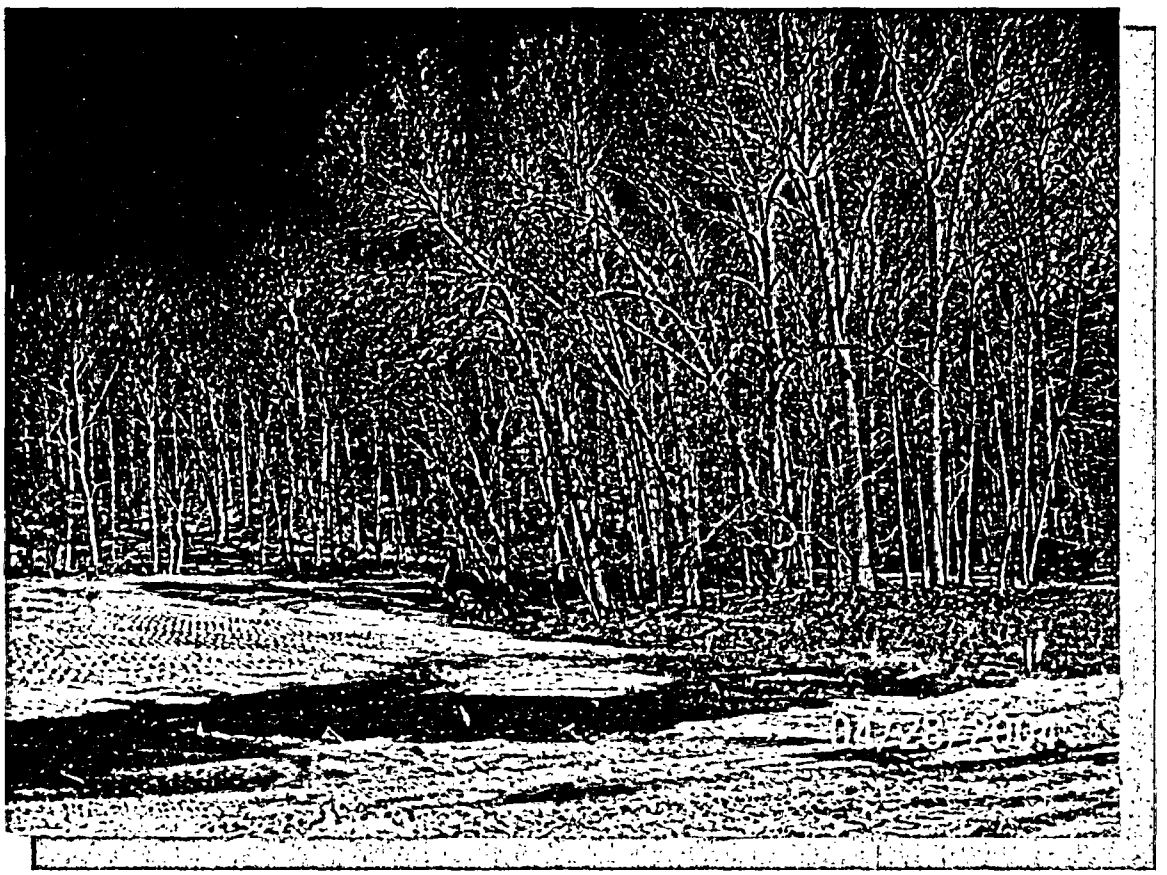

Final Status Survey Final Report Phase II

Appendix A11

Survey Unit Release Record 9535-0002, Southeast Landfill Area

February 2005

CYAPCO
FINAL STATUS SURVEY RELEASE RECORD
SOUTHEAST LANDFILL
SURVEY UNIT 9535-0002

Prepared By: _____ for E Reyes Date: 2/17/05
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1. SURVEY UNIT DESCRIPTION

Survey Unit (SU) 9535-0002, (Southeast Landfill Area) is designated as Final Status Survey (FSS) Class 2 and consists of approximately 3,320 m^2 (0.82 acres) of uninhabited, undeveloped land located 0.81 miles from the center of the Haddam Neck Plant (HNP) Containment Building (see Attachment 1, Figure 1). A Class 3 survey unit (9524-0000) encompasses the Survey Area 9535 in whole. The Survey Area 9535 is divided east to west into two survey units. The southern parcel is the Class 1 SU 9535-0001. The northern section is SU 9535-0002. The Survey Area 9535 is located north of the pistol range, and between Dibble Creek and the Salmon River. It is 45 meters upgrade from and east of the creek and separated from the Salmon River by a tall, sandy, tree-lined ridge. The topography of the area has changed considerably as a result of material and spoils removal from the area. The debris piles are gone, materials removed and the area graded. Most of the area is sand based, although trenching identified some large rock masses.

The reference coordinates associated with SU 9535-0002 are E050 through E055 by S128 through S133 (see License Termination Plan Section 5.4.4). The reference coordinates provide the maximum dimensions of a rectangle containing this survey unit. Some areas contained in this rectangle may not be part of this survey unit. The boundary of the survey unit was defined using a Global Positioning System (GPS).

The historic files indicate that, in the past, vehicle barriers were used to restrict public access to the land space of Survey Area 9535. The landfill, due to its proximity to the road and relatively level surface, was a convenient place to dispose truckloads of construction materials and debris during plant construction and operation. Occasionally small amounts of miscellaneous material were mixed in with fill material. The area has a rhomboid shape that was fenced and posted, "Caution, Radioactive Materials", after the discovery of radioactive soil there. Following the remedial action and remedial action surveys, the fence and posting were no longer necessary and removed (refer to HP Technical Support Document (TSD) CY-HP-0154).

Non-radiological remediation was performed in the landfill area in 2003 using cleanup criteria specified by the Regulatory Affairs group (refer to memorandum RA-CY-03-058, CY). The scope for this project was the physical investigation and cleanup of the landfill to include the removal of all manmade materials, other than unpainted concrete, from the area. Blast rock also remained in the area.

2. CLASSIFICATION BASIS

The survey unit was classified in accordance with Procedure RPM 5.1-10, *"Survey Unit Classification"*. The historical information and scoping analyses results provided sufficient data to designate SU 9535-0002 as Class 2 in April 2004.

The *"Classification Basis Summary"* conducted for SU 9535-0002 consisted of:

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

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

c) Historic and current survey records review,

d) Personal interviews,

e) Visual inspections and a "walk down."

A review of the 10CFR50.75(g)(1) database identified several radiological events pertinent to Survey Area 9535. The database did not distinguish the events between SU 9535-0001 and SU 9535-0002. The final determination was to separate the survey area such that the elevated activity events would not be in the land space of SU 9535-0002. The following events are under the report of "Survey Area 9535-0000":

a) ACR 97-0450, 7/17/1997 - Contaminated material found outside the protected area. As part of the Site Characterization Survey, contaminated material and soil were identified in the rifle area. During the implementation of a scoping survey, elevated activity was detected in the landfill adjacent to the rifle range. A subsequent investigation identified two locations of fixed contamination, insulation material and a concrete block.

b) ACR 97-0785, 9/24/1997 - Follow-up to ACR 97-0450. An assessment of the soil indicates that the amount of radioactivity counted in the soil may exceed the limits of 10CFR20.2203(a)(3)(ii).

c) Results of Scoping Survey, 9/1/1998 - Results of scoping surveys performed for decommissioning characterization data.

d) Duratek Shooting Range, 12/7/1999 - Characterization survey to determine the extent and magnitude of plant related radionuclides within the Shooting Range Landfill.

Review of the 10CFR50.75(g)(1) database concluded that the fundamental event was the identification of radioactive material in July, 1997. The remaining items reflect subsequent characterization findings and a couple of non-radiological material discoveries (e.g., asbestos and hydraulic oil).

A review of the *"Initial and Supplemental Characterization Reports," "Historic Site Assessment Supplement,"* as well as the previous *"Classification Basis Summaries"* provided no additional information pertinent to classification.

A survey plan was initiated and executed in late 1997 to determine existing conditions and obtain radiological data for scoping. Radiological results from the initial scoping surveys indicated the presence of both Co-60 and Cs-137 in soil. The site characterization group performed radiological surveys of the landfill area with confirmatory surveys conducted by Oak Ridge Institute for Science and Engineering (ORISE). The initial characterization surveys were completed in 1997.

Results of the radiological survey and ground penetrating radar survey established the size of the landfill area to be approximately 5,000 square meters and an approximate depth of 3 meters.

A characterization study was performed in 1999 to determine the extent and magnitude of the plant-related radionuclides in the area.[1] Soil sample results for SU 9535-0002 did not identify plant-related radionuclides (i.e., Cs-137 or Co-60) above the survey design criteria (i.e., 1.68 pCi/g for Cs-137 and 0.15 pCi/g for Co-60) in the ten (10) soil samples collected. Note, the survey design assumed that Cs-137 results below 1.68 pCi/g were attributed to fallout from atmospheric nuclear testing.

A characterization plan to support FSS design was developed and implemented on November 7, 2003 and November 8, 2003. Excavation and trenching was performed in this survey unit for the purposes of removing manageable spoils and materials (e.g., concrete, asphalt, metal, etc.). The materials were surveyed for radiological contamination in accordance with health physics procedures. No materials were found to exceed the radiological release criteria for unrestricted use.

Judgmental scan measurements were performed in the area, particularly near suspect items (e.g., crushed barrel, PVC piping, buckets). Three (3) areas were identified as having exceeded twice ambient background and were marked for biased sampling. Seven (7) other locations were selected for a total of ten sample locations. The ten (10) soil samples were collected and analyzed on-site using gamma spectroscopy. Sample results for Cs-137 and Co-60 are provided in Table 1.

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

Parameter	Cs-137 (pCi/g)	Co-60 (pCi/g)
Minimum Value:	0.0173	-0.0103
Maximum Value:	0.425	0.0304
Mean:	0.0982	0.00932
Median:	0.0428	0.00939
Standard Deviation:	0.129	0.0118
Measurement standard deviation of the weighted sum(1):	0.0416	

(1) MARSSIM Section I.11.3 eq. (I-17) describes the use of the measurement standard deviation of the weighted sum when measured concentrations of the various radionuclides are assumed to be uncorrelated (i.e., there is no fixed ratio between the concentrations).

A review of the soil relocation files shows that soil and spoils were transported to the general vicinity of the Southeast Landfill as early as 1976. Specific details relevant to date or time period and exact location or placement were not available.

Personnel interviews with HNP veteran personnel were conducted during the historical site assessment to ascertain the history of the Southeast Landfill.

[1] Shooting Range Landfill Characterization Survey Report; December 1999.

Individuals responding to the questionnaire stated that spoils originating from construction activities such as new building construction, addition to existing buildings and general site maintenance and repairs were brought to the shooting range landfill.

A Final Status Survey Engineer (FSSE) performed a visual inspection and "walkdown" in April 2004. The visual inspection and walkdown did not conclude any observations impacting the classification of the survey unit.

At the time of FSS, the dose impact from groundwater contamination was not considered. The classification basis shows that the expected residual radioactivity in the survey unit would be below the site remediation criteria and are consistent with procedural guidance, thereby sufficient to justify final designation as Class 2.

3. DATA QUALITY OBJECTIVES (DQO)

The primary objective of the Final Status Survey Plan (FSSP) was to demonstrate that the level of residual radioactivity in SU 9535-0002 did not exceed the release criteria specified in the LTP, was below the 10 mrem/yr Administrative Level Derived Concentration Guideline Levels (DCGLs) and that the potential dose from residual radioactivity is As Low As Reasonably Achievable (ALARA).

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

The DQO process incorporated hypothesis testing and probabilistic sampling distributions to control decision errors during data analysis. Hypothesis testing is a process based on the scientific method that compares a baseline condition to an alternate condition. The baseline condition is technically known as the null hypothesis. Hypothesis testing rests on the premise that the null hypothesis is true and that sufficient evidence must be provided for rejection. In designing the survey plan, the underlying assumption, or null hypothesis was that residual activity in the survey unit exceeded the release criteria. Rejection of the null hypothesis would satisfy the release criteria objective of the FSS.

The DQO process determined that Cs-137 and Co-60 would be the radionuclides of concern during the FSS process for SU 9535-0002. To provide conservatism, the Base Case DCGLs for radionuclides in soil were reduced by 60% to establish the Administrative Level DCGLs. As multiple radionuclides were assumed to be present, the "unity rule" or "sum of the fractions", described by Equation 5-32 of the LTP, was used to show compliance with the release criteria.

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 performed before issue and after the instrument had been used.

Control and accountability of survey instruments were maintained to assure the quality and prevent the loss of data.

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

Table 2 – FSS DCGL Values and Required Minimum Detectable Concentrations

Radionuclide	Base Case Soil DCGL (pCi/g) (1)	Administrative DCGL (pCi/g) (2)	Required MDC (pCi/g) (3)
H-3	4.12E+02	1.65E+02	1.65E+01
C-14	5.66E+00	2.26E+00	2.26E-01
Mn-54	1.74E+01	6.96E+00	6.96E-01
Fe-55	2.74E+04	1.10E+04	1.10E+03
Co-60	3.81E+00	1.52E+00	1.52E-01
Ag-108m	7.14E+00	2.86E+00	2.86E-01
Ni-63	7.23E+02	2.89E+02	2.89E+01
Sr-90	1.55E+00	6.20E-01	6.20E-02
Nb-94	7.12E+00	2.85E+00	2.85E-01
Tc-99	1.26E+01	5.04E+00	5.04E-01
Cs-134	4.67E+00	1.87E+00	1.87E-01
Cs-137	7.91E+00	3.16E+00	3.16E-01
Eu-152	1.01E+01	4.04E+00	4.04E-01
Eu-154	9.29E+00	3.72E+00	3.72E-01
Eu-155	3.92E+02	1.57E+02	1.57E+01
Pu-238	2.96E+01	1.18E+01	1.18E+00
Pu-239/240	2.67E+01	1.07E+01	1.07E+00
Pu-241	8.70E+02	3.48E+02	3.48E+01
Am-241	2.58E+01	1.03E+01	1.03E+00
Cm-243/244	2.90E+01	1.16E+01	1.16E+00

(1) – The Base Case DCGLs for soil are specified by the LTP in Chapter 6.
(2) – The Administrative Level DCGL was 40% of the Base Case DCGL.
(3) – The Required MDC was 10% of the Administrative Level DCGL.

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. To assist the FSSE when preparing survey plans for FSS, guidance is provided in Procedure RPM 5.1-11. By design, the FSSP meets the ALARA criteria for soils as specified in Chapter 4 of the LTP.

The LTP specifies that scanning will be performed in a combination of systematic and judgmental measurement for Class 2 land areas and cover 10% to 100% of the area. The fraction of the scanning coverage was determined during the DQO process and locations based on the likelihood of finding elevated activity during the FSS.

Survey data collected to date (including soil samples and survey for radioactive contamination on removed material) indicates a low probability of finding elevated areas of residual radioactivity relative to the DCGL. Nevertheless, the historical use of the landfill to store materials and spoils from construction projects and the relatively small area of the survey unit justify scan coverage representing 100% of the total area. For a visual depiction of the scan area locations refer to Attachment 1, Figure 2.

The FSSP required a radiation scan of one (1) meter radius around each Sample Measurement Location (SML) to identify areas of elevated activity. Sample measurement locations within a surveyed FSS scan area did not required a duplicate scan survey.

Ten (10) data points were used to determine the radiological concentration variability in this survey unit. The population data set was from the characterization survey soil samples with sample locations from within the boundaries of this survey unit.

Radionuclide-specific analyses of soil samples collected from this survey unit and adjacent land areas with similar history and physical characteristics have identified only a few radionuclides, principally Cs-137 and Co-60 infrequently. The data collected prior to FSS indicated that the remaining eighteen (18) radionuclides listed in Table 2 would not be present in quantities greater than 5% of the applicable "Base Case" DCGL in this survey unit at the time of FSS. It was unlikely that the aggregate concentration of the remaining radionuclides would exceed 10%; therefore, only Cs-137 and Co-60 were used in the survey planning of SU 9535-0002. The use of the 5% and 10% rule is consistent with the development of surrogate ratio DCGLs as described in the LTP.

Since multiple radionuclides were assumed to be present, the "unity rule" or "sum of the fractions" was used to demonstrate compliance with the release criteria. Therefore, the Operational DCGL is considered to be "1".

Surrogate DCGLs are not required for this survey unit because of radionuclide specific analysis and radionuclide deselection in accordance with the 5% and 10% rule.

The Elevated Measurement Comparison (EMC) does not apply to this survey unit since discrete, elevated areas of contamination are not expected.

The Sign Test was selected as the non-parametric statistical test. The use of the Sign Test did not require the selection or use of a background reference area, which simplified survey design and implementation.

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 FSS."* In accordance with Procedure RPM 5.1-11 the Lower Boundary of the Gray Region (LBGR) was adjusted from 0.5 to 0.92 to maintain the relative shift (Δ/σ) in the range of 1 to 3. Survey design specified fifteen (15) surface soil samples for the Sign Test non-parametric statistical testing.
For the FSS, three (3) biased soil SMLs were incorporated in the survey design. The basis for this professional judgment decision was historical documentation review and process knowledge.

Although Procedure RPM 5.1-11 only specified that 5% of the samples be selected for HTD analysis, two (2) soil samples or 13% were randomly selected for HTD radionuclide analysis using the Microsoft® Excel "RANDBETWEEN" function. Each sample would be sent for a full suite analysis of the HTD radionuclides specified in the LTP, Table 2-12, "Radionuclides Potentially Present at Haddam Neck Plant".

The implementation of survey specific quality control measures as referenced by Procedure RPM 5.1-24, "Split Sample Assessment for Final Status Survey", included the collection of two (2) soil samples for "split sample" analysis by the off site laboratory. These locations were selected randomly using the Microsoft® Excel "RANDBETWEEN" function. The number of quality control soil samples was determined to be 14% of fifteen samples, rounded up to the next whole number.

The grid pattern and location of the soil samples were determined using Visual Sample Plan (VSP) in accordance with Procedure RPM 5.1-14, *"Identifying and Marking Surface Sample Locations for FSS"*. Pacific Northwest National Laboratory (PNNL) created VSP for the United States Department of Energy Input parameters included a systematic grid spacing consisting of a triangular pitch pattern, and a random starting point which is appropriate for a Class 2 survey unit. .

Sample locations and scan areas were identified using AutoCAD-Lt©, a commercially available plotting software with coordinates consistent with the Connecticut State Plane Coordinate System. The FSSP specified the use of a

Global Positioning System (GPS) to locate SMLs and scan area locations in the field. The GPS coordinates for the fifteen (15) SMLs designed for the non-parametric statistical testing are provided in Table 3.

Table 3 – Sample Measurement Locations (SMLs) with Associated GPS Coordinates

Designation	Northing	Easting
9535-0002-001F	236319.74	673006.51
9535-0002-002F	236319.74	673058.96
9535-0002-003F	236274.32	673032.74
9535-0002-004F	236274.32	673085.18
9535-0002-005F	236274.32	673137.62
9535-0002-006F	236228.9	673006.51
9535-0002-007F	236228.9	673058.96
9535-0002-008F	236228.9	673111.4
9535-0002-009F	236228.9	673163.84
9535-0002-010F	236183.49	673032.74
9535-0002-011F	236183.49	673085.18
9535-0002-012F	236183.49	673137.62
9535-0002-013F	236183.49	673190.06
9535-0002-014F	236138.07	673006.51
9535-0002-015F	236138.07	673058.96

For this Class 2 survey unit, the "Investigation Level" for area scanning and soil sample measurement results are those levels specified in the LTP, Table 5-8, "Investigation Levels".

In a Class 2 survey unit the median concentration is expected to be below the LBGR. A Prospective Power Curve was generated using COMPASS, a software package developed under the sponsorship of the United States Nuclear Regulatory Commission (USNRC) for implementation of the MARSSIM in support of the decommissioning license termination rule (10 CFR 20, Subpart E). The Prospective Power Curve showed adequate power for the survey design. The final remedial action survey data of this survey unit indicated the mean concentrations of Co-60 and Cs-137 is below the LBGR. Table 4 provides a synopsis of the FSS design.

Table 4 – Synopsis of the Survey Design

Feature	Design Criteria	Basis
Survey Unit Size	3,320 m^2	Based on AutoCAD and Visual Sample Plan calculations
Number of Measurements	15	Type I (α) and Type II (β) errors were 0.05, relative shift (Δ/σ) set at 2 by procedure, the LBGR was 0.92
Grid Spacing	12.0 m	Based on triangular grid
Interval Spacing	10.4 m	Based on triangular grid
DCGL	1	Operational DCGL applied to field data (1)
Scan Survey Coverage	3,320 m^2 (100%)	Based on likelihood of finding elevated readings in this particular Class 2 survey unit
Scan Investigation Level	Detectable over background	Based on achieving the Administrative Level DCGL

(1) The Operational DCGL was based on achieving an administrative level that was 40% of the soil DCGL and assuming no impact from radioactive contamination in groundwater or from buried concrete debris.

5. SURVEY IMPLEMENTATION

Final status survey field activities were conducted under Work Plan and Inspection Record (WP&IR) 24265-000-GEN-9535-01017-000. The WP&IR package included a detailed FSSP, job safety analysis, job planning checklist and related procedures to be used 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. Survey activities occurred between April 28 and May 10, 2004.

Using the GPS, the scan area and SMLs were identified and marked with surveyor's flags. A 100% scan survey of SU 9535-0002 was performed and evaluated for elevated readings. See Attachment 2 for scan area results. The survey unit was divided north to south into two halves and surveyed in one meter strips east to west. Given the shape of the northern tip of the survey unit a few sections had distinct shapes not sensibly receptive to the one meter strip methodology. Scan surveys were performed with an Eberline E-600 using a SPA-3 2"x2" 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 feasible and was moved at a scan speed of about 0.5 meters per second.

The fifteen (15) surface soil samples were collected and packaged in accordance with the FSS design and the Procedure RPM 5.1-3, "*Collection of Surface and Subsurface Soil, Shoreline Sediment, Asphalt and Liquid Samples for Scoping, Characterization and Final Status Survey*", and FSS Design. Soil 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 Scoping, Characterization and Final Status Survey Samples.*"

Two (2) soil samples, 9535-0002-004F, and 006F, were collected and sent to the off site laboratory for gamma spectroscopy and HTD radionuclide analysis.

Three (3) biased soil samples were collected, 9535-0002-016F through 018F, and sent to the offsite laboratory for gamma spectroscopy analysis. See Attachment 1, Figure 5 for a visual depiction.

Two (2) field "split samples", 9535-0002-008F/FS and 009F/FS, were collected for analysis by the offsite laboratory.

6. SURVEY RESULTS

No elevated areas were identified during scanning at the SMLs. The Scan Area contained areas with elevated readings, which prompted the collection of investigation soil samples from these areas. The investigation results are discussed in Section 8 of this report. Table 5 provides a summary of the scan area survey. All scan area results are provided in Attachment 2.

Table 5 – Scan Area Results

Scan Area	Highest Logged Reading (cpm)	Investigation Level (MDC-cpm)	Elevated Reading Identification	Confirmatory Sample
Scan Area	11000	7988	ER-001	9535-0002-019I
	11400	9428	ER-002	9535-0002-020I
	8830	7955	ER-003	9535-0002-021I
	8680	7955	ER-004	9535-0002-022I
	8950	7955	ER-005	9535-0002-023I
	9410	7955	ER-006	9535-0002-024I
	11200	9093	ER-007	9535-0002-025I

The off site laboratory employed for the radiological analyses of samples was General Engineering Laboratories, LLC (GEL), Charleston, South Carolina. The laboratory analyzed the fifteen (15) samples taken for non-parametric statistical testing, the associated duplicates, biased and scan area soil samples using gamma spectroscopy. Gamma spectroscopy analysis was performed to the required MDC. The results of gamma spectrometry analysis for all of the samples indicated Cs-137 at levels consistent with concentrations of Cs-137 found in soil at off site locations within the vicinity of the HNP (Health Physics TSD BYC-HP-0063). The

maximum reported Co-60 fraction of the Administrative Level DCGL (f-DCGL) was 2%. Sample analysis results did not exceed the Investigation Level; therefore, no further actions or investigations were required. A summary of the sample results is provided in Table 6.

Table 6 – Summary of Soil Sample Results

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	f-DCGL(1)
9535-0002-001	0.660	-0.009	0.203
9535-0002-002	0.146	0.008	0.052
9535-0002-003	0.195	0.008	0.067
9535-0002-004	0.107	0.014	0.043
9535-0002-005	0.085	0.031	0.047
9535-0002-006	0.208	0.004	0.069
9535-0002-007	0.135	0.011	0.050
9535-0002-008	0.128	0.003	0.043
9535-0002-009	0.097	0.010	0.037
9535-0002-010	0.226	0.010	0.078
9535-0002-011	0.140	-0.004	0.042
9535-0002-012	0.061	-0.009	0.013
9535-0002-013	0.089	-0.005	0.025
9535-0002-014	0.137	0.012	0.051
9535-0002-015	0.127	0.002	0.041

(1) f-DCGL-fraction of the Operational DCGL.

The off site laboratory processed two (2) samples, 9535-0002-004F, and 006F, for HTD analysis as required by the sample plan. Depending on the radionuclide and the measurement method, the requested analyses included alpha spectroscopy, gas proportional counting and liquid scintillation. The only HTD radionuclide resulting in an identifiable quantity was Sr-90 in sample 9535-0002-006F (see Table 7). Sample analysis results did not exceed the Investigation Level; therefore, no further actions or investigations were required.

Table 7 – Hard-To-Detect Soil Samples Results in pCi/g

Sample Number	Radionuclide and Result		DCGL	f-DCGL(1)
9535-0002-006F	Sr-90	0.031	0.620	0.050

(1) f-DCGL - fraction of the radionuclide specific Administrative Level DCGL.

Three (3) biased samples, 9535-0002-016F through 018F, were analyzed by gamma spectroscopy at the off site laboratory (see Table 8). The analysis met the required MDC. The maximum reported f-DCGL was 1%. Sample analysis results did not exceed the Investigation Level; therefore, no further actions or investigations were required.

Table 8 – Judgmental Soil Sample Results

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	f-DCGL
9535-0002-016F	0.152	0.015	0.058
9535-0002-017F	0.142	0.018	0.057
9535-0002-018F	0.062	0.006	0.024

Radionuclide analyses results identified some radionuclides meeting the accepted criteria for detection (i.e., a result greater than both, the two standard deviations uncertainty and the actual MDC). The maximum reported f-DCGL for any individual soil sample was 12%. Validation/verification of the survey data, a Data Quality Assessment (DQA) and the Sign Test were performed. The data passed the Sign Test. Refer to Attachment 2 for data and DQA results.

7. QUALITY CONTROL

The off site laboratory processed the "split samples" and performed gamma spectroscopy analysis. Thirteen percent (13%) of the soil samples were selected for analysis which exceeds the minimum of 5% which is required by the LTP. The data were evaluated using USNRC acceptance criteria specified in Inspection Procedure 84750 as detailed in Procedure RPM 5.1-24. There was acceptable agreement between field split results. General Engineering Laboratories, LLC, maintains quality assurance and quality control plans as part of normal operation. Refer to Attachment 2 for data and data quality control analysis results.

8. INVESTIGATIONS AND RESULTS

During the scan survey, seven (7) locations exceeding the scan Investigation Level were identified. Seven (7) soil samples, 9528-0004-019I through 025I, were collected at the locations to these scan readings. The investigation soil samples were analyzed by gamma spectroscopy at the HNP on site laboratory. The analysis met the required MDC. No data analysis results were a significant percentage of the Operational DCGL, with the maximum f-DCGL < 9% (see Table 9). Soil sample analysis results did not exceed the Investigation Level; therefore, no further actions or investigations were required.

Table 9 – Scan Area Soil Sample Results

Sample Number	Cs-137 pCi/g	Co-60 pCi/g	f-DCGL[1]
9535-0002-019I	0.055	-0.001	0.017
9535-0002-020I	0.038	0.002	0.013
9535-0002-021I	0.264	0.003	0.085
9535-0002-022I	0.208	0.002	0.067
9535-0002-023I	0.260	0.004	0.085
9535-0002-024I	0.075	0.011	0.031
9535-0002-025I	0.038	-0.012	0.004

9. REMEDIATION AND RESULTS

Historically, no radiological remediation was performed in this survey unit prior to or as a result of the FSS. Excavation and trenching was performed in this survey unit for the purposes of removing manageable spoils and materials (e.g., concrete, asphalt, metal, etc.). The materials were surveyed for radiological contamination in accordance with health physics procedures. No materials were found to exceed the radiological release criteria for unrestricted use. Health Physics Department TSD BCY-HP-0078, "*ALARA Evaluation of Soil Remediation in Support of Final Status Survey,*" has determined that remediation beyond that required to meet the release criteria to be unnecessary and that the remaining residual radioactivity in the soil was ALARA.

10. CHANGES FROM THE FINAL STATUS SURVEY PLAN

There were no changes from the FSSP. There were no FSSP Addendums created.

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 Retrospective Power Curve was generated using COMPASS. The Sign Test was performed on the data and compared the results with the original assumptions of the DQOs. All soil sample results were less than the release criteria. Therfore, the Sign Test shows that the survey unit passes FSS.

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 converting the data into units relative to the release criteria (i.e., pCi/g) and calculating basic statistical quantities (e.g., mean, median, standard deviation).

The Cs-137 range of the data is about 4.2 standard deviations. The difference between the mean and the median was about 24% of the standard deviation. The Skew of the data was about 3.2. Excluding the highest Cs-137 result (6.60E-01 pCi/g) the range of the data is about 1.15. Statistical analyses reveal only one (1) positive outlier. This could be attributed to natural variations of environmental soil sampling with inductions from topographical and geological features. The total range of the sample results is consistent with concentrations of Cs-137 found in soil at offsite locations within the vicinity of the HNP. The maximum f-$DCGL_{Cs\text{-}137}$ was 21%.

The Co-60 range of data was about 3.9 standard deviations. The difference between the mean and the median was about 20% of the standard deviation. The Skew of the data was about 0.61. Statistical analyses reveal only one (1) positive outlier. None of the samples exceeded 3% of the $DCGL_{Co\text{-}60}$.

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

12. ANOMALIES

Soil sample 9535-0002-06F yielded a positive identification of Sr-90 at 5% of the Base Case DCGL. The combined fraction of the Base Case DCGL including the Sr-90 results is <10%. The Sr-90 result did not impact the release of SU 9535-0002.

13. CONCLUSION

Survey Unit 9535-0002 has met the DQOs of the FSS. For this survey unit, the ALARA criteria for soils as specified in Chapter 4 of the LTP were achieved. The Elevated Measurement Comparison and remediation were not required.

The sample data passed the Sign Test. The null hypothesis was rejected. Evaluation of the data shows that none of the FSS design radionuclides or HTD soil concentration values exceeded the Operational DCGL of "1" or unity. No large anomalies were observed in the graphical representation of the data. The survey unit was properly designated as Class 2. The Retrospective Power Curve generated using COMPASS shows adequate power was achieved.

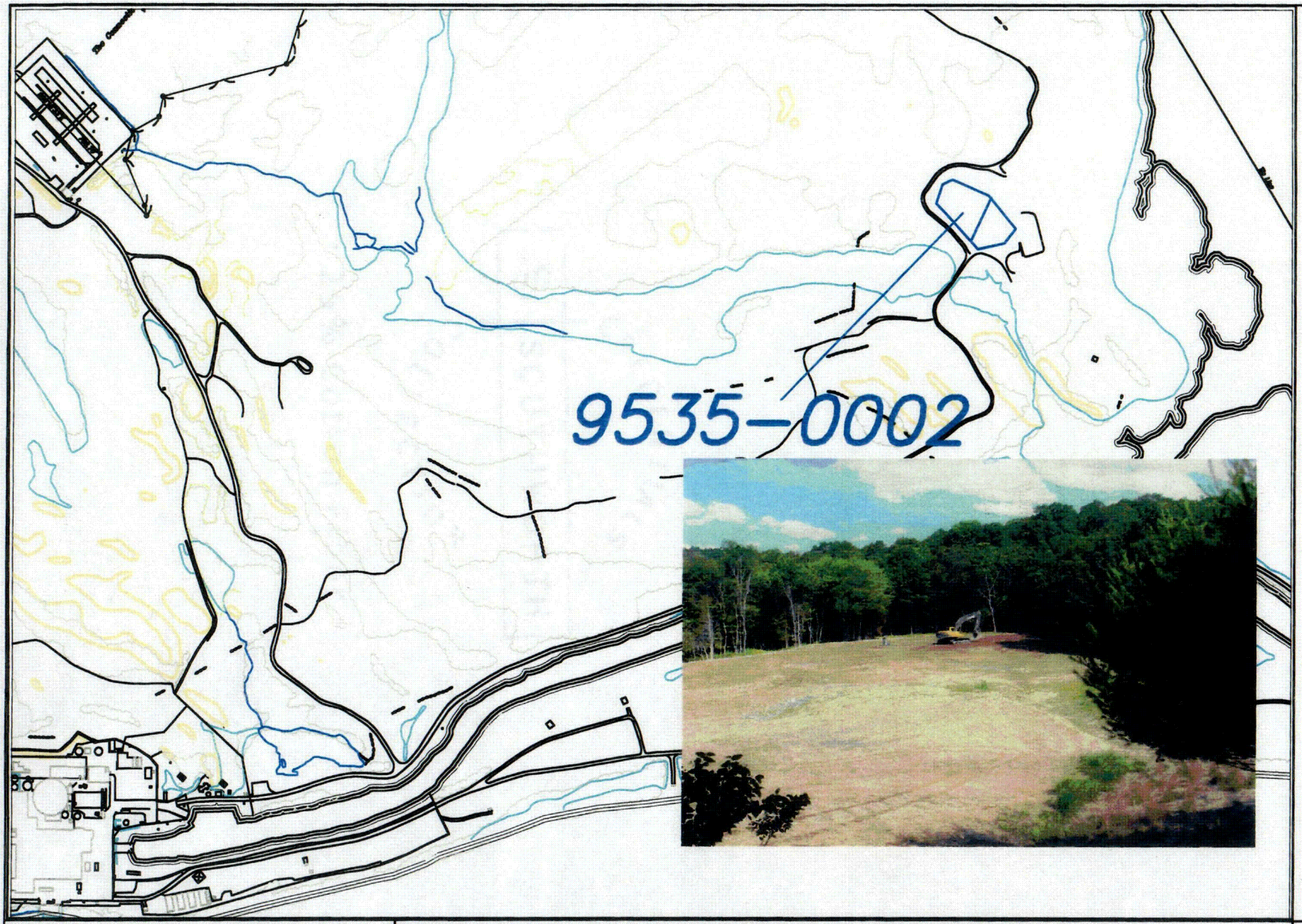
This survey unit is not considered impacted by radioactive contamination in groundwater based on location, topography and current hydro-geologic sampling data as referenced in Health Physics TSD CY-HP-0193, *"Assessment of Existing Groundwater Dose for Phase II Release Areas of the Final Status Survey Report"*.

14. ATTACHMENTS

14.1 Attachment 1 – Figures

14.2 Attachment 2 – Sample and Statistical Data

Attachment 1
Figures
(5 Pages)



Legend

Notes

Figure 1	Connecticut Yankee Atomic Power Company 9535-0002 Final Status Survey	Date	Rev
		July 2004	0

C01

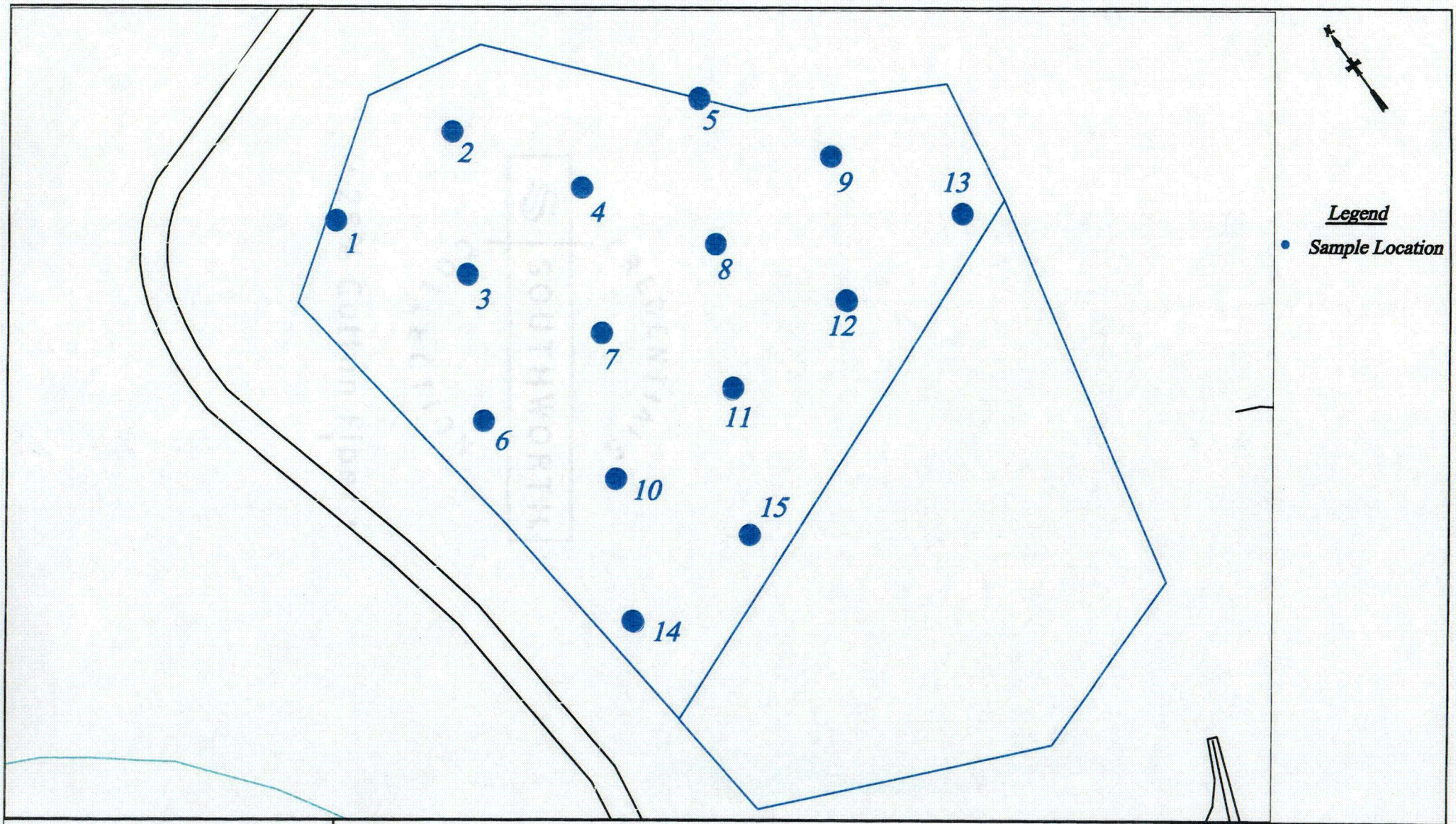


Figure 2	Connecticut Yankee Atomic Power Company 9535-0002 Final Status Survey Design	Date	Rev
		July 2004	0

C02

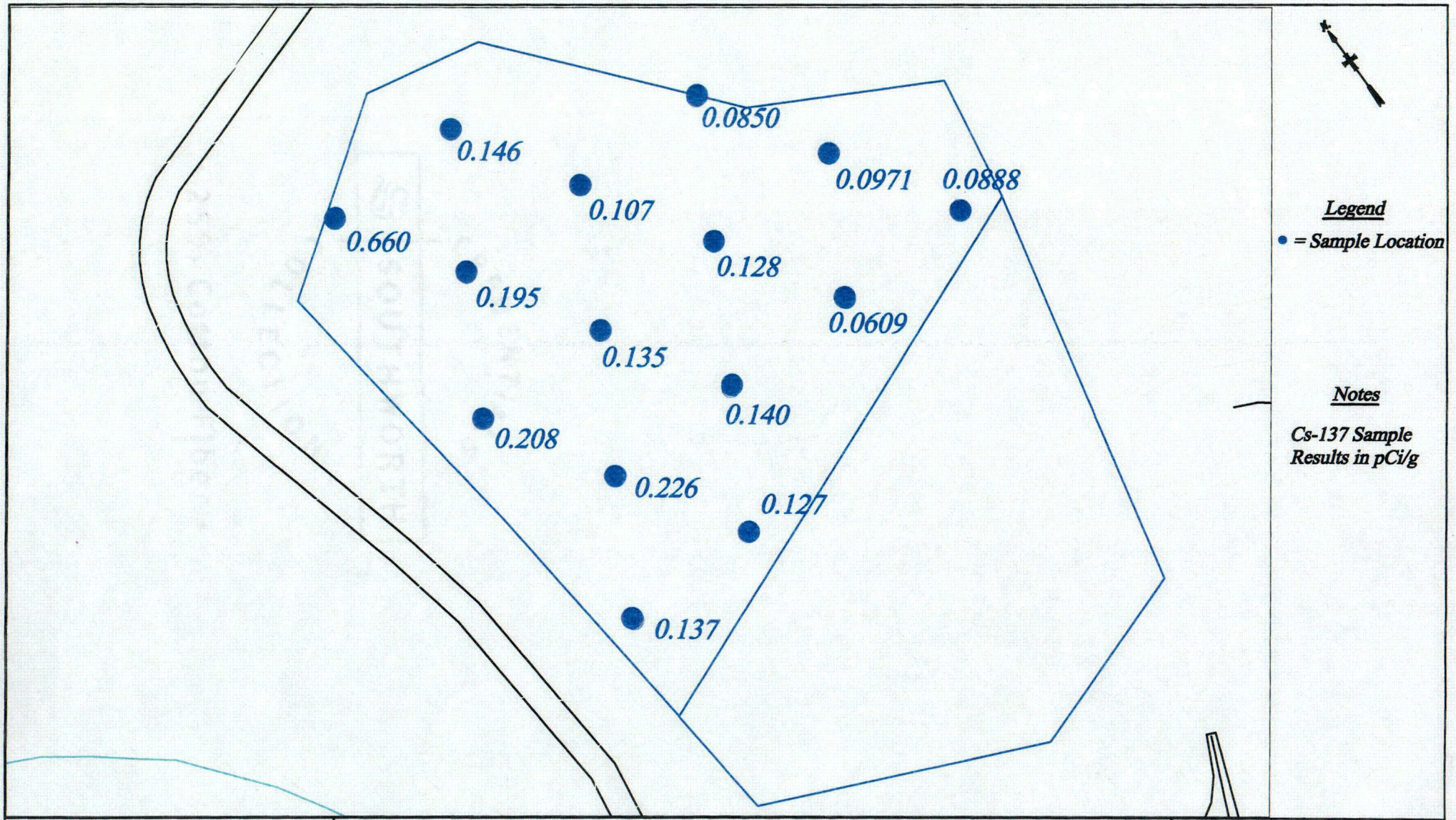


Figure 3	Connecticut Yankee Atomic Power Company 9535-0002 Final Status Survey Cesium-137 Posting Plot	Date	Rev
		July 2004	0

C03

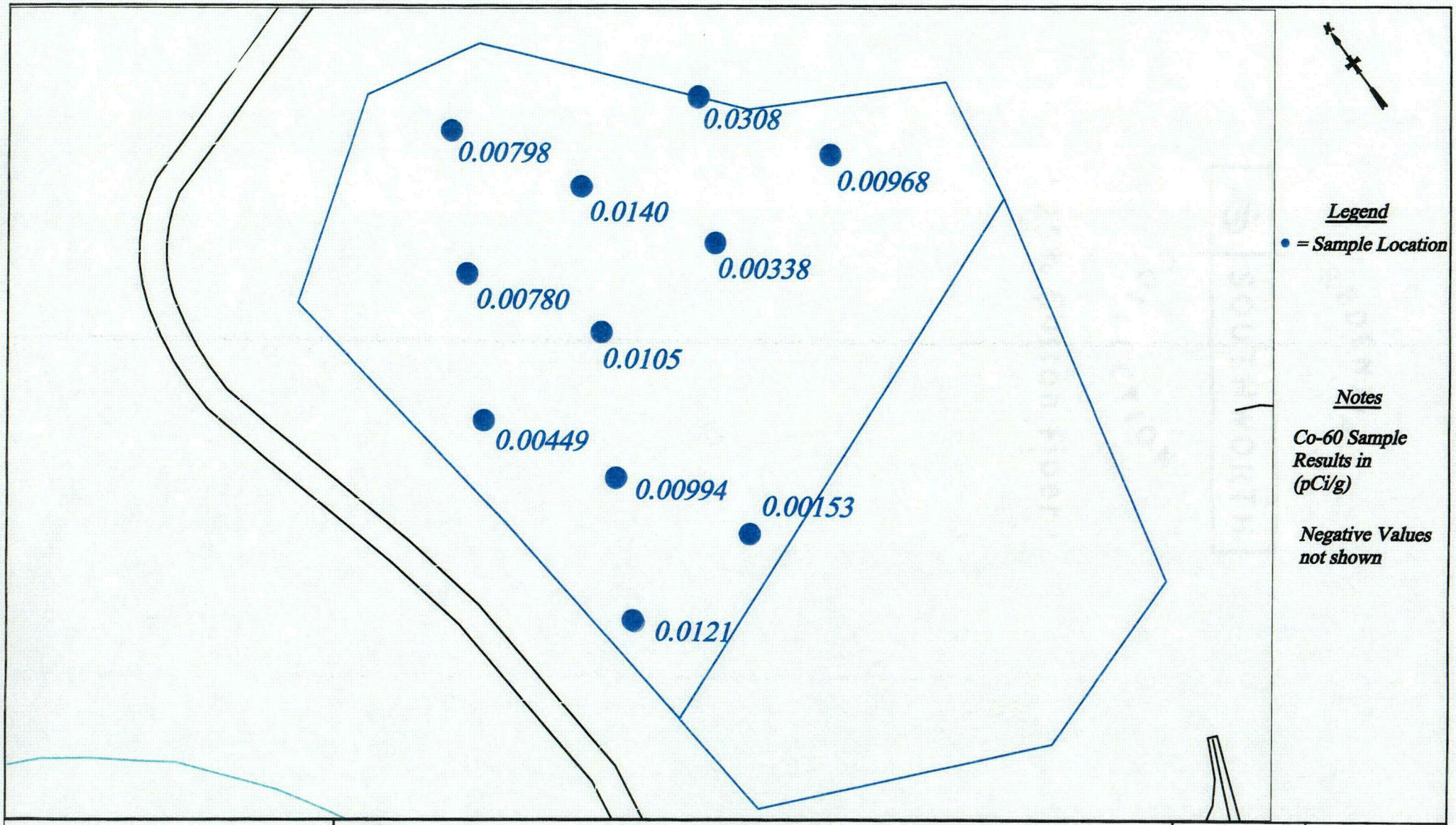


Figure 4	Connecticut Yankee Atomic Power Company 9535-0002 Final Status Survey Cobalt-60Posting Plot	Date	Rev
		July 2004	0

C04

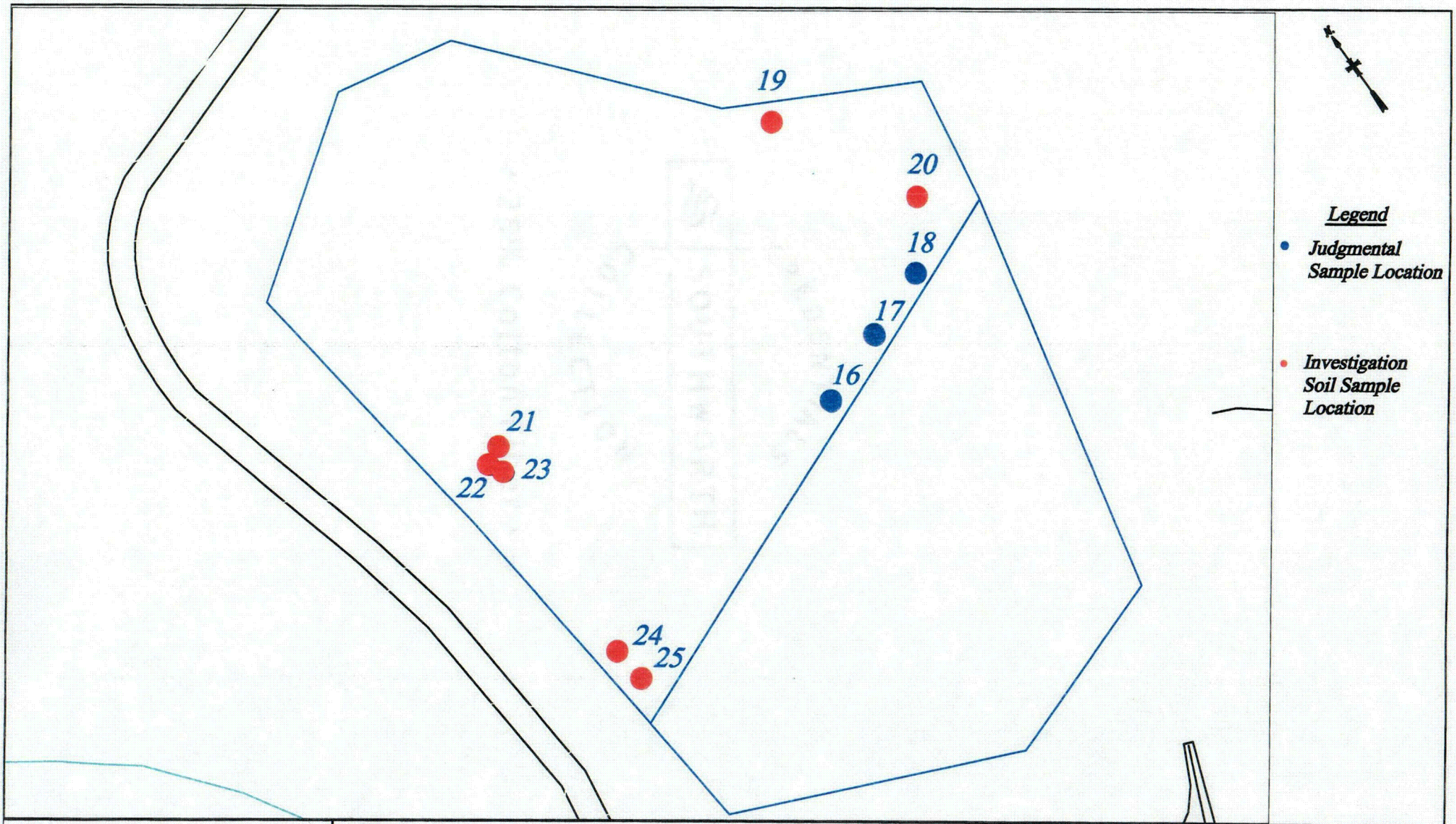


Figure 5	Connecticut Yankee Atomic Power Company 9535-0002 FSS Judgmental & Investigation	Date	Rev
		July 2004	0

C05

Attachment 2
Sample and Statistical Data
(147 pages including covers)

Attachment 2a
Gamma Spectroscopy Data
(117 Pages)

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

June 17, 2004

Mr. Pete Hollenbeck
Connecticut Yankee Atomic Power
Haddam Neck Plant 362 Injun Hollow Road
East Hampton, Connecticut 06424

RE: Soils PO# 002332
Work Order: 113283
SDG: MSR#04-1558

Dear Mr. Hollenbeck:

General Engineering Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 19, 2004. Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time.

This data report has been prepared and reviewed in accordance with GEL's standard operating procedures. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Sarah Kozlik
Project Manager

Purchase Order: 002332
Chain of Custody: 2004-00073 and 2004-00074
Enclosures

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

Meeting Today's Needs

with a

Vision for Tomorrow

GENERAL ENGINEERING LABORATORIES, LLC

CONNECTICUT YANKEE
RE: Soils PO# 002332
Work Order: 113283
SDG: MSR#04-1558

113283001	9535-0002-001F
113283002	9535-0002-002F
113283003	9535-0002-003F
113283004	9535-0002-005F
113283005	9535-0002-007F
113283006	9535-0002-008F
113283007	9535-0002-008FS
113283008	9535-0002-009F
113283009	9535-0002-009FS
113283010	9535-0002-010F
113283011	9535-0002-011F
113283012	9535-0002-012F
113283013	9535-0002-013F
113283014	9535-0002-014F
113283015	9535-0002-015F
113283016	9535-0002-016F
113283017	9535-0002-004F
113283018	9535-0002-006F

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- Quality Control Data 64

CASE NARRATIVE

CASE NARRATIVE
For
CONNECTICUT YANKEE
Project: Soils
PO# 002332
Work Order: 113283
SDG: MSR#04-1558

June 17, 2004

Laboratory Identification:
General Engineering Laboratories, LLC

Mailing Address:
P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:
2040 Savage Road
Charleston, South Carolina 29407

Telephone Number:
(843) 556-8171

Summary:

Sample receipt

The samples for the Soil Project for work order 113283 arrived at General Engineering Laboratories, LLC, (GEL) in Charleston, South Carolina May 19, 2004 for environmental analysis. All sample containers arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

The laboratory received the following samples:

9535-0002-001F	9535-0002-010F
9535-0002-002F	9535-0002-011F
9535-0002-003F	9535-0002-012F
9535-0002-005F	9535-0002-013F
9535-0002-007F	9535-0002-014F
9535-0002-008F	9535-0002-015F
9535-0002-008FS	9535-0002-016F
9535-0002-009F	9535-0002-004F
9535-0002-009FS	9535-0002-006F.

Items of Note:

There are not items to note.

Case Narrative:

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

Analytical Request:

Fourteen soil samples were analyzed for FSSGAM, and two soil samples were analyzed for FSS ALL.

Internal Chain of Custody:

Custody was maintained for all of these samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Laboratory Certifications, and 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.

Sarah Kozlik
Project Manager

CHAIN OF CUSTODY

Chain of Custody Form

No. 2004-00073

Connecticut Yankee Atomic Power Company
362 Injun Hollow Road, East Hampton, CT 06424
860-267-2556

113283%

Project Name: Haddam Neck Decommissioning

Contact Name & Phone:
Jack McCarthy 860-267-2556 Ext. 3024

Analytical Lab (Name, City, State
General Engineering Laboratories
2040 Savage Road
Charleston, SC 29407 (843-556-8171)
Sarah Kozlik

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

Lab Use Only
Comments:

	Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code	FSSGAM	FSS ALL	FSSHTD	FSSTRU	FSSOTHR		Comment, Preservation	Lab Sample ID
01	9535-0002-001F	5/6/04	1422	TS	G	BP	X							
02	9535-0002-002F	5/6/04	1409	TS	G	BP	X							
03	9535-0002-003F	5/6/04	1413	TS	G	BP	X							
17	9535-0002-004F	5/6/04	1403	TS	G	BP		X						
04	9535-0002-005F	5/6/04	1515	TS	G	BP	X							
18	9535-0002-006F	5/6/04	1442	TS	G	BP		X						
05	9535-0002-007F	5/6/04	1435	TS	G	BP	X							
06	9535-0002-008F	5/6/04	1351	TS	G	BP	X							
07	9535-0002-008FS	5/6/04	1351	TS	G	BP	X							

NOTES: PO #: 002332 MSR #: 04-1558 ☒ LTP QA ☐ Radwaste QA ☐ Non QA
NOTE Do not dry sample until sufficient sample media has been obtained for volatile Hard To Detect analyses are complete.

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other ____
7906 4392 0850
Bill of Lading #

Internal Container Temp: 23 Deg-C

Custody Sealed? Y☒ N☐

Custody Seal Intact? Y☐ N☐

* no custody tape

1) Relinquished By	Date/Time	2) Received By	Date/Time
John J. DiGoate	5/18/04 1410	[illegible]	5-19-04 9:00
3) Relinquished By	Date/Time	4) Received By	Date/Time

Chain of Custody Form

No. 2004-00074

Connecticut Yankee Atomic Power Company
362 Injun Hollow Road, East Hampton, CT 06424
860-267-2556

113283 1.

Project Name: Haddam Neck Decommissioning

Contact Name & Phone:
Jack McCarthy 860-267-2556 Ext. 3024

Analytical Lab (Name, City, State
General Engineering Laboratories
2040 Savage Road
Charleston, SC 29407 (843-556-8171)
Sarah Kozlik

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

Lab Use Only
Comments:

	Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size-&Type Code	FSSGAM	FSS ALL	FSSHTD	FSSTRU	FSSOTHR		Comment, Preservation	Lab Sample ID
08	9535-0002-009F	5/6/04	1339	TS	G	BP	X							
09	9535-0002-009FS	5/6/04	1339	TS	G	BP	X							
10	9535-0002-010F	5/6/04	1445	TS	G	BP	X							
11	9535-0002-011F	5/6/04	1454	TS	G	BP	X							
12	9535-0002-012F	5/6/04	1500	TS	G	BP	X							
13	9535-0002-013F	5/6/04	1329	TS	G	BP	X							
14	9535-0002-014F	5/6/04	1530	TS	G	BP	X							
15	9535-0002-015F	5/6/04	1321	TS	G	BP	X							
16	9535-0002-016F	5/6/04	1527	TS	G	BP	X							

NOTES: PO #: 002332 MSR #: 04-1558 ☒ LTP QA ☐ Radwaste QA ☐ Non QA

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other ____
7904 4392 0850
Bill of Lading #

Internal Container Temp: 23 Deg C
Custody Sealed? Y ☑ N ☐
Custody Seal Intact? Y ☑ N ☐
No custody tape

1) Relinquished By	Date/Time	2) Received By	Date/Time
John J McGrath	5/18/04 1410	[illegible]	5-19-04 9:00
3) Relinquished By	Date/Time	4) Received By	Date/Time
5) Relinquished By	Date/Time	6) Received By	Date/Time

COOLER RECEIPT CHECKLIST

Figure 1. Sample Check-in List

Date/Time Received: 5-19-04 9:00

SDG#: MSR# 04-1558

Work Order Number:

Shipping Container ID: 7906 4392 0850 Chain of Custody # 2004-00074
2004-00073

1. Custody Seals on shipping container intact? Yes [ ] No [✓]
2. Custody Seals dated and signed? Yes [ ] No [✓]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 23.1°C
5. Vermiculite/packing materials is: Wet [ ] Dry [ ]
6. Number of samples in shipping container: 18
7. Sample holding times exceeded? Yes [ ] No [ ]

8. Samples have:

✓ tape ____ hazard labels

____ custody seals ____ appropriate sample labels

9. Samples are:

✓ in good condition ____ leaking

____ broken ____ have air bubbles

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

Sample Custodian/Laboratory: [signature] Date: 5-19-04

Telephoned to: ____ On ____ By ____

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

	PM use only
Client:	SDG/ARCOC/Work Order:
Date Received:	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By:	

	Sample Receipt Criteria	Conforming	NA	Non-Conforming	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.				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	Samples received within holding time?				Id's and tests affected:
8	Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
9	Date & time on COC match date & time on bottles?				Sample ID's affected:
10	Number of containers received match number indicated on COC?				Sample ID's affected:
11	COC form is properly signed in relinquished/received sections?				
12	Air Bill & Tracking #'s				

Radiological Information	Non-RAD	RAD	RADII	RSO/RAD Receipt #:
What is the radiological classification of the samples?				Comments:
Radioactivity Screening Results (maximum observed CPM)	30 cpm			* If >x2 area background is observed on a non-radioactive sample, contact the RSO to investigate.

RADIOLOGICAL ANALYSIS

Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
SDG MSR#04-1558

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:	338561
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200637713	Method Blank (MB)
1200637716	Laboratory Control Sample (LCS)
1200637714	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200637715	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 13.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

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

Miscellaneous Information:

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

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:	338562
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200637717	Method Blank (MB)
1200637720	Laboratory Control Sample (LCS)
1200637718	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200637719	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 13.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 113282019 (9535-0001-002F).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

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

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

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

Miscellaneous Information:

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

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:	338563
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200637721	Method Blank (MB)
1200637724	Laboratory Control Sample (LCS)
1200637722	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200637723	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-035 REV# 5.

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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

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

Miscellaneous Information:

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

Qualifier information
Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec, Gamma, Solid-FSS GAM & ALL FSS**
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	335647
Prep Batch Number:	334890

Sample ID	Client ID
113283001	9535-0002-001F
113283002	9535-0002-002F
113283003	9535-0002-003F
113283004	9535-0002-005F
113283005	9535-0002-007F
113283006	9535-0002-008F
113283007	9535-0002-008FS
113283008	9535-0002-009F
113283009	9535-0002-009FS
113283010	9535-0002-010F
113283011	9535-0002-011F
113283012	9535-0002-012F
113283013	9535-0002-013F
113283014	9535-0002-014F
113283015	9535-0002-015F
113283016	9535-0002-016F

113283017	9535-0002-004F
113283018	9535-0002-006F
1200630685	Method Blank (MB)
1200630687	Laboratory Control Sample (LCS)
1200630686	113283001(9535-0002-001F) Sample Duplicate (DUP)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 10.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 113283001 (9535-0002-001F).

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. An NCR was not generated for this SDG.

Qualifier information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to interference.	Europium-155	113283015
UI	Data rejected due to low abundance.	Cesium-134	113283002
			113283006

			113283007
			113283008
			113283009
			113283018
		Europium-152	113283011

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:	335956
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200631487	Method Blank (MB)
1200631490	Laboratory Control Sample (LCS)
1200631488	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200631489	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

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

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. An NCR was not generated for this SDG.

Additional Comments
Samples 113283017 (9535-0002-004F), 113283018 (9535-0002-006F), 1200631487 (MB) and 1200631488 (9535-0001-002F) were verified by recounting at least five days from the initial count date.

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:	339685

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200640376	Method Blank (MB)
1200640379	Laboratory Control Sample (LCS)
1200640377	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200640378	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-005 REV# 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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

Sample Re-prep/Re-analysis
Sample 113283017 (9535-0002-004F) was 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. The following NCR was generated for this SDG:
NCR 121134 was generated due to Failure to maintain Custody. 1. The analyst did not scan the samples (113282019, 113282020,113282021,113283017,113283018) into the batch prior to analysis, however the samples did remain in their custody at all times. The error has been corrected and the analyst has been instructed on proper scanning procedures. 1. Reporting results.

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:	342541
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200647440	Method Blank (MB)
1200647443	Laboratory Control Sample (LCS)
1200647441	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200647442	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-040 REV# 2.

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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

Sample Re-prep/Re-analysis
Samples 113283017 (9535-0002-004F), 113283018 (9535-0002-006F), 1200647440 (MB) and 1200647441 (9535-0001-002F) were recounted due to a negative result greater than three times the error.
Samples were reprepped 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. An NCR was not generated for this SDG.

Additional Comments
The absolute value of sample 1200647440 (MB) activity is greater than three times the one sigma total propagated uncertainty due to subtraction of the cross talk from the Iron-59 tracer.

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:	339689
Prep Batch Number:	334896
Dry Soil Prep GL-RAD-A-021 Batch Number:	334890

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200640384	Method Blank (MB)
1200640387	Laboratory Control Sample (LCS)
1200640385	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200640386	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-022 REV# 6.

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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

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

Miscellaneous Information:

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

Qualifier information
Manual qualifiers were not required.

Method/Analysis Information

Product:	**LSC, Tritium Dist, Solid-HTD2,ALL FSS**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	339628

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200640251	Method Blank (MB)
1200640254	Laboratory Control Sample (LCS)
1200640252	113282019(9535-0001-002F) Sample Duplicate (DUP)
1200640253	113282019(9535-0001-002F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 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: 113282019 (9535-0001-002F).

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

Technical Information:

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

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

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

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced

SOP or contractual documents. An NCR was not generated for this SDG.

Qualifier information
Manual qualifiers were not required.

Method/Analysis Information

Product:	**Liquid Scint C14, Solid FSS**
Analytical Method:	EPA EERF C-01 Modified
Analytical Batch Number:	342387

Sample ID	Client ID
113283017	9535-0002-004F
113283018	9535-0002-006F
1200647032	Method Blank (MB)
1200647035	Laboratory Control Sample (LCS)
1200647033	113282020(9535-0001-006F) Sample Duplicate (DUP)
1200647034	113282020(9535-0001-006F) Matrix Spike (MS)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-003 REV# 7.

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: 113282020 (9535-0001-006F).

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 1200647032 (MB) and 1200647033 (9535-0001-006F) were recounted due to high MDAs.

Samples were reprepped 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. An NCR was not generated for this SDG.

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: A. Callen 09/05/04

General Engineering Laboratories
Form GEL-XXX
Rev. 06/02

NCR Report No.: 121134
Revision No.:

COMPANY - WIDE NONCONFORMANCE REPORT

Mo.Day Yr. 21-JUN-04	Division: Radiochemistry		Type: Process
Instrument Type: LSC	Quality Criteria: Specifications		Client Code: YANK
Test / Method: DOE EML HASL-300, Tc-02-RC Modified	Matrix Type: Solid	Batch ID: 339685	Sample Numbers: See Below

Potentially affected work order(s)(SDG): 113282(MSR#04-1559),113283(MSR#04-1558)

Application Issues:

Failure to maintain Custody

Specification and Requirements Nonconformance Description:	NRG Disposition:
1. The analyst did not scan the samples(113282019, 113282020,113282021,113283017,113283018)into the batch prior to analysis, however the samples did remain in their custody at all times. The error has been corrected and the analyst has been instructed on proper scanning procedures.	1. Reporting results.

Originator's Name:
Jimmy Hartley 21-JUN-04

Data Validator/Group Leader:
Joseph Jones 21-JUN-04

Quality Review:

Corrective Action:

Director:

Corrective Action ID and Complete Date:

SAMPLE DATA SUMMARY

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-001F	Project:	YANK00504
Sample ID:	113283001	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	19.6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.637	+/-0.171	0.0584	+/-0.167	0.127	pCi/g		SRB	06/11/04	1210	335647	1
Americium-241	U	0.041	+/-0.0784	0.0704	+/-0.0768	0.146	pCi/g						
Bismuth-212		0.433	+/-0.263	0.135	+/-0.257	0.290	pCi/g						
Bismuth-214		0.541	+/-0.0968	0.0312	+/-0.0949	0.0665	pCi/g						
Cesium-134	U	0.0166	+/-0.0316	0.0211	+/-0.0309	0.0452	pCi/g						
Cesium-137		0.660	+/-0.0819	0.0167	+/-0.0803	0.0358	pCi/g						
Cobalt-60	U	-0.00946	+/-0.0221	0.0175	+/-0.0216	0.039	pCi/g						
Europium-152	U	-0.00958	+/-0.0555	0.0446	+/-0.0544	0.0936	pCi/g						
Europium-154	U	0.0309	+/-0.0706	0.0592	+/-0.0692	0.129	pCi/g						
Europium-155	U	0.0388	+/-0.0605	0.046	+/-0.0593	0.0953	pCi/g						
Lead-212		0.572	+/-0.0844	0.0315	+/-0.0828	0.0651	pCi/g						
Lead-214		0.734	+/-0.119	0.0297	+/-0.117	0.0627	pCi/g						
Manganese-54	U	-0.00935	+/-0.0204	0.016	+/-0.020	0.0347	pCi/g						
Niobium-94	U	-0.00851	+/-0.0183	0.0146	+/-0.0179	0.0313	pCi/g						
Potassium-40		10.4	+/-1.13	0.132	+/-1.11	0.304	pCi/g						
Radium-226		0.541	+/-0.0968	0.0312	+/-0.0949	0.0665	pCi/g						
Silver-108m	U	0.00173	+/-0.0184	0.0148	+/-0.018	0.0314	pCi/g						
Thallium-208		0.163	+/-0.0506	0.0174	+/-0.0496	0.037	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	MJM1	05/20/04	1423	334890

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-001F
Sample ID: 113283001

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-002F	Project:	YANK00504
Sample ID:	113283002	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	5.56%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.645	+/-0.183	0.0547	+/-0.179	0.118	pCi/g		SRB	06/11/04	1211	335647	1
Americium-241	U	-0.0711	+/-0.193	0.116	+/-0.190	0.240	pCi/g						
Bismuth-212		0.668	+/-0.247	0.118	+/-0.242	0.254	pCi/g						
Bismuth-214		0.682	+/-0.108	0.0296	+/-0.106	0.0629	pCi/g						
Cesium-134	U	0.00	+/-0.0336	0.0231	+/-0.033	0.0489	pCi/g						
	UI												
Cesium-137		0.146	+/-0.0378	0.0175	+/-0.0371	0.0371	pCi/g						
Cobalt-60	U	0.00798	+/-0.0214	0.0185	+/-0.021	0.0404	pCi/g						
Europium-152	U	-0.0319	+/-0.0598	0.0435	+/-0.0586	0.0911	pCi/g						
Europium-154	U	-0.00731	+/-0.0611	0.050	+/-0.0599	0.109	pCi/g						
Europium-155	U	-0.0452	+/-0.0627	0.0521	+/-0.0615	0.108	pCi/g						
Lead-212		0.656	+/-0.082	0.0279	+/-0.0803	0.0578	pCi/g						
Lead-214		0.637	+/-0.0968	0.0345	+/-0.0948	0.0721	pCi/g						
Manganese-54	U	0.0244	+/-0.0224	0.0187	+/-0.022	0.0398	pCi/g						
Niobium-94	U	-0.0119	+/-0.0176	0.0135	+/-0.0172	0.029	pCi/g						
Potassium-40		12.6	+/-1.24	0.106	+/-1.21	0.246	pCi/g						
Radium-226		0.682	+/-0.108	0.0296	+/-0.106	0.0629	pCi/g						
Silver-108m	U	-0.0034	+/-0.0174	0.0146	+/-0.017	0.0308	pCi/g						
Thallium-208		0.217	+/-0.0484	0.0165	+/-0.0474	0.0349	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	MJM1	05/20/04	1423	334890

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:

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-002F
Sample ID: 113283002

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Heather Wilcox

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 25, 2004

Client Sample ID:	9535-0002-003F	Project:	YANK00504
Sample ID:	113283003	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	5.95%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.500	+/-0.150	0.0544	+/-0.147	0.117	pCi/g		SRB	06/11/04	1212	335647	1
Americium-241	U	0.0814	+/-0.0836	0.0686	+/-0.082	0.142	pCi/g						
Bismuth-212		0.462	+/-0.283	0.121	+/-0.277	0.258	pCi/g						
Bismuth-214		0.509	+/-0.0966	0.0284	+/-0.0946	0.0602	pCi/g						
Cesium-134	U	0.0396	+/-0.0251	0.020	+/-0.0246	0.0424	pCi/g						
Cesium-137		0.195	+/-0.046	0.0161	+/-0.0451	0.0341	pCi/g						
Cobalt-60	U	0.0078	+/-0.0186	0.0164	+/-0.0182	0.0362	pCi/g						
Europium-152	U	-0.0103	+/-0.053	0.0444	+/-0.052	0.0926	pCi/g						
Europium-154	U	-0.0408	+/-0.0596	0.0465	+/-0.0584	0.102	pCi/g						
Europium-155	U	0.0554	+/-0.0649	0.0425	+/-0.0636	0.0878	pCi/g						
Lead-212		0.594	+/-0.0736	0.0258	+/-0.0721	0.0535	pCi/g						
Lead-214		0.563	+/-0.0897	0.0278	+/-0.0879	0.0584	pCi/g						
Manganese-54	U	-0.00454	+/-0.0199	0.0163	+/-0.0195	0.0349	pCi/g						
Niobium-94	U	-0.0138	+/-0.0178	0.0142	+/-0.0174	0.0302	pCi/g						
Potassium-40		12.1	+/-1.17	0.123	+/-1.14	0.279	pCi/g						
Radium-226		0.509	+/-0.0966	0.0284	+/-0.0946	0.0602	pCi/g						
Silver-108m	U	-0.00223	+/-0.0176	0.0144	+/-0.0172	0.0304	pCi/g						
Thallium-208		0.182	+/-0.0415	0.0183	+/-0.0407	0.0385	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	MJM1	05/20/04	1423	334890

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 25, 2004

Client Sample ID: 9535-0002-003F
Sample ID: 113283003

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

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GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-005F	Project:	YANK00504
Sample ID:	113283004	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	17.6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.444	+/-0.132	0.0474	+/-0.130	0.102	pCi/g		SRB	06/11/04	1213	335647	1
Americium-241	U	-0.0228	+/-0.0739	0.0614	+/-0.0724	0.127	pCi/g						
Bismuth-212		0.322	+/-0.205	0.106	+/-0.201	0.228	pCi/g						
Bismuth-214		0.455	+/-0.088	0.0272	+/-0.0862	0.0575	pCi/g						
Cesium-134	U	0.020	+/-0.0205	0.0185	+/-0.0201	0.0392	pCi/g						
Cesium-137		0.085	+/-0.0277	0.0138	+/-0.0272	0.0294	pCi/g						
Cobalt-60	U	0.0308	+/-0.0281	0.0159	+/-0.0276	0.0347	pCi/g						
Europium-152	U	-0.021	+/-0.0396	0.0341	+/-0.0388	0.0717	pCi/g						
Europium-154	U	0.00614	+/-0.0572	0.0479	+/-0.0561	0.104	pCi/g						
Europium-155	U	0.00678	+/-0.0439	0.0401	+/-0.0431	0.0828	pCi/g						
Lead-212		0.452	+/-0.0572	0.0212	+/-0.0561	0.0441	pCi/g						
Lead-214		0.512	+/-0.0819	0.0299	+/-0.0802	0.0623	pCi/g						
Manganese-54	U	-0.00235	+/-0.0176	0.0151	+/-0.0173	0.0323	pCi/g						
Niobium-94	U	-0.00142	+/-0.0147	0.0121	+/-0.0144	0.0259	pCi/g						
Potassium-40		13.0	+/-1.14	0.111	+/-1.12	0.252	pCi/g						
Radium-226		0.455	+/-0.088	0.0272	+/-0.0862	0.0575	pCi/g						
Silver-108m	U	0.00561	+/-0.0135	0.0121	+/-0.0133	0.0256	pCi/g						
Thallium-208		0.153	+/-0.0356	0.0136	+/-0.0349	0.029	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	MJM1	05/20/04	1423	334890

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-005F
Sample ID: 113283004

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-007F	Project:	YANK00504
Sample ID:	113283005	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	8.47%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.464	+/-0.159	0.0568	+/-0.156	0.121	pCi/g		SRB	06/11/04	1214	335647	1
Americium-241	U	-0.0319	+/-0.0811	0.0619	+/-0.0795	0.128	pCi/g						
Bismuth-212		0.510	+/-0.278	0.107	+/-0.273	0.229	pCi/g						
Bismuth-214		0.562	+/-0.0832	0.028	+/-0.0815	0.0591	pCi/g						
Cesium-134	U	0.039	+/-0.0285	0.0185	+/-0.0279	0.0393	pCi/g						
Cesium-137		0.135	+/-0.0331	0.0138	+/-0.0325	0.0294	pCi/g						
Cobalt-60	U	0.0105	+/-0.017	0.0152	+/-0.0166	0.0335	pCi/g						
Europium-152	U	-0.00573	+/-0.0453	0.0375	+/-0.0444	0.0785	pCi/g						
Europium-154	U	0.0159	+/-0.0593	0.0443	+/-0.0581	0.0967	pCi/g						
Europium-155	U	0.0432	+/-0.0447	0.042	+/-0.0438	0.0866	pCi/g						
Lead-212		0.563	+/-0.0708	0.0216	+/-0.0694	0.0449	pCi/g						
Lead-214		0.693	+/-0.0952	0.0261	+/-0.0933	0.0548	pCi/g						
Manganese-54	U	0.0127	+/-0.0178	0.0156	+/-0.0175	0.0334	pCi/g						
Niobium-94	U	-0.00342	+/-0.0156	0.0129	+/-0.0153	0.0274	pCi/g						
Potassium-40		12.1	+/-1.16	0.105	+/-1.14	0.240	pCi/g						
Radium-226		0.562	+/-0.0832	0.028	+/-0.0815	0.0591	pCi/g						
Silver-108m	U	-0.0146	+/-0.0142	0.0116	+/-0.0139	0.0246	pCi/g						
Thallium-208		0.181	+/-0.0376	0.0147	+/-0.0368	0.0312	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	MJM1	05/20/04	1423	334890

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-007F
Sample ID: 113283005

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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Address : Haddam Neck Plant
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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-008F	Project:	YANK00504
Sample ID:	113283006	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.35%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.431	+/-0.130	0.0465	+/-0.127	0.0999	pCi/g		SRB	06/11/04	1214	335647	1
Americium-241	U	-0.00109	+/-0.0997	0.0821	+/-0.0977	0.169	pCi/g						
Bismuth-212		0.310	+/-0.243	0.0984	+/-0.238	0.210	pCi/g						
Bismuth-214		0.554	+/-0.0845	0.023	+/-0.0828	0.0488	pCi/g						
Cesium-134	U	0.00	+/-0.0322	0.0192	+/-0.0315	0.0404	pCi/g						
	UI												
Cesium-137		0.128	+/-0.0304	0.0137	+/-0.0298	0.029	pCi/g						
Cobalt-60	U	0.00338	+/-0.017	0.0144	+/-0.0166	0.0316	pCi/g						
Europium-152	U	0.00865	+/-0.041	0.0365	+/-0.0402	0.0763	pCi/g						
Europium-154	U	-0.0454	+/-0.052	0.039	+/-0.051	0.0855	pCi/g						
Europium-155	U	0.0468	+/-0.045	0.0415	+/-0.0441	0.0856	pCi/g						
Lead-212		0.519	+/-0.0658	0.0205	+/-0.0645	0.0425	pCi/g						
Lead-214		0.592	+/-0.0919	0.0259	+/-0.090	0.0541	pCi/g						
Manganese-54	U	0.00674	+/-0.0176	0.0149	+/-0.0172	0.0316	pCi/g						
Niobium-94	U	-0.0159	+/-0.0159	0.0122	+/-0.0155	0.0258	pCi/g						
Potassium-40		11.0	+/-1.12	0.135	+/-1.09	0.297	pCi/g						
Radium-226		0.554	+/-0.0845	0.023	+/-0.0828	0.0488	pCi/g						
Silver-108m	U	-0.00666	+/-0.0126	0.0105	+/-0.0123	0.0223	pCi/g						
Thallium-208		0.174	+/-0.0329	0.0133	+/-0.0323	0.0281	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
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362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-008F
Sample ID: 113283006

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-008FS	Project:	YANK00504
Sample ID:	113283007	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.496	+/-0.160	0.0664	+/-0.157	0.140	pCi/g		SRB	06/11/04	1215	335647	1
Americium-241	U	0.00748	+/-0.0292	0.0251	+/-0.0286	0.0515	pCi/g						
Bismuth-212		0.467	+/-0.323	0.141	+/-0.316	0.297	pCi/g						
Bismuth-214		0.530	+/-0.105	0.0346	+/-0.103	0.0723	pCi/g						
Cesium-134	U	0.00	+/-0.0403	0.0241	+/-0.0395	0.0503	pCi/g						
	UI												
Cesium-137		0.133	+/-0.0342	0.019	+/-0.0336	0.0397	pCi/g						
Cobalt-60	U	0.00234	+/-0.0239	0.0196	+/-0.0234	0.042	pCi/g						
Europium-152	U	-0.0863	+/-0.053	0.0434	+/-0.052	0.0901	pCi/g						
Europium-154	U	0.027	+/-0.0768	0.0564	+/-0.0752	0.120	pCi/g						
Europium-155	U	0.0614	+/-0.0441	0.0416	+/-0.0432	0.0854	pCi/g						
Lead-212		0.565	+/-0.0732	0.0248	+/-0.0717	0.0511	pCi/g						
Lead-214		0.566	+/-0.0992	0.0332	+/-0.0972	0.0688	pCi/g						
Manganese-54	U	0.0315	+/-0.0269	0.0202	+/-0.0264	0.0424	pCi/g						
Niobium-94	U	0.0161	+/-0.024	0.017	+/-0.0235	0.0356	pCi/g						
Potassium-40		11.9	+/-1.11	0.160	+/-1.09	0.347	pCi/g						
Radium-226		0.530	+/-0.105	0.0346	+/-0.103	0.0723	pCi/g						
Silver-108m	U	0.00734	+/-0.0175	0.0155	+/-0.0171	0.0322	pCi/g						
Thallium-208		0.167	+/-0.0472	0.0182	+/-0.0462	0.0381	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	MJM1	05/20/04	1423	334890

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-008FS
Sample ID: 113283007

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

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

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-009F	Project:	YANK00504
Sample ID:	113283008	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.94%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.567	+/-0.158	0.046	+/-0.155	0.0995	pCi/g		SRB	06/11/04	1216	335647	1
Americium-241	U	0.0401	+/-0.128	0.101	+/-0.125	0.210	pCi/g						
Bismuth-212		0.412	+/-0.165	0.103	+/-0.161	0.221	pCi/g						
Bismuth-214		0.558	+/-0.088	0.0304	+/-0.0862	0.0638	pCi/g						
Cesium-134	U UI	0.00	+/-0.0247	0.0188	+/-0.0242	0.0398	pCi/g						
Cesium-137		0.0971	+/-0.0309	0.0145	+/-0.0303	0.0309	pCi/g						
Cobalt-60	U	0.00968	+/-0.0209	0.0158	+/-0.0205	0.0346	pCi/g						
Europium-152	U	-0.0109	+/-0.0436	0.0358	+/-0.0428	0.0753	pCi/g						
Europium-154	U	0.00535	+/-0.0545	0.0464	+/-0.0534	0.101	pCi/g						
Europium-155	U	0.0265	+/-0.0718	0.0427	+/-0.0704	0.0884	pCi/g						
Lead-212		0.621	+/-0.074	0.0218	+/-0.0726	0.0453	pCi/g						
Lead-214		0.649	+/-0.094	0.0278	+/-0.0922	0.0582	pCi/g						
Manganese-54	U	0.0167	+/-0.0196	0.0173	+/-0.0192	0.0366	pCi/g						
Niobium-94	U	0.00177	+/-0.0152	0.013	+/-0.0149	0.0276	pCi/g						
Potassium-40		12.8	+/-1.32	0.150	+/-1.29	0.329	pCi/g						
Radium-226		0.558	+/-0.088	0.0304	+/-0.0862	0.0638	pCi/g						
Silver-108m	U	0.00587	+/-0.0141	0.0128	+/-0.0139	0.0269	pCi/g						
Thallium-208		0.171	+/-0.0401	0.0143	+/-0.0393	0.0302	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

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 :

- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.

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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-009F
Sample ID: 113283008

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
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Heather D Clecorce

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-009FS	Project:	YANK00504
Sample ID:	113283009	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.66%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.626	+/-0.166	0.0471	+/-0.163	0.102	pCi/g		SRB	06/11/04	1225	335647	1
Americium-241	U	0.013	+/-0.0731	0.0653	+/-0.0716	0.134	pCi/g						
Bismuth-212		0.314	+/-0.186	0.134	+/-0.182	0.282	pCi/g						
Bismuth-214		0.685	+/-0.105	0.0266	+/-0.103	0.0562	pCi/g						
Cesium-134	U UI	0.00	+/-0.0336	0.0194	+/-0.033	0.0411	pCi/g						
Cesium-137		0.105	+/-0.0311	0.015	+/-0.0304	0.0318	pCi/g						
Cobalt-60	U	-0.0107	+/-0.0191	0.0147	+/-0.0187	0.0322	pCi/g						
Europium-152	U	-0.0551	+/-0.0475	0.0386	+/-0.0466	0.0807	pCi/g						
Europium-154	U	0.00593	+/-0.0606	0.0507	+/-0.0594	0.109	pCi/g						
Europium-155	U	0.0383	+/-0.0574	0.0457	+/-0.0563	0.0941	pCi/g						
Lead-212		0.585	+/-0.0708	0.0235	+/-0.0694	0.0486	pCi/g						
Lead-214		0.671	+/-0.0977	0.0289	+/-0.0957	0.0602	pCi/g						
Manganese-54	U	-0.00395	+/-0.0166	0.014	+/-0.0163	0.030	pCi/g						
Niobium-94	U	0.000951	+/-0.0214	0.014	+/-0.021	0.0297	pCi/g						
Potassium-40		12.7	+/-1.23	0.120	+/-1.21	0.268	pCi/g						
Radium-226		0.685	+/-0.105	0.0266	+/-0.103	0.0562	pCi/g						
Silver-108m	U	0.00842	+/-0.0159	0.014	+/-0.0156	0.0294	pCi/g						
Thallium-208		0.197	+/-0.0414	0.0162	+/-0.0405	0.0341	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	MJM1	05/20/04	1423	334890

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:

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-009FS
Sample ID: 113283009

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-010F	Project:	YANK00504
Sample ID:	113283010	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.26%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.500	+/-0.172	0.0588	+/-0.168	0.127	pCi/g		SRB	06/11/04	1226	335647	1
Americium-241	U	0.00504	+/-0.0263	0.0236	+/-0.0258	0.0488	pCi/g						
Bismuth-212		0.341	+/-0.236	0.148	+/-0.231	0.316	pCi/g						
Bismuth-214		0.663	+/-0.110	0.0336	+/-0.107	0.0712	pCi/g						
Cesium-134	U	0.0383	+/-0.0329	0.0228	+/-0.0323	0.0484	pCi/g						
Cesium-137		0.226	+/-0.0504	0.016	+/-0.0494	0.0344	pCi/g						
Cobalt-60	U	0.00994	+/-0.0245	0.0216	+/-0.024	0.0471	pCi/g						
Europium-152	U	-0.00722	+/-0.0463	0.0394	+/-0.0454	0.083	pCi/g						
Europium-154	U	0.0365	+/-0.0674	0.0603	+/-0.066	0.131	pCi/g						
Europium-155	U	0.0189	+/-0.0451	0.0394	+/-0.0442	0.0814	pCi/g						
Lead-212		0.658	+/-0.074	0.024	+/-0.0725	0.0498	pCi/g						
Lead-214		0.643	+/-0.0977	0.0306	+/-0.0958	0.0642	pCi/g						
Manganese-54	U	-0.0173	+/-0.0243	0.0163	+/-0.0239	0.0354	pCi/g						
Niobium-94	U	0.0142	+/-0.0199	0.018	+/-0.0195	0.038	pCi/g						
Potassium-40		11.7	+/-1.16	0.159	+/-1.14	0.355	pCi/g						
Radium-226		0.663	+/-0.110	0.0336	+/-0.107	0.0712	pCi/g						
Silver-108m	U	-0.0156	+/-0.0206	0.0143	+/-0.0201	0.0302	pCi/g						
Thallium-208		0.203	+/-0.0508	0.0157	+/-0.0498	0.0336	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-010F
Sample ID: 113283010

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	BatchMtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-011F	Project:	YANK00504
Sample ID:	113283011	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.65%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS											
Actinium-228		0.546	+/-0.116	0.0358	+/-0.114	0.0758	pCi/g		SRB 06/11/04	1226	335647 1
Americium-241	U	0.00154	+/-0.0825	0.0655	+/-0.0809	0.135	pCi/g				
Bismuth-212		0.374	+/-0.181	0.0814	+/-0.178	0.171	pCi/g				
Bismuth-214		0.605	+/-0.0816	0.0203	+/-0.080	0.0424	pCi/g				
Cesium-134	U	0.0198	+/-0.0146	0.0132	+/-0.0143	0.0276	pCi/g				
Cesium-137		0.140	+/-0.0355	0.0102	+/-0.0348	0.0215	pCi/g				
Cobalt-60	U	-0.00417	+/-0.0132	0.0108	+/-0.0129	0.0231	pCi/g				
Europium-152	U	0.00	+/-0.0636	0.0315	+/-0.0624	0.0652	pCi/g				
	UI										
Europium-154	U	0.00619	+/-0.0401	0.0342	+/-0.0393	0.0728	pCi/g				
Europium-155	U	0.00473	+/-0.0511	0.0389	+/-0.050	0.0799	pCi/g				
Lead-212		0.508	+/-0.0568	0.0187	+/-0.0557	0.0384	pCi/g				
Lead-214		0.559	+/-0.0682	0.0225	+/-0.0668	0.0466	pCi/g				
Manganese-54	U	-0.00201	+/-0.014	0.0117	+/-0.0137	0.0245	pCi/g				
Niobium-94	U	0.00618	+/-0.0122	0.0107	+/-0.0119	0.0222	pCi/g				
Potassium-40		10.9	+/-0.966	0.0865	+/-0.946	0.189	pCi/g				
Radium-226		0.605	+/-0.0816	0.0203	+/-0.080	0.0424	pCi/g				
Silver-108m	U	0.000127	+/-0.012	0.0101	+/-0.0117	0.0209	pCi/g				
Thallium-208		0.138	+/-0.0312	0.0102	+/-0.0306	0.0214	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-011F
Sample ID: 113283011

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-012F	Project:	YANK00504
Sample ID:	113283012	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	5.39%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.473	+/-0.206	0.0717	+/-0.202	0.156	pCi/g		SRB	06/11/04	1227	335647	1
Americium-241	U	0.0101	+/-0.060	0.0482	+/-0.0588	0.0989	pCi/g						
Bismuth-212		0.515	+/-0.397	0.174	+/-0.389	0.372	pCi/g						
Bismuth-214		0.706	+/-0.137	0.0364	+/-0.134	0.0777	pCi/g						
Cesium-134	U	0.0132	+/-0.0304	0.027	+/-0.0298	0.0575	pCi/g						
Cesium-137		0.0609	+/-0.059	0.0216	+/-0.0578	0.0462	pCi/g						
Cobalt-60	U	-0.00886	+/-0.0276	0.0217	+/-0.0271	0.0481	pCi/g						
Europium-152	U	-0.013	+/-0.0643	0.0552	+/-0.0631	0.115	pCi/g						
Europium-154	U	0.0479	+/-0.0856	0.0748	+/-0.0838	0.162	pCi/g						
Europium-155	U	0.00429	+/-0.0659	0.0573	+/-0.0646	0.118	pCi/g						
Lead-212		0.545	+/-0.0862	0.0313	+/-0.0845	0.0649	pCi/g						
Lead-214		0.698	+/-0.128	0.0398	+/-0.125	0.0832	pCi/g						
Manganese-54	U	0.0173	+/-0.0255	0.0231	+/-0.025	0.0494	pCi/g						
Niobium-94	U	0.0109	+/-0.0255	0.0217	+/-0.025	0.046	pCi/g						
Potassium-40		10.6	+/-1.19	0.189	+/-1.16	0.425	pCi/g						
Radium-226		0.706	+/-0.137	0.0364	+/-0.134	0.0777	pCi/g						
Silver-108m	U	-0.00725	+/-0.0226	0.0188	+/-0.0221	0.0397	pCi/g						
Thallium-208		0.208	+/-0.0635	0.0226	+/-0.0623	0.0479	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-012F
Sample ID: 113283012

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

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Address: Haddam Neck Plant
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-013F	Project:	YANK00504
Sample ID:	113283013	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	4.28%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.597	+/-0.141	0.0522	+/-0.138	0.112	pCi/g		SRB	06/11/04	1231	335647	1
Americium-241	U	0.0535	+/-0.071	0.060	+/-0.0696	0.124	pCi/g						
Bismuth-212		0.317	+/-0.201	0.112	+/-0.197	0.237	pCi/g						
Bismuth-214		0.439	+/-0.0959	0.0255	+/-0.094	0.0538	pCi/g						
Cesium-134	U	0.0123	+/-0.0198	0.0175	+/-0.0194	0.037	pCi/g						
Cesium-137		0.0888	+/-0.0355	0.0154	+/-0.0348	0.0324	pCi/g						
Cobalt-60	U	-0.00495	+/-0.0181	0.0147	+/-0.0177	0.0321	pCi/g						
Europium-152	U	-0.00905	+/-0.0439	0.0375	+/-0.043	0.0783	pCi/g						
Europium-154	U	0.0308	+/-0.0545	0.0483	+/-0.0534	0.104	pCi/g						
Europium-155	U	0.0426	+/-0.0469	0.0426	+/-0.046	0.0877	pCi/g						
Lead-212		0.509	+/-0.0633	0.0238	+/-0.062	0.0492	pCi/g						
Lead-214		0.537	+/-0.0925	0.0269	+/-0.0906	0.0561	pCi/g						
Manganese-54	U	-0.00328	+/-0.0183	0.0151	+/-0.0179	0.0322	pCi/g						
Niobium-94	U	0.00637	+/-0.0154	0.0135	+/-0.0151	0.0286	pCi/g						
Potassium-40		11.8	+/-1.14	0.119	+/-1.11	0.265	pCi/g						
Radium-226		0.439	+/-0.0959	0.0255	+/-0.094	0.0538	pCi/g						
Silver-108m	U	0.00416	+/-0.0159	0.0121	+/-0.0156	0.0254	pCi/g						
Thallium-208		0.217	+/-0.0375	0.014	+/-0.0368	0.0296	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-013F
Sample ID: 113283013

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

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

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-014F	Project:	YANK00504
Sample ID:	113283014	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.27%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.434	+/-0.153	0.0449	+/-0.150	0.0972	pCi/g		SRB	06/11/04	1232	335647	1
Americium-241	U	0.00121	+/-0.0972	0.0841	+/-0.0952	0.174	pCi/g						
Bismuth-212		0.316	+/-0.177	0.0977	+/-0.174	0.210	pCi/g						
Bismuth-214		0.630	+/-0.0966	0.0234	+/-0.0946	0.0498	pCi/g						
Cesium-134	U	0.0382	+/-0.0278	0.0192	+/-0.0273	0.0405	pCi/g						
Cesium-137		0.137	+/-0.0337	0.0138	+/-0.033	0.0294	pCi/g						
Cobalt-60	U	0.0121	+/-0.0168	0.0152	+/-0.0165	0.0333	pCi/g						
Europium-152	U	-0.0393	+/-0.0452	0.0359	+/-0.0443	0.0753	pCi/g						
Europium-154	U	0.00772	+/-0.0573	0.0488	+/-0.0562	0.105	pCi/g						
Europium-155	U	0.014	+/-0.0524	0.0441	+/-0.0514	0.0911	pCi/g						
Lead-212		0.596	+/-0.0781	0.0236	+/-0.0765	0.0489	pCi/g						
Lead-214		0.759	+/-0.0985	0.0271	+/-0.0966	0.0567	pCi/g						
Manganese-54	U	0.0187	+/-0.0224	0.013	+/-0.022	0.028	pCi/g						
Niobium-94	U	0.0038	+/-0.0238	0.0131	+/-0.0233	0.0278	pCi/g						
Potassium-40		12.6	+/-1.22	0.112	+/-1.19	0.253	pCi/g						
Radium-226		0.630	+/-0.0966	0.0234	+/-0.0946	0.0498	pCi/g						
Silver-108m	U	-0.0047	+/-0.0141	0.0122	+/-0.0138	0.0258	pCi/g						
Thallium-208		0.226	+/-0.0468	0.0147	+/-0.0458	0.0311	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

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

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-014F
Sample ID: 113283014

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-015F	Project:	YANK00504
Sample ID:	113283015	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.11%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.553	+/-0.175	0.0474	+/-0.171	0.102	pCi/g		SRB	06/11/04	1232	335647	1
Americium-241	U	-0.0299	+/-0.075	0.0572	+/-0.0735	0.118	pCi/g						
Bismuth-212		0.441	+/-0.243	0.118	+/-0.238	0.250	pCi/g						
Bismuth-214		0.543	+/-0.0831	0.0254	+/-0.0814	0.0537	pCi/g						
Cesium-134	U	0.0249	+/-0.0254	0.0178	+/-0.0249	0.0376	pCi/g						
Cesium-137		0.127	+/-0.0278	0.0127	+/-0.0273	0.0271	pCi/g						
Cobalt-60	U	0.00153	+/-0.0206	0.017	+/-0.0202	0.037	pCi/g						
Europium-152	U	0.000136	+/-0.0437	0.0361	+/-0.0429	0.0755	pCi/g						
Europium-154	U	-0.0538	+/-0.0673	0.0513	+/-0.0659	0.110	pCi/g						
Europium-155	U	0.00	+/-0.058	0.0371	+/-0.0568	0.0766	pCi/g						
	UI												
Lead-212		0.540	+/-0.0617	0.0208	+/-0.0605	0.0431	pCi/g						
Lead-214		0.569	+/-0.0842	0.0257	+/-0.0825	0.0538	pCi/g						
Manganese-54	U	-0.0122	+/-0.0191	0.0146	+/-0.0187	0.0313	pCi/g						
Niobium-94	U	0.0163	+/-0.0164	0.0145	+/-0.016	0.0306	pCi/g						
Potassium-40		17.2	+/-1.49	0.123	+/-1.46	0.275	pCi/g						
Radium-226		0.543	+/-0.0831	0.0254	+/-0.0814	0.0537	pCi/g						
Silver-108m	U	-0.00423	+/-0.0135	0.0115	+/-0.0132	0.0242	pCi/g						
Thallium-208		0.148	+/-0.0388	0.0138	+/-0.0381	0.0291	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-015F
Sample ID: 113283015

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-016F	Project:	YANK00504
Sample ID:	113283016	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.63%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.670	+/-0.131	0.0364	+/-0.128	0.077	pCi/g		SRB	06/11/04	1233	335647	1
Americium-241	U	0.0149	+/-0.043	0.0404	+/-0.0421	0.0829	pCi/g						
Bismuth-212		0.537	+/-0.185	0.0766	+/-0.182	0.162	pCi/g						
Bismuth-214		0.548	+/-0.0852	0.0207	+/-0.0835	0.0431	pCi/g						
Cesium-134	U	0.0187	+/-0.0169	0.0129	+/-0.0165	0.027	pCi/g						
Cesium-137		0.152	+/-0.0261	0.010	+/-0.0256	0.021	pCi/g						
Cobalt-60	U	0.0154	+/-0.0135	0.0122	+/-0.0132	0.026	pCi/g						
Europium-152	U	-0.00872	+/-0.0338	0.0289	+/-0.0331	0.060	pCi/g						
Europium-154	U	-0.0513	+/-0.0425	0.0319	+/-0.0416	0.0681	pCi/g						
Europium-155	U	-0.00539	+/-0.0403	0.0359	+/-0.0395	0.0736	pCi/g						
Lead-212		0.626	+/-0.0619	0.0197	+/-0.0607	0.0406	pCi/g						
Lead-214		0.689	+/-0.0765	0.0214	+/-0.075	0.0445	pCi/g						
Manganese-54	U	-0.00323	+/-0.0139	0.0115	+/-0.0137	0.0241	pCi/g						
Niobium-94	U	0.00748	+/-0.0119	0.0105	+/-0.0117	0.0219	pCi/g						
Potassium-40		12.4	+/-1.04	0.0962	+/-1.02	0.208	pCi/g						
Radium-226		0.548	+/-0.0852	0.0207	+/-0.0835	0.0431	pCi/g						
Silver-108m	U	0.00314	+/-0.0115	0.00991	+/-0.0113	0.0206	pCi/g						
Thallium-208		0.180	+/-0.0339	0.0104	+/-0.0332	0.0217	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	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-016F
Sample ID: 113283016

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

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UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

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Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-004F	Project:	YANK00504
Sample ID:	113283017	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.76%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	0.00106	+/-0.0577	0.0605	+/-0.0577	0.193	pCi/g		JAS1	06/10/04	0943	338561	1
Curium-242	U	0.0309	+/-0.0605	0.00	+/-0.0606	0.0836	pCi/g						
Curium-243/244	U	0.00107	+/-0.0579	0.0607	+/-0.0579	0.193	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	-0.0196	+/-0.0443	0.0464	+/-0.0443	0.148	pCi/g		JAS1	06/10/04	1250	338562	2
Plutonium-239/240	U	0.0204	+/-0.0399	0.00	+/-0.040	0.0552	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	-2.38	+/-7.27	6.18	+/-7.28	12.8	pCi/g		JAS1	06/11/04	0348	338563	3
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.574	+/-0.194	0.0678	+/-0.190	0.143	pCi/g		SRB	06/13/04	1236	335647	4
Americium-241	U	-0.00503	+/-0.0301	0.0252	+/-0.0295	0.0517	pCi/g						
Bismuth-212		0.434	+/-0.325	0.147	+/-0.319	0.309	pCi/g						
Bismuth-214		0.554	+/-0.103	0.0331	+/-0.101	0.0694	pCi/g						
Cesium-134	U	0.0137	+/-0.0257	0.0227	+/-0.0252	0.0476	pCi/g						
Cesium-137		0.107	+/-0.0396	0.0182	+/-0.0388	0.0384	pCi/g						
Cobalt-60	U	0.014	+/-0.0265	0.0225	+/-0.026	0.0479	pCi/g						
Europium-152	U	-0.00923	+/-0.0505	0.044	+/-0.0495	0.0915	pCi/g						
Europium-154	U	-0.038	+/-0.0733	0.0569	+/-0.0718	0.122	pCi/g						
Europium-155	U	0.0394	+/-0.0636	0.0423	+/-0.0623	0.087	pCi/g						
Lead-212		0.509	+/-0.0715	0.0251	+/-0.0701	0.0518	pCi/g						
Lead-214		0.584	+/-0.0959	0.0348	+/-0.094	0.0722	pCi/g						
Manganese-54	U	-0.00663	+/-0.0244	0.0205	+/-0.0239	0.043	pCi/g						
Niobium-94	U	0.0137	+/-0.0219	0.0186	+/-0.0215	0.0389	pCi/g						
Potassium-40		12.6	+/-1.13	0.163	+/-1.11	0.355	pCi/g						
Radium-226		0.554	+/-0.103	0.0331	+/-0.101	0.0694	pCi/g						
Silver-108m	U	0.00228	+/-0.0183	0.0159	+/-0.018	0.0331	pCi/g						
Thallium-208		0.148	+/-0.0561	0.0191	+/-0.0549	0.0399	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90		0.0569	+/-0.0188	0.0144	+/-0.0224	0.0307	pCi/g		HOB1	06/03/04	1843	335956	5
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid-HTD2,ALL FSS													
Tritium	U	-0.554	+/-4.23	3.59	+/-4.23	7.18	pCi/g		JLB1	06/11/04	2238	339628	6
Liquid Scint C14, Solid FSS													

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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-004F
Sample ID: 113283017

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid FSS													
Carbon-14	U	0.0419	+/-0.113	0.0934	+/-0.113	0.194	pCi/g		MWX1	06/20/04	1106	342387	7
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	12.1	+/-41.5	15.8	+/-41.5	33.0	pCi/g		JLB1	06/23/04	1534	342541	9
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	13.2	+/-11.6	9.50	+/-11.6	19.3	pCi/g		JLB1	06/12/04	0835	339689	12
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	0.231	+/-0.208	0.171	+/-0.208	0.347	pCi/g		DAJ1	06/21/04	1334	339685	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AF1	05/21/04	1445	334896
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	83	(25%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	93	

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Report Date: June 24, 2004

Client Sample ID: 9535-0002-004F
Sample ID: 113283017

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			81						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			104		(25%-125%)				
Carrier/Tracer Recovery		Liquid Scint Fe55, Solid-ALL FS			87						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			61						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			57						

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U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
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Heather G. Acree
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-006F	Project:	YANK00504
Sample ID:	113283018	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.66%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	-0.0133	+/-0.0184	0.0446	+/-0.0185	0.164	pCi/g		JAS1	06/10/04	0943	338561	1
Curium-242	U	0.0322	+/-0.0631	0.00	+/-0.0632	0.0872	pCi/g						
Curium-243/244	U	0.00	+/-0.0544	0.00	+/-0.0544	0.0753	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	0.0511	+/-0.0883	0.0571	+/-0.0885	0.182	pCi/g		JAS1	06/10/04	1250	338562	2
Plutonium-239/240	U	-0.012	+/-0.0518	0.0404	+/-0.0519	0.149	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	2.17	+/-6.92	5.73	+/-6.92	11.8	pCi/g		JAS1	06/11/04	0419	338563	3
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.465	+/-0.175	0.0531	+/-0.171	0.114	pCi/g		SRB	06/13/04	1240	335647	4
Americium-241	U	-0.021	+/-0.0752	0.0618	+/-0.0737	0.128	pCi/g						
Bismuth-212		0.307	+/-0.201	0.123	+/-0.197	0.263	pCi/g						
Bismuth-214		0.481	+/-0.0982	0.0283	+/-0.0962	0.060	pCi/g						
Cesium-134	U UI	0.00	+/-0.0361	0.0214	+/-0.0354	0.0451	pCi/g						
Cesium-137		0.208	+/-0.0426	0.0144	+/-0.0418	0.0308	pCi/g						
Cobalt-60	U	0.00449	+/-0.0214	0.018	+/-0.021	0.0391	pCi/g						
Europium-152	U	0.0204	+/-0.0462	0.0417	+/-0.0453	0.087	pCi/g						
Europium-154	U	0.00841	+/-0.0634	0.053	+/-0.0622	0.115	pCi/g						
Europium-155	U	0.0601	+/-0.0475	0.0445	+/-0.0465	0.0917	pCi/g						
Lead-212		0.513	+/-0.0629	0.023	+/-0.0616	0.0477	pCi/g						
Lead-214		0.572	+/-0.0875	0.0286	+/-0.0858	0.0599	pCi/g						
Manganese-54	U	0.0178	+/-0.0241	0.0154	+/-0.0236	0.033	pCi/g						
Niobium-94	U	-0.00903	+/-0.0179	0.0142	+/-0.0175	0.0301	pCi/g						
Potassium-40		14.7	+/-1.31	0.146	+/-1.29	0.324	pCi/g						
Radium-226		0.481	+/-0.0982	0.0283	+/-0.0962	0.060	pCi/g						
Silver-108m	U	-0.00853	+/-0.0158	0.0132	+/-0.0155	0.0279	pCi/g						
Thallium-208		0.166	+/-0.0389	0.0176	+/-0.0381	0.037	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90		0.0309	+/-0.0149	0.012	+/-0.0162	0.026	pCi/g		HOB1	06/03/04	1844	335956	5
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid-HTD2,ALL FSS													
Tritium	U	-1.57	+/-2.88	2.53	+/-2.89	5.07	pCi/g		JLB1	06/11/04	2311	339628	6

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-006F
Sample ID: 113283018

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid FSS													
Carbon-14	U	0.0548	+/-0.125	0.102	+/-0.125	0.213	pCi/g		MWX1	06/20/04	1208	342387	7
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	-46.5	+/-47.5	18.4	+/-47.5	38.5	pCi/g		JLB1	06/23/04	1606	342541	9
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	13.4	+/-8.94	7.28	+/-8.94	14.8	pCi/g		JLB1	06/12/04	1007	339689	12
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	0.226	+/-0.226	0.186	+/-0.226	0.378	pCi/g		DAJ1	06/19/04	0355	339685	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AF1	05/21/04	1445	334896
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	84	(25%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	84	

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-006F
Sample ID: 113283018

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			87						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			105		(25%-125%)				
Carrier/Tracer Recovery		Liquid Scint Fe55, Solid-ALL FS			87						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			64						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			54						

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

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

Reviewed by

QUALITY CONTROL DATA

GENERAL ENGINEERING LABORATORIES, LLC

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

QC Summary

Report Date: June 25, 2004

Client : Connecticut Yankee Atomic Power
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut

Contact: Mr. Pete Hollenbeck

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 338561										
QC1200637714 113282019 DUP										
Americium-241	U	0.00	U	0.0786	pCi/g	200		(0% - 100%)	JAS1	06/10/04 09:44
	Uncert:	+/-0.0487		+/-0.096						
	TPU:	+/-0.0487		+/-0.0965						
Curium-242	U	0.00	U	0.0154	pCi/g	200		(0% - 100%)		
	Uncert:	+/-0.0601		+/-0.0612						
	TPU:	+/-0.0601		+/-0.0612						
Curium-243/244	U	0.019	U	0.00674	pCi/g	95		(0% - 100%)		
	Uncert:	+/-0.0503		+/-0.0511						
	TPU:	+/-0.0504		+/-0.0511						
QC1200637716 LCS										
Americium-241	10.7			10.9	pCi/g		102	(75%-125%)		
	Uncert:			+/-0.957						
	TPU:			+/-1.60						
Curium-242			U	0.0169	pCi/g					
	Uncert:			+/-0.0447						
	TPU:			+/-0.0448						
Curium-243/244	13.8			12.9	pCi/g		94	(75%-125%)		
	Uncert:			+/-1.04						
	TPU:			+/-1.85						
QC1200637713 MB										
Americium-241			U	0.014	pCi/g					06/10/04 09:43
	Uncert:			+/-0.0555						
	TPU:			+/-0.0556						
Curium-242			U	-0.00653	pCi/g					
	Uncert:			+/-0.0128						
	TPU:			+/-0.0128						
Curium-243/244			U	0.00	pCi/g					
	Uncert:			+/-0.0526						
	TPU:			+/-0.0526						
QC1200637715 113282019 MS										
Americium-241	20.9 U	0.00		23.4	pCi/g		112	(75%-125%)		06/10/04 09:44
	Uncert:	+/-0.0487		+/-2.14						
	TPU:	+/-0.0487		+/-3.75						
Curium-242	U	0.00	U	0.048	pCi/g					
	Uncert:	+/-0.0601		+/-0.127						
	TPU:	+/-0.0601		+/-0.127						
Curium-243/244	27.0 U	0.019		29.3	pCi/g		108	(75%-125%)		
	Uncert:	+/-0.0503		+/-2.41						
	TPU:	+/-0.0504		+/-4.55						
Batch 338562										
QC1200637718 113282019 DUP										
Plutonium-238	U	-0.0175	U	0.000883	pCi/g	N/A		(0% - 100%)	JAS1	06/10/04 12:50

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 338562										
	Uncert:	+/-0.0515		+/-0.048						
	TPU:	+/-0.0515		+/-0.048						
Plutonium-239/240	U	-0.00581	U	0.0168	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0488		+/-0.0444						
	TPU:	+/-0.0489		+/-0.0445						
QC1200637720 LCS										
Plutonium-238			U	-0.00584	pCi/g					
	Uncert:			+/-0.049						
	TPU:			+/-0.0491						
Plutonium-239/240	9.56			10.7	pCi/g		112			
	Uncert:			+/-0.999						
	TPU:			+/-1.60						
QC1200637717 MB										
Plutonium-238			U	0.0122	pCi/g					
	Uncert:			+/-0.0486						
	TPU:			+/-0.0486						
Plutonium-239/240			U	0.047	pCi/g					
	Uncert:			+/-0.0651						
	TPU:			+/-0.0653						
QC1200637719 113282019 MS										
Plutonium-238	U	-0.0175	U	0.146	pCi/g					
	Uncert:	+/-0.0515		+/-0.193						
	TPU:	+/-0.0515		+/-0.194						
Plutonium-239/240	18.6 U	-0.00581		21.4	pCi/g		115			
	Uncert:	+/-0.0488		+/-1.98						
	TPU:	+/-0.0489		+/-3.33						
Batch 338563										
QC1200637722 113282019 DUP										
Plutonium-241	U	3.38	U	0.604	pCi/g	0		(0% - 100%)	JAS1	06/11/04 05:22
	Uncert:	+/-6.01		+/-6.33						
	TPU:	+/-6.02		+/-6.33						
QC1200637724 LCS										
Plutonium-241	142			128	pCi/g		90	(75%-125%)		06/11/04 06:24
	Uncert:			+/-14.4						
	TPU:			+/-19.7						
QC1200637721 MB										
Plutonium-241			U	3.04	pCi/g					06/11/04 04:50
	Uncert:			+/-7.35						
	TPU:			+/-7.35						
QC1200637723 113282019 MS										
Plutonium-241	237 U	3.38		211	pCi/g		88	(75%-125%)		06/11/04 05:53
	Uncert:	+/-6.01		+/-17.7						
	TPU:	+/-6.02		+/-25.8						
Rad Gamma Spec										
Batch 335647										
QC1200630686 113283001 DUP										
Actinium-228		0.637		0.600	pCi/g	6		(0% - 100%)	SRB	06/13/04 12:41
	Uncert:	+/-0.171		+/-0.161						
				+/-0.158						

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 335647											
	TPU:	+/-0.167									
Americium-241	U	0.041	U	0.0158	pCi/g	89		(0% - 100%)			
	Uncert:	+/-0.0784		+/-0.107							
	TPU:	+/-0.0768		+/-0.105							
Bismuth-212		0.433		0.635	pCi/g	38		(0% - 100%)			
	Uncert:	+/-0.263		+/-0.257							
	TPU:	+/-0.257		+/-0.252							
Bismuth-214		0.541		0.509	pCi/g	6		(0% - 100%)			
	Uncert:	+/-0.0968		+/-0.108							
	TPU:	+/-0.0949		+/-0.106							
Cesium-134	U	0.0166	U	0.0207	pCi/g	22		(0% - 100%)			
	Uncert:	+/-0.0316		+/-0.0227							
	TPU:	+/-0.0309		+/-0.0223							
Cesium-137		0.660		0.590	pCi/g	11		(0% - 100%)			
	Uncert:	+/-0.0819		+/-0.0723							
	TPU:	+/-0.0803		+/-0.0709							
Cobalt-60	U	-0.00946	U	0.00463	pCi/g	N/A		(0% - 100%)			
	Uncert:	+/-0.0221		+/-0.0238							
	TPU:	+/-0.0216		+/-0.0234							
Europium-152	U	-0.00958	U	-0.0225	pCi/g	N/A		(0% - 100%)			
	Uncert:	+/-0.0555		+/-0.0565							
	TPU:	+/-0.0544		+/-0.0554							
Europium-154	U	0.0309	U	0.00734	pCi/g	123		(0% - 100%)			
	Uncert:	+/-0.0706		+/-0.0614							
	TPU:	+/-0.0692		+/-0.0602							
Europium-155	U	0.0388	U	0.0331	pCi/g	16		(0% - 100%)			
	Uncert:	+/-0.0605		+/-0.054							
	TPU:	+/-0.0593		+/-0.0529							
Lead-212		0.572		0.646	pCi/g	12		(0% - 20%)			
	Uncert:	+/-0.0844		+/-0.0836							
	TPU:	+/-0.0828		+/-0.082							
Lead-214		0.734		0.700	pCi/g	5		(0% - 20%)			
	Uncert:	+/-0.119		+/-0.123							
	TPU:	+/-0.117		+/-0.120							
Manganese-54	U	-0.00935	U	-0.00901	pCi/g	N/A		(0% - 100%)			
	Uncert:	+/-0.0204		+/-0.0194							
	TPU:	+/-0.020		+/-0.019							
Niobium-94	U	-0.00851	U	0.0057	pCi/g	N/A		(0% - 100%)			
	Uncert:	+/-0.0183		+/-0.0186							
	TPU:	+/-0.0179		+/-0.0182							
Potassium-40		10.4		10.6	pCi/g	2		(0% - 20%)			
	Uncert:	+/-1.13		+/-1.15							
	TPU:	+/-1.11		+/-1.13							
Radium-226		0.541		0.509	pCi/g	6		(0% - 100%)			
	Uncert:	+/-0.0968		+/-0.108							
	TPU:	+/-0.0949		+/-0.106							
Silver-108m	U	0.00173	U	0.0249	pCi/g	174		(0% - 100%)			
	Uncert:	+/-0.0184		+/-0.0278							

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335647										
	TPU:	+/-0.018		+/-0.0272						
Thallium-208		0.163		0.187	pCi/g	14		(0% - 100%)		
	Uncert:	+/-0.0506		+/-0.0436						
	TPU:	+/-0.0496		+/-0.0428						
QC1200630687 LCS										
Actinium-228			U	0.305	pCi/g					06/13/04 12:41
	Uncert:			+/-0.288						
	TPU:			+/-0.282						
Americium-241	23.4			25.4	pCi/g		108	(75%-125%)		
	Uncert:			+/-3.66						
	TPU:			+/-3.59						
Bismuth-212			U	0.296	pCi/g					
	Uncert:			+/-0.534						
	TPU:			+/-0.523						
Bismuth-214			U	0.103	pCi/g					
	Uncert:			+/-0.121						
	TPU:			+/-0.119						
Cesium-134			U	0.0518	pCi/g					
	Uncert:			+/-0.0758						
	TPU:			+/-0.0743						
Cesium-137	9.26			9.73	pCi/g		105	(75%-125%)		
	Uncert:			+/-0.771						
	TPU:			+/-0.756						
Cobalt-60	14.5			15.2	pCi/g		105	(75%-125%)		
	Uncert:			+/-1.10						
	TPU:			+/-1.08						
Europium-152			U	-0.0141	pCi/g					
	Uncert:			+/-0.164						
	TPU:			+/-0.161						
Europium-154			U	-0.107	pCi/g					
	Uncert:			+/-0.162						
	TPU:			+/-0.159						
Europium-155			U	0.00757	pCi/g					
	Uncert:			+/-0.175						
	TPU:			+/-0.172						
Lead-212			U	0.0564	pCi/g					
	Uncert:			+/-0.0894						
	TPU:			+/-0.0877						
Lead-214			U	-0.0511	pCi/g					
	Uncert:			+/-0.116						
	TPU:			+/-0.114						
Manganese-54			U	0.00991	pCi/g					
	Uncert:			+/-0.072						
	TPU:			+/-0.0705						
Niobium-94			U	0.0121	pCi/g					
	Uncert:			+/-0.0608						
	TPU:			+/-0.0596						
Potassium-40			U	0.252	pCi/g					

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335647										
	Uncert:			+/-0.623						
	TPU:			+/-0.610						
Radium-226			U	0.103	pCi/g			(75%-125%)		
	Uncert:			+/-0.121						
	TPU:			+/-0.119						
Silver-108m			U	0.0544	pCi/g					
	Uncert:			+/-0.0575						
	TPU:			+/-0.0564						
Thallium-208			U	0.0229	pCi/g					
	Uncert:			+/-0.063						
	TPU:			+/-0.0618						
QC1200630685 MB										
Actinium-228			U	0.0278	pCi/g					06/13/04 12:40
	Uncert:			+/-0.0574						
	TPU:			+/-0.0563						
Americium-241			U	0.0264	pCi/g					
	Uncert:			+/-0.0564						
	TPU:			+/-0.0553						
Bismuth-212			U	0.038	pCi/g					
	Uncert:			+/-0.120						
	TPU:			+/-0.118						
Bismuth-214			U	0.0492	pCi/g					
	Uncert:			+/-0.0363						
	TPU:			+/-0.0356						
Cesium-134			U	0.0181	pCi/g					
	Uncert:			+/-0.0209						
	TPU:			+/-0.0205						
Cesium-137			U	-0.00558	pCi/g					
	Uncert:			+/-0.0144						
	TPU:			+/-0.0141						
Cobalt-60			U	0.00989	pCi/g					
	Uncert:			+/-0.0173						
	TPU:			+/-0.0169						
Europium-152			U	-0.0126	pCi/g					
	Uncert:			+/-0.0465						
	TPU:			+/-0.0456						
Europium-154			U	-0.00849	pCi/g					
	Uncert:			+/-0.0425						
	TPU:			+/-0.0417						
Europium-155			U	-0.00633	pCi/g					
	Uncert:			+/-0.0409						
	TPU:			+/-0.0401						
Lead-212			U	0.0344	pCi/g					
	Uncert:			+/-0.0267						
	TPU:			+/-0.0262						
Lead-214			U	-0.0055	pCi/g					
	Uncert:			+/-0.032						
	TPU:			+/-0.0314						

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335647										
Manganese-54			U	0.000838	pCi/g					
Uncert:				+/-0.0171						
TPU:				+/-0.0168						
Niobium-94			U	-0.0198	pCi/g					
Uncert:				+/-0.0161						
TPU:				+/-0.0157						
Potassium-40			U	0.255	pCi/g					
Uncert:				+/-0.357						
TPU:				+/-0.350						
Radium-226			U	0.0492	pCi/g					
Uncert:				+/-0.0363						
TPU:				+/-0.0356						
Silver-108m			U	-0.00859	pCi/g					
Uncert:				+/-0.0146						
TPU:				+/-0.0143						
Thallium-208			U	0.00583	pCi/g					
Uncert:				+/-0.0216						
TPU:				+/-0.0212						
Rad Gas Flow										
Batch 335956										
QC1200631488 113282019 DUP										
Strontium-90	U	0.00426		0.0433	pCi/g	0		(0% - 100%)	HOB1	06/03/04 19:12
Uncert:		+/-0.0179		+/-0.0167						
TPU:		+/-0.0179		+/-0.019						
QC1200631490 LCS										
Strontium-90	2.64			2.42	pCi/g		92	(75%-125%)		06/03/04 17:42
Uncert:				+/-0.126						
TPU:				+/-0.539						
QC1200631487 MB										
Strontium-90				0.0485	pCi/g					06/03/04 19:12
Uncert:				+/-0.0152						
TPU:				+/-0.0187						
QC1200631489 113282019 MS										
Strontium-90	5.94 U	0.00426		5.26	pCi/g		89	(75%-125%)		06/03/04 17:42
Uncert:		+/-0.0179		+/-0.276						
TPU:		+/-0.0179		+/-1.14						
Rad Liquid Scintillation										
Batch 339628										
QC1200640252 113282019 DUP										
Tritium	U	-3.19	U	-1.94	pCi/g	N/A		(0% - 100%)	JLB1	06/12/04 01:21
Uncert:		+/-4.96		+/-3.23						
TPU:		+/-4.97		+/-3.23						
QC1200640254 LCS										
Tritium	57.7			57.9	pCi/g		100	(75%-125%)		06/12/04 02:26
Uncert:				+/-6.54						
TPU:				+/-8.14						
QC1200640251 MB										
Tritium			U	-2.26	pCi/g					06/12/04 00:48

QC Summary

Workorder: 113283

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Liquid Scintillation											
Batch 339628											
	Uncert:				+/-3.03						
	TPU:				+/-3.03						
QC1200640253 113282019 MS											
Tritium	80.9	U	-3.19		70.7	pCi/g		87	(75%-125%)		06/12/04 01:54
	Uncert:		+/-4.96		+/-8.79						
	TPU:		+/-4.97		+/-10.6						
Batch 339685											
QC1200640377 113282019 DUP											
Technetium-99		U	0.270	U	0.244	pCi/g	0		(0% - 100%)	DAJ1	06/19/04 07:05
	Uncert:		+/-0.242		+/-0.268						
	TPU:		+/-0.242		+/-0.269						
QC1200640379 LCS											
Technetium-99	16.3				18.7	pCi/g		114	(75%-125%)		06/19/04 09:51
	Uncert:				+/-0.614						
	TPU:				+/-0.895						
QC1200640376 MB											
Technetium-99				U	0.172	pCi/g					06/19/04 05:30
	Uncert:				+/-0.192						
	TPU:				+/-0.192						
QC1200640378 113282019 MS											
Technetium-99	16.7	U	0.270		18.6	pCi/g		109	(75%-125%)		06/19/04 09:18
	Uncert:		+/-0.242		+/-0.790						
	TPU:		+/-0.242		+/-1.02						
Batch 339689											
QC1200640385 113282019 DUP											
Nickel-63		U	4.54	U	7.25	pCi/g	0		(0% - 100%)	JLB1	06/12/04 13:11
	Uncert:		+/-6.93		+/-7.82						
	TPU:		+/-6.93		+/-7.83						
QC1200640387 LCS											
Nickel-63	353				345	pCi/g		98	(75%-125%)		06/12/04 16:15
	Uncert:				+/-10.2						
	TPU:				+/-12.3						
QC1200640384 MB											
Nickel-63				U	2.73	pCi/g					06/12/04 11:39
	Uncert:				+/-5.67						
	TPU:				+/-5.67						
QC1200640386 113282019 MS											
Nickel-63	538	U	4.54		524	pCi/g		97	(75%-125%)		06/12/04 14:43
	Uncert:		+/-6.93		+/-17.3						
	TPU:		+/-6.93		+/-20.2						
Batch 342387											
QC1200647033 113282020 DUP											
Carbon-14		U	-0.0219	U	0.0321	pCi/g	N/A		(0% - 100%)	MWX	06/22/04 01:09
	Uncert:		+/-0.115		+/-0.155						
	TPU:		+/-0.115		+/-0.155						
QC1200647035 LCS											
Carbon-14	8.21				7.60	pCi/g		93	(75%-125%)		06/20/04 17:23
	Uncert:				+/-0.541						
	TPU:				+/-0.554						

QC Summary

Workorder: 113283

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Liquid Scintillation										
Batch 342387										
QC1200647032 MB										
Carbon-14			U	0.122	pCi/g					06/21/04 22:36
Uncert:				+/-0.184						
TPU:				+/-0.184						
QC1200647034 113282020 MS										
Carbon-14	8.15 U	-0.0219		7.75	pCi/g		95	(75%-125%)		06/20/04 16:51
Uncert:		+/-0.115		+/-0.614						
TPU:		+/-0.115		+/-0.626						
Batch 342541										
QC1200647441 113282019 DUP										
Iron-55	U	-31.4	U	-45.5	pCi/g	N/A		(0% - 100%)	JLB1	06/23/04 17:41
Uncert:		+/-41.4		+/-40.7						
TPU:		+/-41.4		+/-40.8						
QC1200647443 LCS										
Iron-55	1170			1110	pCi/g		95	(75%-125%)		06/23/04 00:37
Uncert:				+/-58.2						
TPU:				+/-75.4						
QC1200647440 MB										
Iron-55			U	-73.1	pCi/g					06/23/04 17:09
Uncert:				+/-37.1						
TPU:				+/-37.2						
QC1200647442 113282019 MS										
Iron-55	1510 U	-31.4		1450	pCi/g		96	(75%-125%)		06/23/04 00:05
Uncert:		+/-41.4		+/-53.5						
TPU:		+/-41.4		+/-82.4						

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

- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- U Indicates the target analyte was analyzed for but not detected above the detection limit.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- h Sample preparation or preservation holding time exceeded.

GENERAL ENGINEERING LABORATORIES, LLC
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QC Summary

Workorder: 113283

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

June 16, 2004

Mr. Pete Hollenbeck
Connecticut Yankee Atomic Power
Haddam Neck Plant 362 Injun Hollow Road
East Hampton, Connecticut 06424

RE: Soils PO# 002332
Work Order: 113278
SDG: MSR# 04-1558

Dear Mr. Hollenbeck:

General Engineering Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 19, 2004. Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time.

This data report has been prepared and reviewed in accordance with GEL's standard operating procedures. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Sarah Kozlik
Project Manager

Purchase Order: 002332
Chain of Custody: 2004-00075
Enclosures

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

Meeting Today's Needs

with a

Vision for Tomorrow

GENERAL ENGINEERING LABORATORIES, LLC

CONNECTICUT YANKEE
PROJECT: SOILS
PO# 002332
Work Order: 113278
SDG: 04-1558

113278001	9535-0002-017F
113278002	9535-0002-018F
113278003	9535-0002-019I
113278004	9535-0002-020I
113278005	9535-0002-021I
113278006	9535-0002-022I
113278007	9535-0002-023I
113278008	9535-0002-024I
113278009	9535-0002-025I

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CASE NARRATIVE

CASE NARRATIVE
For
CONNECTICUT YANKEE
PROJECT: SOILS
PO# 002332
Work Order: 113278
SDG: 04-1558

June 16, 2004

Laboratory Identification:
General Engineering Laboratories, LLC

Mailing Address:
P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:
2040 Savage Road
Charleston, South Carolina 29407

Telephone Number:
(843) 556-8171

Summary:

Sample receipt

The samples for the Soil Project for work order 113278 arrived at General Engineering Laboratories, LLC, (GEL) in Charleston, South Carolina May 19, 2004 for environmental analysis. All sample containers arrived without any visible signs of tampering or breakage. The chain of custody contained the proper documentation and signatures.

The laboratory received the following samples:

113278001	9535-0002-017F
113278002	9535-0002-018F
113278003	9535-0002-019I
113278004	9535-0002-020I
113278005	9535-0002-021I
113278006	9535-0002-022I
113278007	9535-0002-023I
113278008	9535-0002-024I
113278009	9535-0002-025I

Items of Note:

There are not items to note.

Case Narrative:

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

Analytical Request:

Nine soil samples were analyzed for FSSGAM.

Internal Chain of Custody:

Custody was maintained for all of these samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Laboratory Certifications, and 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.

Sarah Kozlik
Project Manager

CHAIN OF CUSTODY

Chain of Custody Form

No. 2004-00075

Connecticut Yankee Atomic Power Company
362 Injun Hollow Road, East Hampton, CT 06424
860-267-2556

Project Name: Haddam Neck Decommissioning

Contact Name & Phone:
Jack McCarthy 860-267-2556 Ext. 3024

Analytical Lab (Name, City, State
General Engineering Laboratories
2040 Savage Road
Charleston, SC 29407 (843-556-8171)
Sarah Kozlik

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

Lab Use Only
Comments
113248

	Sample Designation	Date	Time	Media Code	Sample Type Code	Container Size- &Type Code	FSSGAM	FSS ALL	FSSHTD	FSSTRU	FSSOTHR		Comment, Preservation	Lab Sample ID
001	9535-0002-017F	5/6/04	1525	TS	G	BP	X							
002	9535-0002-018F	5/6/04	1505	TS	G	BP	X							
003	9535-0002-019 I	5/10/04	1403	TS	G	BP	X							
004	9535-0002-020 I	5/10/04	1400	TS	G	BP	X							
005	9535-0002-021 I	5/10/04	1415	TS	G	BP	X							
006	9535-0002-022 I	5/10/04	1410	TS	G	BP	X							
007	9535-0002-023 I	5/10/04	1417	TS	G	BP	X							
008	9535-0002-024 I	5/10/04	1418	TS	G	BP	X							
009	9535-0002-025 I	5/10/04	1425	TS	G	BP	X							

NOTES: PO #: 002332 MSR #: 04-1558 ☒ LTP QA ☐ Radwaste QA ☐ Non QA

Samples Shipped Via:
☒ Fed Ex
☐ UPS
☐ Hand
☐ Other 55 lb
7906 4392 0871
Bill of Lading #
2 of 2

Internal Container Temp: 23.4 Deg. C
Custody Sealed? Y ☑ N ☐
Custody Seal Intact? Y ☑ N ☐
no custody tape

1) Relinquished By: John J. Goatz — Date/Time 5/18/04 1410	2) Received By: [illegible] — Date/Time 5.19.04 0900
3) Relinquished By — Date/Time	4) Received By — Date/Time
5) Relinquished By — Date/Time	6) Received By — Date/Time

COOLER RECEIPT CHECKLIST

Figure 1. Sample Check-in List

Date/Time Received: 5. 19. 04 0900

SDG#: MSR# 04 · 1558

Work Order Number: 113278

Shipping Container ID: 6224 7906 4342 0871 Chain of Custody # NO. 2004 - 00075

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

8. Samples have:

✓ tape ____ hazard labels

____ custody seals ____ appropriate sample labels

9. Samples are:

✓ in good condition ____ leaking

____ broken ____ have air bubbles

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

Sample Custodian/Laboratory: T. Brown Date: 5. 19. 04 0900

Telephoned to: _____ On _____ By _____

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

	PM use only
Client:	SDG/ARCOC/Work Order:
Date Received:	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By:	

	Sample Receipt Criteria	Conforming	NA	Non-Conforming	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.				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	Samples received within holding time?				Id's and tests affected:
8	Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
9	Date & time on COC match date & time on bottles?				Sample ID's affected:
10	Number of containers received match number indicated on COC?				Sample ID's affected:
11	COC form is properly signed in relinquished/received sections?				
12	Air Bill & Tracking #'s				

Radiological Information	None RAD	RAD	RAD	RSO RAD Receipt #
What is the radiological classification of the samples?	✓			Comments
Radioactivity Screening Results (maximum observed CPM)	20 CPM			If >1x2 area background is observed on a non-radioactive sample, contact the RSO to investigate

RADIOLOGICAL ANALYSIS

Radiochemistry Case Narrative
Connecticut Yankee Atomic Power Co. (YANK)
SDG MSR#04-1558

Method/Analysis Information

Product:	Gammaspec, Gamma, Solid-FSS GAM & ALL FSS
Analytical Method:	EML HASL 300, 4.5.2.3
Prep Method:	Dry Soil Prep
Analytical Batch Number:	335645
Prep Batch Number:	334858

Sample ID	Client ID
113278001	9535-0002-017F
113278002	9535-0002-018F
113278003	9535-0002-019I
113278004	9535-0002-020I
113278005	9535-0002-021I
113278006	9535-0002-022I
113278007	9535-0002-023I
113278008	9535-0002-024I
113278009	9535-0002-025I
1200630678	Method Blank (MB)
1200630680	Laboratory Control Sample (LCS)
1200630679	113261001(9528-0004-023F) Sample Duplicate (DUP)

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 10.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 113261001 (9528-0004-023F).

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. An NCR was not generated for this SDG.

Qualifier Information

Qualifier	Reason	Analyte	Sample
UI	Data rejected due to low abundance.	Cesium-134	113278001
			113278002
			113278004
			113278006
		Niobium-94	113278007

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: [illegible] 6/9/04

SAMPLE DATA SUMMARY

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-017F	Project:	YANK00504
Sample ID:	113278001	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.33%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.629	+/-0.136	0.042	+/-0.133	0.0894	pCi/g		SRB	05/26/04	2356	335645	1
Americium-241	U	0.0177	+/-0.019	0.0178	+/-0.0186	0.0363	pCi/g						
Bismuth-212		0.397	+/-0.280	0.106	+/-0.274	0.222	pCi/g						
Bismuth-214		0.503	+/-0.0812	0.0229	+/-0.0796	0.0479	pCi/g						
Cesium-134	U	0.00	+/-0.0382	0.0167	+/-0.0374	0.035	pCi/g						
	UI												
Cesium-137		0.142	+/-0.0288	0.0123	+/-0.0282	0.026	pCi/g						
Cobalt-60	U	0.0182	+/-0.00942	0.0139	+/-0.00924	0.0299	pCi/g						
Europium-152	U	-0.00728	+/-0.0344	0.0297	+/-0.0337	0.0616	pCi/g						
Europium-154	U	-0.0184	+/-0.0515	0.0429	+/-0.0505	0.0914	pCi/g						
Europium-155	U	0.0103	+/-0.031	0.0274	+/-0.0304	0.0562	pCi/g						
Lead-212		0.525	+/-0.0583	0.0152	+/-0.0571	0.0315	pCi/g						
Lead-214		0.574	+/-0.0784	0.0211	+/-0.0768	0.0438	pCi/g						
Manganese-54	U	0.00331	+/-0.0158	0.0136	+/-0.0155	0.0287	pCi/g						
Niobium-94	U	-0.00201	+/-0.0155	0.0117	+/-0.0152	0.0246	pCi/g						
Potassium-40		15.7	+/-1.22	0.113	+/-1.20	0.247	pCi/g						
Radium-226		0.503	+/-0.0812	0.0229	+/-0.0796	0.0479	pCi/g						
Silver-108m	U	-0.0035	+/-0.0122	0.0102	+/-0.0119	0.0213	pCi/g						
Thallium-208		0.168	+/-0.0363	0.013	+/-0.0356	0.0273	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-017F
Sample ID: 113278001

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Heather J. Arnold

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-018F	Project:	YANK00504
Sample ID:	113278002	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	5.73%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.546	+/-0.103	0.026	+/-0.101	0.0542	pCi/g		SRB	05/26/04	2357	335645	1
Americium-241	U	0.0157	+/-0.0299	0.0292	+/-0.0293	0.0596	pCi/g						
Bismuth-212		0.390	+/-0.128	0.055	+/-0.125	0.114	pCi/g						
Bismuth-214		0.478	+/-0.0633	0.0142	+/-0.062	0.0293	pCi/g						
Cesium-134	U	0.00	+/-0.0166	0.00972	+/-0.0162	0.0201	pCi/g						
	UI												
Cesium-137		0.0623	+/-0.0196	0.00778	+/-0.0192	0.0161	pCi/g						
Cobalt-60	U	0.00606	+/-0.00952	0.00827	+/-0.00933	0.0174	pCi/g						
Europium-152	U	-0.00542	+/-0.0238	0.0209	+/-0.0233	0.043	pCi/g						
Europium-154	U	-0.0191	+/-0.0358	0.0248	+/-0.0351	0.0518	pCi/g						
Europium-155	U	0.033	+/-0.0278	0.0263	+/-0.0272	0.0536	pCi/g						
Lead-212		0.595	+/-0.0532	0.0128	+/-0.0522	0.0262	pCi/g						
Lead-214		0.516	+/-0.0574	0.0149	+/-0.0563	0.0307	pCi/g						
Manganese-54	U	0.011	+/-0.0105	0.00822	+/-0.0103	0.017	pCi/g						
Niobium-94	U	0.00661	+/-0.00834	0.00743	+/-0.00818	0.0153	pCi/g						
Potassium-40		13.9	+/-1.03	0.0682	+/-1.01	0.144	pCi/g						
Radium-226		0.478	+/-0.0633	0.0142	+/-0.062	0.0293	pCi/g						
Silver-108m	U	-0.00819	+/-0.00771	0.00635	+/-0.00755	0.0131	pCi/g						
Thallium-208		0.167	+/-0.025	0.00762	+/-0.0245	0.0157	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	MJM1	05/20/04	1515	334858

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:

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-018F
Sample ID: 113278002

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-019I
Sample ID: 113278003
Matrix: Soil
Collect Date: 10-MAY-04
Receive Date: 19-MAY-04
Collector: Client
Moisture: 3.62%

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.428	+/-0.120	0.0398	+/-0.117	0.0863	pCi/g		SRB	05/27/04	0915	335645	1
Americium-241	U	0.0269	+/-0.0529	0.052	+/-0.0518	0.108	pCi/g						
Bismuth-212		0.387	+/-0.162	0.090	+/-0.159	0.193	pCi/g						
Bismuth-214		0.507	+/-0.0733	0.0205	+/-0.0718	0.0438	pCi/g						
Cesium-134	U	0.0313	+/-0.0229	0.0158	+/-0.0225	0.0335	pCi/g						
Cesium-137		0.0548	+/-0.0199	0.0111	+/-0.0195	0.0238	pCi/g						
Cobalt-60	U	-0.00071	+/-0.0167	0.0143	+/-0.0164	0.0312	pCi/g						
Europium-152	U	0.00152	+/-0.0365	0.0314	+/-0.0358	0.0659	pCi/g						
Europium-154	U	-0.0137	+/-0.0518	0.0408	+/-0.0507	0.0888	pCi/g						
Europium-155	U	0.0172	+/-0.0379	0.036	+/-0.0371	0.0744	pCi/g						
Lead-212		0.426	+/-0.0508	0.0186	+/-0.0497	0.0387	pCi/g						
Lead-214		0.524	+/-0.0776	0.0221	+/-0.076	0.0465	pCi/g						
Manganese-54	U	-0.00573	+/-0.015	0.0124	+/-0.0147	0.0265	pCi/g						
Niobium-94	U	0.0067	+/-0.0125	0.0113	+/-0.0123	0.024	pCi/g						
Potassium-40		11.8	+/-1.04	0.126	+/-1.02	0.278	pCi/g						
Radium-226		0.507	+/-0.0733	0.0205	+/-0.0718	0.0438	pCi/g						
Silver-108m	U	-0.000148	+/-0.0126	0.0106	+/-0.0124	0.0224	pCi/g						
Thallium-208		0.154	+/-0.0314	0.011	+/-0.0307	0.0235	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	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-019I
Sample ID: 113278003

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Heather B. Cuccio

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-020I	Project:	YANK00504
Sample ID:	113278004	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	10-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	3.64%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.531	+/-0.159	0.0453	+/-0.156	0.0981	pCi/g		SRB	05/27/04	0916	335645	1
Americium-241	U	0.0183	+/-0.119	0.099	+/-0.117	0.204	pCi/g						
Bismuth-212		0.560	+/-0.239	0.101	+/-0.234	0.217	pCi/g						
Bismuth-214		0.457	+/-0.0945	0.0261	+/-0.0926	0.0553	pCi/g						
Cesium-134	U	0.00	+/-0.0235	0.0184	+/-0.0231	0.0389	pCi/g						
	UI												
Cesium-137		0.0382	+/-0.0188	0.0137	+/-0.0184	0.0292	pCi/g						
Cobalt-60	U	0.00188	+/-0.0168	0.0142	+/-0.0164	0.0313	pCi/g						
Europium-152	U	-0.0421	+/-0.0518	0.0378	+/-0.0507	0.0792	pCi/g						
Europium-154	U	0.0586	+/-0.0764	0.0524	+/-0.0749	0.113	pCi/g						
Europium-155	U	-5.680E-05	+/-0.0503	0.0449	+/-0.0493	0.0927	pCi/g						
Lead-212		0.409	+/-0.0574	0.022	+/-0.0562	0.0456	pCi/g						
Lead-214		0.473	+/-0.0806	0.0257	+/-0.079	0.054	pCi/g						
Manganese-54	U	0.0138	+/-0.0157	0.0146	+/-0.0154	0.0312	pCi/g						
Niobium-94	U	0.0162	+/-0.0141	0.0129	+/-0.0138	0.0275	pCi/g						
Potassium-40		12.6	+/-1.18	0.128	+/-1.16	0.284	pCi/g						
Radium-226		0.457	+/-0.0945	0.0261	+/-0.0926	0.0553	pCi/g						
Silver-108m	U	-0.00133	+/-0.0148	0.0128	+/-0.0145	0.027	pCi/g						
Thallium-208		0.147	+/-0.0371	0.0128	+/-0.0364	0.0273	pCi/g						

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-020I
Sample ID: 113278004

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-021I
Sample ID: 113278005
Matrix: Soil
Collect Date: 10-MAY-04
Receive Date: 19-MAY-04
Collector: Client
Moisture: 6.2%

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.772	+/-0.169	0.0495	+/-0.166	0.105	pCi/g		SRB	05/27/04	0916	335645	1
Americium-241	U	0.0995	+/-0.112	0.0646	+/-0.110	0.132	pCi/g						
Bismuth-212		0.460	+/-0.231	0.119	+/-0.227	0.250	pCi/g						
Bismuth-214		1.04	+/-0.126	0.0277	+/-0.124	0.0581	pCi/g						
Cesium-134	U	0.0231	+/-0.0252	0.0184	+/-0.0247	0.0385	pCi/g						
Cesium-137		0.264	+/-0.0436	0.0155	+/-0.0428	0.0326	pCi/g						
Cobalt-60	U	0.00274	+/-0.0205	0.0175	+/-0.0201	0.0374	pCi/g						
Europium-152	U	-0.0197	+/-0.0458	0.0394	+/-0.0449	0.0817	pCi/g						
Europium-154	U	-0.0371	+/-0.0615	0.0496	+/-0.0603	0.106	pCi/g						
Europium-155	U	0.0683	+/-0.0509	0.0476	+/-0.0499	0.0974	pCi/g						
Lead-212		0.674	+/-0.0725	0.023	+/-0.0711	0.0475	pCi/g						
Lead-214		1.09	+/-0.130	0.0278	+/-0.128	0.0578	pCi/g						
Manganese-54	U	0.000527	+/-0.0186	0.0159	+/-0.0183	0.0334	pCi/g						
Niobium-94	U	0.00879	+/-0.0156	0.014	+/-0.0153	0.0293	pCi/g						
Potassium-40		14.3	+/-1.28	0.144	+/-1.26	0.314	pCi/g						
Radium-226		1.04	+/-0.126	0.0277	+/-0.124	0.0581	pCi/g						
Silver-108m	U	0.0018	+/-0.0151	0.013	+/-0.0148	0.0272	pCi/g						
Thallium-208		0.226	+/-0.0393	0.0137	+/-0.0385	0.0287	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	MJM1	05/20/04	1515	334858

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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B Target analyte was detected in the sample as well as the associated blank.
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E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-021I
Sample ID: 113278005

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	BatchMtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-022I	Project:	YANK00504
Sample ID:	113278006	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	10-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	5.93%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.750	+/-0.162	0.0476	+/-0.159	0.103	pCi/g		SRB	05/27/04	0917	335645	1
Americium-241	U	-0.0724	+/-0.0927	0.073	+/-0.0908	0.150	pCi/g						
Bismuth-212		0.473	+/-0.249	0.114	+/-0.244	0.243	pCi/g						
Bismuth-214		0.551	+/-0.101	0.0275	+/-0.099	0.0581	pCi/g						
Cesium-134	U	0.00	+/-0.0217	0.0185	+/-0.0212	0.0391	pCi/g						
	UI												
Cesium-137		0.208	+/-0.0464	0.0164	+/-0.0455	0.0346	pCi/g						
Cobalt-60	U	0.00194	+/-0.0205	0.0175	+/-0.0201	0.038	pCi/g						
Europium-152	U	0.00173	+/-0.0483	0.0415	+/-0.0473	0.0866	pCi/g						
Europium-154	U	-0.0186	+/-0.0575	0.0472	+/-0.0563	0.103	pCi/g						
Europium-155	U	0.0251	+/-0.0489	0.0471	+/-0.0479	0.0968	pCi/g						
Lead-212		0.629	+/-0.0702	0.0256	+/-0.0688	0.0529	pCi/g						
Lead-214		0.673	+/-0.0997	0.0299	+/-0.0978	0.0623	pCi/g						
Manganese-54	U	0.0121	+/-0.0246	0.0149	+/-0.0241	0.0318	pCi/g						
Niobium-94	U	-0.00482	+/-0.0155	0.013	+/-0.0152	0.0276	pCi/g						
Potassium-40		13.5	+/-1.27	0.157	+/-1.24	0.343	pCi/g						
Radium-226		0.551	+/-0.101	0.0275	+/-0.099	0.0581	pCi/g						
Silver-108m	U	0.00148	+/-0.0168	0.0142	+/-0.0165	0.0297	pCi/g						
Thallium-208		0.195	+/-0.0457	0.0143	+/-0.0448	0.0303	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	MJM1	05/20/04	1515	334858

The following Analytical Methods were performed

Method	Description
1	EML HASL 300, 4.5.2.3

Notes:
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BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-022I
Sample ID: 113278006

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
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Address: Haddam Neck Plant
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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-023I	Project:	YANK00504
Sample ID:	113278007	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	10-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	6.85%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.566	+/-0.153	0.0499	+/-0.150	0.107	pCi/g		SRB	05/27/04	0917	335645	1
Americium-241	U	0.00279	+/-0.0696	0.0665	+/-0.0682	0.137	pCi/g						
Bismuth-212		0.754	+/-0.315	0.0966	+/-0.309	0.207	pCi/g						
Bismuth-214		0.772	+/-0.111	0.0253	+/-0.108	0.0536	pCi/g						
Cesium-134	U	0.0344	+/-0.0227	0.0193	+/-0.0223	0.0407	pCi/g						
Cesium-137		0.260	+/-0.0495	0.0155	+/-0.0485	0.0328	pCi/g						
Cobalt-60	U	0.00447	+/-0.019	0.0161	+/-0.0186	0.035	pCi/g						
Europium-152	U	-0.037	+/-0.0422	0.0362	+/-0.0414	0.0757	pCi/g						
Europium-154	U	0.0295	+/-0.0594	0.0516	+/-0.0582	0.111	pCi/g						
Europium-155	U	0.0421	+/-0.0462	0.0437	+/-0.0453	0.090	pCi/g						
Lead-212		0.575	+/-0.0648	0.0218	+/-0.0635	0.0451	pCi/g						
Lead-214		0.855	+/-0.108	0.0272	+/-0.106	0.0568	pCi/g						
Manganese-54	U	-0.00874	+/-0.0167	0.014	+/-0.0164	0.0298	pCi/g						
Niobium-94	U	0.00	+/-0.0254	0.0129	+/-0.0248	0.0273	pCi/g						
	UI												
Potassium-40		12.9	+/-1.14	0.115	+/-1.12	0.258	pCi/g						
Radium-226		0.772	+/-0.111	0.0253	+/-0.108	0.0536	pCi/g						
Silver-108m	U	0.00352	+/-0.0147	0.0131	+/-0.0144	0.0275	pCi/g						
Thallium-208		0.142	+/-0.0437	0.0141	+/-0.0429	0.0297	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	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-023I
Sample ID: 113278007

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-024I
Sample ID: 113278008
Matrix: Soil
Collect Date: 10-MAY-04
Receive Date: 19-MAY-04
Collector: Client
Moisture: 7.54%

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.652	+/-0.149	0.045	+/-0.146	0.0968	pCi/g		SRB	05/27/04	0918	335645	1
Americium-241	U	-0.00385	+/-0.0758	0.061	+/-0.0743	0.126	pCi/g						
Bismuth-212		0.558	+/-0.223	0.0905	+/-0.218	0.194	pCi/g						
Bismuth-214		0.560	+/-0.082	0.0245	+/-0.0804	0.0519	pCi/g						
Cesium-134	U	0.0347	+/-0.0281	0.017	+/-0.0275	0.0359	pCi/g						
Cesium-137		0.0748	+/-0.0275	0.0119	+/-0.027	0.0255	pCi/g						
Cobalt-60	U	0.0112	+/-0.0168	0.0151	+/-0.0165	0.0329	pCi/g						
Europium-152	U	0.0103	+/-0.0426	0.0367	+/-0.0417	0.0766	pCi/g						
Europium-154	U	0.00876	+/-0.0487	0.0418	+/-0.0477	0.0907	pCi/g						
Europium-155	U	0.0186	+/-0.0414	0.0393	+/-0.0406	0.081	pCi/g						
Lead-212		0.623	+/-0.0729	0.0249	+/-0.0715	0.0513	pCi/g						
Lead-214		0.743	+/-0.107	0.0251	+/-0.105	0.0525	pCi/g						
Manganese-54	U	-0.00156	+/-0.0197	0.0143	+/-0.0193	0.0303	pCi/g						
Niobium-94	U	0.00652	+/-0.0137	0.0121	+/-0.0134	0.0256	pCi/g						
Potassium-40		12.1	+/-1.13	0.0976	+/-1.11	0.222	pCi/g						
Radium-226		0.560	+/-0.082	0.0245	+/-0.0804	0.0519	pCi/g						
Silver-108m	U	0.0032	+/-0.0127	0.0115	+/-0.0124	0.0243	pCi/g						
Thallium-208		0.193	+/-0.0351	0.0137	+/-0.0344	0.029	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	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

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Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-0241
Sample ID: 113278008

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis.

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

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID:	9535-0002-025I	Project:	YANK00504
Sample ID:	113278009	Client ID:	YANK001
Matrix:	Soil		
Collect Date:	10-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.29%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.675	+/-0.144	0.0467	+/-0.141	0.0993	pCi/g		SRB	05/27/04	0918	335645	1
Americium-241	U	0.0453	+/-0.0913	0.0801	+/-0.0895	0.165	pCi/g						
Bismuth-212		0.420	+/-0.202	0.0998	+/-0.198	0.211	pCi/g						
Bismuth-214		0.552	+/-0.0736	0.0239	+/-0.0721	0.0502	pCi/g						
Cesium-134	U	0.0306	+/-0.0207	0.0155	+/-0.0203	0.0326	pCi/g						
Cesium-137		0.0376	+/-0.0211	0.0127	+/-0.0207	0.0268	pCi/g						
Cobalt-60	U	-0.012	+/-0.0201	0.0133	+/-0.0197	0.029	pCi/g						
Europium-152	U	0.0435	+/-0.0461	0.0309	+/-0.0452	0.0645	pCi/g						
Europium-154	U	0.0102	+/-0.0466	0.0401	+/-0.0457	0.0864	pCi/g						
Europium-155	U	0.000601	+/-0.0429	0.0397	+/-0.0421	0.0817	pCi/g						
Lead-212		0.704	+/-0.0764	0.0199	+/-0.0749	0.0411	pCi/g						
Lead-214		0.599	+/-0.0885	0.0225	+/-0.0867	0.047	pCi/g						
Manganese-54	U	0.0204	+/-0.020	0.0109	+/-0.0196	0.0234	pCi/g						
Niobium-94	U	0.00345	+/-0.0139	0.012	+/-0.0136	0.0252	pCi/g						
Potassium-40		11.7	+/-1.09	0.118	+/-1.07	0.259	pCi/g						
Radium-226		0.552	+/-0.0736	0.0239	+/-0.0721	0.0502	pCi/g						
Silver-108m	U	0.00935	+/-0.0109	0.0111	+/-0.0106	0.0232	pCi/g						
Thallium-208		0.211	+/-0.0338	0.0119	+/-0.0331	0.0251	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	MJM1	05/20/04	1515	334858

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 :

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.

GENERAL ENGINEERING LABORATORIES, LLC
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Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 9, 2004

Client Sample ID: 9535-0002-025I
Sample ID: 113278009

Project: YANK00504
Client ID: YANK001

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.

H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

Reviewed by

QUALITY CONTROL DATA

GENERAL ENGINEERING LABORATORIES, LLC

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

QC Summary

Client: Connecticut Yankee Atomic Power
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut

Contact: Mr. Pete Hollenbeck

Workorder: 113278

Report Date: June 9, 2004

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335645										
QC1200630679 113261001 DUP										
Actinium-228		1.12		1.03	pCi/g	8		(0% - 100%)	SRB	05/28/04 14:10
	Uncert:	+/-0.192		+/-0.265						
	TPU:	+/-0.188		+/-0.260						
Americium-241	U	-0.00372	U	0.0452	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0211		+/-0.101						
	TPU:	+/-0.0207		+/-0.0992						
Bismuth-212		0.757		0.706	pCi/g	7		(0% - 100%)		
	Uncert:	+/-0.236		+/-0.349						
	TPU:	+/-0.231		+/-0.342						
Bismuth-214		0.861		0.750	pCi/g	14		(0% - 100%)		
	Uncert:	+/-0.111		+/-0.156						
	TPU:	+/-0.109		+/-0.153						
Cesium-134	UUI	0.00	U	0.021	pCi/g	28		(0% - 100%)		
	Uncert:	+/-0.0304		+/-0.0336						
	TPU:	+/-0.0298		+/-0.0329						
Cesium-137		0.0619		0.0647	pCi/g	4		(0% - 100%)		
	Uncert:	+/-0.0273		+/-0.045						
	TPU:	+/-0.0267		+/-0.0441						
Cobalt-60	U	-0.0097	U	-0.0147	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0164		+/-0.0335						
	TPU:	+/-0.0161		+/-0.0329						
Europium-152	U	-0.02	U	-0.0444	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0339		+/-0.0762						
	TPU:	+/-0.0332		+/-0.0747						
Europium-154	U	-0.0434	U	-0.114	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0467		+/-0.0898						
	TPU:	+/-0.0458		+/-0.088						
Europium-155	U	0.0379	U	0.0147	pCi/g	88		(0% - 100%)		
	Uncert:	+/-0.0439		+/-0.0904						
	TPU:	+/-0.043		+/-0.0886						
Lead-212		1.04		1.11	pCi/g	6		(0% - 20%)		
	Uncert:	+/-0.104		+/-0.130						
	TPU:	+/-0.102		+/-0.127						
Lead-214		0.884		0.848	pCi/g	4		(0% - 20%)		
	Uncert:	+/-0.101		+/-0.157						
	TPU:	+/-0.0989		+/-0.154						
Manganese-54	U	0.0129	U	0.000783	pCi/g	177		(0% - 100%)		
	Uncert:	+/-0.0151		+/-0.0292						
	TPU:	+/-0.0148		+/-0.0286						
Niobium-94	U	0.0069	U	0.00677	pCi/g	2		(0% - 100%)		
	Uncert:	+/-0.0142		+/-0.0247						
	TPU:	+/-0.0139		+/-0.0242						

QC Summary

Workorder: 113278

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335645										
Potassium-40		13.4		14.5	pCi/g	7		(0% - 20%)		
	Uncert:	+/-1.01		+/-1.68						
	TPU:	+/-0.989		+/-1.65						
Radium-226		0.861		0.750	pCi/g	14		(0% - 100%)		
	Uncert:	+/-0.111		+/-0.156						
	TPU:	+/-0.109		+/-0.153						
Silver-108m	U	-0.000458	U	0.0122	pCi/g	N/A		(0% - 100%)		
	Uncert:	+/-0.0124		+/-0.0232						
	TPU:	+/-0.0122		+/-0.0228						
Thallium-208		0.328		0.330	pCi/g	1		(0% - 100%)		
	Uncert:	+/-0.0456		+/-0.0786						
	TPU:	+/-0.0446		+/-0.077						
QC1200630680 LCS										
Actinium-228			U	0.179	pCi/g					05/26/04 20:59
	Uncert:			+/-0.419						
	TPU:			+/-0.411						
Americium-241	23.4			24.6	pCi/g		105	(75%-125%)		
	Uncert:			+/-2.57						
	TPU:			+/-2.52						
Bismuth-212			U	0.259	pCi/g					
	Uncert:			+/-0.775						
	TPU:			+/-0.759						
Bismuth-214			U	-0.0716	pCi/g					
	Uncert:			+/-0.188						
	TPU:			+/-0.185						
Cesium-134			U	-0.0619	pCi/g					
	Uncert:			+/-0.114						
	TPU:			+/-0.112						
Cesium-137	9.25			10.1	pCi/g		108	(75%-125%)		
	Uncert:			+/-0.907						
	TPU:			+/-0.889						
Cobalt-60	14.4			16.1	pCi/g		112	(75%-125%)		
	Uncert:			+/-1.24						
	TPU:			+/-1.22						
Europium-152			U	-0.0131	pCi/g					
	Uncert:			+/-0.265						
	TPU:			+/-0.260						
Europium-154			U	-0.0114	pCi/g					
	Uncert:			+/-0.261						
	TPU:			+/-0.256						
Europium-155			U	0.0431	pCi/g					
	Uncert:			+/-0.397						
	TPU:			+/-0.389						
Lead-212			U	0.0117	pCi/g					
	Uncert:			+/-0.146						
	TPU:			+/-0.143						
Lead-214			U	0.0978	pCi/g					
	Uncert:			+/-0.195						

QC Summary

Workorder: 113278

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 335645										
	TPU:			+/-0.191						
Manganese-54			U	0.0392	pCi/g					
	Uncert:			+/-0.113						
	TPU:			+/-0.111						
Niobium-94			U	0.0209	pCi/g					
	Uncert:			+/-0.0911						
	TPU:			+/-0.0893						
Potassium-40			U	0.221	pCi/g					
	Uncert:			+/-0.937						
	TPU:			+/-0.918						
Radium-226			U	-0.0716	pCi/g			(75%-125%)		
	Uncert:			+/-0.188						
	TPU:			+/-0.185						
Silver-108m			U	-0.0111	pCi/g					
	Uncert:			+/-0.109						
	TPU:			+/-0.106						
Thallium-208			U	0.0727	pCi/g					
	Uncert:			+/-0.103						
	TPU:			+/-0.101						
QC1200630678 MB										
Actinium-228			U	0.0492	pCi/g					05/27/04 13:53
	Uncert:			+/-0.0628						
	TPU:			+/-0.0615						
Americium-241			U	0.0468	pCi/g					
	Uncert:			+/-0.0633						
	TPU:			+/-0.0621						
Bismuth-212			U	0.0796	pCi/g					
	Uncert:			+/-0.126						
	TPU:			+/-0.123						
Bismuth-214			U	0.0309	pCi/g					
	Uncert:			+/-0.0338						
	TPU:			+/-0.0331						
Cesium-134			U	-0.00394	pCi/g					
	Uncert:			+/-0.0181						
	TPU:			+/-0.0177						
Cesium-137			U	-0.00797	pCi/g					
	Uncert:			+/-0.0157						
	TPU:			+/-0.0154						
Cobalt-60			U	0.0138	pCi/g					
	Uncert:			+/-0.0185						
	TPU:			+/-0.0181						
Europium-152			U	-0.00373	pCi/g					
	Uncert:			+/-0.046						
	TPU:			+/-0.045						
Europium-154			U	-0.00821	pCi/g					
	Uncert:			+/-0.0458						
	TPU:			+/-0.0449						
Europium-155			U	0.0174	pCi/g					

QC Summary

Workorder: 113278

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 335645											
	Uncert:			+/-0.0391							
	TPU:			+/-0.0383							
Lead-212			U	1.540E-05	pCi/g						
	Uncert:			+/-0.0441							
	TPU:			+/-0.0432							
Lead-214			U	0.00759	pCi/g						
	Uncert:			+/-0.0371							
	TPU:			+/-0.0364							
Manganese-54			U	-0.0104	pCi/g						
	Uncert:			+/-0.0162							
	TPU:			+/-0.0158							
Niobium-94			U	0.0206	pCi/g						
	Uncert:			+/-0.0163							
	TPU:			+/-0.016							
Potassium-40			U	0.018	pCi/g						
	Uncert:			+/-0.379							
	TPU:			+/-0.372							
Radium-226			U	0.0309	pCi/g						
	Uncert:			+/-0.0338							
	TPU:			+/-0.0331							
Silver-108m			U	0.00369	pCi/g						
	Uncert:			+/-0.0142							
	TPU:			+/-0.0139							
Thallium-208			U	0.0187	pCi/g						
	Uncert:			+/-0.0174							
	TPU:			+/-0.017							

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

- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- U Indicates the target analyte was analyzed for but not detected above the detection limit.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- h Sample preparation or preservation holding time exceeded.

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QC Summary

Workorder: 113278

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

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

Attachment 2b
Hard-To-Detect Data
(Pages 6)

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-004F	Project:	YANK00504
Sample ID:	113283017	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.76%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	0.00106	+/-0.0577	0.0605	+/-0.0577	0.193	pCi/g		JAS1	06/10/04	0943	338561	1
Curium-242	U	0.0309	+/-0.0605	0.00	+/-0.0606	0.0836	pCi/g						
Curium-243/244	U	0.00107	+/-0.0579	0.0607	+/-0.0579	0.193	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	-0.0196	+/-0.0443	0.0464	+/-0.0443	0.148	pCi/g		JAS1	06/10/04	1250	338562	2
Plutonium-239/240	U	0.0204	+/-0.0399	0.00	+/-0.040	0.0552	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	-2.38	+/-7.27	6.18	+/-7.28	12.8	pCi/g		JAS1	06/11/04	0348	338563	3
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.574	+/-0.194	0.0678	+/-0.190	0.143	pCi/g		SRB	06/13/04	1236	335647	4
Americium-241	U	-0.00503	+/-0.0301	0.0252	+/-0.0295	0.0517	pCi/g						
Bismuth-212		0.434	+/-0.325	0.147	+/-0.319	0.309	pCi/g						
Bismuth-214		0.554	+/-0.103	0.0331	+/-0.101	0.0694	pCi/g						
Cesium-134	U	0.0137	+/-0.0257	0.0227	+/-0.0252	0.0476	pCi/g						
Cesium-137		0.107	+/-0.0396	0.0182	+/-0.0388	0.0384	pCi/g						
Cobalt-60	U	0.014	+/-0.0265	0.0225	+/-0.026	0.0479	pCi/g						
Europium-152	U	-0.00923	+/-0.0505	0.044	+/-0.0495	0.0915	pCi/g						
Europium-154	U	-0.038	+/-0.0733	0.0569	+/-0.0718	0.122	pCi/g						
Europium-155	U	0.0394	+/-0.0636	0.0423	+/-0.0623	0.087	pCi/g						
Lead-212		0.509	+/-0.0715	0.0251	+/-0.0701	0.0518	pCi/g						
Lead-214		0.584	+/-0.0959	0.0348	+/-0.094	0.0722	pCi/g						
Manganese-54	U	-0.00663	+/-0.0244	0.0205	+/-0.0239	0.043	pCi/g						
Niobium-94	U	0.0137	+/-0.0219	0.0186	+/-0.0215	0.0389	pCi/g						
Potassium-40		12.6	+/-1.13	0.163	+/-1.11	0.355	pCi/g						
Radium-226		0.554	+/-0.103	0.0331	+/-0.101	0.0694	pCi/g						
Silver-108m	U	0.00228	+/-0.0183	0.0159	+/-0.018	0.0331	pCi/g						
Thallium-208		0.148	+/-0.0561	0.0191	+/-0.0549	0.0399	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90		0.0569	+/-0.0188	0.0144	+/-0.0224	0.0307	pCi/g		HOB1	06/03/04	1843	335956	5
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid-HTD2,ALL FSS													
Tritium	U	-0.554	+/-4.23	3.59	+/-4.23	7.18	pCi/g		JLB1	06/11/04	2238	339628	6
Liquid Scint C14, Solid FSS													

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
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East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-004F
Sample ID: 113283017

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid FSS													
Carbon-14	U	0.0419	+/-0.113	0.0934	+/-0.113	0.194	pCi/g		MWX1	06/20/04	1106	342387	7
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	12.1	+/-41.5	15.8	+/-41.5	33.0	pCi/g		JLB1	06/23/04	1534	342541	9
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	13.2	+/-11.6	9.50	+/-11.6	19.3	pCi/g		JLB1	06/12/04	0835	339689	12
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	0.231	+/-0.208	0.171	+/-0.208	0.347	pCi/g		DAJ1	06/21/04	1334	339685	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AF1	05/21/04	1445	334896
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	83	(25%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	93	

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Connecticut Yankee Atomic Power
Address : Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-004F
Sample ID: 113283017

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			81						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			104		(25%-125%)				
Carrier/Tracer Recovery		Liquid Scint Fe55, Solid-ALL FS			87						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			61						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			57						

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

B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
h Sample preparation or preservation holding time exceeded.
The above sample is reported on a dry weight basis.
This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Sarah Kozlik.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company: Connecticut Yankee Atomic Power
Address: Haddam Neck Plant
362 Injun Hollow Road
East Hampton, Connecticut 06424
Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID:	9535-0002-006F	Project:	YANK00504
Sample ID:	113283018	Client ID:	YANK001
Matrix:	Soil	Vol. Recv.:	
Collect Date:	06-MAY-04		
Receive Date:	19-MAY-04		
Collector:	Client		
Moisture:	7.66%		

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241, Cm, Solid ALL FSS													
Americium-241	U	-0.0133	+/-0.0184	0.0446	+/-0.0185	0.164	pCi/g		JAS1	06/10/04	0943	338561	1
Curium-242	U	0.0322	+/-0.0631	0.00	+/-0.0632	0.0872	pCi/g						
Curium-243/244	U	0.00	+/-0.0544	0.00	+/-0.0544	0.0753	pCi/g						
Alphaspec Pu, Solid-ALL FSS													
Plutonium-238	U	0.0511	+/-0.0883	0.0571	+/-0.0885	0.182	pCi/g		JAS1	06/10/04	1250	338562	2
Plutonium-239/240	U	-0.012	+/-0.0518	0.0404	+/-0.0519	0.149	pCi/g						
Liquid Scint Pu241, Solid-ALL FSS													
Plutonium-241	U	2.17	+/-6.92	5.73	+/-6.92	11.8	pCi/g		JAS1	06/11/04	0419	338563	3
Rad Gamma Spec Analysis													
Gammaspec, Gamma, Solid-FSS GAM & ALL FSS													
Actinium-228		0.465	+/-0.175	0.0531	+/-0.171	0.114	pCi/g		SRB	06/13/04	1240	335647	4
Americium-241	U	-0.021	+/-0.0752	0.0618	+/-0.0737	0.128	pCi/g						
Bismuth-212		0.307	+/-0.201	0.123	+/-0.197	0.263	pCi/g						
Bismuth-214		0.481	+/-0.0982	0.0283	+/-0.0962	0.060	pCi/g						
Cesium-134	U	0.00	+/-0.0361	0.0214	+/-0.0354	0.0451	pCi/g						
	UI												
Cesium-137		0.208	+/-0.0426	0.0144	+/-0.0418	0.0308	pCi/g						
Cobalt-60	U	0.00449	+/-0.0214	0.018	+/-0.021	0.0391	pCi/g						
Europium-152	U	0.0204	+/-0.0462	0.0417	+/-0.0453	0.087	pCi/g						
Europium-154	U	0.00841	+/-0.0634	0.053	+/-0.0622	0.115	pCi/g						
Europium-155	U	0.0601	+/-0.0475	0.0445	+/-0.0465	0.0917	pCi/g						
Lead-212		0.513	+/-0.0629	0.023	+/-0.0616	0.0477	pCi/g						
Lead-214		0.572	+/-0.0875	0.0286	+/-0.0858	0.0599	pCi/g						
Manganese-54	U	0.0178	+/-0.0241	0.0154	+/-0.0236	0.033	pCi/g						
Niobium-94	U	-0.00903	+/-0.0179	0.0142	+/-0.0175	0.0301	pCi/g						
Potassium-40		14.7	+/-1.31	0.146	+/-1.29	0.324	pCi/g						
Radium-226		0.481	+/-0.0982	0.0283	+/-0.0962	0.060	pCi/g						
Silver-108m	U	-0.00853	+/-0.0158	0.0132	+/-0.0155	0.0279	pCi/g						
Thallium-208		0.166	+/-0.0389	0.0176	+/-0.0381	0.037	pCi/g						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, solid-ALL FSS													
Strontium-90		0.0309	+/-0.0149	0.012	+/-0.0162	0.026	pCi/g		HOB1	06/03/04	1844	335956	5
Rad Liquid Scintillation Analysis													
LSC, Tritium Dist, Solid-HTD2,ALL FSS													
Tritium	U	-1.57	+/-2.88	2.53	+/-2.89	5.07	pCi/g		JLB1	06/11/04	2311	339628	6

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Contact: Mr. Pete Hollenbeck
Project: Soils PO# 002332

Report Date: June 24, 2004

Client Sample ID: 9535-0002-006F
Sample ID: 113283018

Project: YANK00504
Client ID: YANK001
Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Liquid Scintillation Analysis													
Liquid Scint C14, Solid FSS													
Carbon-14	U	0.0548	+/-0.125	0.102	+/-0.125	0.213	pCi/g		MWX1	06/20/04	1208	342387	7
Liquid Scint Fe55, Solid-ALL FSS													
Iron-55	U	-46.5	+/-47.5	18.4	+/-47.5	38.5	pCi/g		JLB1	06/23/04	1606	342541	9
Liquid Scint Ni63, Solid-ALL FSS													
Nickel-63	U	13.4	+/-8.94	7.28	+/-8.94	14.8	pCi/g		JLB1	06/12/04	1007	339689	12
Liquid Scint Tc99, Solid-ALL FSS													
Technetium-99	U	0.226	+/-0.226	0.186	+/-0.226	0.378	pCi/g		DAJ1	06/19/04	0355	339685	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AF1	05/21/04	1445	334896
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	MJM1	05/20/04	1423	334890

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243	Alphaspec Am241, Cm, Solid ALL	84	(25%-125%)
Plutonium-242	Alphaspec Pu, Solid-ALL FSS	84	

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Project: YANK00504
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Vol. Recv.:

Parameter	Qualifier	Result	Uncertainty	LC	TPU	MDA	Units	DF	AnalystDate	Time	Batch Mtd.
Carrier/Tracer Recovery		Liquid Scint Pu241, Solid-ALL FS			87						
Carrier/Tracer Recovery		GFPC, Sr90, solid-ALL FSS			105		(25%-125%)				
Carrier/Tracer Recovery		Liquid Scint Fe55, Solid-ALL FS			87						
Carrier/Tracer Recovery		Liquid Scint Ni63, Solid-ALL FS			64						
Carrier/Tracer Recovery		Liquid Scint Tc99, Solid-ALL FS			54						

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Reviewed by

Attachment 2c
Sample and Scan Area Data
(4 Pages)

Survey Release Record Scan Area Results
Survey Unit 9535-0002

Survey Unit 9535-0002
Scan Area 1

Survey Location	Background (cpm)	Action Level (cpm)	Reading (gross cpm)	Log Date	Log Time	E-600 S/N	Probe S/N
9535-02-001-BC-001		0	6760	4/28/2004	9:43	1109	1009
9535-02-001-BC-002		0	8230	4/28/2004	10:00	1109	1009
9535-02-001-SC-001	8230	9525	8860	4/28/2004	10:07	1109	1009
9535-02-001-SC-002	8230	9525	7020	4/28/2004	10:11	1109	1009
9535-72-001-SC-003	8230	9525	7780	4/28/2004	10:14	1109	1009
9535-02-001-SC-004	8230	9525	6770	4/28/2004	10:16	1109	1009
9535-02-001-SC-005	8230	9525	7980	4/28/2004	10:19	1109	1009
9535-02-001-SC-006	8230	9525	8490	4/28/2004	10:21	1109	1009
9535-02-001-SC-007	8230	9525	8100	4/28/2004	10:25	1109	1009
9535-02-001-SC-008	8230	9525	7510	4/28/2004	10:28	1109	1009
9535-02-001-SC-009	8230	9525	6840	4/28/2004	10:32	1109	1009
9535-02-001-SC-010	8230	9525	8100	4/28/2004	10:36	1109	1009
9535-02-001-SC-011	8230	9525	7250	4/28/2004	10:39	1109	1009
9535-02-001-SC-012	8230	9525	7670	4/28/2004	10:43	1109	1009
9535-02-001-SC-013	8230	9525	7440	4/28/2004	10:46	1109	1009
9535-02-001-SC-014	8230	9525	7800	4/28/2004	10:50	1109	1009
9535-02-001-SC-015	8230	9525	7470	4/28/2004	10:54	1109	1009
9535-02-001-BC-003		0	7120	4/28/2004	14:13	1112	1005
9535-02-001-SC-016	7120	8324	6880	4/28/2004	14:19	1112	1005
9535-02-001-SC-017	7120	8324	7760	4/28/2004	14:23	1112	1005
9535-02-001-SC-018	7120	8324	6860	4/28/2004	14:27	1112	1005
9535-02-001-SC-019	7120	8324	7320	4/28/2004	14:31	1112	1005
9535-02-001-SC-020	7120	8324	6660	4/28/2004	14:37	1112	1005
9535-02-001-SC-021	7120	8324	7170	4/28/2004	14:42	1112	1005
9535-02-001-SC-022	7120	8324	6480	4/28/2004	14:49	1112	1005
9535-02-001-BC-004		0	7030	4/28/2004	14:58	1112	1005
9535-02-001-SC-023	7030	8227	7080	4/28/2004	15:03	1112	1005
9535-02-001-SC-024	7030	8227	7030	4/28/2004	15:08	1112	1005
9535-02-001-SC-025	7030	8227	6580	4/28/2004	15:16	1112	1005
9535-02-001-BC-005		0	6810	4/29/2004	8:28	1109	1009
9535-02-001-SC-026	6810	7988	6750	4/29/2004	8:36	1109	1009
9535-02-001-SC-027	6810	7988	7540	4/29/2004	8:42	1109	1009
9535-02-001-SC-028	6810	7988	6750	4/29/2004	8:48	1109	1009
9535-02-001-SC-029	6810	7988	7740	4/29/2004	8:57	1109	1009
9535-02-001-SC-030	6810	7988	6730	4/29/2004	9:05	1109	1009
9535-02-001-SC-032	6810	7988	6740	4/29/2004	9:12	1109	1009
9535-02-001-SC-031	6810	7988	7400	4/29/2004	9:13	1109	1009
9535-02-001-SC-032	6810	7988	6540	4/29/2004	9:20	1109	1009
9535-02-001-ER-001	6810	7988	11000	4/29/2004	9:25	1109	1009
9535-02-001-SC-033	6810	7988	7010	4/29/2004	9:32	1109	1009
9535-02-001-SC-034	6810	7988	7060	4/29/2004	9:38	1109	1009
9535-02-001-SC-035	6810	7988	7250	4/29/2004	9:46	1109	1009

Survey Release Record Scan Area Results
Survey Unit 9535-0002

Survey Location	Background (cpm)	Action Level (cpm)	Reading (gross cpm)	Log Date	Log Time	E-600 S/N	Probe S/N
9535-02-001-SC-036	6810	7988	6870	4/29/2004	10:06	1109	1009
9535-02-001-SC-037	6810	7988	7000	4/29/2004	10:12	1109	1009
9535-02-001-SC-038	6810	7988	6710	4/29/2004	10:20	1109	1009
9535-02-001-SC-039	6810	7988	7830	4/29/2004	10:27	1109	1009
9535-02-001-SC-040	6810	7988	6710	4/29/2004	10:36	1109	1009
9535-02-001-SC-040	6810	7988	6540	4/29/2004	10:42	1109	1009
9535-02-001-SC-041	6810	7988	7030	4/29/2004	10:43	1109	1009
9535-02-001-SC-042	6810	7988	7480	4/29/2004	10:49	1109	1009
9535-02-001-SC-043	6810	7988	7500	4/29/2004	10:55	1109	1009
9535-02-001-BC-006		0	8140	4/29/2004	14:01	1109	1009
9535-02-001-BC-007		0	7710	4/29/2004	14:02	1112	1005
9535-02-001-SC-044	8140	9428	7910	4/29/2004	14:10	1109	1009
9535-02-001-SC-045	7710	8963	6580	4/29/2004	14:11	1112	1005
9535-02-001-SC-046	8140	9428	6890	4/29/2004	14:15	1109	1009
9535-02-001-SC-047	7710	8963	7480	4/29/2004	14:16	1112	1005
9535-02-001-SC-046	8140	9428	6890	4/29/2004	14:15	1109	1009
9535-02-001-SC-047	7710	8963	7480	4/29/2004	14:16	1112	1005
9535-02-001-SC-048	8140	9428	6730	4/29/2004	14:19	1109	1009
9535-02-001-SC-049	7710	8963	5640	4/29/2004	14:20	1112	1005
9535-02-001-SC-050	8140	9428	6480	4/29/2004	14:24	1109	1009
9535-02-001-SC-051	7710	8963	6380	4/29/2004	14:24	1112	1005
9535-02-001-ER-002	8140	9428	11400	4/29/2004	14:31	1109	1009
9535-02-001-SC-052	8140	9428	7470	4/29/2004	14:33	1109	1009
9535-02-001-SC-053	7710	8963	6640	4/29/2004	14:34	1112	1005
9535-02-001-SC-054	8140	9428	6830	4/29/2004	14:38	1109	1009
9535-02-001-SC-055	7710	8963	6320	4/29/2004	14:40	1112	1005
9535-02-001-SC-056	8140	9428	7710	4/29/2004	14:43	1109	1009
9535-02-001-SC-057	7710	8963	6780	4/29/2004	14:43	1112	1005
9535-02-001-SC-058	8140	9428	6070	4/29/2004	14:47	1109	1009
9535-02-001-SC-059	7710	8963	6360	4/29/2004	14:48	1112	1005
9535-02-001-SC-060	8140	9428	7030	4/29/2004	14:50	1109	1009
9535-02-001-SC-061	7710	8963	6310	4/29/2004	14:51	1112	1005
9535-02-001-BC-001		0	6830	5/4/2004	10:06	1112	1005
9535-02-001-ER-001	6830	8009	7140	5/4/2004	10:28	1112	1005
9535-02-001-SC-069	6830	8009	6660	5/4/2004	10:37	1112	1005
9535-02-001-SC-070	6830	8009	7660	5/4/2004	10:38	1112	1005
9535-02-001-SC-071	6830	8009	7640	5/4/2004	10:45	1112	1005
9535-02-001-SC-072	6830	8009	7280	5/4/2004	10:51	1112	1005
9535-02-001-SC-073	6830	8009	6900	5/4/2004	10:56	1112	1005
9535-02-001-SC-073	6830	8009	7470	5/4/2004	10:59	1112	1005
9535-02-001-SC-075	6830	8009	7710	5/4/2004	11:02	1112	1005
9535-02-001-BC-002		0	6580	5/4/2004	13:27	1112	1005
9535-02-001-SC-076	6580	7738	6920	5/4/2004	13:33	1112	1005
9535-02-001-SC-077	6580	7738	7580	5/4/2004	13:37	1112	1005
9535-02-001-SC-078	6580	7738	6450	5/4/2004	13:41	1112	1005

Survey Release Record Scan Area Results
Survey Unit 9535-0002

Survey Location	Background (cpm)	Action Level (cpm)	Reading (gross cpm)	Log Date	Log Time	E-600 S/N	Probe S/N
9535-02-001-SC-079	6580	7738	6950	5/4/2004	13:46	1112	1005
9535-02-001-SC-080	6580	7738	7170	5/4/2004	13:50	1112	1005
9535-02-001-SC-081	6580	7738	6750	5/4/2004	13:54	1112	1005
9535-02-001-SC-082	6580	7738	6690	5/4/2004	14:01	1112	1005
9535-02-001-SC-083	6580	7738	7740	5/4/2004	14:04	1112	1005
9535-02-001-SC-084	6580	7738	6850	5/4/2004	14:09	1112	1005
9535-02-001-SC-085	6580	7738	7570	5/4/2004	14:14	1112	1005
9535-02-001-SC-086	6580	7738	7420	5/4/2004	14:19	1112	1005
9535-02-001-SC-087	6580	7738	7930	5/4/2004	14:23	1112	1005
9535-02-001-SC-088	6580	7738	7160	5/4/2004	14:26	1112	1005
9535-02-001-SC-089	6580	7738	6860	5/4/2004	14:31	1112	1005
9535-02-001-SC-090	6580	7738	7850	5/4/2004	14:35	1112	1005
9535-02-001-SC-091	6580	7738	7130	5/4/2004	14:40	1112	1005
9535-02-001-SC-092	6580	7738	6840	5/4/2004	14:43	1112	1005
9535-02-001-SC-093	6580	7738	7440	5/4/2004	14:47	1112	1005
9535-02-001-SC-094	6580	7738	7370	5/4/2004	14:52	1112	1005
9535-02-001-SC-095	6580	7738	7300	5/4/2004	14:58	1112	1005
9535-02-001-SC-096	6580	7738	7190	5/4/2004	15:03	1112	1005
9535-02-001-SC-097	6580	7738	7460	5/4/2004	15:07	1112	1005
9535-02-001-SC-098	6580	7738	7520	5/4/2004	15:10	1112	1005
9535-02-001-BC-003		0	6780	5/5/2004	13:59	1109	1007
9535-02-001-ER-003	6780	7955	8830	5/5/2004	14:21	1109	1007
9535-02-001-ER-004	6780	7955	8680	5/5/2004	14:33	1109	1007
9535-02-001-SC-101	6780	7955	7740	5/5/2004	14:36	1109	1007
9535-02-001-ER-005	6780	7955	8950	5/5/2004	14:41	1109	1007
9535-02-001-SC-102	6780	7955	7430	5/5/2004	14:45	1109	1007
9535-02-001-SC-103	6780	7955	7670	5/5/2004	14:52	1109	1007
9535-02-001-SC-104	6780	7955	7180	5/5/2004	14:56	1109	1007
9535-02-001-SC-105	6780	7955	7910	5/5/2004	15:00	1109	1007
9535-02-001-SC-107	6780	7955	7430	5/6/2004	8:48	1112	1005
9535-02-001-SC-109	6780	7955	6850	5/6/2004	8:53	1112	1005
9535-02-001-SC-111	6780	7955	7820	5/6/2004	8:57	1112	1005
9535-02-001-SC-113	6780	7955	7480	5/6/2004	9:01	1112	1005
9535-02-001-SC-115	6780	7955	7210	5/6/2004	9:05	1112	1005
9535-02-001-SC-117	6780	7955	6780	5/6/2004	9:09	1112	1005
9535-02-001-SC-119	6780	7955	6960	5/6/2004	9:12	1112	1005
9535-02-001-ER-006	6780	7955	9410	5/6/2004	9:19	1112	1005
9535-02-001-SC-121	6780	7955	6970	5/6/2004	9:23	1112	1005
9535-02-001-SC-123	6780	7955	6760	5/6/2004	9:27	1112	1005
9535-02-001-SC-125	6780	7955	6620	5/6/2004	9:32	1112	1005
9535-02-001-SC-127	6780	7955	7470	5/6/2004	9:41	1112	1005
9535-02-001-SC-129	6780	7955	7400	5/6/2004	9:45	1112	1005
9535-02-001-BC-004		0	7830	5/6/2004	8:40	1109	1009
9535-02-001-SC-106	7830	9093	7580	5/6/2004	8:47	1109	1009
9535-02-001-SC-108	7830	9093	7660	5/6/2004	8:52	1109	1009

Survey Release Record Scan Area Results
Survey Unit 9535-0002

Survey Location	Background (cpm)	Action Level (cpm)	Reading (gross cpm)	Log Date	Log Time	E-600 S/N	Probe S/N
9535-02-001-SC-110	7830	9093	8230	5/6/2004	8:56	1109	1009
9535-02-001-SC-112	7830	9093	7590	5/6/2004	9:00	1109	1009
9535-02-001-SC-114	7830	9093	8190	5/6/2004	9:03	1109	1009
9535-02-001-SC-116	7830	9093	7850	5/6/2004	9:08	1109	1009
9535-02-001-SC-118	7830	9093	6720	5/6/2004	9:11	1109	1009
9535-02-001-SC-120	7830	9093	7810	5/6/2004	9:22	1109	1009
9535-02-001-SC-122	7830	9093	8400	5/6/2004	9:25	1109	1009
9535-02-001-SC-124	7830	9093	7270	5/6/2004	9:31	1109	1009
9535-02-001-ER-007	7830	9093	11200	5/6/2004	9:38	1109	1009
9535-02-001-SC-126	7830	9093	7750	5/6/2004	9:40	1109	1009
9535-02-001-SC-128	7830	9093	6720	5/6/2004	9:43	1109	1009
9535-02-001-SC-130	7830	9093	7380	5/6/2004	9:47	1109	1009

Attachment 2d
Split Sample Assessment Forms
(2 Pages)

Split Sample Assessment Form

Survey Area#: 9535	Survey Unit #: 0002	Survey Unit Name: Southeast Landfill

Sample Plan or WPIR#: 24265-000-GEN-9535-01017-000

SML #: 9535-0002-008

Sample Description: Comparison of split samples collected from sample measurement location #008 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was 9535-0002 008F, the comparison sample was 9535-0002-008FS.

STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
Cs-137	1.28E-01	1.52E-02	8	0.6 1.66	1.33E-01	1.71E-02	1.04	Y

Comments/Corrective Actions: N/A

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

Resolution		Agreement Range	
4	7	0.50	2.00
8	15	0.60	1.66
16	50	0.75	1.33
51	200	0.80	1.25
> 200		0.85	1.18

Performed By:	Date:	Reviewed By:	Date:
	2-7-05		2/17/05

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

Split Sample Assessment Form

Survey Area#: 9535	Survey Unit #: 0002	Survey Unit Name: Southeast Landfill

Sample Plan or WPIR#: 24265-000-GEN-9535-01017-000

SML #: 9535-0002-009

Sample Description: Comparison of split samples collected from sample measurement location #009 and analyzed using gamma spectroscopy by an off-site vendor laboratory. The standard sample was 9535-0002 009F, the comparison sample was 9535-0002-009FS.

STANDARD					COMPARISON			
Radionuclide	Activity Value	Standard Error	Resolution	Agreement Range	Activity Value	Standard Error	Comparison Ratio	Acceptable (Y/N)
Cs-137	9.71E-02	1.55E-02	6	0.5 2	1.05E-01	1.56E-02	1.08	Y

Comments/Corrective Actions: N/A

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

Resolution		Agreement Range	
4	7	0.50	2.00
8	15	0.60	1.66
16	50	0.75	1.33
51	200	0.80	1.25
> 200		0.85	1.18

Performed By:	Date:	Reviewed By:	Date:
[signature]	2-7-05	[signature]	2/12/05

WPIR – Work Plan and Inspection Record

SML – Sample Measurement Location designation

Attachment 2e
Preliminary Data Review Form
(1 Page)

Preliminary Data Review Form - Samples for the Sign Test

Survey Unit:	9535- 0002
Survey Unit Name:	Southeast Landfill
Classification:	2
Survey Media:	Soil
Type of Survey:	Final Status Survey
Type of Measurement:	Radionuclide Specific
Number of Measurements:	15
Operational DCGL:	1

BASIC STATISTICAL QUANTITIES

	Cs-137	Co-60
Minimum Value:	6.09E-02	-9.46E-03
Maximum Value:	6.60E-01	3.08E-02
Mean:	1.69E-01	5.65E-03
Median:	1.35E-01	7.80E-03
Standard Deviation:	1.43E-01	1.03E-02

RANGE

Measurement standard deviation of the weighted sum(1): 4.59E-02

RADIONUCLIDE CONCENTRATION (pCi/g)

NUMBER	Cs-137	Identified?	Co-60	Identified?
9535-0002-001F	6.60E-01	Y	-9.46E-03	N
9535-0002-002F	1.46E-01	Y	7.98E-03	N
9535-0002-003F	1.95E-01	Y	7.80E-03	N
9535-0002-004F	1.07E-01	Y	1.40E-02	N
9535-0002-005F	8.50E-02	Y	3.08E-02	N
9535-0002-006F	2.08E-01	Y	4.49E-03	N
9535-0002-007F	1.35E-01	Y	1.05E-02	N
9535-0002-008F	1.28E-01	Y	3.38E-03	N
9535-0002-009F	9.71E-02	Y	9.68E-03	N
9535-0002-010F	2.26E-01	Y	9.94E-03	N
9535-0002-011F	1.40E-01	Y	-4.17E-03	N
9535-0002-012F	6.09E-02	Y	-8.86E-03	N
9535-0002-013F	8.88E-02	Y	-4.95E-03	N
9535-0002-014F	1.37E-01	Y	1.21E-02	N
9535-0002-015F	1.27E-01	Y	1.53E-03	N

(1) MARSSIM Section I.11.3 eq. (I-17) describes the use of the measurement standard deviation of the weighted sum when measured concentrations of the various radionuclides are assumed to be uncorrelated (i.e., there is not a fixed ratio between the concentrations)

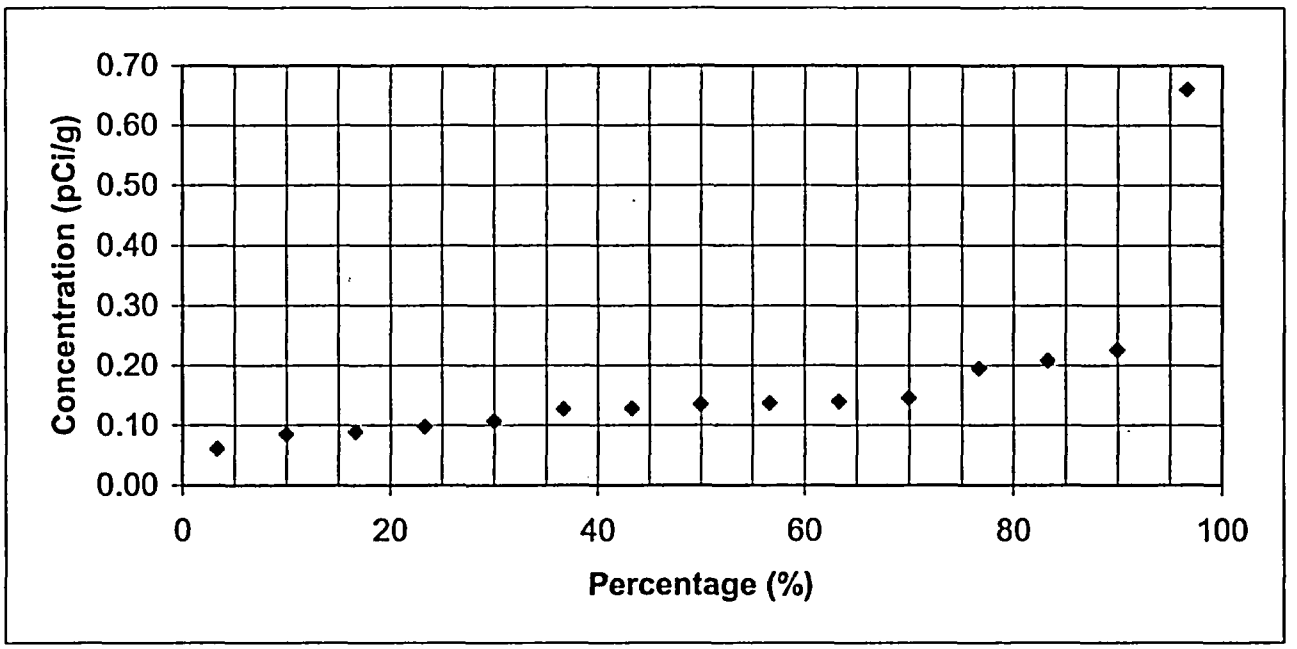
Performed By: _____ Date: 2-7-05

Independent Review: _____ Date: 2/17/05

Attachment 2f
Graphical Representation of Data
(4 Pages)

Quantile Plot For Cesium - 137

Survey Unit: 9535-0002
Survey Unit Name: Southeast Landfill
Mean: 1.69E-01 pCi/g



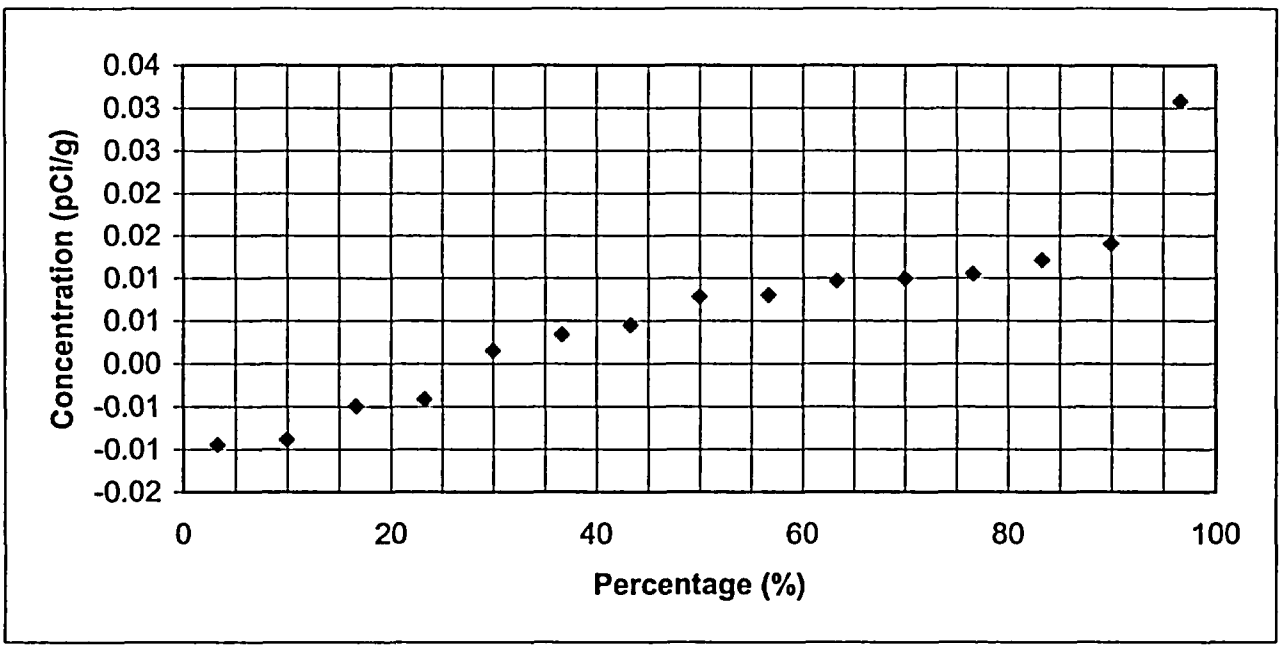
Cs-137	Rank	Percentage
6.09E-02	1	3 %
8.50E-02	2	10 %
8.88E-02	3	17 %
9.71E-02	4	23 %
1.07E-01	5	30 %
1.27E-01	6	37 %
1.28E-01	7	43 %
1.35E-01	8	50 %
1.37E-01	9	57 %
1.40E-01	10	63 %
1.46E-01	11	70 %
1.95E-01	12	77 %
2.08E-01	13	83 %
2.26E-01	14	90 %
6.60E-01	15	97 %

Prepared By: _____ Date: 2-7-05

Reviewed By: _____ Date: 2/17/05

Quantile Plot For Cobalt - 60

Survey Unit: 9535-0002
Survey Unit Name: Southeast Landfill
Mean: 5.65E-03 pCi/g



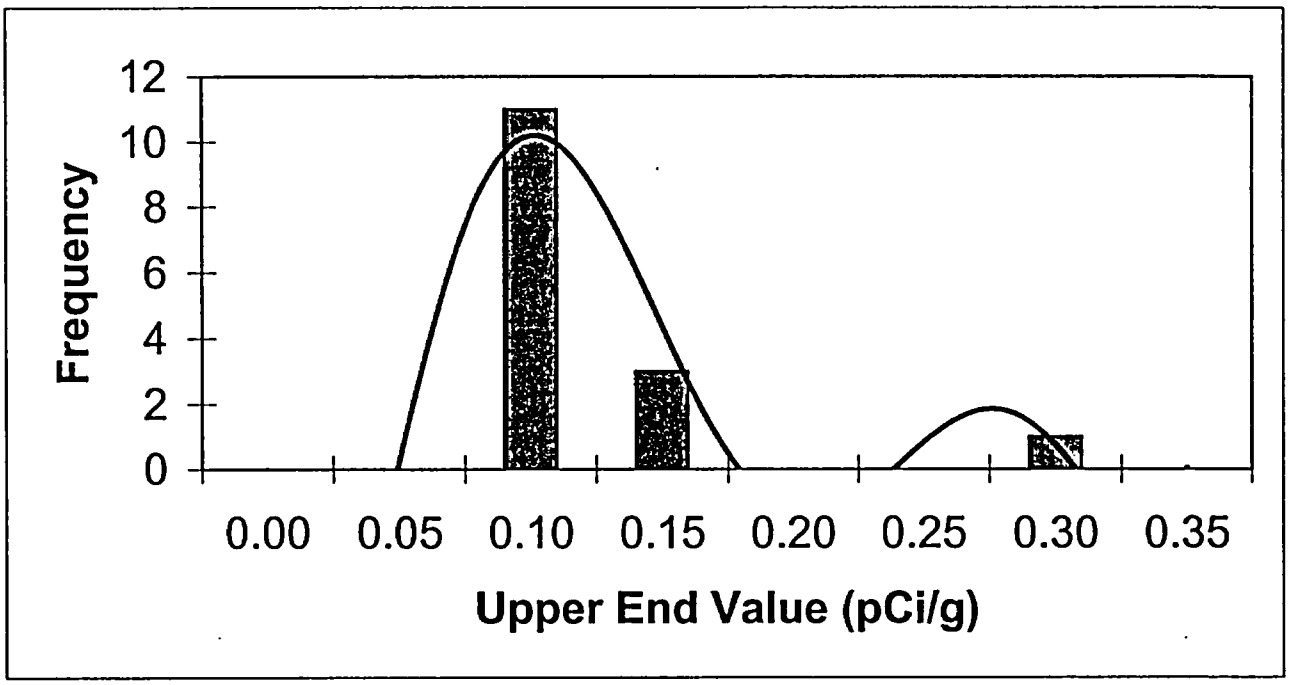
Co-60	Rank	Percentage
-9.46E-03	1	3 %
-8.86E-03	2	10 %
-4.95E-03	3	17 %
-4.17E-03	4	23 %
1.53E-03	5	30 %
3.38E-03	6	37 %
4.49E-03	7	43 %
7.80E-03	8	50 %
7.98E-03	9	57 %
9.68E-03	10	63 %
9.94E-03	11	70 %
1.05E-02	12	77 %
1.21E-02	13	83 %
1.40E-02	14	90 %
3.08E-02	15	97 %

Prepared By: _____ Date: 2-7-05

Reviewed By: _____ Date: 2/14/05

Frequency Plot For Cesium - 137

Survey Unit: 9535-0002
Survey Unit Name: Southeast Landfill
Mean: 0.169 pCi/g



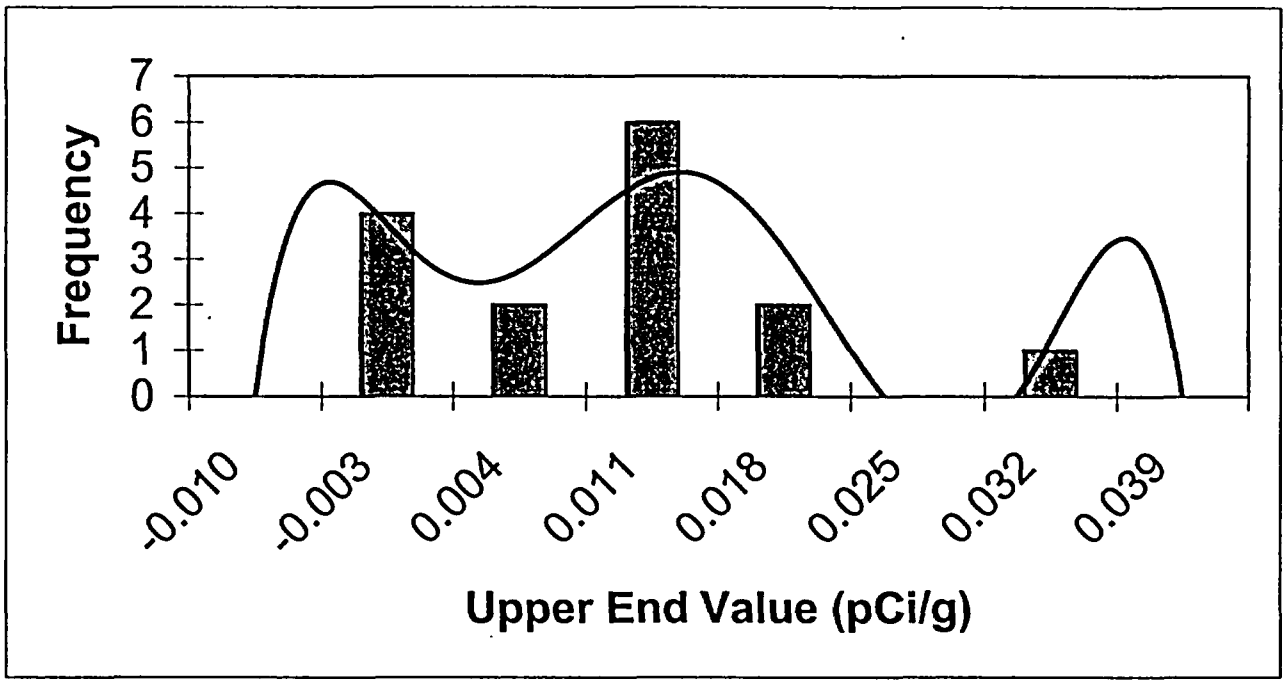
Upper End Value	Observation Frequency	Observation Frequency
0.00	0	0%
0.05	0	0%
0.10	11	73%
0.15	3	20%
0.20	0	0%
0.25	0	0%
0.30	1	7%
0.35	0	0%
Total	15	100%

Prepared By: _____ Date: 2-7-05

Reviewed By: _____ Date: 2/17/05

Frequency Plot For Cobalt - 60

Survey Unit: 9535-0002
Survey Unit Name: Southeast Landfill
Mean: 0.006 pCi/g



Upper End Value	Observation Frequency	Observation Frequency
-0.010	0	0%
-0.003	4	27%
0.004	2	13%
0.011	6	40%
0.018	2	13%
0.025	0	0%
0.032	1	7%
0.039	0	0%
Total	15	100%

Prepared By: _____ Date: 2-7-05

Reviewed By: _____ Date: 2/17/05

Attachment 2g
Sign Test Calculation
(1 Page)

Sign Test Calculation Sheet For Multiple Radionuclisdes

Survey Unit Number: 9535-0002

Survey Unit Name: Southeast Landfill

WP&IR#: 24265-000-GEN-9535-01017-000

Classification :	2	TYPE I (α error):0.05	TYPE I (β error):0.05

	Radionuclides:	Cs-137	Co-60	Unity
	Survey Design DCGL (pCi/g):	3.16	1.52	" 1 "
Results Cs-137	Results Co-60	Ws	1-Ws	Sign
6.60E-01	-9.46E-03	2.03E-01	7.97E-01	1
1.46E-01	7.98E-03	5.15E-02	9.49E-01	1
1.95E-01	7.80E-03	6.68E-02	9.33E-01	1
1.07E-01	1.40E-02	4.31E-02	9.57E-01	1
8.50E-02	3.08E-02	4.72E-02	9.53E-01	1
2.08E-01	4.49E-03	6.88E-02	9.31E-01	1
1.35E-01	1.05E-02	4.96E-02	9.50E-01	1
1.28E-01	3.38E-03	4.27E-02	9.57E-01	1
9.71E-02	9.68E-03	3.71E-02	9.63E-01	1
2.26E-01	9.94E-03	7.81E-02	9.22E-01	1
1.40E-01	-4.17E-03	4.16E-02	9.58E-01	1
6.09E-02	-8.86E-03	1.34E-02	9.87E-01	1
8.88E-02	-4.95E-03	2.48E-02	9.75E-01	1
1.37E-01	1.21E-02	5.13E-02	9.49E-01	1
1.27E-01	1.53E-03	4.12E-02	9.59E-01	1
			Number of Positive Differences (S+):	15

Critical Value: 11 Survey Unit: Meets Acceptance Criterion

Performed By: [signature] Date: 2-7-05

Independent Review: [signature] Date: 2/17/05

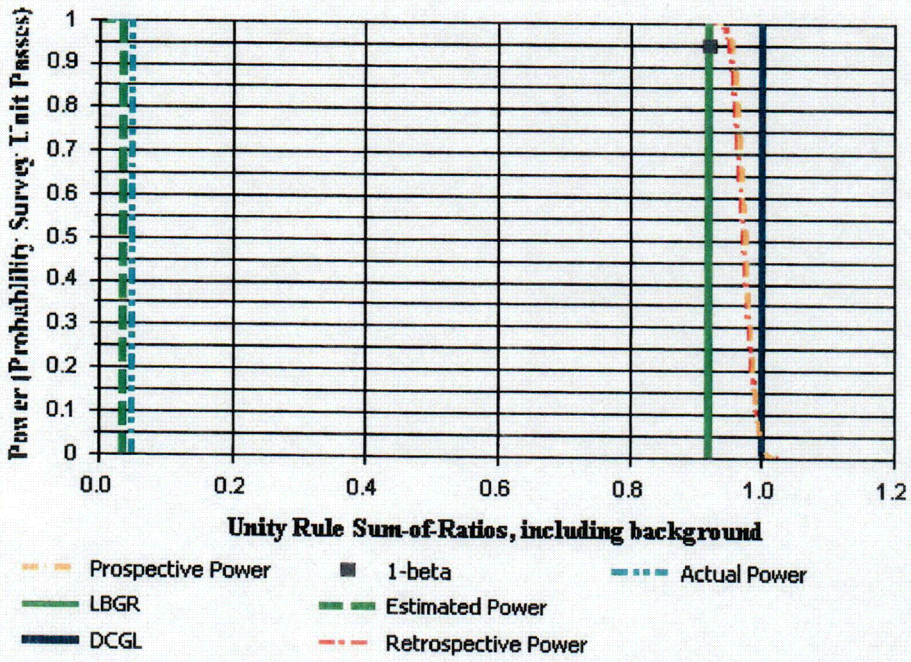
Attachment 2h
COMPASS DQA Surface Soil Report With Retrospective Power Curve
(3 Pages)

DQA Surface Soil Report

Assessment Summary

Site:	040825 FSS		
Planner(s):	Eric S Keyes		
Survey Unit Name:	050207 SU 9535-0002		
Report Number:	1		
Survey Unit Samples:	15		
Reference Area Samples:	0		
Test Performed:	Sign	Test Result:	Not Performed
Judgmental Samples:	0	EMC Result:	Not Performed
Assessment Conclusion:	***Reject Null Hypothesis (Survey Unit PASSES)***		

Retrospective Power Curve



2-7-05

2/17/05

C06

DQA Surface Soil Report

Survey Unit Data

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

Sample Number	Type	Co-60 (pCi/g)	Cs-137 (pCi/g)
9535-0002-001F	S	-0.01	0.66
9535-0002-002F	S	0.01	0.15
9535-0002-003F	S	0.01	0.2
9535-0002-004F	S	0.01	0.11
9535-0002-005F	S	0.03	0.08
9535-0002-006F	S	0	0.21
9535-0002-007F	S	0.01	0.14
9535-0002-008F	S	0	0.13
9535-0002-009F	S	0.01	0.1
9535-0002-010F	S	0.01	0.23
9535-0002-011F	S	0	0.14
9535-0002-012F	S	-0.01	0.06
9535-0002-013F	S	0	0.09
9535-0002-014F	S	0.01	0.14
9535-0002-015F	S	0	0.13

Modified Data (Unity Rule SOR)

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

Sample Number	Type	Sum-of-Ratios (SOR)
9535-0002-001F	S	0.2
9535-0002-002F	S	0.05
9535-0002-003F	S	0.07
9535-0002-004F	S	0.04
9535-0002-005F	S	0.05
9535-0002-006F	S	0.07
9535-0002-007F	S	0.05
9535-0002-008F	S	0.04
9535-0002-009F	S	0.04
9535-0002-010F	S	0.08
9535-0002-011F	S	0.04
9535-0002-012F	S	0.01
9535-0002-013F	S	0.02
9535-0002-014F	S	0.05
9535-0002-015F	S	0.04

DQA Surface Soil Report

Basic Statistical Quantities Summary

Statistic	Survey Unit	Background	DQO Results
Sample Number	15	N/A	N=15
Mean (SOR)	0.06	N/A	0.04
Median (SOR)	0.05	N/A	N/A
Std Dev (SOR)	0.04	N/A	0.04
High Value (SOR)	0.20	N/A	N/A
Low Value (SOR)	0.01	N/A	N/A