.0492	+/-0.141	0.106	pCi/g						
Americium-241	U	0.0286	+/-0.0696	0.0587	+/-0.0696	0.121	pCi/g		MJH1	10/25/06	1735	581676	1
Bismuth-212		0.470	+/-0.225	0.094	+/-0.225	0.202	pCi/g						
Bismuth-214		0.451	+/-0.0708	0.0309	+/-0.0708	0.0649	pCi/g						
Cesium-134	UI	0.00	+/-0.026	0.0176	+/-0.026	0.0373	pCi/g						
Cesium-137		0.135	+/-0.0313	0.0145	+/-0.0313	0.0308	pCi/g						
Cobalt-60	U	0.000128	+/-0.0182	0.0151	+/-0.0182	0.0328	pCi/g						
Europium-152	U	0.0326	+/-0.0434	0.0399	+/-0.0434	0.0836	pCi/g						
Europium-154	U	0.0237	+/-0.0535	0.0412	+/-0.0535	0.0897	pCi/g						
Europium-155	U	0.0175	+/-0.0528	0.0477	+/-0.0528	0.0985	pCi/g						
Lead-212		0.586	+/-0.0531	0.0223	+/-0.0531	0.0465	pCi/g						
Lead-214		0.483	+/-0.0776	0.0263	+/-0.0776	0.0553	pCi/g						
Manganese-54	U	-0.000192	+/-0.0147	0.0127	+/-0.0147	0.0273	pCi/g						
Niobium-94	U	0.000899	+/-0.0147	0.013	+/-0.0147	0.0276	pCi/g						
Potassium-40		11.1	+/-0.765	0.111	+/-0.765	0.248	pCi/g						
Radium-226		0.451	+/-0.0708	0.0309	+/-0.0708	0.0649	pCi/g						
Silver-108m	U	-0.0101	+/-0.014	0.0115	+/-0.014	0.0245	pCi/g						
Thallium-208		0.186	+/-0.0334	0.0132	+/-0.0334	0.0282	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-003F  
Sample ID: 174484004

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: October 27, 2006

Client Sample ID: 9520-0005-004F  
Sample ID: 174484005  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 10.9%

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													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.914	+/-0.261	0.0936	+/-0.261	0.187	pCi/g						
Americium-241	U	0.0509	+/-0.0433	0.0361	+/-0.0433	0.0721	pCi/g		MJH1	10/25/06	1751	581676	1
Bismuth-212		0.854	+/-0.425	0.204	+/-0.425	0.408	pCi/g						
Bismuth-214		0.542	+/-0.128	0.0508	+/-0.128	0.101	pCi/g						
Cesium-134	U	0.0463	+/-0.0389	0.0369	+/-0.0389	0.0737	pCi/g						
Cesium-137		0.0647	+/-0.0559	0.0252	+/-0.0559	0.0503	pCi/g						
Cobalt-60	U	0.00134	+/-0.0422	0.0353	+/-0.0422	0.0706	pCi/g						
Europium-152	U	0.0411	+/-0.077	0.0613	+/-0.077	0.123	pCi/g						
Europium-154	U	-0.0248	+/-0.108	0.0875	+/-0.108	0.175	pCi/g						
Europium-155	U	0.0121	+/-0.063	0.0559	+/-0.063	0.112	pCi/g						
Lead-212		0.731	+/-0.0941	0.0337	+/-0.0941	0.0674	pCi/g						
Lead-214		0.684	+/-0.133	0.0451	+/-0.133	0.0902	pCi/g						
Manganese-54	U	0.0105	+/-0.0348	0.027	+/-0.0348	0.054	pCi/g						
Niobium-94	U	0.0291	+/-0.0306	0.0258	+/-0.0306	0.0516	pCi/g						
Potassium-40		12.7	+/-1.28	0.277	+/-1.28	0.554	pCi/g						
Radium-226		0.542	+/-0.128	0.0508	+/-0.128	0.101	pCi/g						
Silver-108m	U	0.00114	+/-0.0248	0.0215	+/-0.0248	0.0429	pCi/g						
Thallium-208		0.225	+/-0.0704	0.0239	+/-0.0704	0.0477	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-004F  
Sample ID: 174484005

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.

# 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 27, 2006

Client Sample ID: 9520-0005-005F  
Sample ID: 174484006  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 5.61%

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		0.816	+/-0.117	0.0497	+/-0.117	0.105	pCi/g						
Americium-241	U	0.00994	+/-0.0736	0.058	+/-0.0736	0.119	pCi/g						
Bismuth-212		0.522	+/-0.251	0.103	+/-0.251	0.217	pCi/g						
Bismuth-214		0.659	+/-0.077	0.0239	+/-0.077	0.0499	pCi/g						
Cesium-134	UI	0.00	+/-0.0218	0.0168	+/-0.0218	0.0352	pCi/g						
Cesium-137		0.193	+/-0.0333	0.0151	+/-0.0333	0.0316	pCi/g						
Cobalt-60		0.483	+/-0.0459	0.0126	+/-0.0459	0.0273	pCi/g						
Europium-152	U	-0.0146	+/-0.0412	0.0341	+/-0.0412	0.0706	pCi/g						
Europium-154	U	0.0461	+/-0.0465	0.0431	+/-0.0465	0.0917	pCi/g						
Europium-155	U	0.0192	+/-0.0416	0.0386	+/-0.0416	0.079	pCi/g						
Lead-212		0.765	+/-0.0444	0.0201	+/-0.0444	0.0413	pCi/g						
Lead-214		0.707	+/-0.0753	0.0244	+/-0.0753	0.0506	pCi/g						
Manganese-54	U	0.0103	+/-0.0152	0.0127	+/-0.0152	0.0267	pCi/g						
Niobium-94	U	0.0214	+/-0.0149	0.0136	+/-0.0149	0.0284	pCi/g						
Potassium-40		12.1	+/-0.675	0.106	+/-0.675	0.232	pCi/g						
Radium-226		0.659	+/-0.077	0.0239	+/-0.077	0.0499	pCi/g						
Silver-108m	U	-0.00617	+/-0.013	0.0113	+/-0.013	0.0236	pCi/g						
Thallium-208		0.238	+/-0.0388	0.0126	+/-0.0388	0.0263	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-005F  
Sample ID: 174484006

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.

# 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 27, 2006

Client Sample ID: 9520-0005-006F  
Sample ID: 174484007  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 2.97%

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	+/-0.115	0.0434	+/-0.115	0.0917	pCi/g						
Americium-241	U	0.0115	+/-0.0193	0.0172	+/-0.0193	0.0352	pCi/g		MJH1	10/25/06	2027	581676	1
Bismuth-212		0.730	+/-0.229	0.0944	+/-0.229	0.198	pCi/g						
Bismuth-214		0.750	+/-0.0658	0.0229	+/-0.0658	0.0477	pCi/g						
Cesium-134	UI	0.00	+/-0.0295	0.0187	+/-0.0295	0.0388	pCi/g						
Cesium-137		0.0903	+/-0.025	0.014	+/-0.025	0.0291	pCi/g						
Cobalt-60		0.0591	+/-0.0328	0.0143	+/-0.0328	0.0304	pCi/g						
Europium-152	U	-0.021	+/-0.0374	0.0309	+/-0.0374	0.0639	pCi/g						
Europium-154	U	-0.00897	+/-0.0514	0.0426	+/-0.0514	0.0904	pCi/g						
Europium-155	UI	0.00	+/-0.0372	0.0269	+/-0.0372	0.0552	pCi/g						
Lead-212		0.937	+/-0.0438	0.0169	+/-0.0438	0.0348	pCi/g						
Lead-214		0.858	+/-0.0649	0.0228	+/-0.0649	0.0471	pCi/g						
Manganese-54	U	-0.00588	+/-0.0183	0.0129	+/-0.0183	0.0271	pCi/g						
Niobium-94	U	0.00836	+/-0.0142	0.0124	+/-0.0142	0.0259	pCi/g						
Potassium-40		13.3	+/-0.690	0.117	+/-0.690	0.254	pCi/g						
Radium-226		0.750	+/-0.0658	0.0229	+/-0.0658	0.0477	pCi/g						
Silver-108m	U	-0.00127	+/-0.0123	0.0109	+/-0.0123	0.0227	pCi/g						
Thallium-208		0.300	+/-0.0383	0.0125	+/-0.0383	0.026	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-006F  
Sample ID: 174484007

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: October 27, 2006

Client Sample ID: 9520-0005-007F  
Sample ID: 174484008  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 10.9%

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		0.710	+/-0.127	0.0348	+/-0.127	0.0735	pCi/g						
Americium-241	U	0.0386	+/-0.0364	0.034	+/-0.0364	0.0696	pCi/g						
Bismuth-212		0.512	+/-0.189	0.0744	+/-0.189	0.156	pCi/g						
Bismuth-214		0.559	+/-0.0797	0.0176	+/-0.0797	0.0368	pCi/g						
Cesium-134	UI	0.00	+/-0.0201	0.0138	+/-0.0201	0.0287	pCi/g						
Cesium-137		0.0491	+/-0.0172	0.00926	+/-0.0172	0.0195	pCi/g						
Cobalt-60	U	0.00231	+/-0.0118	0.0103	+/-0.0118	0.0221	pCi/g						
Europium-152	U	-0.0125	+/-0.0278	0.0238	+/-0.0278	0.0495	pCi/g						
Europium-154	U	0.0228	+/-0.0348	0.0316	+/-0.0348	0.0671	pCi/g						
Europium-155	UI	0.00	+/-0.0389	0.0264	+/-0.0389	0.0541	pCi/g						
Lead-212		0.731	+/-0.0652	0.0156	+/-0.0652	0.032	pCi/g						
Lead-214		0.594	+/-0.069	0.0186	+/-0.069	0.0385	pCi/g						
Manganese-54	U	0.00316	+/-0.0117	0.0102	+/-0.0117	0.0215	pCi/g						
Niobium-94	U	0.00649	+/-0.00974	0.00886	+/-0.00974	0.0186	pCi/g						
Potassium-40		12.5	+/-0.944	0.0785	+/-0.944	0.172	pCi/g						
Radium-226		0.559	+/-0.0797	0.0176	+/-0.0797	0.0368	pCi/g						
Silver-108m	U	0.00101	+/-0.00963	0.00831	+/-0.00963	0.0173	pCi/g						
Thallium-208		0.237	+/-0.0328	0.00934	+/-0.0328	0.0195	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-007F  
Sample ID: 174484008

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: October 27, 2006

Client Sample ID: 9520-0005-008F  
Sample ID: 174484009  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 8.01%

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		0.700	+/-0.127	0.0453	+/-0.127	0.0904	pCi/g						
Americium-241	U	0.0207	+/-0.0694	0.0545	+/-0.0694	0.109	pCi/g						
Bismuth-212		0.339	+/-0.182	0.099	+/-0.182	0.198	pCi/g						
Bismuth-214		0.513	+/-0.0828	0.0236	+/-0.0828	0.0471	pCi/g						
Cesium-134	U	0.00971	+/-0.0251	0.0169	+/-0.0251	0.0339	pCi/g						
Cesium-137		0.0293	+/-0.0202	0.0131	+/-0.0202	0.0261	pCi/g						
Cobalt-60	U	-0.012	+/-0.0195	0.0137	+/-0.0195	0.0274	pCi/g						
Europium-152	U	-0.0201	+/-0.0511	0.0337	+/-0.0511	0.0673	pCi/g						
Europium-154	U	0.0417	+/-0.0553	0.0463	+/-0.0553	0.0926	pCi/g						
Europium-155	U	0.0476	+/-0.0453	0.0421	+/-0.0453	0.0842	pCi/g						
Lead-212		0.651	+/-0.0697	0.0211	+/-0.0697	0.0421	pCi/g						
Lead-214		0.602	+/-0.0844	0.024	+/-0.0844	0.048	pCi/g						
Manganese-54	U	0.00502	+/-0.0204	0.0121	+/-0.0204	0.0243	pCi/g						
Niobium-94	U	0.0123	+/-0.0149	0.0133	+/-0.0149	0.0265	pCi/g						
Potassium-40		11.2	+/-0.934	0.128	+/-0.934	0.255	pCi/g						
Radium-226		0.513	+/-0.0828	0.0236	+/-0.0828	0.0471	pCi/g						
Silver-108m	U	-0.0084	+/-0.0136	0.0116	+/-0.0136	0.0233	pCi/g						
Thallium-208		0.219	+/-0.037	0.0129	+/-0.037	0.0257	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	10/19/06	1652	581177

### 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

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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 27, 2006

Client Sample ID: 9520-0005-008F  
Sample ID: 174484009

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: October 27, 2006

Client Sample ID: 9520-0005-009F  
Sample ID: 174484010  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 9.86%

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		0.642	+/-0.168	0.0672	+/-0.168	0.134	pCi/g						
Americium-241	U	0.0262	+/-0.0283	0.0235	+/-0.0283	0.0469	pCi/g						
Bismuth-212		0.301	+/-0.250	0.140	+/-0.250	0.280	pCi/g						
Bismuth-214		0.485	+/-0.0883	0.0298	+/-0.0883	0.0597	pCi/g						
Cesium-134	U	0.0291	+/-0.0319	0.0213	+/-0.0319	0.0425	pCi/g						
Cesium-137		0.0679	+/-0.0273	0.0176	+/-0.0273	0.0353	pCi/g						
Cobalt-60	U	0.014	+/-0.0251	0.0221	+/-0.0251	0.0442	pCi/g						
Europium-152	U	0.0125	+/-0.0577	0.0394	+/-0.0577	0.0787	pCi/g						
Europium-154	U	0.0397	+/-0.0681	0.0602	+/-0.0681	0.120	pCi/g						
Europium-155	U	0.0159	+/-0.0396	0.0359	+/-0.0396	0.0717	pCi/g						
Lead-212		0.602	+/-0.0683	0.0212	+/-0.0683	0.0424	pCi/g						
Lead-214		0.545	+/-0.0836	0.0284	+/-0.0836	0.0568	pCi/g						
Manganese-54	U	0.0105	+/-0.0204	0.0184	+/-0.0204	0.0367	pCi/g						
Niobium-94	U	-0.00724	+/-0.0177	0.0152	+/-0.0177	0.0304	pCi/g						
Potassium-40		10.4	+/-0.859	0.168	+/-0.859	0.335	pCi/g						
Radium-226		0.485	+/-0.0883	0.0298	+/-0.0883	0.0597	pCi/g						
Silver-108m	U	-0.0175	+/-0.0163	0.0133	+/-0.0163	0.0267	pCi/g						
Thallium-208		0.218	+/-0.0452	0.0162	+/-0.0452	0.0323	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-009F  
Sample ID: 174484010

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: October 27, 2006

Client Sample ID: 9520-0005-010F  
Sample ID: 174484011  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 9.91%

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		0.813	+/-0.206	0.102	+/-0.206	0.223	pCi/g						
Americium-241	U	0.0107	+/-0.0399	0.0377	+/-0.0399	0.0784	pCi/g						
Bismuth-212		0.727	+/-0.339	0.229	+/-0.339	0.495	pCi/g						
Bismuth-214		0.627	+/-0.145	0.0492	+/-0.145	0.107	pCi/g						
Cesium-134	U	0.0418	+/-0.0379	0.0356	+/-0.0379	0.077	pCi/g						
Cesium-137		0.127	+/-0.0661	0.0295	+/-0.0661	0.0638	pCi/g						
Cobalt-60	U	0.0214	+/-0.0338	0.0313	+/-0.0338	0.0701	pCi/g						
Europium-152	U	-0.032	+/-0.0718	0.0625	+/-0.0718	0.133	pCi/g						
Europium-154	U	-0.0304	+/-0.100	0.0811	+/-0.100	0.183	pCi/g						
Europium-155	U	0.0423	+/-0.0698	0.0652	+/-0.0698	0.136	pCi/g						
Lead-212		0.845	+/-0.0794	0.0345	+/-0.0794	0.0728	pCi/g						
Lead-214		0.725	+/-0.129	0.0491	+/-0.129	0.105	pCi/g						
Manganese-54	U	0.00946	+/-0.0317	0.0244	+/-0.0317	0.0541	pCi/g						
Niobium-94	U	0.0104	+/-0.0321	0.0281	+/-0.0321	0.0605	pCi/g						
Potassium-40		11.5	+/-1.26	0.260	+/-1.26	0.597	pCi/g						
Radium-226		0.627	+/-0.145	0.0492	+/-0.145	0.107	pCi/g						
Silver-108m	U	-0.0158	+/-0.0265	0.0222	+/-0.0265	0.0478	pCi/g						
Thallium-208		0.246	+/-0.0593	0.025	+/-0.0593	0.0543	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	10/19/06	1652	581177

### The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3
2	EML HASL 300, 4.5.2.3

### Notes:

The Qualifiers in this report are defined as follows :

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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: October 27, 2006

Client Sample ID: 9520-0005-010F  
Sample ID: 174484011

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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- \* 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: October 27, 2006

Client Sample ID: 9520-0005-014F  
Sample ID: 174484012  
Matrix: TS  
Collect Date: 17-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 10.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.789	+/-0.164	0.0549	+/-0.164	0.110	pCi/g						
Americium-241	U	0.0763	+/-0.0835	0.0571	+/-0.0835	0.114	pCi/g						
Bismuth-212		0.320	+/-0.233	0.103	+/-0.233	0.206	pCi/g						
Bismuth-214		0.445	+/-0.0914	0.0301	+/-0.0914	0.0602	pCi/g						
Cesium-134	UJ	0.00	+/-0.0283	0.0222	+/-0.0283	0.0445	pCi/g						
Cesium-137		0.116	+/-0.0373	0.0159	+/-0.0373	0.0319	pCi/g						
Cobalt-60	U	0.000807	+/-0.0205	0.0172	+/-0.0205	0.0344	pCi/g						
Europium-152	U	-0.0129	+/-0.0707	0.0461	+/-0.0707	0.0921	pCi/g						
Europium-154	U	-0.0365	+/-0.0685	0.054	+/-0.0685	0.108	pCi/g						
Europium-155	U	0.00373	+/-0.054	0.0478	+/-0.054	0.0955	pCi/g						
Lead-212		0.628	+/-0.0753	0.0272	+/-0.0753	0.0544	pCi/g						
Lead-214		0.607	+/-0.0826	0.034	+/-0.0826	0.0681	pCi/g						
Manganese-54	U	0.000414	+/-0.0219	0.019	+/-0.0219	0.038	pCi/g						
Niobium-94	U	0.0117	+/-0.0171	0.0157	+/-0.0171	0.0315	pCi/g						
Potassium-40		10.5	+/-0.972	0.133	+/-0.972	0.265	pCi/g						
Radium-226		0.445	+/-0.0914	0.0301	+/-0.0914	0.0602	pCi/g						
Silver-108m	U	-0.00674	+/-0.0171	0.0144	+/-0.0171	0.0288	pCi/g						
Thallium-208		0.239	+/-0.0446	0.0142	+/-0.0446	0.0283	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	JMBI	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-014F  
Sample ID: 174484012

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: October 27, 2006

Client Sample ID: 9520-0005-015F  
Sample ID: 174484013  
Matrix: TS  
Collect Date: 17-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 10.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid - FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.690	+/-0.111	0.0354	+/-0.111	0.0756	pCi/g						
Americium-241	U	0.0556	+/-0.086	0.0752	+/-0.086	0.155	pCi/g						
Bismuth-212		0.539	+/-0.180	0.0841	+/-0.180	0.178	pCi/g						
Bismuth-214		0.526	+/-0.0584	0.0214	+/-0.0584	0.0449	pCi/g						
Cesium-134	UI	0.00	+/-0.0189	0.0144	+/-0.0189	0.0301	pCi/g						
Cesium-137		0.0454	+/-0.0183	0.0135	+/-0.0183	0.0282	pCi/g						
Cobalt-60	U	0.000999	+/-0.0146	0.0111	+/-0.0146	0.0239	pCi/g						
Europium-152	U	0.0134	+/-0.0339	0.0321	+/-0.0339	0.0668	pCi/g						
Europium-154	U	-0.0167	+/-0.0412	0.035	+/-0.0412	0.075	pCi/g						
Europium-155	U	0.0335	+/-0.0434	0.0433	+/-0.0434	0.0891	pCi/g						
Lead-212		0.699	+/-0.0428	0.0178	+/-0.0428	0.037	pCi/g						
Lead-214		0.600	+/-0.0677	0.0214	+/-0.0677	0.0446	pCi/g						
Manganese-54	U	0.00787	+/-0.014	0.0124	+/-0.014	0.0261	pCi/g						
Niobium-94	U	0.0103	+/-0.0115	0.0109	+/-0.0115	0.023	pCi/g						
Potassium-40		11.7	+/-0.615	0.0853	+/-0.615	0.189	pCi/g						
Radium-226		0.526	+/-0.0584	0.0214	+/-0.0584	0.0449	pCi/g						
Silver-108m	U	0.00541	+/-0.0112	0.0105	+/-0.0112	0.0219	pCi/g						
Thallium-208		0.204	+/-0.031	0.011	+/-0.031	0.0232	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-015F  
Sample ID: 174484013

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: October 27, 2006

Client Sample ID: 9520-0005-016F  
Sample ID: 174484014  
Matrix: TS  
Collect Date: 17-OCT-06  
Receive Date: 19-OCT-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		0.844	+/-0.211	0.0947	+/-0.211	0.189	pCi/g		MJH1	10/26/06	0621	581676	1
Americium-241	U	0.0484	+/-0.0442	0.0357	+/-0.0442	0.0714	pCi/g						
Bismuth-212	U	0.438	+/-0.455	0.219	+/-0.455	0.438	pCi/g						
Bismuth-214		0.660	+/-0.136	0.0423	+/-0.136	0.0845	pCi/g						
Cesium-134	U	0.00866	+/-0.033	0.029	+/-0.033	0.058	pCi/g						
Cesium-137		0.162	+/-0.0611	0.0316	+/-0.0611	0.0631	pCi/g						
Cobalt-60	U	0.0228	+/-0.0348	0.0314	+/-0.0348	0.0627	pCi/g						
Europium-152	U	0.00972	+/-0.0889	0.0589	+/-0.0889	0.118	pCi/g						
Europium-154	U	-0.108	+/-0.101	0.0718	+/-0.101	0.144	pCi/g						
Europium-155	U	0.0264	+/-0.072	0.0554	+/-0.072	0.111	pCi/g						
Lead-212		0.789	+/-0.0969	0.0317	+/-0.0969	0.0633	pCi/g						
Lead-214		0.694	+/-0.123	0.043	+/-0.123	0.086	pCi/g						
Manganese-54	U	-0.00518	+/-0.0331	0.028	+/-0.0331	0.056	pCi/g						
Niobium-94	U	0.0226	+/-0.0269	0.0248	+/-0.0269	0.0495	pCi/g						
Potassium-40		11.8	+/-1.20	0.185	+/-1.20	0.369	pCi/g						
Radium-226		0.660	+/-0.136	0.0423	+/-0.136	0.0845	pCi/g						
Silver-108m	U	-0.00506	+/-0.0257	0.0217	+/-0.0257	0.0434	pCi/g						
Thallium-208		0.309	+/-0.0638	0.0251	+/-0.0638	0.0501	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-016F  
Sample ID: 174484014

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: October 27, 2006

Client Sample ID: 9520-0005-017F  
Sample ID: 174484015  
Matrix: TS  
Collect Date: 17-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 17.7%

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		0.646	+/-0.150	0.0601	+/-0.150	0.120	pCi/g						
Americium-241	U	0.0734	+/-0.0911	0.0727	+/-0.0911	0.145	pCi/g						
Bismuth-212		0.630	+/-0.295	0.117	+/-0.295	0.234	pCi/g						
Bismuth-214		0.494	+/-0.0929	0.0344	+/-0.0929	0.0688	pCi/g						
Cesium-134	U	0.0428	+/-0.0286	0.0228	+/-0.0286	0.0456	pCi/g						
Cesium-137		0.527	+/-0.0594	0.0183	+/-0.0594	0.0365	pCi/g						
Cobalt-60		0.0989	+/-0.0585	0.0153	+/-0.0585	0.0307	pCi/g						
Europium-152	U	0.0498	+/-0.0916	0.051	+/-0.0916	0.102	pCi/g						
Europium-154	U	0.00131	+/-0.0637	0.0539	+/-0.0637	0.108	pCi/g						
Europium-155	U	0.0414	+/-0.0622	0.0563	+/-0.0622	0.113	pCi/g						
Lead-212		0.640	+/-0.0805	0.0284	+/-0.0805	0.0567	pCi/g						
Lead-214		0.537	+/-0.0975	0.0361	+/-0.0975	0.0721	pCi/g						
Manganese-54	U	-0.00236	+/-0.0213	0.0184	+/-0.0213	0.0368	pCi/g						
Niobium-94	U	0.0192	+/-0.0194	0.0176	+/-0.0194	0.0352	pCi/g						
Potassium-40		10.9	+/-1.06	0.137	+/-1.06	0.274	pCi/g						
Radium-226		0.494	+/-0.0929	0.0344	+/-0.0929	0.0688	pCi/g						
Silver-108m	U	-0.0228	+/-0.0208	0.0168	+/-0.0208	0.0336	pCi/g						
Thallium-208		0.234	+/-0.0484	0.0178	+/-0.0484	0.0356	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-017F  
Sample ID: 174484015

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: October 27, 2006

Client Sample ID: 9520-0005-018F  
Sample ID: 174484016  
Matrix: TS  
Collect Date: 17-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 10.6%

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		0.790	+/-0.188	0.0689	+/-0.188	0.151	pCi/g						
Americium-241	U	-0.0223	+/-0.0879	0.0783	+/-0.0879	0.163	pCi/g						
Bismuth-212		0.605	+/-0.258	0.139	+/-0.258	0.302	pCi/g						
Bismuth-214		0.580	+/-0.110	0.0341	+/-0.110	0.0735	pCi/g						
Cesium-134	UI	0.00	+/-0.0443	0.0261	+/-0.0443	0.0558	pCi/g						
Cesium-137		0.239	+/-0.0471	0.0211	+/-0.0471	0.0454	pCi/g						
Cobalt-60		0.193	+/-0.0668	0.0248	+/-0.0668	0.0546	pCi/g						
Europium-152	U	0.0184	+/-0.0611	0.0516	+/-0.0611	0.109	pCi/g						
Europium-154	U	0.0304	+/-0.0624	0.0569	+/-0.0624	0.127	pCi/g						
Europium-155	U	0.0598	+/-0.0578	0.0533	+/-0.0578	0.111	pCi/g						
Lead-212		0.736	+/-0.0699	0.029	+/-0.0699	0.0606	pCi/g						
Lead-214		0.627	+/-0.0931	0.035	+/-0.0931	0.0742	pCi/g						
Manganese-54	U	0.0158	+/-0.0252	0.0223	+/-0.0252	0.0479	pCi/g						
Niobium-94	U	0.0184	+/-0.0228	0.0206	+/-0.0228	0.0439	pCi/g						
Potassium-40		13.7	+/-1.05	0.154	+/-1.05	0.359	pCi/g						
Radium-226		0.580	+/-0.110	0.0341	+/-0.110	0.0735	pCi/g						
Silver-108m	U	-0.00829	+/-0.0204	0.0173	+/-0.0204	0.0369	pCi/g						
Thallium-208		0.246	+/-0.045	0.0227	+/-0.045	0.0483	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-018F  
Sample ID: 174484016

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: October 27, 2006

Client Sample ID: 9520-0005-011F  
Sample ID: 174484017  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 6.26%

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		0.516	+/-0.141	0.0474	+/-0.141	0.104	pCi/g						
Americium-241	U	0.0286	+/-0.0766	0.0716	+/-0.0766	0.149	pCi/g						
Bismuth-212		0.431	+/-0.219	0.0991	+/-0.219	0.215	pCi/g						
Bismuth-214		0.448	+/-0.0748	0.0257	+/-0.0748	0.0551	pCi/g						
Cesium-134	U	0.023	+/-0.0226	0.0178	+/-0.0226	0.0382	pCi/g						
Cesium-137		0.0607	+/-0.0248	0.0153	+/-0.0248	0.0327	pCi/g						
Cobalt-60		0.0715	+/-0.0294	0.017	+/-0.0294	0.0375	pCi/g						
Europium-152	U	0.0222	+/-0.0409	0.0372	+/-0.0409	0.0785	pCi/g						
Europium-154	U	0.00337	+/-0.0513	0.0444	+/-0.0513	0.0981	pCi/g						
Europium-155	U	0.00628	+/-0.0434	0.0424	+/-0.0434	0.0881	pCi/g						
Lead-212		0.469	+/-0.0485	0.0218	+/-0.0485	0.0455	pCi/g						
Lead-214		0.386	+/-0.0738	0.026	+/-0.0738	0.055	pCi/g						
Manganese-54	U	-0.0101	+/-0.0158	0.0125	+/-0.0158	0.0273	pCi/g						
Niobium-94	U	0.00224	+/-0.0151	0.0133	+/-0.0151	0.0285	pCi/g						
Potassium-40		7.84	+/-0.665	0.135	+/-0.665	0.304	pCi/g						
Radium-226		0.448	+/-0.0748	0.0257	+/-0.0748	0.0551	pCi/g						
Silver-108m	U	-0.00874	+/-0.0161	0.0124	+/-0.0161	0.0264	pCi/g						
Thallium-208		0.127	+/-0.0402	0.0123	+/-0.0402	0.0265	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	10/19/06	1652	581177

### 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: October 27, 2006

Client Sample ID: 9520-0005-011F  
Sample ID: 174484017

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: October 27, 2006

Client Sample ID: 9520-0005-012F  
Sample ID: 174484018  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 6.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.00479	+/-0.155	0.128	+/-0.155	0.363	pCi/g		MXA	10/24/06	1256	581362	1
Curium-242	U	-0.0295	+/-0.087	0.0637	+/-0.087	0.239	pCi/g						
Curium-243/244	U	-0.168	+/-0.145	0.181	+/-0.147	0.469	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.023	+/-0.0679	0.0497	+/-0.0679	0.186	pCi/g		MXA	10/23/06	2248	581363	2
Plutonium-239/240	U	-0.0998	+/-0.0829	0.103	+/-0.0832	0.294	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-1.4	+/-6.29	5.34	+/-6.29	11.2	pCi/g		MXA	10/24/06	1630	581364	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.453	+/-0.154	0.0565	+/-0.154	0.121	pCi/g		MJH1	10/26/06	0842	581676	4
Americium-241	U	0.041	+/-0.0746	0.0657	+/-0.0746	0.136	pCi/g						
Bismuth-212		0.388	+/-0.208	0.133	+/-0.208	0.281	pCi/g						
Bismuth-214		0.395	+/-0.0681	0.0309	+/-0.0681	0.0653	pCi/g						
Cesium-134	UI	0.00	+/-0.0326	0.0212	+/-0.0326	0.0447	pCi/g						
Cesium-137		0.152	+/-0.0458	0.0162	+/-0.0458	0.0344	pCi/g						
Cobalt-60	U	0.0157	+/-0.0246	0.019	+/-0.0246	0.0412	pCi/g						
Europium-152	U	0.0268	+/-0.0505	0.0455	+/-0.0505	0.0949	pCi/g						
Europium-154	U	-0.0269	+/-0.0595	0.0491	+/-0.0595	0.107	pCi/g						
Europium-155	U	0.0552	+/-0.049	0.0468	+/-0.049	0.0965	pCi/g						
Lead-212		0.503	+/-0.0529	0.024	+/-0.0529	0.0498	pCi/g						
Lead-214		0.410	+/-0.0672	0.0315	+/-0.0672	0.0659	pCi/g						
Manganese-54	U	0.00257	+/-0.0186	0.0165	+/-0.0186	0.0351	pCi/g						
Niobium-94	U	0.0328	+/-0.0346	0.0158	+/-0.0346	0.0333	pCi/g						
Potassium-40		8.71	+/-0.698	0.141	+/-0.698	0.315	pCi/g						
Radium-226		0.395	+/-0.0681	0.0309	+/-0.0681	0.0653	pCi/g						
Silver-108m	U	0.00666	+/-0.0163	0.0151	+/-0.0163	0.0316	pCi/g						
Thallium-208		0.170	+/-0.0342	0.0159	+/-0.0342	0.0336	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0149	+/-0.0178	0.0124	+/-0.0178	0.030	pCi/g		KSD1	10/24/06	1726	581340	5
<b>Rad Liquid Scintillation Analysis</b>													

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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: October 27, 2006

Client Sample ID: 9520-0005-012F  
Sample ID: 174484018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	0.597	+/-6.10	5.07	+/-6.10	11.0	pCi/g		DFA1	10/21/06	1202	581335	6
<i>Liquid Scint C14, Solid ALL FSS</i>													
Carbon-14	U	0.00	+/-0.108	0.0909	+/-0.108	0.185	pCi/g		AXD2	10/24/06	0303	581337	7
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	16.2	+/-27.6	19.5	+/-27.7	41.1	pCi/g		MXP1	10/25/06	2033	581333	8
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	6.65	+/-7.53	6.10	+/-7.53	12.6	pCi/g		MXP1	10/26/06	0624	581334	9
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.108	+/-0.246	0.203	+/-0.246	0.420	pCi/g		KXR1	10/25/06	0957	581330	10

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	10/19/06	1652	581177

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	68	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	82	(15%-125%)
Plutonium-241	Liquid Scint Pu241, Solid-ALL FS	99	(25%-125%)
Strontium-90	GFPC, Sr90, solid-ALL FSS	90	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	90	(25%-125%)

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## Certificate of Analysis

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

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

Report Date: October 27, 2006

Client Sample ID: 9520-0005-012F  
Sample ID: 174484018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
Iron-55		Liquid Scint Fe55, Solid-ALL FS			58		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			70		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			70		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			80		(15%-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: October 27, 2006

Client Sample ID: 9520-0005-013F  
Sample ID: 174484019  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 7.36%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0165	+/-0.0811	0.0552	+/-0.0811	0.207	pCi/g		MXA	10/24/06	1256	581362	1
Curium-242	U	0.0368	+/-0.0722	0.00	+/-0.0723	0.0998	pCi/g						
Curium-243/244	U	-0.0242	+/-0.0825	0.0843	+/-0.0825	0.265	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0245	+/-0.0908	0.0614	+/-0.0908	0.206	pCi/g		MXA	10/23/06	2248	581363	2
Plutonium-239/240	U	-0.011	+/-0.117	0.103	+/-0.117	0.289	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-3.7	+/-5.67	4.93	+/-5.67	10.3	pCi/g		MXA	10/24/06	1646	581364	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.531	+/-0.120	0.0464	+/-0.120	0.101	pCi/g		MJH1	10/26/06	0843	581676	4
Americium-241	U	-0.0179	+/-0.0924	0.0831	+/-0.0924	0.173	pCi/g						
Bismuth-212		0.264	+/-0.189	0.107	+/-0.189	0.231	pCi/g						
Bismuth-214		0.453	+/-0.0635	0.028	+/-0.0635	0.0595	pCi/g						
Cesium-134	U	0.0182	+/-0.0192	0.0179	+/-0.0192	0.0381	pCi/g						
Cesium-137	U	-0.00514	+/-0.0172	0.0146	+/-0.0172	0.0313	pCi/g						
Cobalt-60	U	-9.840E-05	+/-0.0166	0.0142	+/-0.0166	0.0316	pCi/g						
Europium-152	U	-0.0109	+/-0.0438	0.0375	+/-0.0438	0.0789	pCi/g						
Europium-154	U	-0.0621	+/-0.0558	0.0413	+/-0.0558	0.0916	pCi/g						
Europium-155	U	0.0739	+/-0.0474	0.0487	+/-0.0474	0.101	pCi/g						
Lead-212		0.594	+/-0.0492	0.0215	+/-0.0492	0.0448	pCi/g						
Lead-214		0.452	+/-0.0656	0.026	+/-0.0656	0.0548	pCi/g						
Manganese-54	U	0.00992	+/-0.017	0.0153	+/-0.017	0.0327	pCi/g						
Niobium-94	U	0.00524	+/-0.0148	0.0132	+/-0.0148	0.0283	pCi/g						
Potassium-40		9.74	+/-0.772	0.138	+/-0.772	0.310	pCi/g						
Radium-226		0.453	+/-0.0635	0.028	+/-0.0635	0.0595	pCi/g						
Silver-108m	U	0.0177	+/-0.0269	0.0123	+/-0.0269	0.0262	pCi/g						
Thallium-208		0.167	+/-0.0318	0.0137	+/-0.0318	0.0293	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0273	+/-0.019	0.0126	+/-0.019	0.029	pCi/g		KSD1	10/24/06	1726	581340	5



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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 27, 2006

Client Sample ID: 9520-0005-013F  
Sample ID: 174484019

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	4.19	+/-7.20	5.73	+/-7.20	12.4	pCi/g		DFA1	10/21/06	1218	581335	6
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	-0.00644	+/-0.116	0.0976	+/-0.116	0.199	pCi/g		AXD2	10/24/06	0407	581337	7
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	5.85	+/-29.2	20.9	+/-29.2	44.1	pCi/g		MXP1	10/25/06	2049	581333	8
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	3.53	+/-7.65	6.31	+/-7.65	13.1	pCi/g		MXP1	10/26/06	0656	581334	9
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.154	+/-0.256	0.210	+/-0.256	0.435	pCi/g		KXR1	10/25/06	1013	581330	10

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	10/19/06	1652	581177

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	71	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	94	(15%-125%)
Plutonium-241	Liquid Scint Pu241, Solid-ALL FSS	108	(25%-125%)
Strontium-90	GFPC, Sr90, solid-ALL FSS	89	(25%-125%)
Carrier/Tracer Recovery	GFPC, Sr90, solid-ALL FSS	89	(25%-125%)

# 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 27, 2006

Client Sample ID: 9520-0005-013F  
Sample ID: 174484019

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
Iron-55		Liquid Scint Fe55, Solid-ALL FS			61		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			70		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			70		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			77		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			77		(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.

# 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 27, 2006

Client Sample ID: 9520-0005-013FS  
Sample ID: 174484020  
Matrix: TS  
Collect Date: 16-OCT-06  
Receive Date: 19-OCT-06  
Collector: Client  
Moisture: 7.42%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0167	+/-0.141	0.110	+/-0.141	0.336	pCi/g		MXA	10/24/06	1256	581362	1
Curium-242	U	-0.0197	+/-0.102	0.0983	+/-0.102	0.318	pCi/g						
Curium-243/244	U	-0.255	+/-0.167	0.222	+/-0.170	0.562	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00418	+/-0.132	0.113	+/-0.132	0.320	pCi/g		MXA	10/23/06	2248	581363	2
Plutonium-239/240	U	-0.00697	+/-0.0775	0.0699	+/-0.0775	0.234	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-1.41	+/-6.32	5.37	+/-6.32	11.3	pCi/g		MXA	10/24/06	1702	581364	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.603	+/-0.167	0.0562	+/-0.167	0.124	pCi/g		MJH1	10/26/06	0844	581676	4
Americium-241	U	0.0104	+/-0.0302	0.0256	+/-0.0302	0.0529	pCi/g						
Bismuth-212		0.376	+/-0.281	0.140	+/-0.281	0.303	pCi/g						
Bismuth-214		0.513	+/-0.0917	0.0319	+/-0.0917	0.0685	pCi/g						
Cesium-134	U	0.0306	+/-0.0241	0.0225	+/-0.0241	0.0484	pCi/g						
Cesium-137	U	-0.00627	+/-0.0217	0.018	+/-0.0217	0.0389	pCi/g						
Cobalt-60	U	-0.00391	+/-0.023	0.019	+/-0.023	0.0425	pCi/g						
Europium-152	U	-0.0186	+/-0.0497	0.0436	+/-0.0497	0.0922	pCi/g						
Europium-154	U	-0.0166	+/-0.0608	0.0498	+/-0.0608	0.112	pCi/g						
Europium-155	U	0.0182	+/-0.0461	0.0423	+/-0.0461	0.0878	pCi/g						
Lead-212		0.645	+/-0.0607	0.0238	+/-0.0607	0.0499	pCi/g						
Lead-214		0.550	+/-0.086	0.0326	+/-0.086	0.0688	pCi/g						
Manganese-54	U	0.0203	+/-0.0215	0.0197	+/-0.0215	0.0424	pCi/g						
Niobium-94	U	-0.00793	+/-0.0224	0.0158	+/-0.0224	0.0342	pCi/g						
Potassium-40		10.1	+/-0.910	0.192	+/-0.910	0.428	pCi/g						
Radium-226		0.513	+/-0.0917	0.0319	+/-0.0917	0.0685	pCi/g						
Silver-108m	U	-0.0261	+/-0.0203	0.0136	+/-0.0203	0.0291	pCi/g						
Thallium-208		0.155	+/-0.0441	0.0171	+/-0.0441	0.0367	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.00461	+/-0.0203	0.0165	+/-0.0203	0.0376	pCi/g		KSD1	10/24/06	1732	581340	5
<b>Rad Liquid Scintillation Analysis</b>													

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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 27, 2006

Client Sample ID: 9520-0005-013FS  
Sample ID: 174484020

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	9.86	+/-7.17	5.55	+/-7.17	11.7	pCi/g		DFA1	10/23/06	2107	581335	6
<i>Liquid Scint C14, Solid All,FSS</i>													
Carbon-14	U	-0.0967	+/-0.113	0.0963	+/-0.113	0.196	pCi/g		AXD2	10/24/06	0637	581337	8
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55		51.3	+/-32.4	21.8	+/-32.7	45.9	pCi/g		MXP1	10/25/06	2106	581333	9
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	7.15	+/-8.84	7.19	+/-8.84	14.9	pCi/g		MXP1	10/26/06	0727	581334	10
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.188	+/-0.263	0.214	+/-0.263	0.444	pCi/g		KXR1	10/25/06	1030	581330	11

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	10/19/06	1652	581177

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	69	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	83	(15%-125%)
Plutonium-241	Liquid Scint Pu241, Solid-ALL FSS	99	(25%-125%)
Strontium-90	GFPC, Sr90, solid-ALL FSS	77	(25%-125%)

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**Certificate of Analysis**

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

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

Report Date: October 27, 2006

Client Sample ID: 9520-0005-013FS  
Sample ID: 174484020

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			77		(25%-125%)						
Iron-55		Liquid Scint Fe55, Solid-ALL FS			57		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			65		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			65		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			74		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			74		(15%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

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

# QUALITY CONTROL DATA

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Report Date: October 27, 2006

Page 1 of 9

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 174484

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch 581362											
QC1201212424 174484018 DUP											
Americium-241	U	0.00479	U	-0.198	pCi/g	210		(0% - 100%)	MXA1	10/24/06	12:56
	Uncert:	+/-0.155		+/-0.112							
	TPU:	+/-0.155		+/-0.115							
Curium-242	U	-0.0295	U	0.0528	pCi/g	706		(0% - 100%)			
	Uncert:	+/-0.087		+/-0.178							
	TPU:	+/-0.087		+/-0.178							
Curium-243/244	U	-0.168	U	-0.194	pCi/g	14		(0% - 100%)			
	Uncert:	+/-0.145		+/-0.248							
	TPU:	+/-0.147		+/-0.249							
QC1201212426 LCS											
Americium-241	13.3			15.1	pCi/g		114	(75%-125%)		10/24/06	12:56
	Uncert:			+/-1.48							
	TPU:			+/-2.42							
Curium-242			U	0.0121	pCi/g						
	Uncert:			+/-0.115							
	TPU:			+/-0.115							
Curium-243/244	16.0			14.9	pCi/g		93	(75%-125%)			
	Uncert:			+/-1.48							
	TPU:			+/-2.39							
QC1201212423 MB											
Americium-241			U	-0.0135	pCi/g					10/24/06	12:56
	Uncert:			+/-0.145							
	TPU:			+/-0.145							
Curium-242			U	-0.125	pCi/g						
	Uncert:			+/-0.111							
	TPU:			+/-0.112							
Curium-243/244			U	0.0154	pCi/g						
	Uncert:			+/-0.280							
	TPU:			+/-0.280							
QC1201212425 174484018 MS											
Americium-241	13.5 U	0.00479		14.7	pCi/g		109	(75%-125%)		10/24/06	12:56
	Uncert:	+/-0.155		+/-1.63							
	TPU:	+/-0.155		+/-2.56							
Curium-242	U	-0.0295	U	0.0735	pCi/g						
	Uncert:	+/-0.087		+/-0.138							
	TPU:	+/-0.087		+/-0.138							
Curium-243/244	16.3 U	-0.168		15.2	pCi/g		93	(75%-125%)			
	Uncert:	+/-0.145		+/-1.66							
	TPU:	+/-0.147		+/-2.63							
Batch 581363											
QC1201212428 174484018 DUP											
Plutonium-238	U	-0.023	U	0.023	pCi/g	0		(0% - 100%)	MXA1	10/23/06	22:48

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## QC Summary

Workorder: 174484

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	581363										
		Uncert:	+/-0.0679	+/-0.101							
		TPU:	+/-0.0679	+/-0.101							
Plutonium-239/240		U	-0.0998	U	0.0284	pCi/g	0	(0% - 100%)			
		Uncert:	+/-0.0829	+/-0.0801							
		TPU:	+/-0.0832	+/-0.0801							
QC1201212430	LCS										
Plutonium-238				U	-0.0729	pCi/g		(75%-125%)			
		Uncert:		+/-0.0692							
		TPU:		+/-0.0693							
Plutonium-239/240	12.3			12.4	pCi/g		101	(75%-125%)			
		Uncert:		+/-1.15							
		TPU:		+/-1.68							
QC1201212427	MB										
Plutonium-238				U	-0.0753	pCi/g				10/23/06	22:48
		Uncert:		+/-0.134							
		TPU:		+/-0.134							
Plutonium-239/240				U	-0.0357	pCi/g					
		Uncert:		+/-0.129							
		TPU:		+/-0.129							
QC1201212429	174484018	MS									
Plutonium-238		U	-0.023	U	0.0382	pCi/g		(75%-125%)		10/23/06	22:48
		Uncert:	+/-0.0679	+/-0.167							
		TPU:	+/-0.0679	+/-0.167							
Plutonium-239/240	12.5	U	-0.0998	13.2	pCi/g		106	(75%-125%)			
		Uncert:	+/-0.0829	+/-1.28							
		TPU:	+/-0.0832	+/-1.87							
Batch	581364										
QC1201212432	174484018	DUP									
Plutonium-241		U	-1.4	U	-3.46	pCi/g	0	(0% - 100%)	MAX1	10/24/06	17:34
		Uncert:	+/-6.29	+/-6.87							
		TPU:	+/-6.29	+/-6.87							
QC1201212434	LCS										
Plutonium-241		144		121	pCi/g		84	(75%-125%)		10/24/06	18:07
		Uncert:		+/-11.3							
		TPU:		+/-15.7							
QC1201212431	MB										
Plutonium-241				U	0.00	pCi/g				10/24/06	17:18
		Uncert:		+/-6.73							
		TPU:		+/-6.73							
QC1201212433	174484018	MS									
Plutonium-241		145	U	-1.4	123	pCi/g		85	(75%-125%)		10/24/06 17:51
		Uncert:	+/-6.29	+/-11.4							
		TPU:	+/-6.29	+/-17.1							
Rad Gamma Spec											
Batch	581676										
QC1201213161	174484001	DUP									
Actinium-228			0.834	0.842	pCi/g	1		(0% - 100%)	MJH1	10/26/06	08:45
		Uncert:	+/-0.172	+/-0.142							
				+/-0.142							



# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Workorder: 174484

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 581676											
Americium-241	TPU:		+/-0.172								
	U		-0.0109	U	-0.0378	pCi/g	111	(0% - 100%)			
	Uncert:		+/-0.0281		+/-0.0921						
Bismuth-212	TPU:		+/-0.0281		+/-0.0921						
			0.439		0.558	pCi/g	24	(0% - 100%)			
	Uncert:		+/-0.196		+/-0.253						
Bismuth-214	TPU:		+/-0.196		+/-0.253						
			0.521		0.557	pCi/g	7	(0% - 100%)			
	Uncert:		+/-0.0929		+/-0.0936						
Cesium-134	TPU:		+/-0.0929		+/-0.0936						
	U		0.0453	UI	0.00	pCi/g	39	(0% - 100%)			
	Uncert:		+/-0.0357		+/-0.0275						
Cesium-137	TPU:		+/-0.0357		+/-0.0275						
	U		0.041	U	0.0279	pCi/g	38	(0% - 100%)			
	Uncert:		+/-0.0286		+/-0.0268						
Cobalt-60	TPU:		+/-0.0286		+/-0.0268						
	U		0.0413	U	0.0171	pCi/g	83	(0% - 100%)			
	Uncert:		+/-0.027		+/-0.0198						
Europium-152	TPU:		+/-0.027		+/-0.0198						
	U		0.0149	U	-0.0108	pCi/g	1260	(0% - 100%)			
	Uncert:		+/-0.0506		+/-0.0452						
Europium-154	TPU:		+/-0.0506		+/-0.0452						
	U		-0.00379	U	-0.00947	pCi/g	86	(0% - 100%)			
	Uncert:		+/-0.0737		+/-0.0618						
Europium-155	TPU:		+/-0.0737		+/-0.0618						
	U		0.0341	U	0.050	pCi/g	38	(0% - 100%)			
	Uncert:		+/-0.0557		+/-0.0485						
Lead-212	TPU:		+/-0.0557		+/-0.0485						
			0.751		0.702	pCi/g	7	(0% - 20%)			
	Uncert:		+/-0.0636		+/-0.052						
Lead-214	TPU:		+/-0.0636		+/-0.052						
			0.535		0.546	pCi/g	2	(0% - 20%)			
	Uncert:		+/-0.0812		+/-0.0622						
Manganese-54	TPU:		+/-0.0812		+/-0.0622						
	U		0.0193	U	-0.00223	pCi/g	252	(0% - 100%)			
	Uncert:		+/-0.0215		+/-0.0201						
Niobium-94	TPU:		+/-0.0215		+/-0.0201						
	U		-0.0146	U	0.00759	pCi/g	634	(0% - 100%)			
	Uncert:		+/-0.0199		+/-0.0156						
Potassium-40	TPU:		+/-0.0199		+/-0.0156						
			12.4		11.6	pCi/g	7	(0% - 20%)			
	Uncert:		+/-0.978		+/-0.835						
Radium-226	TPU:		+/-0.978		+/-0.835						
			0.521		0.557	pCi/g	7	(0% - 100%)			
	Uncert:		+/-0.0929		+/-0.0936						
Silver-108m	TPU:		+/-0.0929		+/-0.0936						
	U		-0.0131	U	-0.00672	pCi/g	64	(0% - 100%)			
	Uncert:		+/-0.0181		+/-0.0143						

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Workorder: 174484

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	581676										
Thallium-208	TPU:	+/-0.0181		+/-0.0143							
		0.267		0.240	pCi/g	11		(0% - 100%)			
	Uncert:	+/-0.0418		+/-0.0424							
	TPU:	+/-0.0418		+/-0.0424							
QC1201213162 LCS											
Actinium-228			U	0.00574	pCi/g					10/26/06	08:46
	Uncert:			+/-0.327							
	TPU:			+/-0.327							
Americium-241	23.4			25.2	pCi/g		108	(75%-125%)			
	Uncert:			+/-0.898							
	TPU:			+/-0.898							
Bismuth-212			U	-0.58	pCi/g						
	Uncert:			+/-0.578							
	TPU:			+/-0.578							
Bismuth-214			U	0.0386	pCi/g						
	Uncert:			+/-0.154							
	TPU:			+/-0.154							
Cesium-134			U	0.0123	pCi/g						
	Uncert:			+/-0.0848							
	TPU:			+/-0.0848							
Cesium-137	9.55			9.92	pCi/g		104	(75%-125%)			
	Uncert:			+/-0.286							
	TPU:			+/-0.286							
Cobalt-60	14.2			14.6	pCi/g		103	(75%-125%)			
	Uncert:			+/-0.394							
	TPU:			+/-0.394							
Europium-152			U	-0.11	pCi/g						
	Uncert:			+/-0.165							
	TPU:			+/-0.165							
Europium-154			U	-0.028	pCi/g						
	Uncert:			+/-0.157							
	TPU:			+/-0.157							
Europium-155			U	-0.11	pCi/g						
	Uncert:			+/-0.175							
	TPU:			+/-0.175							
Lead-212			U	0.0836	pCi/g						
	Uncert:			+/-0.0947							
	TPU:			+/-0.0947							
Lead-214			U	0.087	pCi/g						
	Uncert:			+/-0.120							
	TPU:			+/-0.120							
Manganese-54			U	0.0143	pCi/g						
	Uncert:			+/-0.0764							
	TPU:			+/-0.0764							
Niobium-94			U	-0.0245	pCi/g						
	Uncert:			+/-0.0752							
	TPU:			+/-0.0752							
Potassium-40			U	0.0561	pCi/g						

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Workorder: 174484

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	581676									
		Uncert:	+/-0.611							
		TPU:	+/-0.611							
Radium-226		U	0.0386	pCi/g			(75%-125%)			
		Uncert:	+/-0.154							
		TPU:	+/-0.154							
Silver-108m		U	-0.0273	pCi/g						
		Uncert:	+/-0.0636							
		TPU:	+/-0.0636							
Thallium-208		U	-0.012	pCi/g						
		Uncert:	+/-0.0724							
		TPU:	+/-0.0724							
QC1201213160 MB										
Actinium-228		U	0.0124	pCi/g					10/26/06	08:44
		Uncert:	+/-0.0585							
		TPU:	+/-0.0585							
Americium-241		U	0.0068	pCi/g						
		Uncert:	+/-0.0438							
		TPU:	+/-0.0438							
Bismuth-212		U	0.0195	pCi/g						
		Uncert:	+/-0.0909							
		TPU:	+/-0.0909							
Bismuth-214		U	0.00809	pCi/g						
		Uncert:	+/-0.0394							
		TPU:	+/-0.0394							
Cesium-134		U	0.0041	pCi/g						
		Uncert:	+/-0.0129							
		TPU:	+/-0.0129							
Cesium-137		U	0.00315	pCi/g						
		Uncert:	+/-0.0121							
		TPU:	+/-0.0121							
Cobalt-60		U	-0.00153	pCi/g						
		Uncert:	+/-0.0124							
		TPU:	+/-0.0124							
Europium-152		U	-0.0203	pCi/g						
		Uncert:	+/-0.0361							
		TPU:	+/-0.0361							
Europium-154		U	0.00513	pCi/g						
		Uncert:	+/-0.037							
		TPU:	+/-0.037							
Europium-155		U	-0.0163	pCi/g						
		Uncert:	+/-0.0276							
		TPU:	+/-0.0276							
Lead-212		U	0.00479	pCi/g						
		Uncert:	+/-0.0255							
		TPU:	+/-0.0255							
Lead-214		U	0.0131	pCi/g						
		Uncert:	+/-0.0428							
		TPU:	+/-0.0428							

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Workorder: 174484

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Paramname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	581676										
Manganese-54			U	0.014	pCi/g						
	Uncert:			+/-0.0175							
	TPU:			+/-0.0175							
Niobium-94			U	0.00738	pCi/g						
	Uncert:			+/-0.0114							
	TPU:			+/-0.0114							
Potassium-40			U	0.210	pCi/g						
	Uncert:			+/-0.298							
	TPU:			+/-0.298							
Radium-226			U	0.00809	pCi/g						
	Uncert:			+/-0.0394							
	TPU:			+/-0.0394							
Silver-108m			U	-0.00377	pCi/g						
	Uncert:			+/-0.0128							
	TPU:			+/-0.0128							
Thallium-208			U	0.00746	pCi/g						
	Uncert:			+/-0.0278							
	TPU:			+/-0.0278							
<b>Rad Gas Flow</b>											
Batch	581340										
QC1201212370	174484018	DUP									
Strontium-90		U	0.0149	U	-0.00127	pCi/g	0	(0% - 100%)	KSD1	10/24/06	17:32
	Uncert:		+/-0.0178		+/-0.0172						
	TPU:		+/-0.0178		+/-0.0172						
QC1201212372	LCS										
Strontium-90		1.23		1.08	pCi/g		88	(75%-125%)		10/24/06	17:33
	Uncert:			+/-0.113							
	TPU:			+/-0.117							
QC1201212369	MB										
Strontium-90				U	0.0135	pCi/g				10/24/06	17:32
	Uncert:			+/-0.0165							
	TPU:			+/-0.0165							
QC1201212371	174484018	MS									
Strontium-90		2.91	U	0.0149	2.76	pCi/g	95	(75%-125%)		10/24/06	17:32
	Uncert:			+/-0.0178	+/-0.283						
	TPU:			+/-0.0178	+/-0.294						
<b>Rad Liquid Scintillation</b>											
Batch	581330										
QC1201212325	174484018	DUP									
Technetium-99		U	0.108	U	0.0992	pCi/g	0	(0% - 100%)	KXR1	10/25/06	11:02
	Uncert:		+/-0.246		+/-0.247						
	TPU:		+/-0.246		+/-0.247						
QC1201212327	LCS										
Technetium-99		12.8		12.1	pCi/g		95	(75%-125%)		10/25/06	11:34
	Uncert:			+/-0.501							
	TPU:			+/-0.587							
QC1201212324	MB										
Technetium-99				U	0.00777	pCi/g				10/25/06	10:46

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Workorder: 174484

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation											
Batch	581330										
		Uncert:		+/-0.195							
		TPU:		+/-0.195							
QC1201212326	174484018	MS									
Technetium-99		13.0	U	0.108	12.4	pCi/g	95	(75%-125%)		10/25/06	11:18
		Uncert:		+/-0.246	+/-0.546						
		TPU:		+/-0.246	+/-0.629						
Batch	581333										
QC1201212329	174484019	DUP									
Iron-55			U	5.85	1.82	pCi/g	0	(0% - 100%)	MXPI	10/25/06	21:39
		Uncert:		+/-29.2	+/-26.0						
		TPU:		+/-29.2	+/-26.0						
QC1201212331	LCS										
Iron-55		591			578	pCi/g	98	(75%-125%)		10/25/06	22:13
		Uncert:			+/-45.6						
		TPU:			+/-64.4						
QC1201212328	MB										
Iron-55			U	20.5		pCi/g				10/25/06	21:23
		Uncert:		+/-27.5							
		TPU:		+/-27.6							
QC1201212330	174484019	MS									
Iron-55		594	U	5.85	559	pCi/g	94	(75%-125%)		10/25/06	21:56
		Uncert:		+/-29.2	+/-42.2						
		TPU:		+/-29.2	+/-60.6						
Batch	581334										
QC1201212337	174484020	DUP									
Nickel-63			U	7.15	5.42	pCi/g	0	(0% - 100%)	MXPI	10/26/06	08:31
		Uncert:		+/-8.84	+/-7.80						
		TPU:		+/-8.84	+/-7.80						
QC1201212339	LCS										
Nickel-63		530			517	pCi/g	98	(75%-125%)		10/26/06	09:34
		Uncert:			+/-18.5						
		TPU:			+/-25.9						
QC1201212336	MB										
Nickel-63			U	3.51		pCi/g				10/26/06	07:59
		Uncert:		+/-7.07							
		TPU:		+/-7.07							
QC1201212338	174484020	MS									
Nickel-63		541	U	7.15	524	pCi/g	97	(75%-125%)		10/26/06	09:02
		Uncert:		+/-8.84	+/-18.7						
		TPU:		+/-8.84	+/-26.3						
Batch	581335										
QC1201212346	174484018	DUP									
Tritium			U	0.597	8.53	pCi/g	0	(0% - 100%)	DFA1	10/21/06	13:07
		Uncert:		+/-6.10	+/-6.97						
		TPU:		+/-6.10	+/-6.97						
QC1201212348	LCS										
Tritium		47.0			58.6	pCi/g	125	(75%-125%)		10/21/06	13:40
		Uncert:			+/-9.91						
		TPU:			+/-9.96						

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Workorder: 174484

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>											
Batch	581335										
QC1201212345	MB										
Tritium			U	8.18	pCi/g					10/21/06	12:51
		Uncert:		+/-6.68							
		TPU:		+/-6.68							
QC1201212347	174484018	MS									
Tritium		59.5	U	0.597	57.4	pCi/g	97	(75%-125%)		10/21/06	13:23
		Uncert:		+/-6.10	+/-11.5						
		TPU:		+/-6.10	+/-11.5						
Batch	581337										
QC1201212352	174484019	DUP									
Carbon-14			U	-0.00644	U	-0.0842	pCi/g	0	(0% - 100%)	AXD2	10/24/06 08:45
		Uncert:		+/-0.116	+/-0.110						
		TPU:		+/-0.116	+/-0.110						
QC1201212354	LCS										
Carbon-14		7.27			7.51	pCi/g	103	(75%-125%)		10/24/06	10:03
		Uncert:			+/-0.419						
		TPU:			+/-0.435						
QC1201212351	MB										
Carbon-14			U	-0.0366	pCi/g					10/24/06	07:41
		Uncert:		+/-0.118							
		TPU:		+/-0.118							
QC1201212353	174484019	MS									
Carbon-14		7.25	U	-0.00644	7.32	pCi/g	101	(75%-125%)		10/24/06	09:47
		Uncert:		+/-0.116	+/-0.415						
		TPU:		+/-0.116	+/-0.430						

### 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

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

**QC Summary**

Workorder: 174484

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

^

h Preparation or preservation holding time was exceeded

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

\*\* Indicates analyte is a surrogate compound.

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

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

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

# **General Narrative**



**General Narrative  
for  
Connecticut Yankee Atomic Power Co.  
Work Order: 174936  
SDG: MSR#06-1407**

**October 30, 2006**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on October 26, 2006 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

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

<b>Laboratory Identification</b>	<b>Sample Description</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936003	9520-0004-016F
174936004	9520-0004-017F
174936005	9504-0-010C
174936006	9504-0-013C
174936007	9520-0005-019F

**Items of Note**

There are no items to 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 contained in the analytical case narratives in the enclosed data package.

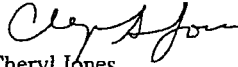
**Analytical Request**

Four soil samples were analyzed for CHALL. Three soil samples were analyzed for FSSGAM.

**Data Package**

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

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



Cheryl Jones  
Project Manager

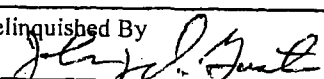
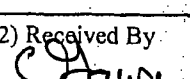
**List of current GEL Certifications as of 30 October 2006**

<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						Chain of Custody Form				No. 2006-00637					
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 860-267-3924						CHALL						Comments:  1749361			
Analytical Lab (Name, City, State): General Engineering Laboratories 2040 Savage Road Charleston, SC 29407 ATT: Cheryl Jones (843-556-8171)															
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. Other:															
Sample Designation	Date	Time									Comment, Preservation	Lab Sample ID			
9522-01-005C	10-18-06	1355	TS	G	BP	X									
9522-01-007C	10-18-06	1425	LS	G	BP	X									
NOTES: PO #: 002332      MSR #: 06-1407 <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.: 18 Deg. C  Custody Sealed? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Custody Seal Intact?  <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
1) Relinquished By <i>John W. Hooten</i>			Date/Time 10/25/06 1430			2) Received By <i>Chance</i>			Date/Time 10/26/06 9:00			798028343252 Bill of Lading #			
3) Relinquished By			Date/Time			4) Received By			Date/Time						
5) Relinquished By			Date/Time			6) Received By			Date/Time						

[illegible]

Connecticut Yankee Atomic Power Company 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						Chain of Custody Form						No. 2006-00639			
Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested						Lab Use Only			
Contact Name & Phone: Jack McCarthy 860-267-3924						CHALL							Comments:  1749361		
Analytical Lab (Name, City, State): General Engineering Laboratories 2040 Savage Road Charleston, SC 29407 ATT: Cheryl Jones (843-556-8171)															
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 14 D. <input checked="" type="checkbox"/> 7 D. Other:															
Sample Designation	Date	Time										Comment, Preservation	Lab Sample ID		
9504-0-010C	10/10/06	1035	TS	G	BP	X									
9504-0-013C	10/10/06	0820	TS	G	BP	X									
NOTES: PO #: 002332      MSR #: 06-1407 <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.: -18 Deg. C  Custody Sealed? <input checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact?  <input checked="" type="checkbox"/> N <input type="checkbox"/>		
1) Relinquished By 			Date/Time 10/25/06 1430			2) Received By 			Date/Time 10/26/06 9:00			798-0 2834 3252 Bill of Lading #			
3) Relinquished By			Date/Time			4) Received By			Date/Time						
5) Relinquished By			Date/Time			6) Received By			Date/Time						

## Chain of Custody Form

No. 2006-00640

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

[illegible]



Figure 1. Sample Check-in List

Date/Time Received: 9100 10/26/06  
SDG#: MSR#06-1407  
Work Order Number: 1749361  
Shipping Container ID: 1980 2834 3252 Chain of Custody # 2006-00640-00637  
1. Custody Seals on shipping container intact? Yes ☒ No ☐  
2. Custody Seals dated and signed? Yes ☒ No ☐  
3. Chain-of-Custody record present? Yes ☒ No ☐  
4. Cooler temperature 18°  
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: Chause Date: 10/26/06

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

# **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 174936**

**Method/Analysis Information**

<b>Product:</b>	Alphaspec Am241, Cm, Solid ALL FSS
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	583311
Prep Batch Number:	583211
Dry Soil Prep GL-RAD-A-021 Batch Number:	583196

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216888	Method Blank (MB)
1201216890	174936001(9522-01-005C) Matrix Spike (MS)
1201216891	Laboratory Control Sample (LCS)
1201217370	174936001(9522-01-005C) Sample Duplicate (DUP)

**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: 174936001 (9522-01-005C).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The blank, 1201216888 (MB), did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits.

**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:	583312
Prep Batch Number:	583211
Dry Soil Prep GL-RAD-A-021 Batch Number:	583196

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216892	Method Blank (MB)
1201216893	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216894	174936001(9522-01-005C) Matrix Spike (MS)
1201216895	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: 174936001 (9522-01-005C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Liquid Scint Pu241, Solid-ALL FSS</b>
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	583313
Prep Batch Number:	583211
Dry Soil Prep GL-RAD-A-021 Batch Number:	583196



<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216896	Method Blank (MB)
1201216897	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216898	174936001(9522-01-005C) Matrix Spike (MS)
1201216899	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: 174936001 (9522-01-005C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

#### **Technical Information:**

##### **Holding Time**

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

##### **Preparation Information**

All preparation criteria have been met for these analyses.

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

The batch was recounted due to a low LCS recovery.

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

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

**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:** 583389

**Prep Batch Number:** 583196

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936003	9520-0004-016F
174936004	9520-0004-017F
174936005	9504-0-010C
174936006	9504-0-013C
174936007	9520-0005-019F
1201217095	Method Blank (MB)
1201217096	174911001(9801-0-R101-SFCC-01-C1 (0-2in)) Sample Duplicate (DUP)
1201217097	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# 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: 174911001 (9801-0-R101-SFCC-01-C1 (0-2in)).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high counting uncertainty.	Bismuth-212	1201217096
UI	Data rejected due to high peak-width.	Cesium-134	1201217095
UI	Data rejected due to interference.	Europium-155	174936002
		Manganese-54	174936002
			174936005
UI	Data rejected due to low abundance.	Cesium-134	174936001
			174936002
			174936005
			174936007
			1201217096
		Lead-214	1201217095

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

**Product:** GFPC, Sr90, solid-ALL FSS  
**Analytical Method:** EPA 905.0 Modified  
**Prep Method:** Ash Soil Prep  
**Dry Soil Prep GL-RAD-A-021 Method:** Dry Soil Prep  
**Analytical Batch Number:** 583243  
**Prep Batch Number:** 583211  
**Dry Soil Prep GL-RAD-A-021 Batch Number:** 583196

Sample ID	Client ID
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216717	Method Blank (MB)
1201216718	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216719	174936001(9522-01-005C) Matrix Spike (MS)
1201216720	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 volumes in this batch.

**Designated QC**

The following sample was used for QC: 174936001 (9522-01-005C).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Samples were recounted due to being originally counted on detectors with expired calibrations.

**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**

The blank result for 1201216717 (MB) is greater than the MDA but less than the detection limit.

### **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:** 583233

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216689	Method Blank (MB)
1201216690	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216691	174936001(9522-01-005C) Matrix Spike (MS)
1201216692	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: 174936001 (9522-01-005C).

#### **QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Samples 174936001 (9522-01-005C) and 174936002 (9522-01-007C) were recounted due to spectral interference.

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

The result for sample 174936006 (9504-0-013C) is biased high due to spectral interference.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
X	Sample result biased high due to spectral interference.	Technetium-99	174936006

**Method/Analysis Information**

Product:	Liquid Scint Fe55, Solid-ALL FSS
Analytical Method:	DOE RESL Fe-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	583239
Prep Batch Number:	583211
Dry Soil Prep GL-RAD-A-021 Batch Number:	583196

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216709	Method Blank (MB)
1201216710	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216711	174936001(9522-01-005C) Matrix Spike (MS)
1201216712	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: 174936001 (9522-01-005C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

#### **Technical Information:**

##### **Holding Time**

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

##### **Preparation Information**

All preparation criteria have been met for these analyses.

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

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



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

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

**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:	583241
Prep Batch Number:	583211
Dry Soil Prep GL-RAD-A-021 Batch Number:	583196

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216713	Method Blank (MB)
1201216714	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216715	174936001(9522-01-005C) Matrix Spike (MS)
1201216716	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: 174936001 (9522-01-005C).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

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

**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:** 583234

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216693	Method Blank (MB)
1201216694	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216695	174936001(9522-01-005C) Matrix Spike (MS)
1201216696	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: 174936001 (9522-01-005C).

##### **QC Information**

All of the QC samples met the required acceptance limits.

#### **Technical Information:**

##### **Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Sample 174936005 (9504-0-010C) was recounted due to high MDA.

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

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

**Analytical Method:** EPA EERF C-01 Modified

**Analytical Batch Number:** 583236

<b>Sample ID</b>	<b>Client ID</b>
174936001	9522-01-005C
174936002	9522-01-007C
174936005	9504-0-010C
174936006	9504-0-013C
1201216701	Method Blank (MB)
1201216702	174936001(9522-01-005C) Sample Duplicate (DUP)
1201216703	174936001(9522-01-005C) Matrix Spike (MS)
1201216704	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: 174936001 (9522-01-005C).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

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

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

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

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

**Review Validation:**

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

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

**Reviewer/Date:**

*Pamela Williams* 11/2/04

# 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#06-1407 GEL Work Order: 174936

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

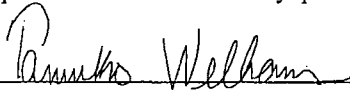
- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- 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: November 2, 2006

Client Sample ID: 9522-01-005C  
Sample ID: 174936001  
Matrix: TS  
Collect Date: 18-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 37.8%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.00136	+/-0.138	0.115	+/-0.138	0.327	pCi/g	MXA	10/30/06	1058	583311	1	
Curium-242	U	0.0391	+/-0.110	0.0674	+/-0.110	0.237	pCi/g						
Curium-243/244	U	-0.0385	+/-0.139	0.132	+/-0.140	0.361	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.104	+/-0.112	0.133	+/-0.113	0.352	pCi/g	MXA	10/30/06	1058	583312	2	
Plutonium-239/240	U	-0.137	+/-0.0631	0.120	+/-0.0652	0.326	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-5.01	+/-7.31	6.36	+/-7.31	13.4	pCi/g	MXA	11/02/06	0824	583313	3	
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.942	+/-0.216	0.0684	+/-0.216	0.148	pCi/g	MJH1	10/31/06	0910	583389	5	
Americium-241		0.232	+/-0.147	0.0857	+/-0.147	0.177	pCi/g						
Bismuth-212		1.25	+/-0.452	0.152	+/-0.452	0.326	pCi/g						
Bismuth-214		1.01	+/-0.155	0.0431	+/-0.155	0.091	pCi/g						
Cesium-134	UI	0.00	+/-0.0505	0.0289	+/-0.0505	0.061	pCi/g						
Cesium-137		1.58	+/-0.100	0.0221	+/-0.100	0.0469	pCi/g						
Cobalt-60	U	0.0278	+/-0.0308	0.0272	+/-0.0308	0.0585	pCi/g						
Europium-152	U	-0.0437	+/-0.0735	0.0588	+/-0.0735	0.123	pCi/g						
Europium-154	U	0.0164	+/-0.0885	0.0637	+/-0.0885	0.139	pCi/g						
Europium-155	U	0.0621	+/-0.0836	0.0693	+/-0.0836	0.143	pCi/g						
Lead-212		1.10	+/-0.0891	0.0406	+/-0.0891	0.0838	pCi/g						
Lead-214		0.962	+/-0.132	0.044	+/-0.132	0.0921	pCi/g						
Manganese-54	U	-0.00466	+/-0.0271	0.0223	+/-0.0271	0.0474	pCi/g						
Niobium-94	U	-0.0112	+/-0.0232	0.0188	+/-0.0232	0.0401	pCi/g						
Potassium-40		12.1	+/-1.00	0.191	+/-1.00	0.423	pCi/g						
Radium-226		1.01	+/-0.155	0.0431	+/-0.155	0.091	pCi/g						
Silver-108m	U3.670E-05		+/-0.026	0.0213	+/-0.026	0.0446	pCi/g						
Thallium-208		0.306	+/-0.0549	0.0218	+/-0.0549	0.0461	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GPFC, Sr90, solid-ALL FSS</i>													
Strontium-90		0.0263	+/-0.0109	0.00825	+/-0.011	0.0172	pCi/g	KSD1	11/01/06	2100	583243	6	

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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: November 2, 2006

Client Sample ID: 9522-01-005C  
Sample ID: 174936001

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtu
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	3.72	+/-5.94	4.71	+/-5.94	10.2	pCi/g		DFA1	10/28/06	0650	583234	7
<i>Liquid Scint. C14, Solid All, FSS</i>													
Carbon-14	U	0.179	+/-0.112	0.0898	+/-0.112	0.184	pCi/g		AXD2	10/27/06	2110	583236	8
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	14.2	+/-19.7	12.8	+/-19.7	27.0	pCi/g		MXP1	11/01/06	1809	583239	9
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-0.799	+/-7.83	6.60	+/-7.83	13.8	pCi/g		MXP1	11/01/06	1536	583241	1
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.320	+/-0.221	0.181	+/-0.221	0.367	pCi/g		KXR1	10/31/06	2145	583233	1

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	WXL1	10/26/06	1442	583196

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	92	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	93	(15%-125%)

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## Certificate of Analysis

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

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

Report Date: November 2, 2006

Client Sample ID: 9522-01-005C  
Sample ID: 174936001

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
Plutonium-241		Liquid Scint Pu241, Solid-ALL FS			88		(25%-125%)						
Strontium-90		GFPC, Sr90, solid-ALL FSS			76		(25%-125%)						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			76		(25%-125%)						
Iron-55		Liquid Scint Fe55, Solid-ALL FS			83		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			88		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			88		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			50		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			50		(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: November 2, 2006

Client Sample ID: 9522-01-007C  
Sample ID: 174936002  
Matrix: TS  
Collect Date: 18-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 18%

Project: YANK01204  
Client ID: YANK001  
Vol. Recv.: 1

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0547	+/-0.122	0.0789	+/-0.123	0.237	pCi/g		MXA	10/30/06	1058	583311	1
Curium-242	U	0.0395	+/-0.0893	0.048	+/-0.0894	0.180	pCi/g						
Curium-243/244	U	-0.0258	+/-0.0943	0.0912	+/-0.0944	0.262	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0671	+/-0.0439	0.0837	+/-0.0444	0.252	pCi/g		MXA	10/30/06	1058	583312	2
Plutonium-239/240	U	0.0733	+/-0.145	0.0925	+/-0.145	0.269	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	4.10	+/-7.32	5.96	+/-7.33	12.5	pCi/g		MXA	11/02/06	0840	583313	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		4.39	+/-0.204	0.0457	+/-0.204	0.0959	pCi/g		MJH1	10/31/06	0925	583389	4
Americium-241	U	-0.147	+/-0.0988	0.0841	+/-0.0988	0.170	pCi/g						
Bismuth-212		2.99	+/-0.322	0.128	+/-0.322	0.264	pCi/g						
Bismuth-214		1.41	+/-0.0972	0.0296	+/-0.0972	0.0611	pCi/g						
Cesium-134	UI	0.00	+/-0.0358	0.0276	+/-0.0358	0.0564	pCi/g						
Cesium-137		2.55	+/-0.0752	0.0187	+/-0.0752	0.0386	pCi/g						
Cobalt-60	U	0.0262	+/-0.0175	0.0166	+/-0.0175	0.0351	pCi/g						
Europium-152	U	-0.03	+/-0.059	0.0503	+/-0.059	0.103	pCi/g						
Europium-154	U	0.0248	+/-0.0468	0.0422	+/-0.0468	0.0893	pCi/g						
Europium-155	UI	0.00	+/-0.0881	0.056	+/-0.0881	0.114	pCi/g						
Lead-212		4.38	+/-0.0865	0.0288	+/-0.0865	0.0585	pCi/g						
Lead-214		1.56	+/-0.100	0.0346	+/-0.100	0.0707	pCi/g						
Manganese-54	UI	0.00	+/-0.0272	0.0159	+/-0.0272	0.0331	pCi/g						
Niobium-94	U	0.0109	+/-0.0182	0.0162	+/-0.0182	0.0335	pCi/g						
Potassium-40		2.51	+/-0.375	0.124	+/-0.375	0.266	pCi/g						
Radium-226		1.41	+/-0.0972	0.0296	+/-0.0972	0.0611	pCi/g						
Silver-108m	U	-0.00514	+/-0.0191	0.0173	+/-0.0191	0.0353	pCi/g						
Thallium-208		1.40	+/-0.0595	0.0174	+/-0.0595	0.0359	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90		0.0327	+/-0.00864	0.00613	+/-0.00866	0.0128	pCi/g		KSD1	11/01/06	2100	583243	
<b>Rad Liquid Scintillation Analysis</b>													

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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: November 2, 2006

Client Sample ID: 9522-01-007C  
Sample ID: 174936002

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mt
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	3.14	+/-7.71	6.23	+/-7.71	13.5	pCi/g		DFA1	10/28/06	0706	583234	7
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.0254	+/-0.113	0.0944	+/-0.113	0.194	pCi/g		AXD2	10/27/06	2158	583236	8
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	8.48	+/-18.0	11.8	+/-18.0	24.9	pCi/g		MXP1	11/01/06	1825	583239	9
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	2.80	+/-7.02	5.78	+/-7.02	12.1	pCi/g		MXP1	11/01/06	1558	583241	1
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99		0.321	+/-0.163	0.126	+/-0.163	0.262	pCi/g		KXR1	10/31/06	2246	583233	1

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	WXL1	10/26/06	1442	583196

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	93	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	91	(15%-125%)

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## Certificate of Analysis

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

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

Report Date: November 2, 2006

Client Sample ID: 9522-01-007C  
Sample ID: 174936002

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
Plutonium-241		Liquid Scint Pu241, Solid-ALL FS			94		(25%-125%)						
Strontium-90		GFPC, Sr90, solid-ALL FSS			100		(25%-125%)						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			100		(25%-125%)						
Iron-55		Liquid Scint Fe55, Solid-ALL FS			86		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			90		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			90		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			113		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			113		(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: November 2, 2006

Client Sample ID: 9520-0004-016F  
Sample ID: 174936003  
Matrix: TS  
Collect Date: 19-OCT-06  
Receive Date: 26-OCT-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	Mtr
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.747	+/-0.134	0.0498	+/-0.134	0.105	pCi/g		MJH1	10/31/06	0927	583389	I
Americium-241	U	0.0504	+/-0.105	0.0823	+/-0.105	0.169	pCi/g						
Bismuth-212		0.654	+/-0.242	0.105	+/-0.242	0.221	pCi/g						
Bismuth-214		0.970	+/-0.0713	0.026	+/-0.0713	0.0544	pCi/g						
Cesium-134	U	0.0184	+/-0.0256	0.0177	+/-0.0256	0.0372	pCi/g						
Cesium-137		0.125	+/-0.0228	0.0129	+/-0.0228	0.0273	pCi/g						
Cobalt-60	U	-0.00778	+/-0.0166	0.0131	+/-0.0166	0.0286	pCi/g						
Europium-152	U	0.00444	+/-0.044	0.0366	+/-0.044	0.076	pCi/g						
Europium-154	U	-0.0216	+/-0.0534	0.0432	+/-0.0534	0.0927	pCi/g						
Europium-155	U	0.0674	+/-0.0698	0.0415	+/-0.0698	0.0852	pCi/g						
Lead-212		0.838	+/-0.0517	0.0219	+/-0.0517	0.045	pCi/g						
Lead-214		1.12	+/-0.0838	0.0267	+/-0.0838	0.0553	pCi/g						
Manganese-54	U	0.0154	+/-0.0174	0.0152	+/-0.0174	0.032	pCi/g						
Niobium-94	U	-0.00323	+/-0.015	0.0124	+/-0.015	0.026	pCi/g						
Potassium-40		12.1	+/-0.758	0.140	+/-0.758	0.303	pCi/g						
Radium-226		0.970	+/-0.0713	0.026	+/-0.0713	0.0544	pCi/g						
Silver-108m	U	-0.00181	+/-0.0144	0.0125	+/-0.0144	0.0261	pCi/g						
Thallium-208		0.238	+/-0.0369	0.013	+/-0.0369	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	WXL1	10/26/06	1443	583196

### 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: November 2, 2006

Client Sample ID: 9520-0004-016F  
Sample ID: 174936003

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
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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: November 2, 2006

Client Sample ID: 9520-0004-017F  
Sample ID: 174936004  
Matrix: TS  
Collect Date: 19-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 18.7%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.492	+/-0.157	0.0658	+/-0.157	0.140	pCi/g		MJH1	10/31/06	0927	583389	1
Americium-241	U	-0.0222	+/-0.0995	0.0726	+/-0.0995	0.149	pCi/g						
Bismuth-212		0.424	+/-0.289	0.143	+/-0.289	0.303	pCi/g						
Bismuth-214		0.778	+/-0.115	0.0326	+/-0.115	0.0688	pCi/g						
Cesium-134	U	0.00206	+/-0.0338	0.0207	+/-0.0338	0.0438	pCi/g						
Cesium-137		0.168	+/-0.0358	0.0171	+/-0.0358	0.0363	pCi/g						
Cobalt-60	U	-0.0183	+/-0.024	0.0187	+/-0.024	0.0408	pCi/g						
Europium-152	U	-0.00147	+/-0.061	0.0498	+/-0.061	0.103	pCi/g						
Europium-154	U	-0.0213	+/-0.0645	0.0528	+/-0.0645	0.115	pCi/g						
Europium-155	U	0.00598	+/-0.0551	0.0479	+/-0.0551	0.0986	pCi/g						
Lead-212		0.616	+/-0.0645	0.0293	+/-0.0645	0.0603	pCi/g						
Lead-214		0.926	+/-0.0913	0.0374	+/-0.0913	0.0776	pCi/g						
Manganese-54	U	0.0215	+/-0.0229	0.0202	+/-0.0229	0.0426	pCi/g						
Niobium-94	U	0.00767	+/-0.0209	0.0179	+/-0.0209	0.0376	pCi/g						
Potassium-40		9.31	+/-0.909	0.166	+/-0.909	0.366	pCi/g						
Radium-226		0.778	+/-0.115	0.0326	+/-0.115	0.0688	pCi/g						
Silver-108m	U	-0.00183	+/-0.0211	0.0168	+/-0.0211	0.0352	pCi/g						
Thallium-208		0.222	+/-0.0438	0.0192	+/-0.0438	0.0402	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	WXL1	10/26/06	1444	583196

### 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: November 2, 2006

Client Sample ID: 9520-0004-017F  
Sample ID: 174936004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtu
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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: November 2, 2006

Client Sample ID: 9504-0-010C  
Sample ID: 174936005  
Matrix: TS  
Collect Date: 10-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 43.4%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0682	+/-0.103	0.0315	+/-0.103	0.158	pCi/g		MXA	10/30/06	1058	583311	1
Curium-242	U	-0.046	+/-0.0403	0.0769	+/-0.0408	0.258	pCi/g						
Curium-243/244	U	-0.10	+/-0.0956	0.126	+/-0.0966	0.348	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0235	+/-0.087	0.0589	+/-0.087	0.197	pCi/g		MXA	10/30/06	1058	583312	2
Plutonium-239/240	U	0.0235	+/-0.0869	0.0588	+/-0.087	0.197	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	0.00	+/-6.56	5.51	+/-6.56	11.6	pCi/g		MXA	11/02/06	0856	583313	2
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.635	+/-0.167	0.0577	+/-0.167	0.129	pCi/g		MJH1	10/31/06	0928	583389	
Americium-241	U	0.0432	+/-0.109	0.0836	+/-0.109	0.174	pCi/g						
Bismuth-212		0.532	+/-0.302	0.151	+/-0.302	0.329	pCi/g						
Bismuth-214		0.566	+/-0.113	0.0405	+/-0.113	0.0866	pCi/g						
Cesium-134	UI	0.00	+/-0.0454	0.0264	+/-0.0454	0.0566	pCi/g						
Cesium-137		0.402	+/-0.057	0.0194	+/-0.057	0.042	pCi/g						
Cobalt-60	U	0.00339	+/-0.0231	0.0198	+/-0.0231	0.0448	pCi/g						
Europium-152	U	0.00635	+/-0.0624	0.0514	+/-0.0624	0.109	pCi/g						
Europium-154	U	-0.00961	+/-0.0889	0.0634	+/-0.0889	0.141	pCi/g						
Europium-155	U	0.0463	+/-0.0667	0.0601	+/-0.0667	0.125	pCi/g						
Lead-212		0.655	+/-0.0666	0.0278	+/-0.0666	0.0584	pCi/g						
Lead-214		0.611	+/-0.108	0.038	+/-0.108	0.0804	pCi/g						
Manganese-54	UI	0.00	+/-0.0682	0.0185	+/-0.0682	0.0405	pCi/g						
Niobium-94	U	-0.0145	+/-0.0248	0.0196	+/-0.0248	0.0421	pCi/g						
Potassium-40		10.0	+/-1.01	0.181	+/-1.01	0.414	pCi/g						
Radium-226		0.566	+/-0.113	0.0405	+/-0.113	0.0866	pCi/g						
Silver-108m	U	-0.0205	+/-0.0201	0.0159	+/-0.0201	0.0342	pCi/g						
Thallium-208		0.223	+/-0.0488	0.0181	+/-0.0488	0.0392	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90		0.0342	+/-0.00877	0.00599	+/-0.0088	0.0126	pCi/g		KSD1	11/01/06	2100	583243	
<b>Rad Liquid Scintillation Analysis</b>													

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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: November 2, 2006

Client Sample ID: 9504-0-010C  
Sample ID: 174936005

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2,ALL FSS</i>													
Tritium	U	-0.632	+/-6.79	5.72	+/-6.79	11.9	pCi/g	DFA1	11/01/06	0800	583234	8	
<i>Liquid Scint C14, Solid ALL,FSS</i>													
Carbon-14	U	0.0868	+/-0.115	0.0942	+/-0.115	0.193	pCi/g	AXD2	10/27/06	2245	583236	9	
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	2.22	+/-18.6	12.4	+/-18.6	26.3	pCi/g	MXP1	11/01/06	1842	583239	10	
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-4.66	+/-6.33	5.51	+/-6.33	11.5	pCi/g	MXP1	11/01/06	1619	583241	11	
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	U	0.475	+/-0.296	0.236	+/-0.296	0.486	pCi/g	KXR1	10/31/06	0310	583233	12	

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	WXL1	10/26/06	1444	583196

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	85	(15%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	95	(15%-125%)

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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: November 2, 2006

Client Sample ID: 9504-0-010C  
Sample ID: 174936005

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
Plutonium-241		Liquid Scint Pu241, Solid-ALL FS			102		(25%-125%)						
Strontium-90		GFPC, Sr90, solid-ALL FSS			84		(25%-125%)						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			84		(25%-125%)						
Iron-55		Liquid Scint Fe55, Solid-ALL FS			82		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			93		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			93		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			78		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			78		(15%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

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

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## Certificate of Analysis

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Address : 362 Injun Hollow Rd

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

Report Date: November 2, 2006

Client Sample ID: 9504-0-013C  
Sample ID: 174936006  
Matrix: TS  
Collect Date: 10-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 48.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtr
<b>Rad Alpha Spec Analysis</b>													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.0277	+/-0.0621	0.0513	+/-0.0621	0.180	pCi/g		MXA	10/30/06	1058	583311	1
Curium-242	U	0.0786	+/-0.108	0.0396	+/-0.108	0.164	pCi/g						
Curium-243/244	U	-0.109	+/-0.0823	0.115	+/-0.0836	0.307	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.00331	+/-0.105	0.0892	+/-0.105	0.253	pCi/g		MXA	10/30/06	1058	583312	2
Plutonium-239/240	U	0.120	+/-0.149	0.082	+/-0.150	0.239	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-0.741	+/-6.61	5.58	+/-6.61	11.7	pCi/g		MXA	11/02/06	0913	583313	3
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.506	+/-0.193	0.0706	+/-0.193	0.151	pCi/g		MJH1	10/31/06	0929	583389	5
Americium-241	U	-0.00807	+/-0.113	0.0819	+/-0.113	0.169	pCi/g						
Bismuth-212		0.519	+/-0.319	0.151	+/-0.319	0.322	pCi/g						
Bismuth-214		0.717	+/-0.116	0.0427	+/-0.116	0.0896	pCi/g						
Cesium-134	U	0.00314	+/-0.029	0.0232	+/-0.029	0.0493	pCi/g						
Cesium-137		0.684	+/-0.076	0.0208	+/-0.076	0.044	pCi/g						
Cobalt-60	U	-0.000581	+/-0.0261	0.0212	+/-0.0261	0.0462	pCi/g						
Europium-152	U	-0.0282	+/-0.0661	0.0534	+/-0.0661	0.111	pCi/g						
Europium-154	U	0.0313	+/-0.076	0.0646	+/-0.076	0.140	pCi/g						
Europium-155	U	0.0397	+/-0.0774	0.0508	+/-0.0774	0.105	pCi/g						
Lead-212		0.596	+/-0.0656	0.0366	+/-0.0656	0.0753	pCi/g						
Lead-214		0.676	+/-0.107	0.0383	+/-0.107	0.0799	pCi/g						
Manganese-54	U	0.0203	+/-0.0251	0.0222	+/-0.0251	0.047	pCi/g						
Niobium-94	U	-0.00724	+/-0.0293	0.0199	+/-0.0293	0.042	pCi/g						
Potassium-40		5.95	+/-0.804	0.187	+/-0.804	0.412	pCi/g						
Radium-226		0.717	+/-0.116	0.0427	+/-0.116	0.0896	pCi/g						
Silver-108m	U	0.00332	+/-0.0405	0.0182	+/-0.0405	0.0383	pCi/g						
Thallium-208		0.180	+/-0.0485	0.0208	+/-0.0485	0.0439	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90		0.178	+/-0.0136	0.00626	+/-0.0145	0.0131	pCi/g		KSD1	11/01/06	2100	583243	1
<b>Rad Liquid Scintillation Analysis</b>													

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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: November 2, 2006

Client Sample ID: 9504-0-013C  
Sample ID: 174936006

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mt
<b>Rad Liquid Scintillation Analysis</b>													
<i>LSC, Tritium Dist, Solid-HTD2, ALL FSS</i>													
Tritium	U	-1.43	+/-6.02	5.17	+/-6.02	11.2	pCi/g	DFA1	10/28/06	0738	583234	8	
<i>Liquid Scint C14, Solid All, FSS</i>													
Carbon-14	U	0.190	+/-0.121	0.0969	+/-0.121	0.199	pCi/g	AXD2	10/27/06	2332	583236	9	
<i>Liquid Scint Fe55, Solid-ALL FSS</i>													
Iron-55	U	4.58	+/-18.8	12.4	+/-18.8	26.2	pCi/g	MXP1	11/01/06	1858	583239	1	
<i>Liquid Scint Ni63, Solid-ALL FSS</i>													
Nickel-63	U	-3.51	+/-7.96	6.83	+/-7.96	14.3	pCi/g	MXP1	11/01/06	1641	583241	1	
<i>Liquid Scint Tc99, Solid-ALL FSS</i>													
Technetium-99	X	1.20	+/-0.319	0.237	+/-0.320	0.489	pCi/g	KXR1	10/31/06	0327	583233	1	

### The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	WXL1	10/26/06	1445	583196

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	98	(15%-125%)

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## Certificate of Analysis

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

Report Date: November 2, 2006

Client Sample ID: 9504-0-013C  
Sample ID: 174936006

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
Plutonium-242		Alphaspec Pu, Solid-ALL FSS			99		(15%-125%)						
Plutonium-241		Liquid Scint Pu241, Solid-ALL FS			101		(25%-125%)						
Strontium-90		GFPC, Sr90, solid-ALL FSS			95		(25%-125%)						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			95		(25%-125%)						
Iron-55		Liquid Scint Fe55, Solid-ALL FS			88		(15%-125%)						
Nickel-63		Liquid Scint Ni63, Solid-ALL FS			86		(25%-125%)						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			86		(25%-125%)						
Technetium-99		Liquid Scint Tc99, Solid-ALL FS			79		(15%-125%)						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			79		(15%-125%)						

### Notes:

The Qualifiers in this report are defined as follows :

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



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## Certificate of Analysis

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

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

Report Date: November 2, 2006

Client Sample ID: 9520-0005-019F  
Sample ID: 174936007  
Matrix: TS  
Collect Date: 23-OCT-06  
Receive Date: 26-OCT-06  
Collector: Client  
Moisture: 8.59%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.956	+/-0.140	0.0577	+/-0.140	0.125	pCi/g						
Americium-241	U	-0.0344	+/-0.0932	0.0853	+/-0.0932	0.176	pCi/g						
Bismuth-212		0.469	+/-0.323	0.150	+/-0.323	0.320	pCi/g						
Bismuth-214		0.547	+/-0.0937	0.0337	+/-0.0937	0.0717	pCi/g						
Cesium-134	UI	0.00	+/-0.0287	0.0245	+/-0.0287	0.0518	pCi/g						
Cesium-137		0.128	+/-0.041	0.0183	+/-0.041	0.0391	pCi/g						
Cobalt-60	U	0.0143	+/-0.0233	0.0193	+/-0.0233	0.0426	pCi/g						
Europium-152	U	-0.0255	+/-0.0562	0.0466	+/-0.0562	0.0979	pCi/g						
Europium-154	U	-0.0349	+/-0.0722	0.0565	+/-0.0722	0.123	pCi/g						
Europium-155	U	0.0307	+/-0.0645	0.0594	+/-0.0645	0.122	pCi/g						
Lead-212		0.754	+/-0.0632	0.029	+/-0.0632	0.0601	pCi/g						
Lead-214		0.623	+/-0.085	0.0372	+/-0.085	0.0779	pCi/g						
Manganese-54	U	0.0044	+/-0.0225	0.0196	+/-0.0225	0.0417	pCi/g						
Niobium-94	U	0.00264	+/-0.0188	0.0164	+/-0.0188	0.0351	pCi/g						
Potassium-40		11.2	+/-0.971	0.126	+/-0.971	0.290	pCi/g						
Radium-226		0.547	+/-0.0937	0.0337	+/-0.0937	0.0717	pCi/g						
Silver-108m	U	0.0078	+/-0.0199	0.0172	+/-0.0199	0.0363	pCi/g						
Thallium-208		0.265	+/-0.044	0.0179	+/-0.044	0.038	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	WXL1	10/26/06	1445	583196

### 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: November 2, 2006

Client Sample ID: 9520-0005-019F

Sample ID: 174936007

Project: YANK01204

Client ID: YANK001

Vol. Recv.:

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

- > 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: November 2, 2006

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Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 174936

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	583311										
QC1201217370	174936001	DUP									
Americium-241		U	0.00136	U	-0.0141	pCi/g	243	(0% - 100%)	AXA1	10/30/06	10:58
		Uncert:	+/-0.138		+/-0.0635						
		TPU:	+/-0.138		+/-0.0635						
Curium-242		U	0.0391	U	-0.0144	pCi/g	433	(0% - 100%)			
		Uncert:	+/-0.110		+/-0.020						
		TPU:	+/-0.110		+/-0.020						
Curium-243/244		U	-0.0385	U	0.0308	pCi/g	1800	(0% - 100%)			
		Uncert:	+/-0.139		+/-0.104						
		TPU:	+/-0.140		+/-0.104						
QC1201216891	LCS										
Americium-241		2.69			2.51	pCi/g		93 (75%-125%)		10/30/06	10:58
		Uncert:			+/-0.236						
		TPU:			+/-0.371						
Curium-242				U	-0.00394	pCi/g					
		Uncert:			+/-0.0135						
		TPU:			+/-0.0135						
Curium-243/244		3.24			2.95	pCi/g		91 (75%-125%)			
		Uncert:			+/-0.256						
		TPU:			+/-0.422						
QC1201216888	MB										
Americium-241				U	-0.0169	pCi/g					
		Uncert:			+/-0.0283						
		TPU:			+/-0.0284						
Curium-242				U	0.0056	pCi/g					
		Uncert:			+/-0.030						
		TPU:			+/-0.030						
Curium-243/244				U	0.0146	pCi/g					
		Uncert:			+/-0.0557						
		TPU:			+/-0.0557						
QC1201216890	174936001	MS									
Americium-241		13.7	U	0.00136	13.4	pCi/g		98 (75%-125%)		10/30/06	10:58
		Uncert:			+/-1.31						
		TPU:			+/-2.08						
Curium-242			U	0.0391	0.0528	pCi/g					
		Uncert:			+/-0.0991						
		TPU:			+/-0.0993						
Curium-243/244		16.5	U	-0.0385	16.0	pCi/g		97 (75%-125%)			
		Uncert:			+/-1.43						
		TPU:			+/-2.41						
Batch	583312										
QC1201216893	174936001	DUP									
Plutonium-238		U	-0.104	U	-0.0623	pCi/g	50	(0% - 100%)	AXA1	10/30/06	10:58

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Workorder: 174936

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Parname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time	
Rad Alpha Spec												
Batch	583312											
Plutonium-239/240	U	Uncert:	+/-0.112	+/-0.114	pCi/g	145		(0% - 100%)				
		TPU:	+/-0.113	+/-0.114								
			-0.137	-0.0217								
		Uncert:	+/-0.0631	+/-0.108								
QC1201216895 LCS												
Plutonium-238		TPU:	+/-0.0652	+/-0.108								
Plutonium-239/240	2.49	U		0.00501	pCi/g		95	(75%-125%)		10/30/06	10:58	
			Uncert:									+/-0.0185
			TPU:									+/-0.0186
												2.37
Plutonium-239/240	2.49	U			pCi/g		95	(75%-125%)				
			Uncert:									+/-0.239
			TPU:									+/-0.334
QC1201216892 MB												
Plutonium-238		U		-0.0011	pCi/g					10/30/06	10:58	
Plutonium-239/240	U	Uncert:		+/-0.0122	pCi/g							
		TPU:		+/-0.0122								
				0.000219								
		Uncert:		+/-0.0119								
QC1201216894 174936001 MS												
Plutonium-238		U		+/-0.0119								
Plutonium-239/240	12.6	U		0.0643	pCi/g		102	(75%-125%)				
			Uncert:									+/-0.142
			TPU:									+/-0.142
												-0.137
Plutonium-239/240	12.6	U		12.8	pCi/g		102	(75%-125%)				
			Uncert:									+/-1.22
			TPU:									+/-1.79
												+/-0.0631
Batch	583313											
QC1201216897 174936001 DUP												
Plutonium-241		U		1.93	pCi/g	0		(0% - 100%)	MXA1	11/02/06	09:45	
Plutonium-241	35.9	U		-5.01	pCi/g		78	(75%-125%)		11/02/06	10:18	
			Uncert:									+/-8.93
			TPU:									+/-8.93
												+/-7.31
QC1201216899 LCS												
Plutonium-241		U		27.9	pCi/g		78	(75%-125%)		11/02/06	10:18	
Plutonium-241	35.9	U		+/-2.66	pCi/g							
			Uncert:									+/-3.77
			TPU:									
												4.08
QC1201216896 MB												
Plutonium-241		U		+/-8.97	pCi/g					11/02/06	09:29	
Plutonium-241	141	U		+/-9.01	pCi/g		88	(75%-125%)		11/02/06	10:01	
			Uncert:									+/-11.4
			TPU:									+/-16.5
												+/-7.31
QC1201216898 174936001 MS												
Plutonium-241		U										
Rad Gamma Spec												
Batch	583389											
QC1201217096 174911001 DUP												
Actinium-228			0.325	0.320	pCi/g	2		(0% - 100%)	MJH1	10/31/06	10:33	
Actinium-228	Uncert:		+/-0.119	+/-0.135								
				+/-0.135								

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## QC Summary

Workorder: 174936

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch 583389										
Americium-241	TPU:	+/-0.119								
	U	0.018	U	0.0192	pCi/g	6	(0% - 100%)			
	Uncert:	+/-0.0921		+/-0.058						
Bismuth-212	TPU:	+/-0.0921		+/-0.058						
		0.274	UI	0.00	pCi/g	36	(0% - 100%)			
	Uncert:	+/-0.157		+/-0.192						
Bismuth-214	TPU:	+/-0.157		+/-0.192						
		0.423		0.448	pCi/g	6	(0% - 100%)			
	Uncert:	+/-0.070		+/-0.0781						
Cesium-134	TPU:	+/-0.070		+/-0.0781						
	UI	0.00	UI	0.00	pCi/g	16	(0% - 100%)			
	Uncert:	+/-0.033		+/-0.0327						
Cesium-137	TPU:	+/-0.033		+/-0.0327						
	UI	0.00	U	-0.00065	pCi/g	208	(0% - 100%)			
	Uncert:	+/-0.0281		+/-0.0206						
Cobalt-60	TPU:	+/-0.0281		+/-0.0206						
	U	-0.013	U	0.00792	pCi/g	827	(0% - 100%)			
	Uncert:	+/-0.0169		+/-0.0186						
Europium-152	TPU:	+/-0.0169		+/-0.0186						
	U	0.024	U	0.0167	pCi/g	36	(0% - 100%)			
	Uncert:	+/-0.041		+/-0.0509						
Europium-154	TPU:	+/-0.041		+/-0.0509						
	U	0.00185	U	-0.0485	pCi/g	216	(0% - 100%)			
	Uncert:	+/-0.0495		+/-0.0647						
Europium-155	TPU:	+/-0.0495		+/-0.0647						
	U	0.0651	U	-0.033	pCi/g	612	(0% - 100%)			
	Uncert:	+/-0.0432		+/-0.0473						
Lead-212	TPU:	+/-0.0432		+/-0.0473						
		0.285		0.346	pCi/g	19	(0% - 100%)			
	Uncert:	+/-0.0477		+/-0.0549						
Lead-214	TPU:	+/-0.0477		+/-0.0549						
		0.402		0.419	pCi/g	4	(0% - 100%)			
	Uncert:	+/-0.0695		+/-0.0777						
Manganese-54	TPU:	+/-0.0695		+/-0.0777						
	U	0.000309	U	0.014	pCi/g	191	(0% - 100%)			
	Uncert:	+/-0.0169		+/-0.0173						
Niobium-94	TPU:	+/-0.0169		+/-0.0173						
	U	0.00718	U	0.0089	pCi/g	21	(0% - 100%)			
	Uncert:	+/-0.0145		+/-0.0158						
Potassium-40	TPU:	+/-0.0145		+/-0.0158						
		7.04		7.61	pCi/g	8	(0% - 20%)			
	Uncert:	+/-0.674		+/-0.836						
Radium-226	TPU:	+/-0.674		+/-0.836						
		0.423		0.448	pCi/g	6	(0% - 100%)			
	Uncert:	+/-0.070		+/-0.0781						
Silver-108m	TPU:	+/-0.070		+/-0.0781						
	U	0.00582	U	-0.00782	pCi/g	1360	(0% - 100%)			
	Uncert:	+/-0.0134		+/-0.0162						

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## QC Summary

Workorder: 174936

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	583389										
Thallium-208	TPU:	+/-0.0134		+/-0.0162	pCi/g	2		(0% - 100%)			
		0.107		0.108							
	Uncert:	+/-0.031		+/-0.036							
	TPU:	+/-0.031		+/-0.036							
QC1201217097	LCS										
Actinium-228			U	0.166	pCi/g					10/31/06	10:56
	Uncert:			+/-0.579							
Americium-241	TPU:			+/-0.579	pCi/g		108	(75%-125%)			
	23.4			25.2							
	Uncert:			+/-1.33							
	TPU:			+/-1.33							
Bismuth-212			U	0.169	pCi/g						
	Uncert:			+/-0.989							
Bismuth-214	TPU:			+/-0.989	pCi/g						
			U	0.208							
	Uncert:			+/-0.235							
	TPU:			+/-0.235							
Cesium-134			U	0.0196	pCi/g						
	Uncert:			+/-0.149							
Cesium-137	TPU:			+/-0.149	pCi/g		106	(75%-125%)			
	9.54			10.1							
	Uncert:			+/-0.474							
	TPU:			+/-0.474							
Cobalt-60		14.2		14.4	pCi/g		101	(75%-125%)			
	Uncert:			+/-0.640							
	TPU:			+/-0.640							
Europium-152			U	-0.0221	pCi/g						
	Uncert:			+/-0.301							
Europium-154	TPU:			+/-0.301	pCi/g						
			U	-0.0891							
	Uncert:			+/-0.300							
	TPU:			+/-0.300							
Europium-155			U	0.246	pCi/g						
	Uncert:			+/-0.296							
Lead-212	TPU:			+/-0.296	pCi/g						
			U	0.0927							
	Uncert:			+/-0.160							
	TPU:			+/-0.160							
Lead-214			U	-0.0668	pCi/g						
	Uncert:			+/-0.216							
	TPU:			+/-0.216							
Manganese-54			U	0.0637	pCi/g						
	Uncert:			+/-0.141							
Niobium-94	TPU:			+/-0.141	pCi/g						
			U	-0.0941							
	Uncert:			+/-0.131							
	TPU:			+/-0.131							
Potassium-40			U	0.512	pCi/g						

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Workorder: 174936

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Parmname	NOM	Sample Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	583389									
Radium-226	Uncert:		+/-1.01							
	TPU:		+/-1.01							
		U	0.208	pCi/g			(75%-125%)			
Silver-108m	Uncert:		+/-0.235							
	TPU:		+/-0.235							
		U	0.00145	pCi/g						
Thallium-208	Uncert:		+/-0.116							
	TPU:		+/-0.116							
		U	0.109	pCi/g						
QC1201217095 MB Actinium-228	Uncert:		+/-0.124							
	TPU:		+/-0.124							
		U	0.017	pCi/g					10/31/06 09:31	
Americium-241	Uncert:		+/-0.0424							
	TPU:		+/-0.0424							
		U	0.00734	pCi/g						
Bismuth-212	Uncert:		+/-0.0106							
	TPU:		+/-0.0106							
		U	0.000324	pCi/g						
Bismuth-214	Uncert:		+/-0.0883							
	TPU:		+/-0.0883							
		U	0.0233	pCi/g						
Cesium-134	Uncert:		+/-0.033							
	TPU:		+/-0.033							
		UI	0.00	pCi/g						
Cesium-137	Uncert:		+/-0.0377							
	TPU:		+/-0.0377							
		U	-0.00239	pCi/g						
Cobalt-60	Uncert:		+/-0.0102							
	TPU:		+/-0.0102							
		U	0.0115	pCi/g						
Europium-152	Uncert:		+/-0.0112							
	TPU:		+/-0.0112							
		U	-0.00208	pCi/g						
Europium-154	Uncert:		+/-0.0274							
	TPU:		+/-0.0274							
		U	0.0176	pCi/g						
Europium-155	Uncert:		+/-0.030							
	TPU:		+/-0.030							
		U	0.00314	pCi/g						
Lead-212	Uncert:		+/-0.0186							
	TPU:		+/-0.0186							
		U	0.0227	pCi/g						
Lead-214	Uncert:		+/-0.0166							
	TPU:		+/-0.0166							
		UI	0.00	pCi/g						
	Uncert:		+/-0.0396							
	TPU:		+/-0.0396							



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**QC Summary**

Workorder: 174936

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Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	583389										
Manganese-54			U	-0.00543	pCi/g						
		Uncert:		+/-0.0113							
		TPU:		+/-0.0113							
Niobium-94			U	0.00493	pCi/g						
		Uncert:		+/-0.0109							
		TPU:		+/-0.0109							
Potassium-40			U	0.356	pCi/g						
		Uncert:		+/-0.179							
		TPU:		+/-0.179							
Radium-226			U	0.0233	pCi/g						
		Uncert:		+/-0.033							
		TPU:		+/-0.033							
Silver-108m			U	-0.00346	pCi/g						
		Uncert:		+/-0.00831							
		TPU:		+/-0.00831							
Thallium-208			U	0.0108	pCi/g						
		Uncert:		+/-0.0183							
		TPU:		+/-0.0183							
<b>Rad Gas Flow</b>											
Batch	583243										
QC1201216718	174936001	DUP									
Strontium-90			0.0263	0.0557	pCi/g	72		(0% - 100%) KSD1		11/02/06	09:35
		Uncert:	+/-0.0109	+/-0.019							
		TPU:	+/-0.011	+/-0.019							
QC1201216720	LCS										
Strontium-90			1.64	1.34	pCi/g		82	(75%-125%)		11/02/06	09:35
		Uncert:		+/-0.0863							
		TPU:		+/-0.0946							
QC1201216717	MB										
Strontium-90				0.0333	pCi/g					11/02/06	09:35
		Uncert:		+/-0.0137							
		TPU:		+/-0.0137							
QC1201216719	174936001	MS									
Strontium-90			5.18	0.0263	pCi/g		89	(75%-125%)		11/02/06	09:35
		Uncert:	+/-0.0109	+/-0.304							
		TPU:	+/-0.011	+/-0.330							
<b>Rad Liquid Scintillation</b>											
Batch	583233										
QC1201216690	174936001	DUP									
Technetium-99			U	0.320	U	0.321	pCi/g	0	(0% - 100%) KXR1	10/31/06	04:00
		Uncert:		+/-0.221		+/-0.291					
		TPU:		+/-0.221		+/-0.291					
QC1201216692	LCS										
Technetium-99			13.0	12.9	pCi/g		99	(75%-125%)		10/31/06	04:32
		Uncert:		+/-0.501							
		TPU:		+/-0.601							
QC1201216689	MB										
Technetium-99			U	0.047	pCi/g					10/31/06	03:43

# GENERAL ENGINEERING LABORATORIES, LLC

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## QC Summary

Workorder: 174936

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation											
Batch	583233										
		Uncert:									
		TPU:									
QC1201216691	174936001	MS									
Technetium-99		13.1	U	0.320	12.5	pCi/g	96	(75%-125%)		10/31/06	04:16
		Uncert:		+/-0.221	+/-0.543						
		TPU:		+/-0.221	+/-0.631						
Batch	583234										
QC1201216694	174936001	DUP									
Tritium			U	3.72	-6.31	pCi/g	0	(0% - 100%)	DFA1	10/28/06	08:10
		Uncert:		+/-5.94	+/-6.86						
		TPU:		+/-5.94	+/-6.86						
QC1201216696	LCS										
Tritium		51.5			45.3	pCi/g	88	(75%-125%)		10/28/06	08:42
		Uncert:			+/-8.97						
		TPU:			+/-9.01						
QC1201216693	MB										
Tritium			U		-0.82	pCi/g				10/28/06	07:54
		Uncert:			+/-5.74						
		TPU:			+/-5.74						
QC1201216695	174936001	MS									
Tritium		60.3	U	3.72	48.1	pCi/g	80	(75%-125%)		10/28/06	08:26
		Uncert:		+/-5.94	+/-10.1						
		TPU:		+/-5.94	+/-10.1						
Batch	583236										
QC1201216702	174936001	DUP									
Carbon-14			U	0.179	0.0712	pCi/g	0	(0% - 100%)	4XD2	10/28/06	01:06
		Uncert:		+/-0.112	+/-0.108						
		TPU:		+/-0.112	+/-0.108						
QC1201216704	LCS										
Carbon-14		6.78			6.63	pCi/g	98	(75%-125%)		10/28/06	02:40
		Uncert:			+/-0.229						
		TPU:			+/-0.251						
QC1201216701	MB										
Carbon-14			U		0.0836	pCi/g				10/28/06	00:19
		Uncert:			+/-0.109						
		TPU:			+/-0.109						
QC1201216703	174936001	MS									
Carbon-14		7.17	U	0.179	6.59	pCi/g	92	(75%-125%)		10/28/06	01:53
		Uncert:		+/-0.112	+/-0.237						
		TPU:		+/-0.112	+/-0.258						
Batch	583239										
QC1201216710	174936001	DUP									
Iron-55			U	14.2	-3.35	pCi/g	0	(0% - 100%)	MDXPI	11/01/06	19:15
		Uncert:		+/-19.7	+/-19.4						
		TPU:		+/-19.7	+/-19.4						
QC1201216712	LCS										
Iron-55		57.2			54.5	pCi/g	95	(75%-125%)		11/01/06	19:47
		Uncert:			+/-3.71						
		TPU:			+/-5.38						

# GENERAL ENGINEERING LABORATORIES, LLC

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

## QC Summary

Workorder: 174936

Page 8 of 9

Partname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Liquid Scintillation</b>										
Batch	583239									
QC1201216709	MB									
Iron-55		U	-0.337	pCi/g					11/01/06	16:51
		Uncert:	+/-1.02							
		TPU:	+/-1.02							
QC1201216711	174936001 MS									
Iron-55		611 U	14.2	593	pCi/g	97	(75%-125%)		11/01/06	19:31
		Uncert:	+/-19.7	+/-37.3						
		TPU:	+/-19.7	+/-58.7						
Batch	583241									
QC1201216714	174936001 DUP									
Nickel-63		U	-0.799	U	0.571	pCi/g	0	(0% - 100%) VEXP1	11/01/06	17:24
		Uncert:	+/-7.83	+/-7.52						
		TPU:	+/-7.83	+/-7.52						
QC1201216716	LCS									
Nickel-63		179		160	pCi/g	90	(75%-125%)		11/01/06	18:07
		Uncert:		+/-6.78						
		TPU:		+/-8.10						
QC1201216713	MB									
Nickel-63		U	1.12	pCi/g					11/01/06	17:02
		Uncert:	+/-2.38							
		TPU:	+/-2.38							
QC1201216715	174936001 MS									
Nickel-63		535 U	-0.799	448	pCi/g	84	(75%-125%)		11/01/06	17:45
		Uncert:	+/-7.83	+/-19.0						
		TPU:	+/-7.83	+/-24.7						

### 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

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

**QC Summary**

Workorder: 174936

Page 9 of 9

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

^

h Preparation or preservation holding time was exceeded

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

\*\* Indicates analyte is a surrogate compound.

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

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

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


# **General Narrative**

## Erratum

Page 1 of 1

The following change is made to sample nomenclature to acknowledge the reassignment of sample locations from Survey Unit 9520-0003 to Survey Unit 9520-0005:

Laboratory Identification	Original Sample Description	Changed Sample Description
173429001	9520-0003-021F	9520-0005-021F
173429002	9530-0003-022F	9530-0005-022F
173429003	9520-0003-023F	9520-0005-023F
173429004	9530-0003-024F	9530-0005-024F
173429005	9520-0003-025F	9520-0005-025F
173429006	9530-0003-026F	9530-0005-026F
173429007	9520-0003-027F	9520-0005-027F
173429008	9530-0003-028F	9530-0005-028F
173429009	9520-0003-029F	9520-0005-029F
173429010	9530-0003-030F	9530-0005-030F
173429011	9520-0003-031F	9520-0005-031F

Completed by:  4/17/06  
Jack McCarthy

**General Narrative  
for  
Connecticut Yankee Atomic Power Co.  
Work Order: 173429  
SDG: MSR#06-1334**

**October 12, 2006**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on October 06, 2006 and October 09, 2006 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The incorrect MSR was listed on COC 2006-00560, please see attached email for clarification.

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

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
173429001	9520-0003-021F
173429002	9520-0003-022F
173429003	9520-0003-023F
173429004	9520-0003-024F
173429005	9520-0003-025F
173429006	9520-0003-026F
173429007	9520-0003-027F
173429008	9520-0003-028F
173429009	9520-0003-029F
173429010	9520-0003-030F
173429011	9520-0003-031F
173429012	9520-0003-035F
173429013	9520-0003-036F
173429014	9520-0003-037F
173429015	9520-0003-038F

**Items of Note**

There are no items to 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 contained in the analytical case narratives in the enclosed data package.

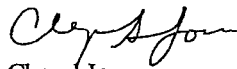
### Analytical Request

Fifteen soil samples were analyzed for FSSGAM.

### Data Package

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

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



Cheryl Jones  
Project Manager



**List of current GEL Certifications as of 12 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**

## Chain of Custody Form

No. 2006-00560

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

Project Name: Haddam Neck Decommissioning						Analyses Requested							Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-3924													Comments  173429✓		
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	FSSGAM	FSSALL							Comment, Preservation	Lab Sample ID
9520-0003-021F	9/26/06	1341	TS	G	BP	X									
9520-0003-022F	9/26/06	1345	TS	G	BP	X									
9520-0003-023F	9/26/06	1348	TS	G	BP	X									
9520-0003-024F	9/26/06	1353	TS	G	BP	X									
9520-0003-025F	9/26/06	1400	TS	G	BP	X									
9520-0003-026F	9/26/06	1410	TS	G	BP	X									
9520-0003-027F	9/26/06	1411	TS	G	BP	X									
9520-0003-028F	9/26/06	1421	TS	G	BP	X									
9520-0003-029F	9/26/06	1423	TS	G	BP	X									
9520-0003-030F	9/26/06	1432	TS	G	BP	X									
9520-0003-031F	9/26/06	1434	TS	G	BP	X									

NOTES: PO #: 002332    MSR #: 06-1335    SSWP# NA    ☒ LTP QA    ☐ Radwaste QA    ☐ Non QA

*SSWP 06-06-006*                  \* See email clarification on *MSR#* cy. Call on 10/10/06

1) Relinquished By <i>[Signature]</i> Date/Time <i>10/5/06 1420</i>		2) Received By <i>[Signature]</i> Date/Time <i>10/9/06 8:30</i>	
3) Relinquished By _____ Date/Time _____		4) Received By _____ Date/Time _____	

Samples Shipped Via:

- ☒ Fed Ex
- ☐ UPS
- ☐ Hand
- ☐ Other

*Bill of Lading # 798513947689*

Internal Container Temp. *21 Deg C*

Custody Sealed? *Y X N □*

Custody Seal Intact? *Y X N □*

## Chain of Custody Form

No. 2006-00595

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

[illegible]

RE: Please confirm MSR designation

**Subject:** RE: Please confirm MSR designation  
**From:** "Arthur L. Hammond" <Hammond@CYAPCO.com>  
**Date:** Tue, 10 Oct 2006 15:22:42 -0400  
**To:** "Cheryl Jones" <cj@gel.com>  
**CC:** "John McCarthy" <McCarthy@CYAPCO.com>

Cheryl,

All information, per your e-mail, is correct.

Sample 9506-0-6C is for CHALL.

MSR#06-1334: includes COCs 2006-00595, 00560, 00561, and 00603  
MSR#06-1335: sample 9506-0-6C on COC 2006 00597

Thank you,

Arthur

--- Original Message-----

From: Cheryl Jones [mailto:cj@gel.com]  
Sent: Tuesday, October 10, 2006 3:07 PM  
To: Arthur L. Hammond  
Cc: John McCarthy; Amanda Rasco  
Subject: Please confirm MSR designation

Arthur,

Please confirm the following MSR designation for samples we received

10/6 and 10/9:

MSR#06-1334: 9520 series on COCs 2006-00595, 00560, 00561, 00603  
MSR#06-1335: only sample 9506-0-6C on COC 2006-00597

Please also confirm that sample 9506-0-5C is for CHALL, as the X was not  
on the COC under that request column.

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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intended  
only for the use of the individual or firm of record. If you are not  
the intended  
recipient and have received this message in error, you are asked not to  
copy  
or distribute any of the pages that follow. Please notify the sender  
immediately  
by telephone or email if you have received this communication in error  
and destroy  
the contents that do not pertain to your business with The GEL Group,  
INC.

Figure 1. Sample Check-in List

Date/Time Received: 9:45 10/6/06

SDG#: MSR#06-1334, MSR#06-1335

Work Order Number: 173429, 173432, 173434, 173435

Shipping Container ID: 2900 84952965 Chain of Custody #: 2006 00603 / 2006-00591  
2006 00591

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 19.0
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: C. Gause Date: 10/6/06

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

Figure 1. Sample Check-in List

Date/Time Received: 10/9/06 8:30

SDG#: MSR# 06-1334  
MSR# 06-1335 Chg 10/10/06

Work Order Number: 173429

Shipping Container ID: 798513947689 Chain of Custody #: 2006-00560

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 21°
5. Vermiculite/packing materials is: Wet ☐ Dry ☐ NA
6. Number of samples in shipping container: 11
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: Jessie P. L. L. Date: 10/9/06

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

# **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 173429**

**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:** 576803  
**Prep Batch Number:** 576541

<b>Sample ID</b>	<b>Client ID</b>
173429001	9520-0003-021F
173429002	9520-0003-022F
173429003	9520-0003-023F
173429004	9520-0003-024F
173429005	9520-0003-025F
173429006	9520-0003-026F
173429007	9520-0003-027F
173429008	9520-0003-028F
173429009	9520-0003-029F
173429010	9520-0003-030F
173429011	9520-0003-031F
173429012	9520-0003-035F
173429013	9520-0003-036F
173429014	9520-0003-037F
173429015	9520-0003-038F
1201201884	Method Blank (MB)
1201201885	173429001(9520-0003-021F) Sample Duplicate (DUP)
1201201886	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# 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: 173429001 (9520-0003-021F).

**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 1201201885 (9520-0003-021F) and 173429001 (9520-0003-021F) were recounted due to high relative percent difference/relative error ratio.

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high counting uncertainty.	Bismuth-212	173429009
UI	Data rejected due to high peak-width.		173429015
UI	Data rejected due to interference.	Europium-155	173429010
			173429011
UI	Data rejected due to low abundance.	Bismuth-214	173429009
		Cesium-134	173429001
			173429002
			173429007
			173429011
			173429013

#### **Certification Statement**

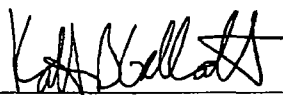
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

#### **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: \_\_\_\_\_

 10/12/06

# 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#06-1334 GEL Work Order: 173429**

**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: October 12, 2006

Client Sample ID: 9520-0003-021F  
Sample ID: 173429001  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 9.25%

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		0.669	+/-0.167	0.0571	+/-0.167	0.126	pCi/g		MJH1	10/12/06	1015	576803	1
Americium-241	U	0.0158	+/-0.0993	0.0804	+/-0.0993	0.167	pCi/g						
Bismuth-212		0.636	+/-0.338	0.132	+/-0.338	0.287	pCi/g						
Bismuth-214		0.524	+/-0.103	0.0304	+/-0.103	0.0657	pCi/g						
Cesium-134	UI	0.00	+/-0.0401	0.0269	+/-0.0401	0.0572	pCi/g						
Cesium-137		0.0868	+/-0.0408	0.0203	+/-0.0408	0.0434	pCi/g						
Cobalt-60	U	0.0098	+/-0.0245	0.0221	+/-0.0245	0.0486	pCi/g						
Europium-152	U	0.016	+/-0.0604	0.0526	+/-0.0604	0.111	pCi/g						
Europium-154	U	0.0853	+/-0.0845	0.0639	+/-0.0845	0.140	pCi/g						
Europium-155	U	0.0625	+/-0.0553	0.0539	+/-0.0553	0.112	pCi/g						
Lead-212		0.665	+/-0.0653	0.0283	+/-0.0653	0.059	pCi/g						
Lead-214		0.609	+/-0.0981	0.0361	+/-0.0981	0.0762	pCi/g						
Manganese-54	U	0.0081	+/-0.0243	0.0213	+/-0.0243	0.0456	pCi/g						
Niobium-94	U	0.00664	+/-0.021	0.0186	+/-0.021	0.0397	pCi/g						
Potassium-40		11.2	+/-0.949	0.161	+/-0.949	0.367	pCi/g						
Radium-226		0.524	+/-0.103	0.0304	+/-0.103	0.0657	pCi/g						
Silver-108m	U	0.0278	+/-0.0208	0.0192	+/-0.0208	0.0406	pCi/g						
Thallium-208		0.204	+/-0.053	0.0176	+/-0.053	0.0378	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-021F  
Sample ID: 173429001

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: October 12, 2006

Client Sample ID: 9520-0003-022F  
Sample ID: 173429002  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 13.3%

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		0.686	+/-0.175	0.0602	+/-0.175	0.131	pCi/g		MJH1	10/10/06	1409	576803	1
Americium-241	U	0.0752	+/-0.139	0.0852	+/-0.139	0.176	pCi/g						
Bismuth-212	U	0.275	+/-0.317	0.150	+/-0.317	0.322	pCi/g						
Bismuth-214		0.540	+/-0.0998	0.0334	+/-0.0998	0.0713	pCi/g						
Cesium-134	UI	0.00	+/-0.0316	0.024	+/-0.0316	0.051	pCi/g						
Cesium-137		0.0752	+/-0.0338	0.020	+/-0.0338	0.0426	pCi/g						
Cobalt-60	U	-0.00209	+/-0.0246	0.020	+/-0.0246	0.0442	pCi/g						
Europium-152	U	-0.0237	+/-0.0607	0.050	+/-0.0607	0.105	pCi/g						
Europium-154	U	0.0393	+/-0.0827	0.0635	+/-0.0827	0.138	pCi/g						
Europium-155	U	-0.0528	+/-0.0639	0.0552	+/-0.0639	0.114	pCi/g						
Lead-212		0.752	+/-0.0629	0.0302	+/-0.0629	0.0627	pCi/g						
Lead-214		0.549	+/-0.0959	0.0408	+/-0.0959	0.0853	pCi/g						
Manganese-54	U	0.0209	+/-0.0216	0.020	+/-0.0216	0.0427	pCi/g						
Niobium-94	U	-0.00183	+/-0.022	0.0187	+/-0.022	0.0398	pCi/g						
Potassium-40		11.6	+/-0.943	0.149	+/-0.943	0.340	pCi/g						
Radium-226		0.540	+/-0.0998	0.0334	+/-0.0998	0.0713	pCi/g						
Silver-108m	U	-0.00164	+/-0.0207	0.0172	+/-0.0207	0.0363	pCi/g						
Thallium-208		0.233	+/-0.0423	0.0188	+/-0.0423	0.040	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-022F  
Sample ID: 173429002

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: October 12, 2006

Client Sample ID: 9520-0003-023F  
Sample ID: 173429003  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 4.43%

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		0.950	+/-0.235	0.093	+/-0.235	0.198	pCi/g						
Americium-241	U	-0.0193	+/-0.0372	0.0318	+/-0.0372	0.0656	pCi/g						
Bismuth-212		0.533	+/-0.331	0.200	+/-0.331	0.424	pCi/g						
Bismuth-214		0.618	+/-0.119	0.0476	+/-0.119	0.100	pCi/g						
Cesium-134	U	0.0678	+/-0.0427	0.0329	+/-0.0427	0.0692	pCi/g						
Cesium-137		0.194	+/-0.0686	0.0241	+/-0.0686	0.0511	pCi/g						
Cobalt-60	U	0.0118	+/-0.0335	0.0289	+/-0.0335	0.0623	pCi/g						
Europium-152	U	-0.00811	+/-0.0711	0.0595	+/-0.0711	0.124	pCi/g						
Europium-154	U	-0.00214	+/-0.0919	0.0769	+/-0.0919	0.166	pCi/g						
Europium-155	U	0.0958	+/-0.0892	0.0503	+/-0.0892	0.104	pCi/g						
Lead-212		0.784	+/-0.0871	0.0466	+/-0.0871	0.0955	pCi/g						
Lead-214		0.753	+/-0.110	0.0396	+/-0.110	0.0832	pCi/g						
Manganese-54	U	0.00839	+/-0.048	0.0257	+/-0.048	0.0545	pCi/g						
Niobium-94	U	0.012	+/-0.0263	0.023	+/-0.0263	0.0486	pCi/g						
Potassium-40		13.1	+/-1.03	0.168	+/-1.03	0.381	pCi/g						
Radium-226		0.618	+/-0.119	0.0476	+/-0.119	0.100	pCi/g						
Silver-108m	U	0.000128	+/-0.0231	0.0205	+/-0.0231	0.0431	pCi/g						
Thallium-208		0.312	+/-0.0526	0.0228	+/-0.0526	0.0482	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-023F  
Sample ID: 173429003

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: October 12, 2006

Client Sample ID: 9520-0003-024F  
Sample ID: 173429004  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 10.5%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.749	+/-0.186	0.0629	+/-0.186	0.135	pCi/g						
Americium-241	U	-0.002	+/-0.0554	0.0477	+/-0.0554	0.0991	pCi/g						
Bismuth-212		0.413	+/-0.237	0.109	+/-0.237	0.236	pCi/g						
Bismuth-214		0.422	+/-0.0859	0.0362	+/-0.0859	0.0763	pCi/g						
Cesium-134	U	0.0255	+/-0.0217	0.0202	+/-0.0217	0.0431	pCi/g						
Cesium-137		0.0393	+/-0.0359	0.0169	+/-0.0359	0.0361	pCi/g						
Cobalt-60	U	0.00672	+/-0.0174	0.0157	+/-0.0174	0.0349	pCi/g						
Europium-152	U	-0.0479	+/-0.0541	0.0375	+/-0.0541	0.0794	pCi/g						
Europium-154	U	-0.0375	+/-0.0602	0.0479	+/-0.0602	0.106	pCi/g						
Europium-155	U	0.0474	+/-0.0486	0.0427	+/-0.0486	0.0886	pCi/g						
Lead-212		0.655	+/-0.0743	0.0205	+/-0.0743	0.0431	pCi/g						
Lead-214		0.502	+/-0.0823	0.0286	+/-0.0823	0.0605	pCi/g						
Manganese-54	U	-0.00789	+/-0.0172	0.0138	+/-0.0172	0.0301	pCi/g						
Niobium-94	U	-0.00708	+/-0.0176	0.0146	+/-0.0176	0.0314	pCi/g						
Potassium-40		12.2	+/-1.16	0.155	+/-1.16	0.346	pCi/g						
Radium-226		0.422	+/-0.0859	0.0362	+/-0.0859	0.0763	pCi/g						
Silver-108m	U	0.00837	+/-0.015	0.0131	+/-0.015	0.028	pCi/g						
Thallium-208		0.185	+/-0.0363	0.0168	+/-0.0363	0.0357	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-024F

Sample ID: 173429004

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.

# 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 12, 2006

Client Sample ID: 9520-0003-025F  
Sample ID: 173429005  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 8.44%

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		0.706	+/-0.223	0.0754	+/-0.223	0.166	pCi/g		MJH1	10/10/06	1410	576803	1
Americium-241	U	0.0159	+/-0.0368	0.0341	+/-0.0368	0.0703	pCi/g						
Bismuth-212		0.523	+/-0.287	0.193	+/-0.287	0.413	pCi/g						
Bismuth-214		0.606	+/-0.114	0.041	+/-0.114	0.0882	pCi/g						
Cesium-134	U	0.0408	+/-0.0408	0.0331	+/-0.0408	0.0704	pCi/g						
Cesium-137		0.0568	+/-0.0427	0.0248	+/-0.0427	0.0531	pCi/g						
Cobalt-60	U	-0.0014	+/-0.0307	0.0256	+/-0.0307	0.0569	pCi/g						
Europium-152	U	0.0749	+/-0.066	0.0622	+/-0.066	0.131	pCi/g						
Europium-154	U	0.0757	+/-0.0972	0.0888	+/-0.0972	0.193	pCi/g						
Europium-155	U	0.0796	+/-0.0578	0.0542	+/-0.0578	0.112	pCi/g						
Lead-212		0.750	+/-0.0696	0.0321	+/-0.0696	0.0669	pCi/g						
Lead-214		0.539	+/-0.102	0.0398	+/-0.102	0.0841	pCi/g						
Manganese-54	U	0.00981	+/-0.0321	0.0273	+/-0.0321	0.0585	pCi/g						
Niobium-94	U	-0.0335	+/-0.0284	0.0213	+/-0.0284	0.0458	pCi/g						
Potassium-40		13.3	+/-1.12	0.206	+/-1.12	0.469	pCi/g						
Radium-226		0.606	+/-0.114	0.041	+/-0.114	0.0882	pCi/g						
Silver-108m	U	0.00702	+/-0.0236	0.021	+/-0.0236	0.0445	pCi/g						
Thallium-208		0.288	+/-0.0638	0.0219	+/-0.0638	0.047	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-025F  
Sample ID: 173429005

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: October 12, 2006

Client Sample ID: 9520-0003-026F  
Sample ID: 173429006  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 10.9%

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		0.764	+/-0.135	0.0458	+/-0.135	0.0985	pCi/g						
Americium-241	U	-0.0873	+/-0.105	0.0843	+/-0.105	0.175	pCi/g						
Bismuth-212		0.633	+/-0.243	0.108	+/-0.243	0.230	pCi/g						
Bismuth-214		0.507	+/-0.0821	0.0292	+/-0.0821	0.0615	pCi/g						
Cesium-134	U	0.033	+/-0.0219	0.0188	+/-0.0219	0.0396	pCi/g						
Cesium-137		0.0654	+/-0.0289	0.014	+/-0.0289	0.0298	pCi/g						
Cobalt-60	U	-0.008	+/-0.0178	0.0145	+/-0.0178	0.0317	pCi/g						
Europium-152	U	-0.0195	+/-0.0439	0.0377	+/-0.0439	0.079	pCi/g						
Europium-154	U	-0.01	+/-0.0605	0.0438	+/-0.0605	0.0947	pCi/g						
Europium-155	U	0.0341	+/-0.0556	0.051	+/-0.0556	0.106	pCi/g						
Lead-212		0.735	+/-0.0563	0.0256	+/-0.0563	0.053	pCi/g						
Lead-214		0.523	+/-0.063	0.0266	+/-0.063	0.0557	pCi/g						
Manganese-54	U	0.0185	+/-0.0178	0.0163	+/-0.0178	0.0344	pCi/g						
Niobium-94	U	0.00577	+/-0.0165	0.0147	+/-0.0165	0.031	pCi/g						
Potassium-40		13.5	+/-0.789	0.128	+/-0.789	0.282	pCi/g						
Radium-226		0.507	+/-0.0821	0.0292	+/-0.0821	0.0615	pCi/g						
Silver-108m	U	-0.0156	+/-0.0155	0.0125	+/-0.0155	0.0264	pCi/g						
Thallium-208		0.247	+/-0.0363	0.0147	+/-0.0363	0.031	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-026F  
Sample ID: 173429006

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: October 12, 2006

Client Sample ID: 9520-0003-027F  
Sample ID: 173429007  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-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		0.732	+/-0.132	0.0418	+/-0.132	0.0905	pCi/g						
Americium-241	U	-0.00442	+/-0.0642	0.0571	+/-0.0642	0.118	pCi/g						
Bismuth-212		0.476	+/-0.237	0.111	+/-0.237	0.235	pCi/g						
Bismuth-214		0.502	+/-0.0823	0.028	+/-0.0823	0.0589	pCi/g						
Cesium-134	UI	0.00	+/-0.026	0.0185	+/-0.026	0.039	pCi/g						
Cesium-137		0.0772	+/-0.0253	0.0152	+/-0.0253	0.0321	pCi/g						
Cobalt-60	U	0.00256	+/-0.0168	0.014	+/-0.0168	0.0306	pCi/g						
Europium-152	U	-0.0364	+/-0.0448	0.0372	+/-0.0448	0.0779	pCi/g						
Europium-154	U	0.035	+/-0.0576	0.0501	+/-0.0576	0.107	pCi/g						
Europium-155	U	0.00602	+/-0.0573	0.0499	+/-0.0573	0.103	pCi/g						
Lead-212		0.748	+/-0.0555	0.0227	+/-0.0555	0.047	pCi/g						
Lead-214		0.595	+/-0.0701	0.0273	+/-0.0701	0.0571	pCi/g						
Manganese-54	U	-0.0121	+/-0.0183	0.015	+/-0.0183	0.0317	pCi/g						
Niobium-94	U	0.00366	+/-0.0163	0.0144	+/-0.0163	0.0303	pCi/g						
Potassium-40		13.5	+/-0.799	0.103	+/-0.799	0.231	pCi/g						
Radium-226		0.502	+/-0.0823	0.028	+/-0.0823	0.0589	pCi/g						
Silver-108m	U	0.000168	+/-0.0154	0.0131	+/-0.0154	0.0276	pCi/g						
Thallium-208		0.252	+/-0.0377	0.0139	+/-0.0377	0.0293	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-027F  
Sample ID: 173429007

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: October 12, 2006

Client Sample ID: 9520-0003-028F  
Sample ID: 173429008  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 6.72%

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		0.864	+/-0.178	0.0627	+/-0.178	0.125	pCi/g						
Americium-241	U	-0.0233	+/-0.0765	0.0585	+/-0.0765	0.117	pCi/g						
Bismuth-212		0.445	+/-0.333	0.148	+/-0.333	0.295	pCi/g						
Bismuth-214		0.436	+/-0.0953	0.033	+/-0.0953	0.066	pCi/g						
Cesium-134	U	0.0341	+/-0.0377	0.0239	+/-0.0377	0.0477	pCi/g						
Cesium-137		0.0596	+/-0.0297	0.0151	+/-0.0297	0.0302	pCi/g						
Cobalt-60	U	0.00503	+/-0.0226	0.0193	+/-0.0226	0.0385	pCi/g						
Europium-152	U	-0.0127	+/-0.0635	0.0492	+/-0.0635	0.0984	pCi/g						
Europium-154	U	-0.0266	+/-0.0666	0.0529	+/-0.0666	0.106	pCi/g						
Europium-155	U	0.0468	+/-0.0594	0.053	+/-0.0594	0.106	pCi/g						
Lead-212		0.703	+/-0.0826	0.0281	+/-0.0826	0.0562	pCi/g						
Lead-214		0.584	+/-0.0986	0.0308	+/-0.0986	0.0616	pCi/g						
Manganese-54	U	0.0109	+/-0.0212	0.0189	+/-0.0212	0.0379	pCi/g						
Niobium-94	U	-0.00114	+/-0.0202	0.0175	+/-0.0202	0.035	pCi/g						
Potassium-40		12.4	+/-1.14	0.129	+/-1.14	0.258	pCi/g						
Radium-226		0.436	+/-0.0953	0.033	+/-0.0953	0.066	pCi/g						
Silver-108m	U	0.00362	+/-0.0194	0.0168	+/-0.0194	0.0336	pCi/g						
Thallium-208		0.205	+/-0.0495	0.0179	+/-0.0495	0.0357	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-028F  
Sample ID: 173429008

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: October 12, 2006

Client Sample ID: 9520-0003-029F  
Sample ID: 173429009  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 12%

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		0.689	+/-0.205	0.0745	+/-0.205	0.149	pCi/g		MJH1	10/10/06	1426	576803	1
Americium-241	U	0.00775	+/-0.0963	0.0742	+/-0.0963	0.148	pCi/g						
Bismuth-212	UI	0.00	+/-0.395	0.157	+/-0.395	0.313	pCi/g						
Bismuth-214	UI	0.00	+/-0.110	0.0803	+/-0.110	0.161	pCi/g						
Cesium-134	U	0.0388	+/-0.0318	0.0286	+/-0.0318	0.0571	pCi/g						
Cesium-137		0.0804	+/-0.0483	0.0184	+/-0.0483	0.0367	pCi/g						
Cobalt-60	U	0.0103	+/-0.0264	0.023	+/-0.0264	0.046	pCi/g						
Europium-152	U	0.0389	+/-0.101	0.0542	+/-0.101	0.108	pCi/g						
Europium-154	U	0.0532	+/-0.0833	0.0661	+/-0.0833	0.132	pCi/g						
Europium-155	U	0.0361	+/-0.0685	0.060	+/-0.0685	0.120	pCi/g						
Lead-212		0.701	+/-0.0886	0.0299	+/-0.0886	0.0597	pCi/g						
Lead-214		0.633	+/-0.110	0.0373	+/-0.110	0.0745	pCi/g						
Manganese-54	U	0.00795	+/-0.026	0.020	+/-0.026	0.040	pCi/g						
Niobium-94	U	-0.0143	+/-0.0431	0.0189	+/-0.0431	0.0377	pCi/g						
Potassium-40		11.8	+/-1.12	0.140	+/-1.12	0.280	pCi/g						
Radium-226		0.457	+/-0.110	0.0383	+/-0.110	0.0766	pCi/g						
Silver-108m	U	-0.00296	+/-0.021	0.0177	+/-0.021	0.0354	pCi/g						
Thallium-208		0.261	+/-0.0556	0.0204	+/-0.0556	0.0408	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-029F  
Sample ID: 173429009

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.

# 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 12, 2006

Client Sample ID: 9520-0003-030F  
Sample ID: 173429010  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 8.37%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.906	+/-0.239	0.0933	+/-0.239	0.187	pCi/g		MJH1	10/10/06	1427	576803	1
Americium-241	U	0.067	+/-0.0425	0.0346	+/-0.0425	0.0692	pCi/g						
Bismuth-212	U	0.386	+/-0.254	0.242	+/-0.254	0.484	pCi/g						
Bismuth-214		0.586	+/-0.127	0.0531	+/-0.127	0.106	pCi/g						
Cesium-134	U	-0.0184	+/-0.0378	0.0309	+/-0.0378	0.0618	pCi/g						
Cesium-137	U	0.0458	+/-0.0342	0.0322	+/-0.0342	0.0644	pCi/g						
Cobalt-60	U	0.00348	+/-0.0376	0.0271	+/-0.0376	0.0543	pCi/g						
Europium-152	U	-0.00247	+/-0.105	0.0609	+/-0.105	0.122	pCi/g						
Europium-154	U	0.0564	+/-0.112	0.0986	+/-0.112	0.197	pCi/g						
Europium-155	UI	0.00	+/-0.0802	0.0538	+/-0.0802	0.108	pCi/g						
Lead-212		0.667	+/-0.0919	0.0321	+/-0.0919	0.0642	pCi/g						
Lead-214		0.667	+/-0.119	0.0439	+/-0.119	0.0878	pCi/g						
Manganese-54	U	0.00647	+/-0.0324	0.0282	+/-0.0324	0.0563	pCi/g						
Niobium-94	U	0.00262	+/-0.0295	0.0256	+/-0.0295	0.0512	pCi/g						
Potassium-40		11.5	+/-1.35	0.248	+/-1.35	0.495	pCi/g						
Radium-226		0.586	+/-0.127	0.0531	+/-0.127	0.106	pCi/g						
Silver-108m	U	0.00473	+/-0.0235	0.0202	+/-0.0235	0.0404	pCi/g						
Thallium-208		0.271	+/-0.0574	0.0264	+/-0.0574	0.0528	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-030F

Sample ID: 173429010

Project: YANK01204

Client ID: YANK001

Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
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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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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 12, 2006

Client Sample ID: 9520-0003-031F  
Sample ID: 173429011  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 09-OCT-06  
Collector: Client  
Moisture: 10.4%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.771	+/-0.161	0.0437	+/-0.161	0.0922	pCi/g						
Americium-241	U	-0.00729	+/-0.0882	0.0759	+/-0.0882	0.155	pCi/g						
Bismuth-212		0.434	+/-0.195	0.103	+/-0.195	0.216	pCi/g						
Bismuth-214		0.477	+/-0.078	0.0239	+/-0.078	0.0499	pCi/g						
Cesium-134	UI	0.00	+/-0.0263	0.0166	+/-0.0263	0.0347	pCi/g						
Cesium-137		0.0461	+/-0.0276	0.0137	+/-0.0276	0.0286	pCi/g						
Cobalt-60	U	-0.00186	+/-0.0157	0.0133	+/-0.0157	0.0285	pCi/g						
Europium-152	U	-0.0437	+/-0.0398	0.0322	+/-0.0398	0.0666	pCi/g						
Europium-154	U	-0.00674	+/-0.0498	0.0422	+/-0.0498	0.0895	pCi/g						
Europium-155	UI	0.00	+/-0.0609	0.0356	+/-0.0609	0.0729	pCi/g						
Lead-212		0.764	+/-0.0761	0.0191	+/-0.0761	0.0393	pCi/g						
Lead-214		0.539	+/-0.0777	0.0241	+/-0.0777	0.0498	pCi/g						
Manganese-54	U	0.00846	+/-0.0159	0.0138	+/-0.0159	0.0289	pCi/g						
Niobium-94	U	0.00588	+/-0.0143	0.0125	+/-0.0143	0.026	pCi/g						
Potassium-40		12.4	+/-1.06	0.110	+/-1.06	0.239	pCi/g						
Radium-226		0.477	+/-0.078	0.0239	+/-0.078	0.0499	pCi/g						
Silver-108m	U	-0.000156	+/-0.0134	0.0112	+/-0.0134	0.0232	pCi/g						
Thallium-208		0.217	+/-0.0382	0.0122	+/-0.0382	0.0254	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	TMB1	10/09/06	1211	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-031F  
Sample ID: 173429011

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

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

# 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 12, 2006

Client Sample ID: 9520-0003-035F  
Sample ID: 173429012  
Matrix: TS  
Collect Date: 29-SEP-06  
Receive Date: 06-OCT-06  
Collector: Client  
Moisture: 6.38%

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													
<i>Gamma, Solid-FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.671	+/-0.197	0.0615	+/-0.197	0.133	pCi/g						
Americium-241	U	-0.129	+/-0.0787	0.0646	+/-0.0787	0.133	pCi/g						
Bismuth-212		0.320	+/-0.383	0.148	+/-0.383	0.317	pCi/g						
Bismuth-214		0.512	+/-0.0883	0.0341	+/-0.0883	0.0725	pCi/g						
Cesium-134	U	0.033	+/-0.0329	0.0237	+/-0.0329	0.0503	pCi/g						
Cesium-137		0.0519	+/-0.034	0.0178	+/-0.034	0.0382	pCi/g						
Cobalt-60	U	0.0269	+/-0.0229	0.0219	+/-0.0229	0.0478	pCi/g						
Europium-152	U	-0.0438	+/-0.0676	0.0483	+/-0.0676	0.102	pCi/g						
Europium-154	U	-0.0156	+/-0.0718	0.0594	+/-0.0718	0.130	pCi/g						
Europium-155	U	-0.0284	+/-0.0608	0.0515	+/-0.0608	0.106	pCi/g						
Lead-212		0.677	+/-0.0782	0.0279	+/-0.0782	0.0581	pCi/g						
Lead-214		0.584	+/-0.108	0.0347	+/-0.108	0.0729	pCi/g						
Manganese-54	U	0.0157	+/-0.0269	0.0206	+/-0.0269	0.0439	pCi/g						
Niobium-94	U	-0.00582	+/-0.0216	0.0177	+/-0.0216	0.0377	pCi/g						
Potassium-40		11.8	+/-1.18	0.179	+/-1.18	0.397	pCi/g						
Radium-226		0.512	+/-0.0883	0.0341	+/-0.0883	0.0725	pCi/g						
Silver-108m	U	-0.00466	+/-0.020	0.0169	+/-0.020	0.0357	pCi/g						
Thallium-208		0.212	+/-0.0467	0.0175	+/-0.0467	0.0373	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	10/08/06	1251	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-035F  
Sample ID: 173429012

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: October 12, 2006

Client Sample ID: 9520-0003-036F  
Sample ID: 173429013  
Matrix: TS  
Collect Date: 29-SEP-06  
Receive Date: 06-OCT-06  
Collector: Client  
Moisture: 8.02%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
<b>Rad Gamma Spec Analysis</b>													
<i>Gamma, Solid - FSS GAM &amp; ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.678	+/-0.205	0.0563	+/-0.205	0.125	pCi/g		MJH1	10/10/06	1740	576803	1
Americium-241	U	0.00563	+/-0.124	0.0806	+/-0.124	0.167	pCi/g						
Bismuth-212		0.762	+/-0.314	0.133	+/-0.314	0.291	pCi/g						
Bismuth-214		0.621	+/-0.0932	0.0298	+/-0.0932	0.0648	pCi/g						
Cesium-134	UI	0.00	+/-0.0281	0.0285	+/-0.0281	0.0606	pCi/g						
Cesium-137	U	0.0499	+/-0.035	0.0237	+/-0.035	0.0505	pCi/g						
Cobalt-60	U	0.0225	+/-0.0241	0.0214	+/-0.0241	0.0477	pCi/g						
Europium-152	U	-0.0084	+/-0.0585	0.0478	+/-0.0585	0.101	pCi/g						
Europium-154	U	0.0111	+/-0.0645	0.0564	+/-0.0645	0.126	pCi/g						
Europium-155	U	0.0121	+/-0.059	0.0525	+/-0.059	0.109	pCi/g						
Lead-212		0.741	+/-0.0681	0.0311	+/-0.0681	0.0649	pCi/g						
Lead-214		0.697	+/-0.0948	0.0341	+/-0.0948	0.0724	pCi/g						
Manganese-54	U	0.0234	+/-0.0302	0.0173	+/-0.0302	0.0379	pCi/g						
Niobium-94	U	0.000568	+/-0.0208	0.0177	+/-0.0208	0.0381	pCi/g						
Potassium-40		12.8	+/-1.04	0.147	+/-1.04	0.345	pCi/g						
Radium-226		0.621	+/-0.0932	0.0298	+/-0.0932	0.0648	pCi/g						
Silver-108m	U	-0.00405	+/-0.019	0.0164	+/-0.019	0.035	pCi/g						
Thallium-208		0.243	+/-0.0539	0.0184	+/-0.0539	0.0395	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	10/08/06	1251	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-036F  
Sample ID: 173429013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtc
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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: October 12, 2006

Client Sample ID: 9520-0003-037F  
Sample ID: 173429014  
Matrix: TS  
Collect Date: 29-SEP-06  
Receive Date: 06-OCT-06  
Collector: Client  
Moisture: 10.1%

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		0.872	+/-0.210	0.0673	+/-0.210	0.148	pCi/g						
Americium-241	U	-0.08	+/-0.125	0.0919	+/-0.125	0.192	pCi/g						
Bismuth-212		0.496	+/-0.327	0.153	+/-0.327	0.331	pCi/g						
Bismuth-214		0.646	+/-0.101	0.0311	+/-0.101	0.0675	pCi/g						
Cesium-134	U	0.0427	+/-0.0431	0.0269	+/-0.0431	0.0575	pCi/g						
Cesium-137		0.125	+/-0.0497	0.021	+/-0.0497	0.0451	pCi/g						
Cobalt-60	U	0.0369	+/-0.0315	0.0227	+/-0.0315	0.0504	pCi/g						
Europium-152	U	-0.0142	+/-0.063	0.0512	+/-0.063	0.108	pCi/g						
Europium-154	U	0.048	+/-0.079	0.0711	+/-0.079	0.156	pCi/g						
Europium-155	U	0.0285	+/-0.062	0.0566	+/-0.062	0.118	pCi/g						
Lead-212		0.726	+/-0.0686	0.0278	+/-0.0686	0.0583	pCi/g						
Lead-214		0.621	+/-0.0991	0.0371	+/-0.0991	0.0785	pCi/g						
Manganese-54	U	-0.00503	+/-0.0232	0.0187	+/-0.0232	0.0407	pCi/g						
Niobium-94	U	-0.000164	+/-0.0222	0.0186	+/-0.0222	0.0401	pCi/g						
Potassium-40		11.4	+/-0.986	0.205	+/-0.986	0.461	pCi/g						
Radium-226		0.646	+/-0.101	0.0311	+/-0.101	0.0675	pCi/g						
Silver-108m	U	0.000684	+/-0.0194	0.017	+/-0.0194	0.0363	pCi/g						
Thallium-208		0.191	+/-0.0524	0.0183	+/-0.0524	0.0394	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	10/08/06	1251	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-037F  
Sample ID: 173429014

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: October 12, 2006

Client Sample ID: 9520-0003-038F  
Sample ID: 173429015  
Matrix: TS  
Collect Date: 29-SEP-06  
Receive Date: 06-OCT-06  
Collector: Client  
Moisture: 7.52%

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		0.734	+/-0.155	0.070	+/-0.155	0.152	pCi/g		MJH1	10/10/06	1741	576803	1
Americium-241	U	-0.119	+/-0.108	0.0809	+/-0.108	0.167	pCi/g						
Bismuth-212	UI	0.00	+/-0.577	0.137	+/-0.577	0.296	pCi/g						
Bismuth-214		0.565	+/-0.105	0.0391	+/-0.105	0.0831	pCi/g						
Cesium-134	U	0.0465	+/-0.0297	0.0258	+/-0.0297	0.0549	pCi/g						
Cesium-137		0.124	+/-0.0474	0.0226	+/-0.0474	0.0479	pCi/g						
Cobalt-60	U	0.00888	+/-0.0243	0.0213	+/-0.0243	0.0472	pCi/g						
Europium-152	U	0.0475	+/-0.067	0.0533	+/-0.067	0.112	pCi/g						
Europium-154	U	-0.0332	+/-0.0783	0.0629	+/-0.0783	0.138	pCi/g						
Europium-155	U	0.0289	+/-0.0645	0.0565	+/-0.0645	0.117	pCi/g						
Lead-212		0.716	+/-0.0773	0.0296	+/-0.0773	0.0617	pCi/g						
Lead-214		0.538	+/-0.0987	0.0366	+/-0.0987	0.0772	pCi/g						
Manganese-54	U	-0.0138	+/-0.0249	0.0198	+/-0.0249	0.0427	pCi/g						
Niobium-94	U	-0.00995	+/-0.0225	0.0185	+/-0.0225	0.0394	pCi/g						
Potassium-40		10.1	+/-0.944	0.155	+/-0.944	0.356	pCi/g						
Radium-226		0.565	+/-0.105	0.0391	+/-0.105	0.0831	pCi/g						
Silver-108m	U	0.00639	+/-0.0219	0.0187	+/-0.0219	0.0395	pCi/g						
Thallium-208		0.198	+/-0.0509	0.0174	+/-0.0509	0.0374	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	10/08/06	1251	576541

### 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: October 12, 2006

Client Sample ID: 9520-0003-038F  
Sample ID: 173429015

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: October 12, 2006

Page 1 of 5

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 173429

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 576803											
QC1201201885 173429001 DUP											
Actinium-228		0.669		0.684	pCi/g	2		(0% - 100%)	MJH1	10/12/06	10:16
		Uncert: +/-0.167		+/-0.171							
		TPU: +/-0.167		+/-0.171							
Americium-241	U	0.0158	U	-0.0698	pCi/g	317		(0% - 100%)			
		Uncert: +/-0.0993		+/-0.0944							
		TPU: +/-0.0993		+/-0.0944							
Bismuth-212		0.636		0.398	pCi/g	46		(0% - 100%)			
		Uncert: +/-0.338		+/-0.249							
		TPU: +/-0.338		+/-0.249							
Bismuth-214		0.524		0.557	pCi/g	6		(0% - 100%)			
		Uncert: +/-0.103		+/-0.109							
		TPU: +/-0.103		+/-0.109							
Cesium-134	U	0.00	U	0.0301	pCi/g	70		(0% - 100%)			
		Uncert: +/-0.0401		+/-0.0326							
		TPU: +/-0.0401		+/-0.0326							
Cesium-137		0.0868		0.0709	pCi/g	20		(0% - 100%)			
		Uncert: +/-0.0408		+/-0.0374							
		TPU: +/-0.0408		+/-0.0374							
Cobalt-60	U	0.0098	U	-0.01	pCi/g	17900		(0% - 100%)			
		Uncert: +/-0.0245		+/-0.0223							
		TPU: +/-0.0245		+/-0.0223							
Europium-152	U	0.016	U	0.029	pCi/g	58		(0% - 100%)			
		Uncert: +/-0.0604		+/-0.0523							
		TPU: +/-0.0604		+/-0.0523							
Europium-154	U	0.0853	U	0.0471	pCi/g	58		(0% - 100%)			
		Uncert: +/-0.0845		+/-0.0679							
		TPU: +/-0.0845		+/-0.0679							
Europium-155	U	0.0625	U	0.0477	pCi/g	27		(0% - 100%)			
		Uncert: +/-0.0553		+/-0.055							
		TPU: +/-0.0553		+/-0.055							
Lead-212		0.665		0.731	pCi/g	9		(0% - 20%)			
		Uncert: +/-0.0653		+/-0.0652							
		TPU: +/-0.0653		+/-0.0652							
Lead-214		0.609		0.693	pCi/g	13		(0% - 20%)			
		Uncert: +/-0.0981		+/-0.099							
		TPU: +/-0.0981		+/-0.099							
Manganese-54	U	0.0081	U	0.000224	pCi/g	189		(0% - 100%)			
		Uncert: +/-0.0243		+/-0.0218							
		TPU: +/-0.0243		+/-0.0218							
Niobium-94	U	0.00664	U	-0.00917	pCi/g	1250		(0% - 100%)			
		Uncert: +/-0.021		+/-0.0191							
		TPU: +/-0.021		+/-0.0191							

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**QC Summary**

Workorder: 173429

Page 2 of 5

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 576803											
Potassium-40		11.2		10.9	pCi/g	3		(0% - 20%)			
	Uncert:	+/-0.949		+/-0.876							
	TPU:	+/-0.949		+/-0.876							
Radium-226		0.524		0.557	pCi/g	6		(0% - 100%)			
	Uncert:	+/-0.103		+/-0.109							
	TPU:	+/-0.103		+/-0.109							
Silver-108m	U	0.0278	U	-0.0087	pCi/g	382		(0% - 100%)			
	Uncert:	+/-0.0208		+/-0.0167							
	TPU:	+/-0.0208		+/-0.0167							
Thallium-208		0.204		0.236	pCi/g	14		(0% - 100%)			
	Uncert:	+/-0.053		+/-0.0418							
	TPU:	+/-0.053		+/-0.0418							
QC1201201886	LCS										
Actinium-228			U	0.0901	pCi/g					10/10/06	16:25
	Uncert:			+/-0.586							
	TPU:			+/-0.586							
Americium-241	23.4			23.8	pCi/g		102	(75%-125%)			
	Uncert:			+/-0.543							
	TPU:			+/-0.543							
Bismuth-212			U	0.891	pCi/g						
	Uncert:			+/-1.14							
	TPU:			+/-1.14							
Bismuth-214			U	-0.087	pCi/g						
	Uncert:			+/-0.223							
	TPU:			+/-0.223							
Cesium-134			U	0.103	pCi/g						
	Uncert:			+/-0.148							
	TPU:			+/-0.148							
Cesium-137	9.55			10.6	pCi/g		111	(75%-125%)			
	Uncert:			+/-0.517							
	TPU:			+/-0.517							
Cobalt-60	14.3			14.9	pCi/g		105	(75%-125%)			
	Uncert:			+/-0.677							
	TPU:			+/-0.677							
Europium-152			U	0.0502	pCi/g						
	Uncert:			+/-0.259							
	TPU:			+/-0.259							
Europium-154			U	-0.0216	pCi/g						
	Uncert:			+/-0.295							
	TPU:			+/-0.295							
Europium-155			U	0.111	pCi/g						
	Uncert:			+/-0.244							
	TPU:			+/-0.244							
Lead-212			U	-0.0772	pCi/g						
	Uncert:			+/-0.155							
	TPU:			+/-0.155							
Lead-214			U	0.103	pCi/g						
	Uncert:			+/-0.193							



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**QC Summary**

Workorder: 173429

Page 3 of 5

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch 576803										
Manganese-54	TPU:		+/-0.193							
		U	-0.0122	pCi/g						
	Uncert:		+/-0.140							
Niobium-94	TPU:		+/-0.140							
		U	-0.0052	pCi/g						
	Uncert:		+/-0.120							
Potassium-40	TPU:		+/-0.120							
		U	0.806	pCi/g						
	Uncert:		+/-0.822							
Radium-226	TPU:		+/-0.822							
		U	-0.087	pCi/g			(75%-125%)			
	Uncert:		+/-0.223							
Silver-108m	TPU:		+/-0.223							
		U	0.0776	pCi/g						
	Uncert:		+/-0.110							
Thallium-208	TPU:		+/-0.110							
		U	0.0912	pCi/g						
	Uncert:		+/-0.117							
QC1201201884 MB Actinium-228	TPU:		+/-0.117							
		U	0.066	pCi/g					10/10/06	17:41
	Uncert:		+/-0.0443							
Americium-241	TPU:		+/-0.0443							
		U	-0.0193	pCi/g						
	Uncert:		+/-0.0707							
Bismuth-212	TPU:		+/-0.0707							
		U	-0.0381	pCi/g						
	Uncert:		+/-0.0917							
Bismuth-214	TPU:		+/-0.0917							
		U	0.029	pCi/g						
	Uncert:		+/-0.0461							
Cesium-134	TPU:		+/-0.0461							
		U	-1.530E-05	pCi/g						
	Uncert:		+/-0.0129							
Cesium-137	TPU:		+/-0.0129							
		U	-0.00234	pCi/g						
	Uncert:		+/-0.0115							
Cobalt-60	TPU:		+/-0.0115							
		U	0.00601	pCi/g						
	Uncert:		+/-0.0136							
Europium-152	TPU:		+/-0.0136							
		U	0.00342	pCi/g						
	Uncert:		+/-0.0355							
Europium-154	TPU:		+/-0.0355							
		U	0.0343	pCi/g						
	Uncert:		+/-0.040							
Europium-155	TPU:		+/-0.040							
		U	0.0333	pCi/g						

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## QC Summary

Workorder: 173429

Page 4 of 5

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	576803										
				Uncert:							
				TPU:							
Lead-212			U	+/-0.0335							
				+/-0.0335							
				0.00562	pCi/g						
				Uncert:							
				+/-0.0281							
				TPU:							
Lead-214			U	+/-0.0281							
				0.00442	pCi/g						
				Uncert:							
				+/-0.0399							
				TPU:							
Manganese-54			U	+/-0.0399							
				-0.0059	pCi/g						
				Uncert:							
				+/-0.0133							
				TPU:							
Niobium-94			U	+/-0.0133							
				-0.00189	pCi/g						
				Uncert:							
				+/-0.0107							
				TPU:							
Potassium-40			U	+/-0.0107							
				0.282	pCi/g						
				Uncert:							
				+/-0.123							
				TPU:							
Radium-226			U	+/-0.123							
				0.029	pCi/g						
				Uncert:							
				+/-0.0461							
				TPU:							
Silver-108m			U	+/-0.0461							
				-0.00109	pCi/g						
				Uncert:							
				+/-0.00954							
				TPU:							
Thallium-208			U	+/-0.00954							
				0.0137	pCi/g						
				Uncert:							
				+/-0.0159							
				TPU:							
				+/-0.0159							

### 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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## QC Summary

Workorder: 173429

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.


# **General Narrative**

## Erratum

Page 1 of 1

The following change is made to sample nomenclature to acknowledge the reassignment of sample locations from Survey Unit 9520-0003 to Survey Unit 9520-0005:

Laboratory Identification	Original Sample Description	Changed Sample Description
173432001	9520-0003-032F	9520-0005-032F
173432002	9530-0003-033F	9530-0005-033F

 11/17/06

Completed by: Jack McCarthy

**General Narrative  
for  
Connecticut Yankee Atomic Power Co.  
Work Order: 173432  
SDG: MSR#06-1334**

**October 12, 2006**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on October 06, 2006 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

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

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
173432001	9520-0003-032F
173432002	9520-0003-033F

**Items of Note**

There are no items to 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 contained in the analytical case narratives in the enclosed data package.

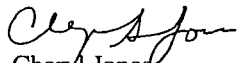
**Analytical Request**

Two soil samples were analyzed for FSSGAM.

**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 cursive script, appearing to read "Cheryl Jones".

Cheryl Jones  
Project Manager

**List of current GEL Certifications as of 12 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**

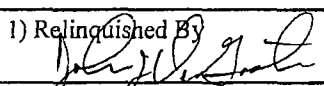
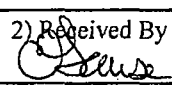
Connecticut Yankee Atomic Power Company 362 Injun Hollow Road, East Hampton, CT 06424 860-267-2556						Chain of Custody Form						No. 2006-00561			
Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested					Lab Use Only				
Contact Name & Phone: Jack McCarthy 860-267-3924						FSSGAM	FSSALL						Comments:  173432%		
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									Comment, Preservation	Lab Sample ID			
9520-0003-032F	9/26/06	1438	TS	G	BP	X									
9520-0003-033F	9/26/06	1445	TS	G	BP	X									
NOTES: PO #: 002332    MSR #: 06-1334    SSWP# NA <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA SSWP 06-06-006											Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand  <input type="checkbox"/> Other		Internal Container Temp: 19 Deg. C Custody Sealed? <input checked="" type="checkbox"/> N <input type="checkbox"/> Custody Seal Intact? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
1) Relinquished By 			Date/Time 10/5/06 142			2) Received By 			Date/Time 10/6/06 9:45			7900 8695 2965 Bill of Lading #			
3) Relinquished By			Date/Time			4) Received By			Date/Time						

Figure 1. Sample Check-in List

Date/Time Received: 9:45 10/6/06

SDG#: MSR#06-1334, MSR#06-1335

Work Order Number: 173429, 173432, 173434, 173435

Shipping Container ID: 2900 8695 2915 Chain of Custody # 2006 60603 / 2006-00527  
2006 00561  
2006 00555

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 19.0
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:	
<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels
9. Samples are:	
<input type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input checked="" type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

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

Sample Custodian/Laboratory: C. Gause Date: 10/6/06

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

# **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 173432**

**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:** 576804  
**Prep Batch Number:** 576546

<b>Sample ID</b>	<b>Client ID</b>
173432001	9520-0003-032F
173432002	9520-0003-033F
1201201887	Method Blank (MB)
1201201888	173432001(9520-0003-032F) Sample Duplicate (DUP)
1201201889	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# 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: 173432001 (9520-0003-032F).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

**Preparation Information**

All preparation criteria have been met for these analyses.

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

Sample 1201201887 (MB) was recounted due to count room error.

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

The sample and duplicate 1201201888 (9520-0003-032F) and 173432001 (9520-0003-032F) for Bi-214 and Tl-208 did not meet the relative percent difference requirement, however when the relative error ratio was calculated, precision was shown at 2.26279 for Bi-214 and 1.66238 for Tl-208.

**Qualifier information**

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to low abundance.	Cesium-134	173432001

**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: Robert W. Wilson 10/14/06

# 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#06-1334 GEL Work Order: 173432

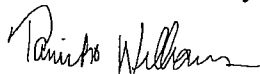
**The Qualifiers in this report are defined as follows:**

- \* 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: October 13, 2006

Client Sample ID: 9520-0003-032F  
Sample ID: 173432001  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 06-OCT-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		0.807	+/-0.151	0.0516	+/-0.151	0.111	pCi/g						
Americium-241	U	0.0208	+/-0.116	0.0885	+/-0.116	0.184	pCi/g						
Bismuth-212		0.720	+/-0.249	0.117	+/-0.249	0.248	pCi/g						
Bismuth-214		0.554	+/-0.0875	0.0297	+/-0.0875	0.0627	pCi/g						
Cesium-134	UI	0.00	+/-0.0361	0.0206	+/-0.0361	0.0434	pCi/g						
Cesium-137		0.0461	+/-0.0279	0.0169	+/-0.0279	0.0356	pCi/g						
Cobalt-60	U	-0.0122	+/-0.0193	0.0153	+/-0.0193	0.0336	pCi/g						
Europium-152	U	-0.0204	+/-0.0484	0.0411	+/-0.0484	0.0862	pCi/g						
Europium-154	U	0.0428	+/-0.0569	0.0518	+/-0.0569	0.112	pCi/g						
Europium-155	U	0.00564	+/-0.0696	0.0527	+/-0.0696	0.109	pCi/g						
Lead-212		0.798	+/-0.0616	0.0254	+/-0.0616	0.0527	pCi/g						
Lead-214		0.638	+/-0.0749	0.0297	+/-0.0749	0.0623	pCi/g						
Manganese-54	U	-0.0022	+/-0.0198	0.0167	+/-0.0198	0.0355	pCi/g						
Niobium-94	U	0.0143	+/-0.0181	0.0164	+/-0.0181	0.0345	pCi/g						
Potassium-40		13.8	+/-0.824	0.170	+/-0.824	0.368	pCi/g						
Radium-226		0.554	+/-0.0875	0.0297	+/-0.0875	0.0627	pCi/g						
Silver-108m	U	0.000225	+/-0.0161	0.0137	+/-0.0161	0.0289	pCi/g						
Thallium-208		0.231	+/-0.0401	0.0152	+/-0.0401	0.0322	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	10/07/06	1057	576546

### 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

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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 13, 2006

Client Sample ID: 9520-0003-032F  
Sample ID: 173432001

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: October 13, 2006

Client Sample ID: 9520-0003-033F  
Sample ID: 173432002  
Matrix: TS  
Collect Date: 26-SEP-06  
Receive Date: 06-OCT-06  
Collector: Client  
Moisture: 8.12%

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		0.883	+/-0.140	0.0452	+/-0.140	0.0969	pCi/g						
Americium-241	U	-0.00551	+/-0.0705	0.057	+/-0.0705	0.117	pCi/g						
Bismuth-212		0.517	+/-0.230	0.109	+/-0.230	0.231	pCi/g						
Bismuth-214		0.518	+/-0.084	0.0277	+/-0.084	0.0583	pCi/g						
Cesium-134	U	0.0343	+/-0.0181	0.0176	+/-0.0181	0.037	pCi/g						
Cesium-137		0.0457	+/-0.0219	0.0138	+/-0.0219	0.0292	pCi/g						
Cobalt-60	U	-0.00848	+/-0.0166	0.0129	+/-0.0166	0.0282	pCi/g						
Europium-152	U	-0.0512	+/-0.0441	0.0362	+/-0.0441	0.0758	pCi/g						
Europium-154	U	-0.00291	+/-0.0498	0.041	+/-0.0498	0.0885	pCi/g						
Europium-155	U	0.0501	+/-0.0618	0.0437	+/-0.0618	0.0903	pCi/g						
Lead-212		0.728	+/-0.0536	0.0218	+/-0.0536	0.0453	pCi/g						
Lead-214		0.547	+/-0.0634	0.0284	+/-0.0634	0.0593	pCi/g						
Manganese-54	U	0.00145	+/-0.0166	0.0144	+/-0.0166	0.0305	pCi/g						
Niobium-94	U	0.0157	+/-0.0146	0.0136	+/-0.0146	0.0286	pCi/g						
Potassium-40		13.5	+/-0.732	0.116	+/-0.732	0.256	pCi/g						
Radium-226		0.518	+/-0.084	0.0277	+/-0.084	0.0583	pCi/g						
Silver-108m	U	0.00326	+/-0.0144	0.0126	+/-0.0144	0.0264	pCi/g						
Thallium-208		0.263	+/-0.0406	0.0128	+/-0.0406	0.0272	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	10/07/06	1057	576546

### 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: October 13, 2006

Client Sample ID: 9520-0003-033F

Sample ID: 173432002

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: October 13, 2006

Page 1 of 5

Client : Connecticut Yankee Atomic Power  
362 Injun Hollow Rd

Contact: East Hampton, Connecticut  
Mr. Jack McCarthy

Workorder: 173432

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	576804										
QC1201201888	173432001	DUP									
Actinium-228		0.807		0.990	pCi/g	20		(0% - 100%) MJH1		10/12/06	17:42
	Uncert:	+/-0.151		+/-0.252							
	TPU:	+/-0.151		+/-0.252							
Americium-241	U	0.0208	U	0.0313	pCi/g	40		(0% - 100%)			
	Uncert:	+/-0.116		+/-0.0519							
	TPU:	+/-0.116		+/-0.0519							
Bismuth-212		0.720		0.872	pCi/g	19		(0% - 100%)			
	Uncert:	+/-0.249		+/-0.536							
	TPU:	+/-0.249		+/-0.536							
Bismuth-214		0.554		0.781	pCi/g	34*		(0% - 100%)			
	Uncert:	+/-0.0875		+/-0.176							
	TPU:	+/-0.0875		+/-0.176							
Cesium-134	UI	0.00	U	0.0223	pCi/g	92		(0% - 100%)			
	Uncert:	+/-0.0361		+/-0.0481							
	TPU:	+/-0.0361		+/-0.0481							
Cesium-137		0.0461	U	0.0664	pCi/g	36		(0% - 100%)			
	Uncert:	+/-0.0279		+/-0.0774							
	TPU:	+/-0.0279		+/-0.0774							
Cobalt-60	U	-0.0122	U	0.0212	pCi/g	742		(0% - 100%)			
	Uncert:	+/-0.0193		+/-0.0343							
	TPU:	+/-0.0193		+/-0.0343							
Europium-152	U	-0.0204	U	-0.0365	pCi/g	57		(0% - 100%)			
	Uncert:	+/-0.0484		+/-0.0833							
	TPU:	+/-0.0484		+/-0.0833							
Europium-154	U	0.0428	U	0.062	pCi/g	37		(0% - 100%)			
	Uncert:	+/-0.0569		+/-0.109							
	TPU:	+/-0.0569		+/-0.109							
Europium-155	U	0.00564	U	0.0466	pCi/g	157		(0% - 100%)			
	Uncert:	+/-0.0696		+/-0.082							
	TPU:	+/-0.0696		+/-0.082							
Lead-212		0.798		0.788	pCi/g	1		(0% - 20%)			
	Uncert:	+/-0.0616		+/-0.0889							
	TPU:	+/-0.0616		+/-0.0889							
Lead-214		0.638		0.645	pCi/g	1		(0% - 20%)			
	Uncert:	+/-0.0749		+/-0.122							
	TPU:	+/-0.0749		+/-0.122							
Manganese-54	U	-0.0022	U	0.0124	pCi/g	286		(0% - 100%)			
	Uncert:	+/-0.0198		+/-0.040							
	TPU:	+/-0.0198		+/-0.040							
Niobium-94	U	0.0143	U	0.0259	pCi/g	58		(0% - 100%)			
	Uncert:	+/-0.0181		+/-0.035							
	TPU:	+/-0.0181		+/-0.035							

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## QC Summary

Workorder: 173432

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Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 576804											
Potassium-40		13.8		12.2	pCi/g	13		(0% - 20%)			
	Uncert:	+/-0.824		+/-1.36							
	TPU:	+/-0.824		+/-1.36							
Radium-226		0.554		0.781	pCi/g	34		(0% - 100%)			
	Uncert:	+/-0.0875		+/-0.176							
	TPU:	+/-0.0875		+/-0.176							
Silver-108m	U	0.000225	U	0.0115	pCi/g	192		(0% - 100%)			
	Uncert:	+/-0.0161		+/-0.0281							
	TPU:	+/-0.0161		+/-0.0281							
Thallium-208		0.231		0.300	pCi/g	26		(0% - 100%)			
	Uncert:	+/-0.0401		+/-0.0703							
	TPU:	+/-0.0401		+/-0.0703							
QC1201201889	LCS										
Actinium-228			U	0.0685	pCi/g					10/12/06	19:15
	Uncert:			+/-0.531							
	TPU:			+/-0.531							
Americium-241	23.4			24.7	pCi/g		106	(75%-125%)			
	Uncert:			+/-2.62							
	TPU:			+/-2.62							
Bismuth-212			U	0.235	pCi/g						
	Uncert:			+/-0.989							
	TPU:			+/-0.989							
Bismuth-214			U	-0.0375	pCi/g						
	Uncert:			+/-0.233							
	TPU:			+/-0.233							
Cesium-134			U	-0.00479	pCi/g						
	Uncert:			+/-0.147							
	TPU:			+/-0.147							
Cesium-137	9.55			9.73	pCi/g		102	(75%-125%)			
	Uncert:			+/-0.768							
	TPU:			+/-0.768							
Cobalt-60	14.3			15.1	pCi/g		106	(75%-125%)			
	Uncert:			+/-1.04							
	TPU:			+/-1.04							
Europium-152			U	-0.287	pCi/g						
	Uncert:			+/-0.311							
	TPU:			+/-0.311							
Europium-154			U	0.112	pCi/g						
	Uncert:			+/-0.276							
	TPU:			+/-0.276							
Europium-155			U	-0.0442	pCi/g						
	Uncert:			+/-0.328							
	TPU:			+/-0.328							
Lead-212			U	-0.125	pCi/g						
	Uncert:			+/-0.159							
	TPU:			+/-0.159							
Lead-214			U	-0.193	pCi/g						
	Uncert:			+/-0.224							

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## QC Summary

Workorder: 173432

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	576804										
Manganese-54	TPU:			+/-0.224							
			U	0.0482	pCi/g						
	Uncert:			+/-0.133							
Niobium-94	TPU:			+/-0.133							
			U	0.0277	pCi/g						
	Uncert:			+/-0.116							
Potassium-40	TPU:			+/-0.116							
			U	0.581	pCi/g						
	Uncert:			+/-1.04							
Radium-226	TPU:			+/-1.04							
			U	-0.0375	pCi/g			(75%-125%)			
	Uncert:			+/-0.233							
Silver-108m	TPU:			+/-0.233							
			U	-0.0727	pCi/g						
	Uncert:			+/-0.114							
Thallium-208	TPU:			+/-0.114							
			U	-0.0423	pCi/g						
	Uncert:			+/-0.118							
	TPU:			+/-0.118							
QC1201201887 MB											
Actinium-228			U	-0.00601	pCi/g					10/13/06	12:27
	Uncert:			+/-0.0434							
	TPU:			+/-0.0434							
Americium-241			U	-0.0137	pCi/g						
	Uncert:			+/-0.0533							
	TPU:			+/-0.0533							
Bismuth-212			U	0.0252	pCi/g						
	Uncert:			+/-0.0887							
	TPU:			+/-0.0887							
Bismuth-214			U	0.0258	pCi/g						
	Uncert:			+/-0.0337							
	TPU:			+/-0.0337							
Cesium-134			U	0.000666	pCi/g						
	Uncert:			+/-0.0118							
	TPU:			+/-0.0118							
Cesium-137			U	-0.00269	pCi/g						
	Uncert:			+/-0.0111							
	TPU:			+/-0.0111							
Cobalt-60			U	-0.000359	pCi/g						
	Uncert:			+/-0.0142							
	TPU:			+/-0.0142							
Europium-152			U	-0.00823	pCi/g						
	Uncert:			+/-0.0289							
	TPU:			+/-0.0289							
Europium-154			U	0.0206	pCi/g						
	Uncert:			+/-0.0308							
	TPU:			+/-0.0308							
Europium-155			U	0.0121	pCi/g						

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## QC Summary

Workorder: 173432

Page 4 of 5

Paramname	NOM	Sample Qual	QC	Units	RPD %	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	576804									
Lead-212	Uncert: +/-0.0283 TPU: +/-0.0283	U	0.000673	pCi/g						
Lead-214	Uncert: +/-0.0259 TPU: +/-0.0259	U	0.0286	pCi/g						
Manganese-54	Uncert: +/-0.045 TPU: +/-0.045	U	0.00755	pCi/g						
Niobium-94	Uncert: +/-0.00957 TPU: +/-0.00957	U	-0.000868	pCi/g						
Potassium-40	Uncert: +/-0.0108 TPU: +/-0.0108	U	0.150	pCi/g						
Radium-226	Uncert: +/-0.137 TPU: +/-0.137	U	0.0258	pCi/g						
Silver-108m	Uncert: +/-0.0337 TPU: +/-0.0337	U	0.00351	pCi/g						
Thallium-208	Uncert: +/-0.0101 TPU: +/-0.0101	U	0.00714	pCi/g						
	Uncert: +/-0.0164 TPU: +/-0.0164									

### 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: 173432

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.

SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

---

**ATTACHMENT 4 (DQA RESULTS)**

SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

---

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

# PRELIMINARY DATA REVIEW FORM


Survey Unit : 9520-0005  
 Survey Unit Name : Southwest Site Storage area  
 Classification : 1  
 Survey Media : Soil  
 Type of Survey : Final Status Survey  
 Type of Measurement : Radionuclide Specific  
 Number of Measurements : 15

## BASIC STATISTICAL QUANTITIES

	Cs-137	Co-60
Target Level (pCi/g) :	5.38E+00	2.59E+00
Minimum Value :	-5.14E-03	-1.20E-02
Maximum Value :	1.93E-01	4.83E-01
Mean :	8.08E-02	4.66E-02
Median :	6.47E-02	2.31E-03
Standard Deviation :	5.34E-02	1.23E-01

## Reported Results

Sample Identification	Cs-137	Detect?	Co-60	Detect?	Fraction of Target Level
	Concentration (pCi/g)		Concentration (pCi/g)		
9520-0005-001F	4.10E-02	+	4.13E-02	+	0.024
9520-0005-002F	4.59E-02	+	-1.37E-04		0.009
9520-0005-003F	1.35E-01	+	1.28E-04		0.025
9520-0005-004F	6.47E-02	+	1.34E-03		0.013
9520-0005-005F	1.93E-01	+	4.83E-01	+	0.222
9520-0005-006F	9.03E-02	+	5.91E-02	+	0.040
9520-0005-007F	4.91E-02	+	2.31E-03		0.010
9520-0005-008F	2.93E-02	+	-1.20E-02		0.005
9520-0005-009F	6.79E-02	+	1.40E-02		0.018
9520-0005-010F	1.27E-01	+	2.14E-02		0.032
9520-0005-011F	6.07E-02	+	7.15E-02	+	0.039
9520-0005-012F	1.52E-01	+	1.57E-02		0.034
9520-0005-013F	-5.14E-03		-9.84E-05		0.000
9520-0005-014F	1.16E-01	+	8.07E-04		0.022
9520-0005-015F	4.54E-02	+	9.99E-04		0.009

  
 JACK MCCARTY 11/15/06  
 Submitted by/Date



SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

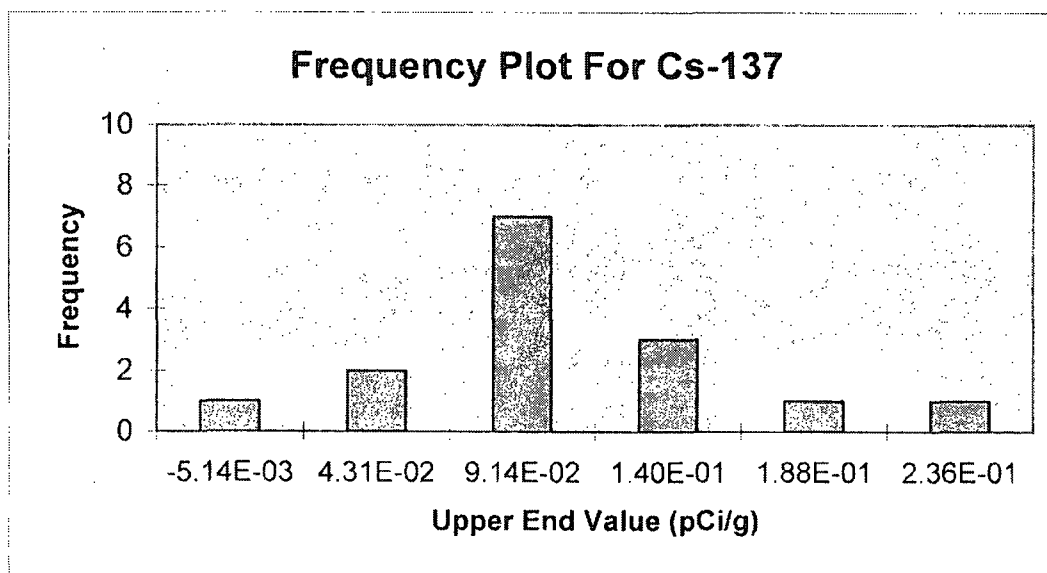
RELEASE RECORD

---

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

# FREQUENCY PLOT FOR CESIUM-137

Survey Unit: 9520-0005  
 Survey Unit Name: Southwest Site Storage Area  
 Mean: 8.08E-02 pCi/g



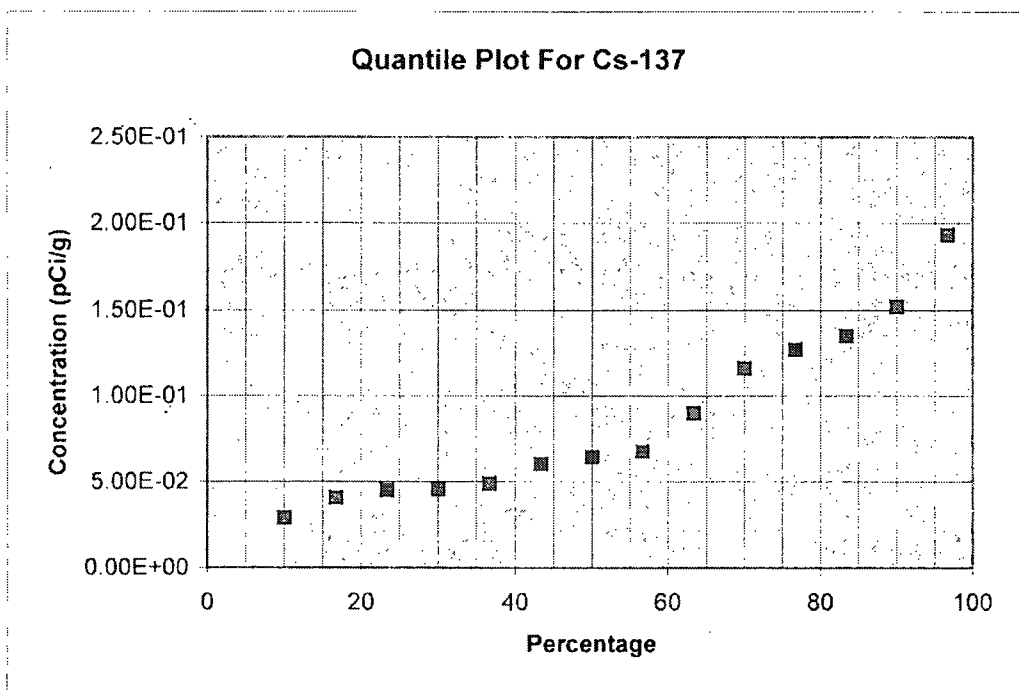
Upper End Value	Observation Frequency	Observation Frequency
-5.14E-03	1	7%
4.31E-02	2	13%
9.14E-02	7	47%
1.40E-01	3	20%
1.88E-01	1	7%
2.36E-01	1	7%
Total:	15	100%

Submitted by/Date

Reviewed by/Date

# QUANTILE PLOT FOR CESIUM-137

Survey Unit: 9520-0005  
 Survey Unit Name: Southwest Site Storage Area  
 Mean: 8.08E-02 pCi/g



Cs-137	Rank	Percentage
-5.14E-03	1	3%
2.93E-02	2	10%
4.10E-02	3	17%
4.54E-02	4	23%
4.59E-02	5	30%
4.91E-02	6	37%
6.07E-02	7	43%
6.47E-02	8	50%
6.79E-02	9	57%
9.03E-02	10	63%
1.16E-01	11	70%
1.27E-01	12	77%
1.35E-01	13	83%
1.52E-01	14	90%
1.93E-01	15	97%

Submitted by/Date

Reviewed by/Date

SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

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**ATTACHMENT 4C (SIGN TEST)**

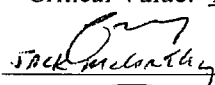
Attachment B

Sign Test Calculation Sheet For Multiple Radionuclides

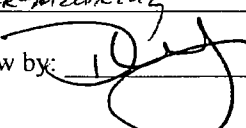
Survey Area Number: 9520				
Survey Unit Number: 0005				
Survey Area Name: Southwest Site Storage area				
WPIR#: 2006-008				
Classification: 1		TYPE I ( $\alpha$ error): 0.05	(N): 15	
Radionuclides:		Cs-137	Co-60	
DCGL:		5.38 pCi/g	2.59 pCi/g	
Results 1 <sup>st</sup> Radionuclide (pCi/g)	Results 2 <sup>nd</sup> Radionuclide (pCi/g)	Weighted Sum (W <sub>s</sub> )	1 - W <sub>s</sub>	Sign
4.10E-02	4.13E-02	2.36E-02	9.76E-01	1
4.59E-02	-1.37E-04	8.48E-03	9.92E-01	1
1.35E-01	1.28E-04	2.51E-02	9.75E-01	1
6.47E-02	1.34E-03	1.25E-02	9.87E-01	1
1.93E-01	4.83E-01	2.22E-01	7.78E-01	1
9.03E-02	5.91E-02	3.96E-02	9.60E-01	1
4.91E-02	2.31E-03	1.00E-02	9.90E-01	1
2.93E-02	-1.20E-02	8.13E-04	9.99E-01	1
6.79E-02	1.40E-02	1.80E-02	9.82E-01	1
1.27E-01	2.14E-02	3.19E-02	9.68E-01	1
6.07E-02	7.15E-02	3.89E-02	9.61E-01	1
1.52E-01	1.57E-02	3.43E-02	9.66E-01	1
-5.14E-03	-9.84E-05	-9.93E-04	1.00E+00	1
1.16E-01	8.07E-04	2.19E-02	9.78E-01	1
4.54E-02	9.99E-04	8.82E-03	9.91E-01	1
Number of positive differences (S+):				15

Critical Value: 11

Survey Unit Meets Acceptance Criterion

Performed by: 

Date: 11/15/06

Independent Review by: 

Date: 11/20/06

SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

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

**Split Sample Assessment Form**

Survey Area#: 9520		Survey Unit #: 0005		Survey Unit name: Southwest Site Storage Area																
Sample Plan or WPIR#: 2005-0038						SML#: 9520-0005-001														
Sample Description: Comparison of split samples collected from sample measurement location #1 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9520-0005-001F, the comparison sample was 9520-0005-001FS.																				
STANDARD					COMPARISON															
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)												
K-40	12.4	4.89E-1	25	0.75 – 1.33	13.5	5.40E-1	1.09	Y												
Comments/Corrective Actions: Not enough Cs-137 to yield an acceptable Resolution					Table is provided to show acceptance criteria used to assess split samples. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><u>Resolution</u></th> <th><u>Agreement Range</u></th> </tr> </thead> <tbody> <tr> <td>4 - 7</td> <td>0.5 - 2.0</td> </tr> <tr> <td>8 - 15</td> <td>0.6 - 1.66</td> </tr> <tr> <td>16 - 50</td> <td>0.75 - 1.33</td> </tr> <tr> <td>51 - 200</td> <td>0.80 - 1.25</td> </tr> <tr> <td>&gt;200</td> <td>0.85 - 1.18</td> </tr> </tbody> </table>				<u>Resolution</u>	<u>Agreement Range</u>	4 - 7	0.5 - 2.0	8 - 15	0.6 - 1.66	16 - 50	0.75 - 1.33	51 - 200	0.80 - 1.25	>200	0.85 - 1.18
									<u>Resolution</u>	<u>Agreement Range</u>										
4 - 7	0.5 - 2.0																			
8 - 15	0.6 - 1.66																			
16 - 50	0.75 - 1.33																			
51 - 200	0.80 - 1.25																			
>200	0.85 - 1.18																			
Performed By: Jack McLaughlin					Date: 11/15/06		Reviewed By: [Signature]													
					Date: 11/20/06															

## Split Sample Assessment Form

Survey Area#: 9520		Survey Unit #: 0005		Survey Unit name: Southwest Site Storage Area																
Sample Plan or WPIR#: 2005-0038						SML#: 9520-0005-013														
Sample Description: Comparison of split samples collected from sample measurement location #13 and analyzed using gamma spectroscopy by off-site Vendor Laboratory. The standard sample was 9520-0005-013F, the comparison sample was 9520-0005-013FS.																				
STANDARD					COMPARISON															
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)												
K-40	9.74	3.86E-1	25	0.75 – 1.33	10.1	4.55E-1	1.04	Y												
Comments/Corrective Actions: Not enough Cs-137 to yield an acceptable Resolution					Table is provided to show acceptance criteria used to assess split samples. <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td><u>Resolution</u></td> <td><u>Agreement Range</u></td> </tr> <tr> <td>4 - 7</td> <td>0.5 - 2.0</td> </tr> <tr> <td>8 - 15</td> <td>0.6 - 1.66</td> </tr> <tr> <td>16 - 50</td> <td>0.75 - 1.33</td> </tr> <tr> <td>51 - 200</td> <td>0.80 - 1.25</td> </tr> <tr> <td>&gt;200</td> <td>0.85 - 1.18</td> </tr> </table>				<u>Resolution</u>	<u>Agreement Range</u>	4 - 7	0.5 - 2.0	8 - 15	0.6 - 1.66	16 - 50	0.75 - 1.33	51 - 200	0.80 - 1.25	>200	0.85 - 1.18
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16 - 50	0.75 - 1.33																			
51 - 200	0.80 - 1.25																			
>200	0.85 - 1.18																			
Performed By: <i>Jack Munn</i>		Date 11/15/06		Reviewed By: <i>[Signature]</i>			Date: 11/20/06													



SOUTHWEST SITE STORAGE AREA  
SURVEY UNIT 9520-0005

RELEASE RECORD

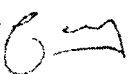
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**ATTACHMENT 4E (COMPASS DQA WITH POWER CURVE)**



# DQA Surface Soil Report

## Assessment Summary

Site:	9520-0005		
Planner(s):	McCarthy		11/15/06
Survey Unit Name:	Southwest Site Storage area		
Report Number:	1		
Survey Unit Samples:	15		
Reference Area Samples:	0		
Test Performed:	Sign	Test Result:	Not Performed
Judgmental Samples:	0	EMC Result:	Not Performed
Assessment Conclusion:	<b>Reject Null Hypothesis (Survey Unit PASSES)</b>		

## Retrospective Power Curve

