



Final Status Survey Final Report Phase VII

**Appendix A2
Survey Unit Release Record
9306-0000, Southwest Protected Area
Grounds**

May 2007



CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

Prepared By: Robert Massengill Date: 4-12-07
FSS Engineer

Reviewed By: D. Wostkowiak Date: 4/12/07
FSS Engineer

Approved By: Clyde T. Newman Date: 4/15/07
Technical Support Manager

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

TABLE OF CONTENTS

1. SURVEY UNIT DESCRIPTION	3
2. CLASSIFICATION BASIS	3
3. DATA QUALITY OBJECTIVES (DQO).....	5
4. SURVEY DESIGN	8
5. SURVEY IMPLEMENTATION	12
6. SURVEY RESULTS	13
7. QUALITY CONTROL	19
8. INVESTIGATIONS AND RESULTS	19
9. REMEDIATION AND RESULTS.....	19
10. CHANGES FROM THE FINAL STATUS SURVEY PLAN	19
11. DATA QUALITY ASSESSMENT (DQA).....	20
12. ANOMALIES	21
13. CONCLUSION	21
14. ATTACHMENTS	22
14.1 Attachment 1 – Figures (5 pages including cover)	
14.2 Attachment 2 – Scan Results (6 pages including cover)	
14.3 Attachment 3 – Laboratory Data (122 pages including cover)	
14.4 Attachment 4 – DQA Results (16 pages including covers)	

TOTAL 171

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

1. SURVEY UNIT DESCRIPTION

Survey Unit 9306-0000, which encompasses the south central portion of the protected area grounds outside the Radiologically Controlled Area (RCA) and is designated as Final Status Survey (FSS) Class 2 and consists of approximately five thousand eight hundred seventy-eight (5,878) square meters of open land and is located approximately one thousand four hundred three (1,403) feet from the reference coordinate system benchmark, which is based on the Connecticut State Plan System North American Datum (NAD) 1927, and located at Northing 237370.20, Easting 667394.51 (see Attachment 1).

The survey unit consists of open land areas with no obstructions from trees and brush. Topography is fairly level throughout Survey Area 9306 with a slight slope from east to west, toward the Connecticut River.

This survey unit is bounded on the north (plant north is oriented by the general north to south flow of the Connecticut River) by Survey Unit 9313-0000, a Class 2 survey unit, on the east by Survey Units 9312-0003, 9312-0006 and 9312-0008, all Class 1 survey units, on the south by 9522-0005 a Class 1 survey unit and 9520-0001 a Class 2 survey unit and on the west by 9304-0001, a Class 2 survey unit and by 9304-0002, a Class 1 survey unit.

The reference coordinates associated with this survey unit are E004 through E008 by S065 through S072 (refer to "*HNP License Termination Plan*" (LTP) Section 5.4.4). The reference coordinates provide the maximum dimensions of a rectangle containing this survey unit. Some areas contained in this rectangle may not be part of this survey unit. The boundary of the survey unit was defined using a Global Positioning System (GPS) based on the Connecticut State Plane System North American Datum (NAD) 1927.

2. CLASSIFICATION BASIS

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

The "*Classification Basis Summary*" conducted for Survey Unit 9306-0000 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 "walk-down."

The Historical Site Assessment (HSA) and Supplement, as well as, other historical documents (e.g., the 10CFR50.75(g)(1) files) identify a number of events that may have impacted this survey area.

- a. ACR# 97-1055-Floor monitor identified three (3) small radioactive spots embedded in the asphalt north of the Turbine Building roll-up doors, east

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

of GS-1 and inside the Turbine Building.

- b. CR# 98-0992-During a clean-up outside the Radiological Control Area (RCA), sand was inadvertently scooped up and placed in a dumpster. Follow-up analysis indicated that the sand contained low levels of radioactive material above the environmental release levels.
- c. CR# 02-0037-A mop head containing licensed radioactive material was found in the industrial area trash.
- d. CR# 03-0450-Fixed contamination (3,400 ccpm) was found in the asphalt outside the North RCA gate.
- e. CR# 03-0562-Radioactive material was found at GS-1.
- f. CR# 05-0509-Several Barrels were identified during excavation of the southwest portion of the former Service Building.
- g. CR# 05-0579-Spill at Chemistry trailer.
- h. CR# 05-0736-The north waste storage tent area was leaking through the north berm.

Radiological assessments and characterization surveys in this area to support decommissioning activities commenced in 2005 and continued through 2006 as work progressed. Sampling was performed in the footprints of the Control Building, Turbine Building, Service Building (excavations II and IV), and Discharge Tunnel (or Circulating Water) excavations. Soil samples were either analyzed at the on-site laboratory or at an approved off-site laboratory for all radionuclides of concern, including HTD radionuclides. A total of one hundred and six (106) post remediation or characterization samples were identified from this survey area. All of these samples were utilized to determine both the radionuclide(s) of concern and the standard deviation of the sample population for FSS plan development.

The sample results indicate that Cs-137 and Co-60 were the primary radionuclides detected in the sample population and were detected in concentrations up to 21.2% of the Operational Derived Concentration Guideline Level (DCGL) when incorporating the "sum of fractions". Cs-137 was positively identified (i.e. a result greater than two (2) standard deviations uncertainty) in twenty-five (25) samples where the sample results were predominantly at very low concentrations that were frequently approaching or below detection limits. Co-60 was positively identified (i.e. a result greater than two (2) standard deviations uncertainty) in eight (8) samples where the sample results were predominantly at very low concentrations that were frequently approaching or below detection limits. Therefore, both Cs-137 and Co-60 are both identified as radionuclides of concern for FSS. A summary of the post remediation and surface characterization sample results are provided in Table 1.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Table 1 - Summary of "as-left" Post Remediation and Characterization Sample Results

Parameter	Cs-137 (pCi/g)	Co-60 (pCi/g)	Sr-90 (pCi/g)	H-3 (pCi/g)
Operational DCGL :	4.75E+00	2.29E+00	9.28E-01	2.48E+02
Minimum Value:	-2.48E+00	-4.18E-02	-5.20E-03	-3.07E+00
Maximum Value:	4.56E-01	4.03E-01	3.28E-02	9.36E+00
Mean:	-6.24E-03	5.17E-03	8.62E-03	3.781E+00
Median:	6.23E-03	-2.49E-04	5.43E-04	4.36E+00
Standard Deviation:	2.48E-01	4.31E-02	1.27E-02	3.66E+00

Ten (10) samples in this group were also sent to an approved off-site laboratory for HTD analysis. Other than Sr-90 and H-3, no additional HTD radionuclides were positively identified. Sr-90 and H-3 were positively identified (i.e. a result greater than two (2) standard deviations uncertainty) in three (3) and one (1) sample(s) respectively. However, none of the ten (10) samples analyzed for HTD identified HTD radionuclides at levels above 5% or 10% of the Operational DCGL, either individually or in combination. Therefore, Sr-90 and H-3 were de-selected as radionuclides of concern for FSS. A summary of the post remediation and characterization sample results are provided in Table 1.

The FSS Engineer performed a visual inspection and walk-down on October 31, 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 a review of the historical information and the results of the Characterization Survey data, it was concluded that there was a low probability for residual radioactivity at a levels approaching the DCGLs, justifying a final survey unit classification of Class 2 (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.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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 would satisfy the primary objective of the FSS plan.

The primary objective of the FSS plan was to demonstrate that the level of residual radioactivity in Survey Unit 9306-0000 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

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

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.

CY memo ISC 06-024 addresses the impact of existing and future groundwater on specific survey areas at CY. CY memo ISC 06-024 states that Survey Area 9306 is affected by existing groundwater and is also considered impacted by future groundwater radioactive contamination, as there are concrete foundations or footings remaining within the groundwater saturated zone in the area.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Therefore, the dose contribution from existing groundwater in Survey Unit 9306-0000 is bounded by two (2) mrem/yr TEDE and the dose contribution from future groundwater, the third dose component, is also two (2) mrem/yr TEDE.

Equation 2

$$19 \text{ mrem/yr}_{\text{Total}} = 15 \text{ mrem/yr}_{\text{Soil}} + 2 \text{ mrem/yr}_{\text{Existing GW}} + 2 \text{ mrem/yr}_{\text{Future GW}}$$

The allowable dose for soil in this survey unit is fifteen (15) mrem/yr TEDE as shown by Equation 2 above. The concentration of residual radioactivity resulting in fifteen (15) mrem/yr TEDE is designated as the Operational DCGL (DCGL_{op}), and has been established for the radionuclides of concern as provided in Table 2.

Table 2 – Radionuclide Specific Base Case Soil DCGL, Operational DCGLs and Required Minimum Detectable Concentrations (MDCs)			
Radionuclide ⁽¹⁾	Base Case Soil DCGL (pCi/g) ⁽²⁾	Operational DCGL (pCi/g) ⁽³⁾	Required MDC (pCi/g) ⁽⁴⁾
H-3	4.12E+02	2.62E+02	1.65E+01
C-14	5.66E+00	3.39E+00	2.26E-01
Mn-54	1.74E+01	1.05E+01	6.96E-01
Fe-55	2.74E+04	1.64E+04	1.10E+03
Co-60	3.81E+00	2.29E+00	1.52E-01
Ni-63	7.23E+02	4.34E+02	2.89E+01
Sr-90	1.55E+00	9.28E-01	6.20E-02
Nb-94	7.12E+00	4.27E+00	2.85E-01
Tc-99	1.26E+01	7.56E+00	5.04E-01
Ag-108m	7.14E+00	4.29E+00	2.86E-01
Cs-134	4.67E+00	2.80E+00	1.87E-01
Cs-137	7.91E+00	4.75E+00	3.16E-01
Eu-152	1.01E+01	6.04E+00	4.04E-01
Eu-154	9.29E+00	5.57E+00	3.72E-01
Eu-155	3.92E+02	2.35E+02	1.57E+01
Pu-238	2.96E+01	1.78E+01	1.18E+00
Pu-239/240	2.67E+01	1.60E+01	1.07E+00
Pu-241	8.70E+02	5.22E+02	3.48E+01
Am-241 ⁽⁵⁾	2.58E+01	1.55E+01	1.03E+00
Cm-243/244	2.90E+01	1.74E+01	1.16E+00

(1) **Bold** indicates those radionuclides considered to be hard to detect

(2) The Base Case Soil DCGLs for soil are specified by the LTP in Chapter 6 and are equivalent to twenty-five (25) mrem/yr TEDE

(3) The Operational DCGL is equivalent to achieving fifteen (15) mrem/yr TEDE

(4) The required Minimum Detectable Concentration (MDC) is equivalent to achieving one (1) mrem/yr TEDE

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

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Another important facet of the DQO process is to identify the radionuclides of concern and determine the concentration variability.

As stated previously, Cs-137 was positively identified (i.e. a result greater than two (2) standard deviations uncertainty) in twenty-five (25) samples and Co-60 was positively identified (i.e. a result greater than two (2) standard deviations uncertainty) in eight (8) samples. Therefore, both Cs-137 and Co-60 were identified as radionuclides of concern for FSS. Sr-90 and H-3 were de-selected as radionuclides of concern for FSS. A summary of the post remediation and characterization sample results 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 both Cs-137 and Co-60 would be the radionuclides of concern in Survey Unit 9306-0000 (refer to Section 3). The characterization survey did not identify any HTD radionuclides of concern for this survey unit. Subsequently, surrogate DCGLs were not required for this survey unit via screening under LTP Section 5.4.7.2, "*Gross Activity DCGLs*". Other radionuclides that were positively identified in concentrations greater than the screening criteria during the performance of this FSS would be evaluated to ensure adequate survey design. Radionuclide screening or de-selection is a process where the dose contribution from 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 not apply to this survey unit since it is a Class 2 area and discrete, elevated areas of contamination were not expected.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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

The number of soil samples for FSS was determined in accordance with Procedure RPM 5.1-12, "*Determination of the Number of Surface Samples for Final Status Survey.*" The Lower Bound of the Gray Region (LBGR) was set in accordance with Procedure RPM 5.1-11 to 0.89 to maintain the relative shift (Δ/σ) in the range of 1 and 3. The resulting relative shift was 2.00. A Prospective Power Curve was generated using COMPASS, a software package developed under the sponsorship of the United States Nuclear Regulatory Commission (USNRC) for implementation of the MARSSIM in support of the decommissioning license termination rule (10CFR20, Subpart E). The result of the COMPASS computer run showed adequate power for the survey design. The survey design specified fifteen (15) surface soil samples for non-parametric statistical testing. Additionally, four (4) judgmental samples were collected in this survey area. One (1) judgmental sample will be located in the vicinity of the former control building, one (1) judgmental sample was taken in the vicinity of the Circulating Water piping excavation and two (2) judgmental samples were taken along the former location of the Service Building (next to the radiological control area). The general locations of the judgmental samples are illustrated in Attachment 1 and the coordinates are provided in Table 3.

The locations of the fifteen (15) soil samples used for non-parametric testing were determined randomly using Visual Sample Plan (VSP) in accordance with Procedure RPM 5.1-14, "*Identifying, and Marking Surface Sample Locations for Final Status Survey.*" Systematic (grid) sampling locations were selected for this survey unit, which is appropriate for a Class 2 area. Visual Sample Plan was created by Pacific Northwest National Laboratory (PNNL) for the United States Department of Energy.

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 numerical designations are provided along with the GPS coordinates in Table 3.

SOUTH CENTRAL PROTECTED AREA GROUNDS

SURVEY UNIT 9306-0000

RELEASE RECORD

Table 3 - Sample Measurement Locations with Associated GPS Coordinates

Designation⁽¹⁾	Northing	Easting
9306-0000-001F	236505.23	668567.78
9306-0000-002F	236505.23	668637.66
9306-0000-003F	236444.71	668462.97
9306-0000-004F	236444.71	668532.84
9306-0000-005F	236444.71	668602.72
9306-0000-006F/S	236444.71	668672.59
9306-0000-007F	236384.20	668567.78
9306-0000-008F/S	236384.20	668637.66
9306-0000-009F	236384.20	668707.53
9306-0000-010F	236384.20	668777.41
9306-0000-011F	236323.69	668672.59
9306-0000-012F	236323.69	668742.47
9520-0001-013F	236323.69	668812.34
9306-0000-014F	236263.17	668707.53
9306-0000-015F	236263.17	668777.41
9306-0000-016B	236544.60	668569.46
9306-0000-017B	236455.25	668693.62
9306-0000-018B	236364.73	668807.19
9306-0000-019B	236320.74	668721.92
9306-0000-020I	236560.39	668571.76

⁽¹⁾ F designates a Final Status Survey sample that was used for non-parametric testing, "S" designates a split sample, "B" designates a Biased or Judgmental sample location and "I" designates an Investigative sample.

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.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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.

Table 5-9 of the LTP states that the scanning coverage requirements for a outdoor Class 2 area are 10% to 100%. The fraction of scanning coverage was determined during the DQO process with the total amount and location(s) based on the likelihood of finding elevated activity during FSS. Based on the historical site assessment, the characterization data available, and the use of this survey unit, it was determined that scanning was to be performed in two (2) separate areas. The total surface area to be scanned was approximately 25% of the survey unit. A map of the scan grid locations is provided in Attachment 1.

For this Class 2 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.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Table 4— Synopsis of the Survey Design

Feature	Design Criteria	Basis
Survey Unit Land Area	5,878 m ²	Based on AutoCAD-LT
Number of Measurements	15 (15 systematic locations), 4 biased and 1 investigative locations	Type 1 and Type 2 errors were 0.05, sigma was 0.052 pCi/g for both Cs-137 and Co-60, the LBGR was set at 0.89 to maintain Relative Shift in the range of 1 and 3
Grid Spacing	21.34 m	Based on a triangular grid
Operational DCGL	4.75 pCi/g Cs-137 2.29 pCi/g Co-60	Administratively set to achieve fifteen (15) mrem/yr TEDE ⁽¹⁾
Soil Investigation Level	4.75 pCi/g Cs-137 2.29 pCi/g Co-60	The Operational DCGL meets the LTP criteria for a Class 2 survey unit
Scan Survey Area Coverage	Approximately 25% of the area	The LTP requires judgmental scanning coverage for Class 2 survey units
Scan Investigation Level	Detectable over background ⁽²⁾	Administratively set to achieve fifteen (15) mrem/yr TEDE ⁽¹⁾

(1) The allowable dose for soil in this survey unit is fifteen (15) mrem/yr TEDE as the bounding dose from existing and future groundwater has been established based on field data (reference CY memo ISC 06-024).

(2) Scan Investigation Level or Action Level=Background (B) + Minimum Detectable Count Rate (MDCR) and the $MDCR = 1.38\sqrt{B}/(\sqrt{p} \cdot t)$ where p=surveyor efficiency, in accordance with BCY-HP-0081.

5. SURVEY IMPLEMENTATION

Final status survey field activities were conducted under Final Status Survey Plan 9306-0000. The FSS plan included a 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.

Two (2) scan areas were established that constituted approximately 25% of the surface area of Survey Unit 9306-0000. Grid lines, one (1) meter wide, were painted on the ground of the scan area. A background survey was performed around the survey unit and it was determined that, using an Eberline E-600 with a SPA-3 sodium iodide detector, background ranged from 7,160 counts per minute (cpm) up to 9,430 cpm.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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 25% 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.

Fifteen (15) 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*."

Four (4) judgmental or biased surface soil samples (9306-0000-016B, 9306-0000-017B, 9306-0000-018B and 9306-0000-019B) were identified and collected within this survey unit.

Two (2) samples (9306-0000-004F and 9306-0000-011F) were randomly selected for HTD radionuclide analysis. Additionally, the four (4) judgmental samples were analyzed for HTD radionuclides.

The implementation of survey specific quality control measures included the collection of two (2) samples (9306-0000-006F and 9306-0000-008F) for "split sample" analysis.

6. SURVEY RESULTS

All field survey activities were conducted between March 27, 2007 and April 2, 2007.

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 for the entire survey unit are provided in Attachment 2.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Table 5 - Scan Results for Sample Measurement Locations

Sample Measurement Location	Highest Logged Reading (kcpm)	Action Level ⁽¹⁾ (kcpm)	> Action Level
1	10.7	11.3	NO
2	9.68	10.2	NO
3	9.59	10.9	NO
4	9.91	12.0	NO
5	9.12	11.3	NO
6	9.20	10.8	NO
7	10.0	10.6	NO
8	9.49	10.8	NO
9	8.20	9.72	NO
10	8.25	8.78	NO
11	9.52	10.5	NO
12	8.86	9.67	NO
13	7.72	9.05	NO
14	7.99	9.13	NO
15	8.21	9.19	NO
16	9.36	11.1	NO
17	8.54	9.29	NO
18	7.61	8.68	NO
19	10.1	11.0	NO
20	12.4	9.6	YES ⁽²⁾

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

(2) Sample number 9306-0000-0201 was an investigative sample that was collected from an elevated scan location. Therefore, by definition, the highest sample count rate is > the action level.

The scan areas, that comprised approximately 25% 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 April 2, 2007. One (1) elevated measurement location was identified during scanning.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Table 6 provides an overview of the scan area survey. Complete scan results are provided in Attachment 2.

Table 6 - Scan Area Results					
Scan Area	Scan Strips	Highest Logged Reading (kcpm)	Range of Action Levels ⁽¹⁾ (kcpm)	Elevated Reading Identification	Investigation Sample
1	1-5	9.84	9.86-11.5	None	None
	6-10	9.67	13.2-13.8	None	None
	11-14	12.2	9.60-11.4	9306-00-ER-01-14-1	9306-0000-020I
2	1-5	8.69	12.1-13.5	None	None
	6-10	9.45	8.87-10.6	None	None
	11-15	9.00	8.89-10.8	None	None
	16-20	9.31	8.49-11.2	None	None
	21-25	9.60	8.24-10.8	None	None

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

The off-site laboratory employed for the radiological analyses of samples was General Engineering Laboratories, LLC. The laboratory analyzed the fifteen (15) samples collected for non-parametric statistical testing, the associated field split and the four (4) biased and one (1) investigative samples using gamma spectroscopy. Gamma spectroscopy results identified some radionuclides meeting the accepted criteria for detection (i.e., a result greater than two (2) standard deviations uncertainty). However, Cs-137 and Co-60 were the only gamma-emitting radionuclides reported in concentrations exceeding the de-selection criteria.

Cs-137 was identified in three (3) and Co-60 was also identified in three (3) of the fifteen (15) samples collected for non-parametric statistical testing. The mean of the gamma spectroscopic analysis results for the sample population indicated that Cs-137 was present at or 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. A summary of the fifteen (15) samples collected for non-parametric statistical testing results is provided in Table 7.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Table 7 - Summary of Gamma Spectroscopy Results for Surface Soil Samples Comprising the Statistical Sample Population

Sample Number	Cs-137 pCi/g	Co-60 pCi/g
9306-0000-001F	-1.31E-02	2.55E-02
9306-0000-002F	-1.61E-02	9.92E-03
9306-0000-003F	-2.99E-03	1.17E-01
9306-0000-004F	-5.50E-03	1.06E-02
9306-0000-005F	2.40E-03	3.78E-03
9306-0000-006F	1.09E-02	7.60E-03
9306-0000-007F	7.92E-03	-1.39E-03
9306-0000-008F	-5.98E-03	4.56E-03
9306-0000-009F	3.02E-02	1.50E-02
9306-0000-010F	6.00E-02	7.93E-03
9306-0000-011F	1.27E-02	9.19E-02
9306-0000-012F	7.75E-04	4.89E-03
9306-0000-013F	4.83E-02	3.35E-04
9306-0000-014F	2.82E-02	2.98E-03
9306-0000-015F	-2.03E-03	1.28E-03

The off-site laboratory also processed two (2) of the statistical samples and all four (4) Biased 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.

HTD analyses did not identify any radionuclides from the list provided in Table 2, as being greater than 5% of the Operational DCGL for that radionuclide or greater than 10% for all HTD radionuclides when combined. In accordance with LTP Section 5.4.7.2, "Gross Activity DCGLs", 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. Therefore, all HTD radionuclides were de-selected for this survey unit.

The "sum-of-fractions" or "unity rule" is the mathematical test used to evaluate compliance with radiological criteria for license termination when more than one radionuclide has been determined to be potentially present. The unity rule is:

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

Equation 3

$$\frac{C_1}{DCGL_1} + \frac{C_2}{DCGL_2} + \dots + \frac{C_n}{DCGL_n} \leq 1$$

Where: C_n = concentration of radionuclide n and
 $DCGL_n$ = DCGL of radionuclide n .

The results of the unity rule calculation for the radionuclides of concern in the statistical sample population for Survey Unit 9306-0000 are provided in Table 8 below.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

**Table 8 – Results of Unity Calculation for Surface Soil Samples
Comprising the Statistical Sample Population**

Sample Number	Cs-137 ⁽²⁾ pCi/g	Co-60 ⁽²⁾ pCi/g	Unity Fraction ⁽¹⁾
9306-0000-001F	-	2.55E-02	0.011
9306-0000-002F	-	9.92E-03	0.004
9306-0000-003F	-	1.17E-01	0.051
9306-0000-004F	-	1.06E-02	0.005
9306-0000-005F	2.40E-03	3.78E-03	0.002
9306-0000-006F	1.09E-02	7.60E-03	0.003
9306-0000-007F	7.92E-03	-	0.001
9306-0000-008F	-	4.56E-03	0.001
9306-0000-009F	3.02E-02	1.50E-02	0.013
9306-0000-010F	6.00E-02	7.93E-03	0.016
9306-0000-011F	1.27E-02	9.19E-02	0.043
9306-0000-012F	7.75E-04	4.89E-03	0.002
9306-0000-013F	4.83E-02	3.35E-04	0.010
9306-0000-014F	2.82E-02	2.98E-03	0.007
9306-0000-015F	-	1.28E-03	0.001
9306-0000-016B	8.34E-02	2.18E-02	0.027
9306-0000-017B	-	-	0.000
9306-0000-018B	6.85E-03	5.83E-3	0.004
9306-0000-019B	-	1.97E-2	0.009
9306-0000-020I	5.95E-02	-	0.013

(1) The Operational DCGL from Table 2 is 4.75 pCi/g for Cs-137 and 2.29 pCi/g for Co-60 to achieve fifteen (15) mrem/yr TEDE respectively.

(2) “-” Indicates that sample activity was a negative value.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

7. QUALITY CONTROL

The off-site laboratory processed the split samples and performed gamma spectroscopy analysis. Two (2) sample locations 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*". There was acceptable agreement between the field split results at locations 9306-0000-006F and 9306-0000-008F.

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

One (1) investigative sample was collected from Scan Area 1 at a location that exhibited an elevated scan reading. The sample is denoted as shown in Table 6, with the sample results shown in Table 9 below.

Table 9 - Investigative Sample Results

Sample Number	Cs-137 pCi/g	Co-60 ⁽²⁾ pCi/g	Unity Fraction ⁽¹⁾
9306-0000-020I	5.95E-02	-	0.013

(1) The Operational DCGL from Table 2 is 4.75 pCi/g for Cs-137 and 2.29 pCi/g for Co-60 to achieve fifteen (15) mrem/yr TEDE respectively.

(2) "- "Indicates that sample activity was a negative value.

9. REMEDIATION AND RESULTS

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

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

11. DATA QUALITY ASSESSMENT (DQA)

The DQO sample design and data were reviewed in accordance with Procedure RPM 5.1-23, "*Data Quality Assessment*," 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 2.

The preliminary data review consisted of calculating basic statistical quantities (e.g., mean, median, standard deviation). The mean and median values are well below the Operational DCGL. Also, the retrospective power curve shows that a sufficient number of samples were collected to achieve the desired power. Therefore, the survey unit meets the unrestricted release criteria with adequate power as required by the DQOs. The basic statistical quantities for the statistical sample population are provided below in Table 10.

Table 10 – Basic Statistical Quantities for Cs-137 and Co-60 from the Final Status Survey

	Cs-137 pCi/g	Co-60 pCi/g
DCGL _{op} :	4.75E+00	2.29E+00
Minimum Value:	-1.61E-02	-1.39E-03
Maximum Value:	6.00E-02	1.17E-01
Mean:	1.04E-02	2.01E-02
Median:	2.40E-03	7.60E-03
Standard Deviation:	2.27E-02	3.52E-02

For Cs-137, the range of the data, about three (3) 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 35% 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 1.09 for Cs-137.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

For Co-60, the range of the data, about three (3) 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 35% 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 2.33 for Co-60.

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

12. ANOMALIES

No anomalies were noted.

13. CONCLUSION

Survey Unit 9306-0000 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 and remediation was not required.

All identified radionuclides of concern were used for statistical testing to determine the adequacy of the survey unit for FSS.

The sample data passed the Sign Test. The null hypothesis was rejected. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved. The survey unit is properly designated as Class 2.

The dose contribution from soil is 0.165 mrem/yr TEDE based on the average concentration of the samples used for non-parametric statistical sampling.

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

This survey unit is considered impacted by future groundwater radioactive contamination, as there are underground 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 two (2) mrem/yr TEDE.

The average total dose from residual radioactivity in this survey unit, including exposures from the three (3) components as described in Section 3, that is, residual radioactivity in soil, existing groundwater radioactivity, and future groundwater radioactivity from the burial of concrete foundations or footings from site buildings containing residual radioactivity, will not exceed 4.165 mrem/yr TEDE. Therefore, Survey Unit 9306-0000 is acceptable for unrestricted release.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 1 (FIGURES)

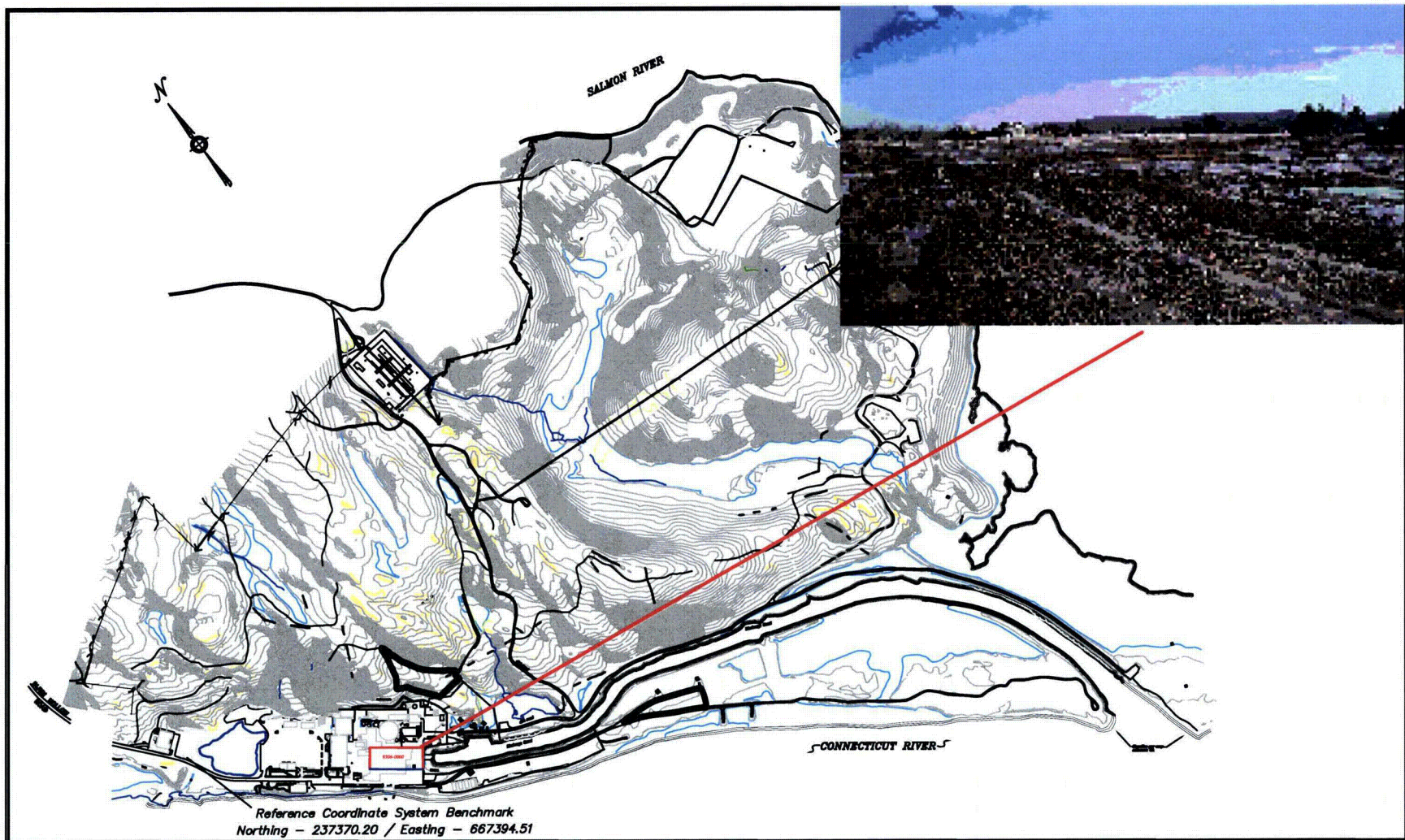


Figure 1



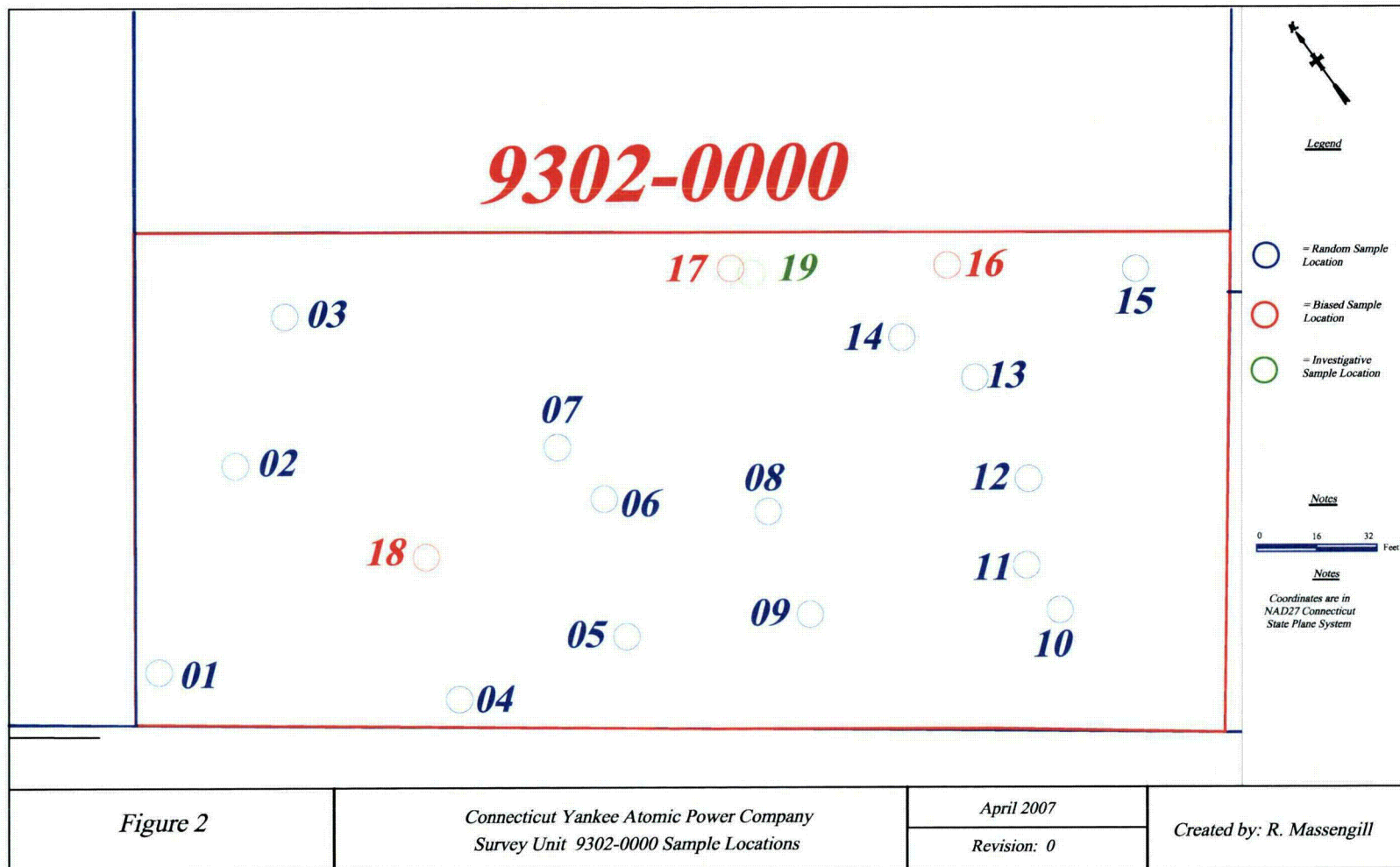
Connecticut Yankee Atomic Power Company
 Site Map With Reference To Survey Unit 9306-0000

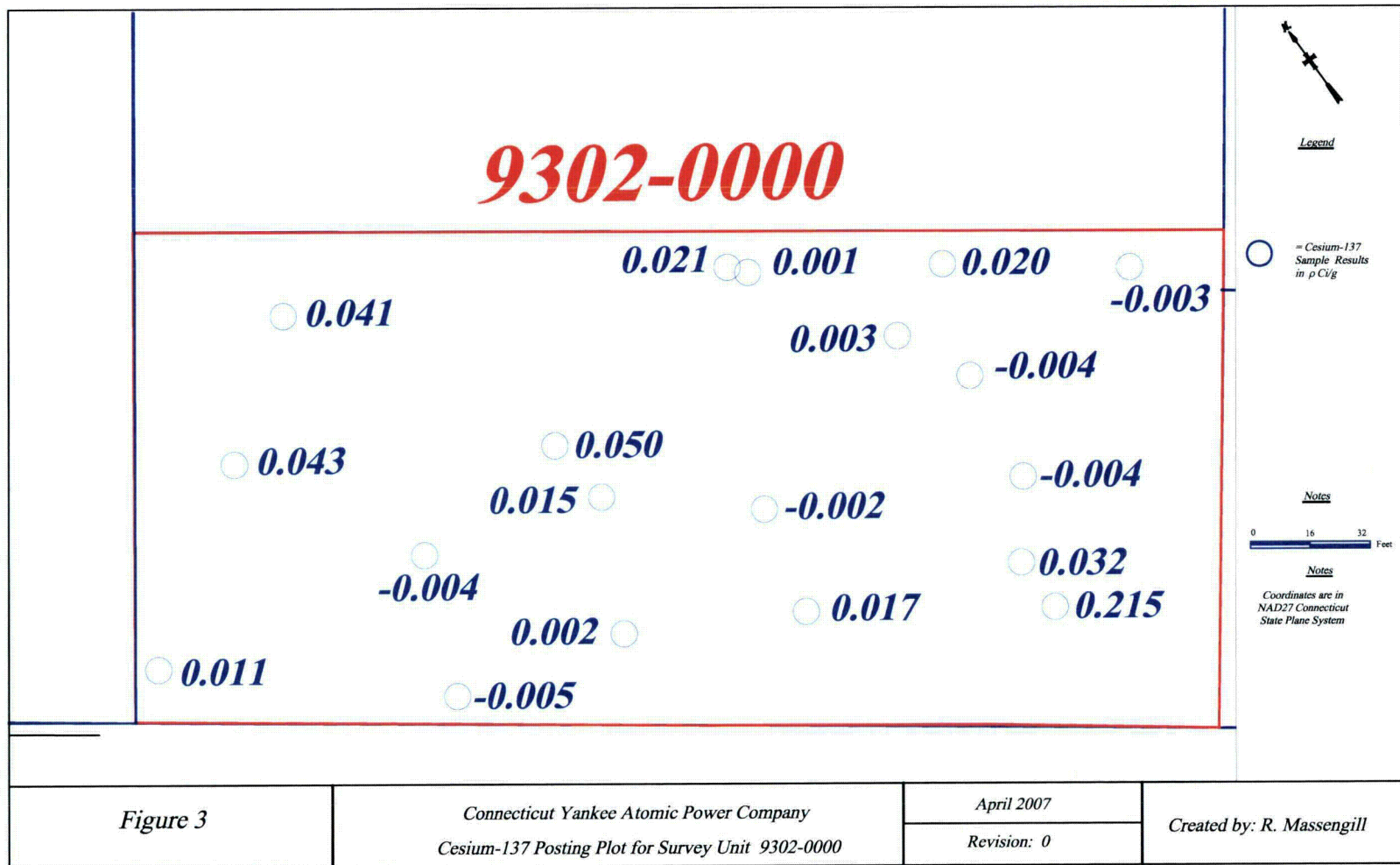
Date

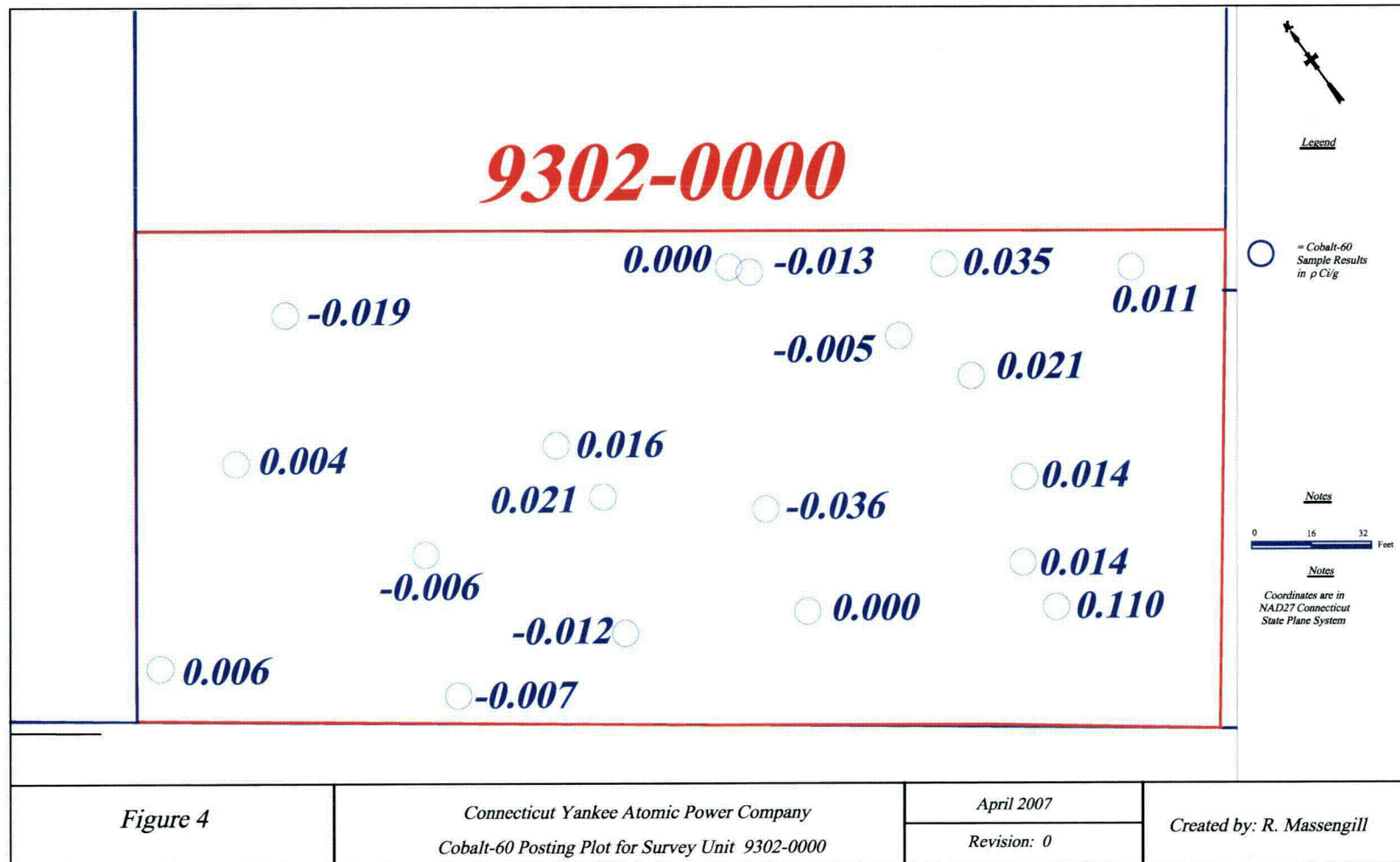
By

April 2007

R.M.







SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 2 (SCAN RESULTS)

SURVEY UNIT 9306-0000
SAMPLE LOCATION SCAN RESULTS

Survey Location	Log Date	Log Time	Reading (cpm)	MDCR (cpm)	Action L. (cpm)	>AL ("+"=Yes)	E-600 S/N	Probe S/N
9306-00-BL-00-01-0	3/27/2007	10:04:00	9.92E+03	1.42E+03	1.13E+04		1111	1004
9306-00-SL-00-01-0	3/27/2007	10:05:00	1.07E+04				1111	1004
9306-00-BL-00-02-0	3/27/2007	10:07:00	8.81E+03	1.34E+03	1.02E+04		1111	1004
9306-00-SL-00-02-0	3/27/2007	10:08:00	9.68E+03				1111	1004
9306-00-BL-00-03-0	3/27/2007	10:10:00	9.48E+03	1.39E+03	1.09E+04		1111	1004
9306-00-SL-00-03-0	3/27/2007	10:11:00	9.59E+03				1111	1004
9306-00-BL-00-04-0	3/27/2007	10:12:00	1.05E+04	1.46E+03	1.20E+04		1111	1004
9306-00-SL-00-04-0	3/27/2007	10:14:00	9.91E+03				1111	1004
9306-00-BL-00-05-0	3/27/2007	10:18:00	9.91E+03	1.42E+03	1.13E+04		1111	1004
9306-00-SL-00-05-0	3/27/2007	10:19:00	9.12E+03				1111	1004
9306-00-BL-00-06-0	3/27/2007	10:20:00	9.42E+03	1.39E+03	1.08E+04		1111	1004
9306-00-SL-00-06-0	3/27/2007	10:22:00	9.20E+03				1111	1004
9306-00-BL-00-07-0	3/27/2007	10:25:00	9.24E+03	1.37E+03	1.06E+04		1111	1004
9306-00-SL-00-07-0	3/27/2007	10:26:00	1.00E+04				1111	1004
9306-00-BL-00-08-0	3/27/2007	10:27:00	9.39E+03	1.38E+03	1.08E+04		1111	1004
9306-00-SL-00-08-0	3/27/2007	10:29:00	9.49E+03				1111	1004
9306-00-BL-00-09-0	3/27/2007	10:30:00	8.41E+03	1.31E+03	9.72E+03		1111	1004
9306-00-SL-00-09-0	3/27/2007	10:32:00	8.20E+03				1111	1004
9306-00-BL-00-10-0	3/27/2007	10:33:00	7.54E+03	1.24E+03	8.78E+03		1111	1004
9306-00-SL-00-10-0	3/27/2007	10:36:00	8.25E+03				1111	1004
9306-00-BL-00-11-0	3/27/2007	10:37:00	9.16E+03	1.37E+03	1.05E+04		1111	1004
9306-00-SL-00-11-0	3/27/2007	10:39:00	9.52E+03				1111	1004
9306-00-BL-00-12-0	3/27/2007	10:40:00	8.36E+03	1.31E+03	9.67E+03		1111	1004
9306-00-SL-00-12-0	3/27/2007	10:42:00	8.86E+03				1111	1004
9306-00-BL-00-13-0	3/27/2007	10:43:00	7.79E+03	1.26E+03	9.05E+03		1111	1004
9306-00-SL-00-13-0	3/27/2007	10:45:00	7.72E+03				1111	1004

SURVEY UNIT 9306-0000
SAMPLE LOCATION SCAN RESULTS

Survey Location	Log Date	Log Time	Reading (cpm)	MDCR (cpm)	Action L. (cpm)	>AL ("+"=Yes)	E-600 S/N	Probe S/N
9306-00-BL-00-14-0	3/27/2007	10:47:00	7.86E+03	1.27E+03	9.13E+03		1111	1004
9306-00-SL-00-14-0	3/27/2007	10:49:00	7.99E+03				1111	1004
9306-00-BL-00-15-0	3/27/2007	10:50:00	7.92E+03	1.27E+03	9.19E+03		1111	1004
9306-00-SL-00-15-0	3/27/2007	10:51:00	8.21E+03				1111	1004
9306-00-BL-00-16-0	3/27/2007	11:03:00	9.73E+03	1.41E+03	1.11E+04		1111	1004
9306-00-SL-00-16-0	3/27/2007	11:05:00	9.36E+03				1111	1004
9306-00-BL-00-17-0	3/27/2007	10:58:00	8.01E+03	1.28E+03	9.29E+03		1111	1004
9306-00-SL-00-17-0	3/27/2007	11:00:00	8.54E+03				1111	1004
9306-00-BL-00-18-0	3/27/2007	10:56:00	7.45E+03	1.23E+03	8.68E+03		1111	1004
9306-00-SL-00-18-0	3/27/2007	10:57:00	7.61E+03				1111	1004
9306-00-BL-00-19-0	3/27/2007	10:53:00	9.61E+03	1.40E+03	1.10E+04		1111	1004
9306-00-SL-00-19-0	3/27/2007	10:54:00	1.01E+04				1111	1004

SURVEY UNIT 9306-0000
SCAN AREA SURVEY RESULTS

Survey Location	Log Date	Log Time	Reading (cpm)	MDCR (cpm)	Action L. (cpm)	>AL ("+"=Yes)	E-600 S/N	Probe S/N
9306-00-BC-01-01-0	4/2/2007	10:04:00	1.01E+04	1.44E+03	1.15E+04		1117	1008
9306-00-SC-01-01-0	4/2/2007	10:10:00	9.07E+03				1117	1008
9306-00-BC-01-02-0	4/2/2007	10:11:00	8.90E+03	1.35E+03	1.02E+04		1117	1008
9306-00-SC-01-02-0	4/2/2007	10:16:00	9.10E+03				1117	1008
9306-00-BC-01-03-0	4/2/2007	8:02:00	8.60E+03	1.32E+03	9.92E+03		1117	1008
9306-00-SC-01-03-0	4/2/2007	8:11:00	9.58E+03				1117	1008
9306-00-BC-01-04-0	4/2/2007	8:11:00	9.64E+03	1.40E+03	1.10E+04		1117	1008
9306-00-SC-01-04-0	4/2/2007	8:16:00	9.84E+03				1117	1008
9306-00-BC-01-05-0	4/2/2007	8:18:00	8.54E+03	1.32E+03	9.86E+03		1117	1008
9306-00-SC-01-05-0	4/2/2007	8:28:00	9.61E+03				1117	1008
9306-00-BC-01-06-0	4/2/2007	8:29:00	8.96E+03	1.35E+03	1.03E+04		1117	1008
9306-00-SC-01-06-0	4/2/2007	8:34:00	9.17E+03				1117	1008
9306-00-BC-01-07-0	4/2/2007	8:36:00	8.52E+03	1.32E+03	9.84E+03		1117	1008
9306-00-SC-01-07-0	4/2/2007	8:39:00	8.91E+03				1117	1008
9306-00-BC-01-08-0	4/2/2007	8:40:00	9.15E+03	1.37E+03	1.05E+04		1117	1008
9306-00-SC-01-08-0	4/2/2007	8:44:00	9.67E+03				1117	1008
9306-00-BC-01-09-0	4/2/2007	8:01:00	9.32E+03	1.38E+03	1.07E+04		1111	1004
9306-00-SC-01-09-0	4/2/2007	8:06:00	8.96E+03				1111	1004
9306-00-BC-01-10-0	4/2/2007	8:07:00	8.54E+03	1.32E+03	9.86E+03		1111	1004
9306-00-SC-01-10-0	4/2/2007	8:11:00	9.22E+03				1111	1004
9306-00-BC-01-11-0	4/2/2007	8:15:00	1.00E+04	1.43E+03	1.14E+04		1111	1004
9306-00-SC-01-11-0	4/2/2007	8:19:00	9.63E+03				1111	1004
9306-00-BC-01-12-0	4/2/2007	8:19:00	8.30E+03	1.30E+03	9.60E+03		1111	1004
9306-00-SC-01-12-0	4/2/2007	8:25:00	9.30E+03				1111	1004
9306-00-BC-01-13-0	4/2/2007	8:25:00	9.39E+03	1.38E+03	1.08E+04		1111	1004
9306-00-SC-01-13-0	4/2/2007	8:29:00	8.54E+03				1111	1004
9306-00-BC-01-14-0	4/2/2007	8:30:00	8.31E+03	1.30E+03	9.61E+03		1111	1004
9306-00-SC-01-14-0	4/2/2007	8:39:00	9.19E+03				1111	1004
9306-00-ER-01-14-1	4/2/2007	10:01:00	1.22E+04			+	1111	1004

SURVEY UNIT 9306-0000
SCAN AREA SURVEY RESULTS

Survey Location	Log Date	Log Time	Reading (cpm)	MDCR (cpm)	Action L. (cpm)	>AL ("+"=Yes)	E-600 S/N	Probe S/N
9306-00-BC-02-01-0	4/2/2007	10:34:00	8.80E+03	1.34E+03	1.01E+04		1111	1004
9306-00-SC-02-01-0	4/2/2007	10:42:00	7.96E+03				1111	1004
9306-00-BC-02-02-0	4/2/2007	10:43:00	7.92E+03	1.27E+03	9.19E+03		1111	1004
9306-00-SC-02-02-0	4/2/2007	10:49:00	8.64E+03				1111	1004
9306-00-BC-02-03-0	4/2/2007	10:51:00	8.92E+03	1.35E+03	1.03E+04		1111	1004
9306-00-SC-02-03-0	4/2/2007	10:56:00	7.86E+03				1111	1004
9306-00-BC-02-04-0	4/2/2007	10:58:00	7.16E+03	1.21E+03	8.37E+03		1111	1004
9306-00-SC-02-04-0	4/2/2007	11:07:00	7.63E+03				1111	1004
9306-00-BC-02-05-0	4/2/2007	11:08:00	8.41E+03	1.31E+03	9.72E+03		1111	1004
9306-00-SC-02-05-0	4/2/2007	11:11:00	8.69E+03				1111	1004
9306-00-BC-02-06-0	4/2/2007	11:13:00	9.22E+03	1.37E+03	1.06E+04		1111	1004
9306-00-SC-02-06-0	4/2/2007	11:19:00	9.45E+03				1111	1004
9306-00-BC-02-07-0	4/2/2007	11:20:00	8.15E+03	1.29E+03	9.44E+03		1111	1004
9306-00-SC-02-07-0	4/2/2007	11:23:00	8.23E+03				1111	1004
9306-00-BC-02-08-0	4/2/2007	11:23:00	7.62E+03	1.25E+03	8.87E+03		1111	1004
9306-00-SC-02-08-0	4/2/2007	11:27:00	7.98E+03				1111	1004
9306-00-BC-02-09-0	4/2/2007	10:34:00	8.82E+03	1.34E+03	1.02E+04		1107	1007
9306-00-SC-02-09-0	4/2/2007	10:38:00	8.30E+03				1107	1007
9306-00-BC-02-10-0	4/2/2007	10:40:00	8.31E+03	1.30E+03	9.61E+03		1107	1007
9306-00-SC-02-10-0	4/2/2007	10:43:00	8.91E+03				1107	1007
9306-00-BC-02-11-0	4/2/2007	10:44:00	9.43E+03	1.39E+03	1.08E+04		1107	1007
9306-00-SC-02-11-0	4/2/2007	10:51:00	8.46E+03				1107	1007
9306-00-BC-02-12-0	4/2/2007	11:42:00	7.87E+03	1.27E+03	9.14E+03		1107	1007
9306-00-SC-02-12-0	4/2/2007	11:45:00	8.37E+03				1107	1007
9306-00-BC-02-13-0	4/2/2007	11:01:00	8.89E+03	1.35E+03	1.02E+04		1107	1007
9306-00-SC-02-13-0	4/2/2007	11:04:00	8.76E+03				1107	1007

SURVEY UNIT 9306-0000
SCAN AREA SURVEY RESULTS

Survey Location	Log Date	Log Time	Reading (cpm)	MDCR (cpm)	Action L. (cpm)	>AL ("+"=Yes)	E-600 S/N	Probe S/N
9306-00-BC-02-14-0	4/2/2007	11:04:00	7.64E+03	1.25E+03	8.89E+03		1107	1007
9306-00-SC-02-14-0	4/2/2007	11:05:00	8.26E+03				1107	1007
9306-00-BC-02-15-0	4/2/2007	11:07:00	8.98E+03	1.35E+03	1.03E+04		1107	1007
9306-00-SC-02-15-0	4/2/2007	11:09:00	9.00E+03				1107	1007
9306-00-BC-02-16-0	4/2/2007	11:11:00	8.74E+03	1.34E+03	1.01E+04		1107	1007
9306-00-SC-02-16-0	4/2/2007	11:15:00	8.03E+03				1107	1007
9306-00-BC-02-17-0	4/2/2007	11:40:00	7.96E+03	1.27E+03	9.23E+03		1107	1007
9306-00-SC-02-17-0	4/2/2007	11:41:00	8.64E+03				1107	1007
9306-00-BC-02-18-0	4/2/2007	11:19:00	9.17E+03	1.37E+03	1.05E+04		1107	1007
9306-00-SC-02-18-0	4/2/2007	11:21:00	9.31E+03				1107	1007
9306-00-BC-02-19-0	4/2/2007	11:23:00	9.80E+03	1.41E+03	1.12E+04		1107	1007
9306-00-SC-02-19-0	4/2/2007	11:26:00	9.03E+03				1107	1007
9306-00-BC-02-20-0	4/2/2007	11:27:00	7.27E+03	1.22E+03	8.49E+03		1107	1007
9306-00-SC-02-20-0	4/2/2007	11:28:00	7.96E+03				1107	1007
9306-00-BC-02-21-0	4/2/2007	11:28:00	9.43E+03	1.39E+03	1.08E+04		1111	1004
9306-00-SC-02-21-0	4/2/2007	11:31:00	9.60E+03				1111	1004
9306-00-BC-02-22-0	4/2/2007	11:32:00	8.13E+03	1.29E+03	9.42E+03		1111	1004
9306-00-SC-02-22-0	4/2/2007	11:38:00	8.45E+03				1111	1004
9306-00-BC-02-23-0	4/2/2007	11:38:00	7.11E+03	1.20E+03	8.31E+03		1111	1004
9306-00-SC-02-23-0	4/2/2007	11:41:00	7.20E+03				1111	1004
9306-00-BC-02-24-0	4/2/2007	11:42:00	7.04E+03	1.20E+03	8.24E+03		1111	1004
9306-00-SC-02-24-0	4/2/2007	11:45:00	7.38E+03				1111	1004
9306-00-BC-02-25-0	4/2/2007	11:46:00	8.73E+03	1.33E+03	1.01E+04		1111	1004
9306-00-SC-02-25-0	4/2/2007	11:49:00	9.37E+03				1111	1004

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 3 (LABORATORY DATA)

TABLE OF CONTENTS

General Narrative.....	1
Chain of Custody and Supporting Documentation.....	5
Data Review Qualifier Definitions.....	10
Radiological Analysis.....	12
Sample Data Summary.....	33
Quality Control Data.....	83

General Narrative

**General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 183322
SDG: MSR#07-0133**

April 04, 2007

Laboratory Identification:

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

Summary

Sample receipt

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on March 30, 2007 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

Sample Identification The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
183322001	9306-0000-001F
183322002	9306-0000-002F
183322003	9306-0000-003F
183322004	9306-0000-004F
183322005	9306-0000-005F
183322006	9306-0000-006F
183322007	9306-0000-006FS
183322008	9306-0000-007F
183322009	9306-0000-008F
183322010	9306-0000-008FS
183322011	9306-0000-009F
183322012	9306-0000-010F
183322013	9306-0000-011F
183322014	9306-0000-012F
183322015	9306-0000-013F
183322016	9306-0000-014F
183322017	9306-0000-015F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B

Items of Note

There are no items to note.

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

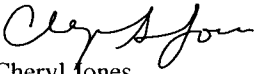
Analytical Request

Fifteen soil samples were analyzed for FSSGAM and six soil samples were analyzed for FSSALL.

Data Package

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

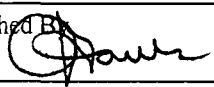
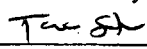
I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Cheryl Jones
Project Manager

List of current GEL Certifications as of 04 April 2007

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

Chain of Custody and Supporting Documentation

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 ATT: Cheryl Jones (843-556-8171)													183322%	
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 15 D. <input checked="" type="checkbox"/> 7 D. Other:														
Sample Designation	Date	Time										Comment, Preservation	Lab Sample ID	
9306-0000-001F	3/27/07	1310	TS	G	BP	X								
9306-0000-002F	3/27/07	1310	TS	G	BP	X								
9306-0000-003F	3/27/07	1316	TS	G	BP	X								
9306-0000-004F	3/27/07	1316	TS	G	BP		X							
9306-0000-005F	3/27/07	1318	TS	G	BP	X								
9306-0000-006F	3/27/07	1318	TS	G	BP	X								
9306-0000-006FS	3/27/07	1318	TS	G	BP	X								
9306-0000-007F	3/27/07	1322	TS	G	BP	X								
9306-0000-008F	3/27/07	1322	TS	G	BP	X								
9306-0000-008FS	3/27/07	1322	TS	G	BP	X								
9306-0000-009F	3/27/07	1327	TS	G	BP	X								
NOTES: PO #: 002332 MSR #: 07-0133 <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.: 16° Deg. C Custody Sealed? Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
1) Relinquished By: 			Date/Time: 3/29/07 1125		2) Received By: 			Date/Time: 3-30-07 930		Bill of Lading #				
3) Relinquished By:			Date/Time:		4) Received By:			Date/Time:						
5) Relinquished By:			Date/Time:		6) Received By:			Date/Time:						

Connecticut Yankee Atomic Power Company

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

Chain of Custody Form

No. 2007-00096

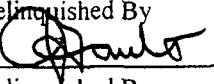
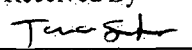
Project Name: Haddam Neck Decommissioning			Media Code	Sample Type Code	Container Size- & Type Code	Analyses Requested						Lab Use Only		
Contact Name & Phone: Jack McCarthy 860-267-3924						FSSGAM	FSSALL						Comments:	
Analytical Lab (Name, City, State): General Engineering Laboratories 2040 Savage Road Charleston, SC 29407 ATT: Cheryl Jones (843-556-8171)														
Priority: <input type="checkbox"/> 30 D. <input type="checkbox"/> 15 D. <input checked="" type="checkbox"/> 7 D. Other:														
Sample Designation	Date	Time										Comment, Preservation	Lab Sample ID	
9306-0000-010F	3/27/07	1327	TS	G	BP	X								
9306-0000-011F	3/27/07	1332	TS	G	BP		X							
9306-0000-012F	3/27/07	1332	TS	G	BP	X								
9306-0000-013F	3/27/07	1348	TS	G	BP	X								
9306-0000-014F	3/27/07	1348	TS	G	BP	X								
9306-0000-015F	3/27/07	1346	TS	G	BP	X								
9306-0000-016B	3/27/07	1350	TS	G	BP		X							
9306-0000-017B	3/27/07	1350	TS	G	BP		X							
9306-0000-018B	3/27/07	1342	TS	G	BP		X							
9306-0000-019B	3/27/07	1342	TS	G	BP		X							
NOTES: PO #: 002332 MSR #: 07-0133 <input checked="" type="checkbox"/> LTP QA <input type="checkbox"/> Radwaste QA <input type="checkbox"/> Non QA														
1) Relinquished By 			Date/Time 3/29/07 1125			2) Received By 			Date/Time 3-30-07 930			Samples Shipped Via: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand <input type="checkbox"/> Other Bill of Lading # _____		Internal Container Temp.: 16 Deg. C Custody Sealed? Custody Seal Intact? Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
3) Relinquished By			Date/Time			4) Received By			Date/Time					
5) Relinquished By			Date/Time			6) Received By			Date/Time					

Figure 1. Sample Check-in List

- Date/Time Received: 3-30-07 930
- SDG#: MSP#07-0133, 0134
- Work Order Number: 183322, 183321
- Shipping Container ID: 790704754446 Chain of Custody #: 2007-00096
- Shipping Container ID: 79295890 9973 Chain of Custody #: 2007-00095 2007-000
1. Custody Seals on shipping container intact? Yes ☒ No ☐
 2. Custody Seals dated and signed? Yes ☒ No ☐
 3. Chain-of-Custody record present? Yes ☒ No ☐
 4. Cooler temperature 17°, 16°
 5. Vermiculite/packing materials is: Wet ☐ Dry ☒
 6. Number of samples in shipping container: 3 and 21
 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: Tue Sub Date: 3-30-07 930

Telephoned to: _____ On _____ By _____



SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>Connecticut Yankee</u>	SDG/ARCOC/Work Order: <u>183322, 183321</u>
Date Received: <u>3-30-07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>TS</u>	<u>[Signature]</u>

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

14 Air Bill ,Tracking #'s, & Additional Comments	<u>79070475 4446 17°</u> <u>7929 5890 9973 16°</u>
--	---

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

PM (or PMA) review of Hazard classification: ✓

Initials CAX

Date: 3/30/07

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier Explanation

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

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
Work Order 183322**

Method/Analysis Information

Product:	Alphaspec Am241, Cm, Solid ALL FSS
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	621440
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201305993	Method Blank (MB)
1201305994	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201305995	183322004(9306-0000-004F) Matrix Spike (MS)
1201305996	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 15.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

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

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Miscellaneous Information:**NCR Documentation**

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

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:	621441
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201305997	Method Blank (MB)
1201305998	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201305999	183322004(9306-0000-004F) Matrix Spike (MS)
1201306000	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 15.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Miscellaneous Information:**NCR Documentation**

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Pu241, Solid-ALL FSS
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	621443
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201306005	Method Blank (MB)
1201306006	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201306007	183322004(9306-0000-004F) Matrix Spike (MS)
1201306008	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-035 REV# 9.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples 183322019 (9306-0000-017B) and 183322021 (9306-0000-019B) were recounted due to the quench number being outside the calibration range.

Miscellaneous Information:**NCR Documentation**

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

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Gamma,Solid-FSS GAM & ALL FSS 226 Ingrowth Waived
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	622279
Prep Batch Number:	621413

Sample ID	Client ID
183322001	9306-0000-001F
183322002	9306-0000-002F
183322003	9306-0000-003F
183322004	9306-0000-004F
183322005	9306-0000-005F
183322006	9306-0000-006F
183322007	9306-0000-006FS
183322008	9306-0000-007F
183322009	9306-0000-008F
183322010	9306-0000-008FS
183322011	9306-0000-009F
183322012	9306-0000-010F
183322013	9306-0000-011F
183322014	9306-0000-012F
183322015	9306-0000-013F
183322016	9306-0000-014F
183322017	9306-0000-015F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
1201307868	Method Blank (MB)
1201307869	183322001(9306-0000-001F) Sample Duplicate (DUP)
1201307870	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322001 (9306-0000-001F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Miscellaneous Information:**NCR Documentation**

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to interference.	Europium-155	183322003
			183322009
		Manganese-54	183322005
UI	Data rejected due to low abundance.	Bismuth-214	183322017
		Cesium-134	183322001
			183322002
			183322003
			183322005
			183322006
			183322007
			183322008
			183322009
			183322013
			183322014
			183322016
			1201307869

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: 622281
Prep Batch Number: 621413

Sample ID	Client ID
183322021	9306-0000-019B
1201307871	Method Blank (MB)
1201307872	183322021(9306-0000-019B) Sample Duplicate (DUP)
1201307873	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 14.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

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

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

Designated QC

The following sample was used for QC: 183322021 (9306-0000-019B).

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:	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:	621435
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201305974	Method Blank (MB)
1201305975	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201305976	183322004(9306-0000-004F) Matrix Spike (MS)
1201305977	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 11.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Chemical Recoveries

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

Miscellaneous Information:

NCR Documentation

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Tc99, Solid-ALL FSS
Analytical Method:	DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number:	621438

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201305989	Method Blank (MB)
1201305990	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201305991	183322004(9306-0000-004F) Matrix Spike (MS)
1201305992	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-005 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Miscellaneous Information:

NCR Documentation

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

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:	621636
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201306503	Method Blank (MB)
1201306504	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201306505	183322004(9306-0000-004F) Matrix Spike (MS)
1201306506	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-040 REV# 4.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples were recounted due to a detector not being calibrated.

Miscellaneous Information:

NCR Documentation

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	Liquid Scint Ni63, Solid-ALL FSS
Analytical Method:	DOE RESL Ni-1, Modified
Prep Method:	Ash Soil Prep
Dry Soil Prep GL-RAD-A-021 Method:	Dry Soil Prep
Analytical Batch Number:	623260
Prep Batch Number:	621414
Dry Soil Prep GL-RAD-A-021 Batch Number:	621413

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201309875	Method Blank (MB)
1201309876	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201309877	183322004(9306-0000-004F) Matrix Spike (MS)
1201309878	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-022 REV# 8.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples were reprepared due to low/high recovery.

Miscellaneous Information:**NCR Documentation**

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: LSC, Tritium Dist, Solid - 3 pCi/g

Analytical Method: EPA 906.0 Modified

Analytical Batch Number: 621639

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201306517	Method Blank (MB)
1201306518	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201306519	183322004(9306-0000-004F) Matrix Spike (MS)
1201306520	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 14.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

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

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples 1201306518 (9306-0000-004F), 183322013 (9306-0000-011F), 183322018 (9306-0000-016B), 183322019 (9306-0000-017B), 183322020 (9306-0000-018B) and 183322021 (9306-0000-019B) were recounted due to high MDAs.

Miscellaneous Information:**NCR Documentation**

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

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Liquid Scint C14, Solid All,FSS

Analytical Method: EPA EERF C-01 Modified

Analytical Batch Number: 621635

Sample ID	Client ID
183322004	9306-0000-004F
183322013	9306-0000-011F
183322018	9306-0000-016B
183322019	9306-0000-017B
183322020	9306-0000-018B
183322021	9306-0000-019B
1201306499	Method Blank (MB)
1201306500	183322004(9306-0000-004F) Sample Duplicate (DUP)
1201306501	183322004(9306-0000-004F) Matrix Spike (MS)
1201306502	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-003 REV# 9.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183322004 (9306-0000-004F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples 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

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: Kathleen Gellert 9/6/07

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

YANK001 Connecticut Yankee Atomic Power Co.

Client SDG: MSR#07-0133 GEL Work Order: 183322

The Qualifiers in this report are defined as follows:

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

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

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

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



Reviewed by _____

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-001F
Sample ID: 183322001
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 5.36%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.987	+/-0.176	0.0591	+/-0.176	0.118	pCi/g					
Americium-241	U	0.0369	+/-0.031	0.0257	+/-0.031	0.0514	pCi/g					
Bismuth-212		0.890	+/-0.255	0.143	+/-0.255	0.287	pCi/g					
Bismuth-214		0.702	+/-0.100	0.0297	+/-0.100	0.0594	pCi/g					
Cesium-134	UI	0.00	+/-0.0313	0.0214	+/-0.0313	0.0428	pCi/g					
Cesium-137	U	-0.0131	+/-0.0201	0.0166	+/-0.0201	0.0331	pCi/g					
Cobalt-60	U	0.0255	+/-0.0208	0.0184	+/-0.0208	0.0369	pCi/g					
Europium-152	U	0.0104	+/-0.0561	0.0411	+/-0.0561	0.0822	pCi/g					
Europium-154	U	-0.028	+/-0.0582	0.0475	+/-0.0582	0.095	pCi/g					
Europium-155	U	0.0418	+/-0.0442	0.0392	+/-0.0442	0.0783	pCi/g					
Lead-212		0.987	+/-0.102	0.0235	+/-0.102	0.047	pCi/g					
Lead-214		0.741	+/-0.0947	0.0293	+/-0.0947	0.0586	pCi/g					
Manganese-54	U	0.00798	+/-0.0213	0.0163	+/-0.0213	0.0325	pCi/g					
Niobium-94	U	0.00913	+/-0.0185	0.0158	+/-0.0185	0.0316	pCi/g					
Potassium-40		16.0	+/-1.13	0.125	+/-1.13	0.249	pCi/g					
Radium-226		0.702	+/-0.100	0.0297	+/-0.100	0.0594	pCi/g					
Silver-108m	U	-0.00282	+/-0.0165	0.0143	+/-0.0165	0.0286	pCi/g					
Thallium-208		0.335	+/-0.0505	0.0162	+/-0.0505	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	03/30/07	1047	621412

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 :

** Analyte is a surrogate compound

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power

Address : 362 Injun Hollow Rd

East Hampton, Connecticut 06424

Contact: Mr. Jack McCarthy

Project: Soils PO# 002332

Report Date: April 6, 2007

Client Sample ID: 9306-0000-001F
Sample ID: 183322001

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

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

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-002F
Sample ID: 183322002
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 2.38%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.06	+/-0.155	0.0385	+/-0.155	0.077	pCi/g					
Americium-241	U	-0.0227	+/-0.0678	0.0382	+/-0.0678	0.0764	pCi/g					
Bismuth-212		0.704	+/-0.219	0.0819	+/-0.219	0.164	pCi/g					
Bismuth-214		0.642	+/-0.0791	0.0194	+/-0.0791	0.0389	pCi/g					
Cesium-134	UI	0.00	+/-0.0259	0.0144	+/-0.0259	0.0289	pCi/g					
Cesium-137	U	-0.0161	+/-0.0156	0.0107	+/-0.0156	0.0213	pCi/g					
Cobalt-60	U	0.00992	+/-0.0133	0.0118	+/-0.0133	0.0236	pCi/g					
Europium-152	U	0.00416	+/-0.0495	0.0301	+/-0.0495	0.0602	pCi/g					
Europium-154	U	-0.0169	+/-0.0484	0.0341	+/-0.0484	0.0682	pCi/g					
Europium-155	U	-0.00391	+/-0.0423	0.0329	+/-0.0423	0.0658	pCi/g					
Lead-212		0.946	+/-0.0811	0.0171	+/-0.0811	0.0341	pCi/g					
Lead-214		0.725	+/-0.0797	0.0211	+/-0.0797	0.0422	pCi/g					
Manganese-54	U	0.0151	+/-0.0151	0.00994	+/-0.0151	0.0199	pCi/g					
Niobium-94	U	0.00709	+/-0.0127	0.011	+/-0.0127	0.0219	pCi/g					
Potassium-40		16.1	+/-1.10	0.0892	+/-1.10	0.178	pCi/g					
Radium-226		0.642	+/-0.0791	0.0194	+/-0.0791	0.0389	pCi/g					
Silver-108m	U	-0.0118	+/-0.0113	0.0095	+/-0.0113	0.019	pCi/g					
Thallium-208		0.285	+/-0.0374	0.011	+/-0.0374	0.0221	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-002F
Sample ID: 183322002

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-003F
Sample ID: 183322003
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 2.87%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch #
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.02	+/-0.152	0.0433	+/-0.152	0.0866	pCi/g		MJH1	04/03/07	1902	622279
Americium-241	U	0.0172	+/-0.0203	0.0173	+/-0.0203	0.0346	pCi/g					
Bismuth-212		0.747	+/-0.188	0.0963	+/-0.188	0.192	pCi/g					
Bismuth-214		0.658	+/-0.0856	0.0225	+/-0.0856	0.045	pCi/g					
Cesium-134	UI	0.00	+/-0.0217	0.0162	+/-0.0217	0.0324	pCi/g					
Cesium-137	U	-0.00299	+/-0.0188	0.0129	+/-0.0188	0.0257	pCi/g					
Cobalt-60		0.117	+/-0.0254	0.0137	+/-0.0254	0.0275	pCi/g					
Europium-152	U	0.0212	+/-0.0415	0.031	+/-0.0415	0.062	pCi/g					
Europium-154	U	-0.00813	+/-0.0474	0.0395	+/-0.0474	0.0789	pCi/g					
Europium-155	UI	0.00	+/-0.0394	0.0281	+/-0.0394	0.0562	pCi/g					
Lead-212		0.961	+/-0.106	0.0173	+/-0.106	0.0346	pCi/g					
Lead-214		0.776	+/-0.088	0.0215	+/-0.088	0.043	pCi/g					
Manganese-54	U	-0.00123	+/-0.0163	0.0131	+/-0.0163	0.0262	pCi/g					
Niobium-94	U	-0.00131	+/-0.0136	0.0115	+/-0.0136	0.0229	pCi/g					
Potassium-40		16.4	+/-1.17	0.103	+/-1.17	0.205	pCi/g					
Radium-226		0.658	+/-0.0856	0.0225	+/-0.0856	0.045	pCi/g					
Silver-108m	U	-0.00133	+/-0.0121	0.0106	+/-0.0121	0.0212	pCi/g					
Thallium-208		0.323	+/-0.0411	0.0113	+/-0.0411	0.0225	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-003F
Sample ID: 183322003

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-004F
Sample ID: 183322004
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 1.53%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>												
Americium-241	U	-0.0682	+/-0.0555	0.0922	+/-0.0562	0.277	pCi/g	MXA	04/03/07	0933	621440	1
Curium-242	U	-0.017	+/-0.0731	0.0448	+/-0.0731	0.185	pCi/g					
Curium-243/244	U	-0.00959	+/-0.168	0.144	+/-0.168	0.381	pCi/g					
<i>Alphaspec Pu, Solid-ALL FSS</i>												
Plutonium-238	U	-0.0494	+/-0.0779	0.0753	+/-0.0779	0.244	pCi/g	MXA	04/03/07	0933	621441	1
Plutonium-239/240	U	0.0178	+/-0.0709	0.0435	+/-0.071	0.180	pCi/g					
<i>Liquid Scint Pu241, Solid-ALL FSS</i>												
Plutonium-241	U	7.57	+/-11.0	8.82	+/-11.0	18.6	pCi/g	MXA	04/04/07	1433	621443	1
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.957	+/-0.162	0.0504	+/-0.162	0.101	pCi/g	MJH1	04/03/07	1903	622279	
Americium-241	U	0.0138	+/-0.0263	0.0195	+/-0.0263	0.0389	pCi/g					
Bismuth-212		0.594	+/-0.194	0.108	+/-0.194	0.216	pCi/g					
Bismuth-214		0.714	+/-0.0876	0.0244	+/-0.0876	0.0487	pCi/g					
Cesium-134	U	0.0353	+/-0.0253	0.018	+/-0.0253	0.036	pCi/g					
Cesium-137	U	-0.0055	+/-0.0201	0.0134	+/-0.0201	0.0267	pCi/g					
Cobalt-60	U	0.0106	+/-0.0194	0.0146	+/-0.0194	0.0292	pCi/g					
Europium-152	U	0.000222	+/-0.0406	0.0323	+/-0.0406	0.0645	pCi/g					
Europium-154	U	0.0366	+/-0.0509	0.0443	+/-0.0509	0.0885	pCi/g					
Europium-155	U	0.0514	+/-0.0437	0.0298	+/-0.0437	0.0596	pCi/g					
Lead-212		0.941	+/-0.0937	0.0171	+/-0.0937	0.0342	pCi/g					
Lead-214		0.793	+/-0.0898	0.0225	+/-0.0898	0.0449	pCi/g					
Manganese-54	U	-0.00674	+/-0.0187	0.0139	+/-0.0187	0.0278	pCi/g					
Niobium-94	U	-0.00997	+/-0.0157	0.0128	+/-0.0157	0.0256	pCi/g					
Potassium-40		15.6	+/-1.11	0.118	+/-1.11	0.236	pCi/g					
Radium-226		0.714	+/-0.0876	0.0244	+/-0.0876	0.0487	pCi/g					
Silver-108m	U	0.00258	+/-0.0127	0.0113	+/-0.0127	0.0226	pCi/g					
Thallium-208		0.311	+/-0.043	0.0123	+/-0.043	0.0246	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	0.00529	+/-0.022	0.0176	+/-0.022	0.0418	pCi/g	KSD1	04/04/07	1306	621435	
Rad Liquid Scintillation Analysis												

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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: April 6, 2007

Client Sample ID: 9306-0000-004F
Sample ID: 183322004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid – 3 pCi/g												
Tritium	U	1.39	+/-1.68	1.30	+/-1.68	2.84	pCi/g		AXD2	04/03/07	1430	621639
Liquid Scint C14, Solid ALL FSS												
Carbon-14	U	-0.0391	+/-0.114	0.0963	+/-0.114	0.197	pCi/g		AXD2	04/04/07	0402	621635
Liquid Scint Fe55, Solid-ALL FSS												
Iron-55	U	-9.97	+/-33.2	23.4	+/-33.2	49.3	pCi/g		MXP1	04/04/07	1130	621636
Liquid Scint Ni63, Solid-ALL FSS												
Nickel-63	U	-5.85	+/-10.8	9.33	+/-10.8	19.5	pCi/g		TC1	04/06/07	1008	623260
Liquid Scint Tc99, Solid-ALL FSS												
Technetium-99	U	-0.117	+/-0.222	0.189	+/-0.222	0.389	pCi/g		MXP1	04/03/07	1158	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1047	621412

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 Fe-1, Modified
10	DOE RESL Ni-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	88	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	87	(15%-125%)
Plutonium-242 Tracer	Liquid Scint Pu241, Solid-ALL FS	67	(25%-125%)
			(25%-125%)

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-004F
Sample ID: 183322004

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			71							
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			69		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			76		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			86		(15%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-005F
Sample ID: 183322005
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 6.25%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.06	+/-0.148	0.0326	+/-0.148	0.0653	pCi/g		MJH1	04/03/07	1904	622279
Americium-241	U	0.0703	+/-0.0709	0.0589	+/-0.0709	0.118	pCi/g					
Bismuth-212		0.578	+/-0.183	0.0709	+/-0.183	0.142	pCi/g					
Bismuth-214		0.552	+/-0.0739	0.0188	+/-0.0739	0.0375	pCi/g					
Cesium-134	UI	0.00	+/-0.0198	0.0125	+/-0.0198	0.0249	pCi/g					
Cesium-137	U	0.0024	+/-0.0121	0.0103	+/-0.0121	0.0205	pCi/g					
Cobalt-60	U	0.00378	+/-0.0115	0.010	+/-0.0115	0.020	pCi/g					
Europium-152	U	0.00193	+/-0.0316	0.026	+/-0.0316	0.0519	pCi/g					
Europium-154	U	-0.0493	+/-0.0415	0.0276	+/-0.0415	0.0552	pCi/g					
Europium-155	U	0.0555	+/-0.0458	0.033	+/-0.0458	0.066	pCi/g					
Lead-212		0.915	+/-0.0805	0.0151	+/-0.0805	0.0301	pCi/g					
Lead-214		0.677	+/-0.0752	0.0177	+/-0.0752	0.0354	pCi/g					
Manganese-54	UI	0.00	+/-0.0125	0.0102	+/-0.0125	0.0203	pCi/g					
Niobium-94	U	0.00776	+/-0.011	0.00943	+/-0.011	0.0189	pCi/g					
Potassium-40		15.6	+/-1.04	0.0847	+/-1.04	0.169	pCi/g					
Radium-226		0.552	+/-0.0739	0.0188	+/-0.0739	0.0375	pCi/g					
Silver-108m	U	-0.00222	+/-0.00957	0.00836	+/-0.00957	0.0167	pCi/g					
Thallium-208		0.269	+/-0.0357	0.0095	+/-0.0357	0.019	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-005F
Sample ID: 183322005

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-006F
Sample ID: 183322006
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 5.55%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.783	+/-0.137	0.041	+/-0.137	0.082	pCi/g		MJH1	04/03/07	1905	622279
Americium-241	U	0.0157	+/-0.0593	0.0477	+/-0.0593	0.0953	pCi/g					
Bismuth-212		0.579	+/-0.175	0.0875	+/-0.175	0.175	pCi/g					
Bismuth-214		0.667	+/-0.081	0.0225	+/-0.081	0.045	pCi/g					
Cesium-134	UI	0.00	+/-0.0232	0.0144	+/-0.0232	0.0288	pCi/g					
Cesium-137	U	0.0109	+/-0.0165	0.0121	+/-0.0165	0.0242	pCi/g					
Cobalt-60	U	0.00213	+/-0.014	0.012	+/-0.014	0.024	pCi/g					
Europium-152	U	0.0181	+/-0.0494	0.0309	+/-0.0494	0.0618	pCi/g					
Europium-154	U	-0.0101	+/-0.0462	0.0369	+/-0.0462	0.0737	pCi/g					
Europium-155	U	0.0352	+/-0.0393	0.0355	+/-0.0393	0.071	pCi/g					
Lead-212		0.862	+/-0.0774	0.0182	+/-0.0774	0.0364	pCi/g					
Lead-214		0.695	+/-0.0825	0.0218	+/-0.0825	0.0436	pCi/g					
Manganese-54	U	0.00554	+/-0.0161	0.0119	+/-0.0161	0.0238	pCi/g					
Niobium-94	U	0.00487	+/-0.0133	0.0115	+/-0.0133	0.0229	pCi/g					
Potassium-40		13.7	+/-1.06	0.112	+/-1.06	0.223	pCi/g					
Radium-226		0.667	+/-0.081	0.0225	+/-0.081	0.045	pCi/g					
Silver-108m	U	-0.00719	+/-0.0122	0.0104	+/-0.0122	0.0208	pCi/g					
Thallium-208		0.283	+/-0.0394	0.0111	+/-0.0394	0.0221	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-006F
Sample ID: 183322006

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

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

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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: April 6, 2007

Client Sample ID: 9306-0000-006FS
Sample ID: 183322007
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 5.63%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.922	+/-0.143	0.0437	+/-0.143	0.0872	pCi/g					
Americium-241	U	0.068	+/-0.0437	0.0366	+/-0.0437	0.0731	pCi/g					
Bismuth-212		0.412	+/-0.220	0.108	+/-0.220	0.216	pCi/g					
Bismuth-214		0.629	+/-0.0742	0.0231	+/-0.0742	0.0462	pCi/g					
Cesium-134	UI	0.00	+/-0.0241	0.0148	+/-0.0241	0.0296	pCi/g					
Cesium-137	U	0.0113	+/-0.0168	0.0127	+/-0.0168	0.0254	pCi/g					
Cobalt-60	U	0.00863	+/-0.015	0.013	+/-0.015	0.026	pCi/g					
Europium-152	U	-0.00302	+/-0.0425	0.0326	+/-0.0425	0.0652	pCi/g					
Europium-154	U	0.0181	+/-0.0446	0.0382	+/-0.0446	0.0764	pCi/g					
Europium-155	U	0.00376	+/-0.0413	0.0343	+/-0.0413	0.0685	pCi/g					
Lead-212		0.861	+/-0.0779	0.0187	+/-0.0779	0.0373	pCi/g					
Lead-214		0.707	+/-0.0828	0.0233	+/-0.0828	0.0465	pCi/g					
Manganese-54	U	0.00377	+/-0.0148	0.013	+/-0.0148	0.026	pCi/g					
Niobium-94	U	-0.00189	+/-0.0136	0.0113	+/-0.0136	0.0227	pCi/g					
Potassium-40		14.6	+/-1.07	0.0934	+/-1.07	0.187	pCi/g					
Radium-226		0.629	+/-0.0742	0.0231	+/-0.0742	0.0462	pCi/g					
Silver-108m	U	-0.00746	+/-0.0159	0.0112	+/-0.0159	0.0224	pCi/g					
Thallium-208		0.276	+/-0.0405	0.0112	+/-0.0405	0.0223	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-006FS
Sample ID: 183322007

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-007F
Sample ID: 183322008
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 3.9%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.951	+/-0.190	0.0555	+/-0.190	0.111	pCi/g		MJH1	04/03/07	1907	622279
Americium-241	U	0.0396	+/-0.0263	0.0214	+/-0.0263	0.0427	pCi/g					
Bismuth-212		0.635	+/-0.251	0.130	+/-0.251	0.260	pCi/g					
Bismuth-214		0.640	+/-0.0991	0.0274	+/-0.0991	0.0548	pCi/g					
Cesium-134	UI	0.00	+/-0.0258	0.022	+/-0.0258	0.044	pCi/g					
Cesium-137	U	0.00792	+/-0.0206	0.0146	+/-0.0206	0.0292	pCi/g					
Cobalt-60	U	-0.00139	+/-0.0206	0.0171	+/-0.0206	0.0342	pCi/g					
Europium-152	U	-0.00785	+/-0.0499	0.0354	+/-0.0499	0.0707	pCi/g					
Europium-154	U	-0.052	+/-0.0785	0.0525	+/-0.0785	0.105	pCi/g					
Europium-155	U	0.0525	+/-0.0473	0.0318	+/-0.0473	0.0635	pCi/g					
Lead-212		0.966	+/-0.0944	0.0191	+/-0.0944	0.0382	pCi/g					
Lead-214		0.775	+/-0.0898	0.0248	+/-0.0898	0.0497	pCi/g					
Manganese-54	U	0.00765	+/-0.0191	0.0168	+/-0.0191	0.0336	pCi/g					
Niobium-94	U	0.00159	+/-0.0172	0.0151	+/-0.0172	0.0302	pCi/g					
Potassium-40		15.8	+/-0.897	0.152	+/-0.897	0.304	pCi/g					
Radium-226		0.640	+/-0.0991	0.0274	+/-0.0991	0.0548	pCi/g					
Silver-108m	U	-0.0122	+/-0.0149	0.0124	+/-0.0149	0.0248	pCi/g					
Thallium-208		0.338	+/-0.0522	0.0138	+/-0.0522	0.0276	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-007F
Sample ID: 183322008

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-008F
Sample ID: 183322009
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 2.62%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.03	+/-0.155	0.0309	+/-0.155	0.0617	pCi/g		MJH1	04/03/07	1908	622279
Americium-241	U	0.048	+/-0.0443	0.0365	+/-0.0443	0.073	pCi/g					
Bismuth-212		0.632	+/-0.138	0.069	+/-0.138	0.138	pCi/g					
Bismuth-214		0.596	+/-0.0693	0.0172	+/-0.0693	0.0343	pCi/g					
Cesium-134	UI	0.00	+/-0.0187	0.0118	+/-0.0187	0.0236	pCi/g					
Cesium-137	U	-0.00598	+/-0.0121	0.00877	+/-0.0121	0.0175	pCi/g					
Cobalt-60	U	0.00456	+/-0.0108	0.00943	+/-0.0108	0.0188	pCi/g					
Europium-152	U	0.00143	+/-0.0337	0.0244	+/-0.0337	0.0488	pCi/g					
Europium-154	U	-0.0159	+/-0.0398	0.0294	+/-0.0398	0.0588	pCi/g					
Europium-155	UI	0.00	+/-0.0447	0.0292	+/-0.0447	0.0583	pCi/g					
Lead-212		0.988	+/-0.0799	0.0146	+/-0.0799	0.0292	pCi/g					
Lead-214		0.720	+/-0.0726	0.017	+/-0.0726	0.034	pCi/g					
Manganese-54	U	0.0125	+/-0.0136	0.00727	+/-0.0136	0.0145	pCi/g					
Niobium-94	U	0.00757	+/-0.00946	0.00832	+/-0.00946	0.0166	pCi/g					
Potassium-40		17.1	+/-1.15	0.0741	+/-1.15	0.148	pCi/g					
Radium-226		0.596	+/-0.0693	0.0172	+/-0.0693	0.0343	pCi/g					
Silver-108m	U	0.0025	+/-0.00956	0.00786	+/-0.00956	0.0157	pCi/g					
Thallium-208		0.306	+/-0.0335	0.00832	+/-0.0335	0.0166	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < Result is less than value reported

GEL LABORATORIES LLC

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-008F
Sample ID: 183322009

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-008FS
Sample ID: 183322010
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 3.97%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.09	+/-0.325	0.115	+/-0.325	0.229	pCi/g		MJH1	04/04/07	0822	622279
Americium-241	U	0.0612	+/-0.0665	0.0558	+/-0.0665	0.112	pCi/g					
Bismuth-212		0.706	+/-0.385	0.285	+/-0.385	0.569	pCi/g					
Bismuth-214		0.490	+/-0.159	0.0685	+/-0.159	0.137	pCi/g					
Cesium-134	U	0.0503	+/-0.0482	0.0447	+/-0.0482	0.0892	pCi/g					
Cesium-137	U	0.00509	+/-0.040	0.0341	+/-0.040	0.0682	pCi/g					
Cobalt-60	U	0.0106	+/-0.0389	0.0336	+/-0.0389	0.0671	pCi/g					
Europium-152	U	-0.0353	+/-0.117	0.0826	+/-0.117	0.165	pCi/g					
Europium-154	U	-0.0338	+/-0.122	0.0992	+/-0.122	0.198	pCi/g					
Europium-155	U	0.0254	+/-0.126	0.0764	+/-0.126	0.153	pCi/g					
Lead-212		1.11	+/-0.137	0.0472	+/-0.137	0.0943	pCi/g					
Lead-214		0.877	+/-0.152	0.0625	+/-0.152	0.125	pCi/g					
Manganese-54	U	-0.00905	+/-0.0514	0.0378	+/-0.0514	0.0755	pCi/g					
Niobium-94	U	-0.0109	+/-0.0372	0.0305	+/-0.0372	0.0609	pCi/g					
Potassium-40		16.0	+/-1.70	0.329	+/-1.70	0.658	pCi/g					
Radium-226		0.490	+/-0.159	0.0685	+/-0.159	0.137	pCi/g					
Silver-108m	U	0.00392	+/-0.0332	0.0291	+/-0.0332	0.0582	pCi/g					
Thallium-208		0.324	+/-0.0808	0.0335	+/-0.0808	0.067	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	03/30/07	1047	621412

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-008FS
Sample ID: 183322010

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-009F
Sample ID: 183322011
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 3.94%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.793	+/-0.215	0.0736	+/-0.215	0.147	pCi/g					
Americium-241	U	0.0822	+/-0.103	0.0871	+/-0.103	0.174	pCi/g					
Bismuth-212		0.396	+/-0.269	0.159	+/-0.269	0.317	pCi/g					
Bismuth-214		0.675	+/-0.116	0.0404	+/-0.116	0.0808	pCi/g					
Cesium-134	U	0.0422	+/-0.0438	0.0238	+/-0.0438	0.0476	pCi/g					
Cesium-137	U	0.0302	+/-0.0273	0.0246	+/-0.0273	0.0492	pCi/g					
Cobalt-60	U	0.015	+/-0.0279	0.0248	+/-0.0279	0.0495	pCi/g					
Europium-152	U	-0.0446	+/-0.0856	0.0523	+/-0.0856	0.105	pCi/g					
Europium-154	U	0.0205	+/-0.0847	0.0732	+/-0.0847	0.146	pCi/g					
Europium-155	U	0.0658	+/-0.068	0.0628	+/-0.068	0.126	pCi/g					
Lead-212		0.788	+/-0.0904	0.0314	+/-0.0904	0.0627	pCi/g					
Lead-214		0.620	+/-0.112	0.0377	+/-0.112	0.0754	pCi/g					
Manganese-54	U	0.00309	+/-0.0268	0.0231	+/-0.0268	0.0463	pCi/g					
Niobium-94	U	0.00215	+/-0.022	0.0193	+/-0.022	0.0385	pCi/g					
Potassium-40		13.5	+/-1.24	0.210	+/-1.24	0.420	pCi/g					
Radium-226		0.675	+/-0.116	0.0404	+/-0.116	0.0808	pCi/g					
Silver-108m	U	-0.00709	+/-0.0216	0.0187	+/-0.0216	0.0374	pCi/g					
Thallium-208		0.241	+/-0.0441	0.0191	+/-0.0441	0.0382	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 :

** Analyte is a surrogate compound

GEL LABORATORIES LLC

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-009F
Sample ID: 183322011

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

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-010F
Sample ID: 183322012
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 7.1%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.610	+/-0.221	0.0848	+/-0.221	0.170	pCi/g		MJH1	04/04/07	0825	622279
Americium-241	U	0.0357	+/-0.0409	0.0383	+/-0.0409	0.0765	pCi/g					
Bismuth-212	U	0.412	+/-0.339	0.278	+/-0.339	0.556	pCi/g					
Bismuth-214		0.589	+/-0.139	0.0571	+/-0.139	0.114	pCi/g					
Cesium-134	U	0.0537	+/-0.0371	0.0359	+/-0.0371	0.0718	pCi/g					
Cesium-137		0.060	+/-0.0471	0.0287	+/-0.0471	0.0573	pCi/g					
Cobalt-60	U	0.00793	+/-0.0356	0.0306	+/-0.0356	0.0612	pCi/g					
Europium-152	U	0.0343	+/-0.0917	0.0645	+/-0.0917	0.129	pCi/g					
Europium-154	U	0.0552	+/-0.100	0.090	+/-0.100	0.180	pCi/g					
Europium-155	U	0.0858	+/-0.0746	0.0691	+/-0.0746	0.138	pCi/g					
Lead-212		0.764	+/-0.116	0.0345	+/-0.116	0.069	pCi/g					
Lead-214		0.675	+/-0.140	0.0459	+/-0.140	0.0918	pCi/g					
Manganese-54	U	-3.440E-06	+/-0.0372	0.0278	+/-0.0372	0.0555	pCi/g					
Niobium-94	U	0.0455	+/-0.0328	0.0262	+/-0.0328	0.0524	pCi/g					
Potassium-40		11.7	+/-1.35	0.246	+/-1.35	0.491	pCi/g					
Radium-226		0.589	+/-0.139	0.0571	+/-0.139	0.114	pCi/g					
Silver-108m	U	-0.00204	+/-0.0278	0.024	+/-0.0278	0.0479	pCi/g					
Thallium-208		0.270	+/-0.0749	0.0263	+/-0.0749	0.0525	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	03/30/07	1052	621413

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 :

** Analyte is a surrogate compound

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-010F
Sample ID: 183322012

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-011F
Sample ID: 183322013
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 3.25%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	NA
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0877	+/-0.107	0.0275	+/-0.107	0.138	pCi/g		MXA	04/03/07	0933	621440	1
Curium-242	U	0.00	+/-0.0619	0.00	+/-0.0619	0.0856	pCi/g						
Curium-243/244	U	0.0172	+/-0.0919	0.0673	+/-0.092	0.218	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0231	+/-0.0682	0.050	+/-0.0682	0.187	pCi/g		MXA	04/03/07	0933	621441	1
Plutonium-239/240	U	-0.00643	+/-0.0715	0.0645	+/-0.0715	0.216	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	6.53	+/-9.45	7.61	+/-9.48	16.1	pCi/g		MXA	04/04/07	1450	621443	1
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.763	+/-0.166	0.0647	+/-0.166	0.129	pCi/g		MJH1	04/04/07	0826	622279	
Americium-241	U	0.0756	+/-0.104	0.0882	+/-0.104	0.176	pCi/g						
Bismuth-212		0.760	+/-0.358	0.143	+/-0.358	0.286	pCi/g						
Bismuth-214		0.555	+/-0.107	0.0353	+/-0.107	0.0705	pCi/g						
Cesium-134	UI	0.00	+/-0.029	0.0227	+/-0.029	0.0454	pCi/g						
Cesium-137	U	0.0127	+/-0.0238	0.021	+/-0.0238	0.0419	pCi/g						
Cobalt-60		0.0919	+/-0.028	0.018	+/-0.028	0.036	pCi/g						
Europium-152	U	0.0418	+/-0.0659	0.0507	+/-0.0659	0.101	pCi/g						
Europium-154	U	0.0153	+/-0.0739	0.0633	+/-0.0739	0.127	pCi/g						
Europium-155	U	0.0404	+/-0.0703	0.0574	+/-0.0703	0.115	pCi/g						
Lead-212		0.833	+/-0.0899	0.0282	+/-0.0899	0.0564	pCi/g						
Lead-214		0.687	+/-0.109	0.0345	+/-0.109	0.069	pCi/g						
Manganese-54	U	0.00547	+/-0.0254	0.0195	+/-0.0254	0.039	pCi/g						
Niobium-94	U	0.0124	+/-0.0206	0.0182	+/-0.0206	0.0363	pCi/g						
Potassium-40		13.9	+/-1.30	0.171	+/-1.30	0.342	pCi/g						
Radium-226		0.555	+/-0.107	0.0353	+/-0.107	0.0705	pCi/g						
Silver-108m	U	0.00871	+/-0.0188	0.017	+/-0.0188	0.0339	pCi/g						
Thallium-208		0.255	+/-0.0518	0.0186	+/-0.0518	0.0371	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	-0.011	+/-0.0188	0.0177	+/-0.0188	0.0418	pCi/g		KSD1	04/04/07	1307	621435	
Rad Liquid Scintillation Analysis													

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Address : 362 Injun Hollow Rd

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-011F
Sample ID: 183322013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid – 3 pCi/g												
Tritium	U	-0.56	+/-1.42	1.22	+/-1.42	2.56	pCi/g		AXD2	04/04/07	2334	621639
Liquid Scint C14, Solid ALL FSS												
Carbon-14	U	0.119	+/-0.122	0.100	+/-0.122	0.205	pCi/g		AXD2	04/04/07	0445	621635
Liquid Scint Fe55, Solid-ALL FSS												
Iron-55	U	-0.32	+/-27.9	19.3	+/-27.9	40.7	pCi/g		MXP1	04/04/07	1147	621636
Liquid Scint Ni63, Solid-ALL FSS												
Nickel-63	U	-4.03	+/-11.6	9.89	+/-11.6	20.7	pCi/g		TC1	04/06/07	1025	623260
Liquid Scint Tc99, Solid-ALL FSS												
Technetium-99	U	-0.143	+/-0.210	0.180	+/-0.210	0.371	pCi/g		MXP1	04/03/07	1230	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	92	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu. Solid-ALL FSS	90	(15%-125%)

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-011F
Sample ID: 183322013

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			73		(25%-125%)						
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			78		(25%-125%)						
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			76		(15%-125%)						
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			71		(25%-125%)						
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			83		(15%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-012F
Sample ID: 183322014
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 2.47%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.834	+/-0.179	0.0636	+/-0.179	0.127	pCi/g		MJH1	04/04/07	0827	622279
Americium-241	U	-0.0321	+/-0.107	0.0605	+/-0.107	0.121	pCi/g					
Bismuth-212		0.511	+/-0.309	0.130	+/-0.309	0.260	pCi/g					
Bismuth-214		0.576	+/-0.103	0.0341	+/-0.103	0.0682	pCi/g					
Cesium-134	UI	0.00	+/-0.0297	0.0232	+/-0.0297	0.0463	pCi/g					
Cesium-137	U	0.000775	+/-0.0226	0.0192	+/-0.0226	0.0383	pCi/g					
Cobalt-60	U	0.00489	+/-0.0229	0.0196	+/-0.0229	0.0391	pCi/g					
Europium-152	U	-0.0186	+/-0.0657	0.0465	+/-0.0657	0.0929	pCi/g					
Europium-154	U	0.013	+/-0.0718	0.0552	+/-0.0718	0.110	pCi/g					
Europium-155	U	-0.0038	+/-0.057	0.0509	+/-0.057	0.102	pCi/g					
Lead-212		0.737	+/-0.0801	0.0279	+/-0.0801	0.0557	pCi/g					
Lead-214		0.734	+/-0.108	0.0326	+/-0.108	0.0652	pCi/g					
Manganese-54	U	-0.00398	+/-0.0219	0.0188	+/-0.0219	0.0375	pCi/g					
Niobium-94	U	0.0212	+/-0.0207	0.0186	+/-0.0207	0.0373	pCi/g					
Potassium-40		14.4	+/-1.24	0.181	+/-1.24	0.361	pCi/g					
Radium-226		0.576	+/-0.103	0.0341	+/-0.103	0.0682	pCi/g					
Silver-108m	U	0.0104	+/-0.0187	0.0168	+/-0.0187	0.0337	pCi/g					
Thallium-208		0.234	+/-0.0421	0.0176	+/-0.0421	0.0351	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	03/30/07	1052	621413

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-012F
Sample ID: 183322014

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-013F
Sample ID: 183322015
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 6.92%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.808	+/-0.176	0.0511	+/-0.176	0.102	pCi/g					
Americium-241	U	0.0601	+/-0.0886	0.0734	+/-0.0886	0.147	pCi/g					
Bismuth-212		0.350	+/-0.272	0.127	+/-0.272	0.253	pCi/g					
Bismuth-214		0.476	+/-0.0841	0.0333	+/-0.0841	0.0665	pCi/g					
Cesium-134	U	0.0405	+/-0.0331	0.024	+/-0.0331	0.048	pCi/g					
Cesium-137		0.0483	+/-0.0365	0.0176	+/-0.0365	0.0351	pCi/g					
Cobalt-60	U	0.000335	+/-0.0217	0.0186	+/-0.0217	0.0371	pCi/g					
Europium-152	U	-0.0125	+/-0.0576	0.0474	+/-0.0576	0.0948	pCi/g					
Europium-154	U	-0.037	+/-0.0636	0.0509	+/-0.0636	0.102	pCi/g					
Europium-155	U	0.0942	+/-0.0786	0.0498	+/-0.0786	0.0996	pCi/g					
Lead-212		0.624	+/-0.0722	0.0261	+/-0.0722	0.0521	pCi/g					
Lead-214		0.555	+/-0.0919	0.0311	+/-0.0919	0.0621	pCi/g					
Manganese-54	U	0.0185	+/-0.0203	0.0182	+/-0.0203	0.0364	pCi/g					
Niobium-94	U	-0.0126	+/-0.0194	0.0159	+/-0.0194	0.0317	pCi/g					
Potassium-40		9.67	+/-0.994	0.142	+/-0.994	0.284	pCi/g					
Radium-226		0.476	+/-0.0841	0.0333	+/-0.0841	0.0665	pCi/g					
Silver-108m	U	-0.00203	+/-0.0174	0.0146	+/-0.0174	0.0293	pCi/g					
Thallium-208		0.204	+/-0.0513	0.0174	+/-0.0513	0.0348	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	03/30/07	1052	621413

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-013F
Sample ID: 183322015

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-014F
Sample ID: 183322016
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 6.17%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.751	+/-0.154	0.0612	+/-0.154	0.122	pCi/g					
Americium-241	U	0.0337	+/-0.0716	0.0599	+/-0.0716	0.120	pCi/g		MJH1	04/04/07	0830	622279
Bismuth-212	U	0.271	+/-0.196	0.136	+/-0.196	0.272	pCi/g					
Bismuth-214		0.596	+/-0.101	0.0294	+/-0.101	0.0588	pCi/g					
Cesium-134	UI	0.00	+/-0.020	0.0201	+/-0.020	0.0402	pCi/g					
Cesium-137	U	0.0282	+/-0.0225	0.0206	+/-0.0225	0.0412	pCi/g					
Cobalt-60	U	0.00298	+/-0.0207	0.0176	+/-0.0207	0.0352	pCi/g					
Europium-152	U	0.0583	+/-0.0559	0.0447	+/-0.0559	0.0893	pCi/g					
Europium-154	U	0.0526	+/-0.0663	0.0598	+/-0.0663	0.120	pCi/g					
Europium-155	U	0.0458	+/-0.070	0.051	+/-0.070	0.102	pCi/g					
Lead-212		0.678	+/-0.0728	0.0262	+/-0.0728	0.0524	pCi/g					
Lead-214		0.574	+/-0.0937	0.0313	+/-0.0937	0.0626	pCi/g					
Manganese-54	U	0.0155	+/-0.0182	0.0169	+/-0.0182	0.0338	pCi/g					
Niobium-94	U	-0.00149	+/-0.0186	0.0156	+/-0.0186	0.0312	pCi/g					
Potassium-40		11.1	+/-1.03	0.123	+/-1.03	0.246	pCi/g					
Radium-226		0.596	+/-0.101	0.0294	+/-0.101	0.0588	pCi/g					
Silver-108m	U	-0.00417	+/-0.0172	0.0149	+/-0.0172	0.0297	pCi/g					
Thallium-208		0.213	+/-0.0466	0.0148	+/-0.0466	0.0295	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 :

- ** Analyte is a surrogate compound
- < 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: April 6, 2007

Client Sample ID: 9306-0000-014F
Sample ID: 183322016

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-015F
Sample ID: 183322017
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 1.55%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.818	+/-0.199	0.0634	+/-0.199	0.127	pCi/g		MJH1	04/04/07	0841	622279
Americium-241	U	0.0606	+/-0.110	0.0923	+/-0.110	0.185	pCi/g					
Bismuth-212		0.422	+/-0.250	0.145	+/-0.250	0.291	pCi/g					
Bismuth-214	UI	0.00	+/-0.105	0.0783	+/-0.105	0.157	pCi/g					
Cesium-134	U	0.0279	+/-0.0314	0.0245	+/-0.0314	0.049	pCi/g					
Cesium-137	U	-0.00203	+/-0.0248	0.0209	+/-0.0248	0.0417	pCi/g					
Cobalt-60	U	0.00128	+/-0.0245	0.0206	+/-0.0245	0.0413	pCi/g					
Europium-152	U	-0.00192	+/-0.0637	0.0464	+/-0.0637	0.0927	pCi/g					
Europium-154	U	-0.0388	+/-0.0813	0.065	+/-0.0813	0.130	pCi/g					
Europium-155	U	0.0125	+/-0.0656	0.0596	+/-0.0656	0.119	pCi/g					
Lead-212		0.733	+/-0.0831	0.0281	+/-0.0831	0.0561	pCi/g					
Lead-214		0.537	+/-0.0952	0.0346	+/-0.0952	0.0692	pCi/g					
Manganese-54	U	-0.00491	+/-0.0215	0.0184	+/-0.0215	0.0367	pCi/g					
Niobium-94	U	0.0138	+/-0.0216	0.0191	+/-0.0216	0.0382	pCi/g					
Potassium-40		11.8	+/-1.12	0.163	+/-1.12	0.326	pCi/g					
Radium-226		0.563	+/-0.105	0.0318	+/-0.105	0.0636	pCi/g					
Silver-108m	U	0.0199	+/-0.028	0.0182	+/-0.028	0.0363	pCi/g					
Thallium-208		0.180	+/-0.0522	0.0176	+/-0.0522	0.0352	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	03/30/07	1052	621413

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 :

- ** Analyte is a surrogate compound
- < Result is less than value reported

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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: April 6, 2007

Client Sample ID: 9306-0000-015F
Sample ID: 183322017

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

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-016B
Sample ID: 183322018
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 7.75%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	-0.026	+/-0.0449	0.0621	+/-0.0451	0.218	pCi/g		MXA	04/03/07	0933	621440	1
Curium-242	U	0.00	+/-0.0699	0.00	+/-0.0699	0.0967	pCi/g						
Curium-243/244	U	0.0221	+/-0.149	0.116	+/-0.149	0.326	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	0.0552	+/-0.127	0.0778	+/-0.127	0.252	pCi/g		MXA	04/03/07	0933	621441	1
Plutonium-239/240	U	0.00991	+/-0.0751	0.055	+/-0.0752	0.206	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	0.821	+/-8.76	7.31	+/-8.76	15.4	pCi/g		MXA	04/04/07	1506	621443	1
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.953	+/-0.206	0.0808	+/-0.206	0.162	pCi/g		MJH1	04/04/07	0843	622279	
Americium-241	U	-0.0971	+/-0.0969	0.0707	+/-0.0969	0.141	pCi/g						
Bismuth-212		0.819	+/-0.312	0.154	+/-0.312	0.308	pCi/g						
Bismuth-214		0.802	+/-0.123	0.0392	+/-0.123	0.0784	pCi/g						
Cesium-134	U	0.0523	+/-0.0293	0.0276	+/-0.0293	0.0551	pCi/g						
Cesium-137		0.0834	+/-0.0342	0.0211	+/-0.0342	0.0421	pCi/g						
Cobalt-60	U	0.0218	+/-0.0297	0.0252	+/-0.0297	0.0505	pCi/g						
Europium-152	U	0.0444	+/-0.0847	0.0582	+/-0.0847	0.116	pCi/g						
Europium-154	U	0.00245	+/-0.0803	0.0676	+/-0.0803	0.135	pCi/g						
Europium-155	U	0.0469	+/-0.0888	0.0604	+/-0.0888	0.121	pCi/g						
Lead-212		0.887	+/-0.0971	0.0303	+/-0.0971	0.0606	pCi/g						
Lead-214		1.03	+/-0.121	0.0381	+/-0.121	0.0762	pCi/g						
Manganese-54	U	0.011	+/-0.0258	0.0229	+/-0.0258	0.0457	pCi/g						
Niobium-94	U	0.000916	+/-0.0219	0.0183	+/-0.0219	0.0365	pCi/g						
Potassium-40		16.7	+/-1.43	0.198	+/-1.43	0.397	pCi/g						
Radium-226		0.802	+/-0.123	0.0392	+/-0.123	0.0784	pCi/g						
Silver-108m	U	-0.000767	+/-0.0223	0.019	+/-0.0223	0.038	pCi/g						
Thallium-208		0.299	+/-0.0551	0.020	+/-0.0551	0.040	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.0098	+/-0.0203	0.0155	+/-0.0203	0.0366	pCi/g		KSD1	04/04/07	1307	621435	
Rad Liquid Scintillation Analysis													

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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: April 6, 2007

Client Sample ID: 9306-0000-016B
Sample ID: 183322018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid – 3 pCi/g												
Tritium	U	-1.1	+/-1.41	1.23	+/-1.41	2.58	pCi/g		AXD2	04/05/07	0021	621639
Liquid Scint C14, Solid ALL FSS												
Carbon-14	U	0.144	+/-0.123	0.100	+/-0.123	0.205	pCi/g		AXD2	04/04/07	0527	621635
Liquid Scint Fe55, Solid-ALL FSS												
Iron-55	U	-18.3	+/-28.3	20.4	+/-28.3	43.1	pCi/g		MXP1	04/04/07	1203	621636
Liquid Scint Ni63, Solid-ALL FSS												
Nickel-63	U	-8.9	+/-11.2	9.81	+/-11.2	20.5	pCi/g		TC1	04/06/07	1042	623260
Liquid Scint Tc99, Solid-ALL FSS												
Technetium-99	U	-0.15	+/-0.217	0.186	+/-0.217	0.382	pCi/g		MXP1	04/03/07	1301	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	81	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	79	(15%-125%)

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-016B
Sample ID: 183322018

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			76		(25%-125%)					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			83		(25%-125%)					
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			68		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			71		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			87		(15%-125%)					

Notes:

The Qualifiers in this report are defined as follows :

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-017B
Sample ID: 183322019
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 6.63%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>												
Americium-241	U	0.0856	+/-0.137	0.00	+/-0.138	0.155	pCi/g	MXA	04/03/07	0933	621440	1
Curium-242	U	0.0307	+/-0.122	0.0749	+/-0.122	0.310	pCi/g					
Curium-243/244	U	-0.144	+/-0.233	0.246	+/-0.234	0.647	pCi/g					
<i>Alphaspec Pu, Solid-ALL FSS</i>												
Plutonium-238	U	0.108	+/-0.216	0.132	+/-0.216	0.406	pCi/g	MXA	04/03/07	0933	621441	1
Plutonium-239/240	U	-0.0625	+/-0.0548	0.105	+/-0.0553	0.350	pCi/g					
<i>Liquid Scint Pu241, Solid-ALL FSS</i>												
Plutonium-241	U	3.95	+/-12.7	10.5	+/-12.7	22.2	pCi/g	MXA	04/05/07	0014	621443	1
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.05	+/-0.217	0.0763	+/-0.217	0.152	pCi/g	MJH1	04/04/07	0844	622279	
Americium-241	U	0.0452	+/-0.0402	0.0346	+/-0.0402	0.0692	pCi/g					
Bismuth-212		0.835	+/-0.380	0.175	+/-0.380	0.350	pCi/g					
Bismuth-214		0.627	+/-0.125	0.0432	+/-0.125	0.0863	pCi/g					
Cesium-134	U	0.0516	+/-0.040	0.0313	+/-0.040	0.0625	pCi/g					
Cesium-137	U	-0.0327	+/-0.0321	0.0245	+/-0.0321	0.0489	pCi/g					
Cobalt-60	U	-0.00694	+/-0.0299	0.0242	+/-0.0299	0.0484	pCi/g					
Europium-152	U	-0.0384	+/-0.0796	0.059	+/-0.0796	0.118	pCi/g					
Europium-154	U	-0.0204	+/-0.107	0.0741	+/-0.107	0.148	pCi/g					
Europium-155	U	-0.00297	+/-0.0636	0.0574	+/-0.0636	0.115	pCi/g					
Lead-212		0.876	+/-0.115	0.0344	+/-0.115	0.0688	pCi/g					
Lead-214		0.632	+/-0.113	0.0435	+/-0.113	0.087	pCi/g					
Manganese-54	U	-0.000712	+/-0.0309	0.0232	+/-0.0309	0.0463	pCi/g					
Niobium-94	U	-0.0136	+/-0.0272	0.0219	+/-0.0272	0.0438	pCi/g					
Potassium-40		14.1	+/-1.49	0.237	+/-1.49	0.473	pCi/g					
Radium-226		0.627	+/-0.125	0.0432	+/-0.125	0.0863	pCi/g					
Silver-108m	U	-0.00754	+/-0.024	0.0206	+/-0.024	0.0411	pCi/g					
Thallium-208		0.304	+/-0.0589	0.0204	+/-0.0589	0.0408	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	-0.00484	+/-0.0245	0.021	+/-0.0245	0.0468	pCi/g	KSD1	04/04/07	1307	621435	
Rad Liquid Scintillation Analysis												

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-017B
Sample ID: 183322019

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>LSC, Tritium Dist, Solid – 3 pCi/g</i> Tritium	U	0.410	+/-1.52	1.26	+/-1.52	2.63	pCi/g		AXD2	04/05/07	0108	621639
<i>Liquid Scint C14, Solid All, FSS</i> Carbon-14	U	0.0716	+/-0.119	0.0979	+/-0.119	0.201	pCi/g		AXD2	04/04/07	0610	621635
<i>Liquid Scint Fe55, Solid-ALL FSS</i> Iron-55	U	-0.285	+/-28.9	20.0	+/-28.9	42.2	pCi/g		MXP1	04/04/07	1220	621636
<i>Liquid Scint Ni63, Solid-ALL FSS</i> Nickel-63	U	-8.88	+/-11.2	9.79	+/-11.2	20.5	pCi/g		TC1	04/06/07	1059	623260
<i>Liquid Scint Tc99, Solid-ALL FSS</i> Technetium-99	U	-0.152	+/-0.236	0.202	+/-0.236	0.416	pCi/g		MXP1	04/03/07	1333	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	48	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	60	(15%-125%)

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Project: Soils PO# 002332

Report Date: April 6, 2007

Client Sample ID: 9306-0000-017B
Sample ID: 183322019

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Notes
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			57		(25%-125%)						
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			69		(25%-125%)						
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			74		(15%-125%)						
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			73		(25%-125%)						
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			82		(15%-125%)						

Notes:

The Qualifiers in this report are defined as follows :

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-018B
Sample ID: 183322020

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>LSC, Tritium Dist, Solid – 3 pCi/g</i>												
Tritium	U	-0.205	+/-1.48	1.25	+/-1.48	2.63	pCi/g		AXD2	04/05/07	0155	621639
<i>Liquid Scint C14, Solid All,FSS</i>												
Carbon-14	U	0.0629	+/-0.122	0.101	+/-0.122	0.206	pCi/g		AXD2	04/04/07	0936	621635
<i>Liquid Scint Fe55, Solid-ALL FSS</i>												
Iron-55	U	-7.61	+/-27.6	19.5	+/-27.6	41.1	pCi/g		MXP1	04/04/07	1237	621636
<i>Liquid Scint Ni63, Solid-ALL FSS</i>												
Nickel-63	U	0.943	+/-12.1	10.1	+/-12.1	21.1	pCi/g		TC1	04/06/07	1115	623260
<i>Liquid Scint Tc99, Solid-ALL FSS</i>												
Technetium-99	U	-0.0612	+/-0.236	0.200	+/-0.236	0.411	pCi/g		MXP1	04/03/07	1405	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	78	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	84	(15%-125%)

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-018B
Sample ID: 183322020

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			69		(25%-125%)						
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			83		(25%-125%)						
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			69		(15%-125%)						
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			71		(25%-125%)						
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			81		(15%-125%)						

Notes:

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

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Certificate of Analysis

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

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-019B
Sample ID: 183322021
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 3.97%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Alpha Spec Analysis												
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>												
Americium-241	U	-0.0107	+/-0.0779	0.0723	+/-0.0779	0.234	pCi/g	MXA	04/03/07	0933	621440	1
Curium-242	U	0.0258	+/-0.0684	0.0304	+/-0.0685	0.153	pCi/g					
Curium-243/244	U	0.021	+/-0.141	0.110	+/-0.141	0.310	pCi/g					
<i>Alphaspec Pu, Solid-ALL FSS</i>												
Plutonium-238	U	-0.0868	+/-0.107	0.115	+/-0.107	0.352	pCi/g	MXA	04/03/07	0933	621441	1
Plutonium-239/240	U	0.0235	+/-0.0936	0.0574	+/-0.0936	0.237	pCi/g					
<i>Liquid Scint Pu241, Solid-ALL FSS</i>												
Plutonium-241	U	-4.92	+/-8.40	7.30	+/-8.40	15.4	pCi/g	MXA	04/05/07	0030	621443	1
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		0.750	+/-0.190	0.0686	+/-0.190	0.137	pCi/g	MJH1	04/04/07	0409	622281	
Americium-241	U	0.0469	+/-0.0916	0.078	+/-0.0916	0.156	pCi/g					
Bismuth-212		0.738	+/-0.351	0.153	+/-0.351	0.306	pCi/g					
Bismuth-214		0.634	+/-0.117	0.0395	+/-0.117	0.079	pCi/g					
Cesium-134	U	0.0503	+/-0.0327	0.0271	+/-0.0327	0.0541	pCi/g					
Cesium-137	U	-0.033	+/-0.0315	0.0256	+/-0.0315	0.0512	pCi/g					
Cobalt-60	U	0.0197	+/-0.0269	0.0241	+/-0.0269	0.0482	pCi/g					
Europium-152	U	0.0308	+/-0.0737	0.0618	+/-0.0737	0.124	pCi/g					
Europium-154	U	-0.00474	+/-0.0849	0.0605	+/-0.0849	0.121	pCi/g					
Europium-155	U	0.0261	+/-0.0784	0.0727	+/-0.0784	0.145	pCi/g					
Lead-212		0.767	+/-0.0966	0.0375	+/-0.0966	0.075	pCi/g					
Lead-214		0.568	+/-0.117	0.0446	+/-0.117	0.0891	pCi/g					
Manganese-54	U	-0.0118	+/-0.0242	0.0204	+/-0.0242	0.0407	pCi/g					
Niobium-94	U	-0.00311	+/-0.0228	0.0191	+/-0.0228	0.0381	pCi/g					
Potassium-40		12.5	+/-1.21	0.192	+/-1.21	0.384	pCi/g					
Radium-226		0.634	+/-0.117	0.0395	+/-0.117	0.079	pCi/g					
Silver-108m	U	0.00407	+/-0.0247	0.0192	+/-0.0247	0.0383	pCi/g					
Thallium-208		0.266	+/-0.0599	0.0201	+/-0.0599	0.0402	pCi/g					
Rad Gas Flow Proportional Counting												
<i>GFPC, Sr90, solid-ALL FSS</i>												
Strontium-90	U	-0.0104	+/-0.0232	0.0207	+/-0.0232	0.0468	pCi/g	KSD1	04/04/07	1307	621435	

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Certificate of Analysis

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Address : 362 Injun Hollow Rd

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-018B
Sample ID: 183322020
Matrix: TS
Collect Date: 27-MAR-07
Receive Date: 30-MAR-07
Collector: Client
Moisture: 4.08%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	M
Rad Alpha Spec Analysis													
<i>Alphaspec Am241, Cm, Solid ALL FSS</i>													
Americium-241	U	0.0243	+/-0.078	0.0445	+/-0.0781	0.184	pCi/g		MXA	04/03/07	0933	621440	
									1				
Curium-242	U	0.0362	+/-0.0709	0.00	+/-0.071	0.098	pCi/g						
Curium-243/244	U	0.0814	+/-0.144	0.0833	+/-0.145	0.262	pCi/g						
<i>Alphaspec Pu, Solid-ALL FSS</i>													
Plutonium-238	U	-0.0451	+/-0.0939	0.105	+/-0.094	0.315	pCi/g		MXA	04/03/07	0933	621441	
									1				
Plutonium-239/240	U	0.0777	+/-0.108	0.00	+/-0.108	0.105	pCi/g						
<i>Liquid Scint Pu241, Solid-ALL FSS</i>													
Plutonium-241	U	-0.597	+/-9.71	8.18	+/-9.71	17.3	pCi/g		MXA	04/04/07	1539	621443	
									1				
Rad Gamma Spec Analysis													
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>													
<i>Waived</i>													
Actinium-228		0.441	+/-0.178	0.0573	+/-0.178	0.114	pCi/g		MJH1	04/04/07	0845	622279	
Americium-241	U	0.00561	+/-0.0838	0.0683	+/-0.0838	0.137	pCi/g						
Bismuth-212		0.477	+/-0.280	0.135	+/-0.280	0.269	pCi/g						
Bismuth-214		0.514	+/-0.0955	0.0332	+/-0.0955	0.0663	pCi/g						
Cesium-134	U	0.0399	+/-0.035	0.0204	+/-0.035	0.0408	pCi/g						
Cesium-137	U	0.00685	+/-0.0214	0.0188	+/-0.0214	0.0375	pCi/g						
Cobalt-60	U	0.00583	+/-0.020	0.0176	+/-0.020	0.0352	pCi/g						
Europium-152	U	-0.0197	+/-0.0571	0.0405	+/-0.0571	0.081	pCi/g						
Europium-154	U	0.0157	+/-0.0624	0.0547	+/-0.0624	0.109	pCi/g						
Europium-155	U	0.0264	+/-0.0566	0.0518	+/-0.0566	0.104	pCi/g						
Lead-212		0.592	+/-0.0708	0.0252	+/-0.0708	0.0504	pCi/g						
Lead-214		0.519	+/-0.0868	0.0358	+/-0.0868	0.0717	pCi/g						
Manganese-54	U	0.0108	+/-0.022	0.0192	+/-0.022	0.0384	pCi/g						
Niobium-94	U	0.0243	+/-0.0194	0.018	+/-0.0194	0.0361	pCi/g						
Potassium-40		9.44	+/-1.07	0.169	+/-1.07	0.338	pCi/g						
Radium-226		0.514	+/-0.0955	0.0332	+/-0.0955	0.0663	pCi/g						
Silver-108m	U	-0.00758	+/-0.017	0.0145	+/-0.017	0.0289	pCi/g						
Thallium-208		0.200	+/-0.0383	0.0155	+/-0.0383	0.0311	pCi/g						
Rad Gas Flow Proportional Counting													
<i>GFPC, Sr90, solid-ALL FSS</i>													
Strontium-90	U	0.00364	+/-0.0188	0.0152	+/-0.0188	0.0359	pCi/g		KSD1	04/04/07	1307	621435	
Rad Liquid Scintillation Analysis													

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-019B
Sample ID: 183322021

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Liquid Scintillation Analysis												
<i>LSC, Tritium Dist, Solid – 3 pCi/g</i>												
Tritium	U	0.268	+/-1.45	1.20	+/-1.45	2.53	pCi/g		AXD2	04/05/07	0242	621639
<i>Liquid Scint C14, Solid All,FSS</i>												
Carbon-14	U	0.0026	+/-0.116	0.0977	+/-0.116	0.200	pCi/g		AXD2	04/04/07	1018	621635
<i>Liquid Scint Fe55, Solid-ALL FSS</i>												
Iron-55	U	-7.74	+/-26.7	19.0	+/-26.7	40.1	pCi/g		MXP1	04/04/07	1253	621636
<i>Liquid Scint Ni63, Solid-ALL FSS</i>												
Nickel-63	U	-11.1	+/-10.3	9.14	+/-10.3	19.1	pCi/g		TC1	04/06/07	1132	623260
<i>Liquid Scint Tc99, Solid-ALL FSS</i>												
Technetium-99	U	-0.151	+/-0.218	0.187	+/-0.218	0.384	pCi/g		MXP1	04/03/07	1437	621438

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JMB1	03/30/07	1052	621413

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 Fe-1, Modified
11	DOE RESL Ni-1, Modified
12	DOE RESL Ni-1, Modified
13	DOE EML HASL-300, Tc-02-RC Modified

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241, Cm, Solid ALL	85	(15%-125%)
Plutonium-242 Tracer	Alphaspec Pu, Solid-ALL FSS	67	(15%-125%)

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

Report Date: April 6, 2007

Client Sample ID: 9306-0000-019B
Sample ID: 183322021

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Plutonium-242 Tracer		Liquid Scint Pu241, Solid-ALL FS			81		(25%-125%)					
Strontium Carrier		GFPC, Sr90, solid-ALL FSS			71		(25%-125%)					
Iron-59 Tracer		Liquid Scint Fe55, Solid-ALL FS			66		(15%-125%)					
Nickel Carrier		Liquid Scint Ni63, Solid-ALL FS			76		(25%-125%)					
Technetium-99m Tracer		Liquid Scint Tc99, Solid-ALL FS			85		(15%-125%)					

Notes:

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 - UI Gamma Spectroscopy—Uncertain identification
 - X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
 - Y QC Samples were not spiked with this compound
 - ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
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QUALITY CONTROL DATA

GEL LABORATORIES LLC

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QC Summary

Report Date: April 6, 2007
Page 1 of 12

Client : Connecticut Yankee Atomic Power
362 Injun Hollow Rd

Contact: East Hampton, Connecticut
Mr. Jack McCarthy

Workorder: 183322

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	621440										
QC1201305994	183322004	DUP									
Americium-241	U	-0.0682	U	-0.00624	pCi/g	166		(0% - 100%)	AXA1	04/03/07	09:33
	Uncert:	+/-0.0555		+/-0.0879							
	TPU:	+/-0.0562		+/-0.0879							
Curium-242	U	-0.017	U	-0.00875	pCi/g	64		(0% - 100%)			
	Uncert:	+/-0.0731		+/-0.0735							
	TPU:	+/-0.0731		+/-0.0736							
Curium-243/244	U	-0.00959	U	0.0551	pCi/g	284		(0% - 100%)			
	Uncert:	+/-0.168		+/-0.127							
	TPU:	+/-0.168		+/-0.127							
QC1201305996	LCS										
Americium-241	11.9			11.5	pCi/g		97	(75%-125%)			
	Uncert:			+/-1.70							
	TPU:			+/-2.45							
Curium-242			U	-0.0624	pCi/g						
	Uncert:			+/-0.141							
	TPU:			+/-0.141							
Curium-243/244	14.3			13.5	pCi/g		94	(75%-125%)			
	Uncert:			+/-1.83							
	TPU:			+/-2.77							
QC1201305993	MB										
Americium-241			U	0.0337	pCi/g						
	Uncert:			+/-0.103							
	TPU:			+/-0.103							
Curium-242			U	-0.0391	pCi/g						
	Uncert:			+/-0.0814							
	TPU:			+/-0.0815							
Curium-243/244			U	-0.0956	pCi/g						
	Uncert:			+/-0.0846							
	TPU:			+/-0.085							
QC1201305995	183322004	MS									
Americium-241	13.0	U	-0.0682	14.2	pCi/g		109	(75%-125%)			
	Uncert:		+/-0.0555	+/-1.48							
	TPU:		+/-0.0562	+/-2.36							
Curium-242	U	-0.017	U	0.0214	pCi/g						
	Uncert:		+/-0.0731	+/-0.0851							
	TPU:		+/-0.0731	+/-0.0852							
Curium-243/244	15.5	U	-0.00959	15.3	pCi/g		99	(75%-125%)			
	Uncert:		+/-0.168	+/-1.53							
	TPU:		+/-0.168	+/-2.51							
Batch	621441										
QC1201305998	183322004	DUP									
Plutonium-238	U	-0.0494	U	0.0489	pCi/g	39300		(0% - 100%)	AXA1	04/03/07	09:33

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QC Summary

Workorder: 183322

Page 2 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	621441										
Plutonium-239/240	U	Uncert:	+/-0.0779	+/-0.128	pCi/g	70		(0% - 100%)			
		TPU:	+/-0.0779	+/-0.128							
			0.0178	0.00856							
		Uncert:	+/-0.0709	+/-0.0649							
		TPU:	+/-0.071	+/-0.0649							
QC1201306000	LCS										
Plutonium-238			U	0.0373	pCi/g			(75%-125%)		04/03/07	18:18
Plutonium-239/240	12.5	Uncert:		+/-0.0843	pCi/g		110	(75%-125%)			
		TPU:		+/-0.0844							
				13.7							
		Uncert:		+/-1.24							
		TPU:		+/-2.02							
QC1201305997	MB										
Plutonium-238			U	-0.0257	pCi/g					04/03/07	09:33
Plutonium-239/240		Uncert:		+/-0.0876	pCi/g						
		TPU:		+/-0.0877							
				0.086							
		Uncert:		+/-0.132							
		TPU:		+/-0.132							
QC1201305999	183322004	MS									
Plutonium-238		U	-0.0494	U	0.00108	pCi/g		(75%-125%)		04/03/07	18:18
Plutonium-239/240	12.9	Uncert:	+/-0.0779	+/-0.0586	pCi/g		103	(75%-125%)			
		TPU:	+/-0.0779	+/-0.0586							
			0.0178	13.3							
		Uncert:	+/-0.0709	+/-1.17							
		TPU:	+/-0.071	+/-1.94							
Batch	621443										
QC1201306006	183322004	DUP									
Plutonium-241		U	7.57	U	0.896	pCi/g	0	(0% - 100%)	MXA1	04/04/07	16:28
Plutonium-241		Uncert:	+/-11.0	+/-9.56	pCi/g		110	(75%-125%)			
		TPU:	+/-11.0	+/-9.56							
				150							
		Uncert:		+/-16.9							
		TPU:		+/-23.5							
QC1201306008	LCS										
Plutonium-241											
Plutonium-241				4.06	pCi/g					04/04/07	16:12
		Uncert:		+/-10.2							
		TPU:		+/-10.2							
QC1201306007	183322004	MS									
Plutonium-241		138	U	7.57	148	pCi/g	107	(75%-125%)		04/04/07	16:44
Plutonium-241		Uncert:	+/-11.0	+/-15.2	pCi/g						
		TPU:	+/-11.0	+/-21.6							
Rad Gamma Spec											
Batch	622279										
QC1201307869	183322001	DUP									
Actinium-228			0.987	0.851	pCi/g	15		(0% - 100%)	MJH1	04/04/07	08:48
Actinium-228		Uncert:	+/-0.176	+/-0.167	pCi/g						
				+/-0.167							

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 3 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 622279											
Americium-241		TPU:	+/-0.176								
	U	0.0369	U	-0.0177	pCi/g	570		(0% - 100%)			
		Uncert:	+/-0.031	+/-0.0816							
Bismuth-212		TPU:	+/-0.031	+/-0.0816							
		0.890		0.558	pCi/g	46		(0% - 100%)			
		Uncert:	+/-0.255	+/-0.230							
Bismuth-214		TPU:	+/-0.255	+/-0.230							
		0.702		0.611	pCi/g	14		(0% - 100%)			
		Uncert:	+/-0.100	+/-0.0897							
Cesium-134		TPU:	+/-0.100	+/-0.0897							
	UI	0.00	UI	0.00	pCi/g	0		(0% - 100%)			
		Uncert:	+/-0.0313	+/-0.0273							
Cesium-137		TPU:	+/-0.0313	+/-0.0273							
	U	-0.0131	U	-0.0104	pCi/g	24		(0% - 100%)			
		Uncert:	+/-0.0201	+/-0.0191							
Cobalt-60		TPU:	+/-0.0201	+/-0.0191							
	U	0.0255	U	-0.0124	pCi/g	578		(0% - 100%)			
		Uncert:	+/-0.0208	+/-0.0175							
Europium-152		TPU:	+/-0.0208	+/-0.0175							
	U	0.0104	U	-0.0599	pCi/g	284		(0% - 100%)			
		Uncert:	+/-0.0561	+/-0.0616							
Europium-154		TPU:	+/-0.0561	+/-0.0616							
	U	-0.028	U	0.0221	pCi/g	1690		(0% - 100%)			
		Uncert:	+/-0.0582	+/-0.0681							
Europium-155		TPU:	+/-0.0582	+/-0.0681							
	U	0.0418	U	0.0414	pCi/g	1		(0% - 100%)			
		Uncert:	+/-0.0442	+/-0.0755							
Lead-212		TPU:	+/-0.0442	+/-0.0755							
		0.987		0.995	pCi/g	1		(0% - 20%)			
		Uncert:	+/-0.102	+/-0.0931							
Lead-214		TPU:	+/-0.102	+/-0.0931							
		0.741		0.696	pCi/g	6		(0% - 20%)			
		Uncert:	+/-0.0947	+/-0.0942							
Manganese-54		TPU:	+/-0.0947	+/-0.0942							
	U	0.00798	U	-0.00376	pCi/g	556		(0% - 100%)			
		Uncert:	+/-0.0213	+/-0.0186							
Niobium-94		TPU:	+/-0.0213	+/-0.0186							
	U	0.00913	U	-0.00384	pCi/g	490		(0% - 100%)			
		Uncert:	+/-0.0185	+/-0.0171							
Potassium-40		TPU:	+/-0.0185	+/-0.0171							
		16.0		17.1	pCi/g	7		(0% - 20%)			
		Uncert:	+/-1.13	+/-1.29							
Radium-226		TPU:	+/-1.13	+/-1.29							
		0.702		0.611	pCi/g	14		(0% - 100%)			
		Uncert:	+/-0.100	+/-0.0897							
Silver-108m		TPU:	+/-0.100	+/-0.0897							
	U	-0.00282	U	-0.0186	pCi/g	147		(0% - 100%)			
		Uncert:	+/-0.0165	+/-0.0166							

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 4 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD %	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	622279										
Thallium-208	TPU:	+/-0.0165		+/-0.0166							
		0.335		0.289	pCi/g	15		(0% - 100%)			
	Uncert:	+/-0.0505		+/-0.0457							
	TPU:	+/-0.0505		+/-0.0457							
QC1201307870 LCS											
Actinium-228				1.11	pCi/g					04/04/07	08:50
	Uncert:			+/-0.744							
	TPU:			+/-0.744							
Americium-241	16.0			14.5	pCi/g		91	(75%-125%)			
	Uncert:			+/-2.19							
	TPU:			+/-2.19							
Bismuth-212			U	0.852	pCi/g						
	Uncert:			+/-0.905							
	TPU:			+/-0.905							
Bismuth-214				0.665	pCi/g						
	Uncert:			+/-0.296							
	TPU:			+/-0.296							
Cesium-134			U	0.166	pCi/g						
	Uncert:			+/-0.115							
	TPU:			+/-0.115							
Cesium-137	6.20			5.94	pCi/g		96	(75%-125%)			
	Uncert:			+/-0.497							
	TPU:			+/-0.497							
Cobalt-60	9.32			9.17	pCi/g		98	(75%-125%)			
	Uncert:			+/-0.707							
	TPU:			+/-0.707							
Europium-152			U	0.106	pCi/g						
	Uncert:			+/-0.262							
	TPU:			+/-0.262							
Europium-154			U	0.0655	pCi/g						
	Uncert:			+/-0.245							
	TPU:			+/-0.245							
Europium-155			U	0.0878	pCi/g						
	Uncert:			+/-0.296							
	TPU:			+/-0.296							
Lead-212				0.694	pCi/g						
	Uncert:			+/-0.264							
	TPU:			+/-0.264							
Lead-214				0.690	pCi/g						
	Uncert:			+/-0.222							
	TPU:			+/-0.222							
Manganese-54			U	0.0126	pCi/g						
	Uncert:			+/-0.106							
	TPU:			+/-0.106							
Niobium-94			U	0.0555	pCi/g						
	Uncert:			+/-0.0917							
	TPU:			+/-0.0917							
Potassium-40			U	1.15	pCi/g						

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 5 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	622279										
		Uncert:		+/-1.08							
		TPU:		+/-1.08							
Radium-226				0.665	pCi/g			(75%-125%)			
		Uncert:		+/-0.296							
		TPU:		+/-0.296							
Silver-108m			U	-0.0245	pCi/g						
		Uncert:		+/-0.087							
		TPU:		+/-0.087							
Thallium-208				0.203	pCi/g						
		Uncert:		+/-0.127							
		TPU:		+/-0.127							
QC1201307868 MB											
Actinium-228			U	-0.0169	pCi/g					04/04/07	08:47
		Uncert:		+/-0.0789							
		TPU:		+/-0.0789							
Americium-241			U	-0.00521	pCi/g						
		Uncert:		+/-0.019							
		TPU:		+/-0.019							
Bismuth-212			U	-0.0779	pCi/g						
		Uncert:		+/-0.171							
		TPU:		+/-0.171							
Bismuth-214			U	0.0587	pCi/g						
		Uncert:		+/-0.0679							
		TPU:		+/-0.0679							
Cesium-134			U	-0.0109	pCi/g						
		Uncert:		+/-0.0245							
		TPU:		+/-0.0245							
Cesium-137			U	-0.0129	pCi/g						
		Uncert:		+/-0.0194							
		TPU:		+/-0.0194							
Cobalt-60			U	-0.0141	pCi/g						
		Uncert:		+/-0.0237							
		TPU:		+/-0.0237							
Europium-152			U	0.000582	pCi/g						
		Uncert:		+/-0.0515							
		TPU:		+/-0.0515							
Europium-154			U	0.0786	pCi/g						
		Uncert:		+/-0.0742							
		TPU:		+/-0.0742							
Europium-155			U	0.00519	pCi/g						
		Uncert:		+/-0.0342							
		TPU:		+/-0.0342							
Lead-212			U	0.0189	pCi/g						
		Uncert:		+/-0.0434							
		TPU:		+/-0.0434							
Lead-214			U	0.0205	pCi/g						
		Uncert:		+/-0.049							
		TPU:		+/-0.049							

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 6 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	622279										
Manganese-54			U	0.00227	pCi/g						
	Uncert:			+/-0.0215							
	TPU:			+/-0.0215							
Niobium-94			U	-0.007	pCi/g						
	Uncert:			+/-0.0218							
	TPU:			+/-0.0218							
Potassium-40			U	0.205	pCi/g						
	Uncert:			+/-0.293							
	TPU:			+/-0.293							
Radium-226			U	0.0587	pCi/g						
	Uncert:			+/-0.0679							
	TPU:			+/-0.0679							
Silver-108m			U	0.0109	pCi/g						
	Uncert:			+/-0.0182							
	TPU:			+/-0.0182							
Thallium-208			U	-0.000498	pCi/g						
	Uncert:			+/-0.0247							
	TPU:			+/-0.0247							
Batch	622281										
QC1201307872 183322021 DUP											
Actinium-228		0.750		0.746	pCi/g	1		(0% - 100%)	MJH1	04/04/07	10:30
	Uncert:	+/-0.190		+/-0.211							
	TPU:	+/-0.190		+/-0.211							
Americium-241	U	0.0469	U	0.0308	pCi/g	42		(0% - 100%)			
	Uncert:	+/-0.0916		+/-0.0391							
	TPU:	+/-0.0916		+/-0.0391							
Bismuth-212		0.738		0.679	pCi/g	8		(0% - 100%)			
	Uncert:	+/-0.351		+/-0.309							
	TPU:	+/-0.351		+/-0.309							
Bismuth-214		0.634		0.616	pCi/g	3		(0% - 100%)			
	Uncert:	+/-0.117		+/-0.119							
	TPU:	+/-0.117		+/-0.119							
Cesium-134	U	0.0503	U	0.0121	pCi/g	123		(0% - 100%)			
	Uncert:	+/-0.0327		+/-0.032							
	TPU:	+/-0.0327		+/-0.032							
Cesium-137	U	-0.033	U	0.0358	pCi/g	4980		(0% - 100%)			
	Uncert:	+/-0.0315		+/-0.0276							
	TPU:	+/-0.0315		+/-0.0276							
Cobalt-60	U	0.0197	U	-0.0106	pCi/g	665		(0% - 100%)			
	Uncert:	+/-0.0269		+/-0.0264							
	TPU:	+/-0.0269		+/-0.0264							
Europium-152	U	0.0308	U	0.00845	pCi/g	114		(0% - 100%)			
	Uncert:	+/-0.0737		+/-0.067							
	TPU:	+/-0.0737		+/-0.067							
Europium-154	U	-0.00474	U	0.0134	pCi/g	420		(0% - 100%)			
	Uncert:	+/-0.0849		+/-0.0771							
	TPU:	+/-0.0849		+/-0.0771							
Europium-155	U	0.0261	U	0.0164	pCi/g	45		(0% - 100%)			

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 7 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	622281										
Lead-212		Uncert:		+/-0.0784							
		TPU:		+/-0.0784							
				0.767							
Lead-214		Uncert:		+/-0.0966							
		TPU:		+/-0.0966							
				0.568							
Manganese-54	U	Uncert:		+/-0.117							
		TPU:		+/-0.117							
				-0.0118							
Niobium-94	U	Uncert:		+/-0.0242							
		TPU:		+/-0.0242							
				-0.00311							
Potassium-40		Uncert:		+/-0.0228							
		TPU:		+/-0.0228							
				12.5							
Radium-226		Uncert:		+/-1.21							
		TPU:		+/-1.21							
				0.634							
Silver-108m	U	Uncert:		+/-0.117							
		TPU:		+/-0.117							
				0.00407							
Thallium-208		Uncert:		+/-0.0247							
		TPU:		+/-0.0247							
				0.266							
Actinium-228		Uncert:		+/-0.0599							
		TPU:		+/-0.0599							
				0.795							
Americium-241	16.4	Uncert:		+/-0.718							
		TPU:		+/-0.718							
				14.0							
Bismuth-212	U	Uncert:		+/-1.52							
		TPU:		+/-1.52							
				1.15							
Bismuth-214		Uncert:		+/-0.883							
		TPU:		+/-0.883							
				0.777							
Cesium-134	U	Uncert:		+/-0.311							
		TPU:		+/-0.311							
				0.092							
Cesium-137	6.35	Uncert:		+/-0.112							
		TPU:		+/-0.112							
				6.09							
Cobalt-60	9.55	Uncert:		+/-0.577							
		TPU:		+/-0.577							
				9.26							
		Uncert:		+/-0.685							
		TPU:		+/-0.685							

04/04/07 10:19

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 8 of 12

Parmname	NOM	Sample Qual	QC	Units	RPD %	REC %	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	622281									
Europium-152		U	-0.0231	pCi/g						
	Uncert:		+/-0.282							
	TPU:		+/-0.282							
Europium-154		U	-0.0844	pCi/g						
	Uncert:		+/-0.238							
	TPU:		+/-0.238							
Europium-155		U	0.123	pCi/g						
	Uncert:		+/-0.319							
	TPU:		+/-0.319							
Lead-212			1.30	pCi/g						
	Uncert:		+/-0.258							
	TPU:		+/-0.258							
Lead-214			1.05	pCi/g						
	Uncert:		+/-0.316							
	TPU:		+/-0.316							
Manganese-54		U	0.036	pCi/g						
	Uncert:		+/-0.0981							
	TPU:		+/-0.0981							
Niobium-94		U	0.0841	pCi/g						
	Uncert:		+/-0.0973							
	TPU:		+/-0.0973							
Potassium-40			4.73	pCi/g						
	Uncert:		+/-3.49							
	TPU:		+/-3.49							
Radium-226			0.777	pCi/g			(75%-125%)			
	Uncert:		+/-0.311							
	TPU:		+/-0.311							
Silver-108m		U	-0.0118	pCi/g						
	Uncert:		+/-0.0942							
	TPU:		+/-0.0942							
Thallium-208			0.420	pCi/g						
	Uncert:		+/-0.178							
	TPU:		+/-0.178							
QC1201307871 MB										
Actinium-228		U	-0.0653	pCi/g					04/04/07	07:14
	Uncert:		+/-0.0772							
	TPU:		+/-0.0772							
Americium-241		U	0.036	pCi/g						
	Uncert:		+/-0.0585							
	TPU:		+/-0.0585							
Bismuth-212		U	-0.12	pCi/g						
	Uncert:		+/-0.191							
	TPU:		+/-0.191							
Bismuth-214		U	0.034	pCi/g						
	Uncert:		+/-0.0581							
	TPU:		+/-0.0581							
Cesium-134		U	0.00123	pCi/g						
	Uncert:		+/-0.0192							

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 9 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	622281										
Cesium-137	TPU:			+/-0.0192							
			U	0.00558	pCi/g						
	Uncert:			+/-0.0392							
Cobalt-60	TPU:			+/-0.0392							
			U	0.00413	pCi/g						
	Uncert:			+/-0.0209							
Europium-152	TPU:			+/-0.0209							
			U	-0.0206	pCi/g						
	Uncert:			+/-0.0539							
Europium-154	TPU:			+/-0.0539							
			U	-0.0213	pCi/g						
	Uncert:			+/-0.0507							
Europium-155	TPU:			+/-0.0507							
			U	0.0442	pCi/g						
	Uncert:			+/-0.0515							
Lead-212	TPU:			+/-0.0515							
			U	0.038	pCi/g						
	Uncert:			+/-0.0644							
Lead-214	TPU:			+/-0.0644							
			U	0.080	pCi/g						
	Uncert:			+/-0.0602							
Manganese-54	TPU:			+/-0.0602							
			U	0.0255	pCi/g						
	Uncert:			+/-0.0213							
Niobium-94	TPU:			+/-0.0213							
			U	0.0222	pCi/g						
	Uncert:			+/-0.0194							
Potassium-40	TPU:			+/-0.0194							
			U	0.123	pCi/g						
	Uncert:			+/-0.296							
Radium-226	TPU:			+/-0.296							
			U	0.034	pCi/g						
	Uncert:			+/-0.0581							
Silver-108m	TPU:			+/-0.0581							
			U	0.00882	pCi/g						
	Uncert:			+/-0.0201							
Thallium-208	TPU:			+/-0.0201							
			U	0.00326	pCi/g						
	Uncert:			+/-0.0332							
	TPU:			+/-0.0332							
Rad Gas Flow											
Batch	621435										
QC1201305975	183322004	DUP									
Strontium-90			U	0.00529	U	0.0189	pCi/g	0	(0% - 100%)	KSD1	04/04/07 13:09
			Uncert:	+/-0.022		+/-0.0233					
			TPU:	+/-0.022		+/-0.0233					
QC1201305977	LCS										
Strontium-90			1.45			1.42	pCi/g	98	(75%-125%)		04/04/07 13:10

GEL LABORATORIES LLC

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

QC Summary

Workorder: 183322

Page 10 of 12

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	621435										
				Uncert:							
				TPU:							
QC1201305974	MB										
Strontium-90			U	-0.000898	pCi/g					04/04/07	13:09
				Uncert:							
				TPU:							
QC1201305976	183322004	MS									
Strontium-90			1.66 U	0.00529	1.45	pCi/g		87 (75%-125%)		04/04/07	13:09
				Uncert:	+/-0.022	+/-0.111					
				TPU:	+/-0.022	+/-0.120					
Rad Liquid Scintillation											
Batch	621438										
QC1201305990	183322004	DUP									
Technetium-99			U	-0.117 U	-0.0611	pCi/g	0	(0% - 100%)	MXP1	04/03/07	15:40
				Uncert:	+/-0.222	+/-0.219					
				TPU:	+/-0.222	+/-0.219					
QC1201305992	LCS										
Technetium-99			18.3		17.6	pCi/g		96 (75%-125%)		04/03/07	16:43
				Uncert:	+/-0.499						
				TPU:	+/-0.671						
QC1201305989	MB										
Technetium-99			U	-0.139	pCi/g					04/03/07	15:08
				Uncert:	+/-0.191						
				TPU:	+/-0.191						
QC1201305991	183322004	MS									
Technetium-99			19.9 U	-0.117	18.0	pCi/g		91 (75%-125%)		04/03/07	16:12
				Uncert:	+/-0.222	+/-0.563					
				TPU:	+/-0.222	+/-0.728					
Batch	621635										
QC1201306500	183322004	DUP									
Carbon-14			U	-0.0391 U	0.0202	pCi/g	0	(0% - 100%)	AXD2	04/04/07	11:42
				Uncert:	+/-0.114	+/-0.125					
				TPU:	+/-0.114	+/-0.125					
QC1201306502	LCS										
Carbon-14			6.80		6.51	pCi/g		96 (75%-125%)		04/04/07	13:08
				Uncert:	+/-0.228						
				TPU:	+/-0.249						
QC1201306499	MB										
Carbon-14			U	0.0489	pCi/g					04/04/07	11:00
				Uncert:	+/-0.115						
				TPU:	+/-0.115						
QC1201306501	183322004	MS									
Carbon-14			6.93 U	-0.0391	6.42	pCi/g		93 (75%-125%)		04/04/07	12:24
				Uncert:	+/-0.114	+/-0.232					
				TPU:	+/-0.114	+/-0.252					
Batch	621636										
QC1201306504	183322004	DUP									
Iron-55			U	-9.97 U	-14.9	pCi/g	0	(0% - 100%)	MXP1	04/04/07	13:27

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QC Summary

Workorder: 183322

Page 11 of 12

Parmname		NOM	Sample Qual		QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation												
Batch	621636											
		Uncert:		+/-33.2		+/-28.6						
		TPU:		+/-33.2		+/-28.6						
QC1201306506	LCS											
Iron-55		1200				1130	pCi/g	94	(75%-125%)		04/04/07	14:00
		Uncert:				+/-63.1						
		TPU:				+/-101						
QC1201306503	MB											
Iron-55			U			9.23	pCi/g				04/04/07	13:10
		Uncert:				+/-29.7						
		TPU:				+/-29.8						
QC1201306505	183322004	MS										
Iron-55		1230	U	-9.97		1370	pCi/g	112	(75%-125%)		04/04/07	13:43
		Uncert:		+/-33.2		+/-67.4						
		TPU:		+/-33.2		+/-116						
Batch	621639											
QC1201306518	183322004	DUP										
Tritium			U	1.39	U	0.995	pCi/g	0	(0% - 100%)	AXD2	04/05/07	03:29
		Uncert:		+/-1.68		+/-1.56						
		TPU:		+/-1.68		+/-1.56						
QC1201306520	LCS											
Tritium		11.2				11.4	pCi/g	101	(75%-125%)		04/03/07	17:01
		Uncert:				+/-2.51						
		TPU:				+/-2.52						
QC1201306517	MB											
Tritium			U			1.36	pCi/g				04/03/07	16:39
		Uncert:				+/-1.75						
		TPU:				+/-1.75						
QC1201306519	183322004	MS										
Tritium		11.9	U	1.39		11.2	pCi/g	94	(75%-125%)		04/03/07	17:22
		Uncert:		+/-1.68		+/-2.62						
		TPU:		+/-1.68		+/-2.63						
Batch	623260											
QC1201309876	183322004	DUP										
Nickel-63			U	-5.85	U	-5.74	pCi/g	0	(0% - 100%)	TC1	04/06/07	12:06
		Uncert:		+/-10.8		+/-10.6						
		TPU:		+/-10.8		+/-10.6						
QC1201309878	LCS											
Nickel-63		569				522	pCi/g	92	(75%-125%)		04/06/07	12:39
		Uncert:				+/-26.6						
		TPU:				+/-32.6						
QC1201309875	MB											
Nickel-63			U			-4.22	pCi/g				04/06/07	11:49
		Uncert:				+/-10.5						
		TPU:				+/-10.5						
QC1201309877	183322004	MS										
Nickel-63		573	U	-5.85		571	pCi/g	100	(75%-125%)		04/06/07	12:22
		Uncert:		+/-10.8		+/-28.5						
		TPU:		+/-10.8		+/-35.2						

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QC Summary

Workorder: 183322

Page 12 of 12

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

The Qualifiers in this report are defined as follows:

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

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.



Laboratories LLC

a member of **The GEL Group** INC



PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

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Connecticut Yankee Atomic Power Co.

Soils PO# 002332

Work Order: 183480

SDG: MSR#07-00136

Laboratory ID

183480001

Client ID

9306-0000-020-I

Table of Contents

General Narrative	1
Chain of Custody and Supporting Documentation	4
Data Review Qualifier Definitions	8
Radiological Analysis.....	10
Sample Data Summary	14
Quality Control Data	18

General Narrative

**General Narrative
for
Connecticut Yankee Atomic Power Co.
Work Order: 183480
SDG: MSR#07-00136**

April 09, 2007

Laboratory Identification:

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

Summary

Sample receipt

The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on April 04, 2007 for analysis. Shipping container temperature was checked, documented, and within specifications. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

Sample Identification The laboratory received the following sample:

<u>Laboratory Identification</u>	<u>Sample Description</u>
183480001	9306-0000-020-I

Items of Note

There are no items to note.

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.


Analytical Request

One soil sample was 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 09 April 2007

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas 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

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

No. 2007-00113

[illegible]

Figure 1. Sample Check-in List

Date/Time Received: 4-4-07 1000

SDG#: MSR#07-00136

Work Order Number: 183480

Shipping Container ID: ^{FED EX}7991 524 1348 Chain of Custody # 2007 - 00113

1. Custody Seals on shipping container intact? Yes ☐ No ☐ NA ✓
2. Custody Seals dated and signed? Yes ☐ No ☐ NA ✓
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 21°C FED EX BOX
5. Vermiculite/packing materials is: Wet ☐ Dry ☐ NA ✓
6. Number of samples in shipping container: 1
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: Mike Kachur Date: 4-4-07

Telephoned to: _____ On _____ By _____



SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>CONN TANKER</u>	SDG/ARCO/Work Order: <u>183480</u>
Date Received: <u>4-4-07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>MK</u>	<u>[Signature]</u>

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

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

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

PM (or PMA) review of Hazard classification: 7 Initials CM Date: 4/4/07

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
-----------	-------------

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

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
Work Order 183480**

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: 622655
Prep Batch Number: 622627

Sample ID	Client ID
183480001	9306-0000-020-I
1201308632	Method Blank (MB)
1201308633	183480001(9306-0000-020-I) Sample Duplicate (DUP)
1201308634	Laboratory Control Sample (LCS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

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

Sample Geometry

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

Quality Control (QC) Information:

Blank Information

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

Designated QC

The following sample was used for QC: 183480001 (9306-0000-020-I).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

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

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

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

Miscellaneous Information:**NCR Documentation**

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

Additional Comments

The duplicate and the sample 1201308633 (9306-0000-020-I) and 183480001 (9306-0000-020-I) did not meet the relative percent difference requirement for Tl-208, however they do meet the relative error ratio requirement with a value of 1.66236.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to high peak width.	Cesium-137	1201308633
UI	Data rejected due to low abundance.	Americium-241	183480001
		Cesium-134	1201308633
UI	Data rejected due to no valid peak.	Potassium-40	1201308632

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 4/10/07

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

YANK001 Connecticut Yankee Atomic Power Co.

Client SDG: MSR#07-00136 GEL Work Order: 183480

The Qualifiers in this report are defined as follows:

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

** Analyte is a surrogate compound

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

UI Gamma Spectroscopy--Uncertain identification

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

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

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

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



Reviewed by

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: April 10, 2007

Client Sample ID: 9306-0000-020-I
Sample ID: 183480001
Matrix: TS
Collect Date: 02-APR-07
Receive Date: 04-APR-07
Collector: Client
Moisture: 6.41%

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

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch
Rad Gamma Spec Analysis												
<i>Gamma, Solid-FSS GAM & ALL FSS 226 Ingrowth</i>												
<i>Waived</i>												
Actinium-228		1.38	+/-0.356	0.133	+/-0.356	0.265	pCi/g		MJH1	04/10/07	0938	622655
Americium-241	UI	0.00	+/-0.0774	0.0656	+/-0.0774	0.131	pCi/g					
Bismuth-212		0.953	+/-0.572	0.278	+/-0.572	0.555	pCi/g					
Bismuth-214		1.61	+/-0.232	0.0793	+/-0.232	0.159	pCi/g					
Cesium-134	U	0.0508	+/-0.054	0.0494	+/-0.054	0.0987	pCi/g					
Cesium-137	U	0.0595	+/-0.0724	0.0365	+/-0.0724	0.073	pCi/g					
Cobalt-60	U	-0.0463	+/-0.0468	0.0343	+/-0.0468	0.0685	pCi/g					
Europium-152	U	0.0542	+/-0.142	0.105	+/-0.142	0.210	pCi/g					
Europium-154	U	-0.171	+/-0.153	0.114	+/-0.153	0.227	pCi/g					
Europium-155	U	0.0608	+/-0.127	0.0971	+/-0.127	0.194	pCi/g					
Lead-212		1.32	+/-0.162	0.0523	+/-0.162	0.105	pCi/g					
Lead-214		1.88	+/-0.246	0.0704	+/-0.246	0.141	pCi/g					
Manganese-54	U	0.0268	+/-0.0477	0.0426	+/-0.0477	0.0852	pCi/g					
Niobium-94	U	0.0332	+/-0.0472	0.0411	+/-0.0472	0.0821	pCi/g					
Potassium-40		20.9	+/-1.99	0.307	+/-1.99	0.613	pCi/g					
Radium-226		1.61	+/-0.232	0.0793	+/-0.232	0.159	pCi/g					
Silver-108m	U	0.033	+/-0.0409	0.0368	+/-0.0409	0.0735	pCi/g					
Thallium-208		0.369	+/-0.109	0.0386	+/-0.109	0.0772	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	04/04/07	1141	622627

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 :

GEL LABORATORIES LLC

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

Certificate of Analysis

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

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

Report Date: April 10, 2007

Client Sample ID: 9306-0000-020-I
Sample ID: 183480001

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

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

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

QUALITY CONTROL DATA

GEL LABORATORIES LLC

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

QC Summary

Report Date: April 10, 2007

Page 1 of 5

Client : Connecticut Yankee Atomic Power
362 Injun Hollow Rd

Contact: East Hampton, Connecticut
Mr. Jack McCarthy

Workorder: 183480

Isotope Name	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 622655											
QC1201308633 183480001 DUP											
Antimony-122		1.38		1.44	pCi/g	5		(0% - 100%)	MJH1	04/10/07	09:39
	Uncert:	+/-0.356		+/-0.334							
	TPU:	+/-0.356		+/-0.334							
Mercurium-241	UI	0.00	U	0.081	pCi/g	60		(0% - 100%)			
	Uncert:	+/-0.0774		+/-0.0682							
	TPU:	+/-0.0774		+/-0.0682							
Thimoth-212		0.953		0.989	pCi/g	4		(0% - 100%)			
	Uncert:	+/-0.572		+/-0.549							
	TPU:	+/-0.572		+/-0.549							
Thimoth-214		1.61		1.45	pCi/g	11		(0% - 20%)			
	Uncert:	+/-0.232		+/-0.243							
	TPU:	+/-0.232		+/-0.243							
Cesium-134	U	0.0508	UI	0.00	pCi/g	86		(0% - 100%)			
	Uncert:	+/-0.054		+/-0.0607							
	TPU:	+/-0.054		+/-0.0607							
Cesium-137	U	0.0595	UI	0.00	pCi/g	36		(0% - 100%)			
	Uncert:	+/-0.0724		+/-0.0717							
	TPU:	+/-0.0724		+/-0.0717							
Cobalt-60	U	-0.0463	U	-0.00321	pCi/g	174		(0% - 100%)			
	Uncert:	+/-0.0468		+/-0.0534							
	TPU:	+/-0.0468		+/-0.0534							
Europium-152	U	0.0542	U	-0.0128	pCi/g	323		(0% - 100%)			
	Uncert:	+/-0.142		+/-0.138							
	TPU:	+/-0.142		+/-0.138							
Europium-154	U	-0.171	U	-0.0914	pCi/g	61		(0% - 100%)			
	Uncert:	+/-0.153		+/-0.159							
	TPU:	+/-0.153		+/-0.159							
Europium-155	U	0.0608	U	0.137	pCi/g	77		(0% - 100%)			
	Uncert:	+/-0.127		+/-0.109							
	TPU:	+/-0.127		+/-0.109							
Lead-212		1.32		1.30	pCi/g	2		(0% - 20%)			
	Uncert:	+/-0.162		+/-0.157							
	TPU:	+/-0.162		+/-0.157							
Lead-214		1.88		1.58	pCi/g	17		(0% - 20%)			
	Uncert:	+/-0.246		+/-0.219							
	TPU:	+/-0.246		+/-0.219							
Manganese-54	U	0.0268	U	0.0269	pCi/g	0		(0% - 100%)			
	Uncert:	+/-0.0477		+/-0.051							
	TPU:	+/-0.0477		+/-0.051							
Niobium-94	U	0.0332	U	0.00914	pCi/g	114		(0% - 100%)			
	Uncert:	+/-0.0472		+/-0.0525							
	TPU:	+/-0.0472		+/-0.0525							

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QC Summary

Vorkorder: 183480

Page 2 of 5

irmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
ad Gamma Spec itch 622655											
otassium-40		20.9		22.2	pCi/g	6		(0% - 20%)			
	Uncert:	+/-1.99		+/-1.92							
	TPU:	+/-1.99		+/-1.92							
adium-226		1.61		1.45	pCi/g	11		(0% - 100%)			
	Uncert:	+/-0.232		+/-0.243							
	TPU:	+/-0.232		+/-0.243							
ilver-108m	U	0.033	U	-0.0527	pCi/g	872		(0% - 100%)			
	Uncert:	+/-0.0409		+/-0.0395							
	TPU:	+/-0.0409		+/-0.0395							
hallium-208		0.369		0.503	pCi/g	31*		(0%-20%)			
	Uncert:	+/-0.109		+/-0.114							
	TPU:	+/-0.109		+/-0.114							
QC1201308634 ctinium-228	LCS			1.36	pCi/g					04/06/07	13:38
	Uncert:			+/-0.598							
	TPU:			+/-0.00							
mericium-241	16.4			13.8	pCi/g		84	(75%-125%)			
	Uncert:			+/-1.38							
	TPU:			+/-0.00							
ismuth-212				1.93	pCi/g						
	Uncert:			+/-1.49							
	TPU:			+/-0.00							
ismuth-214				0.887	pCi/g						
	Uncert:			+/-0.295							
	TPU:			+/-0.00							
esium-134			U	0.0849	pCi/g						
	Uncert:			+/-0.109							
	TPU:			+/-0.00							
esium-137	6.35			6.17	pCi/g		97	(75%-125%)			
	Uncert:			+/-0.595							
	TPU:			+/-0.00							
obalt-60	9.53			9.73	pCi/g		102	(75%-125%)			
	Uncert:			+/-0.704							
	TPU:			+/-0.00							
uropium-152			U	-0.0829	pCi/g						
	Uncert:			+/-0.279							
	TPU:			+/-0.00							
uropium-154			U	-0.0535	pCi/g						
	Uncert:			+/-0.227							
	TPU:			+/-0.00							
uropium-155			U	0.140	pCi/g						
	Uncert:			+/-0.319							
	TPU:			+/-0.00							
ead-212				1.57	pCi/g						
	Uncert:			+/-0.264							
	TPU:			+/-0.00							
ead-214				1.06	pCi/g						
	Uncert:			+/-0.304							

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QC Summary

Vorkorder: 183480

Page 3 of 5

irmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
ad Gamma Spec										
atch 622655										
	TPU:		+/-0.00							
langanese-54		U	0.029	pCi/g						
	Uncert:		+/-0.0987							
	TPU:		+/-0.00							
iohium-94		U	-0.0205	pCi/g						
	Uncert:		+/-0.112							
	TPU:		+/-0.00							
otassium-40		U	1.20	pCi/g						
	Uncert:		+/-0.931							
	TPU:		+/-0.00							
adium-226			0.887	pCi/g			(75%-125%)			
	Uncert:		+/-0.295							
	TPU:		+/-0.00							
ilver-108m		U	0.0565	pCi/g						
	Uncert:		+/-0.0899							
	TPU:		+/-0.00							
hallium-208			0.453	pCi/g						
	Uncert:		+/-0.166							
	TPU:		+/-0.00							
QC1201308632 MB										
ctinium-228		U	-0.00616	pCi/g					04/06/07	07:28
	Uncert:		+/-0.0926							
	TPU:		+/-0.0926							
mericium-241		U	0.102	pCi/g						
	Uncert:		+/-0.0847							
	TPU:		+/-0.0847							
ismuth-212		U	-0.145	pCi/g						
	Uncert:		+/-0.200							
	TPU:		+/-0.200							
ismuth-214		U	-0.0179	pCi/g						
	Uncert:		+/-0.0539							
	TPU:		+/-0.0539							
esium-134		U	0.00204	pCi/g						
	Uncert:		+/-0.023							
	TPU:		+/-0.023							
esium-137		U	-0.0531	pCi/g						
	Uncert:		+/-0.0276							
	TPU:		+/-0.0276							
obalt-60		U	0.0204	pCi/g						
	Uncert:		+/-0.0209							
	TPU:		+/-0.0209							
uropium-152		U	0.0229	pCi/g						
	Uncert:		+/-0.0607							
	TPU:		+/-0.0607							
uropium-154		U	-0.0182	pCi/g						
	Uncert:		+/-0.0507							
	TPU:		+/-0.0507							
uropium-155		U	0.0553	pCi/g						

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QC Summary

Vorkorder: 183480

Page 4 of 5

Sample Name	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec										
Batch	622655									
			Uncert:							
			TPU:							
Lead-212		U	0.00638	pCi/g						
			Uncert:							
			TPU:							
Lead-214		U	0.0537	pCi/g						
			Uncert:							
			TPU:							
Manganese-54		U	0.0203	pCi/g						
			Uncert:							
			TPU:							
Polonium-94		U	0.00193	pCi/g						
			Uncert:							
			TPU:							
Potassium-40		UI	0.00	pCi/g						
			Uncert:							
			TPU:							
Radium-226		U	-0.0179	pCi/g						
			Uncert:							
			TPU:							
Silver-108m		U	-0.0253	pCi/g						
			Uncert:							
			TPU:							
Thallium-208		U	0.0494	pCi/g						
			Uncert:							
			TPU:							

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the detection limit
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification

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QC Summary

Vorkorder: 183480

Page 5 of 5

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

/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.

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 4 (DQA RESULTS)

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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

Preliminary Data Review Form - Samples for the Sign Test

Survey Area: 9306 Survey Unit: 0000
 Survey Unit Name: South Central Protected Area Grounds
 Classification: 2
 Survey Media: Soil
 Type of Survey: Final Status Survey
 Type of Measurement: Gross Measurement
 Number of Measurements: 15
 Operational DCGL: 1

BASIC STATISTICAL QUANTITIES

	Cs-137	Co-60
Minimum Value:	-1.61E-02	-1.39E-03
Maximum Value:	6.00E-02	1.17E-01
Mean:	1.04E-02	2.01E-02
Median:	2.40E-03	7.60E-03
Standard Deviation:	2.27E-02	3.52E-02
Skew:	1.09E+00	2.33E+00

RADIONUCLIDE CONCENTRATION (pCi/g)

NUMBER	Cs-137	Co-60	Cs Identified?	Co Identified?
9306-0000-001F	-1.31E-02	2.55E-02	NO	YES
9306-0000-002F	-1.61E-02	9.92E-03	NO	NO
9306-0000-003F	-2.99E-03	1.17E-01	NO	YES
9306-0000-004F	-5.50E-03	1.06E-02	NO	NO
9306-0000-005F	2.40E-03	3.78E-03	NO	NO
9306-0000-006F	1.09E-02	7.60E-03	NO	NO
9306-0000-007F	7.92E-03	-1.39E-03	NO	NO
9306-0000-008F	-5.98E-03	4.56E-03	NO	NO
9306-0000-009F	3.02E-02	1.50E-02	NO	NO
9306-0000-010F	6.00E-02	7.93E-03	YES	NO
9306-0000-011F	1.27E-02	9.19E-02	NO	YES
9306-0000-012F	7.75E-04	4.89E-03	NO	NO
9306-0000-013F	4.83E-02	3.35E-04	YES	NO
9306-0000-014F	2.82E-02	2.98E-03	YES	NO
9306-0000-015F	2.03E-03	1.28E-03	NO	NO

Performed By:

Robert Massengill *Brill*

Date:

4-12-07

Independent Review:

De *2007KAWAK*

Date:

4/12/07

Preliminary Data Review Form - Judgemental Samples

Survey Unit: 9306- 0000
 Survey Unit Name: South Central Protected Area Grounds
 Classification: 2
 Survey Media: Soil
 Type of Survey: Final Status Survey
 Type of Measurement: Gross Measurement
 Number of Measurements: 5
 Operational DCGL: 1

BASIC STATISTICAL QUANTITIES

RANGE

	Cs-137	Co-60	Sr-90
Minimum Value:	-3.30E-02	-6.94E-03	-1.04E-02
Maximum Value:	8.34E-02	2.18E-02	3.64E-03
Mean:	1.68E-02	-1.18E-03	-4.50E-04
Median:	6.85E-03	5.83E-03	-6.00E-04
Standard Deviation:	5.31E-02	2.78E-02	8.95E-03

RADIONUCLIDE CONCENTRATION (pCi/g)

NUMBER	Cs-137	Cs ID'ed?	Co-60	Co ID'ed	Sr-90	Sr ID'ed	> DCGL
9306-0000-016B	8.34E-02	YES	2.18E-02	NO	9.80E-03	NO	NO
9306-0000-017B	-3.27E-02	NO	-6.94E-03	NO	-4.84E-03	NO	NO
9306-0000-018B	6.85E-03	NO	5.83E-03	NO	3.64E-03	NO	NO
9306-0000-019B	-3.30E-02	NO	1.97E-02	NO	-1.04E-02	NO	NO
9306-0000-020I	5.95E-02	NO	-4.63E-02	NO			NO

Performed By:

Robert Massey

Date:

4-12-07

Independent Review:

J. Wastrowak

Date:

4/12/07

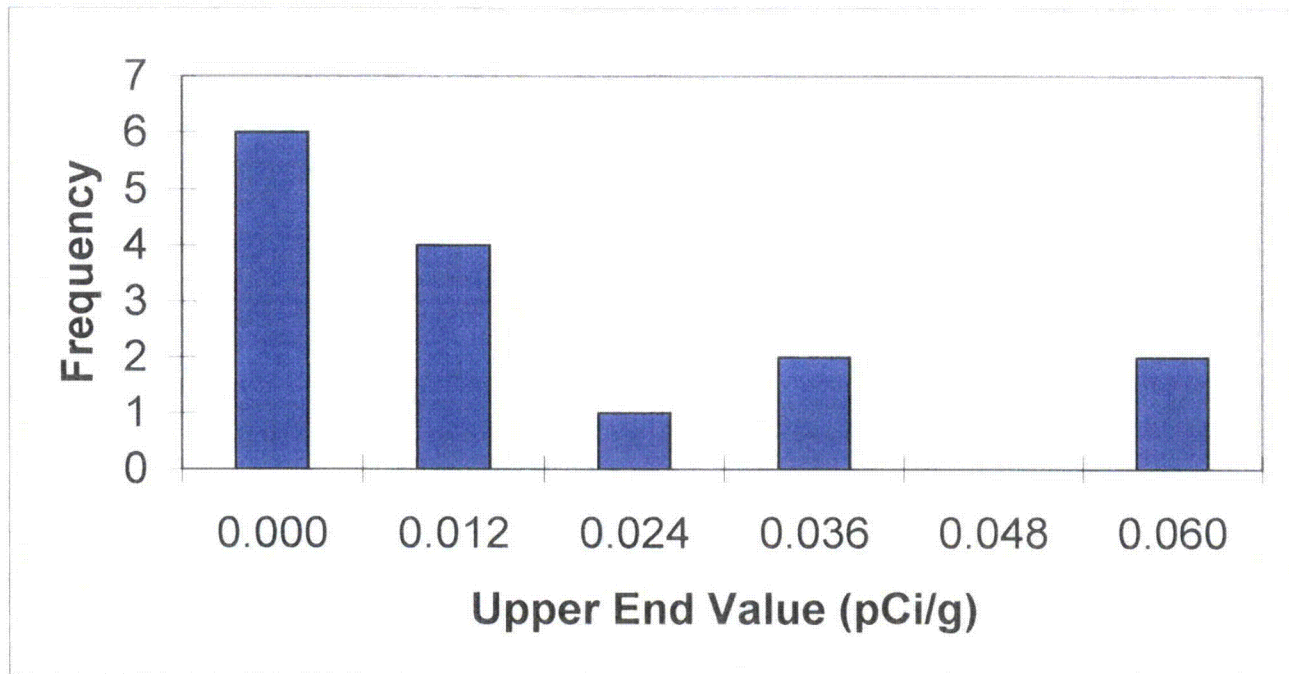
SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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

Frequency Plot For Cesium-137

Survey Unit: 9306-0000
Survey Unit Name: South Central Protected Area Grounds
Mean: 0.010 pCi/g



Upper End Value	Observation Frequency	Observation % Frequency
0.000	6	40%
0.012	4	27%
0.024	1	7%
0.036	2	13%
0.048	0	0%
0.060	2	13%
Total	15	100%

Prepared By:

Robert Massengill

Date:

4-12-07

Reviewed By:

D. WOSTKOWIAK

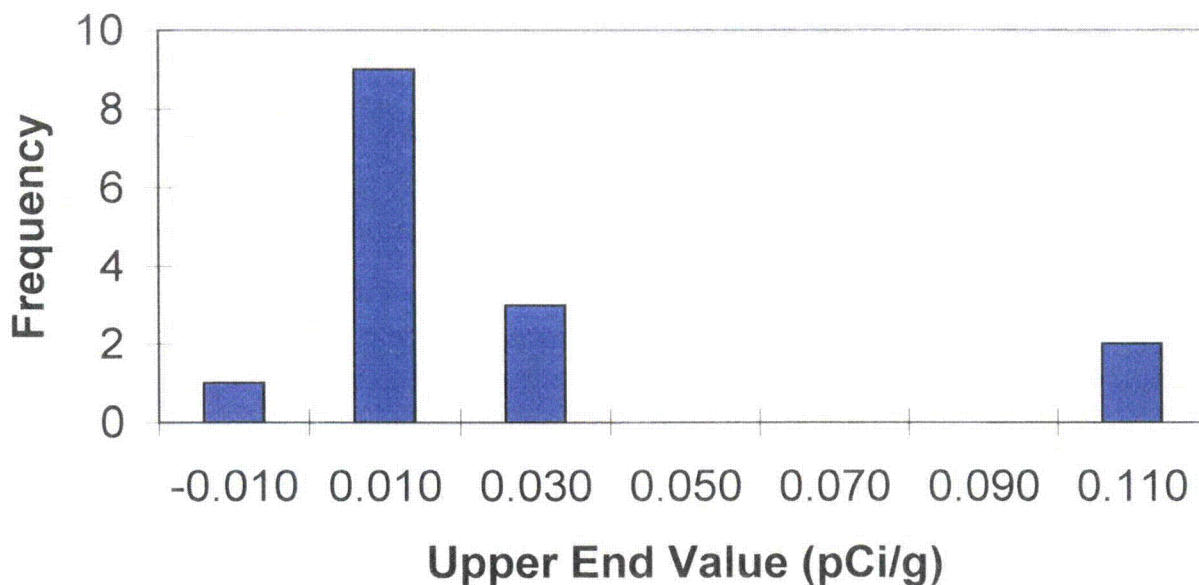
Date:

4/12/07

Frequency Plot For Cobalt-60

Survey Unit: 9306-0000
Survey Unit Name: South Central Protected Area Grounds

Mean: 0.020 pCi/g



Upper End Value	Observation Frequency	Observation % Frequency
-0.010	1	7%
0.010	9	60%
0.030	3	20%
0.050	0	0%
0.070	0	0%
0.090	0	0%
0.110	2	13%
Total	15	100%

Prepared By:

Robert Massengill

Date:

4-12-07

Reviewed By:

D. Waskowiak

Date:

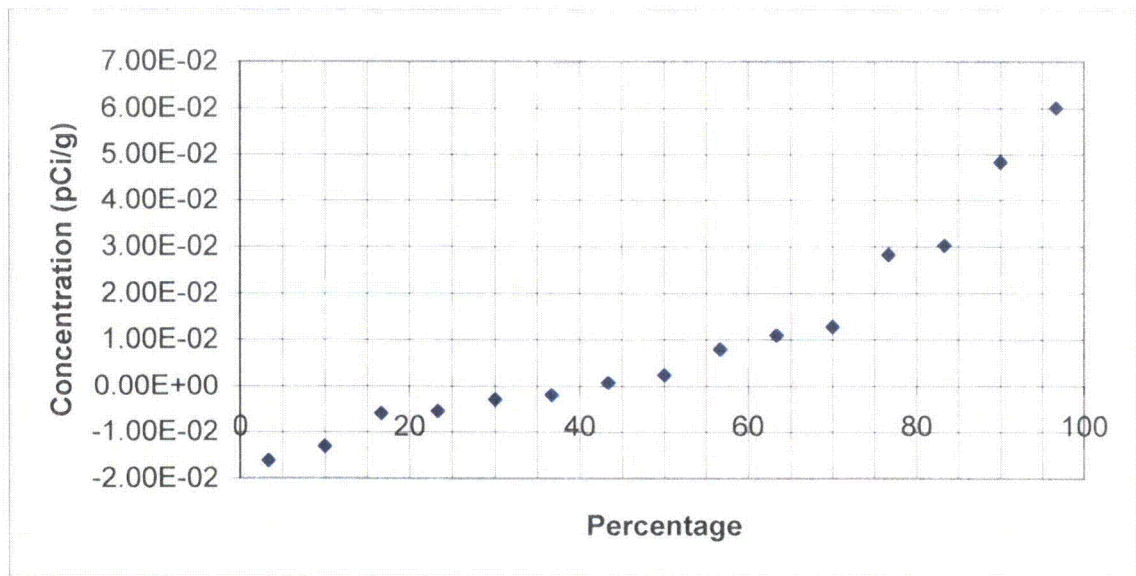
4/12/07

Quantile Plot For Cesium - 137

Survey Unit: 9306-0000


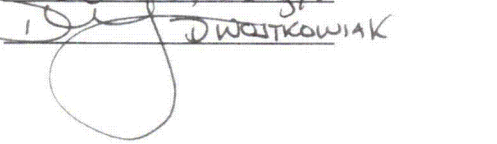
Survey Unit Name: South Central Protected Area Grounds

Mean: 1.04E-02 pCi/g



Cs-137	Rank	Percentage
-1.61E-02	1	3 %
-1.31E-02	2	10 %
-5.98E-03	3	17 %
-5.50E-03	4	23 %
-2.99E-03	5	30 %
-2.03E-03	6	37 %
7.75E-04	7	43 %
2.40E-03	8	50 %
7.92E-03	9	57 %
1.09E-02	10	63 %
1.27E-02	11	70 %
2.82E-02	12	77 %
3.02E-02	13	83 %
4.83E-02	14	90 %
6.00E-02	15	97 %

Prepared By:


Reviewed By: 
J. WASKOWIAK

Date:

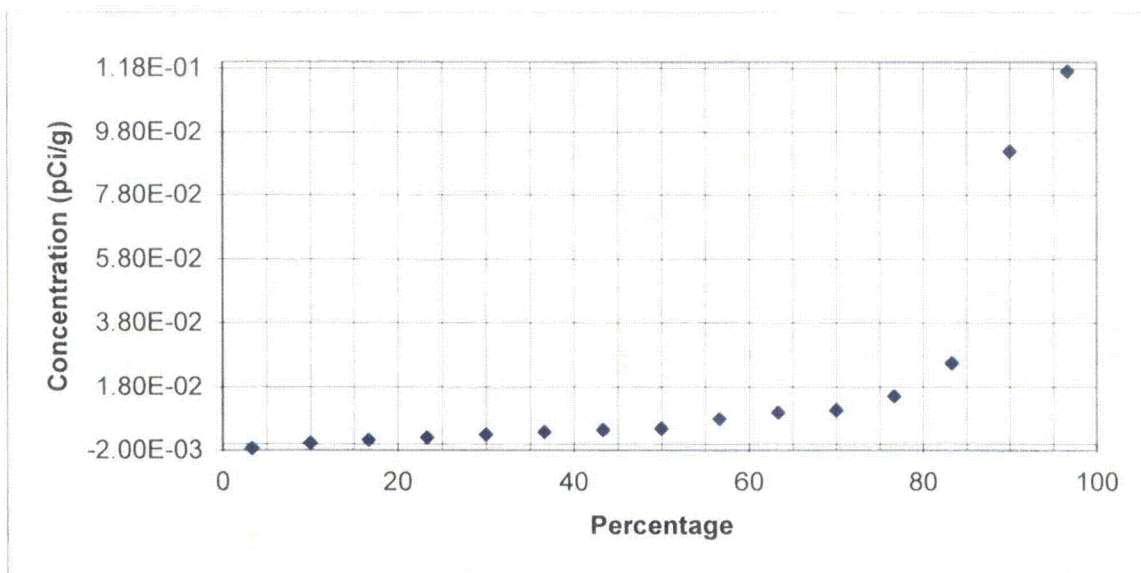
4-12-07

Date:

4/12/07

Quantile Plot For Cobalt - 60

Survey Unit: 9306-0000
Survey Unit Name: South Central Protected Area Grounds
Mean: 2.01E-02 pCi/g



Co-60	Rank	Percentage
-1.39E-03	1	3 %
3.35E-04	2	10 %
1.28E-03	3	17 %
2.13E-03	4	23 %
2.98E-03	5	30 %
3.78E-03	6	37 %
4.56E-03	7	43 %
4.89E-03	8	50 %
7.93E-03	9	57 %
9.92E-03	10	63 %
1.06E-02	11	70 %
1.50E-02	12	77 %
2.55E-02	13	83 %
9.19E-02	14	90 %
1.17E-01	15	97 %

Prepared By:

Robert Massengill

Reviewed By:

D. Warkowiak

Date:

4-12-07

Date:

4/12/07

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 4C (SIGN TEST)

Sign Test Calculation Sheet For Multiple Radionuclides

Survey Unit Number: 9306-0000					
Survey Unit Name: South Central Protected Area Grounds					
WP&IR#: NA					
Classification : 2			TYPE I (α error):0.05	TYPE I (β error):0.05	
Radionuclides:			Cs-137	Co-60	Sr-90
Operational DCGL (pCi/g):			4.75	2.29	
Results Cs-137	Results Co-60	Weighted Sum (W_s)	DCGL-Result	Sign	
-1.31E-02	2.55E-02	1.11E-02	9.89E-01	1	
-1.61E-02	9.92E-03	4.33E-03	9.96E-01	1	
-2.99E-03	1.17E-01	5.11E-02	9.49E-01	1	
-5.50E-03	1.06E-02	4.63E-03	9.95E-01	1	
2.40E-03	3.78E-03	2.16E-03	9.98E-01	1	
1.09E-02	7.60E-03	3.22E-03	9.97E-01	1	
7.92E-03	-1.39E-03	1.06E-03	9.99E-01	1	
-5.98E-03	4.56E-03	7.32E-04	9.99E-01	1	
3.02E-02	1.50E-02	1.29E-02	9.87E-01	1	
6.00E-02	7.93E-03	1.61E-02	9.84E-01	1	
1.27E-02	9.19E-02	4.28E-02	9.57E-01	1	
7.75E-04	4.89E-03	2.30E-03	9.98E-01	1	
4.83E-02	3.35E-04	1.03E-02	9.90E-01	1	
2.82E-02	2.98E-03	7.24E-03	9.93E-01	1	
-2.03E-03	1.28E-03	5.59E-04	9.99E-01	1	
Number of Positive Differences (S+):			15		

Critical Value: 13

Survey Unit: Meets Acceptance Criterion

Performed By:

Robert Massengill

Date:

4-12-07

Independent Review:

D. Waskowski

Date:

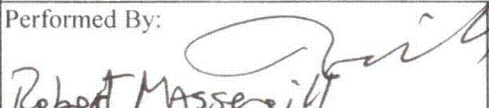
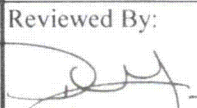
4/12/07

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

ATTACHMENT 4D (QC SPLIT RESULTS)

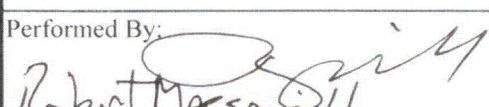
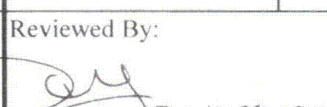
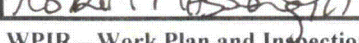
Split Sample Assessment Form

Survey Area#:	9306	Survey Unit #:	0000	Survey Unit Name:	South Central Protected Area Grounds			
Sample Plan or WPIR#:		NA			SML #:		0	
Sample Description: Comparison of split samples collected from sample measurement location #06 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was 9306-0000-006F, the comparison sample was 9306-0000-006FS.								
STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
Cs-137	1.09E-02	8.25E-03	1	NONE -	1.13E-02	8.40E-03	1.04	NA
Co-60	2.13E-03	7.00E-03	0	NONE -	8.63E-03	7.50E-03	4.05	NA
K-40	1.37E+01	5.30E-01	26	0.75 - 1.33	1.46E+01	5.35E-01	1.07	Y
Comments/Corrective Actions: With regard to the Cs-137 & Co-60 results, guidance for agreement ranges, obtained from USNRC Inspection Procedure 84750, does not address resolution ratios less than 4, therefore, a determination of acceptability for such ratios cannot be made. However, K-40 was found to be present at an acceptable level of agreement. Therefore, no further action is warranted.					Table is provided to show acceptance criteria used to assess split samples.			
					Resolution		Agreement Range	
					4	7	0.50	2.00
					8	15	0.60	1.66
16	50	0.75	1.33					
51	200	0.80	1.25					
> 200		0.85	1.18					
Performed By:					Reviewed By:		Date:	
 Robert Massengill					 J. Wozniak		4-12-07	

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

Split Sample Assessment Form

Survey Area#:	9306	Survey Unit #:	0000	Survey Unit Name:	South Central Protected Area Grounds			
Sample Plan or WPIR#:		NA			SML #:		0	
Sample Description: Comparison of split samples collected from sample measurement location #08 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was 9306-0000-008F, the comparison sample was 9306-0000-008FS.								
STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
Cs-137	-5.98E-03	6.05E-03	-1	NONE -	5.09E-03	2.00E-02	-0.85	NA
Co-60	4.56E-03	5.40E-03	1	NONE -	1.06E-02	1.95E-02	2.32	NA
K-40	1.71E+01	5.75E-01	30	0.75 - 1.33	1.60E+01	8.50E-01	0.94	Y
Comments/Corrective Actions: With regard to the Cs-137 & Co-60 results, guidance for agreement ranges, obtained from USNRC Inspection Procedure 84750, does not address resolution ratios less than 4, therefore, a determination of acceptability for such ratios cannot be made. However, K-40 was found to be present at an acceptable level of agreement. Therefore, no further action is warranted.					Table is provided to show acceptance criteria used to assess split samples.			
					Resolution		Agreement Range	
					4	7	0.50	2.00
					8	15	0.60	1.66
					16	50	0.75	1.33
51	200	0.80	1.25					
> 200		0.85	1.18					
Performed By:					Date:		Reviewed By:	
					4-12-07			
					4-12-07		4/12/07	

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

SOUTH CENTRAL PROTECTED AREA GROUNDS
SURVEY UNIT 9306-0000

RELEASE RECORD

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



DQA Surface Soil Report

Assessment Summary

Site:	CY-03		
Planner(s):	RWM		
Survey Unit Name:	South Central Protected Area Grounds 2		
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:	<i>Reject Null Hypothesis (Survey Unit PASSES)</i>		

Retrospective Power Curve

